Week 1: Economic Activity & Performance

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Economics 203: Introduction to Macroeconomics

Outline

Key Indicators

Macroeconomics is focused on three key indicators of the economy's performance and the underlying explanations for their behaviour. The indicators are:

1. The rate of growth of real national income.
2. The rate of inflation.
3. The rate of unemployment.

Other important aspects of the economy are:

- Interest rates, foreign exchange rates, wage rates, government budgets, capital investment, commodity prices, housing prices

Macroeconomic Performance

Key dimensions of macroeconomic activity.

- Output:
  — Output is a measure of the total quantity of goods and services produced in the economy.
- Price Level:
  — Price or the price level in macroeconomics is the weighted average of the market prices of all final goods and services produced. The price level reflects the costs of production in the economy.
- Employment:
  — Employment is a measure of the number of jobs involved in the production of goods and services, or,
  — the number of hours of labour input required to produce the economy's output.

Unit of Output Measure

— Output and its rate of growth are measured in terms of **real gross domestic product (real GDP)**.
— It is the quantity of final goods and services produced in the economy in a specific time period, such as one year, measured in the market prices of a base year 2007 — or — It may also be called GDP in constant 2007 dollars).
—The production of goods and services generates incomes equal to the value of those goods and services. As a result, real GDP is also the real income in the economy and the quantity of goods and services the economy can afford to buy.

Real GDP: the quantity of final goods and services produced by the economy in a specified time period.

Why Real!

— In an economy with a *growing population and labour force*, growth in real GDP is necessary to maintain standards of living.
— In the Canadian economy, real GDP changes from year to year.
— By measuring real GDP in the prices of a base year, the changes seen in real GDP are the result of **changes in the quantities of goods and services** produced, and not the result of changes in prices. This distinction is important: Increased quantities of goods and services provide for increased standards of living in the economy, increases in prices do not.
— As a result, **economic growth** is defined as an increase in real GDP, and the annual **rate of economic growth** is the annual percentage change in real GDP — the first key indicator of economic performance.

Real GDP Growth

The rate of growth in real GDP is calculated as follows:

$$\text{Rate of growth of real GDP} = \frac{\text{Real GDP}_{\text{year 2}} - \text{Real GDP}_{\text{year 1}}}{\text{Real GDP}_{\text{year 1}}} \times 100 \quad (1)$$

Economic growth: an increase in real GDP.

Rate of economic growth: the annual percentage change in real GDP.

Real GDP Growth — Calculations

Recent measures of real GDP in Canada provide an example of economic growth and the calculation of the rate of economic growth. In the year 2016, real GDP in Canada measured in 2007 dollars was $1,781 billion. One year earlier, in 2015, real GDP in 2007 dollars was $1,751 billion.

Real GDP Growth — Calculations

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$$\text{Rate of growth of real GDP in 2016} = \frac{\$1{,}781 - \$1{,}751}{\$1{,}751} \times 100 = 1.7\%$$

Price Level and Consumer Price Index

— The **price level** in the economy is a measure of the weighted average of prices of a wide variety of goods and services.

— The **Consumer Price Index (CPI)**, for example, compares the cost of a fixed basket of goods and services bought by the typical household at a specific time with the cost of that same basket of goods and services in the base year. It is the most widely used indicator of prices in Canada and is often referred to as the "cost of living."

— **Price level**: a measure of the average prices of all goods and services produced in the economy.

— **Price index**: a measure of the price level in one year compared with prices in a base year.

— **Consumer Price Index (CPI)**: a measure of the cost of living in any one year compared to the cost of living in a base year.

Construction of a Price Index — 1

A simple example illustrates the construction of a price index.
Suppose a survey of expenditures by university students in the year 2006 gives the information reported in the first three columns in the following table:

University student weekly expenditure basket (Base year 2006)

	Quantity	2006 Price	2006 Cost	2011 Price	2011 Cost
Pizza	5	$7.50	$37.50	$8.50	$42.50
Hamburger	5	$2.50	$12.50	$2.25	$11.25
Coffee	10	$1.00	$10.00	$1.25	$12.50
Movies	1	$10.00	$10.00	$8.00	$8.00
Bus fare	7	$1.50	$10.50	$1.85	$12.95
Total			$80.50		$87.20

