Chapter 21: Monitoring Jobs and Inflation

Employment and Unemployment

Why Unemployment Is a Problem

Unemployment results in

- Lost incomes and production
- Lost human capital

Labor Force Survey

Statistics Canada conducts a monthly labor force survey to determine the status of the Canadian labor force.

The population is divided into two groups:

1. The *working-age population* — the number of people aged 15 years and older who are not in jail, hospital, or some other institution.

2. People too young to work (under 15 years of age) or those who live in institutions.

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.

The employed are either full-time or part-time workers.

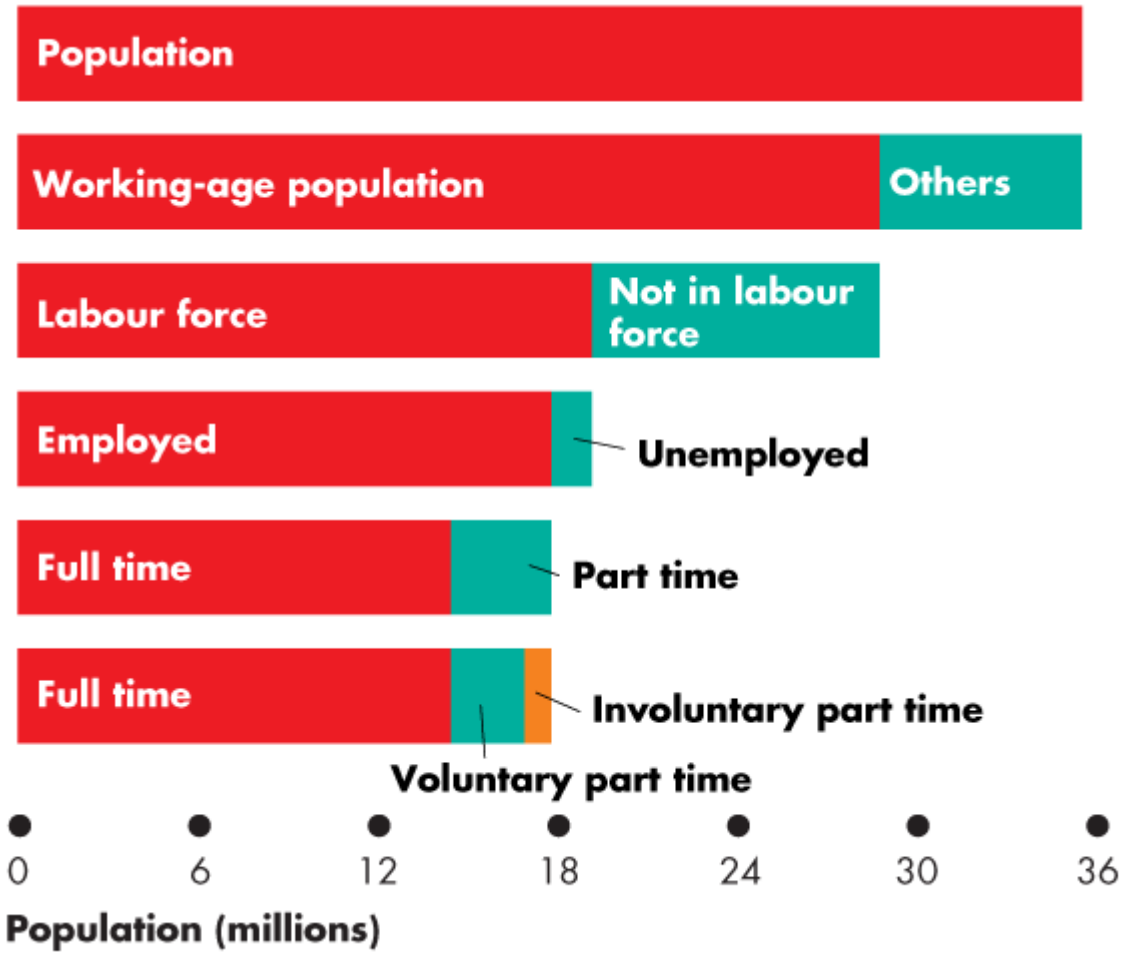
Part-time workers are either voluntary or involuntary part-time workers.

To be counted as unemployed, a person must be *available for work* and 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. On temporary layoff with an expectation of recall.

3. Has a new job to start within four weeks.


Population
Working-age population
Others
Labour force
Not in labour force
Employed
Unemployed
Full time
Part time
Full time
Involuntary part time
Voluntary part time
0
6
12
18
24
30
36
Population (millions)

Four Labor Market Indicators:

