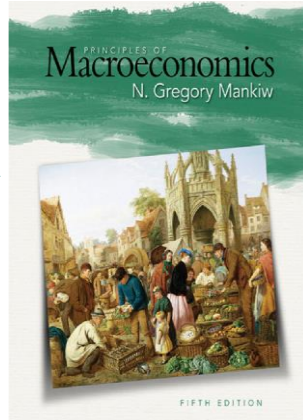


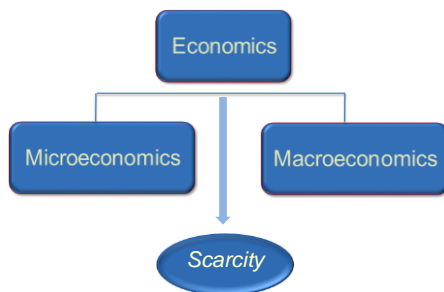
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CHAPTER 1 INTRODUCTION

1. The Birth of Macroeconomics



1. The Birth of Macroeconomics

- **Economics** study how society allocates scarce resources to meet unlimited demands of people.

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1. The Birth of Macroeconomics

- **Microeconomics:** shows consumers and firms how to maximize their benefits in the economy ($MU \geq MC$)



Supply > Demand



The whole economy's inefficiency



Macroeconomics

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2. What is Macroeconomics?

2.1. Definition

- **Macroeconomics** is the study of economy-wide phenomena, including inflation, unemployment and economic growth.

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2.2. Its Study

- The whole economy

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2.3. Contents for researching

- **National yield:** the most important measure of a nation's achievement (GDP, GNP).
- **Inflation:** is an increase in the overall level of prices.
- **Unemployment:** expresses the situation of people who are in working ages, able to work, seeking jobs but haven't found it yet.
- **International transactions:** Export - Import

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the ability to produce goods & services

*standard of living

tại sao nên đề cập đến value của goods hơn là numbers trong việc tính toán national yield?

- unit of currency

- unit of measurements

- example: GDP ~ total income of population

- the diversity of firms producing various goods

3. Positive versus normative analysis

- **Positive statements:** are statements that attempt to describe the world as it is.
 - Called descriptive analysis

Example: In April 2020, the price of oil sharply decreased at the level of - 40 USD/oilcan (seller pay money back to buyer due to the cost of storage,...).

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3. Positive versus normative analysis

- **Normative statement:** are statements about how the world should be.
 - Called prescriptive analysis
- Example: In response to deeply reducing price, firms should cut down on the supplies of oil

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3. Positive versus normative analysis

- An increase in the minimum wage will cause a decrease in employment among the least-skilled.

---> POSITIVE

- The income gains from a higher minimum wage are worth more than any slightly reductions in employment

---> NORMATIVE

3. Positive versus Normative Analysis

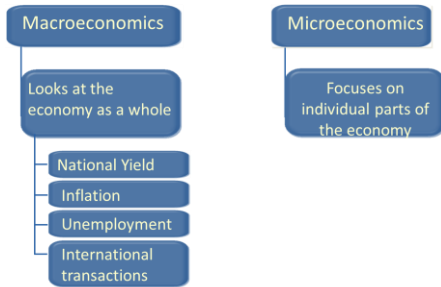
- State governments should be allowed to collect from tobacco companies the costs of treating smoking-relating illnesses among the poor.

---> NORMATIVE

- Higher federal budget deficits will cause interest rates to increase.

---> POSITIVE

4. Macroeconomics vs Microeconomics



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Macroeconomics vs. Microeconomics

- Should FPT invest in the technology of producing computers?
---> **Microeconomics**
- Does the increase in input costs cause CPI to increase in the upcoming period?
---> **Macroeconomics**
- How does the productivity affect GDP?
---> **Macroeconomics**

5. Macroeconomics System



(Paul. A. Samuelson)

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5. Macroeconomics System

Inputs:

- *External events:* include uneconomic events such as: weather, disaster, war... (out of control)
- *Internal events:* include behaviors and management tools of Government such as: fiscal policy, monetary policy...

different from microeconomics whose inputs are labors, capital, materials

5. Macroeconomics System

- **The black box:** where the interaction between AD and AS happens.
 - It decides the quality of outputs.
- **Outputs:** show the quality of the economy through economic growth, employment, trade balance...

6. Objectives and management tools



6. Objectives and Management tools

- Fiscal policy: G and T .
- Monetary policy: MS and $i \rightarrow Y$.
- Income policy: $P, W \rightarrow$ limit inflation.
- External economic policy: exchange rate, tariff and non-tariff $\rightarrow NX$ and BOP.

Summary

- Macroeconomics is the study of economy-wide phenomena, including inflation, unemployment and economic growth.
- Its study is the whole economy.
- Contents for researching include national yield, inflation, unemployment and trade balance.
- There are 2 main methodology of study such as positive economics and normative economics.

CHAPTER 2

MEASURING A NATION'S INCOME

CONTENTS

1. Gross Domestic Product (GDP)
2. Consumer Price Index (CPI)

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1. GROSS DOMESTIC PRODUCT (GDP)

- 1.1. Definition
- 1.2. Measuring GDP
- 1.3. Nominal GDP, real GDP and GDP deflator
- 1.5. GNP vs GDP
- 1.6. Other measures of national income

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1.1 Definition

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

fibre-cotton-cloth-clothes-final consumer

--> final good: clothes (why?-not be used in producing any items, straight-forward to final consumer)

--> intermediate good: fibre, cotton, cloth (why?- these are used as the inputs of other items)

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self-sufficient activities

underground activities - prohibited items + online selling

1.1 Definition

- **“GDP is the Market Value...”**

- └ Output is valued at market prices.

- **“...of All Final...”**

- └ It records only value of final goods, not intermediate goods.

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1.1 Definition

- **“ Final goods and services...”**

- └ Are the ones which are not used to produce another goods.

- └ They are only sold to final consumers.

- **“ Intermediate goods and services...”**

- └ Are the ones used to be inputs to produce another goods and **used up once time** in the production process (dùng hết - nếu tồn thì trở thành final goods - tính vào GDP)

1.1 Definition

- **“...Produced...”**

- └ It includes goods and services currently produced, not transactions involving goods produced in the past.

- **“... Within a Country...”**

- └ It measures the value of production within the geographic confines of a country.

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Honda Civic (1/2/2021 produced)

--- 1b ---- sold to A (6/2021)

---500m ----- sold to B (2/2023)

the time produced = the time sold - GDP final goods, newly produced

1.1 Definition

■ "...In a Given Period of Time"

└ It measures the value of production that takes place within a specific interval of time, usually a year or a quarter (three months).

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1.1 Definition

In short:

1. To compute the total value of different G&S, GDP uses market prices.
2. Intermediate goods are not counted in GDP.
3. The treatment of Inventories:
 - If produced G&S *spoil*, it does not alter GDP.
 - If produced G&S is put into *inventory*, GDP rises.

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1.1 Definition

In short:

4. Some G&S are not sold in the market and do not have market prices, we must use an estimate of their value.
5. Used goods are not included in GDP calculation.

