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Indicators of Labour Market Conditions in Canada

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Abstract

The purpose of this study is to identify and assess the relevant measures and indicators of labour market conditions, as concern unemployment, in the context of current and future labour market and economic trends. It is also to verify whether and how the importance of these measures has changed over time.

There are three main objectives for this report. The first is to ascertain to what degree the unemployment rate is an adequate predictor of labour market conditions in the context of the changing economy. Labour market conditions refer to the state of the labour market and encompass different dimensions. The second is to assess the suitability of other labour market indicators as predictors of labour market conditions. The third is to discuss the feasibility of aggregating relevant labour market indicators into a composite indicator of labour market conditions that might be considered for use in the design of government programs.

This report concludes that the unemployment rate is actually a good indicator of labour market conditions, although it is wise to supplement it with additional indicators. The construction of composite indices does not seem to provide much more information on labour market conditions than the unemployment rate does.

Executive Summary

The purpose of this study is to identify and assess the relevant measures and indicators of labour market conditions, as concern unemployment, in the context of current and future labour market and economic trends. It is also to verify whether and how the importance of these measures has changed over time.

There are three main objectives for this report. The first is to ascertain to what degree the unemployment rate is an adequate predictor of labour market conditions in the context of the changing economy. Labour market conditions refer to the state of the labour market and encompass different dimensions. The second is to assess the suitability of other labour market indicators as predictors of labour market conditions. The third is to discuss the feasibility of aggregating relevant labour market indicators into a composite indicator of labour market conditions that might be considered for use in the design of government programs.

Changes in the Canadian Labour Market

Since 1980, the Canadian market has experienced many structural and cyclical developments. During the recessions of 1981-82 and 1990-91, labour demand was weak and the labour market was characterized by high unemployment. On the other hand, periods of strong economic performance were characterized by falling unemployment and rising employment, such as the Canadian economy in recent years.

There have also been a number of structural changes in the Canadian labour market over the past thirty years.

- Employment growth between 1976 and 2006 was concentrated in the service-producing industries, with 90.9 per cent of employment growth in that sector, increasing the share of service industries employment from 65.4 to 75.8 per cent of total employment.
- Employment growth has been stronger in the Western provinces, especially British Columbia and Alberta, who experienced a growth in employment of 2.6 and 2.5 per cent per year, respectively between 1976 and 2006. This was well above the national average of 1.8 per cent.
- The average age of the labour force increased from 34.9 years old in 1981 to 39.3 years old in 2006.Younger age groups form a smaller percentage of the labour force in 2006 than they did in 1981.
- Women are playing an increasingly important role in the Canadian labour market. Their participation rate has climbed from 45.7 per cent to 62.1 per cent between 1976 and 2006. They formed 46.9 per cent of the labour force in 2006, compared to 37.6 per cent in 1976.

- Canadian workers are increasingly well-educated. In 2006, 56.6 per cent of the labour force had post-secondary qualifications, compared to 39.6 per cent in 1976.
- There is a public perception that skill shortages are becoming more pervasive in the labour market. It is debatable whether this change is due to cyclical or structural factors.
- Part-time employment plays a more important role in the labour market in 2006 than it did in 1976. From a share of 12.5 per cent of total employment in 1976, part-time employment represents 18.0 per cent of total employment in 2006. However, involuntary part-time employment is less important in 2006 than it was in 1997.
- Job search methods have changed tremendously in the past thirty years, especially with the arrival of Internet.

The Unemployment Rate as an Indicator of Labour Market Conditions

The unemployment rate has a long history as an indicator of the state of the labour market. It has been subject to extensive international discussions among labour statisticians and economists, coordinated by the International Labour Organization, on the appropriate definitions. In Canada, the necessary criterion for an individual 15 and over to be classified as unemployed is that the individual is without work and available and looking for work.

However, the unemployment rate suffers from numerous limitations. In fact, it would be difficult to capture all of the dimensions of the labour market conditions with only one indicator, and that is the reason why Statistics Canada also releases a number of other indicators.

The unemployment rate may be affected by measurement problems. First, the definition of the unemployed itself changes from country to country. For example, the United States requires that the individual is actively involved in job searching, whereas in Canada, passively looking for employment is sufficient. This difference makes it difficult to compare the unemployment rates of the two countries unless some adjustments are made. Second, the unemployment rate excludes some categories of people: residents of the territories and of Indian reserves, full-time members of the Canadian Armed Forces and inmates of institutions. It is estimated that together, they form two per cent of the population. There may also be unknown omissions in the data, such as workers in the underground economy and the homeless.

Aside from measurement problems, the unemployment rate does not capture some dimensions of the labour market. Statistics Canada publishes data for some of them, but they may not be used in the formulation of policy. The dimensions studied in this report include:

- The incidence and duration of unemployment;
- Discouraged workers;

- Unused labour supply in terms of potential hours;
- Economic hardship associated with unemployment;
- Effective utilization of the skills of the employed; and
- Loss in terms of the effective labour supply (skills levels of the unemployed).

Alternative Indicators of Labour Market Conditions

A number of labour market indicators in addition to the official aggregate unemployment rate have been proposed to gauge labour market conditions. Many of them are studied in this report, and compared to the standard unemployment rate.

The unemployment rate is published in its standard form, but also by sex and age groups. Observing the unemployment rate by sex uncovers new conclusions: the fall in the unemployment rate is actually driven by the falling unemployment of females, while the male unemployment rate has increased slightly over the same period of 1976 to 2006. The unemployment by age group shows that workers between 25 and 54 years old did not see any change in labour market conditions. This is an interesting result, as these workers form the "prime age" group of the labour force. However, for short-term analysis, the unemployment rate broken down by sex or age groups does not offer much new information, since they follow similar year-to-year trends to the aggregate rate.

We find the same result when observing the unemployment rate by educational attainment. On a trends basis, these additional rates do not offer additional information, because they are highly correlated with the aggregate rate. However, for the two groups at the extremes (0-8 years and above bachelor's degree), the correlation is weaker. On a levels analysis, these additional rates do offer interesting information, as persons with higher education enjoy lower unemployment.

Countries track unemployment rates to analyze the labour market conditions, and this is motivated by the fact that unemployment is associated with undesirable economic hardship. However, the aggregate unemployment rate fails to deliver information on the trends in the economic hardship. Does an increase in the aggregate unemployment rate translate in an increase in the economic hardship associated with unemployment? The answer is not clear. It would be possible to use the unemployment rate for heads of household (such as the highest earner of the family) or for one-earner families. However, Statistics Canada does not provide data on either of them.

Other indicators of economic hardship include the unemployment rate for older workers, since it is reasonable to think that economic hardship associated with unemployment may be more important for older workers. The difficulty of finding a job for someone over 55 years old is higher than for a younger person. The share of the unemployed aged 55 years and over nearly doubled from 1976 to 2006, showing that economic hardship may have increased. Another indicator could be the unemployment rate of students. In this case, we would assume that an increase in their unemployment

rate indicates a decrease in economic hardship, because an unemployed student often still lives at home or benefits from governmental financial help.

As mentioned earlier, Canada and the United States have different definitions of the unemployed. Statistics Canada provides the unemployment rate calculated with US definitions. Using that data, they find that the unemployment rate is actually 5.5 per cent in 2006. This is an even greater decline from 1976, in which the rate was 6.9 per cent with this definition.

