

Alternative measures of unemployment

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From the Great Depression of the 1930s to the recent recession, the consequence most frequently associated with an economic downturn has been unemployment. Unemployment figures, in fact, are often cited as an indicator of the severity of economic conditions. And as unemployment rises, so does concern that the official rate reported each month by Statistics Canada may not be measuring the full extent of the problem.

For some observers, the conventions by which unemployment statistics are compiled may fail to account for a considerable number of persons who are "underemployed." For example, calculations of the official unemployment rate make no provision for part-time workers who would prefer full-time jobs. As well, a number of potential workers may have given up looking for employment because they believe that no jobs are available. These discouraged workers are not included in the official counts of the unemployed because they have not been actively seeking jobs.

On the other hand, for some purposes, the official unemployment rate may be too inclusive. If, for instance, the rate's purpose is to measure economic hardship, then perhaps it should exclude relatively brief periods of unemployment or focus on persons with dependants. The rationale underlying such measures would be that the financial consequences may be more serious as the duration of unemployment lengthens or for persons who have young children.

In response to concerns that the official rate does not account for these and other aspects of unemployment, and in recognition of the fact that no single definition is suitable for all purposes, Statistics Canada regularly publishes a series of supplementary unemployment measures. ⁽¹⁾ These alternative rates are neither exhaustive nor definitive; their purpose is more to illustrate the variety of ways that unemployment and the underutilization of labour can be measured. They also enhance understanding of the labour market by revealing aspects of unemployment not reflected by the official rate.

During the recent recession, which began in the second quarter of 1990, the unemployment rate received close scrutiny, with considerable attention paid to persons who are not counted by the official figures.

This article illustrates how trends in unemployment would have appeared if different concepts had been used to measure it.

The study begins with an explanation of the official rate and eight alternatives that are calculated using data collected by the Labour Force Survey (LFS). [\(2\)](#) The course of the official rate and the various alternatives is then traced from the first quarter of 1990 to the second quarter of 1992. The emphasis is on the degree to which these supplementary rates differ from the official rate in the timing and extent of fluctuations and in the pace of change. (The unemployment rates in this article have not been adjusted for seasonal variation.)

Defining unemployment

Canada's working-age population (those aged 15 years and over) can be divided into three groups: the employed, the unemployed, and persons not in the labour force. The labour force consists of persons who are employed and those who are unemployed.

Counted among the employed are persons who did any work for pay or profit during the reference week, as well as those who were absent from a job or business for reasons such as illness, vacation, labour dispute, or family responsibilities.

To be officially classified as unemployed, a person must not have worked in the reference week; must have actively sought work sometime in the previous four weeks; and, must be currently available to take a job. Persons who have not looked for work because they are on temporary layoff or because they have a new job scheduled to start within four weeks are also counted as unemployed. The official unemployment rate shows the unemployed as a percentage of the total labour force. [\(3\)](#)

This official rate is designated "R5," and the various alternatives, "R1" to "R4" and "R6" to "R9," based on their rank order (lowest to highest) in 1977, the first year data were available for all calculations. [\(4\)](#) (See [Appendix](#) for more detail on the calculations.)

The rates are:

R1

Persons unemployed 14 or more weeks as a percentage of the labour force.

R2

Unemployment rate of persons heading families with (a) child(ren) under age 16.

R3

Unemployment rate excluding full-time students.

R4

Unemployment rate including full-time members of the Canadian Armed Forces.

R5

Official unemployment rate.

R6

Unemployment rate of the full-time labour force.

R7

Unemployment rate including discouraged workers and other persons "on the margins" of the labour force.

R8

Underutilization rate based on hours lost through unemployment and underemployment.

R9

Unemployment rate of the part-time labour force.

For analytical purposes, the eight supplementary rates can be divided into several categories:

- measures focusing on groups for whom unemployment may present particular economic hardship (R1 and R2);
- measures reflecting groups with varying degrees of labour force attachment (R3 and R4);
- measures that incorporate aspects of "hidden" unemployment or the underutilization of labour (R6 and R7);
- a measure based on hours (R8); and
- a rate for part-time workers (R9).

