Monitoring Jobs and the Price Level (Inflation)

After studying this chapter you will be able to

▶ Define the unemployment rate, the labor force participation rate, the employment-to-population ratio, and aggregate hours

▶ Describe the sources of unemployment, its duration, the groups most affected by it, and how it fluctuates over the business cycle

▶ Explain how we measure the price level and the inflation rate using the CPI

Vital Signs

Each month, we chart the course of unemployment as a measure of the health of the U.S. economy.

How do we measure unemployment and what other data do we use to monitor the labor market?

Having a job that pays a decent wage does not determine the standard of living; the cost of living also matters.

So we also need to know what the Consumer Price Index is and how it is measured and used.

Jobs and Wages

Population Survey

The U.S. Census Bureau conducts a monthly population survey to determine the status of the U.S. labor force.

The population is divided into two groups:

1. The **working-age population**—the number of people aged 16 years and older who are not in jail, hospital, or some other institution

2. People too young to work (under 16 years of age) or in institutional care

Jobs and Wages

The working-age population is divided into two groups:

1. People in the labor force

2. People not in the labor force

The **labor force** is the sum of employed and unemployed workers.

Jobs and Wages

To be counted as unemployed, a person must be in one of the following three categories:

1. Without work but has made specific efforts to find a job within the previous four weeks

2. Waiting to be called back to a job from which he or she has been laid off

3. Waiting to start a new job within 30 days

Jobs and Wages

Figure 22.1 shows the population labor force categories and the magnitudes for 2006.
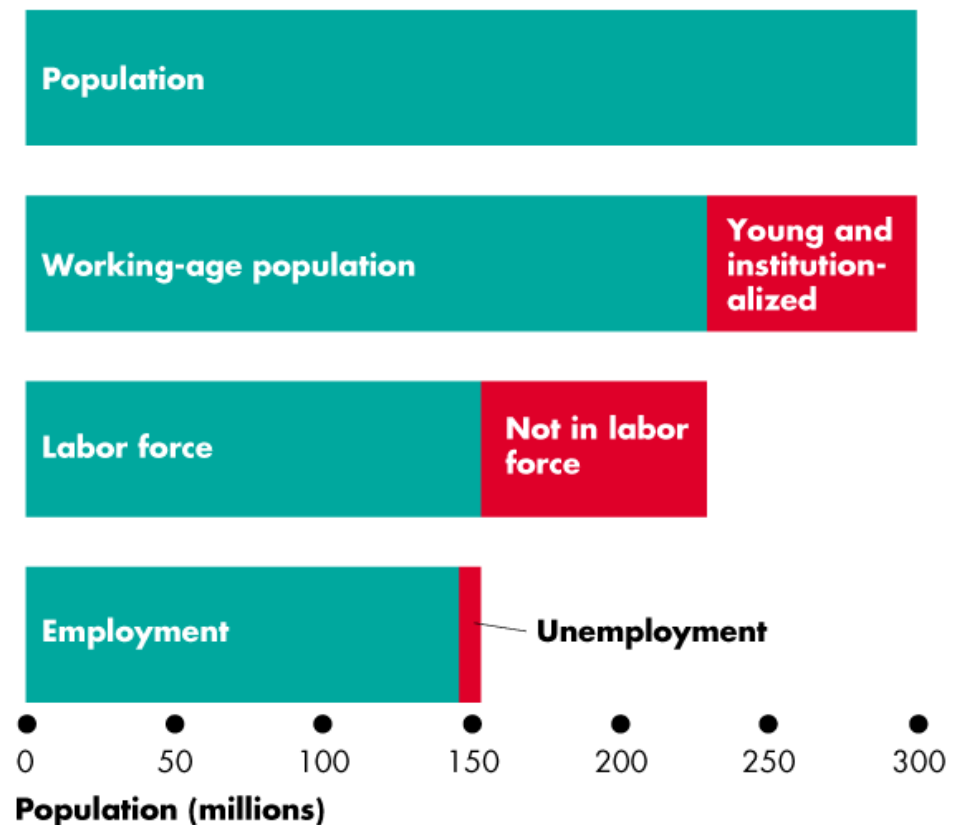
Jobs and Wages

Three Labor Market Indicators

- The unemployment rate

- The labor force participation rate

- The employment-to-population ratio

Jobs and Wages

The Unemployment Rate

The **unemployment rate** is the percentage of the labor force that is unemployed.

The unemployment rate is
(Number of people unemployed ÷ labor force) × 100.

The unemployment rate reaches its peaks during recessions.

Jobs and Wages

The Labor Force Participation Rate

The **labor force participation rate** is the percentage of the working-age population who are members of the labor force.

The labor force participation rate is
(Labor force ÷ Working-age population) × 100.

In 2006, the labor force was 152.6 million and the working-age population was 228.7 million.

The labor force participation rate was 67.6 percent.

Jobs and Wages

The labor force participation rate falls during recessions as **discouraged workers**—people available and willing to work but who have not made an effort to find work within the last four weeks—leave the labor force.

Jobs and Wages

The Employment-to-Population Ratio

The **employment-to-population** ratio is the percentage of working-age people who have jobs.

The employment-to-population ratio equals
(Number of people employed ÷ Working-age population) × 100.

In 2006, the number of people employed was 145.3 million and the working-age population was 228.7 million.

The employment-to-population ratio was 63.5 percent.

Jobs and Wages

Figure 22.2 shows the three labor market indicators for 1961–2006.