Involuntary part-time workers are not included in the official unemployment rate, as they are actually employed. However, the additional hours they are willing to work represent an underutilization of labour, and thus contribute to worsen labour market conditions. Statistics Canada provides an unemployment rate adjusted for involuntary part-time workers. This measure indicates a greater improvement of labour market conditions from 1997 to 2006 than the official rate: this measure decreases from 12.3 per cent to 8.2 per cent.

Another view to take on the labour market is that from the side of labour demand. While the unemployment rate is an indicator based on labour supply, it is possible to investigate the job vacancies and find an indicator based on labour demand. Statistics Canada produced that data until 1978 with the Job Vacancy Survey, and from 1981 to 2002 with the Help Wanted Index (HWI). However, no data is currently available for recent years. Over the period of 1981 to 2002, the HWI is negatively correlated to the unemployment rate, as expected.

The labour force participation rate and employment rate both offer different perspectives on the labour market conditions. The participation rate increases when labour demand increases, but is also affected by structural changes such as the increased educational attainment of women and their changing role in society. The employment rate, for its part, has a clear advantage over the unemployment rate in that it does not depend on an arbitrary definition of unemployment.

Discouraged workers are not counted as unemployed in the official statistics, even though a high number of discouraged workers would indicate low market conditions. The number of discourage workers is calculated in two ways in this report: directly through LFS estimates and indirectly through the difference in provincial participation rates. The unemployment rate can then be adjusted to take into account those discouraged workers.

Duration and incidence of unemployment are two important indicators of labour market conditions. The average duration of unemployment increased between 1976 and 2006, from 13.9 to 14.6 weeks. The incidence of unemployment is more difficult to interpret, a lower incidence is certainly desirable, but frictional unemployment and labour market turnover keep the optimal incidence above zero, at an unknown level. In 2006, the incidence was 22.4 per cent of the labour force, down from 26.5 per cent thirty years earlier.

People can lose their job or leave it voluntarily, but they are counted as unemployed without any distinction. However, job losers can be considered a more important problem for labour market conditions. Statistics Canada provides information about job losers, and the unemployment rate based on only them indicates a larger improvement in labour market conditions than the aggregate rate. From a level of 7.2 per cent in 1976, it decreased to 5.4 per cent in 2006.

Other possible indicators include the type of job searched (full-time or part-time), skills shortages, underemployment (i.e. skilled workers in low-skills jobs), actual average hours worked (including paid and unpaid overtime) and trends in wages.

Construction of a Composite Indicator of Labour Market Conditions

Based on the discussion of the potential labour market indicators, this report constructs two aggregate indexes based on five indicators:

- The Help Wanted Index (HWI);
- The employment rate;
- The average duration of unemployment;
- The incidence of unemployment; and
- The job loss rate.

The first composite index is based on the five indicators, for the period 1981 to 2002, and the second index is based on four indicators, excluding the HWI who was unavailable for some years. The second index is thus constructed for the whole period of 1976 to 2006. In both cases, equal weights are given to the components.

The first composite index, which included the HWI, shows a slight deterioration (7.5 per cent) in the labour market conditions, completely due to the deterioration indicated by the HWI. The second index, however, shows an improvement in labour market conditions by 10.9 per cent. Both composite indices track the unemployment rate fairly well from year to year, increasing in recessions and decreasing in expansions, but the amplitude is dampened in both cases compared to the unemployment rate.

Conclusion

This report concludes that the unemployment rate is actually a good indicator of labour market conditions, although it is wise to supplement it with additional indicators. The construction of composite indices does not seem to provide much more information on labour market conditions than the unemployment rate does.

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Indicators of Labour Market Conditions in Canada[1]

Introduction

The purpose of this study is to identify and assess the relevant measures and indicators of labour market conditions, as concern unemployment, in the context of current and future labour market and economic trends. It is also to verify whether and how the importance of these measures has changed over time. The aim of the study is to inform the medium and long-term policy work of HRSDC officials.

There are three main objectives for this report. The first is to ascertain to what degree the unemployment rate is an adequate predictor of labour market conditions in the context of the changing economy. Labour market conditions refer to the state of the labour market and encompass different dimensions. The second is to assess the suitability of other labour market indicators as predictors of labour market conditions. The third is to discuss the feasibility of aggregating relevant labour market indicators into a composite indicator of labour market conditions that might be considered for use in the design of government programs.

The report is organized in five parts. Part one provides an overview of changes in the Canadian labour market over the last quarter century. Part two assesses the strengths and weaknesses of the unemployment rate as an indicator of labour market conditions (both past, current and future). Part three identifies other labour market indicators that may be useful in measuring and predicting labour market conditions, assessing the strengths and weaknesses of these indicators, as well as comparing their trends to that of the official unemployment rate. Part four assesses the feasibility of aggregating a set of indicators into a composite index of labour market conditions and proposes a composite index or metric based on the indicators of labour market conditions identified in the previous section. Finally, part five summarizes the main findings and discusses the relative merits of the official unemployment rate as an indicator of labour market conditions relative to other indicators, and the composite index based on these indicators.

[1] This report was commissioned by the Employment Insurance Policy Directorate of Human Resources and Social Development Canada (HRSDC). It was written by Andrew Sharpe, Executive Director of the Centre for the Study of Living Standards and Anne-Marie Shaker, with assistance from Simon Lapointe and Jean-Francois Arsenault. The authors would like to thank Carolyn Macleod, Philippe Massé and David Gray for their comments and HRSDC for allowing the publication of the report.

I. Changes in the Canadian Labour Market

Since 1980, the Canadian market has experienced many structural and cyclical developments. In the short to medium term, labour market conditions are driven by the business cycle. Because of the 1981-82 and 1990-91 recessions, the first half of the 1980s and the first half of the 1990s were periods of weak labour market demand and high unemployment. On the other hand, the late 1980s, the late 1990s, and the recent period (2002-2006) have seen a robust economic growth rate and hence good overall labour market conditions, as evidenced by strong employment growth and falling unemployment rates.

In addition to the cyclical fluctuations in labour market conditions, there have been a number of important structural developments in the Canadian labour market. These include the following:

- increasing importance of service sector employment;
- shift in employment from Eastern to Western Canada;
- a rising average age of labour force participants;
- increasing role of women in the labour market;
- increased educational attainment of the labour force;
- growing skill shortages;
- increasing non-standard forms of employment; and
- changes in job search methods.

