Macroeconomics

CHAPTER 7

Tracking the Macroeconomy

What you will learn in this chapter:

- How economists use aggregate measures to track the performance of the economy.
- *What **gross domestic product ,** or **GDP**, is and the three ways of calculating it*
- *The difference between **real GDP** and **nominal GDP** and why real GDP is the appropriate measure of real economic activity*
- *The significance of the **unemployment rate** and how it moves over the business cycle*
- *What a **price index** is and how it is used to calculate the **inflation rate**.*

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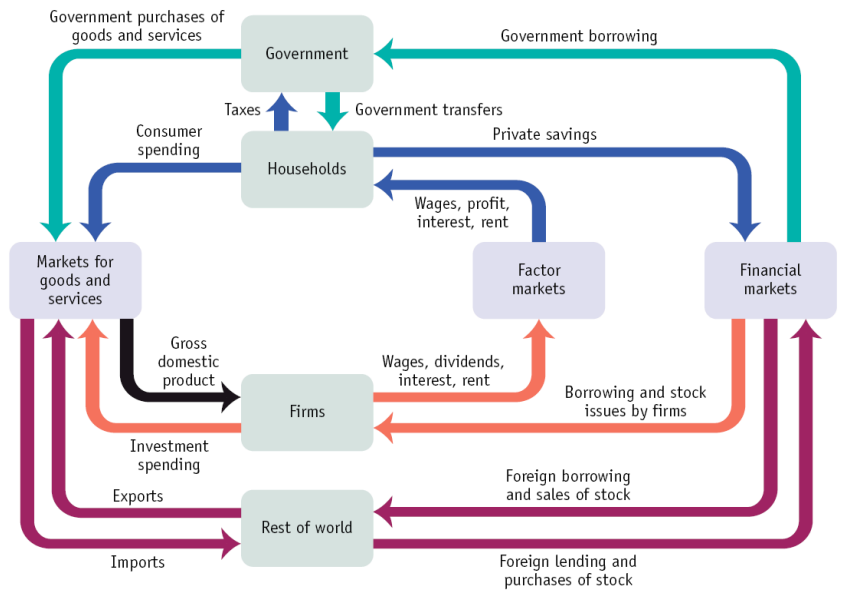
An Expanded Circular-Flow Diagram: The Flows of Money Through the Economy



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The National Accounts

- Almost all countries calculate a set of numbers known as the ***national income*** *and* ***product accounts***.
- The national income and product accounts, or national accounts, keep track of the flows of money between different parts of the economy.

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The National Accounts

- Households earn income via the factor markets from ***wages***, interest on ***bonds***, ***dividends*** on ***stocks***, and ***rent*** on land.
- In addition, they receive ***government transfers*** from the government.
- ***Disposable income***, total household income minus taxes, is either expended as ***consumer spending*** (C) or goes into ***private savings***.

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The National Accounts

- Via the ***financial markets***, private savings is channeled to firms for ***investment spending*** (I).
- ***Government purchases of goods and services*** (G) is paid for by tax receipts as well as by ***government borrowing***.
- ***Exports*** (X) generate an inflow of funds into the country from the rest of the world, while ***imports*** (IM) lead to an outflow of funds to the rest of the world. Foreigners can also buy stocks and bonds in the U.S. financial markets.

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Gross Domestic Product

Gross domestic product or ***GDP*** measures the value of all *final goods and services* produced in the economy. It does not include the value of *intermediate goods.*

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Calculating Gross Domestic Product

GDP can be calculated three ways:

- add up the ***value added*** of all producers;
- add up all spending on domestically produced final goods and services, leading to the equation **GDP = C+I+G+X-IM**;
- add up the all income paid to factors of production.

