MACROECONOMIC OUTPUT

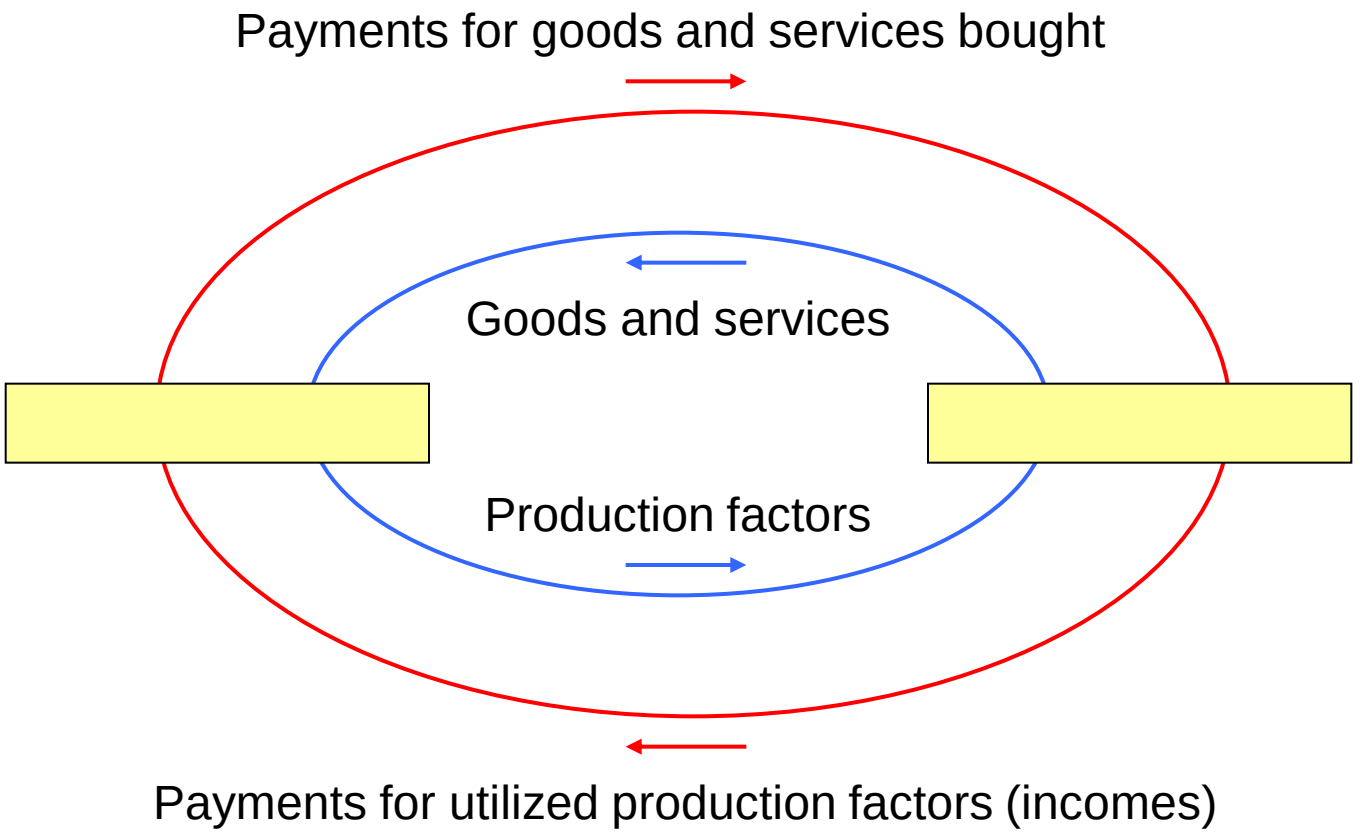
Economy performance measurement

GDP

- Gross Domestic Product
  - measures the monetary value of final goods and services – that is, those that are bought by the final user – produced in a country in a given period of time (say a quarter or a year).
  - It counts all of the output generated within the borders of a country.