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1.2 Measuring GDP

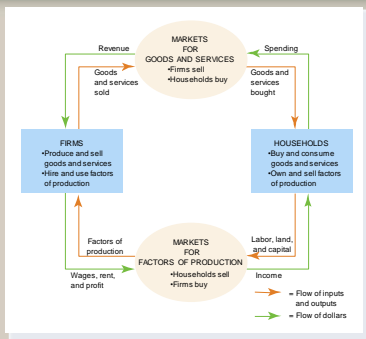
The model of money-goods circular in a simple economy.

■ Assumptions:

- There is no role of Government and foreign transactions.
- The economy has no savings.

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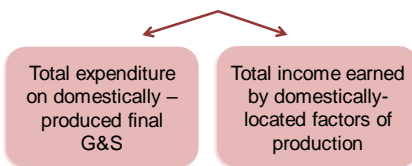
Figure 1 The Circular-Flow Diagram



1.2 Measuring GDP

The model of money-goods circular in a simple economy.

- For the economy as a whole, income must equal expenditure.
- There are 2 ways of computing GDP



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1.2. Measuring GDP Expenditure Approach

Components of expenditure:

■ Consumption (C):

└ the value of all G&S bought by households.
Includes:



usage
time >1y

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1.2. Measuring GDP Expenditure Approach

■ Investment (I):

└ Investment spending by businesses and households. Includes:

☞ **Business fixed investment:** Spending on plant and equipment that firms will use to produce other goods & services.

đầu tư cố định trong kinh doanh

☞ **Residential fixed investment:** Spending on housing units by consumers and landlords.

đầu tư cố định trong nhà ở

☞ **Inventory investment:** The change in the value of all firms' inventories.

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? gửi tiền tiết kiệm vào CB và mua/bán chứng khoán có được coi là các hoạt động đầu tư trong kinh tế học hay không?
--- Định nghĩa các hoạt động đầu tư trong kinh tế học là tạo ra sản phẩm mới cho nền kinh tế --> không phải hđ đầu tư vì không có hoạt động sản xuất hay sản phẩm, dịch vụ mới được tạo ra cho nền kinh tế (thúc đẩy tốc độ tăng trưởng). Nhưng dưới góc nhìn kinh doanh, đây là hoạt động đầu tư phát triển, tiền tạo ra tiền.

1.2. Measuring GDP Expenditure Approach

■ Government Purchases (G):

└ The spending on goods and services by local, state, and federal governments.

└ G **excludes** transfer payments.

(e.g, unemployment insurance payments).

why? ->

Những khoản chi tiêu của chính phủ ngoại trừ trợ cấp thất nghiệp,...(transfer payment)

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1.2. Measuring GDP Expenditure Approach

- **Net Exports (NX):** xuất khẩu ròng
 ↳ Exports minus imports. why?

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

- Where:
 $Y = \text{GDP}$ = the value of total output
 $C + I + G + NX$ = aggregate expenditure

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A question for you

Suppose a firm:

- Produces \$10 million worth of final goods
- But only sells \$9 million worth

Does this **violate** the

Expenditure = output identity?

Inventory = 1 million

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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.

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1.2. Measuring GDP Income/Factor Cost Approach

- It measures GDP by adding together all incomes paid by firms to households for services of the factors of production they hire.
- GDP is the sum of incomes in the economy during a given period.

$$\text{GDP} = W + i + R + \text{Pr} + \text{Dep} + \text{Ti}$$

income of H: wage, interest, Rent

income of F: profit, depreciation (lost of value)

income of G: tax from H --- personal income tax (direct tax)

F --- corporate income tax (indirect tax)

----- T=Td+Ti but we exclude Td in calculating GDP because it includes in the income of H

EXERCISE

- In 2017, Vietnam had statistic data according to the territory as following:

Gross Investment = 150 Consumption = 200	
Net Investment = 50	Government purchase = 100
Wages = 230	Interests = 25
Rent = 35	Indirect tax = 50
Profit = 60	Net factor income = -50
Export = 100	CPI 2002 = 120
Import = 50	CPI 2003 = 150

Find GDP in expenditure approach and income approach.

$$\text{E.A: GDP} = C + I + G + \text{NX}$$

$$= 200 + 150 + 100 + 50 = 500$$

$$\text{I.A: GDP} = W + i + R + \text{Pr} + \text{Ti} + \text{Dep} (\text{net factor income}) = 230 + 25 + 35 + 60 + 50 + 100 = 500$$

Dep = gross investment - net investment

gross investment vs. net investment

- gross inv: the total amount that the economy spends on new capital.

- net inv: total spending on new capital (extract all old cap)

- dep: lost of value of capital, tiền bù đắp vào sự hao mòn của tài sản

1.2. Measuring GDP Value Added Approach

- A firm's value added** is: the value of its output minus the value of the intermediate goods the firm used to produce that output.
- GDP is counted by** summing up VA of all firms in the economy together.

$$\text{GDP} = \sum \text{VA of firms} \\ = \sum (\text{G.O} - \text{I.I})$$

○ G.O : Gross Output

○ I.I : Intermediate Inputs

EXERCISE

- A farmer grows a bushel of wheat and sells it to a miller for \$1.00.
- The miller turns the wheat into flour and sells it to a baker for \$3.00.
- The baker uses the flour to make a loaf of bread and sells it to an engineer for \$6.00.
- The engineer eats the bread.

Compute:

- value added at each stage of production
- GDP

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1.3. Real Vs. Nominal GDP

- GDP is the value of all final goods and services produces.
- **Nominal GDP** measures these values using current prices.

$$\text{GDP}_n^t = \sum_{i=1}^n p_i^t q_i^t$$

- i : final item 1, 2..., n
- t : the year counting
- p : price of each item
- q : quantity of each item

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1.3. Real Vs. Nominal GDP

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

$$\text{GDP}_t^t = \sum_{i=1}^n p_i^0 q_i^t$$

$t = 0$: base year

exclude the impact of price

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1.3. Real Vs. Nominal GDP

- Changes in nominal GDP can be due to changes in:
 - Prices
 - Quantities of output produced
 - Changes in real GDP can only be due to changes in quantities.
- ☞ Used to calculate economic growth rate g

$$g = \frac{GDP_r^t - GDP_r^{t-1}}{GDP_r^{t-1}} \times 100$$

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1.3. GDP Deflator

- The **GDP deflator**
 - ↳ is a measure of the average price level in the economy.
 - ↳ It shows changes in price in the current year compared to the based year -> measure inflation.

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

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1.3. GDP Deflator Understanding the GDP deflator

Example with 3 goods

For good $i = 1, 2, 3$

P_{it} = the market price of good i in month t

Q_{it} = the quantity of good i produced in month t

$NGDP_t$ = Nominal GDP in month t

$RGDP_t$ = Real GDP in month t

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1.3. GDP Deflator

Understanding the GDP deflator

$$\text{GDP deflator} = 100 \times \frac{\text{NGDP}_t}{\text{RGDP}_t} = 100 \times \frac{P_{1t}Q_{1t} + P_{2t}Q_{2t} + P_{3t}Q_{3t}}{\text{RGDP}_t}$$

$$= 100 \times \left[\left(\frac{Q_{1t}}{\text{RGDP}_t} \right) P_{1t} + \left(\frac{Q_{2t}}{\text{RGDP}_t} \right) P_{2t} + \left(\frac{Q_{3t}}{\text{RGDP}_t} \right) P_{3t} \right]$$

The GDP deflator is a weighted average of prices.