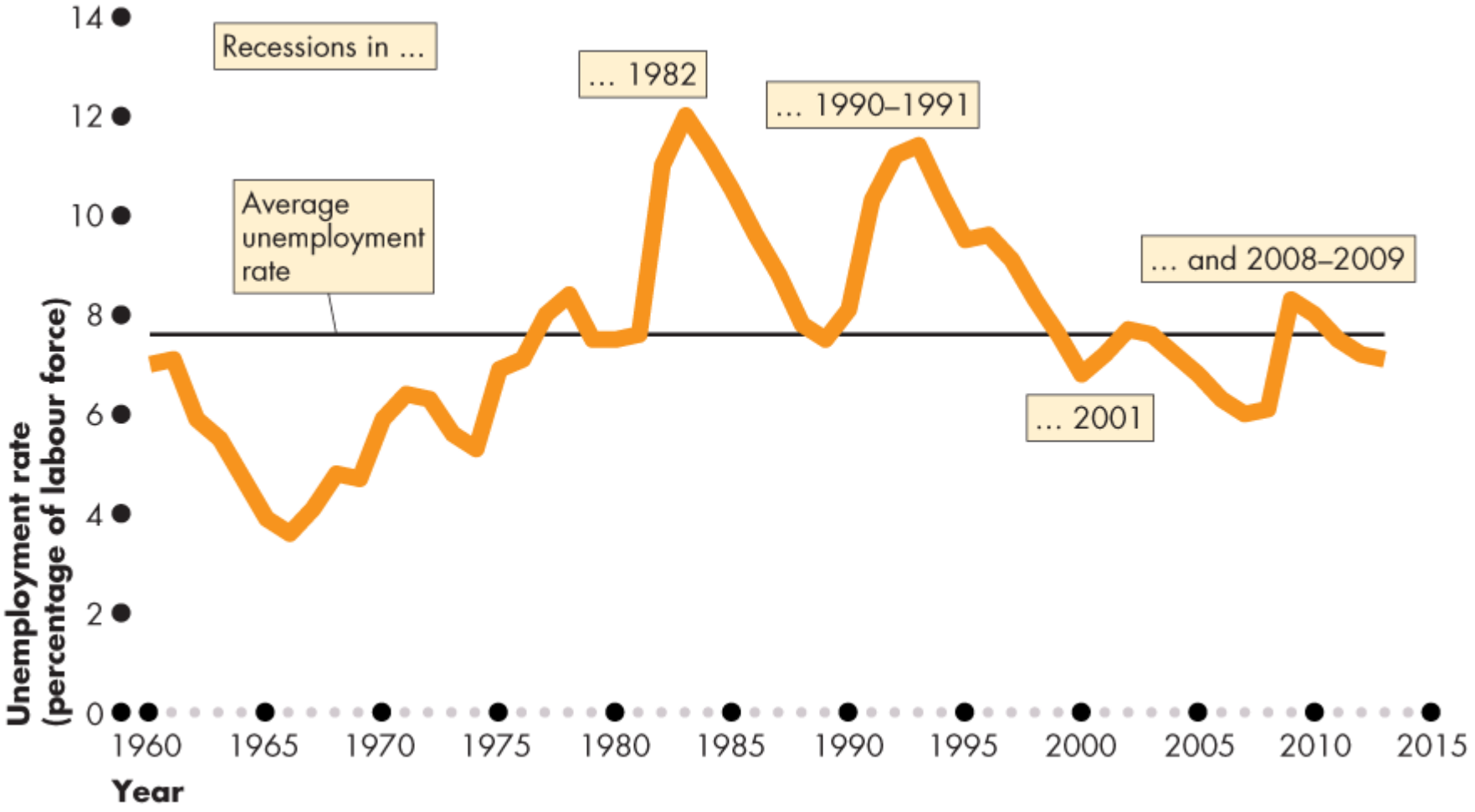
1. The unemployment rate
2. The involuntary part-time rate
3. The labor force participation rate
4. The employment-to-population ratio

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

The unemployment rate = $\frac{Number\ of\ people\ unemployed}{Labor\ force}$ x 100

Labor force = Number of people employed + Number of people unemployed

In 2013, the labor force was 19.08 million and 1.35 million were unemployed, so the unemployment rate was 7.1 percent.


Recessions in ...
... 1982
... 1990–1991
... and 2008–2009
... 2001
Average unemployment rate
Unemployment rate (percentage of labour force)
14
12
10
8
6
4
2
0
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Year

The **involuntary part-time rate** is the percentage of the people in the labor force who work part time but want full time jobs.

$$\text{Involuntary part-time rate} = \frac{Number\ of\ involuntary\ part{-}time\ workers}{Labor\ Force} \times 100$$

In 2013, with 913,600 involuntary part-time workers and a labor force of 19.08 million, the involuntary part-time rate was 4.8 percent.