The official unemployment rate

The effects of seasonality are evident in quarterly unemployment statistics, with the general tendency of the official rate to peak in the first quarter (January to March), decline in the second and third quarters (April to June and July to September), and then rise in the fourth quarter (October to December).

Notwithstanding these fluctuations, there has been an overall increase in unemployment since 1990. By the second quarter of 1992, Canada's official unemployment rate was 11.2%. This was a considerable rise from the second quarter of 1990 when the rate had been 7.4%. An average of 1.6 million Canadians were unemployed in the second quarter of 1992, compared with about 1.0 million in the corresponding quarter two years earlier.

Over the same period, the alternative unemployment rates (except the one for part-time workers)

generally followed the pattern set by the official rate. That is, when the official rate rose or fell, the others tended to do the same. However, there were differences in the pace at which these changes occurred, indicating that some dimensions of unemployment may be more sensitive to variations in economic conditions ([Table 1](#)).



Table 1 **Alternative unemployment rates, unadjusted quarterly data, 1990-92.**

Source: Labour Force Survey

Measures of economic hardship

Two of the alternative measures concern groups for whom the financial consequences of unemployment may be particularly severe: the long-term unemployed and heads of families with young children.

The long-term unemployment rate (R1) shows the proportion of the labour force that has been out of work for 14 weeks or more. Over the course of a year, trends in long-term unemployment lag behind the official figure, peaking and bottoming out one quarter after the annual highs and lows of the official rate.

Among the alternative measures, long-term unemployment is the lowest, typically less than half the official rate. However, as an economic downturn becomes more severe, spells of unemployment tend to lengthen, and the gap between long-term unemployment and the official rate narrows.

Since early 1990, long-term unemployment increased much faster than any of the other rates. By the second quarter of 1992, it was 5.8%, up from 3.1% for the same period in 1990 ([Chart A](#)). This was an increase from 425,000 to 806,000 persons unemployed for 14 or more weeks.



Chart A **The long-term unemployment trend lags that of the official rate.**

Source: Labour Force Survey

Unemployment may impose a particularly heavy financial burden on families. This aspect of

unemployment is highlighted by the rate for family heads (usually parents) with children younger than age 16 (R2). In the second quarter of 1992, this rate was 9.3%, compared with 6.5% in the corresponding quarter of 1990. This rise, however, was not as steep as that of the official unemployment rate.

Even so, the number of unemployed parents increased considerably. The total for the second quarter of 1992 was 444,000 unemployed versus 305,000 in 1990.

Students and soldiers

Two other supplementary unemployment measures consistently remain just below the official figure. These rates are calculated by excluding full-time students (R3) or by including full-time members of the Canadian Armed Forces (R4).

The labour force participation patterns of full-time students differ markedly from those of the rest of the population. By the third quarter of the year (July to September, the typical summer vacation months), over a million full-time students are in the labour force, whereas during the first quarter (January to March), the number is about 800,000. As a result, the impact of full-time students on the unemployment rate varies at different times of the year. But although they contribute relatively more to unemployment than to employment, their overall impact is slight: excluding them from the calculations did not lower the national unemployment rate by more than four-tenths of a percentage point in any quarter of the 1990 to 1992 period.

Including full-time members of the Canadian Armed Forces in the calculations also yields an unemployment rate just below the official level. (All members of the Armed Forces are, by definition, employed.) This reduction is minimal, with the difference between this and the official rate never amounting to more than one-tenth of a percentage point.

"Hidden" unemployment

Broadening the concept of unemployment to incorporate two dimensions of underemployment - "involuntary part-time workers" and discouraged workers - produces rates that are above the official figure. Any widening of the gap between these alternatives and the official rate reflects relatively more hidden unemployment.

Unemployment of the full-time labour force

A considerable number of persons who work part time would prefer full-time employment. Thus, to some extent, they are underemployed. The full-time unemployment rate (R6) includes a portion of these involuntary part-time workers along with unemployed persons looking for full-time jobs.

