MONITORING CYCLES, JOBS, AND THE PRICE LEVEL

CHAPTER 21

Objectives

After studying this chapter, you will able to

- Explain how we date business cycles
- Define the unemployment rate, the labour 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 a business cycle
- Explain how we measure the price level and the inflation rate using the CPI

Vital Signs

A recession started in the United States in March 2001, but Canada avoided recession. What is a recession, who makes the decision that we are in one, and how?

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

Being employed alone does not determine standard of living; the cost of living also matters, so we also need to know what the Consumer Price Index is, and how that is measured and used.

The Business Cycle

The business cycle is the periodic but irregular up-and-down movement in production and jobs.

There is no official, government sponsored agency that dates the business cycle.

That job is done by two private agencies, the Economic Cycle Research Institute (ECRI) and National Bureau of Economic Research (NBER).

The Business Cycle

The ECRI defines the business cycle as follows:

… pronounced, pervasive and persistent advances and declines in aggregate economic activity, which cannot be defined by any single variable, but by the consensus of key measures of output, income, employment and sales.

The Business Cycle

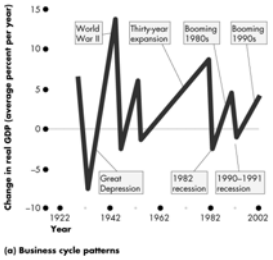
The NBER, whose methods the ECRI uses, defines the phases and turning points of the business cycle as follows:

A **recession** is a significant decline in activity spread across the economy, lasting more than a few months, visible in industrial production, employment, real income, and wholesale-retail trade. A recession begins just after the economy reaches a **peak** of activity and ends as the economy reaches its **trough**. Between trough and peak, the economy is in an **expansion**.

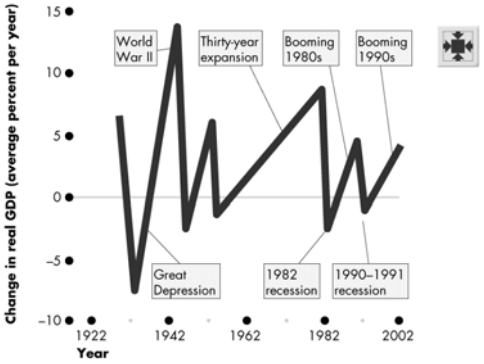
The Business Cycle

Business Cycle Dates

Figure 21.1(a) shows the percentage change in real GDP over each cycle between 1926 and 2002.



(a) Business cycle patterns



(a) Business cycle patterns

The Business Cycle

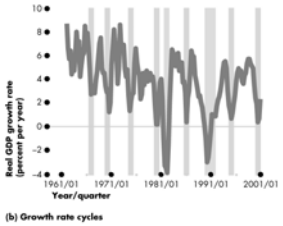
Growth Rate Cycles

Because recessions are rare, the ECRI also defines a **growth rate cycle downturn**:

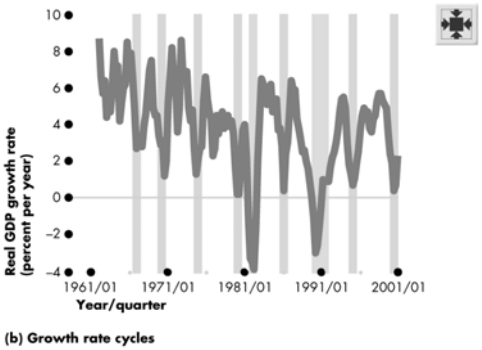
… pronounced, pervasive and persistent decline in the *growth rate* of aggregate economic activity. The procedures used to identify peaks and troughs in the growth rate cycle are analogous to those used to identify business cycle turning points, except that they are applied to the growth rates of the same time series, rather than their levels.

The Business Cycle

Figure 21.1(b) shows the growth rate cycles since 1961, the first year in which Canada has quarterly real GDP data.



(b) Growth rate cycles



(b) Growth rate cycles

Jobs and Wages

Population Survey

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

The population is divided into two groups:

- The **working-age population**—the number of people aged 15 years and older who are not in jail, hospital, or other institution.
- People too young to work (less than 15 years of age) or in institutional care.

Jobs and Wages

The working-age population is divided into two groups:

- People in the labour force
- People not in the labour force

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

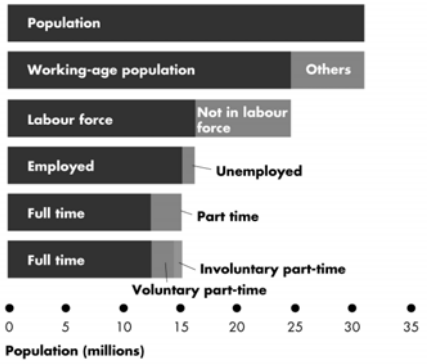
Jobs and Wages

To be considered 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 four weeks

Jobs and Wages

Figure 21.2 shows the population labour force categories for 2001.