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

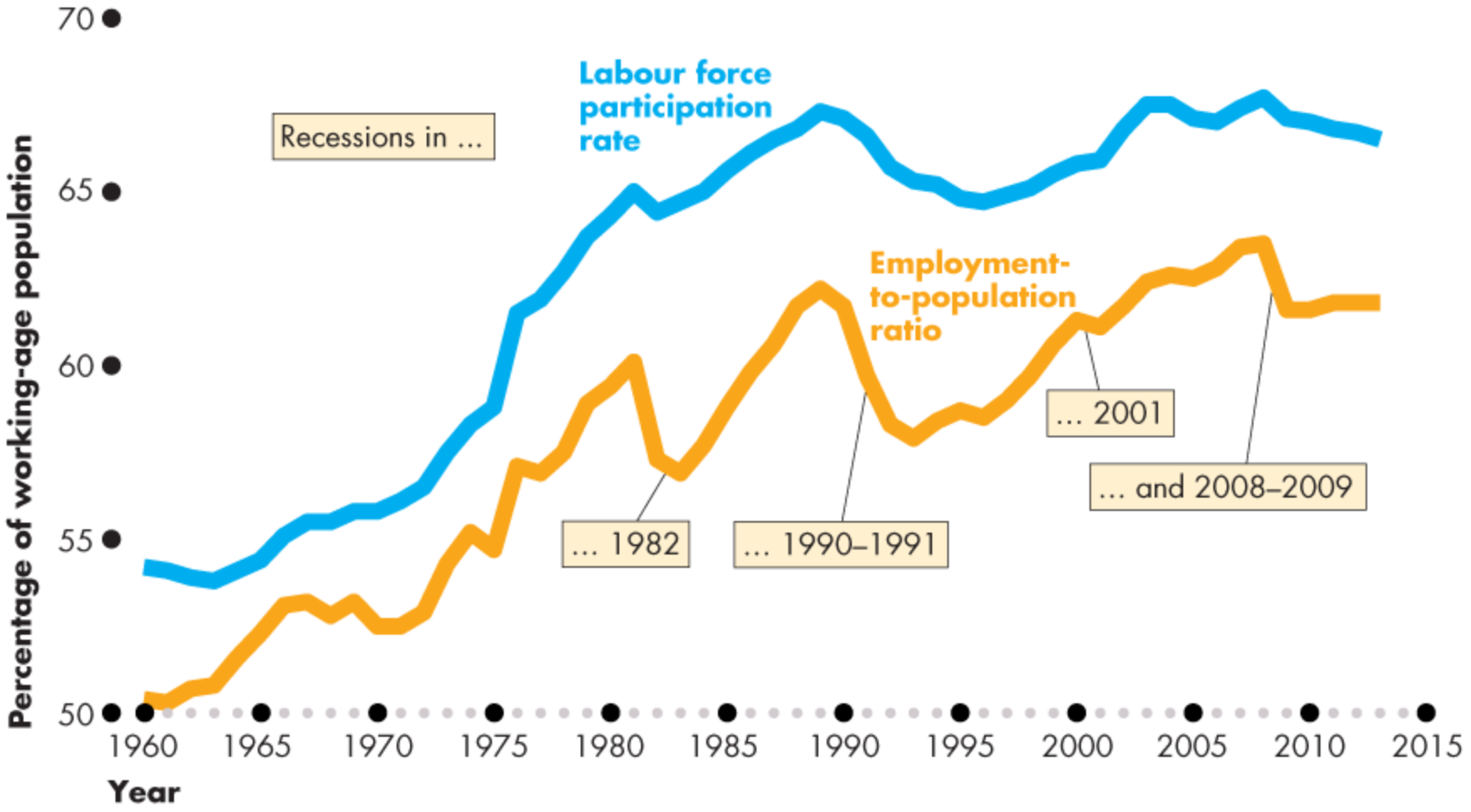
$$\text{Labor force participation rate} = \frac{Labor\ force}{Workin\ age\ population} \times 100$$