From the second quarter of 1990 to the second quarter of 1992, the full-time unemployment rate rose from 9.0% to 13.7%, a slightly faster increase than that of the official rate. As a result, the gap between the two rates widened ([Chart B](#)).



Chart B Including various dimensions of hidden unemployment yields rates above the official figure.

Source: *Labour Force Survey*

The growing discrepancy between the full-time unemployment rate and the official rate largely reflects increasingly high levels of involuntary part-time employment. From the second quarter of 1990 to the corresponding period of 1992, the number of involuntary part-time workers rose from 409,000 to 662,000, and the share of full-time unemployment attributable to involuntary part-time work increased from 19% to 20%.

Discouraged workers

Some potential workers do not look for a job because they believe that no suitable employment is available. These discouraged workers are not counted in the official unemployment figures because they have not been actively seeking jobs. However, because the LFS collects data on the number of discouraged workers, an unemployment rate that includes them (R7) can be calculated. [\(5\)](#)

In the second quarter of 1992, discouraged workers numbered 141,000, up from 101,000 in the corresponding quarter of 1990. Nonetheless, as a share of the unemployed, discouraged workers did not increase in the recent recession. Throughout the 1990 to 1992 period, including discouraged workers among the unemployed yielded rates less than 1 percentage point above the official rate. [\(6\)](#)

Hours lost

Unemployment can also be measured in terms of hours rather than people. Such calculations are based on "unutilized" hours, which include not only those lost to the economy through unemployment, but also the hours lost because some persons accept part-time jobs involuntarily, while others have their working time cut back temporarily. The hours-based unemployment rate (R8) is always well above the official figure because it includes those hours lost by persons classified as employed in the official rate.

Throughout most of the period from 1990 to 1992, the hours-based measure surpassed the other rates of unemployment. In the second quarter of 1992, it was 14.3%, up from 9.4% in the corresponding interval

of 1990. This increase was somewhat faster than that of the official rate. As a result, the gap between the two measures widened, indicating proportionately more unutilized hours in early 1992 than in 1990.

A rate for part-time workers

The rate of unemployment of the part-time labour force (R9) focuses on persons seeking part-time jobs. This measure shows unemployed persons looking for part-time work as a proportion of the part-time labour force. The part-time labour force is made up of persons voluntarily working part time and unemployed persons seeking part-time jobs.

Of all the unemployment rates, the part-time rate is the most erratic over the course of a year, rising and dropping faster than the others. And unlike the other supplementary measures, its highs and lows do not coincide with those of the official rate. The unemployment rate of the part-time labour force soars in the summer when an influx of students swells the number of part-time job-seekers. It then drops back sharply in the autumn when they return to their studies.

Like the other measures, however, the part-time rate was affected by the recession. For instance, in the summer (third quarter) of 1991, it was 15.8%, well above what it was the previous summer (13.1%). As well, in the first two quarters of the year, the part-time rate tends to be relatively low. But whereas it had fallen below the official rate in the first two quarters of 1991, it remained above the official figure in the corresponding periods of 1992 ([Chart C](#)).



Chart C The part-time unemployment rate differs markedly from the other measures, peaking in the summer months.

Source: *Labour Force Survey*

Summary

The official unemployment rate is a summary measure based on a specific definition of what constitutes unemployment. To illustrate other dimensions of labour market behaviour, Statistics Canada regularly publishes supplementary rates showing what unemployment would look like using different concepts. Some of the alternatives are higher than the official rate, and others are lower, but for the most part, they follow the same course over the business cycle.

By all measures, there was an overall increase in unemployment during the early 1990s. But, as the

various alternatives indicate, this recession affected some groups more severely than others. Long-term unemployment and involuntary part-time work became more prevalent. And when unemployment is measured in terms of hours, the situation looks more serious. On the other hand, the unemployment rate of heads of families with young children did not rise as quickly as the official rate, and discouraged workers did not have a large effect on the overall unemployment picture.