During a recession, the unemployment rate rises and the employment-to-population ratio falls.
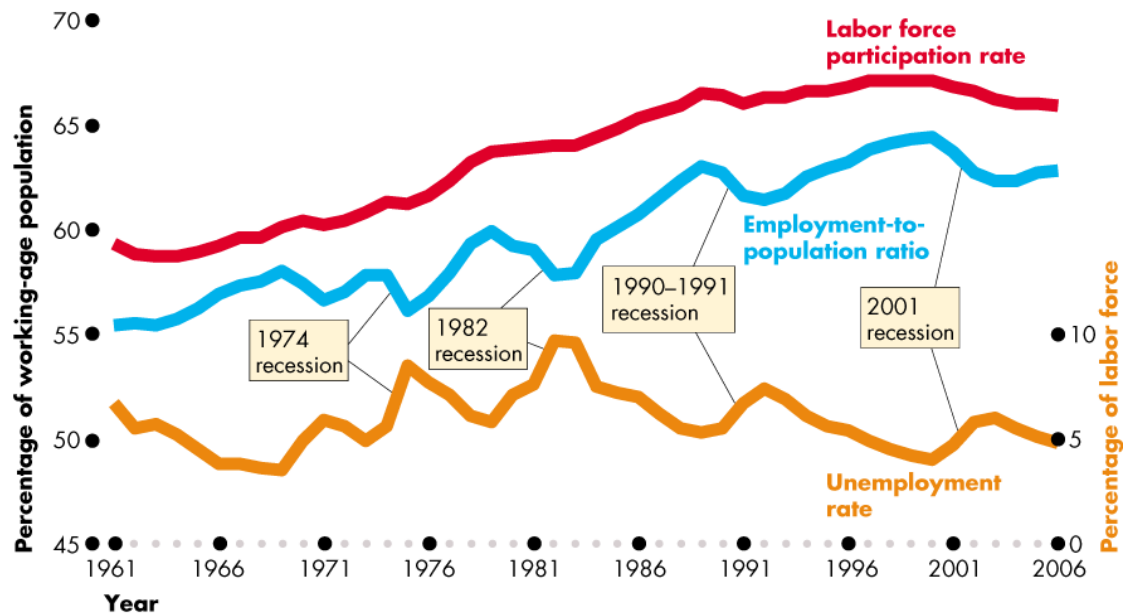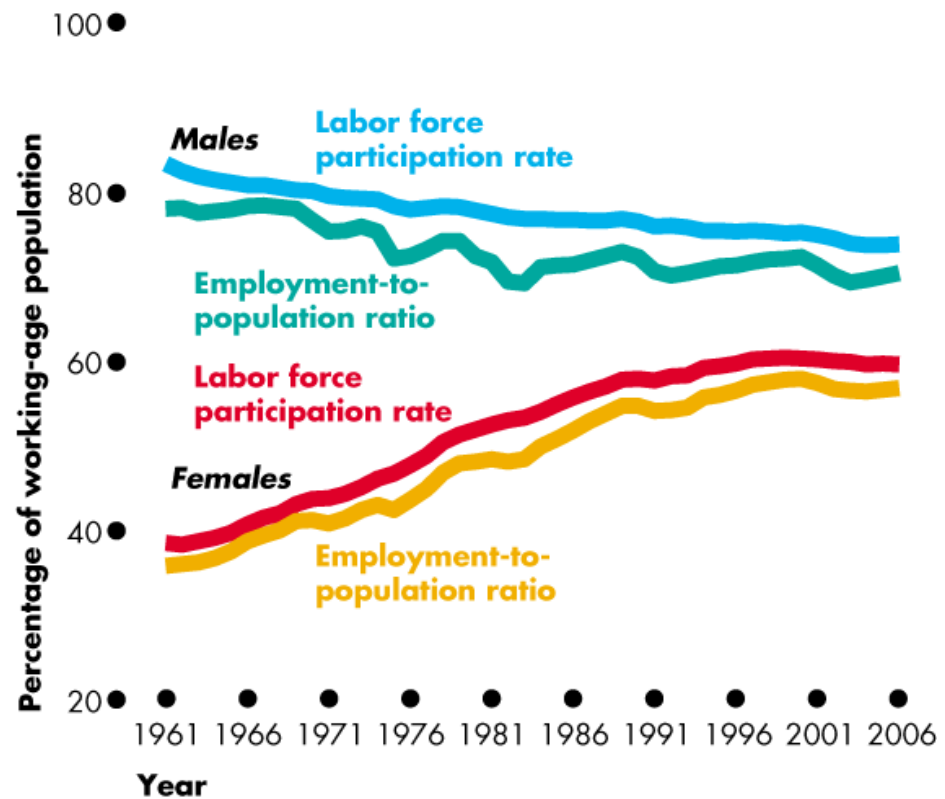
Jobs and Wages

Figure 22.3 shows the changing face of the labor market.

The female labor force participation rate has risen and the male labor force participation rate has fallen.

The female employment-to-population ratio has risen and the male employment-to-population ratio has fallen.

Jobs and Wages

Aggregate Hours

Aggregate hours are the total number of hours worked by all workers during a year.

Aggregate hours have increased since 1960 but less rapidly than the total number of workers because the average workweek has shortened.
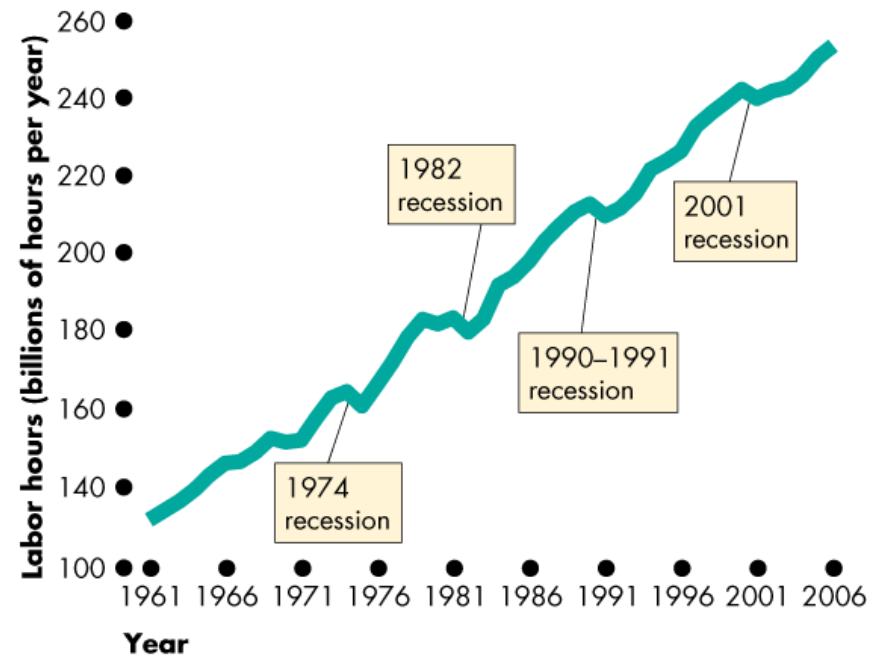
Jobs and Wages