The weight on each price reflects that good's relative importance in GDP.

Note that the weights change over time.

Table 1 Real and Nominal GDP

Year	Prices and Quantities			
	Price of Hot Dogs	Quantity of Hot Dogs	Price of Hamburgers	Quantity of Hamburgers
2001	\$1	100	\$2	50
2002	2	150	3	100
2003	3	200	4	150

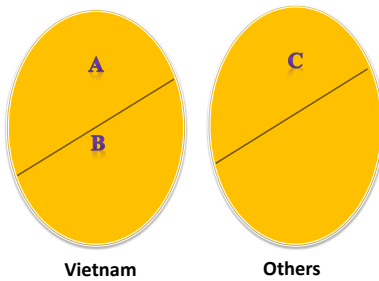
1.4. GROSS NATIONAL PRODUCT - GNP

■ Gross National Product (GNP)

L is the total value of all final goods and services produced by a nation's citizens in a given period of time

- GDP: location
- GNP: nationality

1.4. GNP Vs. GDP



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1.4. GNP Vs. GDP

- A: the value of goods and services produced by a nation's citizens within its territory.
- B: the value of goods and services produced by other nations' citizens within its territory.
- C: the value of goods and services produced by a nation's citizens in other nations' territory.

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1.4. GNP Vs. GDP

- $GDP = A + B \Rightarrow A = GDP - B$ (1)
- $GNP = A + C$ (2)

Replace (1) into (2):

$$GNP = GDP + (C - B)$$

\Leftrightarrow

$$\boxed{GNP = GDP + NFA \quad (3)}$$

With: NFA: Net Factor Income From Abroad: gap between income created by domestic citizens in foreign countries and income created by foreigners in domestic country.

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1.4. GNP Vs. GDP

- If $NFA > 0$: $GNP > GDP$
- If $NFA = 0$: $GNP = GDP$
- If $NFA < 0$: $GNP < GDP$

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1.5. Some other measures of national income

- Net National Product (NNP):
 $NNP = GNP - Dep$
- National Income (NI)
 $NI = NNP - Te$
- Personal Income (PI)
 $PI = NI - Pr_{retained\ earnings} + Tr$
- Disposable Income (Y_D)
 $Y_D = PI - T_{PI}$
 $Y_D = C + S$

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Disposable income: income remaining after deduction of taxes and other mandatory charges, available to be spent or saved as one wishes.

2. THE CONSUMER PRICE INDEX

2.1. Definition

2.2. How the BLS constructs the CPI

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2.1. Definition

■ **CPI**

- └ Is a measure of the overall cost of the goods and services bought by a typical consumer.
- └ Used to
 - Track changes in the household's cost of living.
 - Adjust many contracts for inflation (*i.e.* "COLAs")
 - Allow comparisons of dollar figures from different years

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2.2. How the BLS constructs the CPI

1. Survey consumers to determine composition of the typical consumer's "basket" of goods. quantity
2. Every month, collect data on prices of all items in the basket; compute cost of basket price
3. CPI in any month equals

$$100 \times \frac{\text{Cost of basket in that month}}{\text{Cost of basket in base period}}$$

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Basket of G&S for CPI in Vietnam during the period 2015-2020

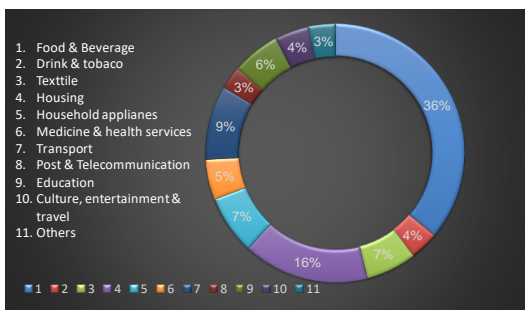


Table 1 Calculating the Consumer Price Index and the Inflation Rate: An Example

Step 1: Survey Consumers to Determine a Fixed Basket of Goods

4 hot dogs, 2 hamburgers

Table 1 Calculating the Consumer Price Index and the Inflation Rate: An Example

Step 2: Find the Price of Each Good in Each Year

Year	Price of Hot Dogs	Price of Hamburgers
2001	\$1	\$2
2002	2	3
2003	3	4

Table 1 Calculating the Consumer Price Index and the Inflation Rate: An Example

Step 3: Compute the Cost of the Basket of Goods in Each Year

2001	$(\$1 \text{ per hot dog} \times 4 \text{ hot dogs}) + (\$2 \text{ per hamburger} \times 2 \text{ hamburgers}) = \8
2002	$(\$2 \text{ per hot dog} \times 4 \text{ hot dogs}) + (\$3 \text{ per hamburger} \times 2 \text{ hamburgers}) = \14
2003	$(\$3 \text{ per hot dog} \times 4 \text{ hot dogs}) + (\$4 \text{ per hamburger} \times 2 \text{ hamburgers}) = \20

Table 1 Calculating the Consumer Price Index and the Inflation Rate: An Example

Step 4: Choose One Year as a Base Year (2001) and Compute the Consumer Price Index in Each Year

2001	$(\$8/\$8) \times 100 = 100$
2002	$(\$14/\$8) \times 100 = 175$
2003	$(\$20/\$8) \times 100 = 250$

Table 1 Calculating the Consumer Price Index and the Inflation Rate: An Example

Step 5: Use the Consumer Price Index to Compute the Inflation Rate from Previous Year

2002	$(175 - 100)/100 \times 100 = 75\%$
2003	$(250 - 175)/175 \times 100 = 43\%$

3. GDP deflator Vs. CPI

- The *GDP deflator* reflects the prices of all goods and services *produced domestically*, whereas...
- ...*CPI* reflects the prices of all goods and services *bought by consumers*.

3. GDP deflator Vs. CPI

- CPI compares the price of a *fixed basket* of goods and services to the price of the basket in the base year (only occasionally does the BLS change the basket)...
- ...whereas the *GDP deflator* compares the price of *currently produced* goods and services to the price of the same goods and services in the base year.

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4. CORRECTING ECONOMIC VARIABLES FOR THE EFFECTS OF INFLATION

- Price indexes are used to correct for the effects of inflation when comparing dollar figures from different times.

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4.1. Dollar Figures from Different Times

- Babe Ruth's salary in
 - 1931: \$80,000
 - 2001: \$800,000
 - CPI 1931 = 15.2
 - CPI 2001 = 177
- => Did his salary increase in 2001?

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4.1. Dollar Figures from Different Times

- Do the following to convert (inflate) Babe Ruth's wages in 1931 to dollars in 2001:

$$\begin{aligned} \text{Salary}_{2001} &= \text{Salary}_{1931} \times \frac{\text{Price level in 2001}}{\text{Price level in 1931}} \\ &= \$80,000 \times \frac{177}{15.2} \\ &= \$931,579 \end{aligned}$$

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Table 3 The Most Popular Movies of All Times, Inflation Adjusted

Film	Year of Release	Total Domestic Gross (in millions of 2001 dollars)
1. <i>Gone with the Wind</i>	1939	\$1,002
2. <i>Star Wars</i>	1977	866
3. <i>The Sound of Music</i>	1965	695
4. <i>E.T.: The Extra-Terrestrial</i>	1982	687
5. <i>Titanic</i>	1997	640
6. <i>The Ten Commandments</i>	1956	639
7. <i>Jaws</i>	1975	625
8. <i>Doctor Zhivago</i>	1965	591
9. <i>The Jungle Book</i>	1967	519
10. <i>Snow White and the Seven Dwarfs</i>	1937	518

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4.2. Indexation

- When some dollar amount is automatically corrected for inflation by law or contract, the amount is said to be *indexed* for inflation.

