

Shifting patterns of unemployment distribution since the 1960s

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The article "[Canada's Unemployment Mosaic](#)", published in the Summer 1989 issue of *Perspectives on Labour and Income*, reported that unemployment in Canada became less evenly distributed over the regions from the mid- to the late 1980s. This shift occurred because unemployment declined more quickly in areas such as Toronto than in less prosperous regions such as non-metropolitan Newfoundland and the Lower St. Lawrence.

Clearly, when looking at the unemployment picture, the aggregate unemployment rate is not the only important figure; it is also useful to examine how evenly the unemployment is distributed. The article measured changes in the regional inequality of economic opportunity. These differences in unemployment rates reflected the diverse probabilities of being unemployed in various regions of the country.

The conclusion of the article - that this unevenness between regions was increasing - raises several questions. One of the most obvious is whether this is a new phenomenon, or has it happened in the past. This article examines the question, using data from 1966 onward.

Defining regions

The previous study analyzed data for 40 subprovincial areas, including 24 Census Metropolitan Areas (CMAs) and 8 non-CMA subprovincial areas in Ontario and Quebec. Unfortunately, changes in the geographical design of the Labour Force Survey sample mean that some of the CMAs, as well as the non-CMA subprovincial areas in Ontario and Quebec, examined in the previous article could not be tabulated for the years before 1985.

Unemployment data do, however, exist back to 1966 for 22 metropolitan areas. ⁽¹⁾ In addition, in each province, the areas outside the CMAs are treated as if they were a single labour market. This results in 32

regions in total for this study. To summarize the unemployment data for these regions, they are divided into four quartiles, from the lowest to highest unemployment rate (see [Measuring inequality of distribution](#)).

Absolute and relative differences: Two perspectives on inequality

There are many ways to analyze data differences; two of the simplest measures are a ratio, or relative difference (divide one quartile by another) and an absolute difference (subtract one quartile from another).

The choice of absolute or relative difference depends on the answer one wants. When comparing, for example, the unemployment rates for Quartile 1 and Quartile 4, one might want to know that in 1981 there was a difference of 6.7 percentage points (4.4% versus 11.1%) about the same as in 1983 (6.8 percentage points - 8.5% versus 15.3%).

However, comparing these two differences is complicated by the fact that there were many more unemployed people in 1983 than in 1981. Under these circumstances, it sometimes makes more sense to examine the magnitude of the increase in relative terms, that is, how one quartile fared compared with another. Using this measure, the comparison of Quartile 1 and Quartile 4 shows substantial variation: it falls from a ratio of 2.5 to 1 in 1981 to 1.8 to 1 in 1983.

It is not immediately obvious which measure is more appropriate. Rather than impose an arbitrary choice, this study examines both measures, showing how they have moved with swings in the economy over the past quarter-century.



Chart A Unemployment rates by regional quartile

Source: Labour Force Survey

Absolute inequality: No particular pattern

As a general pattern, the absolute difference between the highest and lowest quartiles of regions increased when the Canadian unemployment rate increased. But this relationship failed to maintain itself in many years. For instance, as shown in the example above, although the Canadian unemployment rate rose from 7.5% to 11.8% between 1981 and 1983, the absolute difference between Quartile 1 and 4

remained nearly the same.

Not only was the long-term increase in absolute difference erratic, it did not match the growth in Canada's unemployment rates. This can be illustrated by comparing 1971 and 1983 (both years of high cyclical unemployment). The national unemployment rate almost doubled (from 6.4% to 11.8%) whereas the absolute difference between quartiles rose by less than one-half (from 4.5 to 6.8 percentage points).

To interpret the data more fully, therefore, it is also necessary to look at unemployment inequality using a ratio measure.



Chart B **Regional unemployment inequality versus the Canadian unemployment rate, 1966-1989**

Source: Labour Force Survey

Relative unemployment inequality increases in good times

The ratio of Quartile 4 to Quartile 1 unemployment rates (called the inequality ratio) has varied considerably. From a high of 3.2 (6.1/1.9) in 1966, it slid to a low of 1.8 in 1983 (15.3/8.5).