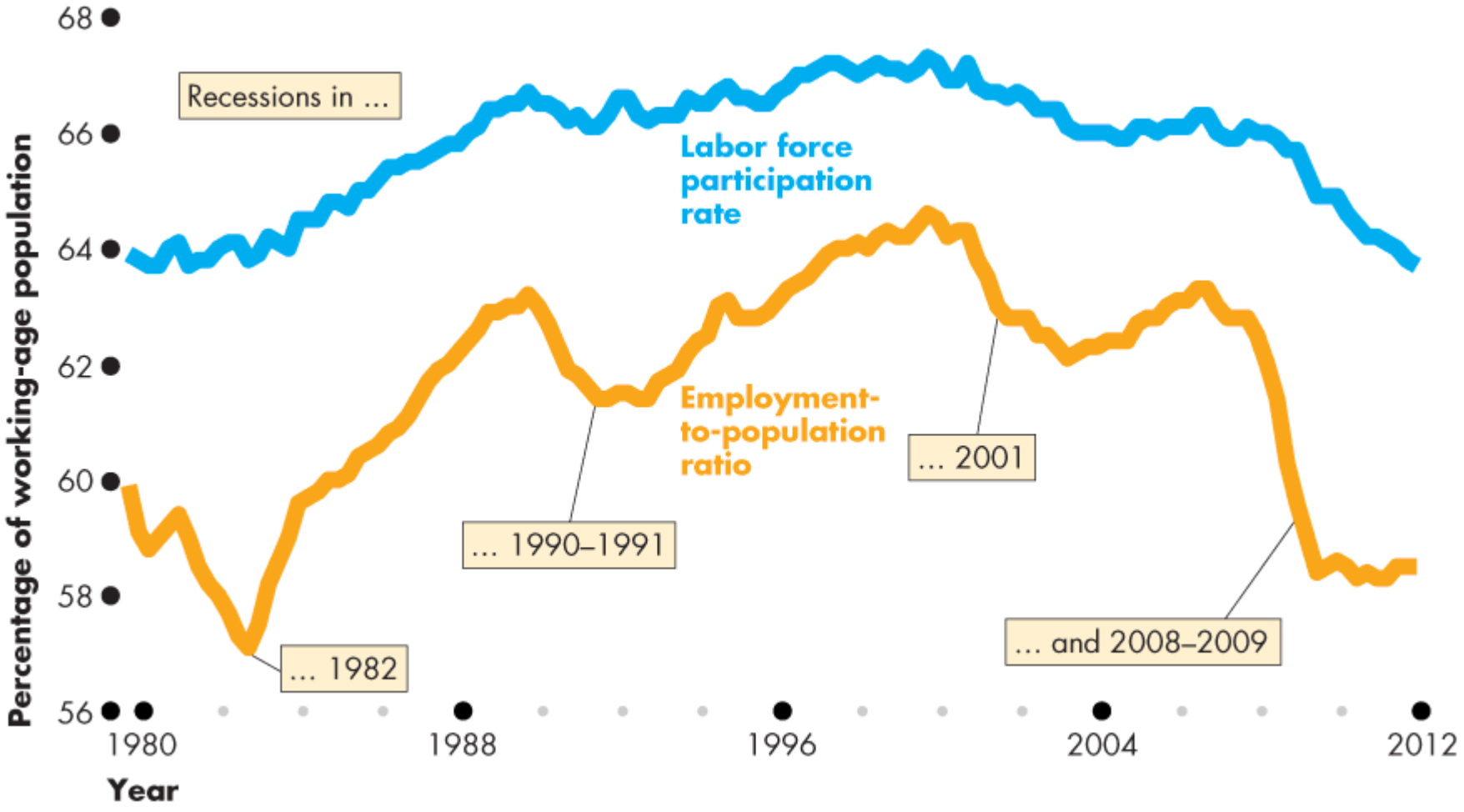
In 2013, the labor force was 19.08 million and the working-age population was 28.67 million. The labor force participation rate was 66.5 percent

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

Employment-to-population ratio = $\frac{Number\ of\ people\ employed}{Workin\ age\ population}$ x 100

In 2013, the employment was 17.73 million and the working-age population was 28.67 million. The employment-to-population ratio was 61.8 percent.


70
65
60
55
50
Percentage of working-age population
Labour force participation rate
Recessions in ...
Employment-to-population ratio
... 1982
... 1990–1991
... 2001
... and 2008–2009
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Year


Percentage of working-age population
68
66
64
62
60
58
56
1980
1988
1996
2004
2012
Year
Recessions in ...
Labor force participation rate
Employment-to-population ratio
... 1982
... 1990–1991
... 2001
... and 2008–2009

Other Definitions of Unemployment

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

Statistics Canada believes that the unemployment rate gives a correct measure.

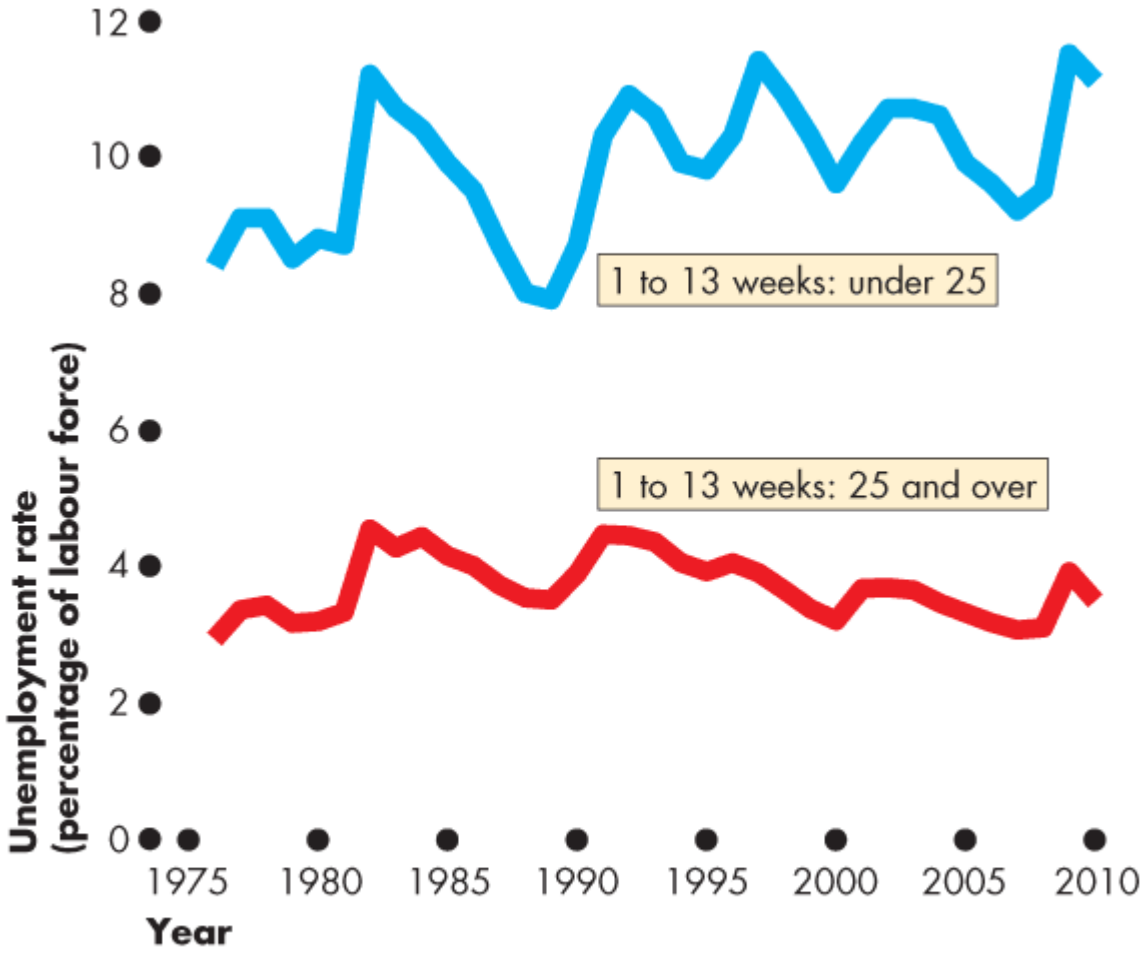
But the official measure is an imperfect measure because it excludes

