National Income Accounting

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National Income Accounting

- ***National income accounting*** – a set of rules and definitions for measuring economic activity in the aggregate economy – that is, in the economy as a whole.
- National income accounting is a way of measuring total, or aggregate production.

Measuring Total Economic Output of Goods and Services

- ***Gross Domestic Product*** (***GDP***) is the total value of all final goods and services produced in an economy in a one-year period.
- It is the single most-used economic measure.

Measuring Total Economic Output of Goods and Services

- ***Gross National Product*** (***GNP***) is the aggregate final output of citizens and businesses of an economy in one year.

Measuring Total Economic Output of Goods and Services

- GDP is output produced within a country's borders.
- GNP is output produced by a country's citizens.

Measuring Total Economic Output of Goods and Services

- Net foreign factor income is added to GDP to move from GDP to GNP.
  - ***Net foreign factor income*** is the income from foreign domestic factor sources minus foreign factor incomes earned domestically.

Calculating GDP

- Calculating GDP requires adding together million of goods and services.
- All goods and services produced by an economy must be weighted.
- Each good and service is multiplied by its price.

Calculating GDP

- Once quantities of a particular good or service are multiplied by its price, we arrive at a value measure of the good or service.
- All the units of value are added to arrive at GDP.

GDP Is a Flow Concept

- GDP is a flow concept.
- It is reported quarterly on an annualized basis.
  - ***Annualized basis*** – quarterly figures are used to estimate total output for the whole year.

GDP Is a Flow Concept

- The store of wealth is a stock concept.
- ***Wealth accounts*** – a balance sheet of an economy’s stocks of assets and liabilities.

GDP Measures Final Output

- GDP does not measure total transactions in the economy.
- It counts final output but not intermediate goods.

GDP Measures Final Output

- ***Final output*** – goods and services purchased for final use.
- ***Intermediate products*** are used as input in the production of some other product.

GDP Measures Final Output

- Counting the sale of final goods and intermediate products would result in double and triple counting.

Two Ways of Eliminating Intermediate Goods

- There are two ways of eliminating intermediate goods.
- The first is to calculate only final output.
- A second way is to follow the value added approach.

Two Ways of Eliminating Intermediate Goods

- ***Value added*** is the increase in value that a firm contributes to a product or service.
- It is calculated by subtracting intermediate goods from the value of its sales.

Value Added Approach Eliminates Double Counting

Participants	Cost of Materials	Value of Sales	Value Added
Farmer	$ 0	$ 100	$ 100
Cone factory and ice cream-maker	100	250	150
Middleperson	250	400	150
Vendor	400	500	100
Totals	$ 750	$1,250	$500

Calculating GDP: Some Examples

- Selling your two-year-old car to a neighbor does not add to GDP.
- Selling your car to a used car dealer who then sells your car to someone else for a higher price, adds to GDP.
- The value of the dealer's services is added to GDP.

Calculating GDP: Some Examples

- Selling a stock or bond does not add to GDP.
- The stock broker's commission from the sales does add to GDP.

Calculating GDP: Some Examples

- Social security payments, welfare payments, and veterans' benefits, are not included in GDP.
- Only the cost of transferring is included in GDP.

Calculating GDP: Some Examples

- The work of unpaid housespouses does not appear in GDP calculations.
- GDP only measures market activities so unpaid value added is not included in GDP.

