2. National Income and National Product (Part 2)

EE 212

Read: Case & Fair, ch. 6; LCR, ch.3, 22

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Outline

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2. Meaning and significance of national income accounting (Part 1)
3. Distinction between GNP and GDP (Part 1)
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6. Applications of GDP in economic analysis (Part 2)
    1. Distinction between Money and Real GDP
    2. GDP per capita
    3. Some remarks on the applications

- The circular flow of production and expenditure : closed economy (household and firm)
- ....=...........................=..........................
- There are three methods to measure GDP
  1. Product Approach
  2. Expenditure Approach
  3. Income Approach
- Theoretically, all three methods yiled the same result.
- Which organization does collect GDP data for Thailand?

1. Product Approach : (2 ways - final goods and services, value added)
1.1 using final goods and services value

$$\text{GDP} = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

$$P_i = \text{Price of goods i}$$
$$Q_i = \text{Quantity of goods i}$$

Problem in practice?

1.2 using valued added

Value added $=$ The difference between the value of goods as they leavea stage of production and the cost of the goods as they entered that stage

Stage of production	Value of Sales	Cost of materials	Value added

- Example : Value Added Through Stages of Production

	Firm R	Firm I	Firm F	All firms	
A. Purchase from other firms	\$0	\$100	\$130	\$230	
B. Purchase of factors of production (wage, rent, interest, profits)	100	30	50	180	
A+B = value of product	100	130	180	410	

GDP = ...

The sum of all values added in an economy is a measure of the economy's total marketed output.

2. Expenditure Approach ***

$$\text{GDP} = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

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$$\text{C} = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

$$\text{I} = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

$$G = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

$$X = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

$$\text{M} = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

$$\text{(X-M)} = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

2.1 Consumption

= ....

☐ households expenditure on durable goods
☐ households expenditure on non-durable goods
☐ household expenditure on services
☐ household expenditure on new home building (residential structures)
☐ household expenditure on renting a house

2.2 Investment

= ....

☐ firms or household expenditure on new machines, new equipments
☐ firms or households expenditure on new home building, new residential structures, new plants
☐ change in the firm inventories,

inventories = finish goods, work in progress, raw materials

Δinventories = inventories end of period-inventories beginning of period

inventories $\downarrow$ this year......last year Δinventories....0

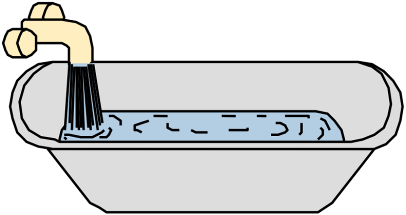
inventories $\downarrow$ this year......last year Δinventories....0

GDP=final goods and services ..... Δinventories

Gross investment Verson Net Investment

Gross investment: The total value of all newly produced capital goods (plant, equipment, housing, and inventory) produced in a given period.

Net investment : “An activity of spending which increases the availability of fixed capital goods”



Net investment=Gross investment .... Depreciation

2.3 Government Expenditure

= Expenditures by federal, state, and local governments for final goods and services and investment.

Example ?

2.4 Net Export (X-M)

= The difference between exports (sales to foreigners of Thai produced goods and services) and imports (Thai purchases of goods and services from abroad).

3. Income Approach

GDP = The total income earned by factors of production within a country

$$\begin{aligned} GDP &= \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \\ &\quad + \text{Depreciation}+(\text{Indirect business tax-subsidies}) \end{aligned}$$

Depreciation: The amount by which the capital goods's value falls in a given period

Indirect taxes: eg. sales taxes, custom duties, and license fees

Subsidies: government payments to firms or households for which it receives nothing in return.

- Relationship between GDP, GNP, NNP, NI, PI and DI
- GNP = GDP + ...
- Expenditure Approach : GDP = ... +.......+.......+(......-.......)
- Income Approach : GDP = ...

- NNP (Net National Income)
  NNP = GNP - ....
- NI (National Income)
  NI = NNP - ....
- PI (Personal Income)
  PI = NI ....
- DI (Disposable Income)
  DI = PI - ....

6.1 Distinction between Nominal and Real GDP

- Real output vs. nominal output
  - Nominal output measures these values using current prices.
  - Real output measure these values using the prices of a base year.

	2005(based year)		2012	
	P	Q	P	Q
Cars	100	192	110	200
Rice	30	900	31	900

- Calculation of nomial output

  Nominal output (2005) = ...

  Nominal output (2012) = ...

- Calculation of Real GDP using 2005 Pricest

  Real output (2005) =..

GDP Deflator = a measure of the level of prices of all new, domestically produced, final goods and services in an economy.

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

- Calculation of GDP Deflator (Implicit GDP Deflator)

  GDP Deflator (2005) =..

  GDP Deflator (2012) = ...