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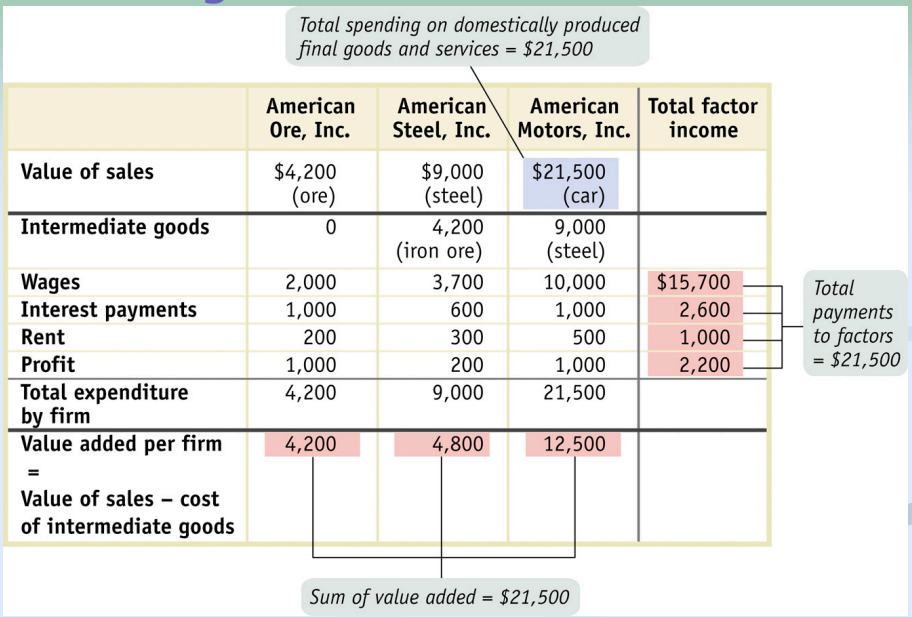
Calculating GDP



	American Ore, Inc.	American Steel, Inc.	American Motors, Inc.	Total factor income
Value of sales	$4,200 (ore)	$9,000 (steel)	$21,500 (car)	
Intermediate goods	0	4,200 (iron ore)	9,000 (steel)	
Wages	2,000	3,700	10,000	$15,700
Interest payments	1,000	600	1,000	2,600
Rent	200	300	500	1,000
Profit	1,000	200	1,000	2,200
Total expenditure by firm	4,200	9,000	21,500	
Value added per firm = Value of sales – cost of intermediate goods	4,200	4,800	12,500	

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Pitfalls: GDP: WHAT'S IN AND WHAT'S OUT

Included

- Domestically produced final goods and services (including capital goods)
- New construction of structures
- Changes to inventories

Not Included

- Intermediate goods and services
- Inputs
- Used goods
- Financial assets like stocks and bonds
- Foreign-produced goods and services

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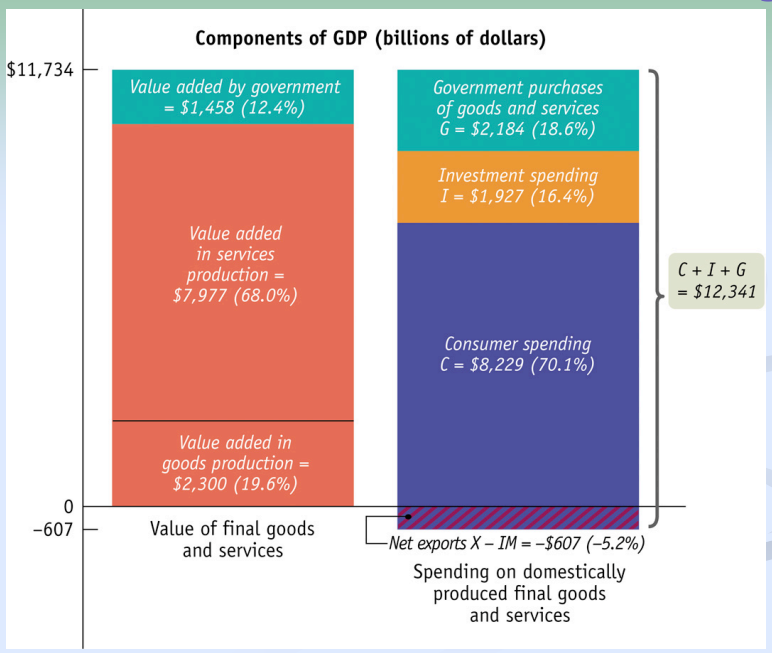
U.S. GDP in 2004: Two Methods of Calculating GDP



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Real vs. Nominal GDP

- ***Real GDP*** is the value of the final goods and services produced calculated using the prices of some base year.
- Except in the base year, real GDP is not the same as ***nominal GDP***, output valued at current prices.
- Real ***GDP per capita*** is a measure of average output per person, but is not by itself an appropriate policy goal.