A. Concentration of employment growth in service-producing industries

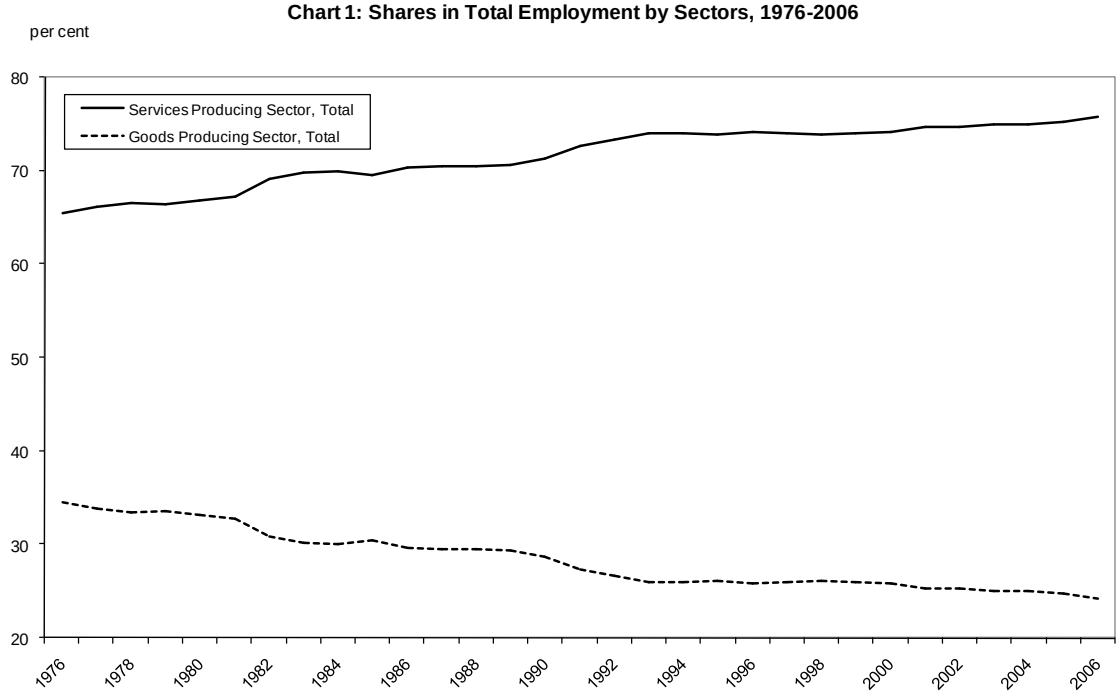
The 1976-2006 period witnessed the concentration of employment growth in the service-producing sector. Indeed, 90.9 per cent of the increase in total employment over the period took place in this sector (Table 1). The services producing sector as a whole went from 65.4 per cent of total employment in 1976 to 75.8 per cent by 2006, a 10.4 percentage point increase (Table 1A, Chart 1). This trend reflected the nearly four times faster average annual employment growth in the service sector than in the goods sector – 2.3 per cent versus 0.6 per cent.

Within the service sector, the largest growth rates in employment were found in professional, scientific and technical services, and in business building and other support services. Employment in both industries grew annually at 5.0 per cent over the 1976-2006 period. Accommodation and food services also had strong employment growth at an average annual rate of 3.0 per cent. Health care and social assistance closely followed at 2.7 per cent.

The 10.4 percentage point increase in the share of employment in the service sector was of course counterbalanced by a 10.4 per cent fall in the employment share of the goods sector from 34.6 per cent in 1976 to 24.2 per cent in 2006. In absolute terms, as noted, employment grew at 0.6 per cent per year in the goods sector over the period.

Construction had the highest employment growth within the sector at 1.5 per cent per year, followed by forestry, fishing, mining, oil and gas which grew at 0.9 per cent. Employment in agriculture actually fell at a 1.0 per cent average annual rate.

Chart 1: Shares in Total Employment by Sectors, 1976-2006



Source: Table 1A.

These trends in sectoral employment shares reflect in large part faster labour productivity growth in goods industries compared to service industries (there are exceptions) and greater demand growth for the output of service industries compared to that of goods industries due to a higher income elasticity of demand for services.

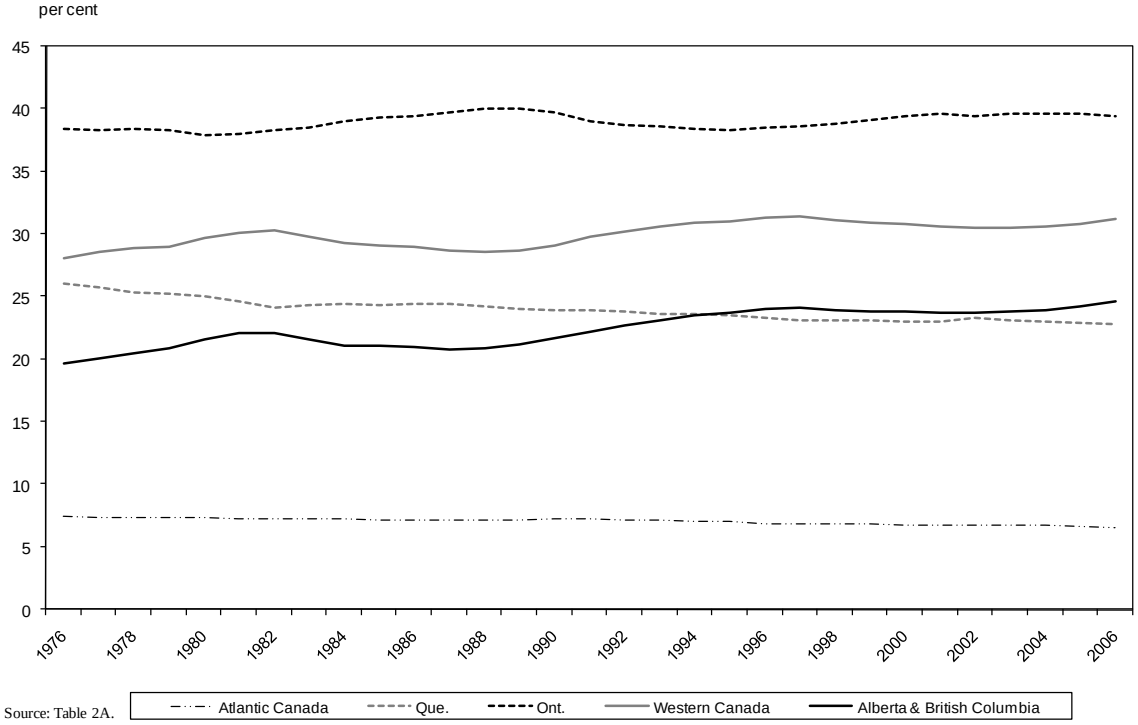
B. Employment Shifts from Eastern to Western Canada

Reflecting diverging economic conditions, there has been a significant shift in employment from Eastern Canada to Western Canada over the last 30 years. The five most easterly provinces saw their share of national employment fall 4.2 percentage points while the two most westerly provinces saw their share rise 5.0 points between 1976 and 2006 (Table 2A and Chart 2).[2]

[2] The analysis in this report focuses on Canada and the ten provinces. A different approach would have been to focus on Employment Insurance (EI) regions, which could have painted a slightly different pictures than the one presented here. Moreover, the report focuses on the year 1976 and 2006, the endpoints of the 1976-2006 period covered. While the analysis could have avoided fluctuations in these two years by using five-year averages, this approach would have muted clear upward or downward trends over the period. The former approach, using endpoints, was preferred to five-year averages for this reason.

From 1976 to 2006, Alberta and British Columbia had the highest employment growth rates, 2.6 and 2.5 per cent respectively, well above the national average of 1.8 per cent (Table 2). The remaining two Western provinces did not fare as well, with the corresponding figures for Manitoba and Saskatchewan 1.0 per cent and 0.8 per cent respectively. Employment in Ontario grew annually at 1.9 per cent, slightly above the national average. Employment in Quebec advanced at a 1.3 per cent average annual rate. Finally, the all four Atlantic provinces saw employment growth below the national average: Newfoundland (1.0 per cent), Prince Edward Island (1.6 per cent), Nova Scotia (1.3 per cent) and New Brunswick (1.4 per cent).

Chart 2: Regional Employment as a Share of Total Employment, 1976-2006



Source: Table 2A.

