

Time lost: an alternative view of unemployment

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Unemployment can be defined in a variety of ways, and no single measure is ideally suited to all applications. The "official" measure, published monthly by Statistics Canada, is widely accepted because it is relatively simple and suitable for many applications. It also corresponds to international convention and offers historical continuity.

The source of Canada's "official" unemployment rate is the Labour Force Survey (LFS). To obtain the rate, the estimated number of people who are unemployed is divided by the total number in the labour force. (The labour force consists of those who have jobs plus those who are unemployed.)

This rate does not, and was never intended to, give a complete picture of the unemployed population. The LFS actually provides eight alternative unemployment measures, each of which sheds light on different aspects of unemployment. Many other definitions of unemployment can be produced, including user-specified rates. [\(1\)](#)

The nine unemployment rates, which have occasionally been the subject of published analyses, [\(2\)](#) are labelled R1 to R9, with R5 being the official rate. Eight of the nine rates (including the official rate) concern a selected group of people. For example, some concentrate on full-time workers or heads of families, and others examine the impact of students, discouraged workers or the military. The remaining rate (R8) approaches unemployment from a quite different perspective. Rather than focusing on people, it measures hours lost relative to hours worked.

This article explains how this "hours" rate is calculated, and addresses the question: how does our perception of the labour market change if we measure unemployment based on hours, rather than on people?

Defining unemployment based on hours

All nine measures of unemployment are founded on the somewhat abstract concept of total labour supply. This total supply can be divided into utilized and unutilized portions of the labour force. Employment represents the utilization of labour services while unemployment represents unutilized labour - that is, an excess supply.

The unemployment rate based on hours is calculated by dividing unutilized hours by the sum of hours worked and unutilized hours. Included among the unutilized hours are: the number of hours that would be worked if all unemployed people had jobs; the hours lost by part-time workers who would prefer to have full-time employment ("involuntary part-time"); and the hours lost by people on short work weeks. (See [Defining R8](#) for more detail.)

What does this measure show that the other measures do not? Primarily, it is a more complete measure of the unutilized labour supply. The official measure and the other measures require that everyone be assigned one and only one classification during the survey's "reference week". (3) A person cannot be employed and unemployed in the same week. This means that people who, for example, lose their job and become unemployed in the middle of this week are counted as employed, not as unemployed. The R8 measure, on the other hand, recognizes that in fact some people have more than one employment status during the week. In addition, the hours measure distinguishes between unemployed people seeking part-time work and those seeking full-time work, assigning a greater value to the latter. In the official rate, the two groups of unemployed are counted on an equal footing.



Chart A **Ratio of unemployment rate based on hours to the "official" rate**

Source: Labour Force Survey



Chart B **Unemployment rate based on hours and "official" rate**

Source: Labour Force Survey

An analogous measure in the field of economic statistics would be capacity utilization, which is the proportion of potential manufacturing output actually produced by the economy during a given period of time. Unemployment based on hours gives the percentage of the available labour input that the economy does not use to produce goods and services. (4)

Does the unemployment picture change using R8?

An unemployment rate based on hours is somewhat higher than a rate based on people. Furthermore, the gap between the two measures is wider in the summer than in the winter and, since 1981, it has shown a gradual tendency to widen from one year to the next.

Why does the gap between the two unemployment measures fluctuate? An examination of components of the hours measure tells the story. The number of hours lost through involuntary part-time work fluctuates much more than does the number of hours lost due to conventionally measured unemployment, both seasonally and over the years. Therefore, by picking up the hours lost by involuntary part-time workers as a component of unemployment, the hours measure not only shows a higher level but also an extra degree of volatility.

Despite these differences, the two measures show a similar picture of the Canadian economy in the 1980s. For example, the timing and magnitude of the 1981-82 recession remain the same regardless of the measure used.

Gap in rates differs by age and sex

The rate based on hours exceeds the official unemployment rate for both men and women ([Table 1](#)). But the "gap" between the two rates is wider for women, in relative terms. This is due to the greater frequency of involuntary part-time work among women.



Table 1 Unemployment rate based on hours and the "official" rate

Sources: Revenue Canada-Taxation; Censuses of Population and intercensal population estimates

The rate for people under age 25 is also considerably higher if one uses the hours measure of unemployment. This can be seen by looking at the ratio of the hours-based unemployment rate to the "official" unemployment rate. In 1988, this ratio was 135 for people under age 25, compared with 127 for all ages.

In relative terms, the gap between the two rates increased for every age-sex category between 1981 and 1988, but to different degrees. For example, between these years, the gap widened more for women (from 130 to 140) than for men (from 111 to 115).