- Discouraged searchers
- Long-term future starts
- Involuntary part-timers

A **discouraged worker/searcher** 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 but has stopped looking because of repeated failure.

Long-term future starts: A person with a job to start in more than four weeks is not counted as part of the labor force.

(Involuntary) Part-time workers who would like full-time jobs and can't find them are not counted as unemployed.



(a) Short-term unemployment

Unemployment and Full Employment

Unemployment can be classified into three types:

- Frictional unemployment
- Structural unemployment
- Cyclical 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 benefits raise frictional unemployment.

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

Structural unemployment lasts longer than frictional 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** is 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.

When the economy is at full employment, there is no cyclical unemployment or, equivalently, all unemployment is frictional and structural.

The natural unemployment rate changes over time and is influenced by many factors.

Key factors are

- The age distribution of the population
- The scale of structural change
- The real wage rate
- Unemployment benefits

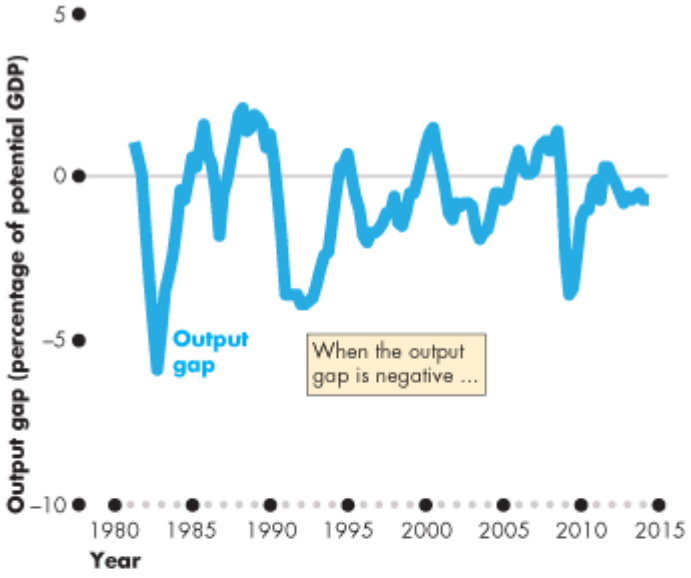
Real GDP and Unemployment Over the Cycle

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

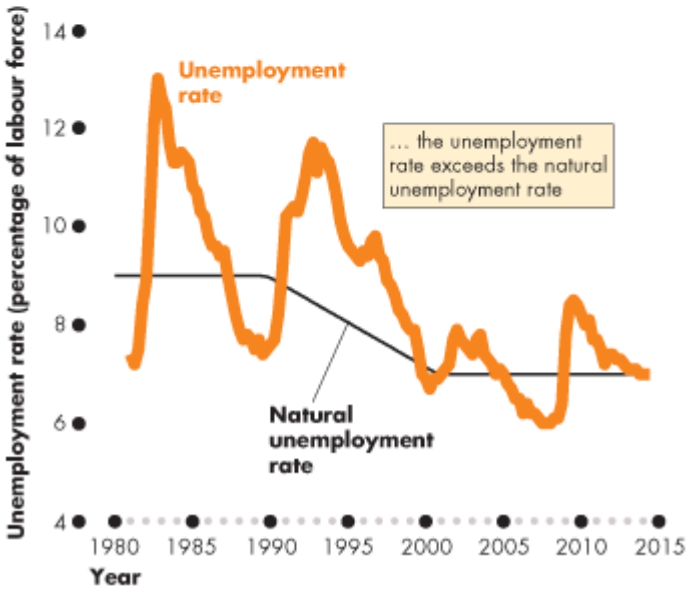
Potential GDP corresponds to the capacity of the economy to produce output on a sustained basis.

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.