Notes

Note 1

Each issue of *Perspectives on labour and income* provides annual figures for the alternative unemployment measures by province in "Key labour and income facts" (Nos. 8, 9, and 10).

Note 2

For further information on the Labour Force Survey or these alternative unemployment measures, contact Douglas Drew, Household Surveys Division, at (613) 951-4720.

Note 3

To a great extent, the official unemployment rate has been defined in the same way since the Labour Force Survey began in 1945. This definition has withstood considerable study in Canada and abroad and is compatible with international standards.

Note 4

For the formulas used to calculate these rates, see [David](#) (1989).

Note 5

The figures on discouraged workers presented here are based on monthly Labour Force Survey data and differ from those derived from the annual Survey of Job Opportunities. The LFS identifies persons who looked for work in the previous six months but not in the past four weeks because they believe no work is available. The Survey of Job Opportunities covers a much broader group, since it includes all persons who report wanting a job, whether or not they have ever actively looked for one.

Note 6

For a more detailed analysis of recent trends in discouraged workers, see [Akyeampong](#) (1992).

References

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Source

Perspectives on Labour and Income, Winter 1992, Vol. 4, No. 4 (Statistics Canada, Catalogue 75-001E). This is the fifth of six articles in the issue.

Appendix

Calculating alternative unemployment rates

All rates are calculated using data from the Labour Force Survey (LFS).

Long-term unemployment (R1)

The measure that takes into account the duration of unemployment shows persons who have been unemployed 14 or more weeks as a percentage of the total labour force. Because R1 and the official unemployment rate have the same denominator (the total labour force), any gap between them is a result of the difference between the two numerators (the long-term unemployed versus all unemployed persons). As long-term unemployment becomes more prevalent - for example, during recessions - this gap narrows.

Unemployment of family heads (R2)

Because the LFS collects data on the family characteristics of respondents, the unemployment rate of family heads and their spouses can be calculated. R2 differs from the official rate in both its numerator (unemployed heads and spouses in families with children under age 16) and denominator (employed and unemployed heads and spouses in families with children under age 16). (The term "family head" reflects the respondent's perception of headship and is solely a statistical device which has no economic connotation.) With few exceptions, these heads are spouses in two-parent families or lone parents; therefore, R2 might be considered the parental unemployment rate.

Unemployment excluding full-time students (R3)

The unemployment rate that excludes full-time students is based on the premise that their main activity is likely studying and not working. As a result, their labour force attachment tends to be weak. R3 is calculated by eliminating full-time students from both the numerator (unemployed) and the denominator (labour force participants).

To reflect the academic cycle, calculation of R3 differs according to the time of the year. Throughout the year, students currently enrolled are identified by the LFS. In the summer months (May to September), 15 to 24 year-olds who attended school full-time in the spring and are planning to return in the fall (returning students) are identified in a series of special questions. For the October to April period, R3 excludes full-time students; from May to September, R3 also excludes returning students.

Unemployment including the military (R4)

The LFS has traditionally excluded full-time members of the Armed Forces because they are seen as operating outside the market economy. To calculate R4, military personnel are included in the employed component of the labour force (the denominator).

Unemployment of the full-time labour force (R6)

The full-time labour force consists of persons working full-time (30 or more hours a week) and those wishing to do so. The latter includes unemployed persons seeking full-time work and persons working part time because they were unable to find full-time jobs (involuntary part-time workers).

The LFS asks unemployed persons who are actively seeking jobs if they want full- or part-time employment. Therefore, this group can easily be included in the calculation. However, not all unemployed persons are actively seeking work; depending on the time of year, 5% to 10% of the total unemployed are "non-seeking" layoffs or future starts (persons who have a job to start within four weeks). The LFS does not directly ask these unemployed non-seekers whether they want full- or part-time jobs. For inclusion in R6, this group is distributed between the "seeking full-time work" and "seeking part-time work" categories based on the proportions observed among those actively seeking work.