Summary

An unemployment definition that measures lost hours can capture some aspects of unemployment not shown by the official unemployment rate. In addition to producing higher rates, the hours measure changes the comparison between different age-sex groups and has greater seasonal movements. However, the basic picture of economic trends over time is similar, regardless of which of the two unemployment measures is used.

Defining R8 (unemployment rate based on hours)

The basic equation for calculating the unemployment rate based on hours can be expressed as follows:

$$\frac{\text{hours lost}}{\text{hours lost} + \text{hours worked}} \times 100$$

Hours lost can be divided into three components:

- Hours lost due to unemployment, consisting of two main subcomponents:
 - Hours lost by all unemployed persons seeking full-time jobs (that is, the number of unemployed seeking full-time jobs multiplied by the average weekly hours worked by persons employed full-time)
 - Hours lost by all unemployed persons seeking part-time jobs (that is, the number of unemployed seeking part-time jobs multiplied by the average weekly hours worked by persons employed part-time).
- Hours lost due to involuntary part-time work:

This covers all persons working part-time because they could not find full-time work. This component is the difference between the hours worked by these people and the average weekly hours of full-time workers.
- Hours lost due to a short week:

This covers all persons who could not work their full scheduled hours during the week because of material shortages or lack of demand. Their lost hours are counted in R8.

For the mathematical equations with numerical examples, see the staff report *Supplementary Measures of Unemployment*. Copies can be obtained by contacting Suzanne David at (613) 951-2576.

Notes

Note 1

A number of the alternative unemployment rates are published in *Perspectives on Labour and Income* - see Key Labour and Income Facts. User-specified rates, as well as monthly data for the alternative rates published in *Perspectives*, can be obtained on a special request basis from Household Surveys Division. Contact H el ene Lavoie at (613) 951-2301.

Note 2

For example, [Jackson](#) (1987) reviewed the full range of alternative rates, explaining the differences between them and examining their performance over time.

Note 3

Results for the Labour Force Survey are based on a "snapshot" of the working-age population in one week of each month. This "reference week" is usually the one containing the 15th day of the month.

Note 4

If R8 showed the *utilized* supply of labour as a percentage of the total supply, it could be called an employment rate instead of an unemployment rate, and would be even closer in concept to capacity utilization.

Reference

- Jackson, G. "Alternative Concepts and Measures of Unemployment", *The Labour Force* (71-001). Statistics Canada, February 1987, pp. 85-120.

Author

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Source

Perspectives on Labour and Income, Spring 1990, Vol. 2, No. 1 (Statistics Canada, Catalogue 75-001E).
This is the seventh of seven articles in the issue.