Figure 22.4(a) shows aggregate hours.

Between 1961 to 2006, aggregate hours increased by a bit more than 90 percent.
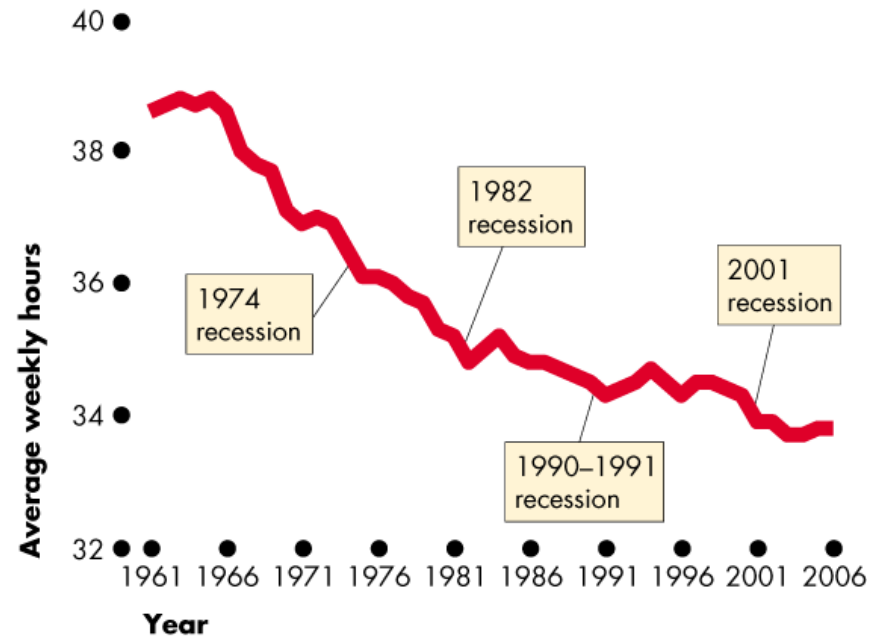
Aggregate hours fall in recessions.

(a) Aggregate hours

Jobs and Wages

Figure 22.4(b) shows average weekly hours.

Average weekly hours have decreased from almost 39 hours a week in the early 1960s to about 34 hours a week in the 2000s.

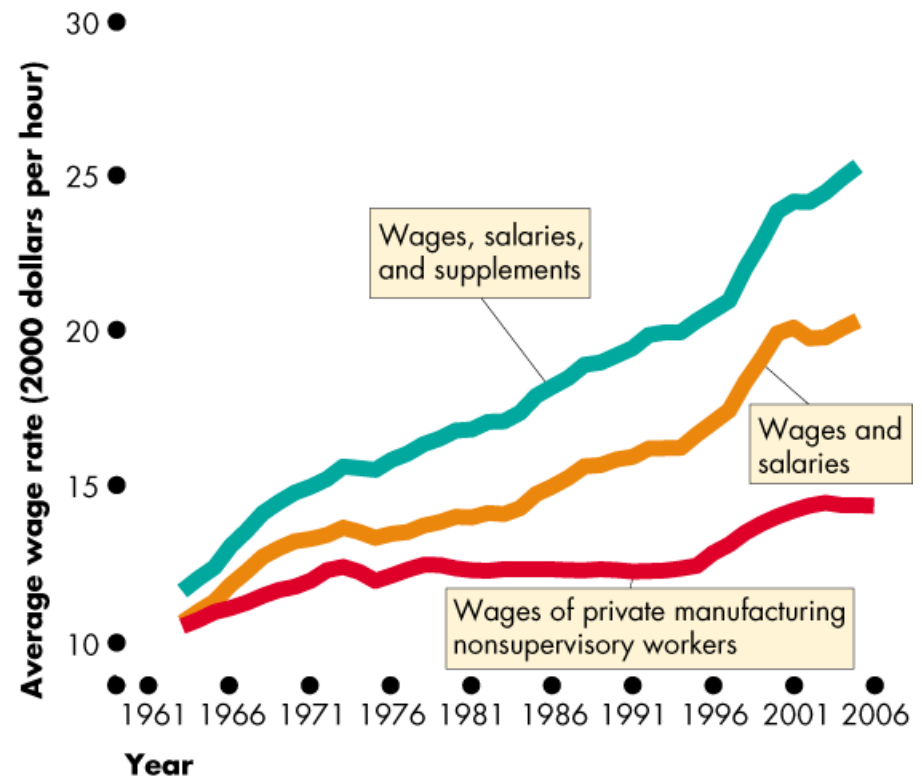

(b) Average weekly hours per person

Jobs and Wages

Real Wage Rate

The **real wage rate** is the quantity of goods and services that an hour's work will buy.

Figure 22.5 shows the real wage rate from 1961 to 2006 calculated as total labor compensation in 2000 dollars per hour of work.