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4.3. Real and Nominal Interest Rates

- Interest represents a payment in the future for a transfer of money in the past.
- The *nominal interest rate* is the interest rate usually reported and not corrected for inflation.
 - It is the interest rate that a bank pays.
- The *real interest rate* is the nominal interest rate that is corrected for the effects of inflation.

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4.3. Real and Nominal Interest Rates

- You deposit \$1,000 for one year.
- Nominal interest rate was 10%.
- During the year inflation was 7%.

$$\begin{aligned} \text{Real interest rate} &= \text{Nominal interest rate} - \text{Inflation} \\ &= 10\% - 7\% = 3\% \end{aligned}$$

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CHAPTER SUMMARY

1. Gross Domestic Product (GDP) measures both total income and total expenditure on the economy's output of goods & services.
2. Nominal GDP values output at current prices; real GDP values output at constant prices. Changes in output affect both measures, but changes in prices only affect nominal GDP.
3. GDP is the sum of consumption, investment, government purchases, and net exports.

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CHAPTER SUMMARY

4. The overall level of prices can be measured by either

- the Consumer Price Index (CPI), the price of a fixed basket of goods purchased by the typical consumer, or
- the GDP deflator, the ratio of nominal to real GDP

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CHAPTER 3

AGGREGATE DEMAND AND AGGREGATE SUPPLY

CONTENTS

1. Aggregate demand curve.
2. Aggregate supply curve.
3. The short – run equilibrium.
4. The long – run equilibrium.
5. Economics fluctuation.

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1. THE AGGREGATE DEMAND (AD) CURVE

- The **aggregate - demand curve** shows the quantity of G&S that households, firms, the Government and customer abroad want to buy at each price level.

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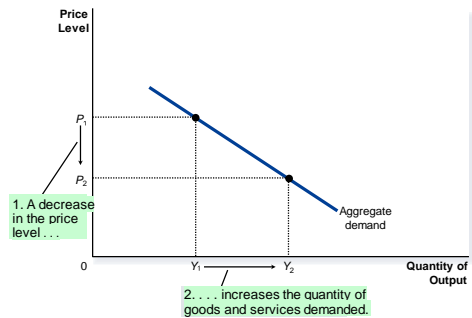
1. THE AGGREGATE DEMAND (AD) CURVE

- The 4 components of GDP (Y) contribute to the aggregate demand for G&S.

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

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Figure 1: The Aggregate-Demand Curve...



1.1. Why AD Curve Slopes Downward

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

- L Assume G fixed by Government policy.
- L To understand the slope of AD, we must consider how a change in P affects C , I and NX .

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1.1.1. The Wealth Effect (P and C)

- Suppose P falls
 - The dollar people hold buy more goods and services.
 - People feel wealthier.
- Result: C rises.

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1.1.2. The Interest-Rate Effect (P and I)

- Suppose P falls
 - Buying goods & services requires fewer dollars.
 - To reduce their holdings of money, people lend out.
 - This makes interest rates decrease.
- Result: I rises.

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1.1.3. The Exchange-Rate Effect (P and NX)

- Suppose **P** falls
 - US interest rates fall (the interest rate effect).
 - Domestic investors desire more foreign bonds.
 - Higher supply for \$ in foreign exchange market.
 - US exchange rate depreciates.
 - US imports fall and exports rise.
- Result: **NX** rises.

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P giảm i trong nước giảm (thấp hơn i của VN)
 dẫn tới việc đổ xô đầu tư vào nơi có lãi suất
 cao hơn

SUM UP

- There are 3 distinct but related reasons a fall in P level increases AD:
 1. Consumers are wealthier -> stimulates the demand for consumption goods.
 2. Interest rates fall -> stimulates the demand for investment goods.
 3. The currency depreciates -> stimulates the demand for NX.

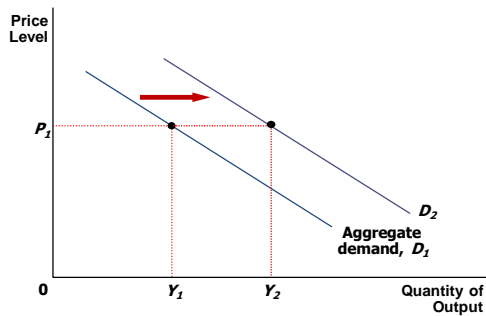
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1.2. Why AD Curve Might Shift

- Any event that changes C, I, G or NX – **except a change in P** – will shift the AD curve.

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1.2. Shifts in the AD Curve



1.2. Why AD Curve Might Shift

- Changes in **C**
 - Stock market boom/ crash
 - Tax hikes/cuts
- Changes in **I**
 - Firms buy new factories, equipment.
 - Expectations, optimism/pessimism.
 - Monetary policy, interest rates.

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1.2. Why AD Curve Might Shift

- Changes in **G**
 - State & local spending, e.g., roads, schools
- Changes in **NX**
 - Booms/recessions in countries that buy our exports.
 - Depreciation of CNY

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2. THE AGGREGATE SUPPLY (AS) CURVE

- The **aggregate – supply curve** shows the total quantity of goods and services that firms produce and sell at any given price level.

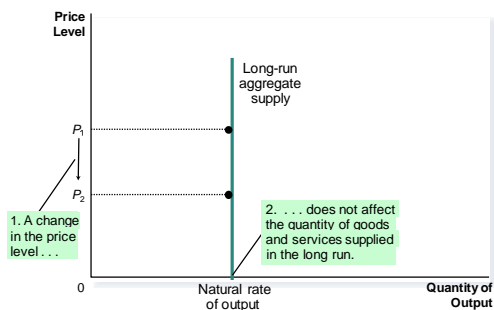
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2. THE AGGREGATE SUPPLY (AS) CURVE

- In the long run, the **AS** curve is *vertical*.
- In the short run, the **AS** curve is *upward sloping*.

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Figure 2: The Long-Run Aggregate-Supply Curve



2.1. The long – run Aggregate Supply Curve (LRAS)

- The **natural rate of output (Y^*)** is the amount of output the economy produces when unemployment is at its natural rate.
- Y^* is also called **potential output**.

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2.1.1. Why LRAS Is Vertical?

- **Y^*** determined by the economy's supplies of labor, capital, and natural resources and on the level of technology.
- An increase in **P** does not affect any of these, so it does not affect **Y^*** .

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2.1.2. Why the LRAS Curve Might Shift ?

- Any event that changes any of the determinants of Y^* will shift LRAS.

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2.1.2. Why the LRAS Curve Might Shift ?

- Changes in **L**
 - Immigration (VN)
 - Baby boomers retire (Japan)
- Changes in **K**
 - Investment in factories, equipment
- Changes in **T**
 - The invention of computer helps increase the productivity.