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Calculating GDP and Real GDP in a Simple Economy

	Year 1	Year 2
Quantity of apples (billions)	2,000	2,200
Price of apple	$0.25	$0.30
Quantity of oranges (billions)	1,000	1,200
Price of orange	$0.50	$0.70
GDP (billions of dollars)	$1,000	$1,500
Real GDP (billions of year 1 dollars)	$1,000	$1,150

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Real vs. Nominal GDP

Nominal versus Real GDP in 1996, 2000, and 2004

	Nominal GDP (billions of current dollars)	Real GDP (billions of 2000 dollars)
1996	$7,817	$8,329
2000	9,817	9,817
2004	11,734	10,842

Source: U.S. Commerce Department.

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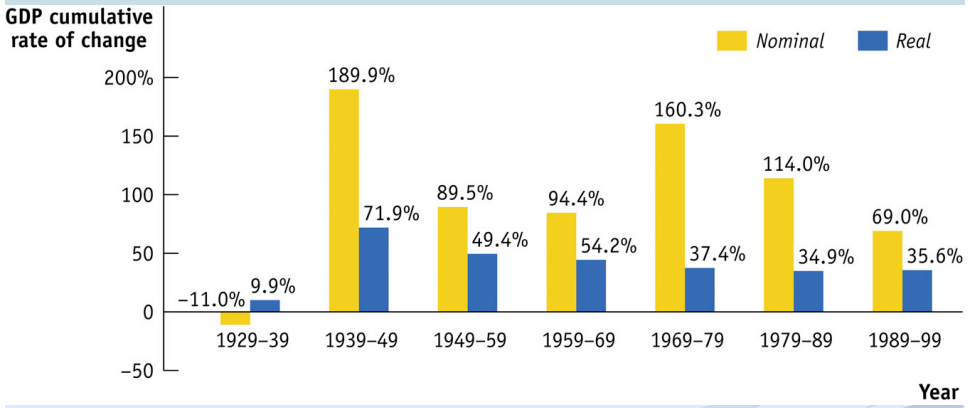
Real vs. Nominal GDP



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The Unemployment Rate

- The ***unemployment rate*** is an indicator of the state of the labor market, but should not be taken literally as a measure of the fraction of people who want to work but can't find jobs.
- It may ***overstate*** the true level of unemployment because a person typically spends time unemployed while in search of a job before finding one.
- It also may ***understate*** the true level of unemployment because it does not include discouraged workers.

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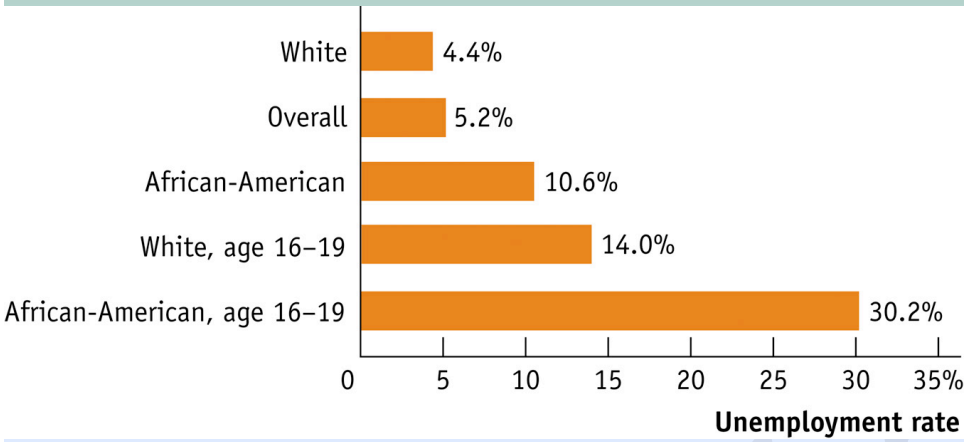
Unemployment Rate



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Growth and Unemployment

There is a strong relationship between growth in aggregate output and changes in the unemployment rate: ***when growth is above average, the unemployment rate falls, when it is below average, the unemployment rate rises***.