As well, in the calculation of R6, involuntary part-time workers are treated as partially unemployed. They are identified through the LFS question on "reason for usually working less than 30 hours per week." To include this aspect of unemployment in R6, one-half the number of involuntary part-time workers are counted as unemployed. One-half is used because it is fairly representative of the volume of work done by this group as measured by their average weekly hours compared with those of full-time workers.

Thus, the full-time labour force (the denominator) is the sum of persons employed full-time, unemployed persons seeking full-time jobs, and **all** involuntary part-time workers. R6 shows unemployed full-time job-seekers (including a proportion of non-seekers) and one-half of involuntary part-time workers as a percentage of the full-time labour force.

Unemployment including discouraged workers (R7)

Some persons who would like to be employed are not actively seeking work because they believe that no work is available in their locality or that there is none suited to their skills. They are not counted in the official unemployment rate because they have not looked for work in the past four weeks (and they do not meet the layoff or future start conditions). The LFS, however, gathers information on persons who sought work in the previous six months, thereby indicating relatively recent efforts to find work. For R7, these discouraged workers are included in the labour force (denominator) and among the unemployed (numerator).

Also counted as unemployed in R7 are "former job-seekers" who report that they are not currently looking for work because they are waiting for replies from employers or for recalls to former jobs. To calculate R7, these groups, who are considered to be "on the margins" of the labour force, also included in both the numerator and the denominator.

Unemployment based on hours (R8)

The official unemployment rate and the other supplementary measures are based on counts showing how many **persons** are unemployed. However, people do not supply or offer their services to the labour market in equal amounts. Some work, or are prepared to work, only a few hours per week, while others work, or wish to work, many more. An unemployment rate based on a simple count of persons cannot reflect such variations. But by using **hours** as the unit of measurement, it is possible to capture such differences.

R8, which shows unutilized hours as a percentage of total hours available to the labour market, measures the hours lost to the economy through unemployment and underemployment.

The "utilized" component of R8 consists of total hours worked per week. The "unutilized" component includes hours lost through unemployment, involuntary part-time employment, and short-time (hours temporarily cut back for economic reasons). Together, the utilized and unutilized components make up the total labour supply (the denominator), measured in hours of labour "offered." The unutilized component (the numerator) consists of hours lost.

For unemployed persons seeking full-time jobs, hours lost are estimated using the average hours actually worked by full-time workers. For unemployed persons seeking part-time work, the average actual hours of part-time workers are used to estimate hours lost. For involuntary part-time workers, the estimate of hours lost is the difference between their average hours and the average hours of full-time workers. Finally, LFS questions on hours lost and reasons for absence provide a direct measure of hours lost because of working short-time.

Unemployment of the part-time labour force (R9)

The unemployment rate of the part-time labour force focuses on persons who want to work part time. R9 shows the number of unemployed persons seeking part-time jobs (the numerator) as a proportion of the part-time labour force. As in R6, a proportion of non-seekers (layoffs and future starts) is included among unemployed part-time workers. The part-time labour force (the denominator) consists of part-time job-seekers and persons working part time "voluntarily."

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Table 1

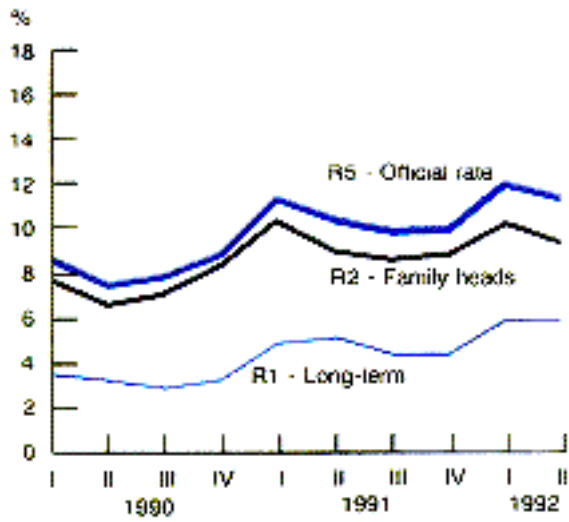
Alternative unemployment rates, unadjusted quarterly data, 1990-92