Unemployment and Full Employment

**The Anatomy of Unemployment**

People become unemployed if they

1. Lose their jobs and search for another.

2. Leave their jobs and search for another job.

3. Enter or re-enter the labor force to search for a job.

People end a spell of unemployment if they

1. Are hired or recalled.

2. Withdraw from the labor force.

Unemployment and Full Employment

Figure 22.6 illustrates the labor market flows between the different states.
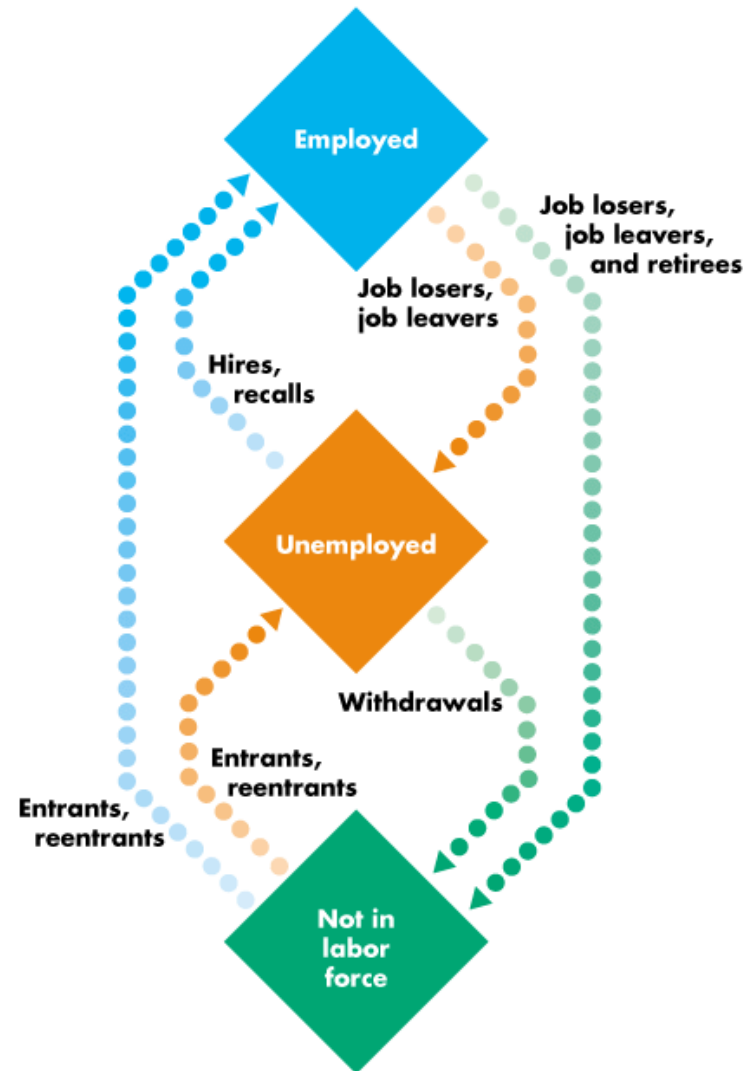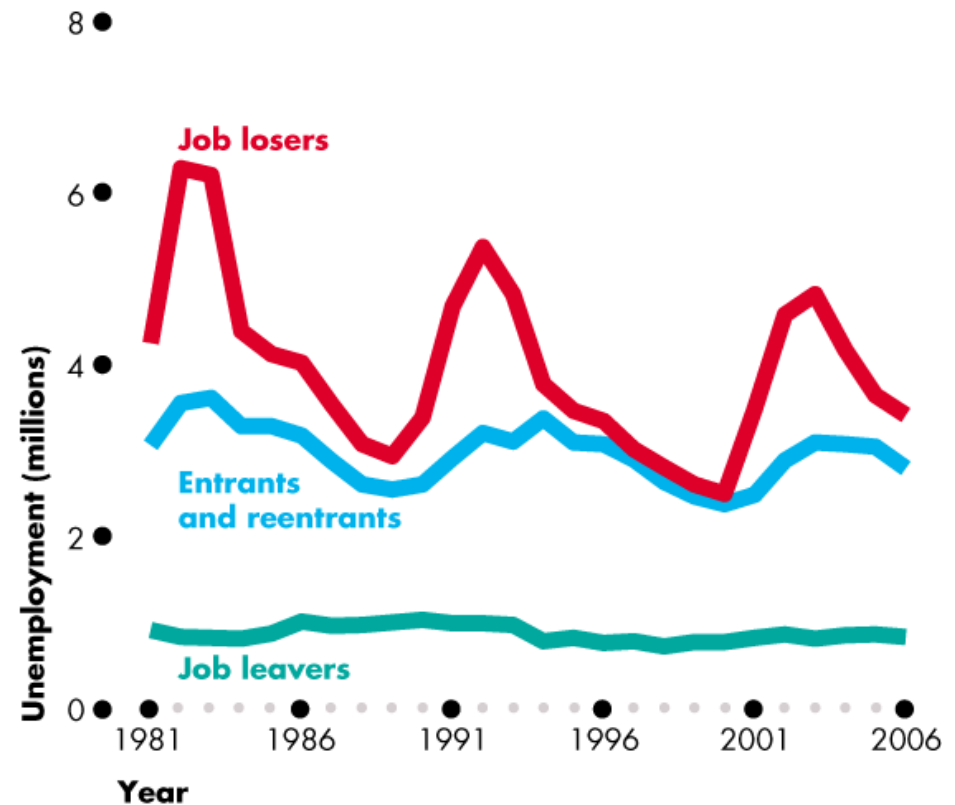
Unemployment and Full Employment

Sources of Unemployment

Figure 22.7 shows unemployment by reason, 1981–2006.

Job leavers are the smallest group.

