Unemployment

Measuring Unemployment

**employed** Any person 16 years old or older
(1) who **works for pay**, either for someone else or in his or her own business for 1 or more hours per week,
(2) who **works without pay for 15 or more** hours per week in a **family enterprise**, or
(3) who **has a job** but has been temporarily absent with or without pay – unpaid leave, study leave

**unemployed** A person 16 years old or older who
✓ is **not working**,
✓ is available for work,
✓ has made **specific efforts** to find work during the previous 4 weeks
✓ **waiting to be called back** to a job from which he or she has been laid off
✓ **Waiting to start a new job** within 30 days
Unemployment

Measuring Unemployment

**not in the labor force**  A person who is not looking for work because he or she **does not want a job** – university student or has given up looking.

**labor force**  The number of people employed plus the number of unemployed.

\[
\text{labor force} = \text{employed} + \text{unemployed}
\]

\[
\text{population} = \text{labor force} + \text{not in labor force}
\]
Unemployment

Measuring Unemployment

**unemployment rate** The ratio of the number of people unemployed to the total number of people in the labor force.

\[
\text{unemployment rate} = \frac{\text{unemployed}}{\text{employed} + \text{unemployed}}
\]

\[
\text{unemployment rate} = \frac{\text{unemployed}}{\text{Labor force}}
\]

- The unemployment rate increases in a recession and reaches its peak value after the recession ends.

**labor force participation rate** The ratio of the labor force to the total population 16 years old or older.

\[
\text{labor force participation rate} = \frac{\text{labor force}}{\text{population}}
\]

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population 16 Years Old or Over (Millions)</td>
<td>105.0</td>
<td>62.2</td>
<td>58.9</td>
<td>3.3</td>
<td>59.2</td>
<td>5.3</td>
</tr>
<tr>
<td></td>
<td>117.2</td>
<td>69.6</td>
<td>65.8</td>
<td>3.9</td>
<td>59.4</td>
<td>5.5</td>
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<td></td>
<td>137.1</td>
<td>82.8</td>
<td>78.7</td>
<td>4.1</td>
<td>60.4</td>
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<td>167.7</td>
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<td>235.8</td>
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<td>139.9</td>
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<td>65.4</td>
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</tbody>
</table>

*Note: Figures are civilian only (military excluded).*
Other Definitions of Unemployment

The purpose of the unemployment rate is to measure the underutilization of labor resources.

The BLS (Bureau of Labor Statistics) believes that the unemployment rate gives a correct measure.

But the official measure is an imperfect measure because it excludes

- Marginally attached workers
- Part-time workers who want full-time jobs
Marginally Attached Workers

A marginally attached worker is a person who currently is neither working nor looking for work but has indicated that he or she wants and is available for a job and has looked for work sometime in the recent past.

A discouraged worker is a marginally attached worker who has stopped looking for a job because of repeated failure to find one.
Part-Time Workers Who Want Full-Time Jobs

Many part-time workers want to work part time, but some part-time workers would like full-time jobs and can’t find them.

In the official statistics, these workers are called economic part-time workers and they are partly unemployed.

Most Costly Unemployment

All unemployment is costly, but the most costly is long-term unemployment that results from job loss.
Unemployment

Components of the Unemployment Rate

Unemployment Rates for Different Demographic Groups

<table>
<thead>
<tr>
<th>TABLE 7.2 Unemployment Rates by Demographic Group, 1982 and 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Years</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>White</td>
</tr>
<tr>
<td>Men 20+</td>
</tr>
<tr>
<td>Women 20+</td>
</tr>
<tr>
<td>Both sexes 16–19</td>
</tr>
<tr>
<td>African American</td>
</tr>
<tr>
<td>Men 20+</td>
</tr>
<tr>
<td>Women 20+</td>
</tr>
<tr>
<td>Both sexes 16–19</td>
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</table>
## Unemployment

### Components of the Unemployment Rate

### Unemployment Rates in States and Regions

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<td>Cal.</td>
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<td>6.7</td>
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<td>9.2</td>
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<td>6.8</td>
<td>8.3</td>
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</table>
# Unemployment

## Components of the Unemployment Rate

### The Duration of Unemployment

<table>
<thead>
<tr>
<th>Year</th>
<th>Weeks</th>
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<th>Weeks</th>
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<th>Weeks</th>
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<td>2007</td>
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<td>1983</td>
<td>20.0</td>
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Unemployment

The Costs of Unemployment

Some Unemployment Is Inevitable

When we consider the various costs of unemployment, it is useful to categorize unemployment into three types:

- Frictional unemployment
- Structural unemployment
- Cyclical unemployment
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.

e.g. new firms, firms expand or contract and some firms fail and shut down

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

Frictional unemployment is a permanent and healthy phenomenon of a growing economy.
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.

e.g. information technology phenomena – IT graduate

Structural unemployment lasts longer than frictional unemployment.
Cyclical Unemployment

Cyclical unemployment is the higher than normal unemployment at a business cycle trough and lower than normal unemployment at a business cycle peak.

A worker who is laid off because the economy is in a recession and is then rehired when the expansion begins experiences cyclical unemployment.
“Natural” Unemployment

Natural unemployment is the unemployment that arises from frictions and structural change when there is no cyclical unemployment.

Natural unemployment is all frictional and structural unemployment.

The natural unemployment rate:

The natural unemployment as a percentage of the labor force.
**Full employment** is defined as the situation in which the unemployment rate equals the natural unemployment rate.

or, equivalently, all unemployment is frictional and structural.

- When the economy is at full employment, there is no cyclical unemployment.
The **natural unemployment rate** changes over time and is influenced by many factors.

