Measuring a Nation's Income

Economics

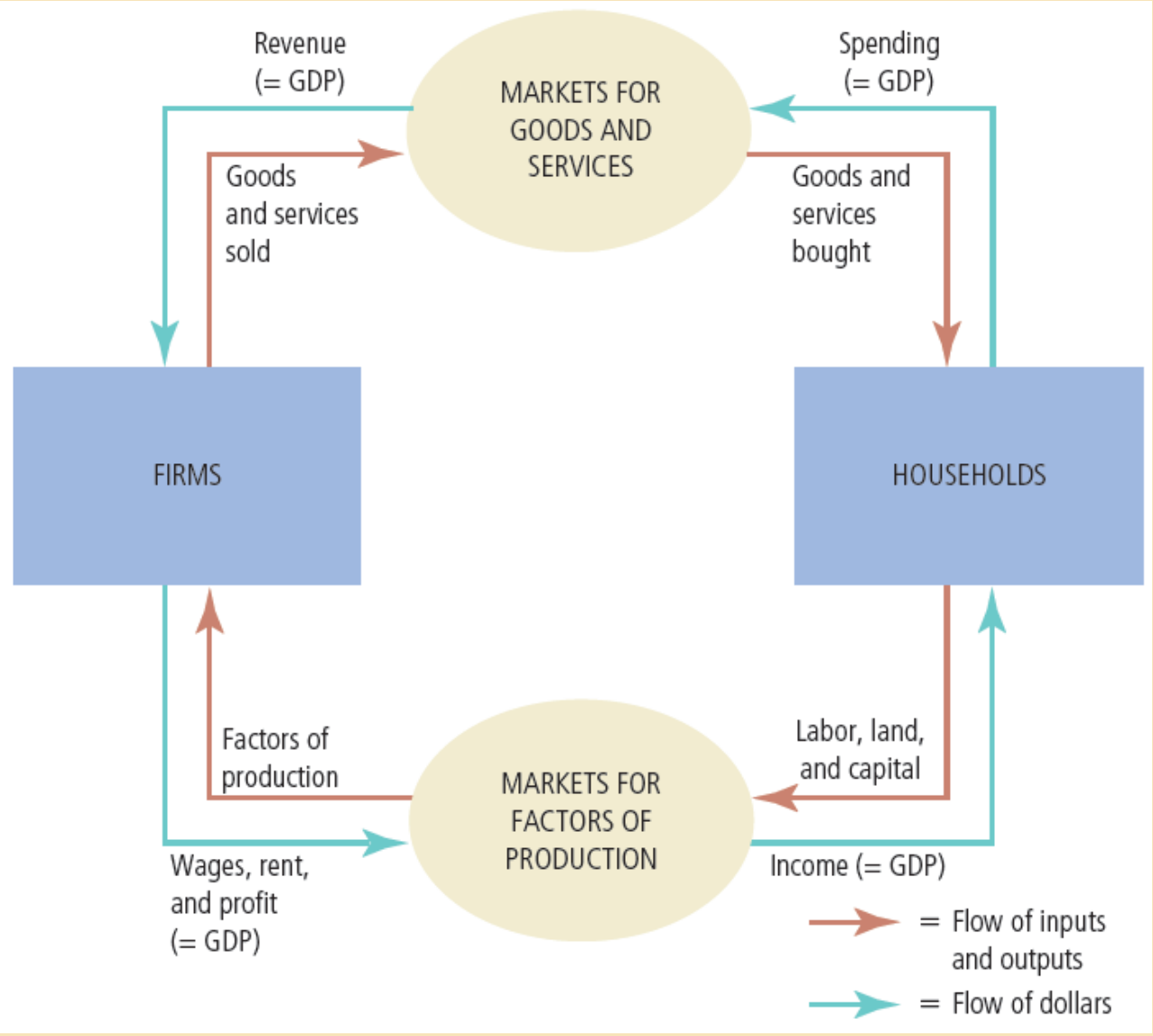
- Microeconomics
  - Study of how households and firms
    - Make decisions
    - Interact in markets
- Macroeconomics
  - Study of economy-wide phenomena
    - Including inflation, unemployment, and economic growth

Economy's Income & Expenditure

- Gross Domestic Product (GDP)
  - Measures the total income of everyone in the economy
  - Measures the total expenditure on the economy's output of goods and services
- For an economy as a whole
  - Income must equal expenditure
  - Why? Look at circular flow diagram

Figure 1

The Circular-Flow Diagram (revisited)



Households buy goods and services from firms, and firms use their revenue from sales to pay wages to workers, rent to landowners, and profit to firm owners. GDP equals the total amount spent by households in the market for goods and services. It also equals the total wages, rent, and profit paid by firms in the markets for the factors of production.