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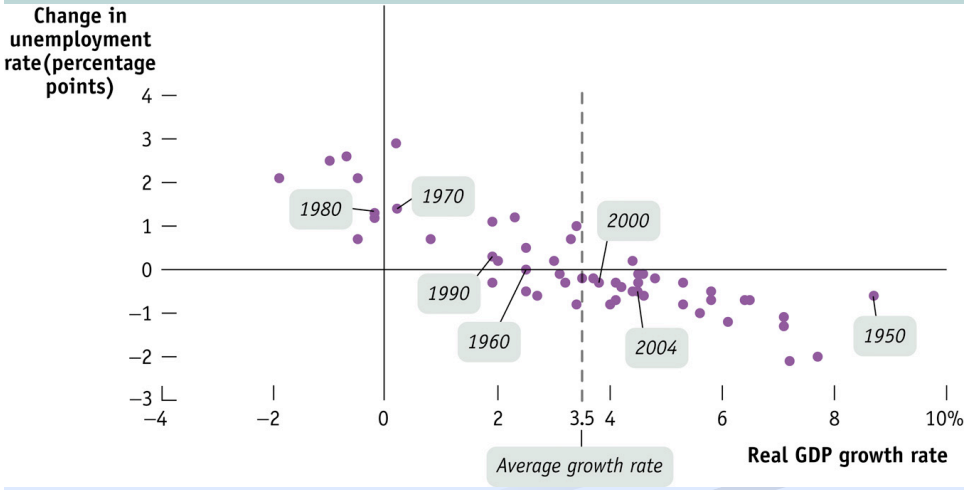
The Relationship between Real GDP and Unemployment, 1949-2004



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Price Indexes and the Aggregate Price Level

- To measure the aggregate price level, economists calculate the cost of purchasing a ***market basket***.
- A ***price index*** is the ratio of the current cost of that market basket to the cost in a base year, multiplied by 100.

$$\text{Price index in a given year} = \frac{\text{(Cost of market basket in a given year)}}{\text{(Cost of market basket in base year)}} \times 100$$

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Calculating the Cost of a Market Basket

	Pre-frost	Post-frost
Price of orange	$0.20	$0.40
Price of grapefruit	$0.60	$1.00
Price of lemon	$0.25	$0.45
Cost of market basket (200 oranges, 50 grapefruit, 100 lemons)	(200 × $0.20) + (50 × $0.60) + (100 × $0.25) = $95.00	(200 × $0.40) + (50 × $1.00) + (100 × $0.45) = $175.00

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Inflation Rate, CPI and other Indexes

The ***inflation rate*** is the yearly percentage change in a price index, typically based upon ***Consumer Price Index***, or ***CPI***, the most common measure of the aggregate price level.

$$\text{Inflation rate} = \frac{(\text{Price index in year 2} - \text{Price index in year 1})}{(\text{Price index in year 1})} \times 100$$

The *consumer price index*, or *CPI*, measures the cost of the market basket of a typical urban American family.

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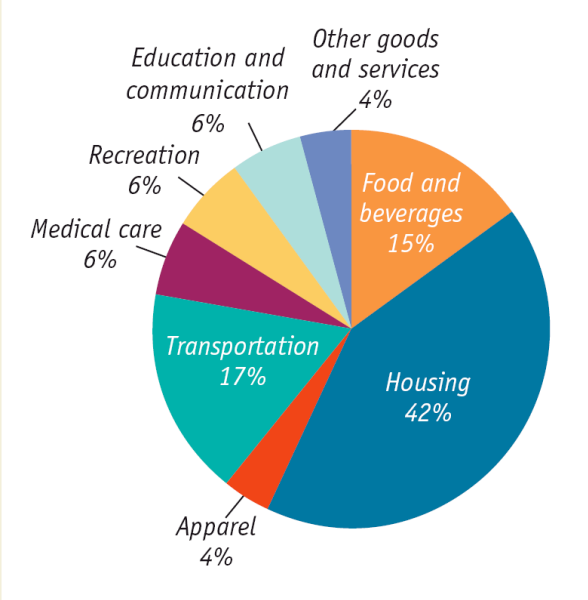
The Makeup of the Consumer Price Index in 2004