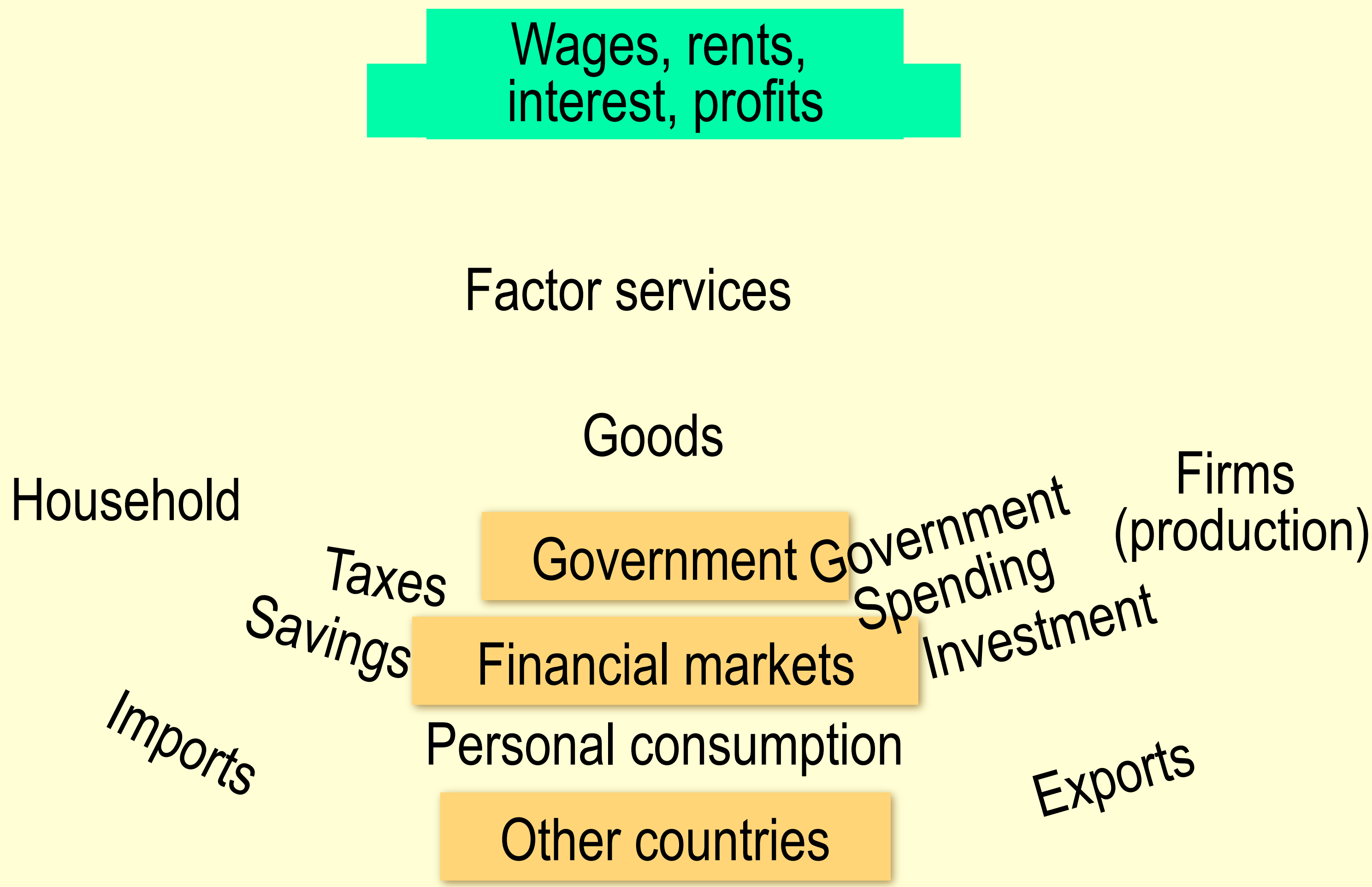
Two Methods of Calculating GDP

- There are two methods of calculating GDP: the expenditure approach and the income approach.
- This is because of the national income accounting identity.

The National Income Accounting Identity

- The equality of output and income is an accounting identity in the national income accounts.
- The identity can be seen in the circular flow of income in an economy.

The Circular Flow



The Expenditure Approach

- The expenditure approach is shown on the bottom half of the circular flow.
- Specifically, GDP is equal to the sum of the four categories of expenditures.

$$GDP = C + I + G + (X - M)$$

Consumption

- When individuals receive income, they can spend it on domestic goods, save it, pay taxes, or buy foreign goods.
- ***Personal consumption expenditures*** – payments by households for goods and services.

Consumption

- Consumption is the largest and most important of the flows.
- It is also the most obvious way in which income received is returned to firms.

Investment

- The portion of their income that individuals save leaves the income stream and goes into financial markets.
- ***Gross private investment*** – business spending on equipment, structures, and inventories.

Investment

- ***Depreciation*** – the decrease in an asset's value due to it wearing out.
- ***Net private investment*** – gross private investment minus depreciation.

Government Expenditures

- Taxes are either spent by government on goods and services or are returned to individuals in the form of transfer payments.