Job losers are the largest and the most cyclical group.
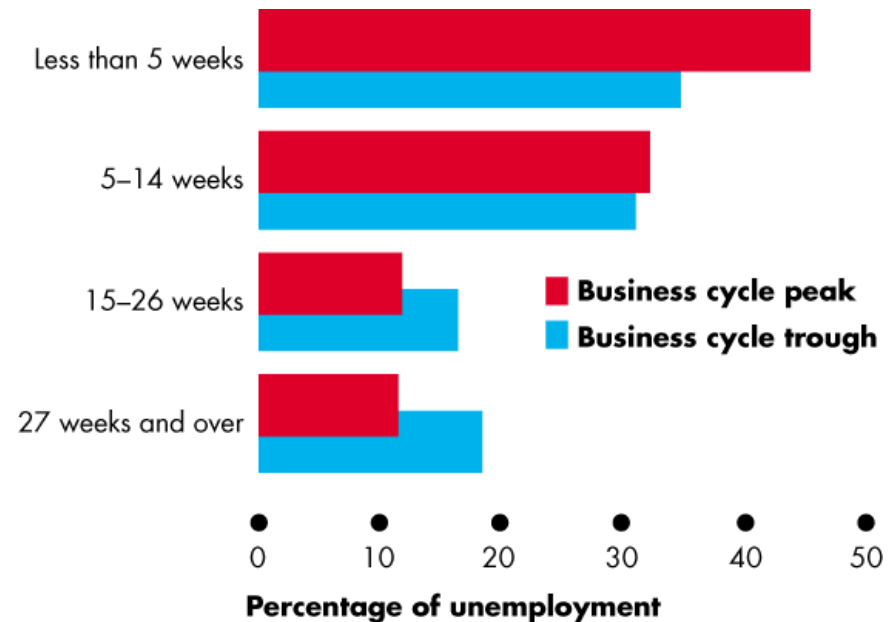
Unemployment and Full Employment

Duration of Unemployment

Figure 22.8 shows the duration of unemployment close to a business cycle peak in 1989…

… and close to a trough in 1992.

The duration of unemployment increases during recessions.

Unemployment and Full Employment

Demographics of Unemployment

Figure 22.9 shows the unemployment rates of different age groups close to a business cycle peak in 1989…

… and close to a trough in 1992.

Teenagers experience the highest unemployment rates.

Black males 16–19
Black females 16–19
White males 16–19
White females 16–19
Black males 20 and over
Black females 20 and over
White males 20 and over
White females 20 and over

■ Business cycle peak
■ Business cycle trough

0   10   20   30   40   50

Unemployment rate
(percentage of labor force of each group)
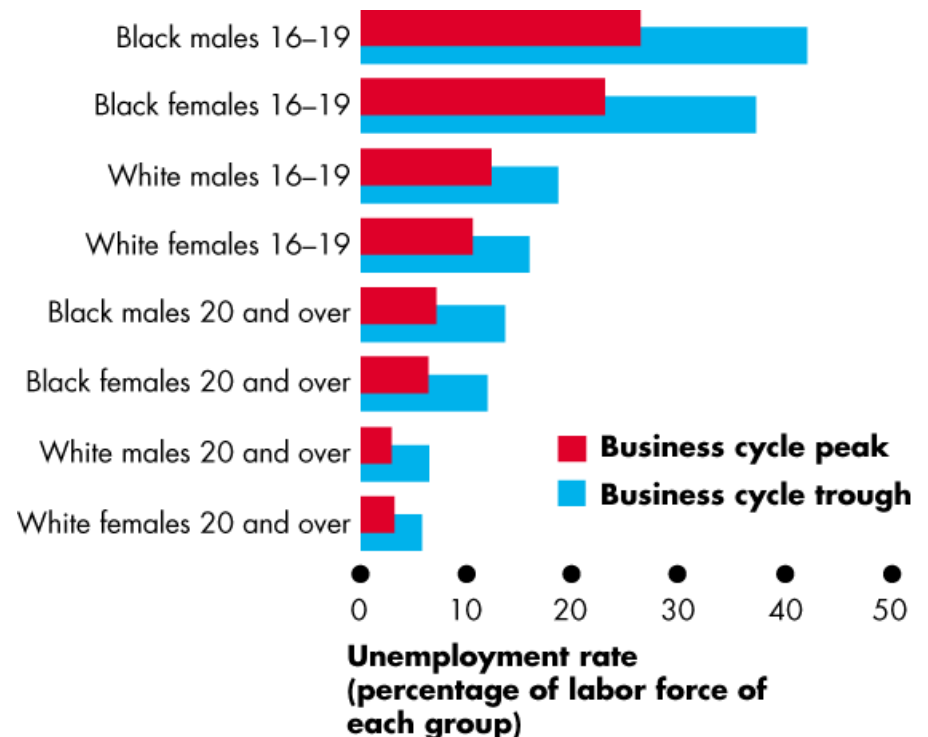
Unemployment and Full Employment

Types of Unemployment

Unemployment can be classified into three types:

- Frictional

- Structural

- Cyclical

Unemployment and Full Employment

Frictional Unemployment

Frictional unemployment is unemployment that arises from normal labor market turnover.

The creation and destruction of jobs requires that unemployed workers search for new jobs.

Increases in the number of people entering and reentering the labor force and increases in unemployment compensation raise frictional unemployment.

Unemployment and Full Employment

Structural Unemployment

Structural unemployment is unemployment created by changes in technology and foreign competition that change the skills needed to perform jobs or the locations of jobs.

Structural unemployment lasts longer than frictional unemployment.

Cyclical Unemployment

Cyclical unemployment is the fluctuating unemployment over the business cycle.

Unemployment and Full Employment

Full Employment

Full employment occurs when there is no cyclical unemployment or, equivalently, when all unemployment is frictional and structural.

The unemployment rate at full employment is called the **natural unemployment rate**.

The natural unemployment rate was high during the early 1980s but has gradually decreased.

