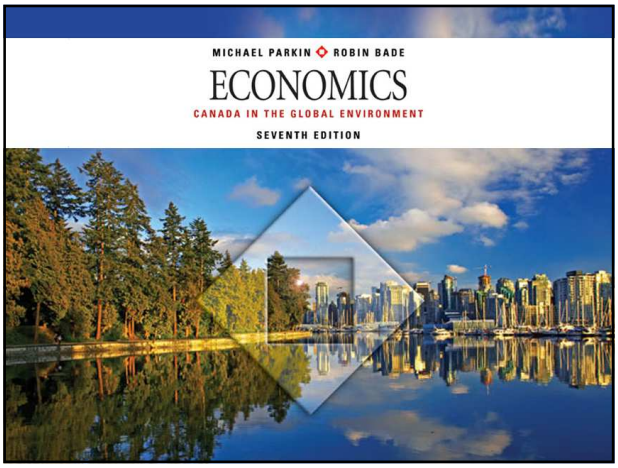



21 Monitoring Jobs and Inflation

**After studying this chapter, you will be able to**

- Explain why unemployment is a problem, define the unemployment rate, the employment-to-population ratio, and the labour force participation rate, and describe the trends and cycles in these labour market indicators
- Explain why unemployment is an imperfect measure of underutilized labour, why it is present even at full employment, and how unemployment and real GDP fluctuate together over a business cycle
- Explain why inflation is a problem, how we measure the price level and the inflation rate, and why the CPI measure of inflation might be biased



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

- How do we measure unemployment?
- What other data do we use to monitor the labour 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?
- How it is measured?
- How it is used?



## Employment and Unemployment

The Canadian economy is an incredible job-creating machine.

In 2008, 17 million people had jobs, which was 3 million more than in 1998 and 7 million more than in 1978.

But not everyone who wants a job can find one. On a typical day, more than 1 million people are unemployed.

During a recession, this number rises and during a boom year it falls.

At its worst, during the Great Depression, one in every five workers was unemployed.

## Employment and Unemployment

### Why Unemployment Is a Problem?

Unemployment results in

- Lost production and incomes
- Lost human capital

The loss of income is devastating for those who bear it. Employment benefits create a safety net but don't fully replace lost wages, and not everyone receives benefits.

Prolonged unemployment permanently damages a person's job prospects by destroying human capital.



## Employment and Unemployment

### Labour Force Survey

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

The population is divided into two groups:

1. The **working-age population**—the number of people aged 15 years and older
2. People too young to work (under 15 years of age)



## Employment and Unemployment

The working-age population is divided into two groups:

1. People in the labour force
2. People not in the labour force

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



## Employment and Unemployment

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

## Employment and Unemployment

Figure 21.1 shows the labour force categories.

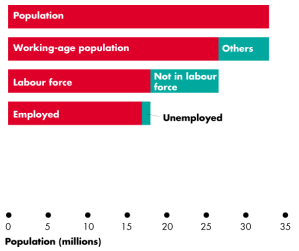
Population: 32.9 million

Working-age population: 26.6 million

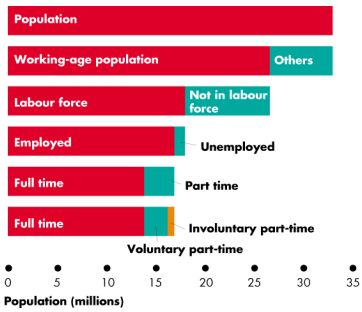
Labour force: 17.9 million

Employment: 16.9 million

Unemployment: 1.0 million





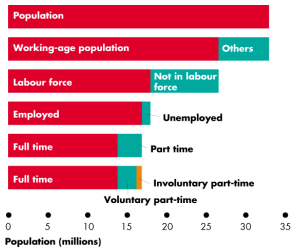



## Employment and Unemployment

Of the 16.9 million employed, …

3.1 million had part-time jobs, …

and of these, 0.7 million wanted a full-time job but couldn't find one.






## Employment and Unemployment

### Four Labour Market Indicators

- The unemployment rate
- The involuntary part-time rate
- The employment-to-population ratio
- The labour force participation rate

## Employment and Unemployment

### The Unemployment Rate

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

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

In 2007, the labour force was 17.95 million and 1.08 million were unemployed, so the unemployment rate was 6 percent.

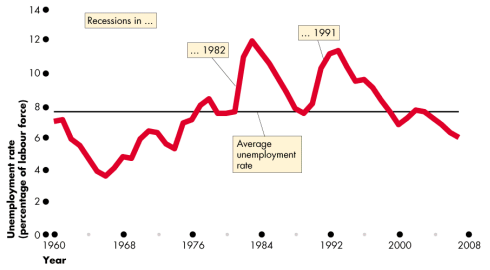
The unemployment rate reaches its peaks during recessions.