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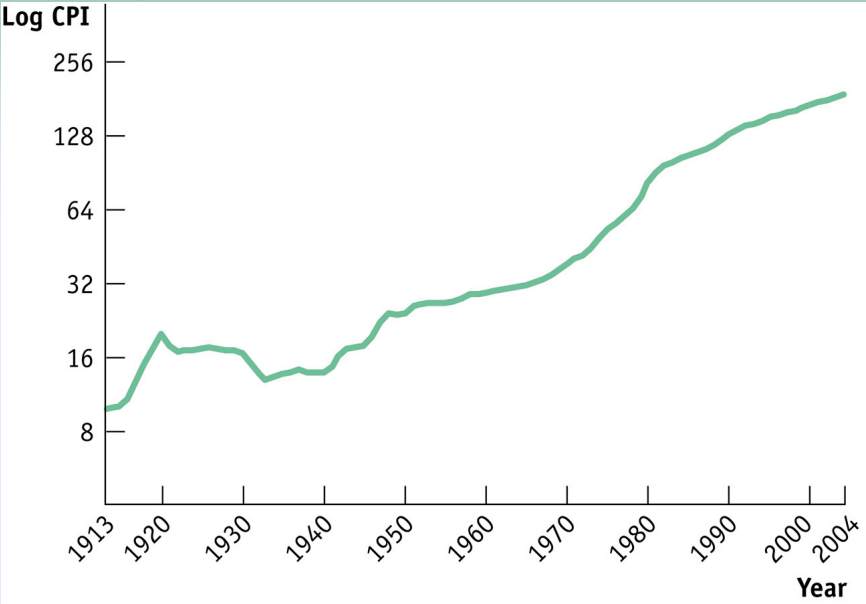
The CPI, 1913–2004



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Other Price Measures

- A similar index to CPI for goods purchased by firms is the ***producer price index***.
- Economists also use the ***GDP deflator***, which measures the price level by calculating the ratio of nominal to real GDP.
- The *GDP deflator* for a given year is 100 times the ratio of nominal GDP to real GDP in that year.

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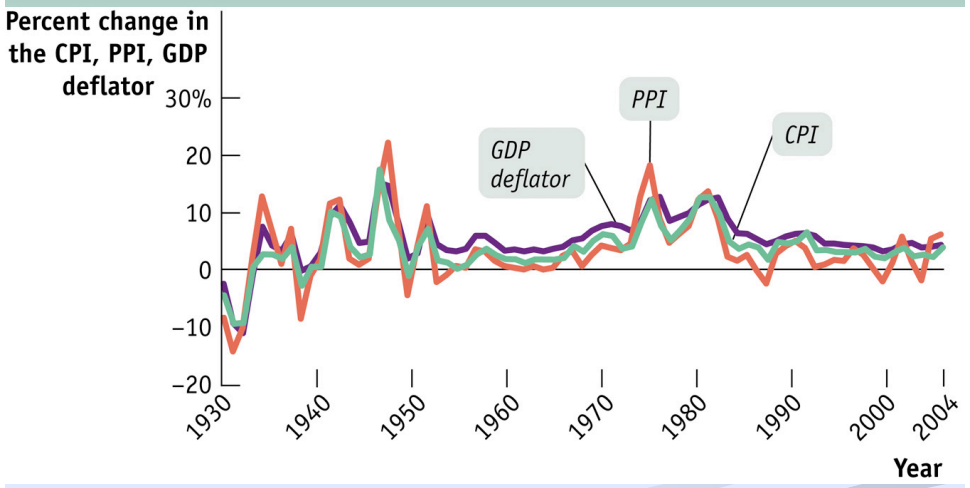
The CPI, the PPI, and the GDP Deflator



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The End of Chapter 7