

Part 2: Introduction to Macroeconomics.

Chapter 4 → Measurement of Macroeconomic Activities.

Chapter 5 → Aggregate Supply and Aggregate Demand Analysis; Business Cycles.

Chapter 6 → Market Based Aggregate Expenditure Components.

Chapter 7 → Extends Chapter 6 to Include Government Sector.

Chapter 4: Economic Activity and Performance

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- Objectives:
 - 4.1. Understanding indicators of performance
 - 4.2. Canadian economic performance
 - 4.3. National accounts and economic structure
 - 4.4. Measuring GDP
 - 4.5. Nominal GDP, real GDP and the GDP deflator
 - 4.6. Per capita GDP, productivity and standards of living
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4.1. Macroeconomic Performance:

3 key indicators of performance:

- 1- Growth rate of real national income
- 2- Rate of Inflation
- 3- Rate of unemployment

- Real Output or real gross domestic product (real GDP): Quantity of final goods and services produced by the economy in a specified time period, measured in the market price of a base year.

Why is it important to consider REAL GDP as a measure of performance?

- 4.1.1. The growth rate of GDP:

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3 If the rate increases, we have economic growth.

Example: Real GDP in 2013 = 1681 billions

Real GDP in 2012 = 1654 billions

Calculate the growth rate?

- 4.1.2. General Price Level: weighted average of a wide variety of goods and services presented as an index.
- CPI (Consumer Price Index) or Cost of Living: measures the cost of living in any one year compared to the cost of living in a base year.

Example: (Assume 2006 is the base year)

Item	Quantity	2006 Price	Cost in 2006	2016 Price	Cost in 2016
Pizza	5	\$7.50	\$37.50	\$12	\$60
Coffee	10	\$1.00	\$10	\$1.50	\$15
Movies	1	\$10.00	\$10	\$8.00	\$8.00

- Inflation: a persistent rise in the general price level.

Inflation rate for 2016 =

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- 4.1.3: Employment/Unemployment (Labor Market):

3 key indicators in labor market:

1. Labor Force
2. Employment
3. Unemployment

1. Labor Force: adults (15+) employed plus those who are not working but actively looking for jobs
2. Employment: number of adults employed full-time or part-time or self-employed
3. Unemployed: number of adults, not working but actively looking for work

- Participation Rate =

Example: According to Stats Canada, population in 2013 = 28.690 million and labor force = 19.079. Participation rate?

- Unemployment Rate =

Example: labor force in 2013 = 19.079 million. Employment = 17.731 million. Unemployment rate?

- Different kinds of Unemployment:
 - 1- Cyclical: due to business cycle.
 - 2- Frictional: due to labor market dynamics (mismatching).
 - 3- Structural: due to changes in economic structures.
 - 4- Natural: unemployment at full employment.

- Employment Rate =

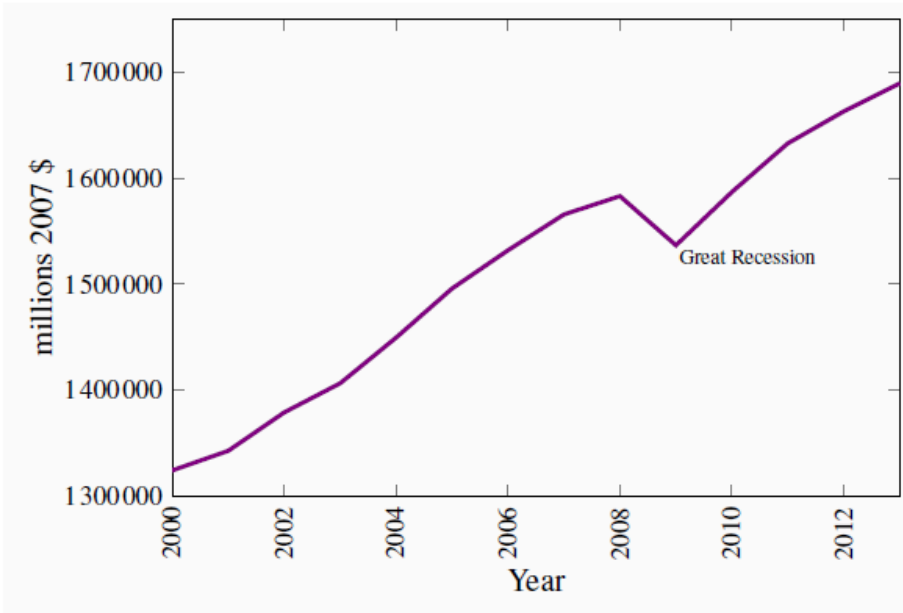
In our previous example:

Why employment rate is important? It has less volatility (changes) as the number of unemployed changes.