Looking at just these two years, it seems that a low national unemployment rate corresponds to a high inequality ratio, and vice versa. In other words, unemployment becomes less equally distributed as the national unemployment rate declines.

Is this a general pattern? There was, indeed, an overall relationship between the national unemployment rate and the relative inequality of distribution of unemployment across the country. In 1966-68, again in 1969-72 and 1974-75, and most dramatically in 1981-83, rises in Canada's unemployment rate corresponded to drops in inequality. Furthermore, in 1972-74 and 1983-88, the unemployment rate dropped and inequality rose.

Underlying this relationship is the fact that the unemployment rates for low-unemployment areas are, on a proportionate basis, more volatile than rates in high-unemployment areas. Put another way, the unemployment rates in the less prosperous areas of the country do not fluctuate, in relative terms, as widely as they do in low-unemployment areas.

One striking illustration is found in the period of economic growth between 1983 and 1989 ([Table 1](#)). Quartile 4 unemployment rates dropped by only one-quarter (15.3% to 11.1%). In comparison, Quartile 1 rates dropped by almost one-half (8.5% to 4.5%).



Table 1 Annual average unemployment rates for selected years,* by quartiles of regions

Source: Labour Force Survey

** Except for 1966 and 1989, the years are chosen to show turning points in cyclical movements in unemployment.*

Unemployment inequality decreasing over the long term

Relative inequality has fluctuated widely, but over the full 1966-1989 period it appears to have a slight downward trend. However, there is a complicating factor: unemployment rates rose markedly between 1966 and 1989. The rates in the best years of the 1980s (1980-81 and 1989) were higher than in the worst years of the 1970s (1971-72). If inequality of unemployment distribution is linked to the unemployment rate, the next question is whether the "trade-off" between the two is shifting.



Chart C Ratio of unemployment rates for the fourth and first quartiles

Source: Labour Force Survey

Over the past quarter-century, the level of unemployment associated with a given level of relative inequality has risen. As the economy has moved through business cycles, lower unemployment has coincided with greater inequality. However, the relationship appears to have "rached" upwards; that is, although the economy may return to an unemployment rate similar to that experienced at an earlier time, relative inequality has worsened ([Table 1](#)).

This shift appears evident over the 1966-1980 period. The speed at which it progressed can perhaps be most easily measured by comparing the years 1973 and 1980. (Both of these years are at similar points in the business cycle.) The inequality ratio was similar in 1973 and 1980 (about 2.5); but the unemployment rate rose two points, from 5.6% to 7.5%. In other words, the unemployment rate associated with a given

level of relative inequality of unemployment distribution rose one percentage point approximately every four years.



Chart D **Relative inequality of regional unemployment versus the Canadian unemployment rate, 1966-1989**

Source: Labour Force Survey

Equally interesting is that the shift seems to have stopped in the 1980s - the trade-off line in 1989 is in almost exactly the same spot as in 1980.

Some light is shed, but questions remain

Many economic theories of comparative regional economic performance exist, but it is beyond the scope of this article to speculate about possible explanations for the patterns observed.

However, the upward shift in the level of regional inequality of unemployment associated with a given national unemployment rate can be expected to affect the inflationary pressure put on wage rates at any given level of unemployment. An unequal distribution of unemployment means that unemployment rates in some areas are well below the national average. Labour shortages may therefore develop in these areas, as indeed they appeared to have in the late 1980s. The resulting wage pressures contributed to rising inflation in the country as a whole.

This study may have raised more questions than it answered, but it does illustrate the difficulty in achieving and maintaining equality of economic opportunity across all regions of a country as large and diverse as Canada.

Measuring inequality of distribution

The previous study used a fairly complex measure (the Gini coefficient) to calculate inequality in the distribution of unemployment. For this study, a simpler measure of inequality is used: a comparison of the unemployment rates in the highest and lowest quartiles of regions. The trends shown by the two measures are similar, and the use of quartiles allows a comparison of absolute and relative differences in

unemployment rates.