  - Tim Callen, IMF, Assistant Director in the IMF's External Relations Department
  - http://www.imf.org/external/pubs/ft/fandd/basics/gdp.htm

Interactions on simplified market



Economy Output

- Output
  - is the quantity expressing total flow of goods and services.
- Economy output is measured as a flow of final products and services over a year at market prices. Such flow is seen different from different points of view:
  - From the point of view of producers: the flow is a sum of sales (returns)
  - From the point of view of households: the flow is a sum of purchases (expenditures)
- Income
  - is the quantity expressing sum of incomes from utilization of production factors earned by households.
- The quantities output and income are equal since sum of payments for sold goods and services must be equal to the sum of payments for utilized production factors.

GDP

- To get exact value of output we have to subtract intermediate product:

Sum of output – value of all subcontracts =
= exact value of output (added value) = GDP

- GDP can be calculated by:
  - Expenditure approach: aggregate expenditure is called as a sum of all expenses for goods and services at market prices
  - Income approach: summation of all incomes earned by households

- Both methods give the same result after some corrections.

GDP – Expenditure Approach

- C Personal consumption expenditures
  - all goods and service purchased by households
- I_g Gross private investments
  - purchase of capital goods such as robots, machines, and factories
  - change in inventories such as goods awaiting sale
  - residential investment = purchase of new residential homes by the household sector
- G Government expenditures for goods and services
  - (unemployment benefits, welfare benefits, pensions etc.)
- X Net export
  - (also called balance of trade payments)
  - *X = export – import*

$$GDP = C + Ig + G + X$$

GDP, NDP, GNP

- Net domestic product
  - can be derived from GDP by subtraction of the depreciation *(a)*

$$I_n = I_g - a$$

$$NDP = C + I_n + G + X$$

- Gross national product
  - is similar as GDP, but it takes into account the production of all citizen of the country no matter where in the world they act, on the other hand GNP doesn't comprise production of foreign entrepreneurs carrying their business in the regarded country.
  - NPI … net income from assets abroad

$$GNP = GDP + NPI$$

Net Economic Welfare

- GDP doesn't include all the activities existing in the economy. These activities don't enter the market or economic statistics do not record them. In order to reflect these activities Net Economic Welfare (NEW) was developed. To obtain NEW we must add followings:
  - Underground (shadow, grey) economy – there are goods and services produced illegally (narcotics, gambling, prostitution).
  - Non-market goods – many goods and services are produced by members of households for their own consumption and don't enter the market.
  - The value of leisure time – is part of everyone's well-being, but not included in GPD
  - Increasing quality of goods and services – changes in price level don't always reflect rising quality of production (e.g. prices of computers).

GDP – Income Approach (NI)

- Labour income
  - (e.g. salaries, wages, before taxation)
- Rental incomes
  - from property received by households. Royalties from patents, copyrights
- Net interests
  - difference between interests obtained and paid
- Profits
  - accounting profit of companies
- The summation of all these components gives national income - NI

GDP vs. NI

- Generally, ***GDP = NI*** is valid only for simple two-sector economy (with two subjects: households and firms)

- But in real economies there are also other important subjects: government and foreign countries. That's why quantities GDP and NI differ in practice.

- See following table:

GDP (Expenditure side)		NI (Income side)	
Personal consumption expenditures (C)	6757.3	Gross wages	5870.5
Gross private domestic investments (Ig)	1832.7	Rental incomes	19.6
Government purchases of goods and services (G)	1743.7	Profits	727.0
Export (Ex)	1097.3	Net interests	694.3
Import (Im)	-1468.0	Proprietor’s income	690.6
GDP	**9963.1**	**NI**	**8002.0**

GDP vs. NI

- Geo -> national point of view
- Depreciation of property
- VAT + consumer tax (covered by GDP, not by NI)

GDP	**9963,1**
NPI (net income from assets abroad	-4.4
GNP	9958.7
Depreciation	-1257.1
Net national product	8701.6
Indirect taxes	-699.6
NI	**8002.0**

Nominal vs. real GDP

- Nominal values are not = aggregate output measured at current prices
- Real values are adjusted for inflation = aggregate output measured at constant base year prices

- As a result, nominal GDP often appears higher than real GDP.

- GDP deflator
  - $GDP_{deflator} = \frac{GDP_{nominal}}{GDP_{real}}$

- Thank you for participation and attention