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BABY BOOMERS RETIRE IN JAPAN

- Population: 127.018.680 persons (2018)
- Natural population increase: **-345.863 persons**
- Male: 62.047.488
- Female: 64.971.192
- **Old population:** 65%
- *Highest rate of ages:* 40-50 years old
- **Decrease each year:** 20.000 persons

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BABY BOOMERS RETIRE IN JAPAN

- Be seriously lack of labors
 - 60% firms closed due to no successor
- ⇒ Policies Gov recommend:
- Give birth (award JPY 10millions/ the first child)
 - Support kindergarten system
 - Attract foreign labors

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DIGITAL ECONOMY IN VIETNAM

- **Trend in digital economy based on internet:**
 - Application of shopping on mobile becomes the most popular means to buy goods (72%, 2018).
 - Trade through social network continues developing.
 - Demands for selling online of individuals increase.

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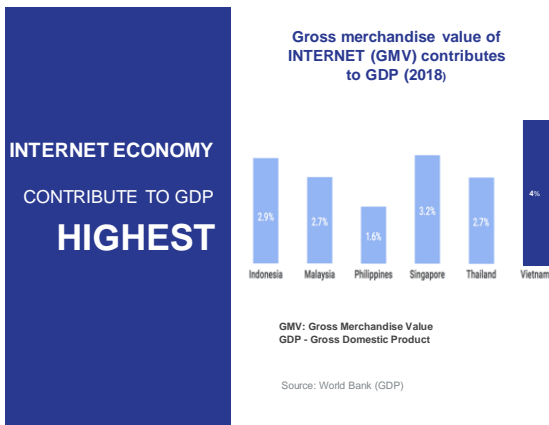
DIGITAL ECONOMY IN VIETNAM

\$9  **\$33**
Bills **Bills**

The value of internet economy
in Vietnam in 2018

The value of internet economy in
Vietnam in 2025

Source: e-conomy SEA [December 2018](#)



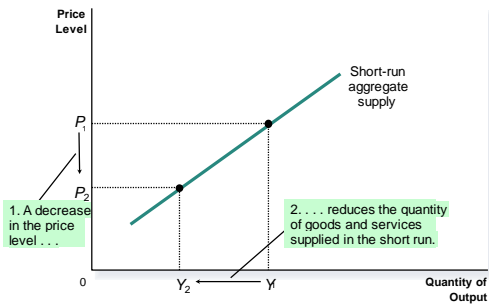
2.2. SHORT – RUN AGGREGATE SUPPLY CURVE (SRAS)

- The SRAS curve is upward sloping.

↳ $P \rightarrow AS$

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Figure 3 The Short-Run Aggregate-Supply Curve



2.2.1. Why the SRAS Slopes Upward?

The SRAS curve slopes up for two reasons: sticky input prices (like wages) and sticky output prices (also called “menu costs”).

116

2.2.1.1. The Sticky-Wage Theory

- Nominal wages are sticky in the short run, they adjust sluggishly.
 - *Due to labor contracts*
- Firms and workers set the nominal wage in advanced based on P_E - the price level they expect to prevail.

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2.2.1.2. The Sticky-Wage Theory

- If $P < P_E$: Production is less profitable, so firms decrease output and employment.
- Lower $P \rightarrow$ lower Y , so the **SRAS curve slopes upward**.

118

2.2.1.3. The Sticky-Price Theory

- Many prices are sticky in the short run.
 - Due to **menu costs**
 - Examples: cost of printing new menus
- Firms set sticky prices in advance based on P_E .

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2.2.1.3. The Sticky-Price Theory

- Suppose the Fed decreases the money supply unexpectedly. In the long run, P will fall.
- Some firms reduce their prices immediately.
- Some firms lag behind
- Hence, lower P is associated with lower Y

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2.2.1.4. The Misperceptions Theory

- Changes in the overall P level temporarily mislead suppliers about what is happening in the markets in which they sell their output.
- A lower price level causes misperceptions about relative prices.
 - These misperceptions induce suppliers to decrease the quantity of goods and services supplied.

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2.2.2. Why the SRAS Curve Might Shift

- Everything that shifts LRAS shifts SRAS, too (L , K , R & T)
- Also, P_E shifts SRAS:
 - If P_E rises, workers & firms set higher wages.
 - At any given actual P , production is less profitable, Y falls \Rightarrow SRAS shifts left.

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3. THE SHORT-RUN EQUILIBRIUM

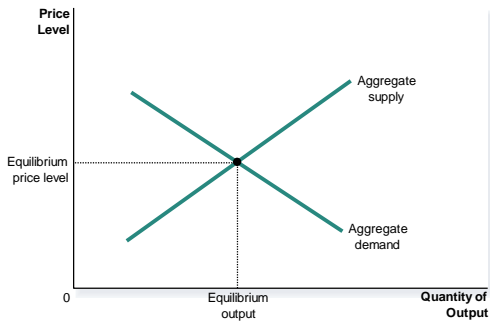


Figure 4: The Short-Run Equilibrium, **CASE 1**

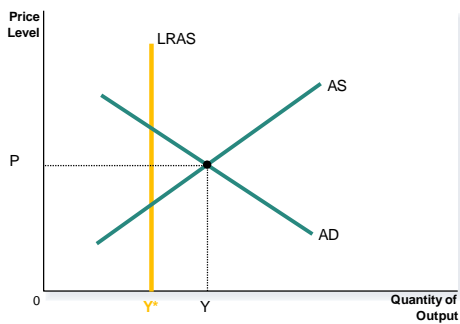


Figure 5: The Short-Run Equilibrium, **CASE 2**

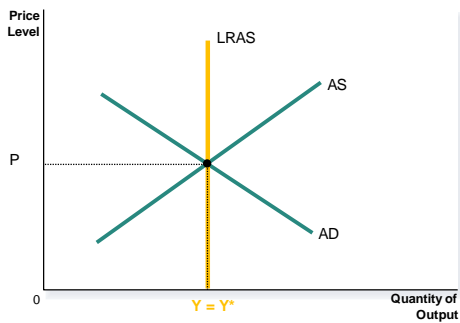
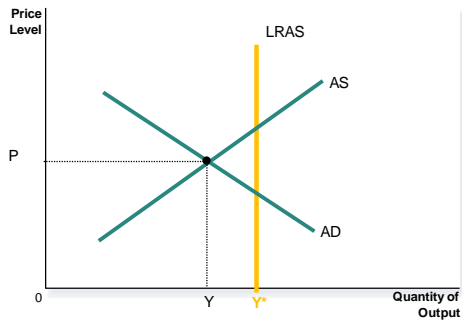
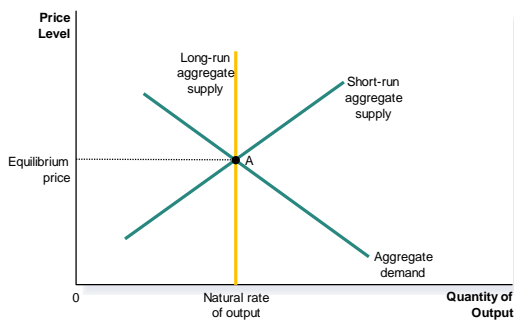