(a) Output gap



(b) Unemployment rate

Price Level, Inflation, and Deflation

The price level tells you about the value of the money in your pocket.

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.

Inflation is a persistent rise in the level of prices.

Deflation is a persistent fall in the level of prices.

Why Inflation and Deflation are Problems

Low, steady, and anticipated inflation or deflation is “not” a problem.

Unpredictable inflation or period of deflation is a problem because it

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

How about Anticipated or Expected Inflation? Any costs?

Costs of Expected Inflation:

- Shoe-leather Cost
- Menu Cost
- Tax distortions
- Money illusion

Any benefits?

Hyperinflation:

The Consumer Price Index (CPI)

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 in the **reference base period**.

Currently, the reference base period is 2002.

That is, for the average of the 12 months of 2002, the CPI equals 100.

In June 2014, the CPI was 125.6.

This number tells us that the average of the prices paid by urban consumers for a fixed basket of goods and services was 25.6 percent higher in June 2014 than it was on average during 2002.

Constructing the CPI

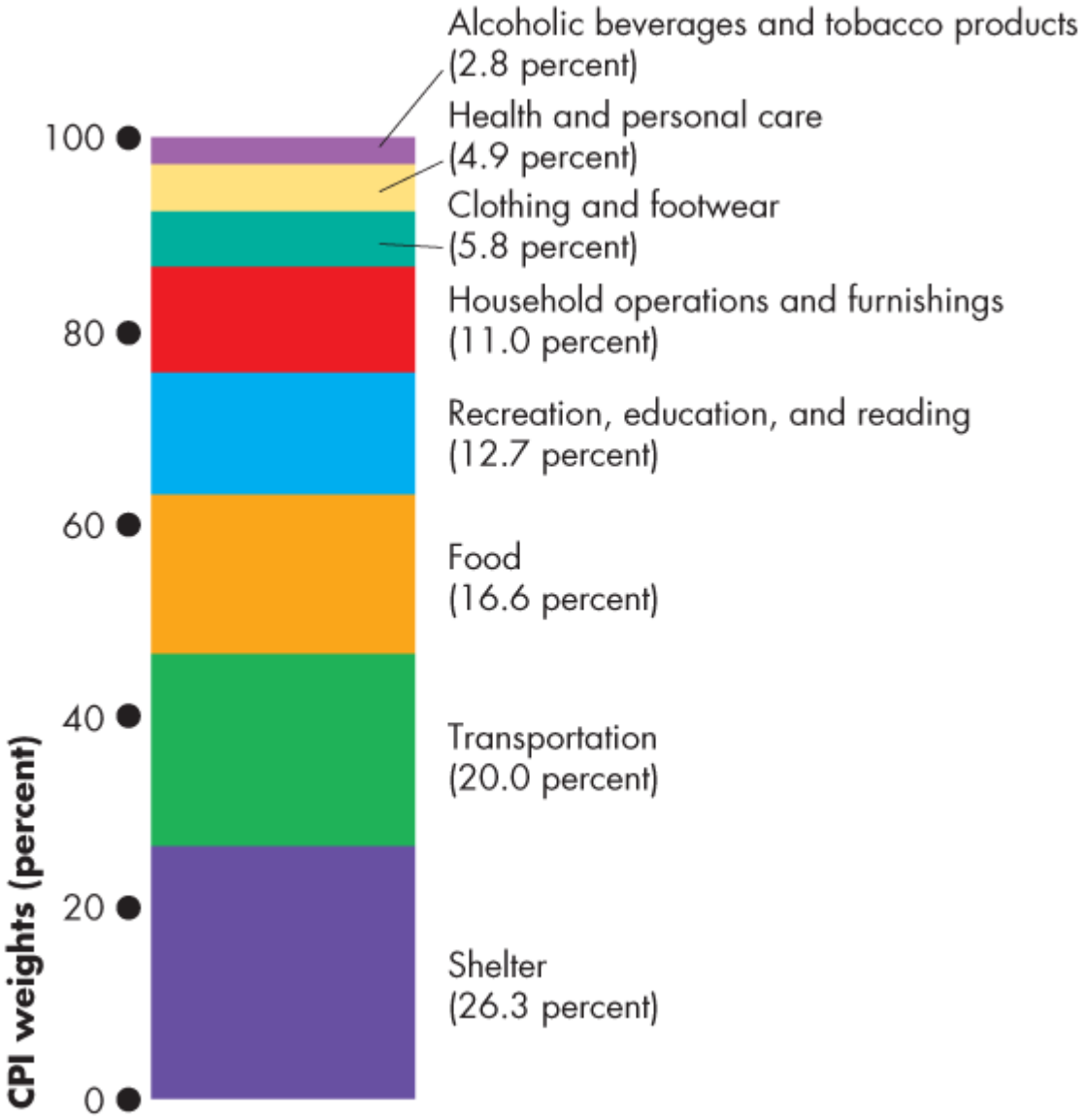
Constructing the CPI involves three stages:

- Selecting the CPI basket
- Conducting a monthly price survey
- Calculating the CPI

The CPI basket is based on a consumer expenditure survey, which is undertaken infrequently.