Why employment rate is less than participation rate?

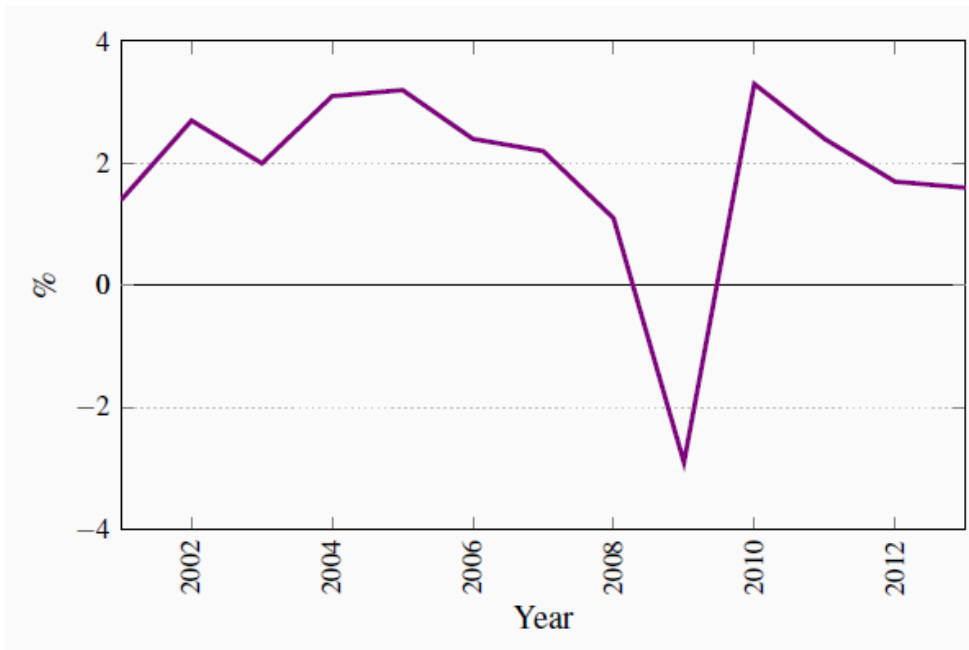
4.2. Canadian Economic Performance:

Figure 4.1: Real GDP in Canada 2000-2013



Source: CANSIM Table 380-0106

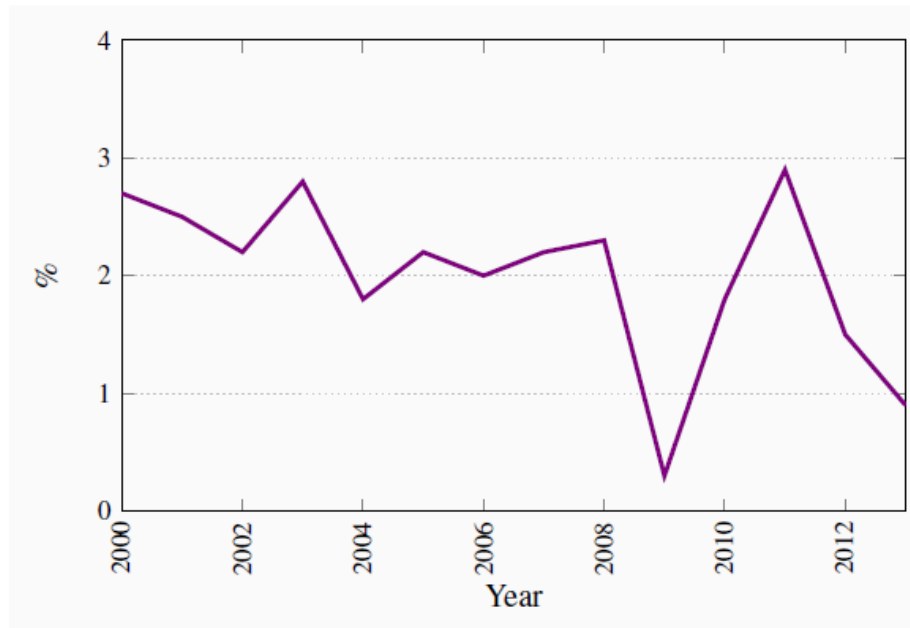
Figure 4.2: Annual real GDP growth in Canada, 2001-2013



Source: CANSIM Table 380-0106 and author's calculations.

