



Applying Okun's Law

Unemployment above the *natural rate* of unemployment has both financial and social costs associated with it. The financial cost of unemployment is the lost output that results from the labour resources that are sitting idle. If you think back to Chapter 1 (see Figure 1.12 on page 18), a point somewhere inside the production possibilities curve represents falling short of what the economy is actually able to produce. This lost output is known as the **GDP gap**. It is the difference between the actual GDP produced by the economy and the **potential GDP** that could be produced if the unemployment rate was not higher than the natural rate.

An economist, Arthur Okun, created a formula that is used to estimate the size of this gap. **Okun's law** states that for every percentage point that the actual unemployment rate exceeds

the natural rate, a GDP gap of 2 per cent occurs. Expressed as a formula:

$$\text{GDP gap} = \frac{\text{actual GDP} - \text{potential GDP}}{\text{potential GDP}} \times \frac{(\text{unemployment rate} - \text{natural rate})}{100} \times 2$$

In Canada in 1993, the unemployment rate was 11.4 per cent. If the natural rate of unemployment is assumed to be 6.5 per cent then the real unemployment rate exceeded this by 4.9 per cent (11.4 minus 6.5). This means that the GDP could have been 9.8 per cent higher (4.9 per cent $\times$ 2). The actual GDP in 1993 was \$769.1 billion, but it could have been 9.8 per cent higher or \$75.4 billion more in terms of dollars (\$769.1 $\times$ 0.098). This figure represents the GDP gap. The potential GDP of the Canadian economy was \$844.5 billion—if only it had been able to achieve full employment.

QUESTIONS

1. Canada's GDP in the year 2000 was measured at \$1009.2 billion when the unemployment rate was 6.8 per cent. If the natural rate of unemployment is 6.5 per cent, how much was Canada's GDP gap in the year 2000?
2. Calculate the GDP gap for the countries in Figure 9.8.

Country	GDP (\$ billions)	Unemployment Rate (%)	Natural Rate of Unemployment (%)	GDP Gap
A	550.0	10.0	8.0	?
B	728.0	7.4	3.0	?
C	325.7	13.7	4.8	?

Figure 9.8

Check Your

Understanding

1. How does Statistics Canada determine the unemployment rate?
2. What are the criticisms of the method used by Statistics Canada for calculating the unemployment rate?
3. What is the natural rate of unemployment considered to be in Canada?
4. What are the social and economic costs of unemployment?

Activities

Thinking/Inquiry

1. Examine the information in Figure 9.16.
 - a) By what percentage did real GDP grow between 1985 and 1995?
 - b) By what percentage did it grow between 1990 and 2000?
 - c) What is the average growth rate per year of these two time periods?

Year	1985	1990	1995	2000
Nominal GDP (\$ millions)	235	360	510	700
GDP deflator	104	119	139	152

Figure 9.16

2. Why is the work of volunteers not included in the calculation of the GDP? Do you think it should be? Prepare a defence of your position.
3. Which of the following transactions are included in the GDP, and to which component of expenditure GDP does each belong?
 - a) The purchase of building materials by a contractor who is working on your kitchen.
 - b) The purchase of building materials by you for the basement renovation project that you are completing.
 - c) The sale of a dozen ears of corn in the supermarket.
 - d) The sale of a basket of tomatoes at a roadside stand.
 - e) Your purchase of a Swiss-made watch.
4. What type of unemployment is each of the following?
 - a) A high school graduate looking for her first job.
 - b) Workers laid off by Chang Incorporated, a doughnut shop company, because consumers have shown a tendency to eat more bagels than doughnuts.

- c) Lift operators laid off from a ski resort for the summer.
- d) Workers laid off by General Motors as it brings new automation to its assembly line.
- e) Workers dismissed by a large number of companies because of a general decline in demand for goods and services.
- f) Workers losing their jobs when Hoyt Enterprises, a hockey stick manufacturing company, closes its plant in Canada, preferring to manufacture its sticks in Sweden and import them.

5. "Not all Canadians feel the impact of inflation equally." Explain this statement, referring to the limitations of the CPI.
6. Compare Figures 9.2 (page 200), 9.4 (page 204), and 9.10 (page 208). Can you see any relationship among the three measures? Speculate as to why any relationships you find exist.
7. There are many economic measures other than those described in this chapter that Statistics Canada monitors. Search either the Statistics Canada Web site or back issues of newspapers to find at least two other macroeconomic measures. Explain what the measure is and how it might help you assess the state of the economy.

Communication

8. Collect five articles from newspapers, magazines, or online databases that you believe relate to the concepts taught in this chapter. For each of the articles, write a brief summary and explain how it relates to what you learned in this chapter.
9. Divide a group of four people in half. Discuss the pros and cons of the value of adopting the GPI as an economic measure, with each pair taking one side of the argument.
10. Find a partner and go to the Web site hosted by the Organization for Economic Cooperation and Development (OECD). Collect and compare the data provided—regarding the three main economic measures described in this chapter—in the same year

for any five countries and Canada. Create one set of bar graphs for each measure that displays the results of your research. If you notice significant differences in the main measures, conduct some further research to determine why the data are different for different countries. Write a summary of your findings.

Application

11. Go to the Statistics Canada Web site and find the real growth rate, unemployment rate, and inflation rate for the last two years. You may have to do your own calculations from the information provided to find these answers.
12. Explain the effect of each of the following on the size of the GDP and the well-being of Canadians.
 - a) War breaks out overseas and Canadians are involved.
 - b) Because of increasing concerns about international terrorism, the Canadian government increases its border security measures by hiring more border guards.
 - c) The work week is lengthened from 40 hours to 50 hours.
 - d) More people engage in home renovation projects.
 - e) Ontario introduces an environmental protection program that requires drivers to have their cars pass pollution emission tests before they can renew their licences.
13. a) The fictional economy of Werdna measures its GDP at \$540 billion in a year when their actual unemployment rate is 9.3 per cent. Economists estimate the natural unemployment rate as 4 per cent. What is the GDP gap of Werdna?
 - b) Werdna government economists estimate that if the Ministry of Labour had spent \$10 billion on programs to create employment, they would have lowered the unemployment rate to 7 per cent. From a financial point of view, would it have been wise for the Ministry to go ahead with this program? Explain your answer.
14. Koskins Inc. has negotiated a collective agreement with its workers that fully protects them against the effects of inflation by fully indexing wages to the CPI. If the wage rate in the first year of their contract was \$13.25 per hour when the CPI was 127, what is the wage rate at the end of the third year of the contract when the CPI is 145?
15. The federal government decides to give a tax deduction (income that a person is not required to pay tax on) for the purchasing of educational books. In the year 2002, the deduction is valued at \$1000, and in 2005, the deduction is \$1100. The CPI in 2002 is 128, and in 2005, it is 145. Is the deduction fully or partially indexed? Explain your answer.
16. Calculate the unemployment rate for each of the countries in Figure 9.17.

Country	Labour Force (year)	Number Employed
Canada	16 100 000 (2000)	15 000 000
Bangladesh	64 100 000 (1998)	41 500 000
United Kingdom	29 200 000 (1999)	27 600 000
Vietnam	38 200 000 (1998)	28 650 000
Australia	9 500 000 (1999)	8 900 000

Figure 9.17