Figure 6: The Short-Run Equilibrium, **CASE 3**

4. THE LONG – RUN EQUILIBRIUM



5. ECONOMIC FLUCTUATIONS

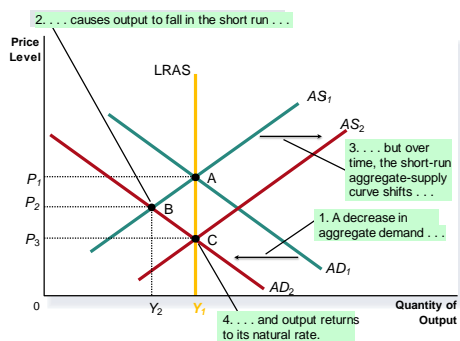
- Caused by events that shift the AD/ AS
- 4 steps to analyze economic fluctuations:
 1. Determine whether the event shifts AD/AS.
 2. Determine if curve shifts left or right.
 3. Use AD-AS diagram to see how the shift changes Y and P in the short run.
 4. Use AD-AS diagram to see how economy moves from new SR eq'm to new LR eq'm

5.1. The Effects of a Shift in AD

■ Event: stock market crash

1. Affects C, AD curve.
2. C falls => AD shifts left.
3. SR eq'm at B. P and Y lower, unemployment higher.
4. Over time, P_E falls, SRAS shifts right, until LR eq'm at C. Y and unemployment back at initial levels.

Figure 7: A Contraction in Aggregate Demand



5.2. The Effects of a Shift in SRAS

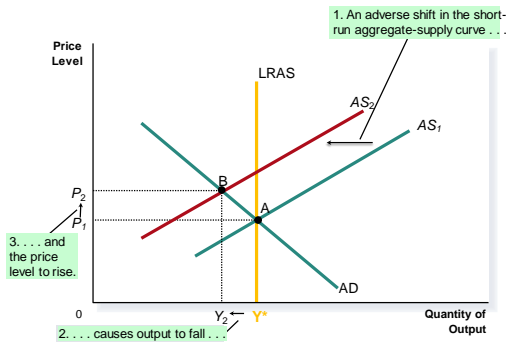
■ Event: oil prices rise (assume LRAS constant)

1. Increase costs, shifts SRAS.
2. SRAS shifts left.
3. SR eq'm at point B. P higher, Y lower, u higher. From A to B, **stagflation**, a period of falling output and rising prices.

COST OF OIL INCREASES LEADING TO THE INCREASE OF PRODUCTION,
THEREFORE

FIRMS TEND TO CUT DOWN ON THE SUPPLY

Figure 8: An Adverse Shift in Aggregate Supply



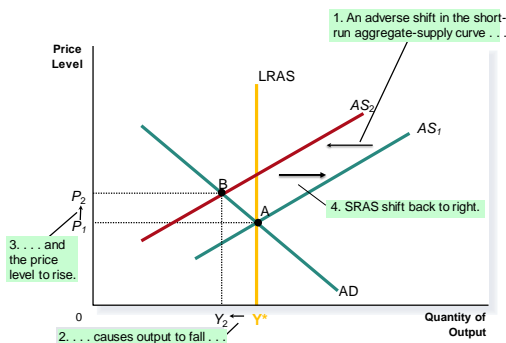
quantity down with price up -->> recession + inflation
=>> stagflation

-> solution: make the AS back at the initial position
(opposite with the case of stock market crash)
gov interfere: make impact on AD by increasing it
(higher inflation) - rescue recession
to make price back at the P1 from P2 -->> decrease AD
but the output decreases too (sacrify) -> rescue price level

Accommodating an Adverse Shift in SRAS

- If policymakers do nothing,
- 4. High employment causes wages to fall, SRAS shifts right, until LR eq'm at A.

Figure 9: An Adverse Shift in Aggregate Supply

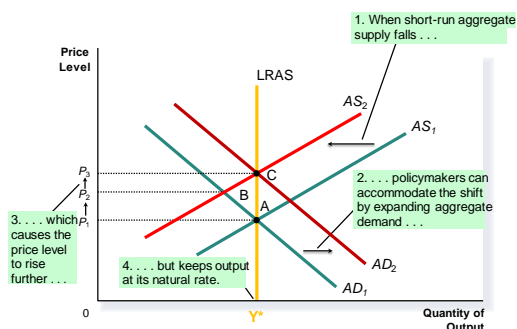


Accommodating an Adverse Shift in SRAS

- Or, policymakers could use fiscal or monetary policy to increase AD and accommodate the AS shift:

**Y back to Y^* but,
P permanently higher**

Figure 10: Accommodating an Adverse Shift in Aggregate Supply



EXERCISE

- Explain whether each of the following events will increase, decrease or have no effect on the AD, AS or both.
 - Households decide to save a larger share of their income.
 - Florida orange groves suffer a prolonged period of below-freezing temperatures.
 - Increased job opportunities overseas cause many people to leave the country.

1. With the case of households deciding to save a larger share of their income, the AD would shift to the left. There is less people who tend to spend their income buying goods and services.

2. With the case of florida orange groves suffer a prolonged period of below-freezing temperatures, AS would shift to the left.

3. labour decreases -> AS shifts to the left
consumption decreases -> AD shifts to the left
AS < AD
AS > AD
AS = AD

EXERCISE

- For each of the following events, explain the short-run and long-run effects on output and the price level, assuming policymakers take no action.
 1. The stock market declines sharply, reducing consumers' wealth
 2. The federal government increases spending on national defense
 3. A recession overseas causes foreigners to buy fewer US goods.

CHAPTER SUMMARY

- All societies experience short-run economic fluctuations around long-run trends.
- These fluctuations are irregular and largely unpredictable.
- When recessions occur, real GDP and other measures of income, spending, and production fall, and unemployment rises.

CHAPTER SUMMARY

- Economists analyze short-run economic fluctuations using the aggregate demand and aggregate supply model.
- According to the model of aggregate demand and aggregate supply, the output of goods and services and the overall level of prices adjust to balance aggregate demand and aggregate supply.

CHAPTER SUMMARY

- The aggregate-demand curve slopes downward for three reasons: a wealth effect, an interest rate effect, and an exchange rate effect.
- Any event or policy that changes consumption, investment, government purchases, or net exports at a given price level will shift the aggregate-demand curve.

CHAPTER SUMMARY

- In the long run, the aggregate supply curve is vertical.
- The short-run, the aggregate supply curve is upward sloping.
- There are three theories explaining the upward slope of short-run aggregate supply: the misperceptions theory, the sticky-wage theory, and the sticky-price theory.

CHAPTER SUMMARY

- One possible cause of economic fluctuations is a shift in aggregate demand.
- A second possible cause of economic fluctuations is a shift in aggregate supply.
- Stagflation is a period of falling output and rising prices.

CHAPTER 4

AGGREGATE DEMAND AND FISCAL POLICY

1. KEYNESIAN MODEL

▪ Purposes:

1. Explain factors on which Aggregate Planned Expenditure depend.
2. Identify the equilibrium output and the adjustment mechanism.
3. Analyze the impact of a change in G & T on the equilibrium output.