 HIGHLIGHTS

 TABLE OF CONTENTS

 SUBJECT INDEX

 AUTHOR INDEX

 FRANÇAIS

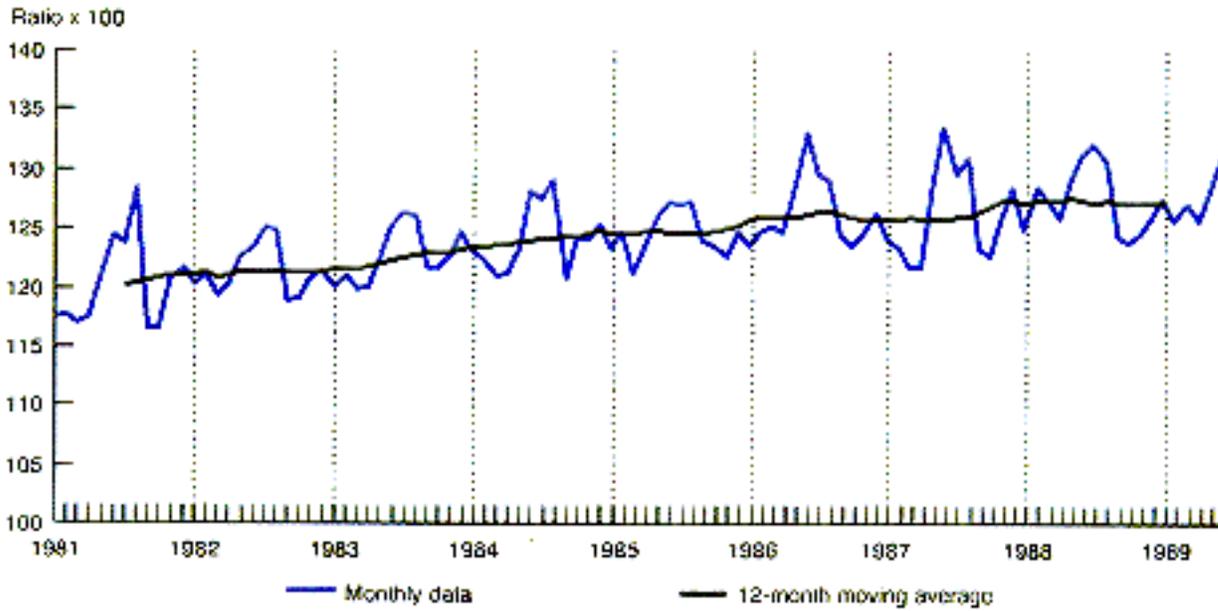
 HELP

 HOME



Ratio of unemployment rate based on hours to the "official" rate

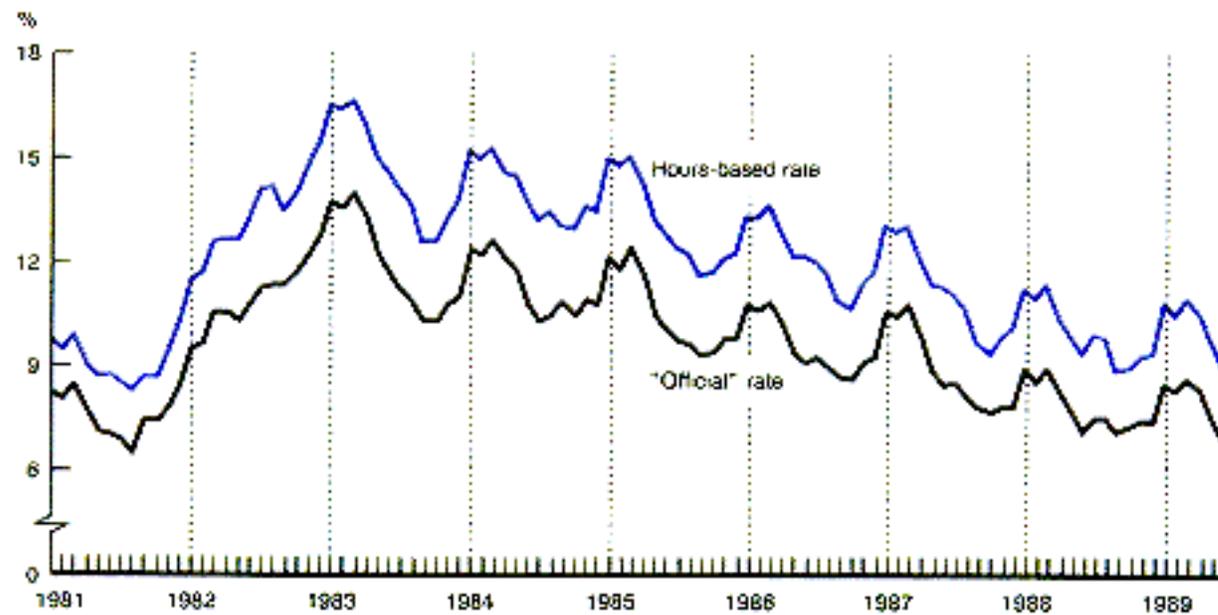
The upward trend in the ratio shows that the gap between the two rates has been gradually increasing.



Source: Labour Force Survey

Unemployment rate based on hours and "official" rate

The two unemployment measures exhibit a similar seasonal pattern.



Source: Labour Force Survey

Table 1

Unemployment rate based on hours and the “official” rate

	1981			1988		
	Hours-based rate	“Official” rate	Ratio*	Hours-based rate	“Official” rate	Ratio*
	%			%		
All ages	9.0	7.5	120	9.9	7.8	127
15-24	16.4	13.2	124	16.2	12.0	135
25-44	7.3	6.2	118	9.0	7.2	125
45-54	5.7	4.7	121	7.4	5.7	130
55 +	4.9	4.0	123	7.3	5.6	130
Men						
All ages	7.8	7.0	111	8.5	7.4	115
15-24	16.6	14.1	118	16.3	12.9	126
25-44	5.8	5.3	109	7.4	6.5	114
45-54	4.7	4.2	112	5.5	4.8	115
55 +	4.5	4.0	113	6.6	5.6	118
Women						
All ages	10.8	8.3	130	11.6	8.3	140
15-24	16.1	12.3	131	15.9	11.0	145
25-44	9.6	7.5	128	10.9	8.0	136
45-54	7.6	5.5	138	10.1	6.9	146
55 +	5.8	4.0	145	8.6	5.6	154

Source: Labour Force Survey

** Unemployment based on hours divided by the “official” unemployment rate, multiplied by 100.*