Jobs and Wages

Four Labour Market Indicators

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

Jobs and Wages

Four Labour Market Indicators

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

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

The unemployment rate reaches its peaks during recessions.

Jobs and Wages

Four Labour Market Indicators

The **involuntary part-time rate** is the percentage of the people in the labour force who have part-time jobs and want full-time jobs.

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

In 2001, there were about 700,000 involuntary part-time workers, the labour force was 16.25 million, and the involuntary part-time rate was 4.3 percent.

Jobs and Wages

Four Labour Market Indicators

The **labour force participation rate** is the percentage of the working-age population that is in the labour force.

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

The labour force participation rate has increased from 55 percent in the 1960s to 65 percent in the 1990s.

The labour force participation rate for men has declined, but for women has increased.

Jobs and Wages

Four Labour Market Indicators

The labour 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 labour force.

Jobs and Wages

Four Labour Market Indicators

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

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

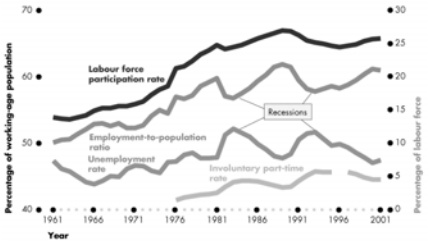
The employment-to-population ratio has increased from 50 percent in the early 1960s to 60 percent during the 1990s.

The employment-to-population ratio has declined for men and increased for women.

Jobs and Wages

Four Labour Market Indicators

Figure 21.3 shows the four labour market indicators for 1961–2001.



Jobs and Wages

Figure 21.4 shows the changing face of the labour market.

The employment-to-population ratio and labour force participation rate of females is rising.

The employment-to-population ratio and labour force participation rate of males is falling.

Jobs and Wages

Aggregate Hours

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

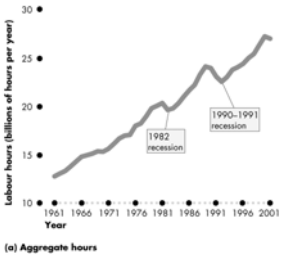
Aggregate hours have increased since 1960 but less rapidly than the total number of workers because the average workweek has shortened.

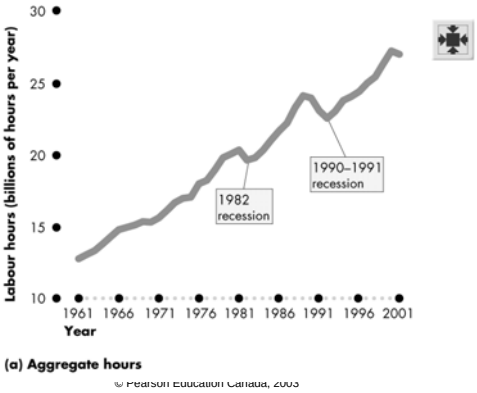
Jobs and Wages

Aggregate Hours

Figure 21.5(a) shows aggregate hours.

Over the 40 years 1961-2001, aggregate hours increased by 110 percent.





Jobs and Wages

Aggregate Hours

Figure 21.5(b) shows average weekly hours.

From 1961 to 1981, average weekly hours decreased.

From 1981 to 2001, average weekly hours fluctuated around 35 hours a week.

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 21.6 shows the real wage rate for 1961–2001 calculated as total labour compensation in 1997 dollars per hour of work.

Unemployment and Full Employment

The Anatomy of Unemployment

Three types of people are unemployed

Job losers—workers who have been laid off or fired and are searching for new jobs.

Job leavers—workers who have voluntarily quit their jobs to look for new ones. Job leavers are the smallest fraction of the unemployed.

Entrants and **reentrants**—people entering the labour force for the first time or returning to the labour force and searching for work.

Unemployment and Full Employment

The Anatomy of Unemployment

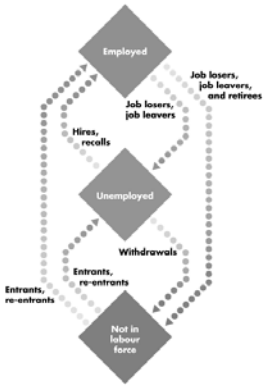
People end a spell of unemployment for two reasons

Hired or recalled workers gain jobs.

Discouraged unemployed workers withdraw from the labour force.

Unemployment and Full Employment

Figure 21.7 illustrates the labour market flows between the different states.