Western Canada's share of national employment rose 3.2 percentage points from 1976 to 2006. Alberta again saw the highest percentage point increase, with 2.6 points, followed by British Columbia with an increase of 2.4 points. Manitoba and Saskatchewan each witnessed a decrease of 0.9 percentage points over the 1976-2006 period. Ontario's employment share rose by 1.0 points, while Quebec's fell by 3.3 points. The Atlantic provinces witnessed a 0.9 percentage point decline in their share of national employment.

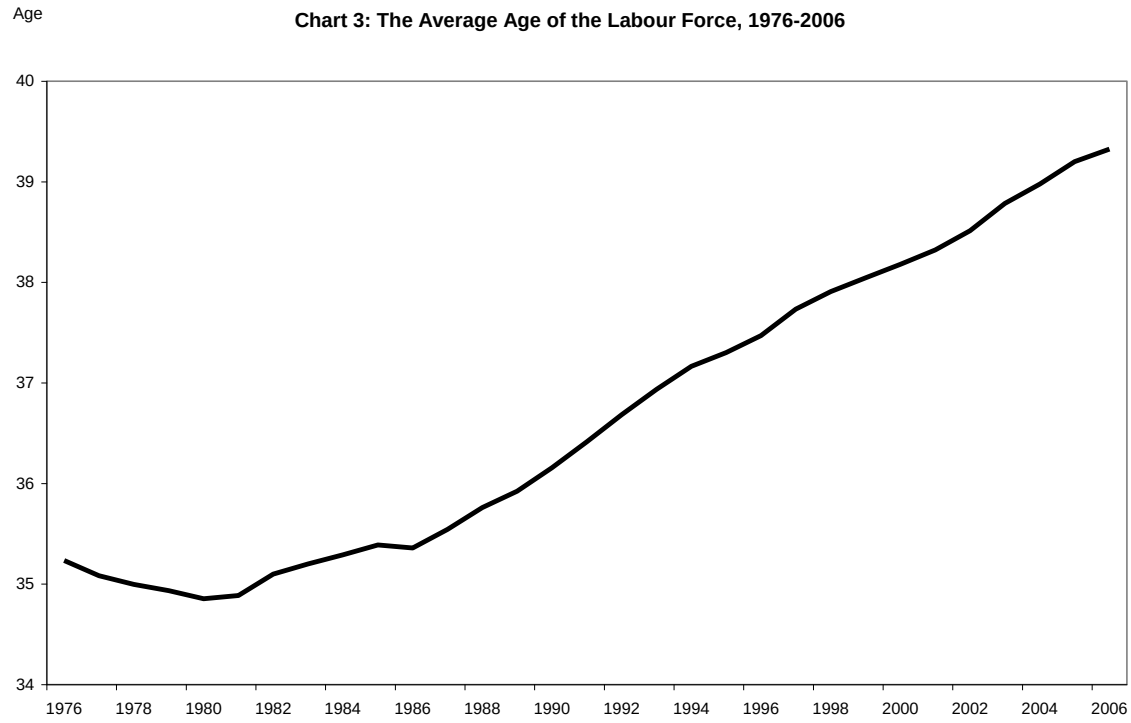
C. Rising average age of the labour force

Another significant structural development in the labour market has been the noticeable upward trend in the average age of the labour force since the early 1980s (Table 3A, Chart 3). In 1981, the average age of a labour force participant was 34.9 years old. By 2006, it had risen to 39.3 years, a 4.4 year increase. This development reflects the movement of the baby boom cohorts born between 1947 and 1967 through their life cycle. The average age of the labour force is expected to increase until around 2020-2025 as the baby boom cohorts continue to age. After that date the average age of

the labour force will fall as most of the baby boom generation will have left the labour force.

In 1976, the 15-24 year old group formed the largest share in the labour force (27.6 percent). By 2006 their share had fallen to 16.3 percent, a 11.3 percentage point decline. In general, the youngest age groups in the labour force (15-34 years old, which is broken down to 3 subgroups, 15-24, 25-29, 30-34) all saw a decline in their representation from 1976 to 2006.

Chart 3: The Average Age of the Labour Force, 1976-2006



Source: Table 3A.

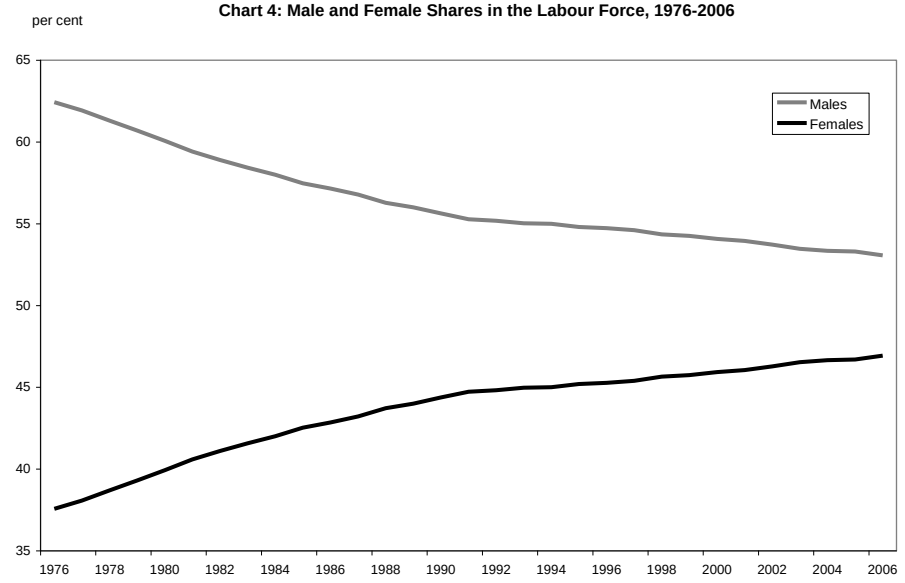
Older age groups on the other hand saw an increase in their representation. The 45-49 age group saw a 4.2 percentage point increase in its share of the labour force between 1976 and 2006, followed closely by a 4.1 point increase for the 40-44 age group. These are cohorts who were born between 1957 and 1966, the peak years of the baby boom. The labour market share for the 50-54 age group rose 3.2 points between 1976 and 2006 and that for the 55-59 group 2.2 points. These individuals represent of course the somewhat smaller cohorts born in the first decade of the baby boom. The smallest increase in labour force share was for the 60-64 age group and the 65+ group, each up only 0.2 points between 1976 and 2006. The first wave of the baby boom born in 1947 had not yet reached 60 by 2006. The share of 60-64 group in the labour force is expected to rise significantly starting in 2007 when the oldest of the baby boomers reach 60.

D. Increasing role of women in the labour market

Another structural labour market development over the 1976-2006 period has been the much more important role played by women in the labour market. The share of

women in the total labour force rose steadily over the period, from 37.6 per cent in 1976 to reach 46.9 per cent in 2006 (Chart 4). This represents a 9.4 percentage point increase.