Unemployment and Full Employment

Real GDP and Unemployment Over the Cycle

Potential GDP is the quantity of real GDP produced at full employment.

Potential GDP corresponds to the capacity of the economy to produce output on a sustained basis.

Over the business cycle, actual real GDP fluctuates around potential GDP and the unemployment rate fluctuates around the natural rate of unemployment.

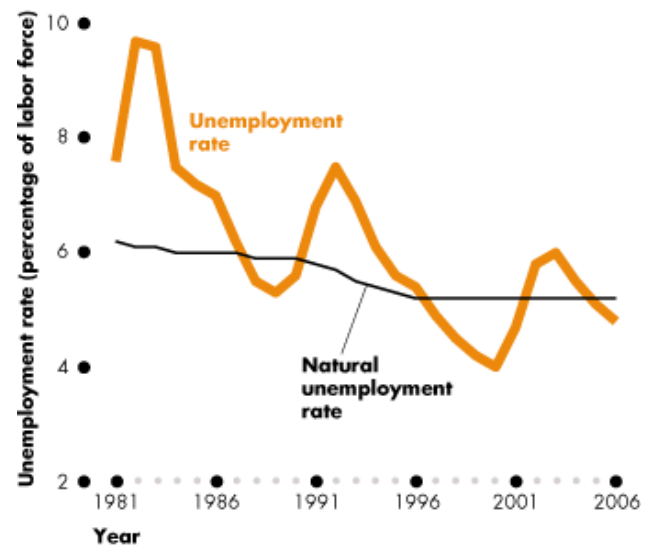# Unemployment and Full Employment

Real GDP and Unemployment Over the Cycle

Figure 22.10 shows real GDP, and the unemployment rate...

...and estimates of potential GDP and the natural unemployment rate.
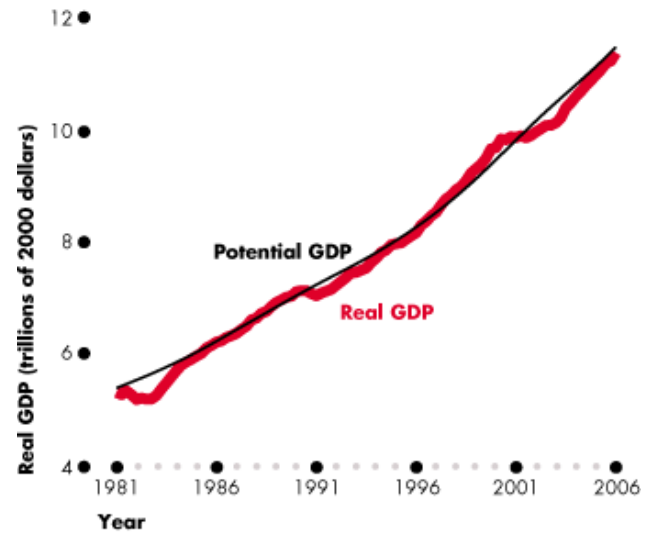
(a) Real GDP

(b) Unemployment rate

The Consumer Price Index

The BLS calculates the Consumer Price Index every month.

The **Consumer Price Index**, or **CPI**, measures the average of the prices paid by urban consumers for a "fixed" basket of consumer goods and services.

The Consumer Price Index

Reading the CPI Numbers

The CPI is defined to equal 100 for the **reference base period**.

Currently, the reference base period is 1982–1984.

That is, for the average of the 36 months from January 1982 through December 1984, the CPI equals 100.

In June 2006, the CPI was 202.9.

This number tells us that the average of the prices paid by urban consumers for a fixed basket of goods was 102.9 percent higher in 2006 than it was during 1982–1984.

The Consumer Price Index

Constructing the CPI

Constructing the CPI involves three stages:

- Selecting the CPI basket

- Conducting a monthly price survey

- Calculating the CPI

The Consumer Price Index

The CPI Basket

The CPI basket is based on a Consumer Expenditure Survey, which is undertaken infrequently.

The CPI basket today is based on data collected in the Consumer Expenditure Survey of 2001−2002.

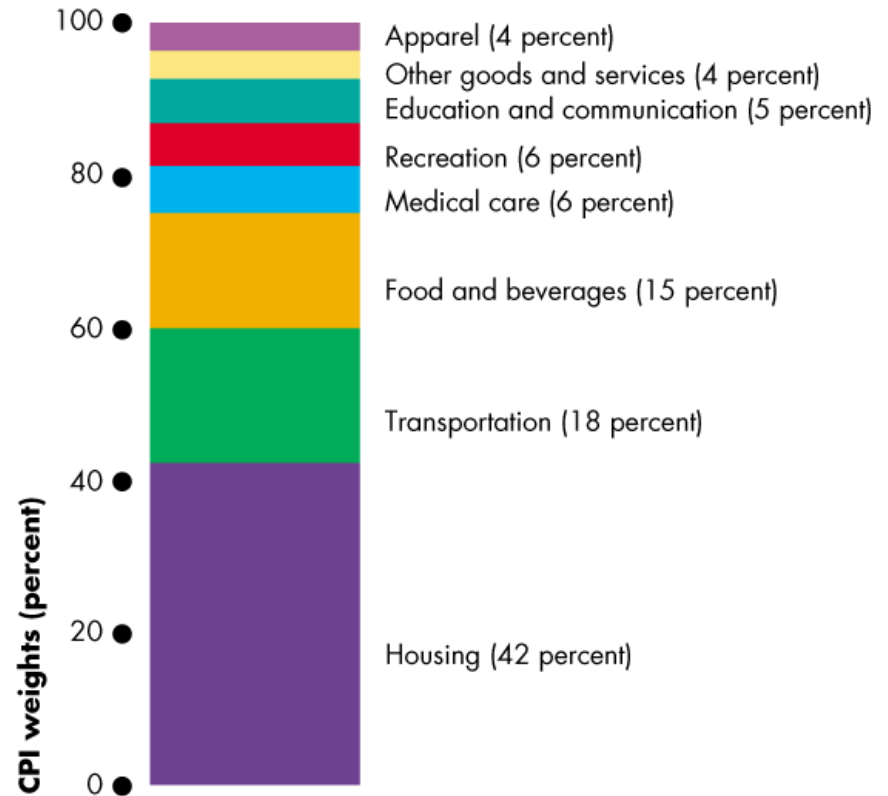The CPI basket contains 80,000 goods.