Key factors are

- **The age distribution of the population:**
  - young population: high level of frictional unemployment

- **The scale of structural change:**
  - small change in knowledges or skills of machine: low level of structural unemployment

- **The real wage rate:**
  - Efficiency wage encourage workers to work hard

- **Unemployment benefits:**
  - The higher level of the natural unemployment e.g. lowering the cost of opportunity
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.

Real GDP *minus* potential GDP is the *output gap*.

Over the business cycle, the output gap fluctuates and the unemployment rate fluctuates around the natural unemployment rate.
Figure 22.5 shows the output gap and ... the fluctuations of unemployment around the natural rate.

When the output gap is negative, ... the unemployment rate exceeds the natural unemployment rate.
The costs of unemployment are neither evenly distributed across the population nor easily quantified.

The social consequences of the Depression of the 1930s are perhaps the hardest to comprehend. Few emerged from this period unscathed.

At the bottom were the poor and the fully unemployed, about 25 percent of the labor force. Even those who kept their jobs found themselves working part-time.

Many people lost all or part of their savings as the stock market crashed and thousands of banks failed => crime
Price Level, Inflation, and Deflation

The price level is the average level of prices and the value of money.

A persistently rising price level is called inflation.

A persistently falling price level is called deflation.

We are interested in the price level because we want to

1. Measure the inflation rate or the deflation rate

2. Distinguish between money values and real values of economic variables.
Price Level, Inflation, and Deflation

Why Inflation and Deflation Are Problems

Low, steady, & anticipated inflation or deflation is not a problem.

Unpredictable inflation or deflation is a problem because it

- Redistributions income and wealth
- Lowers real GDP and employment
- Diverts resources from production

Unpredictable $\Delta$ in the inflation rate redistribute income in arbitrary ways between employers and workers and between borrowers and lenders.

At its worst, inflation becomes hyperinflation—an inflation rate that is so rapid that workers are paid twice a day because money loses its value so quickly.
The **Consumer Price Index**

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.
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 2012, the CPI was 228.8. This number tells us that the average of the prices paid by urban consumers for a fixed basket of goods was 128.8 percent higher in June 2012 than it was during 1982–1984.
Constructing the CPI

Constructing the CPI involves three stages:

- Selecting the CPI basket
- Conducting a monthly price survey
- Calculating the CPI
Price Level, Inflation, and Deflation

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 2008.
Figure 22.6 illustrates the CPI basket.

Housing is the largest component.

Transportation and food and beverages are the next largest components.

The remaining components account for 26 percent of the basket.
Price Level, Inflation, and Deflation

The Monthly Price Survey

Every month, BLS employees check the prices of the 80,000 goods in the CPI basket in 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.
Price Level, Inflation, and Deflation

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.

The cost of the CPI basket in the base period was $50.
Table 22.1(b) shows the fixed CPI basket of goods.

It also shows the prices in the current period.

The cost of the CPI basket at current-period prices is $70.
Price Level, Inflation, and Deflation

The CPI is calculated using the formula:

\[ \text{CPI} = \left( \frac{\text{Cost of basket at current-period prices}}{\text{Cost of basket at base-period prices}} \right) \times 100 \]

Using the numbers for the simple example:

\[ \text{CPI}_{2012} = \left( \frac{$50}{$50} \right) \times 100 = 100 \rightarrow \text{base year} \]
\[ \text{CPI}_{2013} = \left( \frac{$70}{$50} \right) \times 100 = 140 \rightarrow \text{current year} \]

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

The major purpose of the CPI is to measure inflation.

The inflation rate:

\[ \Rightarrow \text{the percentage change in the price level from one year to the next.} \]

The inflation formula is:

\[ \text{Inflation rate} = \frac{\text{CPI this year} - \text{CPI last year}}{\text{CPI last year}} \times 100 \]
Price Level, Inflation, and Deflation

Figure 22.7 shows the relationship between the price level and the inflation rate.

The inflation rate is

- **High** when the price level is rising rapidly and
- **Low** when the price level is rising slowly.
- **Negative** when the price level is falling.
The Biased CPI

The CPI might overstate the true inflation rate for four reasons:

- New goods bias
- Quality change bias
- Commodity substitution bias
- Outlet substitution bias
Price Level, Inflation, and Deflation

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.
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.
Price Level, Inflation, and Deflation

The Magnitude of the Bias

Estimates say that the CPI overstates inflation by 1.1 percentage points a year.

Some Consequences of the Bias

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

A bias of 1 percent is small, but over a decade adds up to almost $1 trillion of additional expenditure.
Price Level, Inflation, and Deflation

Alternative Price Indexes
Alternative measures of the price level are
- Chained CPI
- Personal consumption expenditure deflator
- GDP deflator
Price Level, Inflation, and Deflation

Chained CPI

The *chained CPI* is a price index that is calculated using a similar method to that used to calculate *chained-dollar real GDP* (value of current, previous price and link to preference base year price).

Personal Consumption Expenditure Deflator (PCE)

\[
\text{(Nominal consumption expenditure ÷ Real consumption expenditure) × 100}
\]

PCE deflator is a broader measure of the price level than the CPI because it includes all consumption expenditure.

GDP Deflator

GDP deflator is like the PCE deflator except it includes the prices of all goods and services that are counted in GDP.
Core Inflation

The figure shows the CPI inflation rate.

The **core inflation rate** is the CPI inflation rate excluding the volatile elements (of food and fuel).

The core inflation rate attempts to reveal the underlying inflation trend.
The Real Variables in Macroeconomics

We can use the deflator to deflate nominal variables to find their real values.

For example,

Real wage rate = (Nominal wage rate ÷ GDP deflator) × 100

But not the real interest rate! It is different.

Real Interest Rate = Nominal Interest Rate - Inflation