The quartiles are derived as follows. First, the 32 areas are ranked by unemployment rate, from lowest to highest. Next, they are divided into four groups. Then, the average unemployment rate is calculated for each of the quartiles.

In the previous study, the areas composing the quartiles were frozen in all four years (1985 to 1988). Although this fixed composition simplifies the analysis, it can only be applied over relatively short time periods, when the comparative ranking of areas by unemployment rates does not vary much.

In contrast, this report varies the composition of the quartiles from year to year (Edmonton fell from Quartile 1 in 1982 to Quartile 3 in 1983). The proportion of the labour force in each quartile is kept at 25% of the national labour force. If an area crosses quartile boundaries, the labour force (and also the unemployed) are divided between the two quartiles to maintain intervals of equal size. For example, by 1984, Edmonton's unemployment position had slipped until it ranked in the lowest level of Quartile 3. But to include Edmonton's entire labour force in Quartile 3 would have pushed the quartile population over the 25% margin; therefore, its labour force and unemployment totals were split, with 18% being assigned to Quartile 3 and the remaining 82% to Quartile 4.

Note

Note 1

This shorter list gave slightly different values than the 40 regions when estimating the inequality of distribution of unemployment. But for the five years 1985-1989, when both series could be compared, the trends proved similar.

Boundaries of some of the metropolitan areas were redefined during the 1966-1989 period. Although this could change the size of the labour force and unemployment estimates substantially, the unemployment rates are less affected because the changes to both the numerator and denominator were similar. Most important, the unpublished detailed data tables show that the measure of inequality of distribution does not seem to have been noticeably affected by these changes.

A few of the 32 areas, particularly in the 1960s, had such small unemployment estimates that sampling error would have introduced an additional degree of artificial inequality. An experiment was performed to investigate the impact on the results reported in this paper. A three-year moving average was run through the data series, and the results suggest that sampling error did not seriously distort the general trends reported in this study.

Reference

- Grubb, D. "Regional Unemployment in OECD Countries." *Employment Outlook*, Paris: Organisation for Economic Co-operation and Development, July 1989, pp. 95-131.
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Author

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Source

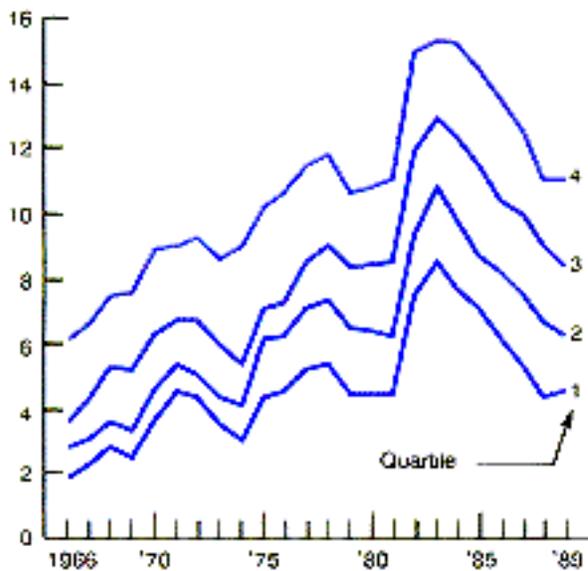
Perspectives on Labour and Income, Autumn 1990, Vol. 2, No. 3 (Statistics Canada, Catalogue 75-001E). This is the sixth of six articles in the issue.



Unemployment rates by regional quartile

The unemployment rates for the four quartiles were roughly parallel throughout the economic cycles.

Unemployment rate

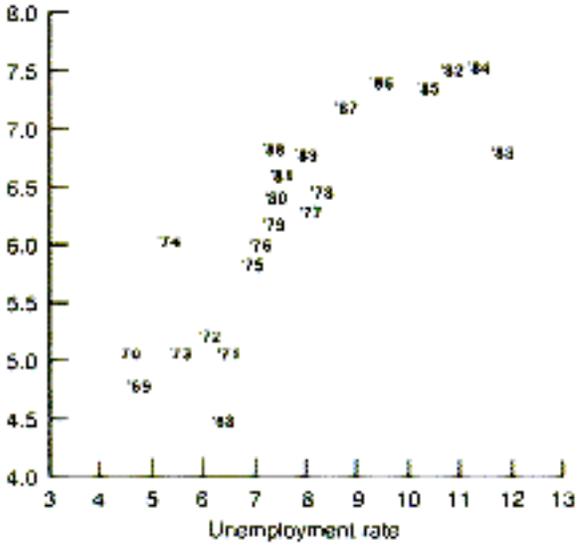


Source: Labour Force Survey

Regional unemployment inequality versus the Canadian unemployment rate, 1966-1989