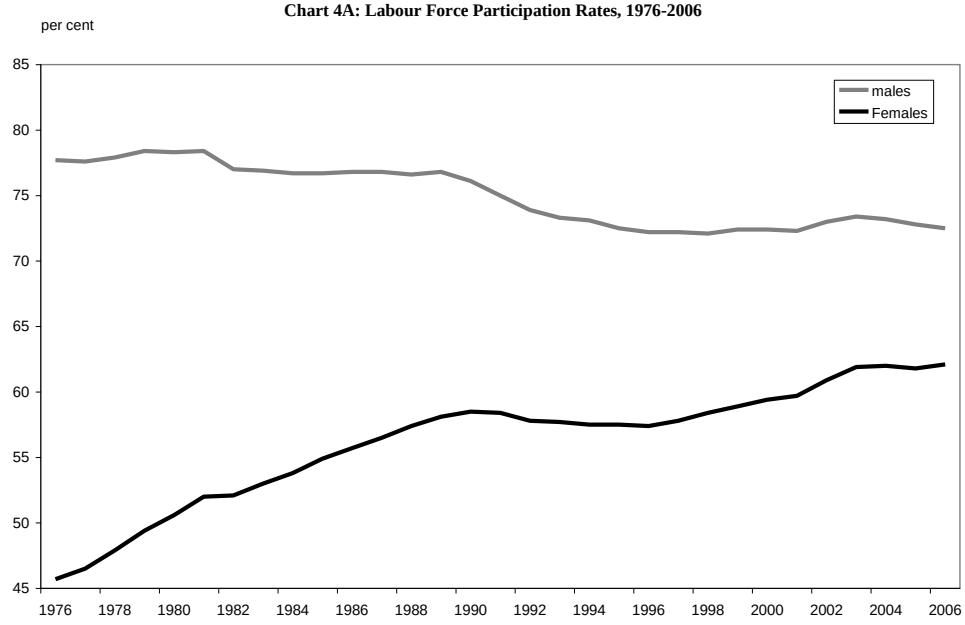
Chart 4: Male and Female Shares in the Labour Force, 1976-2006



Source: Table 4.

The increase in the share of women in the labour force reflected increased female labour force participation, which rose 16.4 percentage points from 45.7 per cent in 1976 to 62.1 per cent for Canada. (Table 4C, Chart 4A). In contrast, male labour force participation fell 5.2 points over the same period from 77.7 to 72.5 percent. Women thus accounted for all the increase in the aggregate participation rate from 61.5 to 67.2 percent. These labour market changes are closely linked to the changing role of women in society as well as the increase in the educational attainment of women.

Chart 4A: Labour Force Participation Rates, 1976-2006



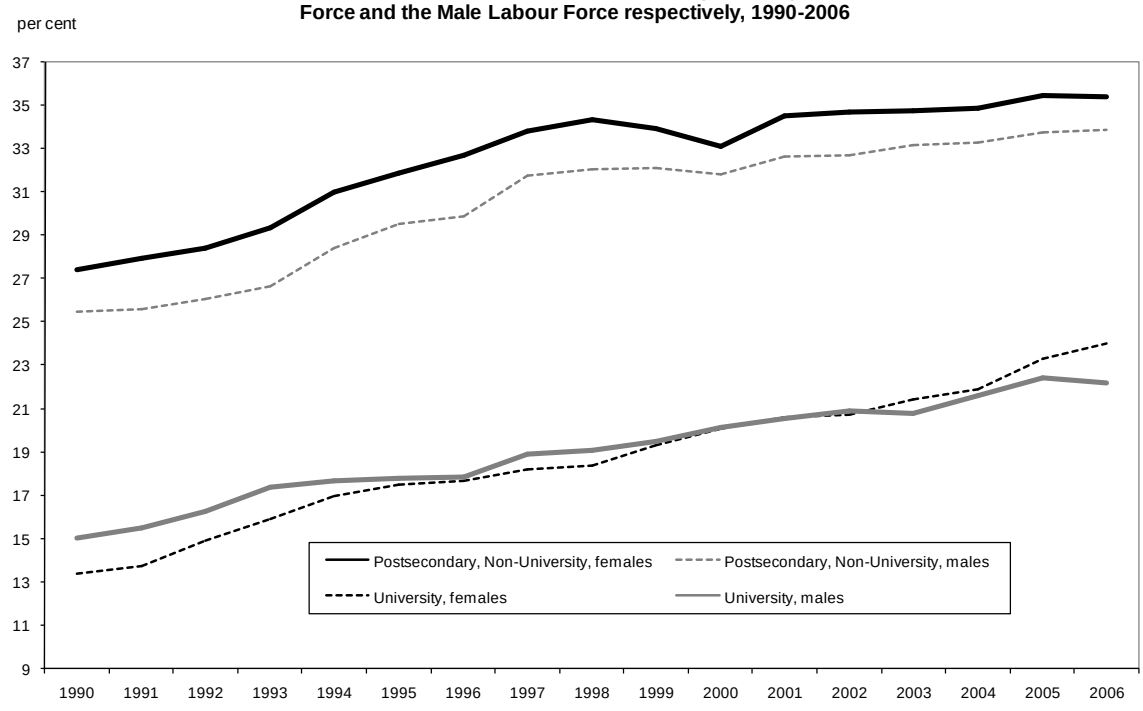
Source: Table 4B and 4C.

E. Increasing educational attainment

Over the past thirty years the educational attainment of the labour force has been on a strong upward trend. Consistent data on educational attainment from the Labour Force Survey is however only available from 1990 so the discussion will focus on developments in the 1990-2006 period.

The big divide is between persons with and without a post-secondary qualifications. The proportion of the labour force with such qualifications rose 17.0 points from 39.6 per cent in 1990 to 56.6 points in 2006 (Table 5A). Canada has the highest proportion of its labour force with post-secondary qualifications among OECD countries. Conversely, the proportion of the labour force without post-secondary qualifications fell 16.7 points from 60.3 per cent to 43.4 per cent.

Chart 5: Educational Attainment of Females and Males as a percentage of the Female Labour Force and the Male Labour Force respectively, 1990-2006



Source: Table 5B and 5C.

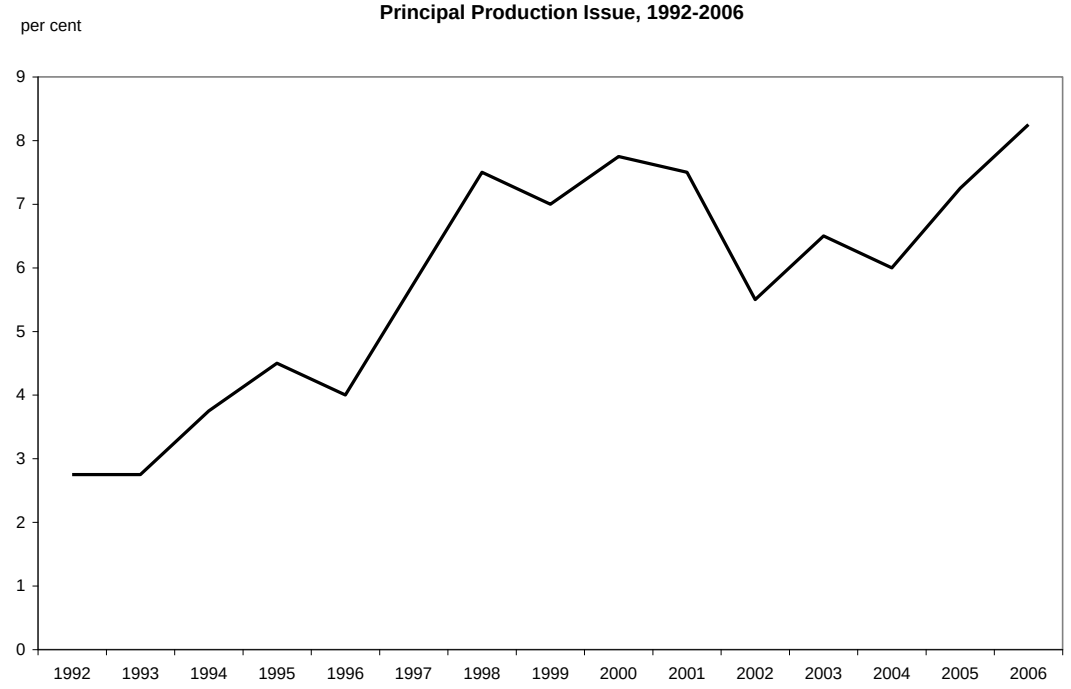
The proportion of the labour force with only 0-8 years of education is falling rapidly, 4.8 points from 7.8 per cent in 1990 to 3.0 per cent in 2006. The proportion with some high school fell 8.7 points from 20.2 per cent to 11.5 per cent. These developments reflect the retirement from the labour force of older poorly educated workers and the entry into the labour force of young persons, the vast majority of whom have completed high school.