- Nominal GDP (Money GDP) VS. Real GDP

  .... GDP is GDP evaluated at current market prices. Therefore, nominal GDP will include all of the changes in market prices that have occurred during the current year

  .... GDP is GDP evaluated at the market prices of some base year. For example, if 1990 were chosen as the base year, then real GDP for 1995 is calculated by taking the quantities of all goods and services purchased in 1995 and multiplying them by their 1990 prices.

  - Why do we need real GDP?

6.2 GDP per Capita

$$\text{GDP per Capita} = \frac{\text{GDP}}{\text{population}}$$

Why do we need GDP per capita?

6.3 Some remarks on the applications

- The importance of national income accounting
  - It shows
    - level of production and production structure
    - aggregate expenditure on consumption and investment of various economic sectors and value of export and import
    - sources and level of household's income
    - growth rate of the economy and various economic sectors
  - It is used for economic development planning
  - It represents macroeconomic indicators
  - It is used as a base to evaluate the performance of the government economic policy

- Limitation on the use of GDP
  - GDP and SOCIAL WELFARE
    - Crime
    - Leisure
    - Income distribution
    - Pollution
  - GDP and MEASUREMENT
    - Underground economy
    - Nonmarket activities:
    - such as household production, voluntary work

As China Roars, Pollution Reaches Deadly Extremes

New York Times, August 26, 2007

BEIJING, Aug. 25 — No country in history has emerged as a major industrial power without creating a legacy of environmental damage that can take decades and big dollops of public wealth to undo.

But just as the speed and scale of China's rise as an economic power have no clear parallel in history, so its pollution problem has shattered all precedents. Environmental degradation is now so severe, with such stark domestic and international repercussions, ...

Public health is reeling. Pollution has made cancer China's leading cause of death, the Ministry of Health says. Ambient air pollution alone is blamed for hundreds of thousands of deaths each year. Nearly 500 million people lack access to safe drinking water.

Chinese cities often seem wrapped in a toxic gray shroud. Only 1 percent of the country's 560 million city dwellers breathe air considered safe by the European Union. ...

China pollution 'threatens growth'
BBC news, Febuary 28, 2011
The man in charge of protecting China's environment has warned that pollution and the demand for resources threaten to choke economic growth. ...
He said if China meant to quadruple the size of its economy over 20 years without more damage, it would have to become more efficient in resource use. ...
Otherwise, he said, there would be a painful price to pay. ...
They also came a day after Premier Wen Jiabao said China was lowering its annual economic growth target from 7.5% to 7%, in part because of its impact on the environment. ...

Review

- Stock : A stock is a quantity measured ....
- Flow : A flow is a quantity measured ....
- Nominal VS Real Variables
- Nominal variable : Money illusion
- Real variable : Quantity
- Macroeconomic Objectives
  1. ....
  2. ....
  3. ....
- Conflicting among objectives : trade-off in macroeconomics

- GDP (Gross .... Product) and GNP (Gross .... Product)
  - GDP measures the .... produced .... (....................... based)
  - GNP measures the .... produced .... (....................... based) no matter .... the output is produced.
- GDP is superiour to GNP as a measure of domestic economic activity. GNP is superiour to GDP as a measure of the economic well-being of domestic residents.
- There are three ways to measure GDP.
  1. ....
  2. ....
  3. ....
- GDP measures only .... goods and services. It does not include .... goods.
- Value added avoids the statistical problem of double counting. It is the correct measure of each firm's contribution to total output, the amount of market value that is produced by that firm.

- Expenditure Approach : GDP =..
- Income Approach : GDP = ...
- Real and nominal measures
- Total GDP is valued at current prices is a .... measure, often called .... national income.
- GDP that is valued at base-period prices is a .... measure, referred to as .... national income.

	Quantity Produced		Steel	
	Wheat	Steel	Wheat	Steel
Year 1	100	20	10	50
Year 2	110	16	12	55

Calculation of Nominal GDP

- Year 1 : ....
- Year 2 : ....

Calculation of Real GDP using Year 2 Prices

- Year 1 : ....
- Year 2 : ....

Calculation of the Implicit GDP Deflator

- Year 1 : ....
- Year 2 : ....

$$\text{Implicit GDP Deflator} = \frac{\text{GDP at .... prices}}{\text{GDP at .... prices}} \text{......... ....}$$

- Suppose a firm produces \$10 million worth of final goods but only sells \$9 million worth. Does this violate the expenditure = output identity?

Thailand’s loses top rice exporter title

The Nation, January 4, 2013

Bangkok - Thailand lost its three-decades-old title as theworld’s top rice exporter last year, falling behind India and Vietnam, industry sources said Friday.
Vietnam on Thursday announced that its rice exports for 2012 reached 7.6 million tons, up 10 per cent year-on-year. India’s rice exports last year exceeded 9.5 million tons, according to US Department of Agriculture figures.
Thailand exported 6.9 million in 2012, down 35.5 per cent from the10.7 million tonnes it shipped in 2011, according to the Thai Rice Exporters Association’s and commerce ministry’s latest figures.