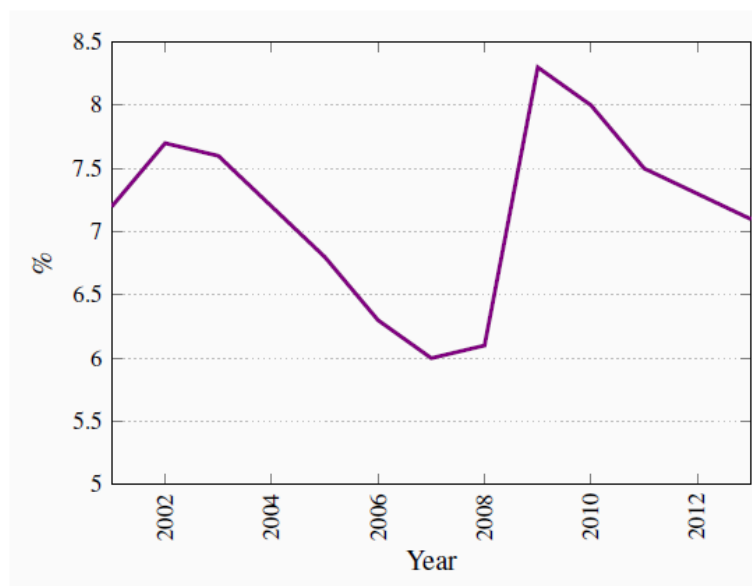
- Recession: decline in economic activities / negative growth in real GDP

Figure 4.3: Annual inflation rates in Canada, 2000-2013



Source: Statistics Canada, CANSIM series V41690914

Figure 4.4: Annual unemployment rates in Canada 2001-2013



Source: Statistics Canada CANSIM series V2062815

4.3. National Accounts

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- Accounting system describes the economy.
- To represent an economy, we need a **model**.
- Model is a simplification of reality. (by means of assumptions)
- Assumption: only 2 sector exist in the economy: *household* and *firm*
- Describe the system:

- The value of the production can be measured by 4 different ways:
 1. Output (goods and services) at market price
 2. Total expenditure on output
 3. Inputs for production at market price
 4. Income received by households
- Note that all give the **same** value for production.

*Market value of output = total expenditure =
= market value of factor services = households income*

- Notice the underlying assumptions: No savings, No investment, No government, No taxes, No export, and No Import.
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4.4. Measuring GDP:

- Nominal GDP: value of final goods and services produced in that year at the prices of that year.
- 3 different ways of measuring nominal GDP:
 1. Output-based: sum of added values by all industries.
 2. Expenditure-based: sum of expenditure on final goods and services.
 3. Income-based: earnings generated by the production of goods and services.
- 3 different methods show 3 different *perspectives*
- Output-based and income-based → supply side
Expenditure-based → demand side

4.4.1. Output-based GDP:

- Add all the contributions of different sectors in the economy

Contributions =

- Value added: difference between market value of the output and the cost of inputs purchased from the other businesses

Example: Automobile (tires, windshield, wipers)

- If we don't use value added, we have the problem of *double counting*.

Example: a coffee shop sells 100 cups of coffee, \$1.50 each. To make 100 cups, 2 kg of coffee costing \$10.00 per kg, 25 liters of spring water, costing \$0.40 per liter and electricity in total of \$20 have been used.

Calculate the added value?

4.4.2. Expenditure-based GDP and Income-based GDP:

- They are equal by definition

Table 4.3: Canadian national accounts 2013 (billions \$ at current prices and % GDP)

Expenditure measures			Incomes measures		
At market price	\$	%	Income source	\$	%
<i>C</i> by households ¹	1,045.9	56.7	Employee compensation	956.8	50.9
<i>I</i> by business ²	380.0	20.2	Net corporate surplus	239.5	12.7
<i>G</i> by government	485.6	25.8	Net mixed income	167.7	8.9
<i>X</i> exports	565.7	30.1	Capital consumption	325.0	17.3
<i>IM</i> imports	-597.6	-31.8	Net indirect taxes	190.3	10.1
Statistical discrepancy	-0.2	0.0	Statistical discrepancy	0.2	0.0
GDP at market price	1,879.5	100.0	GDP at market price	1,879.5	100.0

1. Includes expenditure by non-profit institutions serving households

2. Includes investment in inventories

Source: Based on Statistics Canada CANSIM Tables 380-0063 and 380-0064 and author's calculations.

- Expenditure-based: add up all the market value for all the final goods and services bought in a year.
- It has 5 categories: Consumption (C), Investment (I), Government Expenditure (G), Export (X) and Import (IM)
- GDP =
- Income-based GDP: sum of factor costs of production of all goods and services plus net indirect taxes included in the market price.