Government Expenditures

- ***Government expenditures*** – government payments for goods and services or investment in equipment and structures.
- If the government runs a deficit, it must borrow from financial markets to make up the difference.

Net Exports

- Spending on imports are subtracted from total expenditures because it escapes the system and does not add to domestic production.

Net Exports

- Exports to foreign nations are added to total expenditures.
- These flows are usually combined into net exports.

GDP and NDP

- ***Net domestic product*** (***NDP***) – the sum of consumption expenditures, government expenditures, net foreign expenditures, and investment less depreciation.

GDP and NDP

- Net domestic product is GDP adjusted for depreciation:

$$GDP = C + I + G + (X - M)$$

$$NDP = C + I + G + (X - M) - depreciation$$

The Income Approach

- The income approach is shown on the top half of the circular flow.
- Firms make factor payments to households for supplying their services as factors of production.

The Income Approach

- ***National income*** is the total income earned by citizens and businesses in a country in one year.
- It consists of employee compensation, rent, interest, and profits.

The Income Approach

- ***Employee compensation*** consists of payments for labor such as salaries and wages.
- ***Rents*** are payments for use of land and buildings.

The Income Approach

- ***Interest*** includes payments for loans by households to firms.
- ***Profits*** are payments to the owners of firms.

Equality of Income and Expenditure

- Income and expenditures must be equal because of the rules of double-entry bookkeeping.
- Profit is the balancing item.

