Introduction to Economics

Measuring Economic Activity

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Gross Domestic Product

The yardstick of an economy's performance

GDP :

- Is the total market value of the final goods and services produced within a nation during a given period of time.
- Is used to measure the overall performance of an economy.
- Is the most comprehensive measure of a nation's total output of goods and services. It is the sum of the dollar values of consumption (C), gross investment (I), government purchases of goods and services (G), and net exports (X) produced within a nation during a given year.

$$GDP = C + I + G + X$$

Two Measures of National Product

- **Flow-of-Product Approach**

GDP is defined as the total money value of the flow of products produced by the nation.

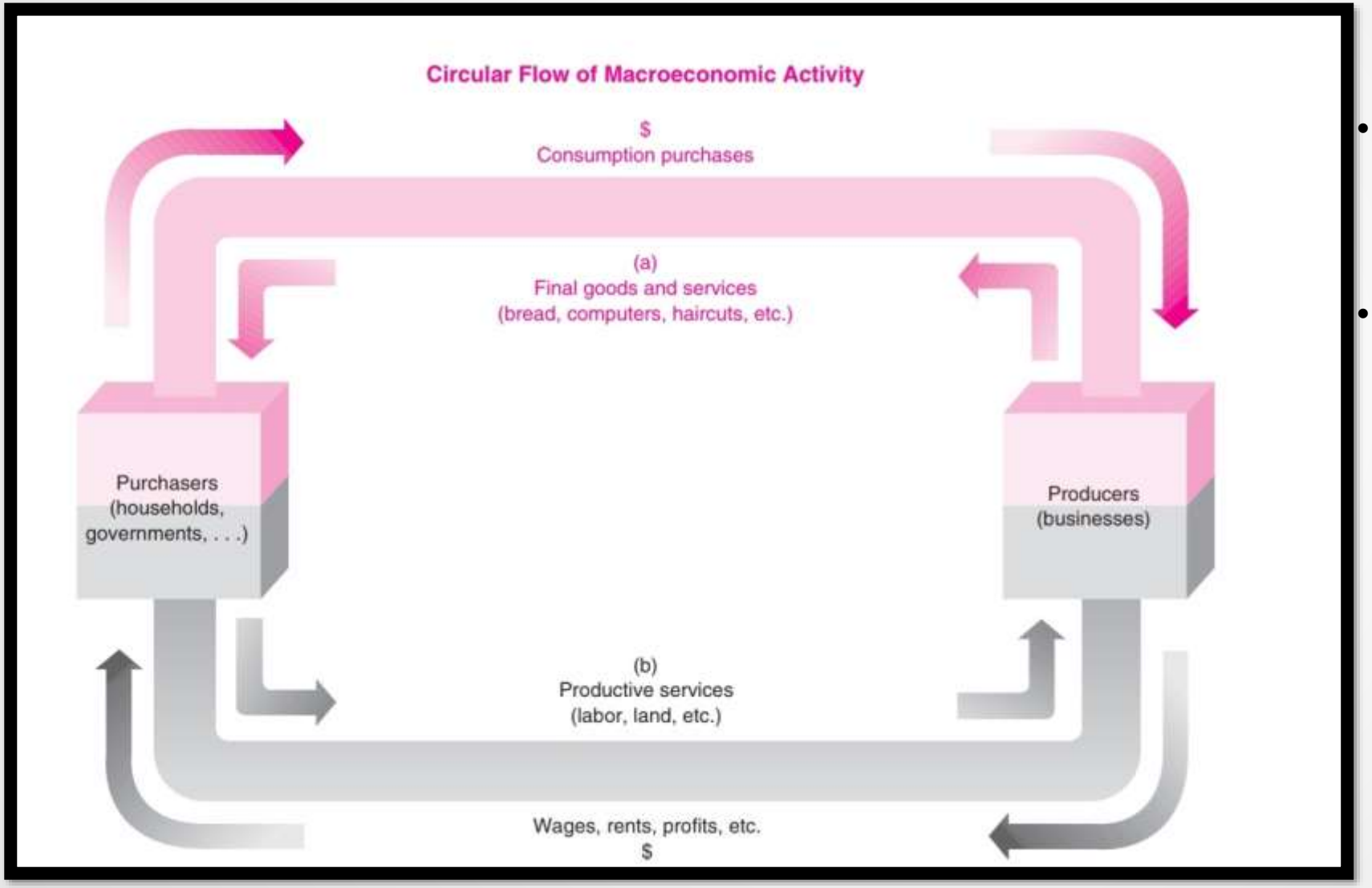
- **Earnings or Income Approach**

GDP is calculated as the total cost of doing business or income accounts from the factors of production.