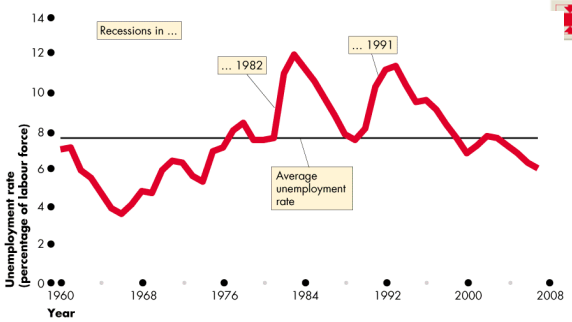
## Employment and Unemployment

Figure 21.1 shows the unemployment rate: 1960–2008.

The unemployment rate increases in a recession.








## Employment and Unemployment

### The Involuntary Part-Time Rate

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

The involuntary part-time rate is
(Number of involuntary part-time workers ÷ Labour force) × 100.

In 2007, the 679,000 involuntary part-time workers and the labour force was 17.95 million.

The involuntary part-time rate 3.8 percent.

## Employment and Unemployment

### The Labour Force Participation Rate

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

The labour force participation rate is (Labour force ÷ Working-age population) × 100.

In 2007, the labour force was 17.95 million and the working-age population was 26.55 million.

The labour force participation rate was 67.6 percent.



## Employment and Unemployment

### The Employment-to-Population Ratio

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

The employment-to-population ratio is (Employment ÷ Working-age population) × 100.

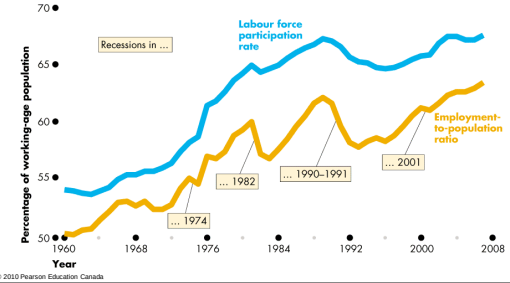
In 2007, the employment was 16.87 million million and the working-age population was 26.55 million.

The employment-to-population ratio was 63.5 percent.

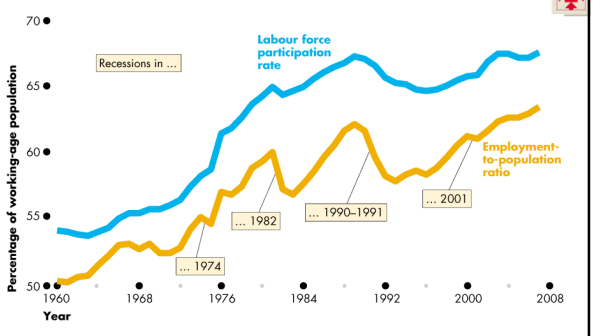


## Employment and Unemployment

Figure 21.3 shows the labour force participation rate and employment-to-population ratio both have upward trends before 1990 and then flatten off after 1990.





## Unemployment and Full Employment

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

It is an imperfect measure for two sets of reasons:

- It excludes some underutilized labour
- Some unemployment is unavoidable—is "natural."



## Unemployment and Full Employment

Two types of underutilized labour that are excluded from the official unemployment measure are

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

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.



## Unemployment and Full Employment

A **discouraged worker** is a marginally attached worker who has stopped looking for a job because of repeated failure to find one.

The numbers of marginally attached and discouraged workers is small.

In 2007, when the official unemployment rate was 6.0 percent, adding the discouraged workers raised the rate to 6.1 percent of the labour force.



## Unemployment and Full Employment

Many part-time workers want to work part time.

But some part-time workers would like fulltime jobs and can't find them.

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

In 2007, when the official unemployment rate was 6.0 percent, the involuntary part-time unemployment rate was 1.7 percent.

The overall unemployment rate including marginally attached workers was 7.8 percent of the labour force.

## Unemployment and Full Employment

### "Natural" Unemployment

Unemployment arises from job search activity.

There is always someone without a job who is searching for one, so there is always some unemployment.

The key reason why there is always someone who is searching for a job is that the economy is a complex mechanism that is always changing—it is a churning economy.



## Unemployment and Full Employment

### The Churning Economy

Some of the change in the churning economy comes from the transitions that people make through the stages of life:

From being in school to finding a job, to working, perhaps to becoming unhappy with a job and looking for a new one, and finally, to retiring from full-time work.

In Canada in 2007, almost 500,000 new workers entered the labour force and around 150,000 workers retired.



## Unemployment and Full Employment

### The Sources of Unemployment

People become unemployed if they

1. Lose their jobs and search for another job.
2. Leave their jobs and search for another job.
3. Enter or reenter the labour force to search for a job.