The Consumer Price Index

Figure 22.11 illustrates the CPI basket.

Housing is the largest component.

Transportation and food and beverages are the next largest components.

The remaining components account for 25 percent of the basket.

CPI weights (percent)

- Apparel (4 percent)
- Other goods and services (4 percent)
- Education and communication (5 percent)
- Recreation (6 percent)
- Medical care (6 percent)
- Food and beverages (15 percent)
- Transportation (18 percent)
- Housing (42 percent)

The Consumer Price Index

The Monthly Price Survey

Every month, BLS employees check the prices of 80,000 goods on 30 metropolitan areas.

Calculating the CPI

1. Find the cost of the CPI basket at base-period prices.

2. Find the cost of the CPI basket at current-period prices.

3. Calculate the CPI for the current period.

The Consumer Price Index

Let's work an example of the CPI calculation.

In a simple economy, people consume only oranges and haircuts. The CPI basket is 10 oranges and 5 haircuts.

The table also shows the prices in the base period.

Item	Quantity	Price
Oranges	10	$1.00
Haircuts	5	$8.00

The Consumer Price Index

The cost of the CPI basket in the base period was $50.

Item	Quantity	Price	Cost of CPI basket
Oranges	10	$1.00	$10
Haircuts	5	$8.00	$40
Cost of CPI basket at base period prices			$50

The Consumer Price Index

This table shows the prices in the current period.

The cost of the CPI basket at current-period prices is $70.

Item	Quantity	Price	Cost of CPI basket
Oranges	10	$2.00	$20
Haircuts	5	$10.00	$50
Cost of CPI basket at current-period prices			$70

The Consumer Price Index

The CPI is calculated using the formula:

CPI = (Cost of basket at current-period prices $\div$ Cost of basket at base-period prices) $\times$ 100.

Using the numbers for the simple example,

$$\text{CPI} = (\$70 \div \$50) \times 100 = 140.$$

The CPI is 40 percent higher in the current period than it was in the base period.

The Consumer Price Index

Measuring Inflation

The major purpose of the CPI is to measure inflation.

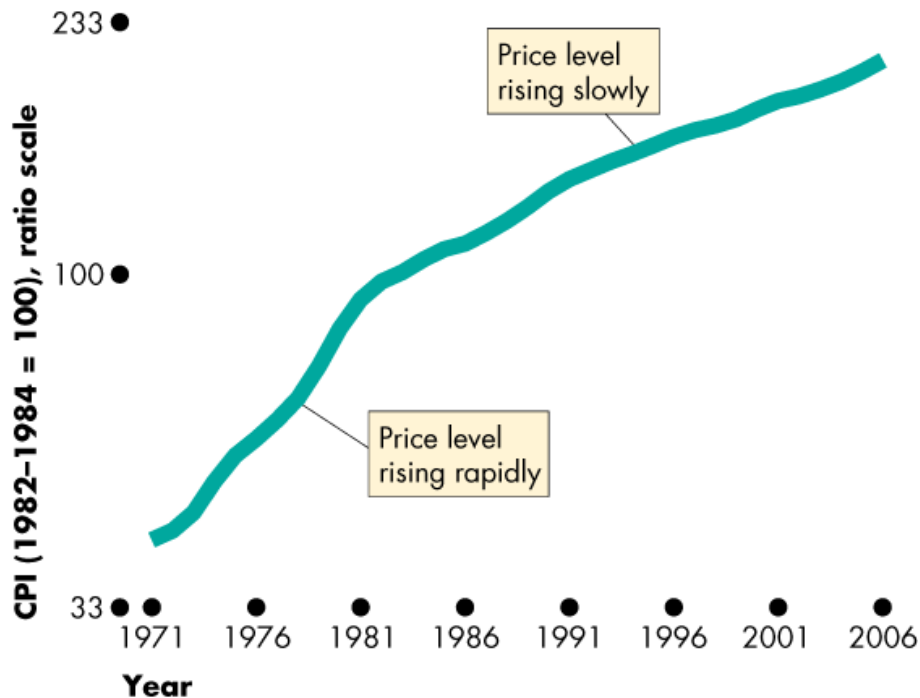The **inflation rate** is the percentage change in the price level from one year to the next.

The inflation formula is:

Inflation rate = [(CPI this year – CPI last year) $\div$ CPI last year] $\times$ 100.