Table 4.4: Nominal and real GDP

		2000	2014	% change
Quantity	blue jeans	4,000	5,000	25
	solar panels	2,000	4,000	100
Price in \$	blue jeans	25	50	100
	solar panels	100	80	-20
Current value	blue jeans	100,000	250,000	150
	solar panels	200,000	320,000	60
Nominal GDP		300,000	570,000	90
Value in 2000 \$	blue jeans	100,000	125,000	25
	solar panels	200,000	400,000	100
Real GDP		300,000	525,000	75
GDP deflator		100	108.6	8.6

- GDP Deflator: to convert Nominal GDP to Real GDP, we need an index. GDP deflator is an index of current final output prices relative to base year prices.
 - GDP Deflator =
 - Think about the differences between GDP deflator and CPI. (page 91)
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Table 4.5: Canadian nominal and real GDP 2001-2013

	2001	2005	2009	2013
Nominal GDP (billions \$)	1,134.8	1,410.7	1,567.0	1,879.5
GDP deflator (2007=100)	84.6	94.3	101.6	110.9
Real GDP (billions 2007 \$)	1,341.5	1,496.0	1,542.3	1,694.8

Source: Statistics Canada CANSIM Tables 380-0064 and 380-0066 and author's calculations.

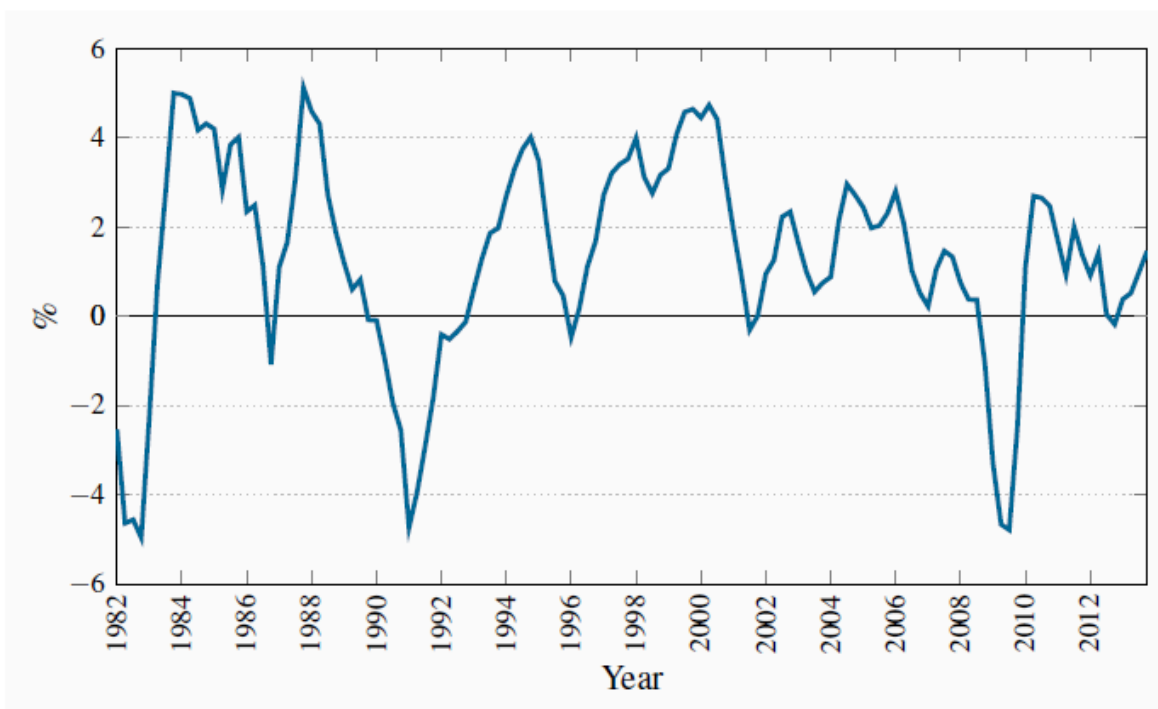
4.6. Per capita real GDP

- It is the question of productivity and standards of living.
- Per capita real GDP measures those issues.

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- Per capita GDP =

Figure 4.6: Quarterly rates of growth in per capita real GDP in Canada, 1982-2013



Source: Statistics Canada, CANSIM Table 380-0064 and Series V1

Limitations of real GDP:

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- GDP should be adjusted for negative effects of production (such as pollution) – hard to quantify
- Excluded services such as maintenance households carry out for themselves should be included.
- High GDP and high per capita GDP are not necessarily good measures of economic well-being. – the problem of distribution of wealth or inequality)