The Measurement of GDP

- Gross domestic product (GDP)
  - Market value of all final goods and services
  - Produced within a country
  - In a given period of time
- "GDP is the market value…"
  - Market prices - reflect the value of the goods

The Measurement of GDP

- "… of all…"
  - All items produced in the economy
    - And sold legally in markets
  - Excludes most items
    - Produced and sold illicitly
    - Produced and consumed at home

The Measurement of GDP

- "… final…"
  - Value of intermediate goods is already included in the prices of the final goods
- "… goods and services…"
  - Tangible goods & intangible services
- "… produced…"
  - Goods and services currently produced

The Measurement of GDP

- "… within a country…"
  - Goods and services produced domestically
    - Regardless of the nationality of the producer
- "… in a given period of time"
  - A year or a quarter

The Components of GDP

- Y = C + I + G + NX
  - Spending side of GDP:
  - Y = GDP
  - C = consumption
  - I = investment
  - G = government purchases
  - NX = net exports

The Components of GDP

- Consumption, C
  - Spending by households on goods and services
  - Exception: purchases of new housing
- Investment, I
  - Spending on capital equipment, inventories, and structures
  - Household purchases of new housing
  - Inventory accumulation

The Components of GDP

- Government purchases, G
  - Government spending on goods and services and capital (roads) at all levels
  - Does not include transfer payments
- Net exports, NX = Exports - Imports
  - Exports are spending on domestically produced goods by foreigners
  - Imports are spending on foreign goods by domestic residents

CASE STUDY

The components of U.S. GDP

- 2009, GDP of the U.S. = $14 trillion
- GDP per person = $46,372
  - Consumption = $32,823 per person (70%)
  - Investment = $5,278 per person (10%)
  - Government purchases = $9,540 per person (20%)
  - Net exports = –$1,269 per person (-3%)

Real versus Nominal GDP

- Total spending rises from one year to the next
  - Economy - producing a larger output of goods and services
  - And/or goods and services are being sold at higher prices
- Nominal GDP
  - Production of goods and services
  - Valued at current prices

Real versus Nominal GDP

- Real GDP
  - GDP valued at constant prices
  - Designate one year as base year
  - Not affected by changes in prices
- For the base year
  - Nominal GDP = Real GDP

Table 2

Real and Nominal GDP

Prices and Quantities

Year	Price of Hot dogs	Quantity of Hot dogs	Price of Hamburgers	Quantity of Hamburgers
2010	$1	100	$2	50
2011	$2	150	$3	100
2012	$3	200	$4	150

Calculating Nominal GDP

2010	($1 per hot dog × 100 hot dogs) + ($2 per hamburger × 50 hamburgers) = $200
2011	($2 per hot dog × 150 hot dogs) + ($3 per hamburger × 100 hamburgers) = $600
2012	($3 per hot dog × 200 hot dogs) + ($4 per hamburger × 150 hamburgers) = $1,200

Calculating Real GDP (base year 2010)

2010	($1 per hot dog × 100 hot dogs) + ($2 per hamburger × 50 hamburgers) = $200
2011	($1 per hot dog × 150 hot dogs) + ($2 per hamburger × 100 hamburgers) = $350
2012	($1 per hot dog × 200 hot dogs) + ($2 per hamburger × 150 hamburgers) = $500

Calculating the GDP Deflator

2010	($200 / $200) × 100 = 100
2011	($600 / $350) × 100 = 171
2012	($1,200 / $500) × 100 = 240