People end a spell of unemployment if they

1. Are hired or recalled.
2. Withdraw from the labour force.



## Unemployment and Full Employment

### Frictions, Structural Change, and Cycles

Unemployment can be classified into three types:

- Frictional
- Structural
- Cyclical

## Unemployment and Full Employment

**Frictional unemployment** is unemployment that arises from normal labour 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 labour force and increases in unemployment compensation raise frictional unemployment.



## Unemployment and Full Employment

**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** is the fluctuating unemployment over the business cycle.



## Unemployment and Full Employment

### What is "Natural Unemployment"?

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

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

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.

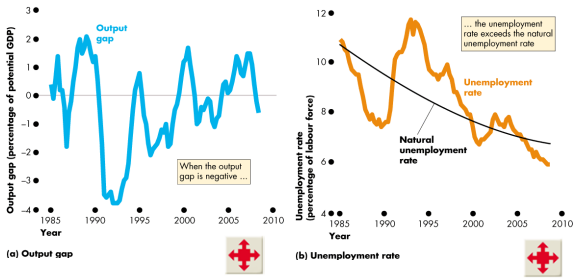
Potential GDP corresponds to the capacity of the economy to produce output on a sustained basis.

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

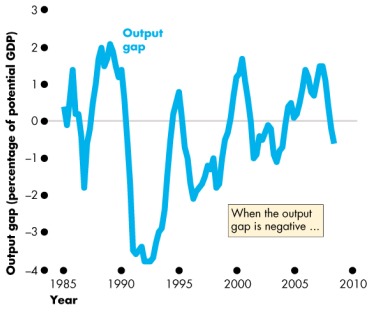
Over the business cycle, the output gap fluctuates and the unemployment rate fluctuates around the natural unemployment rate.

## Unemployment and Full Employment

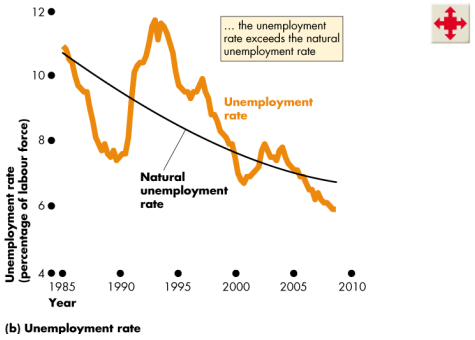
Figure 21.5 shows the output gap and the fluctuations of unemployment around the natural rate.










## Price Level and Inflation

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

The **inflation rate** is the annual percentage change in the price level.

We are interested in the price level because we want to

- Measure the inflation rate
- Distinguish between real and nominal values of economic variables.

## Price Level and Inflation

### Why Inflation Is a Problem

Inflation is a problem for many reasons, but the main one is that once it takes hold, it is unpredictable.

Unpredictable inflation is a problem because it

- Redistributes income and wealth
- Diverts resources from production



## Price Level and Inflation

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

A high inflation rate is a problem because it diverts resources from productive activities to inflation forecasting.

From a social perspective, this waste of resources is a cost of inflation.

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



## Price Level and Inflation

### 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.



## Price Level and Inflation

### Reading the CPI Numbers

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

Currently, the reference base period is 2002.

That is, the average CPI over the 12 months in 2002, the CPI equals 100.

In September 2008, the CPI was 115.7.

This number tells us that the average of the prices paid by urban consumers for a fixed basket of goods was 15.7 percent higher on average in 2008 than it was in 2002.

## Price Level and Inflation

### Constructing the CPI

Constructing the CPI involves three stages:

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



## Price Level and Inflation

### 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 2005.

The CPI basket contains 80,000 goods and services.



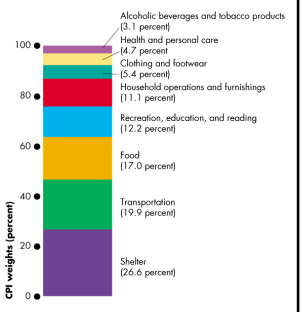
## Price Level and Inflation

Figure 21.6 illustrates the CPI basket.

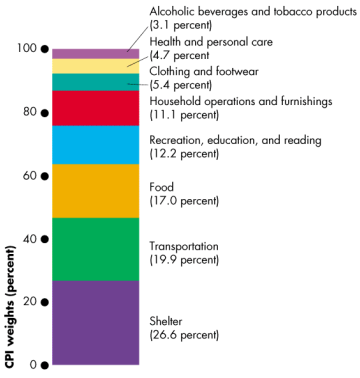
Housing is the largest component.

Transportation and food are the next largest components.

The remaining components account for 36 percent of the basket.