Construction of a Price Index — 2

This previous table gives us the cost of weekly expenditures on a basket of five items and the weight of each item in the total expenditure. If we choose 2006 as our base year then the cost of the basket in 2006 prices, \$80.50, has an index value of 100 [(\$80.50/80.50) × 100]. In other words we have a Student Price Index:

$$SPI_{2006} = 100.0$$

Now we see in the last two columns of the table that this same basket of goods and services in *the prices of 2011* would cost \$87.20. Then our SPI in 2011 would be:

$$(\text{Cost of basket in 2011})/(\text{Cost of basket in 2006}) \times 100 = (\$87.20)/(\$80.50) \times 100 = 108.3$$

The index tells us that even though the prices of some things went up and others went down the Student Price Index increased by 8.3%. This was the weighted average increase in prices and the increase in the cost of student expenditures.

Inflation

Inflation: a persistent rise in the general price level from one year to another.
The inflation rate is calculated using the same method used for calculating the growth rate in real GDP. For example, using CPI values for 2015 and 2016:

$$\text{Inflation rate for } 2016 = \frac{CPI_{2016} - CPI_{2015}}{CPI_{2015}} \times 100 \tag{2}$$

Inflation — an example

The base year for the consumer price index is 2002 with a value of 100. Statistics Canada uses a fixed basket classified under eight consumer expenditure categories. The weight or importance of each category is its share of expenditure as determined by consumer expenditure surveys.

— Visit Statistics Canada website, `www.statcan.gc.ca`, and select CPI.

— Statistics Canada reported a CPI of 126.8 in 2015 and CPI 128.7 in 2016. Calculate the Inflation rate for 2016?

Inflation — an example

— Statistics Canada reported a CPI of 126.8 in 2015 and CPI 128.7 in 2016. Calculate the Inflation rate for 2016?

$$\text{Inflation rate for } 2016 = \frac{128.7 - 126.8}{126.8} \times 100 = 1.5\%$$

Employment — 1

— **Employment** is defined as the number of adults (15 years of age and older) employed full-time and part-time and self-employed.
— **Unemployment** covers those not working but available for and *seeking work*.
— The civilian **labour force** is those adults who are employed plus those not employed but actively looking for jobs.

Labour force: adults employed plus those not employed but actively looking for work.
Employment: number of adults employed full-time and part-time and self-employed.
Unemployment: number of adults not working but actively looking for work.

Employment — 2

— The **participation rate** is the proportion of the population that is either
– working or
– unemployed.

Participation rate: percent of the population that is either working or unemployed.

$$\text{Participation Rate} = \frac{\text{Labour force}}{\text{Population 15+ yrs}} \times 100 \tag{3}$$

Unemployment Rate

— The **unemployment rate** is the number of unemployed persons expressed as a percentage of the labour force.

Unemployment rate: the number of unemployed persons as a percentage of the labour force. The unemployment rate is calculated as follows:

$$\text{Unemployment Rate} = \frac{\text{Labour force} - \text{employment}}{\text{Labour force}} \times 100 \tag{4}$$

Types of Unemployment and Employment Rate

Cyclical unemployment: would be eliminated by higher levels of economic activity.
Frictional unemployment: a result of the time involved in adjusting to changing labour force and employment opportunities.
Structural unemployment: caused by changes in economic structure relative to labour characteristics.
Natural unemployment rate: the unemployment rate at "full employment".
Employment rate: percent of the population 15 years of age and over that is employed.

$$\text{Employment Rate} = \frac{\text{Employment}}{\text{Population 15+ yrs}} \times 100 \tag{5}$$

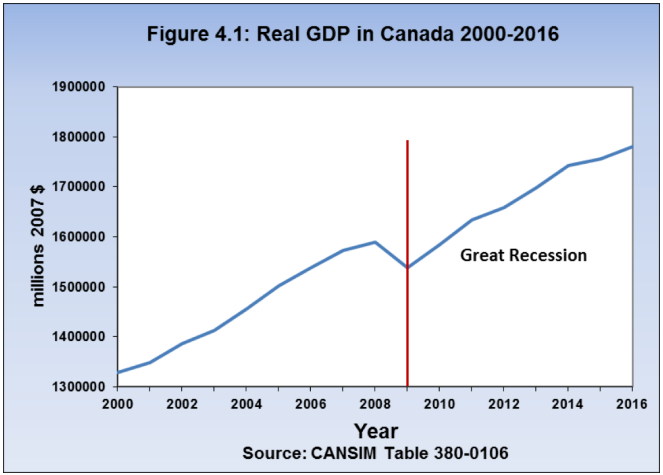
Canadian Labour Market

Table below gives recent data on the Canadian labour force and labour market conditions in terms of the Participation, Employment and Unemployment rate concepts.