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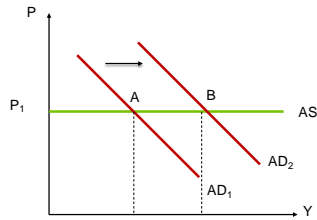
1. KEYNESIAN MODEL

▪ Assumptions:

1. P & w unchanged in the short-run.
2. Many resources have not used in the economy \rightarrow SAS is horizontal.
 - Imply that AD will decide the output.
3. Exclude the impact of the monetary market on goods market.

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1. KEYNESIAN MODEL



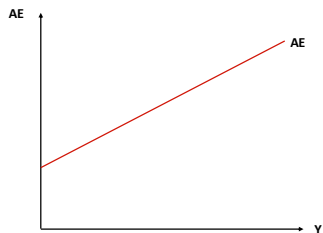
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1.1. AGGREGATE EXPENDITURE

- **Aggregate expenditure (AE)** refers to aggregate planned expenditure on consumption, Investment, public G&S and net export.
- **AE curve** shows the relationship between aggregate expenditure and aggregate income of all members in the economy.

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1.1. AGGREGATE EXPENDITURE



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1.1. AGGREGATE EXPENDITURE

■ Features:

- Slope upward: $Y \uparrow \rightarrow AE \uparrow$
- $Y \uparrow 1$ unit $\rightarrow AE \uparrow$ but less than 1 unit.
- When $Y = 0$, $AE > 0$.

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What will decide the equilibrium output in the short- run when the economy still has unused resources?

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1.2. The income – output identity

GDP \equiv National Income \equiv Y

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1.3. The macroeconomics equilibrium in the short-run based on the AE model

$$AE = GDP = Y$$

The total output of the economy equates the total income, equates the total expenditure of the economy.

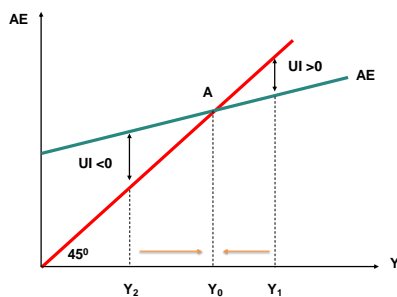
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1.3. The macroeconomics equilibrium in the short-run based on the AE model

- **45° curve:** combine points at which total income equates total expenditure.
- **AE (APE) curve:** shows aggregate planned expenditure at given income level.

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Figure 1: The macroeconomics equilibrium in the short-run based on the AE model



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1.3. The macroeconomics equilibrium in the short-run based on the AE model

- At Y_1 : $AE < Y$, $UI > 0 \rightarrow \downarrow Y$
- At Y_2 : $AE > Y$, $UI < 0 \rightarrow \uparrow Y$

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1.3. The macroeconomics equilibrium in the short-run based on the AE model

- Planned Inventory (PI):** goods that firms actively preserve to guarantee for their more effective business.
Ex: alternative accessories, products for unexpected demands.
- Unplanned Inventory (UI):** goods produced but not sold out.

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2. THE EQUILIBRIUM OUTPUT IN THE SIMPLE ECONOMY

- A simple economy includes:



Households



Firms

$$AE = C + I$$

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2.1. Consumption - C

- C is the total expenditure for final goods and services of households.
- **Some factors affect C:**
 - Current disposable income
 - Wealth (including stocks, bonds...)
 - Estimated income in future
 - Social factors (psychology, living customs...)

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2.1. Consumption - C

$$C = \bar{C} + MPC \cdot Y_D$$

- Y_D : disposable income
- \bar{C} : consumption volume does not depend on income (*minimum consumption* or *autonomous consumption*)
- MPC: marginal propensity to consume ($0 < MPC < 1$)

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2.1. Consumption - C

$$MPC = \frac{\Delta C}{\Delta Y_D}$$

- **Meaning:** If there is an extra increase in disposable income, how much consumption tends to increase.
- **Eg:** If $MPC = 0.8$ and income rises \$100, C rises ?

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2.1. Consumption - C

- $Y_D = 0$: $C + S = 0$
 $\bar{C} + S = 0$
 $\Leftrightarrow \mathbf{S = -\bar{C} = \bar{S} \text{ (4.1)}}$
- Y_D : $\Delta Y_D = \Delta C + \Delta S$
 $\Leftrightarrow 1 = \frac{\Delta C}{\Delta Y_D} + \frac{\Delta S}{\Delta Y_D}$
 $\Leftrightarrow \mathbf{1 = MPC + MPS \text{ (4.2)}}$

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Saving - S

- $S = Y_D - C$
 $\Leftrightarrow S = Y_D - (\bar{C} + MPC \cdot Y_D)$
 $\Leftrightarrow S = -\bar{C} + (1 - MPC)Y_D$
 $\Leftrightarrow \mathbf{S = \bar{S} + MPS \cdot Y_D \text{ (4.3)}}$
- MPS: marginal propensity to save
 $(0 < MPS < 1)$

$$\mathbf{MPS = \frac{\Delta S}{\Delta Y_D}}$$

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2.2. Investment - I

- The spending on capital equipment, inventories, and structures, including new housing.
- **Some factors affect I:**
 - Demands for goods created by new investment: $D \uparrow \rightarrow I \uparrow$
 - Investment costs: $i \uparrow \Rightarrow I \downarrow$
 - Investors' expectation
- **Investment Function:** $I = \bar{I}$

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2.3. The equilibrium output in the simple economy

▪ $AE = C + I = \bar{C} + \bar{I} + MPC \cdot Y$ ($Y = Y_D$)

▪ $AE = Y \Leftrightarrow \bar{C} + \bar{I} + MPC \cdot Y = Y$

\Leftrightarrow

$$Y = \frac{\bar{C} + \bar{I}}{1 - MPC}$$

- $\bar{C} + \bar{I}$: autonomous expenditure of the economy
- $m = \frac{1}{1 - MPC}$: expenditure multiplier of the economy ($m > 1$)

chỉ tiêu tăng lên 1 đơn vị sản lượng của nền kinh tế tăng lên nhiều

2.3. The equilibrium output in the simple economy

- Expenditure multiplier reflects changes in yield when autonomous expenditure changes in 1 unit.

mua 1 ly cf 20k -> san luong cua nen kinh te tang >20k
vi $\Delta Y = m \cdot \Delta C (20k)$

$\Delta C = 20k$

ΔC_1 for clothes = $MPC \cdot \Delta C$

ΔC_2 for seller = $MPC \cdot (MPC \cdot \Delta C)$

...