	1990				1991				1992	
	I	II	III	IV	I	II	III	IV	I	II
	%									
R1 - Long-term	3.4	3.1	2.7	3.1	4.8	5.0	4.3	4.2	5.8	5.8
R2 - Family heads	7.6	6.5	7.0	8.2	10.3	8.9	8.5	8.8	10.1	9.3
R3 - Excluding full-time students	8.4	7.3	7.5	8.7	11.3	10.0	9.5	9.8	11.8	10.8
R4 - Including military	8.4	7.4	7.7	8.8	11.2	10.1	9.8	9.9	11.8	11.2
R5 - Official rate	8.5	7.4	7.8	8.8	11.3	10.2	9.8	9.9	11.9	11.2
R6 - Full-time labour force	10.0	9.0	9.2	10.4	13.5	12.5	11.8	11.9	14.3	13.7
R7 - Including discouraged workers	9.1	8.1	8.3	9.5	12.1	11.0	10.5	10.6	12.8	12.1
R8 - Hours-based	10.5	9.4	9.8	11.0	14.1	13.1	12.6	12.4	15.0	14.3
R9 - Part-time labour force	9.3	8.1	13.1	10.6	10.9	10.0	15.8	11.0	12.6	13.2

Source: Labour Force Survey

Chart A

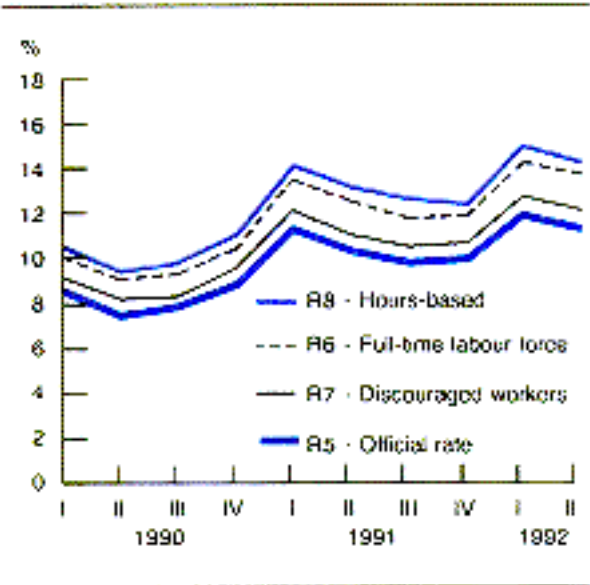
The long-term unemployment trend lags that of the official rate.



Source: Labour Force Survey

Chart B

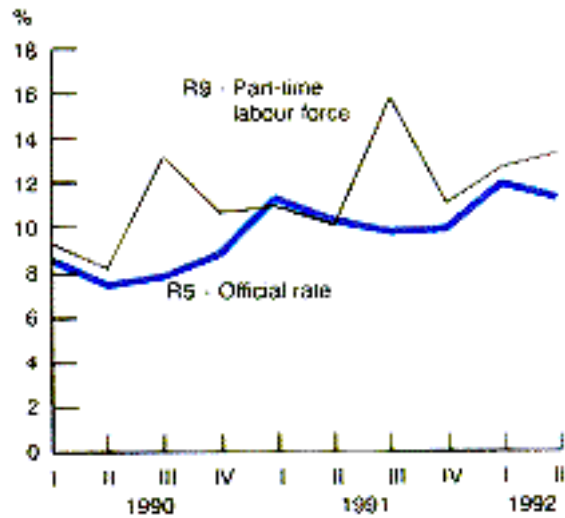
Including various dimensions of hidden unemployment yields rates above the official figure.



Source: Labour Force Survey

Chart C

The part-time unemployment rate differs markedly from the other measures, peaking in the summer months.



Source: Labour Force Survey