The CPI basket today is based on survey data collected in 2011.

Each month, Statistics Canada employees check the prices of the goods and services in the CPI basket in the major cities.


CPI weights (percent)
100
80
60
40
20
0
Alcoholic beverages and tobacco products (2.8 percent)
Health and personal care (4.9 percent)
Clothing and footwear (5.8 percent)
Household operations and furnishings (11.0 percent)
Recreation, education, and reading (12.7 percent)
Food (16.6 percent)
Transportation (20.0 percent)
Shelter (26.3 percent)

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 idea is, CPI tells us the cost of basket in the current period relative to the base period:

$$\text{CPI} = \frac{Cost\ of\ basket\ at\ current\ period\ prices}{Cost\ of\ basket\ at\ base\ period\ prices} \times 100$$

Let's work an example of the CPI calculation.

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 21.1 The CPI: A Simplified Calculation

(a) The cost of the CPI basket at base-period prices: 2012

CPI basket			Cost of
Item	Quantity	Price	CPI Basket
Oranges	10	$1	$10
Haircuts	5	$8	$40
Cost of CPI basket at base-period prices			$50

It also shows the prices in the current period.

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

TABLE 21.1 The CPI: A Simplified Calculation

(a) The cost of the CPI basket at base-period prices: 2012

CPI basket			
Item	**Quantity**	**Price**	**Cost of CPI Basket**
Oranges	10	$1	$10
Haircuts	5	$8	$40
Cost of CPI basket at base-period prices			$50

(b) The cost of the CPI basket at current-period prices: 2015

CPI basket			
Item	**Quantity**	**Price**	**Cost of CPI Basket**
Oranges	10	$2	$20
Haircuts	5	$10	$50
Cost of CPI basket at current-period prices			$70

The CPI in 2015 (base period 2012) is calculated using the formula:

$$\frac{Cost\ of\ basket\ at\ 2015\ (current\ period)\ prices}{Cost\ of\ basket\ at\ 2012\ (base\ period)\ prices}\ \text{x}\ 100$$

Using the numbers for the simple example,

$$\text{CPI in 2015 (base period 2012)} = \frac{\$70}{\$50}\ \text{x}\ 100 = 140.$$

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

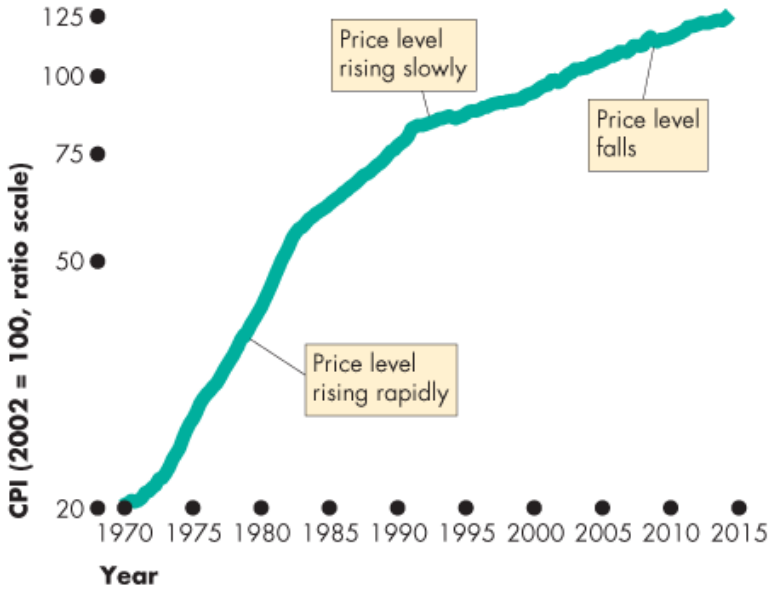
Measuring the Inflation Rate

A major purpose of the CPI is to measure changes in the cost of living and in the value of money. Or, it is also use to measure inflation.

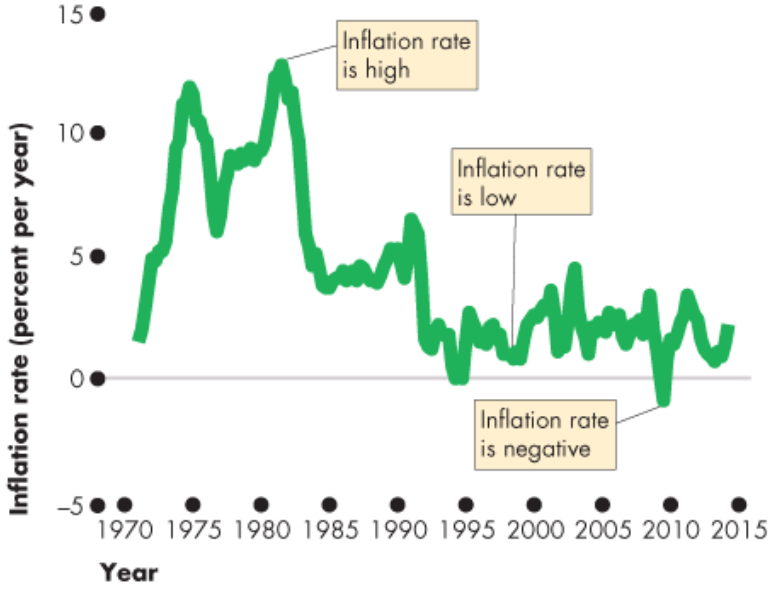
The inflation rate is the percentage change in the price level from one year to the next.