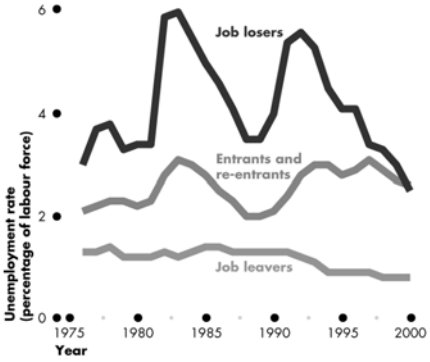


Unemployment and Full Employment

Figure 21.8 shows unemployment by reason, 1961–2001.

Job leavers are the smallest group.

Job losers are the largest and the most cyclical group.

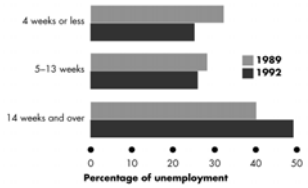


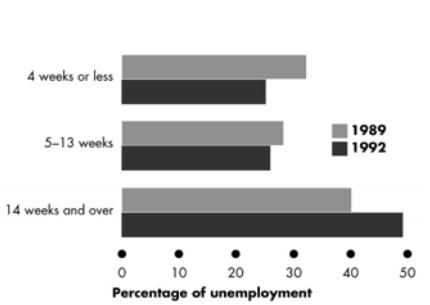
Unemployment and Full Employment

The duration of unemployment increases during recessions

Figure 21.9 shows unemployment by duration close to a business cycle peak in 1989…

… and close to a trough in 1992.



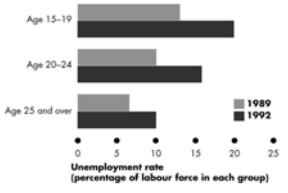


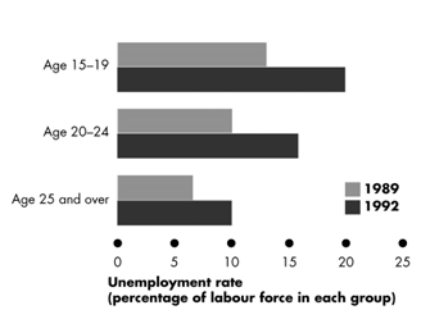
Unemployment and Full Employment

Figure 21.10 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.





Unemployment and Full Employment

Types of Unemployment

Unemployment can be classified into four types:

- Frictional
- Structural
- Seasonal
- Cyclical

Unemployment and Full Employment

Types of Unemployment

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 young people entering the labour force and increases in unemployment benefit payments raise frictional unemployment.

Unemployment and Full Employment

Types of Unemployment

Structural unemployment is unemployment created by changes in technology and foreign competition that change the match between the skills necessary to perform jobs and the locations of jobs, and the skills and location of the labour force.

Seasonal unemployment is the unemployment that arises because the number of jobs available has decreased because of the season.

Cyclical unemployment is the fluctuation in unemployment caused by 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 or structural.

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

The natural rate of unemployment was high during the early 1980s but fell during the late 1980s and was stable during the 1990s.

Unemployment and Full Employment

Real GDP and Unemployment Over the Cycle

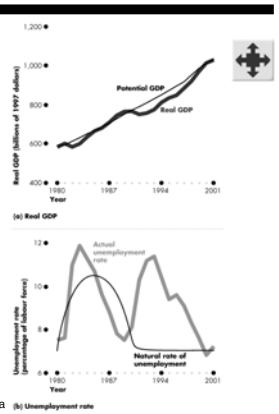
Potential GDP is the quantity of real GDP produced at full employment.

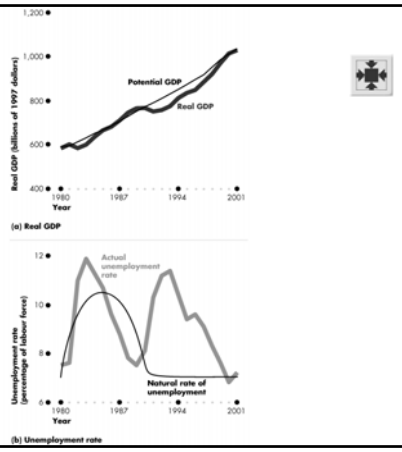
It corresponds to the capacity of the economy to produce output on a sustained basis; actual GDP fluctuates around potential GDP with the business cycle.

Unemployment and Full Employment

Figure 21.11 shows real GDP, and the unemployment rate...

…and estimates of potential GDP and the natural unemployment rate, for 1980–2001.





The Consumer Price Index

The price level is the "average" level of prices and is measured by using a price index.

The **consumer price index**, or **CPI**, measures the average level of the prices of goods and services consumed by an urban family.

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 for the CPI is 1992.