## Price Level and Inflation

### The Monthly Price Survey

Every month, Statistics Canada employees check the prices of 80,000 goods on 64 urban 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 and Inflation

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** The CPI: A Simplified Calculation

(a) The cost of the CPI basket at base-period prices: 2008

| CPI basket | | | |
|---|---|---|---|
| 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 |



## Price Level and Inflation

Table 21.1(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.

**TABLE 22.1** The CPI: A Simplified Calculation

(a) The cost of the CPI basket at base-period prices: 2008

| CPI basket | | | |
|---|---|---|---|
| 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 |

(b) The cost of the CPI basket at current-period prices: 2009

| CPI basket | | | |
|---|---|---|---|
| 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 |



## Price Level and Inflation

The CPI is calculated using the formula:

CPI = (Cost of basket at current-period prices ÷ Cost of basket at base-period prices) × 100.

Using the numbers for the simple example,

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

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

## Price Level and Inflation

### Measuring the Inflation Rate

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:

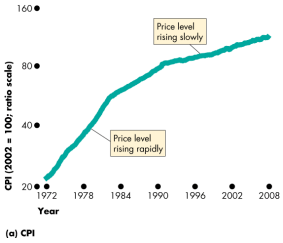
Inflation rate = [(CPI this year – CPI last year) ÷ CPI last year] × 100.



## Price Level and Inflation

Figure 21.7 shows the relationship between the price level and inflation.

Figure 21.7(a) shows the CPI from1972 to 2008.

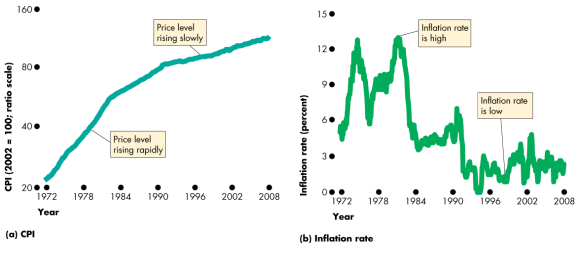




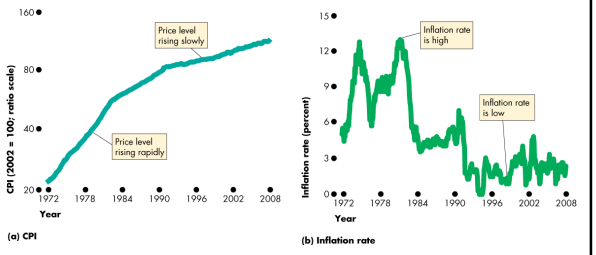

## Price Level and Inflation

Figure 21.7(b) shows that the inflation rate is

- High when the price level is rising rapidly and
- Low when the price level is rising slowly.





## Price Level and Inflation

### 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



## Price Level and Inflation

### 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.



## Price Level and 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 and Inflation

### 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.

A bias of 1 percent is small but over a decade adds up to almost $1 trillion of additional expenditure.

## Price Level and Inflation

### Alternative Price Indexes

Alternative measures of the price level are

- GPD deflator
- Chained Price Index for Consumption

These measures of the price level use current period and previous period quantities rather than fixed quantities, so they incorporate substitution effects and new goods and overcomes the sources of bias in the CPI.



## Price Level and Inflation

### GDP Deflator

The GDP deflator equals
(Nominal GDP ÷ Real GDP) × 100

GDP deflator is a broader measure of the price level than the CPI because it includes all the items included in GDP.

Because real GDP includes consumption expenditure, investment, government expenditure, and net exports, the GDP deflator is an index of the prices of all these items.

Since 2000, the GDP deflator has increased at an average rate of 2.4 percent a year, which is 0.3 percentage points above the CPI inflation rate.



## Price Level and Inflation

### Chained Price Index for Consumption (CPIC)

The **CPIC** equals (Nominal consumption expenditure ÷ Real consumption expenditure) × 100

Since 2000, the CPIC has increased at an average rate of 1.6 percent a year, which is 0.5 percentage points below the CPI inflation rate.

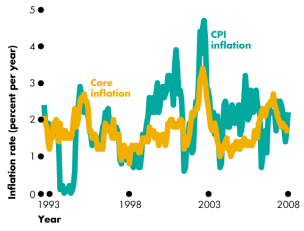


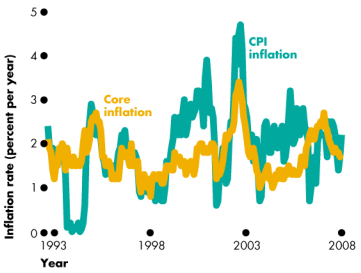
## Price Level and Inflation

### Core 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.








## Price Level and Inflation

### The Real Variables in Macroeconomics

We can use the GPD 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.