The inflation rate formula is:

$$\text{inflation rate} = \frac{CPI\ this\ year - CPI\ last\ year}{CPI\ last\ year} \times 100$$



(a) CPI



(b) Inflation rate

The Biased CPI

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

- Commodity substitution bias
- New goods bias
- Quality change bias
- Outlet substitution bias

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.

New Goods Bias

New goods that were not available in the base year appear and, they might be more expensive than the goods they replace.

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.

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 Magnitude of the Bias

Estimates say that the CPI overstates inflation by 0.6 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 0.6 percent is small, but over a decade adds up to billions of dollars of additional expenditure.

Alternative Price Indexes

Alternative measures of the price level are

- Chained price index for consumption (CPIC)
- GDP deflator

The CPIC equals

(Nominal consumption expenditure ÷ Real consumption expenditure) × 100

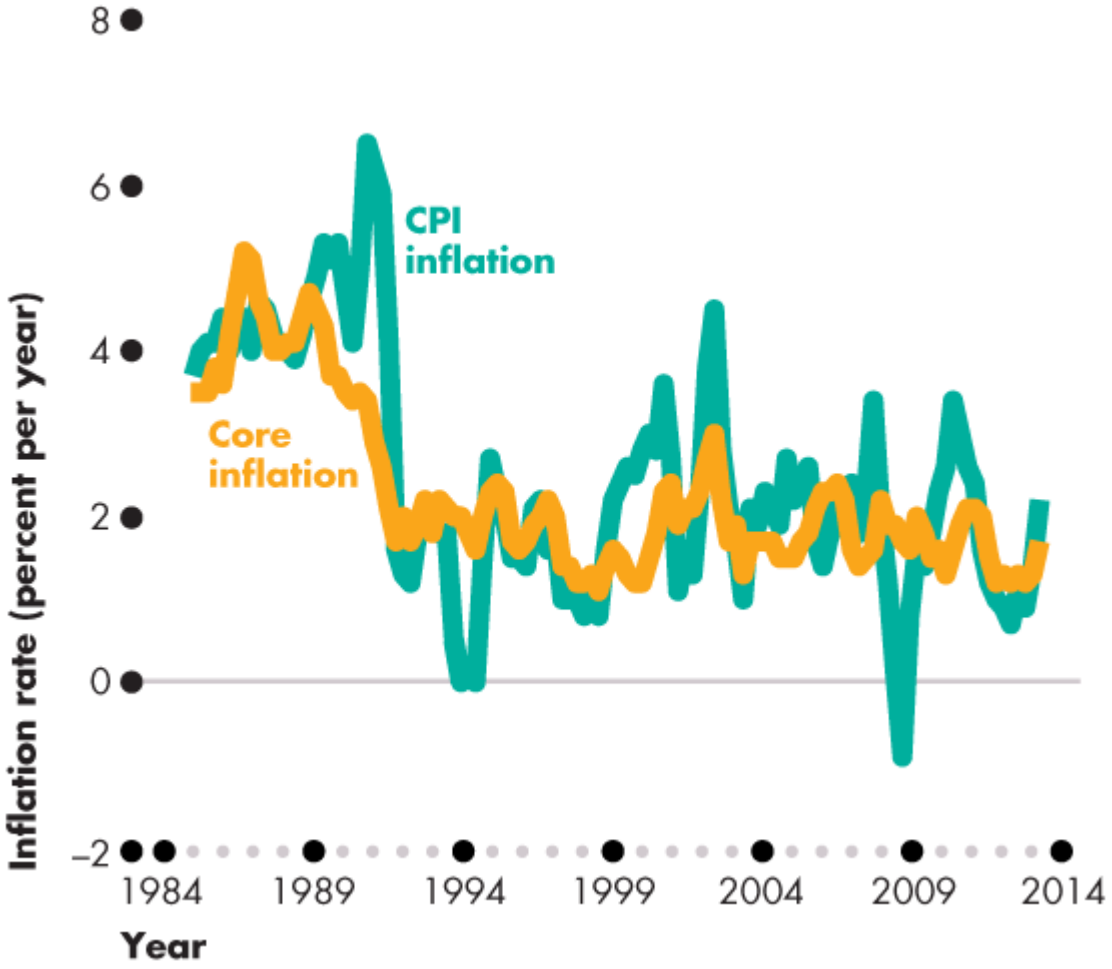
PCE deflator is a broader measure of the price level than the CPI because it includes all consumption expenditure.

The GDP deflator equals

(Nominal GDP ÷ Real GDP) × 100

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

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



The Real Variables in Macroeconomics

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

For example,

$$\text{Real wage rate} = (\text{Nominal wage rate} \div \text{GDP deflator}) \times 100$$

But not the real interest rate! It is different.