While both men and women have increased their educational attainment, women have enjoyed a greater increase due to their increased university participation. Between

1976 and 2006 the share of women with post-secondary qualifications rose 18.5 points from 39.9 per cent to 58.4 per cent (Chart 5). In contrast, the share of men with post secondary qualifications rose 15.5 points from 39.6 per cent to 55.1 per cent. All the difference was accounted for by the greater increase in the share of female labour force participants with a university degree, up 10.6 points compared to 7.1 points for men. The proportion of the female labour force with a university degree in 2006 was 23.5 per cent, above the male share of 21.7 per cent.

F. Growing skill shortages

Chart 6: Percentage of Employers indicating Skilled Labour Shortages in Manufacturing as Principal Production Issue, 1992-2006



Source: Table 6.

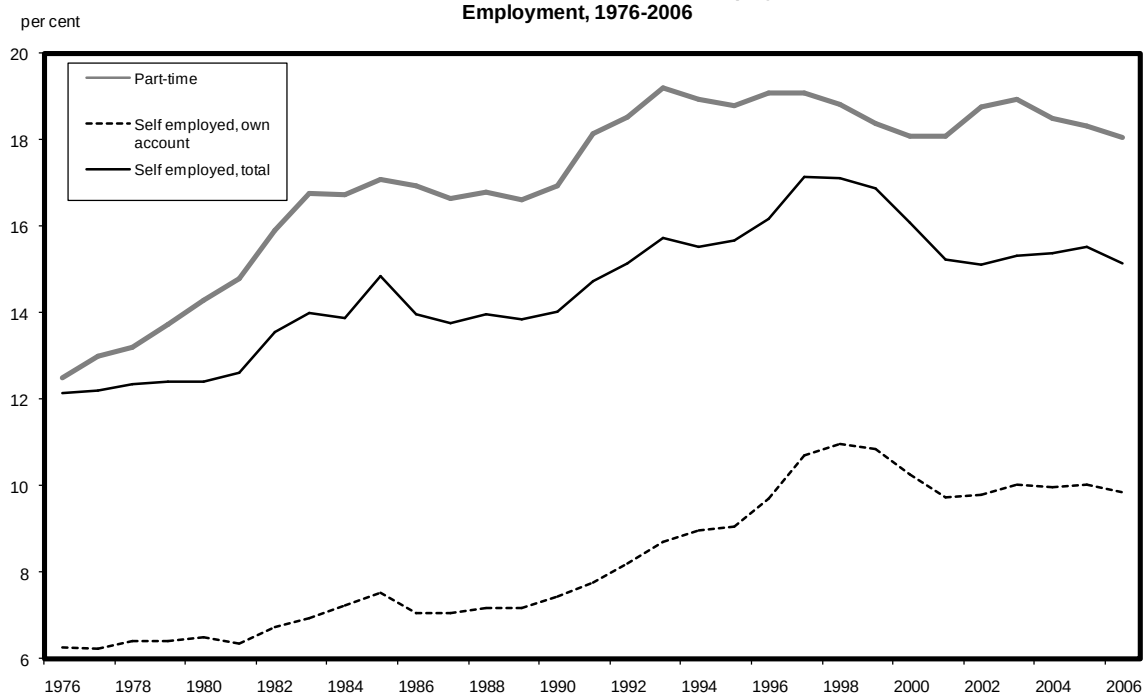
There is a public perception that skill shortages are becoming more pervasive in the labour market. For example, in 2006, 8.25 per cent of manufacturing employers reported skilled labour shortages, three times the rate (2.75 per cent) reporting shortages in 1992 (Chart 6 and Table 6). Some consider these shortages cyclical, reflecting the current tightness of the labour market, where the unemployment rate in 2006 was at a 30-year low. Others see the shortages as more structural in nature, reflecting demographic developments and possibly an increasing mismatch between the types of skills provided by educational institutions and those required by employers.

G. Increasing non-standard employment forms

There is also a public perception that the relative importance of non-standard forms of employment is increasing. Non-standard employment is defined to include part-time employment, the self-employed, and temporary or contract work, in contrast to full-time, paid, permanent jobs. The trend toward non-standard employment is also often perceived

as a negative labour market development. But to the degree that these developments reflect the preference of workers to work part-time, to be self-employed, or to engage in temporary or contract work, the growth of non-standard employment is not a cause for concern.

Chart 7: Forms of Non-Standard Work, Part-time, and Self-employment as a share of Total Employment, 1976-2006



Source: Table 7.

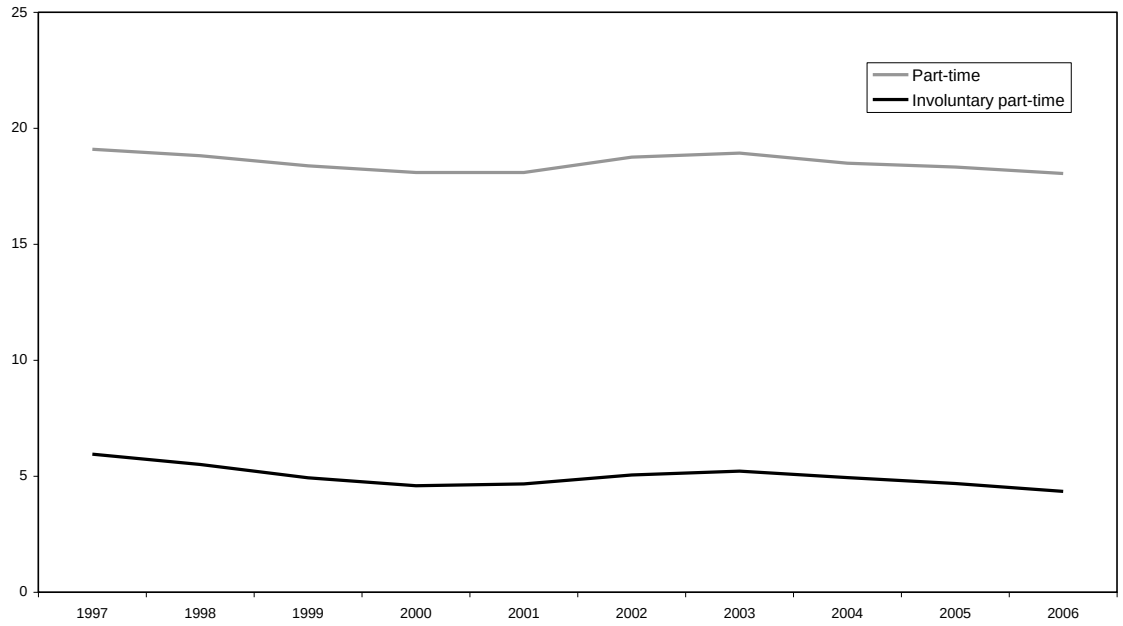
Total part-time employment rose from 12.5 per cent of total employment in 1976 to reach 18.0 per cent in 2006, a 5.5 percentage point increase (Table 7, Chart 7). The part-time employment share peaked at 19.2 per cent in 1993 and has been relatively stable since then.