3. THE EQUILIBRIUM OUTPUT IN A CLOSED ECONOMY WITH GOVERNMENT

- A closed economy with government includes:



$$AE = C + I + G$$

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3.1. The role of Government

- $G = \bar{G}$
- $T = T_x - T_r$
 - T : net taxes
 - T_x : taxes collected from households & firms
 - T_r : transfer payment

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3.1. The role of Government

- **Case 1: $T = \bar{T}$** fixed tax paid for the gov
 $C = \bar{C} + MPC (Y - \bar{T})$ ($Y_D = Y - \bar{T}$)
 $AE = C + I + G$
 $= \bar{C} + \bar{I} + \bar{G} + MPC (Y - \bar{T})$
- **Case 2: $T = t \cdot Y$**
 $C = \bar{C} + MPC \cdot (1-t)Y$ ($Y_D = Y - tY$)
 $AE = C + I + G$
 $= \bar{C} + \bar{I} + \bar{G} + MPC (1-t)Y$

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3.2. The equilibrium output in a closed economy with government

- **Case 1: $T = \bar{T}$**
 $AE = Y \Leftrightarrow Y = \frac{1}{1-MPC} \times (\bar{C} + \bar{I} + \bar{G}) + \frac{-MPC}{1-MPC} \times \bar{T}$
 - $\bar{C} + \bar{I} + \bar{G}$: autonomous expenditure of the economy
 - $m = \frac{1}{1-MPC}$: expenditure multiplier ($m > 1$)
 - $m' = \frac{-MPC}{1-MPC}$: tax multiplier

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3.2. The equilibrium output in a closed economy with government

▪ **Case 2: $T = t \cdot Y$**

$$AE = Y \Leftrightarrow$$

$$Y = \frac{\bar{C} + \bar{I} + \bar{G}}{1 - MPC(1-t)}$$

- $\bar{C} + \bar{I} + \bar{G}$: autonomous expenditure of the economy
- $m = \frac{1}{1 - MPC(1-t)}$: expenditure multiplier

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4. THE EQUILIBRIUM OUTPUT IN AN OPEN ECONOMY

▪ An open economy includes:



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4.1. International trade

- **Export:** $X = \bar{X}$
- **Import:**
 - **Some factors affect imports:** yield and income of importing countries.
 - **Import Function:** $M = MPM \cdot Y$
 $MPM = \frac{\Delta M}{\Delta Y}$ (reflects changes in imports when income increases 1 unit)
- **Net export (NX):** $NX = X - M = \bar{X} - MPM \cdot Y$

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4.2. The equilibrium output in an open economy

Case 1: $T = \bar{T}$

$$AE = Y$$

⇔

$$\frac{1}{1-MPC+MPM} x(\bar{C} + \bar{I} + \bar{G} + \bar{X}) + \frac{-MPC}{1-MPC+MPM} x\bar{T}$$

- $\bar{C} + \bar{I} + \bar{G} + \bar{X}$: autonomous expenditure of the economy
- $m = \frac{1}{1-MPC+MPM}$: expenditure multiplier
- $m' = \frac{-MPC}{1-MPC+MPM}$: tax multiplier

174

4.2. The equilibrium output in an open economy

Case 2: $T = t \cdot Y$

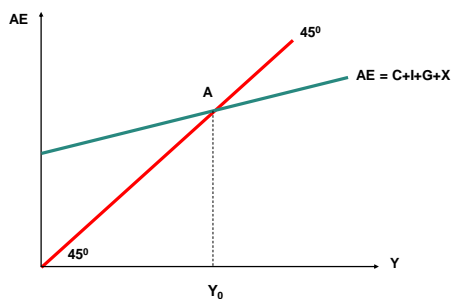
$$AE = Y \Leftrightarrow$$

$$Y = \frac{\bar{C} + \bar{I} + \bar{G} + \bar{X}}{1-MPC(1-t)+MPM}$$

- $m = \frac{1}{1-MPC(1-t)+MPM}$: expenditure multiplier

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Figure 2: The short-run equilibrium based on expenditure approach



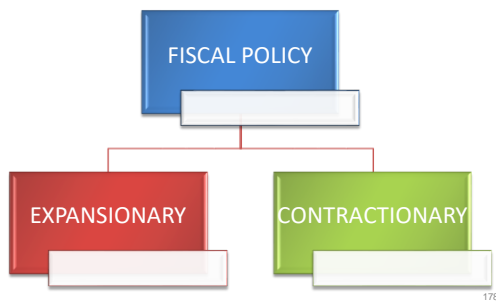
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5. FISCAL POLICY

- **Fiscal policy** refers to the government's choices regarding the overall level of government purchases or taxes.
- Aim to:
 - Economic growth
 - Price stabilization
 - More job creation

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5. HOW FISCAL POLICY INFLUENCES AGGREGATE DEMAND



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5.1. Expansionary fiscal policy

- **Expansionary fiscal policy** relates to the increase in government purchases or decrease in taxes or the combination of both.
- **Application:** during the depression
 - tax decreased \rightarrow Y_d increase \rightarrow C up \rightarrow AE up \rightarrow Y up

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5.1. Expansionary fiscal policy

- **Mechanism:**

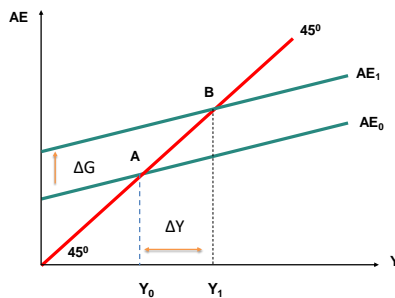
$G \uparrow \rightarrow AE \uparrow \rightarrow Y \uparrow$

$T \downarrow \rightarrow Y_D \uparrow \rightarrow C \uparrow \rightarrow AE \uparrow \rightarrow Y \uparrow$

With ΔG : $\Delta Y = m \times \Delta G$

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Figure 3: Mechanism of expansionary fiscal policy



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5.2. Contractionary fiscal policy

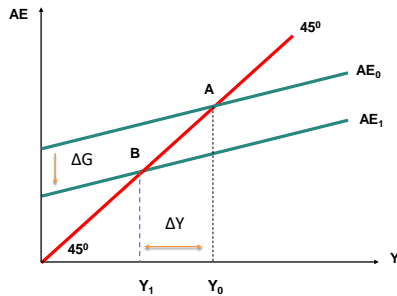
- **Contractionary fiscal policy** relates to the decrease in government purchases or increase in taxes or the combination of both.
- **Application:** when the economy gets hot growth rate.

- G down $\rightarrow AE$ down $\rightarrow Y$ down

- T up $\rightarrow Y_D$ down $\rightarrow C$ down $\rightarrow AE$ down $\rightarrow Y$ down

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Figure 4: Mechanism of contractionary fiscal policy



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5.2. Contractionary fiscal policy

- The influence of the change G and T leads to a change in the output larger than the change in G and T , called *multiplier effect*.
 - Each dollar spent by the government can raise the aggregate expenditure for goods and services by more than a dollar.

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EXERCISE

1. In a closed economy without Government:

$$C = 300 + 0.8(Y-T)$$

$$I = 200$$

- a. Find expenditure multiplier and the equilibrium output.
- b. If investment increases extra 100, how does the equilibrium output change?

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EXERCISE

2. An open economy has:

$$\bar{C} = 100 \quad \text{MPC} = 0,8 \quad \bar{I} = 500 \quad \bar{X} = 300$$

$$\text{MPM} = 0,2 \quad \bar{C} = 400 \quad \bar{T} = 100$$

- a. Function of C, AE, $Y_e = ?$
- b. If $\Delta G = 100, \Delta T = 200$, $Y_e' = ?$

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EXERCISE

3. In an open economy:

$$\bar{C} = 10 \quad \text{MPC} = 0,8 \quad \bar{I} = 5 \quad \bar{X} = 5 \quad \text{MPM} = 0,14$$

$$\bar{G} = 40 \quad t = 20\%.$$

- a. Function of C & AE?
- b. Autonomous expenditure of the economy?
- c. $Y_e = ?$
- d. If $\Delta G = 20, \Delta I = 5$. Then $Y_e = ?$

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