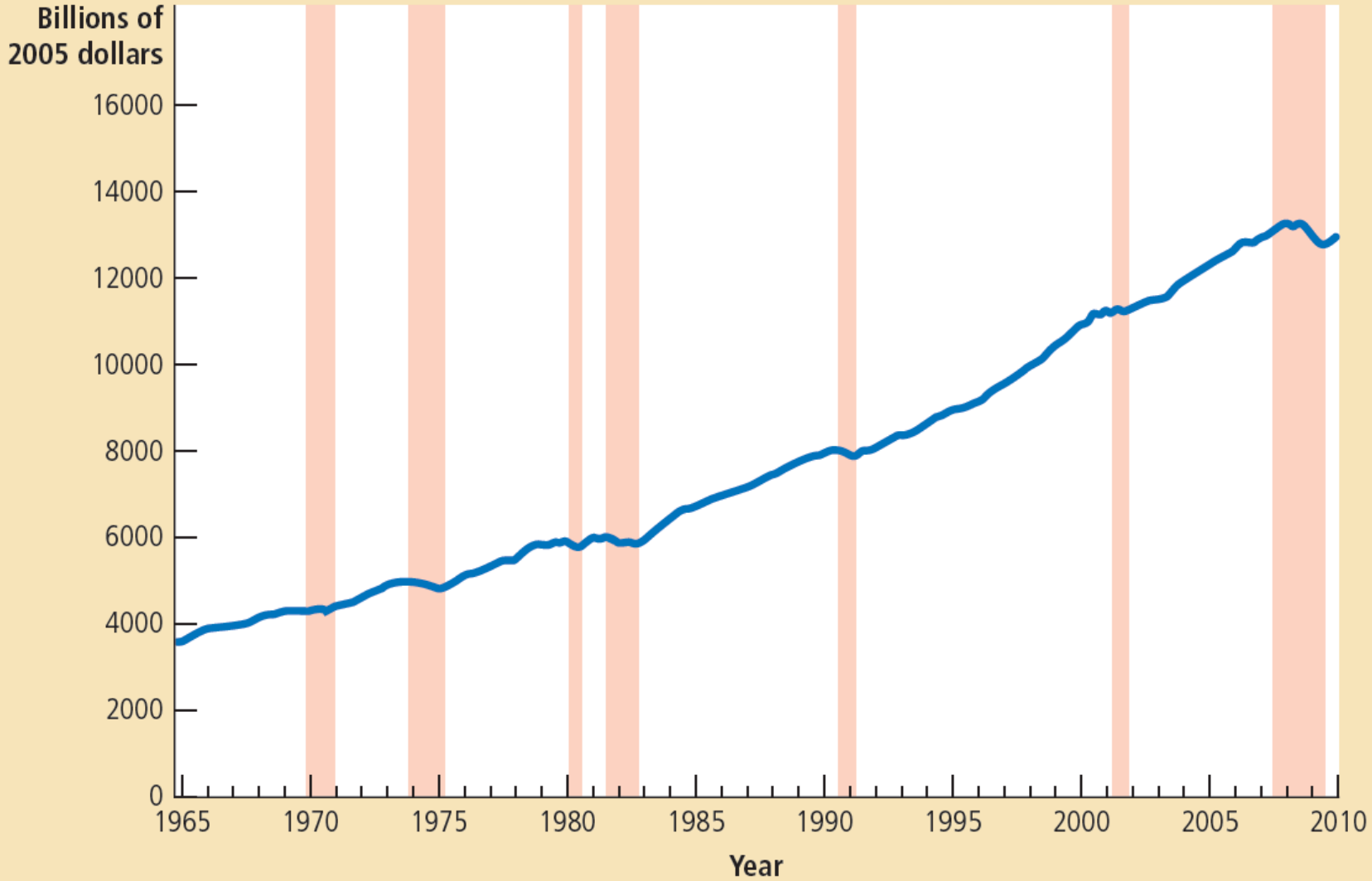
This table shows how to calculate real GDP, nominal GDP, and the GDP deflator for a hypothetical economy that produces only hot dogs and hamburgers.

Real versus Nominal GDP

- The GDP deflator (overall price level)
  - Ratio of nominal GDP to real GDP times 100
  - Is 100 for the base year
  - Measures the current level of prices relative to the level of prices in the base year
  - Can be used to take inflation out of nominal GDP (“deflate” nominal GDP)

Figure 2

Real GDP in the United States



This figure shows quarterly data on real GDP for the U.S. economy since 1965. Recessions—periods of falling real GDP—are marked with the shaded vertical bars.

GDP

- GDP – "the best single measure of the economic well-being of a society"
  - Economy's total income
  - Economy's total expenditure
  - Larger GDP
    - Good life, better healthcare
    - Better educational systems
  - Measure our ability to obtain many of the inputs into a worthwhile life

GDP

- GDP – not a perfect measure of well-being
  - Doesn't include
    - Leisure
    - Value of almost all activity that takes place outside markets
    - Quality of the environment
  - Nothing about distribution of income

International differences: GDP & quality of life

- Rich countries - higher GDP per person
  - Better
    - Life expectancy
    - Literacy
    - Internet usage
- Poor countries - lower GDP per person
  - Worse
    - Life expectancy
    - Literacy
    - Internet usage

Table 3

GDP and the Quality of Life

Country	Real GDP per Person (2007)	Life Expectancy	Adult Literacy (% of population)	Internet Usage (% of population)
United States	$45,592	79 years	99%	63%
Germany	34,401	80	99	45
Japan	33,632	83	99	67
Russia	14, 690	66	99	15
Mexico	14,104	76	93	18
Brazil	9,567	72	90	19
China	5,383	73	93	9
Indonesia	3,843	71	92	7
India	2,753	63	66	3
Pakistan	2,496	66	54	7
Nigeria	1,969	48	72	4
Bangladesh	1,241	66	54	0.3

The table shows GDP per person and three other measures of the quality of life for twelve major countries.