Involuntary part-time unemployment represents a much more precarious form of part-time employment than voluntary part-time employment. Unfortunately, because of a change in definition, the current estimates of involuntary part-time employment only go back to 1997.[3] Based on this definition, involuntary part-time employment as a share of

[3] "Prior to the introduction of the revised questionnaire in January 1997, the question on reasons for working part-time was asked of all persons whose total usual work hours at all jobs or businesses were below 30 per week…Beginning January 1997, all respondents who usually worked less than 30 hours per week at their main or only job are asked if they want to work more or less than 30 hours at a (single) job or business. Depending on the response, the main reason for working part-time is collected. For those who respond that they want to work less than 30 hours, the main reason for not wanting to work 30 or more hours per week is collected…For those who respond that they want to work 30 or more hours per week, the main reason for working less than 30 hours is collected…Those whose response is "business conditions" or "could not find work with 30 or more hours" are then asked if they looked for work with 30 or more hours during the past four weeks. Those who searched for full-time work are considered to be involuntary part-

total employment fell from 6.0 per cent in 1997 to 4.3 per cent in 2006 (Table 8A, Chart 8). Involuntary part-time employment fell from 31.2 per cent of total part-time employment in 1997 to less than a quarter (24.1 per cent) by 2006.

Chart 8: Voluntary and Involuntary Part-time Employment as a Share of Total Employment, 1997-2006



Source: Table 7 and Table 8A.

Total self-employment as a share of total employment rose from 12.2 per cent in 1976 to 15.2 per cent in 2006, peaking at 17.1 per cent in 1997 and 1998 (Table 9). This development was completely driven by the increase in the own account component of self-employment, which rose from 6.3 per cent to 9.8 per cent over the 1976-2006 period. Own account self-employment is considered a less desirable form of self-employment than self-employment with paid workers.

Temporary employment includes seasonal work, term contracts, casual jobs as well as other form of temporary work. Statistics Canada data for temporary employees are only available for the 1997-2006 period (Table 8 and Chart 9). As a whole, the number of temporary employees, both in absolute and relative terms, is increasing. The proportion of total employees in temporary jobs increased from 11.3 per cent in 1997 to 13.0 per cent in 2006. The biggest increases within this category were for term or contract workers, who are by far the largest type of temporary workers. Their share of total employment rose from 5.2 per cent in 1997 to 6.4 per cent in 2006.

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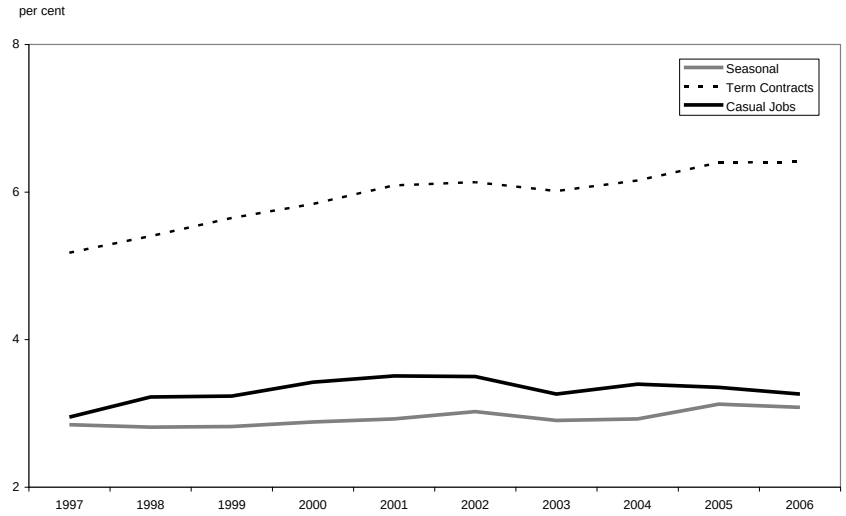
time workers…The change in concepts and definitions introduced in January 1997 results in a complete break in the involuntary part-time series" (Statistics Canada, 2006).

Chart 9: Temporary Employment Categories as a share of Total Employment, 1997-2006

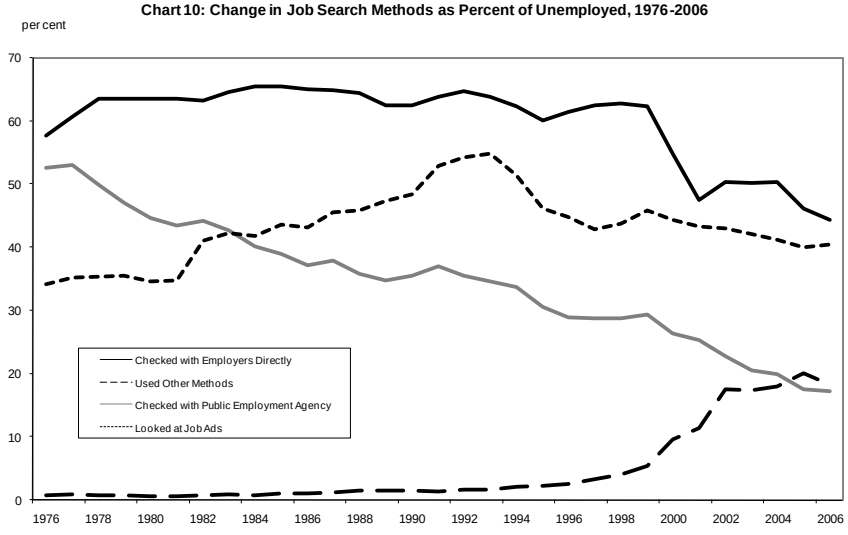


Source: Table 8.

H. Changes in job search methods

Developments in the labour market did not revolve solely around changes in the nature of the labour force or the nature of jobs supplied and demanded, but have also included significant changes to job search methods. The most drastic change in job search methods in the last 30 years is the decline in the importance of public employment agencies. In 1976, over half the unemployed (52.6 per cent) used this method of job search (Table 10 and Chart 10). By 2006, the proportion had fallen to 17.2 per cent. With the wide-spread use of the internet, a greater number of the unemployed are using this job search method to find a job and connect with future employers. The proportion of the unemployed using other methods to search for jobs (which we assume largely means use of the internet) has risen from less than 1 per cent in 1996 to 18.3 per cent in 2006.

Chart 10: Change in Job Search Methods as Percent of Unemployed, 1976-2006



Source: Table 10A.

II. The Unemployment Rate as an Indicator of Labour Market Conditions

This section assesses the strengths and weaknesses of the unemployment rate as an indicator of labour market conditions. The section first reviews the definition of the unemployment rate and highlights the strengths of the unemployment rate as an indicator of labour market conditions. It then provides a detailed discussion of the weaknesses of the unemployment rate as an indicator of labour market conditions.