Absolute differences between quartiles 1 and 4 are related to the Canadian unemployment rate, but not closely.

Absolute difference (Q4 - Q1)



Source: Labour Force Survey

Table 1

Annual average unemployment rates for selected years,* by quartiles of regions

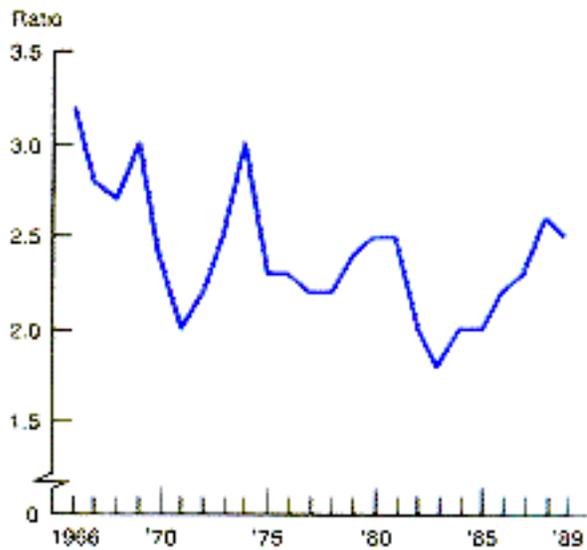
	1966	1971	1974	1978	1981	1983	1989
Canada	3.6	6.4	5.4	8.3	7.5	11.8	7.5
Quartile 1	1.9	4.5	3.0	5.4	4.4	8.5	4.5
Quartile 2	2.8	5.4	4.1	7.3	6.2	10.8	6.2
Quartile 3	3.6	6.7	5.4	9.0	8.5	12.9	8.3
Quartile 4	6.1	9.0	9.0	11.8	11.1	15.3	11.1
Ratio Q4/Q1	3.2	2.0	3.0	2.2	2.5	1.8	2.5
Q4-Q1	4.2	4.5	6.0	6.4	6.7	6.8	6.6

Source: Labour Force Survey

** Except for 1966 and 1989, the years are chosen to show turning points in cyclical movements in unemployment.*

Ratio of unemployment rates for the fourth and first quartiles

Relative inequality in the distribution of unemployment varied with economic swings.

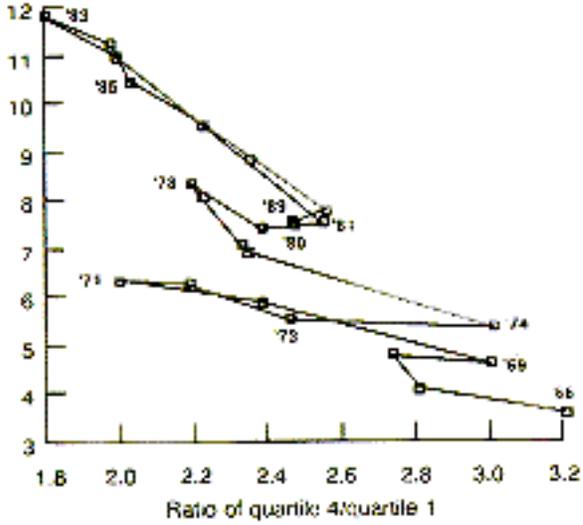


Source: Labour Force Survey

Relative inequality of regional unemployment versus the Canadian unemployment rate, 1966-1989

Relative inequality tends to rise as unemployment falls, but the relationship appears to have shifted over time.

Unemployment rate



Source: Labour Force Survey