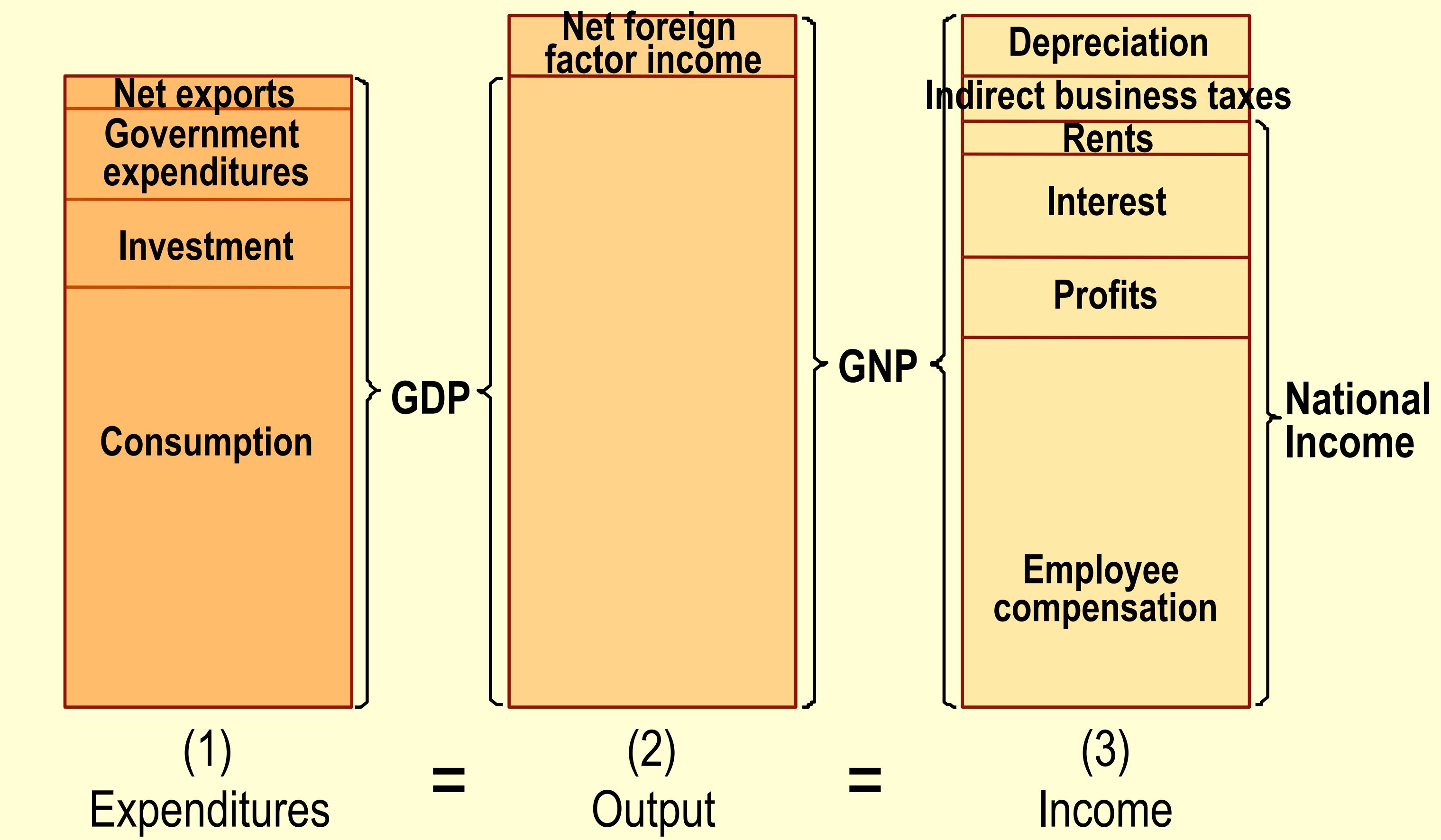
Equality of Income and Expenditure

- GDP is calculated either by adding up all values of final output or by adding up the values of all earnings or income.

Qualifications to the Income Accounting Identity

- To go from GDP to national income:
  - Add net foreign factor income.
    - National income is all income earned by citizens of a nation and is equal to GNP.
    - To move from "domestic" to "national" we add net foreign factor income.
  - Subtract depreciation from GDP.
  - Subtract indirect business taxes from GDP.

Equality of Expenditure and Income



Other National Income Terms

- ***Personal income*** (***PI***) is national income plus net transfer payments from government minus amounts attributed but not received.

  PI = *NI* + Transfer payments from government
  + Net non-business interest income
  – Corporate retained earnings
  – Social security taxes

Other National Income Terms

- ***Disposable personal income*** is personal income minus personal income taxes and payroll taxes.
- Disposable personal income is what people have readily available to spend.

$$DPI = PI - \text{Personal taxes}$$

Using GDP Figures

- GDP figures are used to make comparisons among countries and to measure economic welfare over time.

Comparing GDP Among Countries

- GDP gives a measure of economic size and power.
- ***Per capita GDP*** is another measure often used to compare nations' GDP.

Comparing GDP Among Countries

- Because of differences in nonmarket activities, per capita GDP can be a poor measure of the various living standards in various nations.

Comparing GDP Among Countries

- Purchasing power parity is used to get around the problems of per capita GDP.
- ***Purchase power parity*** adjusts for different relative prices among nations before making comparisons.

Economic Welfare Over Time

- Just because GDP rose does not mean welfare rose – it could be only prices rose.
- Comparing output over time is best done with real output which is nominal output adjusted for inflation.

Real and Nominal GDP

- ***Nominal GDP*** is GDP calculated at existing prices.
- ***Real GDP*** is nominal GDP adjusted for inflation.

Real and Nominal GDP

- Real GDP is important to society because it measures what is really produced.

Real and Nominal GDP

- Real GDP is arrived at by dividing nominal GDP by the GDP deflator.

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

Some Limitations of National Income Accounting

- Limitations of national income accounting include the following:
  - Measurement problems exist.
  - GDP measures economic activity, not welfare.
  - Subcategories are often interdependent.

GDP Measures Market Activity, Not Welfare

- GDP does not measure happiness, nor does it measure economic welfare.
- Welfare is a complicated idea, very difficult to measure.

Measurement Errors

- GDP figures leave out the following:
  - Illegal drug sales.
  - Under-the-counter sales of goods to avoid income and sales taxes.
  - Work performed and paid for in cash.
  - Unreported sales.
  - Prostitution, loan sharking, extortion, and other illegal activities.

Measurement Errors

- A second type of measurement error occurs in adjusting GDP for inflation.
  - If the price and the quality of a product go up together, has the price really gone up?
  - Is it possible to measure the value of quality increases?

Misinterpretation of Subcategories

- The subcategories of GDP can be misinterpreted.
  - For example, the line between investment and consumption is often fuzzy.

Gross Progress Indicator

- The gross progress indicator (GPI) is an alternative measure to GDP.
- The GPI tries to measure pollution, education, health concerns, as well as GDP.

Conclusion

- Measurement is necessary.
- GDP measurement categories have made it possible to think and talk about the aggregate economy.

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