Product Approach	Earnings Approach
Consumption (C)	Compensation of labor (wages, salaries and supplements)
Gross private domestic investment (I)	Corporate profits
Government purchase (G)	Other property income (rent, interest)
Net exports (X)	Depreciation
	Net production tax

- Both approaches yield exactly the same measure of GDP.

Circular flow of Macroeconomic Activity



- National accounts are derived from Business Accounts.
- An account for a firm or a nation is a numerical record of all flows during a given period.

The Problem of "Double Counting"

- A **final product** is one that is produced and sold for consumption or investment.
- GDP excludes **intermediate goods** —goods that are used up to produce other goods.
- **Value added** is the difference between a firm's sales and its purchases of materials and services from other firms.

Activity	Price of the output	Cost of intermediate products	Value added (3)= (1) – (2)
Growing Oranges	$1	$0	$1
Making Orange Juice	$1.5	$1	$0.5
Distributing Juice to Stores	$2.25	$1.5	$0.75
Selling Juice to Consumer	$3.5	2.25	$1.25
Total			$3.5

Consumption

- Consumption is by far the largest component of GDP.
- Consumption expenditures are divided into three categories:

1. durable goods such as automobiles,
2. nondurable goods such as food,
3. services such as medical care.

- The most rapidly growing sector is services.
- C = C (Y – T) - Y – T (DI disposable income)

Investment and Capital Flow

Investment consists of the additions to the nation's capital stock of buildings, equipment, software, and inventories during a year.

Along with consumption goods and services, we must also include gross investment in GDP.

Gross investment is not adjusted for **depreciation,** which measures the amount of capital that has been used up in a year.

Net investment is always births of capital (gross investment) less deaths of capital (capital depreciation).

Net investment = Gross investment - Depreciation.

$I = I(r)$

Government Purchases

- Some of our national output is purchased by federal, state, and local governments.
- Some government purchases are consumption-type goods (like food for the military), while some are investment-type items (such as schools or roads).
- GDP includes only government purchases; it excludes spending on transfer payments.
- Government **transfer payments** are payments to individuals that are not made in exchange for goods or services supplied. (unemployment insurance, veterans' benefits, and old-age or disability payments)

Net Exports

- **Net exports** is the difference between exports and imports of goods and services.
- Exports → some of local production bought by foreigners and shipped abroad.
- Imports → The products that we consume at home that is produced abroad.

Nominal GDP, Real GDP and GDP Deflator

- **Nominal GDP** (PQ) represents the total money value of final goods and services produced in a given year, where the values are expressed in terms of the market prices of each year.
- **Real GDP** (Q) removes price changes from nominal GDP and calculates GDP in terms of the quantities of goods and services.
- The difference between nominal GDP and real GDP is the price of GDP, sometimes called the **GDP deflator**.
- The link between nominal GDP, real GDP, and the GDP price index:

real GDP = (nominal GDP /GDP price index)