The Consumer Price Index

Figure 22.12 shows the relationship between the price level and inflation.
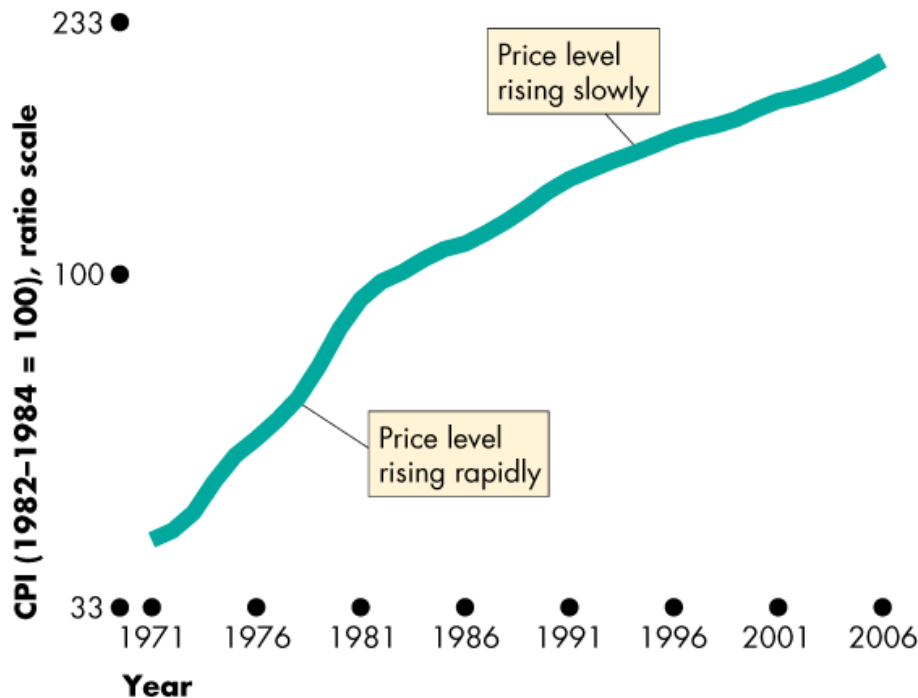
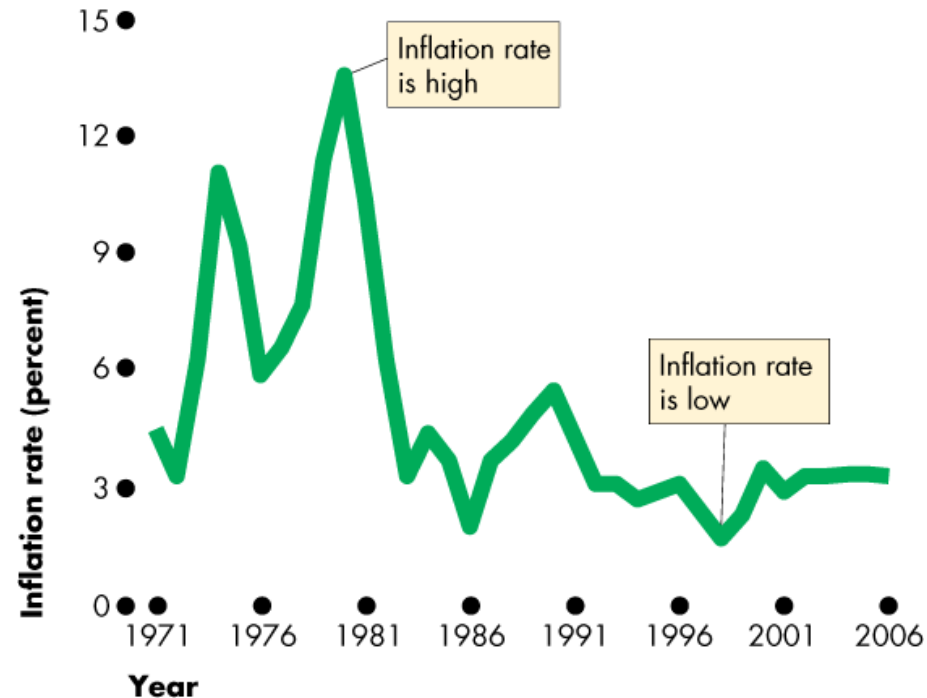Figure 22.12(a) shows the CPI from1971 to 2006.

(a) CPI

The Consumer Price Index

Figure 22.12(b) shows that the inflation rate is

- High when the price level is rising rapidly and

- Low when the price level is rising slowly.

(a) CPI

(b) Inflation rate

The Consumer Price Index

The Biased CPI

The CPI might overstate the true inflation for four reasons:

- New goods bias

- Quality change bias

- Commodity substitution bias

- Outlet substitution bias

The Consumer Price Index

New Goods Bias

New goods that were not available in the base year appear and, if they are more expensive than the goods they replace, they put an upward bias into the CPI.

Quality Change Bias

Quality improvements occur every year. Part of the rise in the price is payment for improved quality and is not inflation.

The CPI counts all the price rise as inflation.

The Consumer Price Index

Commodity Substitution Bias

The market basket of goods used in calculating the CPI is fixed and does not take into account consumers' substitutions away from goods whose relative prices increase.

Outlet Substitution Bias

As the structure of retailing changes, people switch to buying from cheaper sources, but the CPI, as measured, does not take account of this outlet substitution.
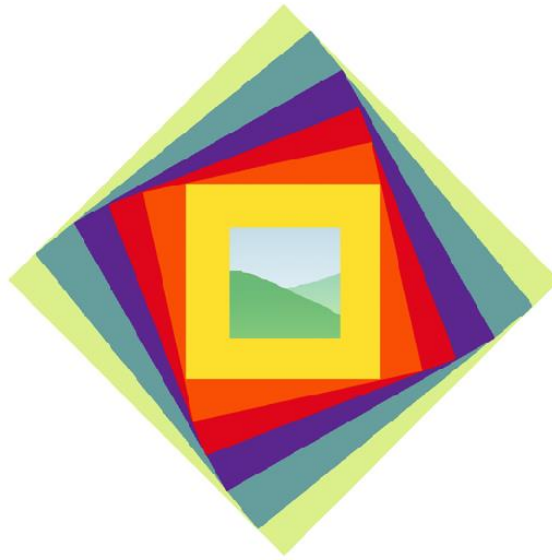
The Consumer Price Index

Some Consequences of the Bias

The bias in the CPI

- Distorts private contracts.

- Increases government outlays (close to a third of federal government outlays are linked to the CPI).

- Biases estimates of real earnings.

Reducing the Bias

The BLS now undertakes consumer spending surveys at more frequent intervals and is experimenting with a chained CPI.

THE END