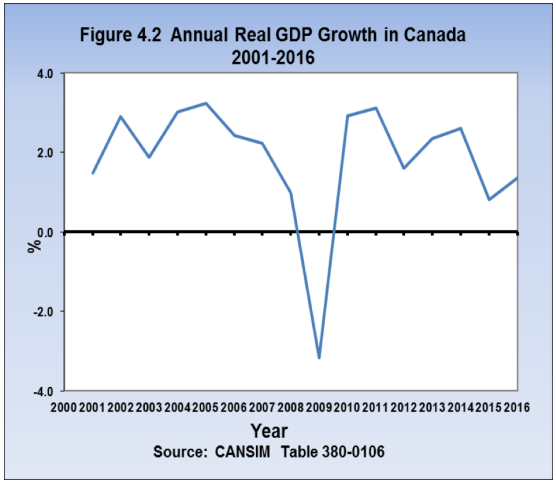
Table: The Canadian Labour Market, February 2017 (thousands of persons and percent), Source: Statistics Canada, CANSIM Table 282-0087

1. Non-institutional population 15+ yrs	29,764
2. Labour force	19,575
3. Employment	18,289
4. Unemployment	1,286
5. Participation rate $[(2)/(1) \times 100]$	65.8%
6. Employment rate $[(3)/(1) \times 100]$	61.4%
7. Unemployment rate $[(4)/(2) \times 100]$	6.6%

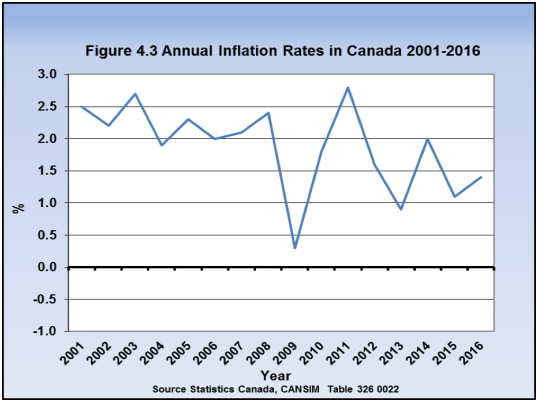
Canadian Economic Performance – Real GDP



Canadian Economic Performance – Real GDP Growth

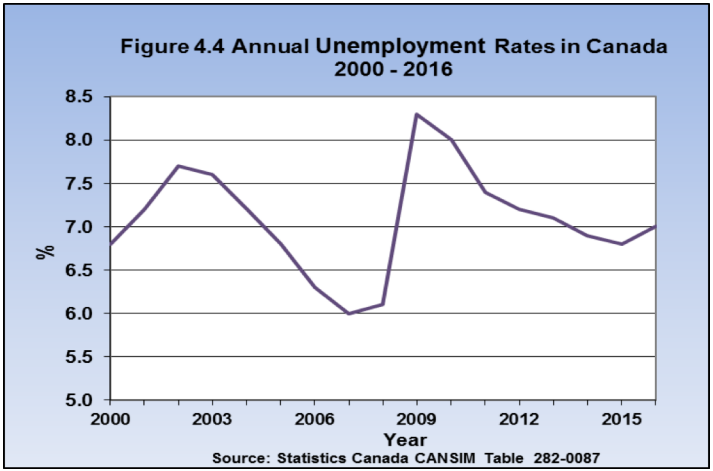


Canadian Economic Performance – Interest Rate



Since 1991 the Bank of Canada has conducted monetary policy based on an Inflation Rate Target of $2\% \pm 1\%$.

Canadian Economic Performance – Unemployment Rate



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