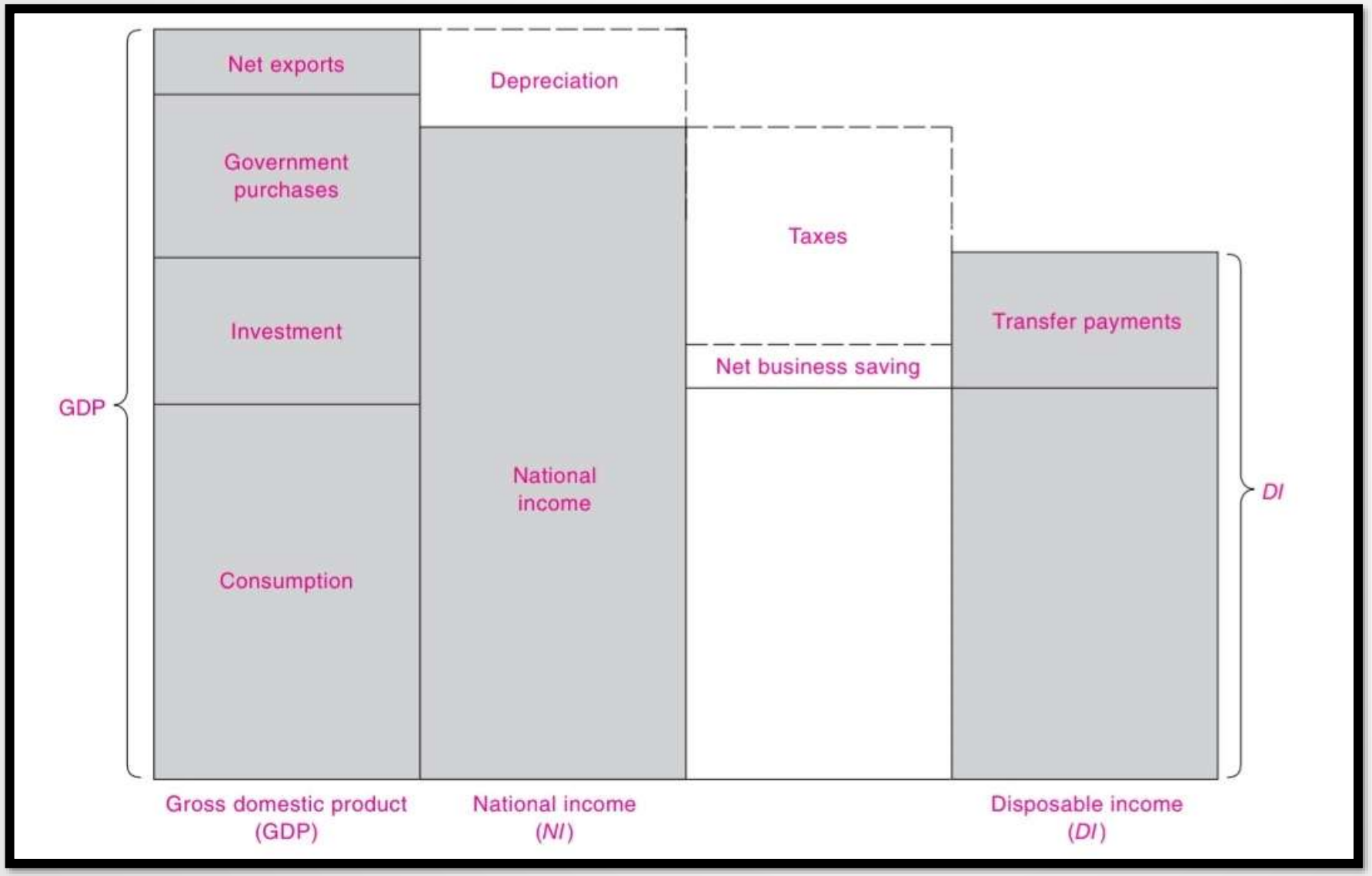
Q =(PQ / P)

Growth of Real GDP = $(GDP_t - GDP_{t-1}) / GDP_{t-1} \times 100$

GDP, NDP & GNP

- Net domestic product (NDP) equals the total final output produced within a nation during a year, where output includes net investment, or gross investment less depreciation:
  - **NDP = GDP - depreciation**
- Gross national product (GNP) is the total final output produced with inputs owned by the residents of a country during a year.

From GDP to National Income to Disposal Income



- GDP = total gross income
- National Income = sum of factor income – depreciation
- Disposal Income = total incomes + transfer payments - taxes

Saving and Investment

- Output can be either consumed or invested.
- Measured saving is exactly equal to measured investment.

Product -approach: I = GDP - C

Earnings – approach: S = GDP - C

- National saving equals national investment.
- The components of investment are private domestic investment and foreign investment (or net exports). **S = I**
- The sources of saving are private saving (by households and businesses) and government saving (the government budget surplus).
- **S = Y-C-G Spublic = T – G Sprivate= Y – T – C**
- These identities must hold always, whatever the state of the business cycle.

National investment = private investment + net exports

National saving = private saving + government saving

National investment= National savings

Price Index and Inflation

- **Inflation** (**π**) denotes a rise in the general level of prices.
- A **price index** (P) is a measure of the average level of prices.
- The rate of inflation is defined as the rate of change of the general price level.

$$\mathbf{\Pi =} (P_t - P_{t-1}) / P_{t-1} \times 100$$

- The opposite of inflation is **deflation,** which occurs when the general price level is falling.

- **Consumer Price Index**

CPI is a measure of the average price paid by urban consumers for a market basket of consumer goods and services.

$$\text{Consumer Price Index (CPI)} = \frac{\text{Cost of Basket}_t}{\text{Cost of Basket}_0} \times 100$$

$$\text{Inflation Rate} = \frac{CPI_2 - CPI_1}{CPI_1} * 100$$

- **GDP Price Index**

The GDP price index is the price of all goods and services produced in the country (consumption, investment, government purchases, and net exports) rather than of a single component (such as consumption).

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

- **Produces Price Index**

PPI measures the level of prices at the wholesale or producer stage.

- What is the difference between GDP Deflator and CPI?