The value of the CPI for any other period is calculated by taking the ratio of the current cost of a market basket of goods to the cost of the same market basket of goods in the reference base period and multiplying by 100.

The Consumer Price Index

Constructing the CPI

Constructing the CPI involves three stages:

- Selecting the CPI basket
- Conducting a monthly price survey
- Using the prices and the basket to calculate the CPI

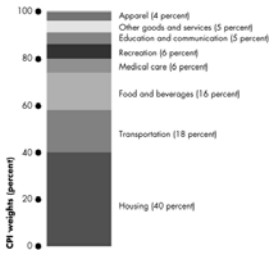
The Consumer Price Index

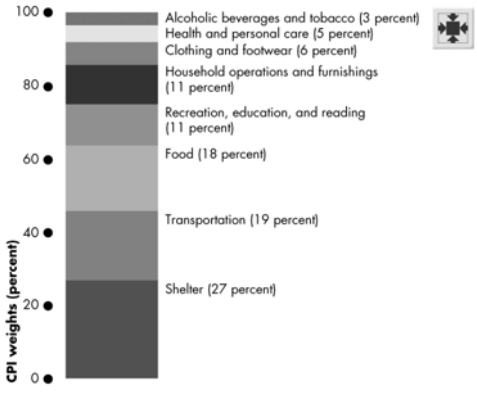
Figure 21.12 illustrates the CPI basket.

Housing is the largest component.

Transportation and food and beverages are the next largest components.

The remaining components account for only 36 percent of the basket.





The Consumer Price Index

The CPI basket is based on a Consumer Expenditure Survey.

Every month, Statistics Canada employees check the prices of the goods and services in the CPI basket in 64 urban areas.

The CPI is calculated using the prices and the contents of the basket.

The Consumer Price Index

For a simple economy that consumes only oranges and haircuts, we can calculate the CPI.

The CPI basket is 10 oranges and 5 haircuts.

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 base period.

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 in the current period is $70.

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

The Consumer Price Index

The CPI is calculated using the formula:

CPI = (Cost of basket in current period/Cost of basket in base period) $\times$ 100.

Using the numbers for the simple example, the CPI is

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

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

The Consumer Price Index

Measuring Inflation

The main purpose of the CPI is to measure inflation.

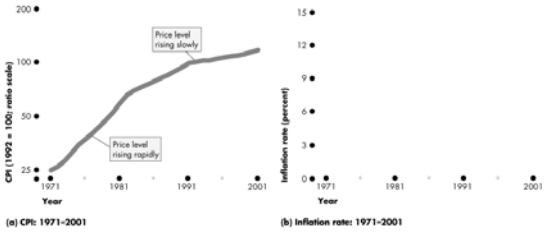
The **inflation rate** is the percentage change in the price level from one year to the next.

The inflation formula is:

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

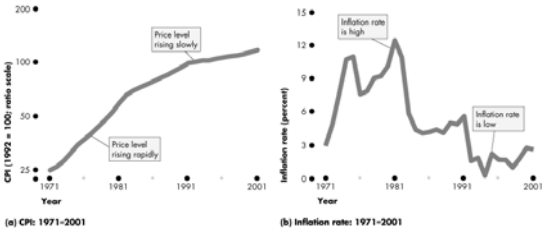
The Consumer Price Index

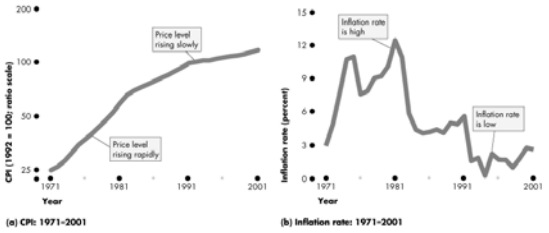
Figure 21.13(a) shows the CPI from1971 to 2001.



The Consumer Price Index

Figure 21.13(b) shows that the inflation rate is high when the price level is rising rapidly and low when the price level is rising slowly.





The Consumer Price Index

The Biased CPI

The CPI may overstate the true inflation for four reasons

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

The Consumer Price Index

The Biased CPI

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, the price level may be biased higher.

Similarly, if they are cheaper than the goods they replace, but not yet in the CPI basket, they bias the CPI upward.

Quality change bias Quality improvements generally are neglected, so quality improvements that lead to price hikes are considered purely inflationary.

The Consumer Price Index

The Biased CPI

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

The Biased CPI

The bias in the CPI distorts private contracts, increases government outlays (close to a third of government outlays are linked to the CPI), and biases estimates of real earnings.

To reduce the bias in the CPI, Statistics Canada undertakes consumer expenditure surveys more frequently and revises the CPI basket frequently.

Statistics Canada makes other adjustments to minimize the bias.