A. Official definition of the unemployment rate[4]

According to Statistics Canada's Guide to the Labour Force Survey (Statistics Canada, 2006), the necessary criteria for an individual 15 and over to be classified as unemployed is that, during the reference week, the individual is without work and available for work. A key second criterion that applies to most, but not all of the unemployed, is that one must have looked for work in the last four weeks from the reference week. The two groups who are exempt from this criterion are persons that "had a new job to start within four weeks from reference week, and were available for work" and persons who "were on temporary layoff during the reference week with an expectation of recall and were available for work."[5]

The unemployment rate thus captures all persons who are without work, available for work, and looking for work (including persons with a short-term future job start and persons on temporary layoff with expectation of recall). The unemployment rate is thus a very useful measure of the proportion of the working age population who is underutilized and could be at work, if they were matched with suitable job vacancies, which may or may not be available. In the first case, unemployment is related to labour market mismatch while in the second case it arises from inadequate aggregate demand. From this perspective, the unemployment rate is a very relevant measure of labour market conditions.

The unemployment rate has a long history as an indicator of the state of the labour market. It has been subject to extensive international discussions among labour statisticians and economists, coordinated by the International Labour Organization, on the appropriate definitions. The unemployment rate does an excellent job in doing what it is supposed to do, namely measure the number of persons without work who are available and looking for work. But there are many other dimensions of labour market conditions that the unemployment rate does not capture. To point out the limitations of the unemployment rate as an indicator of labour market conditions, as the next section does,

[4] See Appendix 1 for a detailed chart explaining the classification of workers as employed, unemployed or out of the labour force.

[5] It is interesting to note that, in 2006, 141 thousands or 12.7 per cent of the unemployed did not have to look for work because they were in these two categories of unemployed. This proportion has been stable over time.

therefore should not be taken as a fundamental criticism of the unemployment rate as a labour market indicator. It would be unfair to expect one indicator to capture all aspects of the state of the labour market.

Statistics Canada does have some supplementary statistics (discussed below) to remedy some of the problems that arise, but as such these are only supplementary statistics and hence do not alter the magnitude of the official rate and may not be used when devising policy. The official unemployment rate is therefore not capturing all aspects of the labour market even though it is the primary indicator used to discern the state of the market.

B. Limitations of the unemployment rate as an indicator of labour market conditions

This section discusses the limitations of the official unemployment rate in terms of its ability to capture the multifold dimensions of labour market conditions. It should first be noted that there may be measurement problems or issues with the unemployment rate. Second, the official basic unemployment rate provides little or no information on the following dimensions of the state of the labour market:

- the incidence and duration of unemployment;
- discouraged workers;
- unused labour supply measured in terms of potential hours;
- the economic hardship associated with unemployment;
- the effective utilization of the skills of the employed; and
- the loss in terms of the effective labour supply, that is skills levels of the unemployed.

C. Measurement issues affecting the official unemployment rate

The official unemployment rate may not capture true unemployment due to measurement problems and issues. This implies that the unemployment rate may need to be used with caution as an indicator of labour market conditions.

1) Definition of search criteria

As noted earlier, the standard definition of an unemployed person (excluding persons with a future job start and persons on temporary layoff) is someone without a job who has been searching for work in the last four weeks and who is available for and willing to work. But the definition of what is considered to be "job search" is problematic. "For example, Australia and the United States require active job search for classification as unemployed, while Canada and most other OECD countries include both active and passive searchers among the unemployed" (Riddell, 2000). Passive searchers are those who for instance only read job ads in the newspaper while active searchers are those who search more vigorously by contacting employers or using a government or private agency to find work.

Hence, the official Canadian and official US unemployment rates are not truly comparable because the two countries define job search differently. The unemployment for Canada based on Canadian definitions is larger than the unemployment rate for Canada based on US definitions. In 2006, the unemployment rate in Canada was 6.3 per cent based on the Canadian definition compared to 5.5 per cent based on the US definition (Table 11 and Table 12). This gap has increased over time as it was only 0.2 percentage points in 1976, although there has been no increase in the gap since 1994.

Thus the official Canadian unemployment rate should not be used to compare labour market conditions between Canada and the United States. To do so would overestimate the true gap in the unemployment rate between the two countries. For example, in 2006 the official unemployment rate in Canada was 6.3 per cent and 4.6 per cent in the United States, giving a Canada-US unemployment rate gap of 1.7 percentage points. But the true gap, using the Canadian unemployment rate adjusted for US definitions (5.5 per cent) was only 0.9 points, about half as much.

2) Omissions or exclusions of some areas or groups

The official unemployment rate in Canada, which is based on the Labour Force Survey (LFS), suffers from several omissions of different groups. These omissions mean that the unemployment rate may not be capturing all persons who are looking for work and therefore it may not be providing a reliable estimate of the situation in the labour market. There are two kinds of omissions: known exclusions and unknown omissions.

a. Known exclusions

Since the LFS survey excludes the residents of the three territories and Indians reserves, the official estimate of the number of unemployed in Canada does not include the unemployed in the Northwest Territories, Yukon and the Nunavut as well as on-reserve Indians. The LFS also does not include full-time members of the Canadian Armed Forces and inmates of institutions (institutionalized for six months or longer). "These groups together represent an exclusion of approximately 2 per cent of the population aged 15 or over" (Statistics Canada, 2006).

The population of the territories in Canada is fairly small in absolute terms and relative to the national total. In 2006, the number of persons aged 15 and over in all three territories was only 66,400. Even if unemployment were extremely high in the North, the inclusion of these unemployed persons would have a minimal effect on the national unemployment. However, the analysis of labour market conditions in these three territories is greatly impeded by the lack of regular information on unemployment.

Census coverage of Indian reservations is incomplete, so it is difficult to estimate the number of persons who live on these reservations. It may be up to one half million. As unemployment on reserves is high, the inclusion of Indian reservations in LFS coverage may raise the national unemployment by up to several tenths of a percentage

point. The effect would be larger at the provincial level, particularly in those provinces such as Saskatchewan or Manitoba where a significant proportion of the population lives on Indian reserves. The effect would be even greater at the sub-provincial or economic region level where there are high concentrations of Indians on reserves. For example, the official unemployment rate for economic regions in Northern Saskatchewan and Northern Manitoba likely significantly underestimates the true unemployment rate. Inclusion of the unemployed on Indian reserves in the unemployment rate for these economic regions would therefore provide a much more accurate picture of labour market conditions. It would also have implications for the administration of the EI program, which uses the unemployment rate in an economic region as a parameter in the determination of EI eligibility requirements and benefits.

The exclusion of the institutionalized population from the LFS represents a less serious problem for accurate measurement of the unemployed than the exclusion of the territories and Indian reservations. There are likely very few persons in homes for seniors and the mentally and physically disabled who wish to work. There may be an issue for prisoners eligible for day parole who wish to work, but this is likely a small proportion of the prison population. But prisoners eligible for day parole (and possibly prisoners who can work in prison) do represent a potential labour supply and should be regarded as such.

b. Unknown omissions

The unemployment rate suffers from additional exclusions, what will be termed unknown omissions. These are comprised of people who cannot be tracked (identified) or surveyed, and persons operating in the underground economy who can be surveyed but choose to provide inaccurate information. By definition, it is extremely difficult to estimate the impact of these exclusions on the number of unemployed.

The LFS does not survey the homeless and those with no fixed address as to be included in the LFS one must have a fixed address. Most of the homeless are without a job and therefore would be considered unemployed if surveyed. The estimation of the number of homeless in Canada is notoriously difficult and estimates vary widely from several tens of thousand to hundreds of thousands. Including the homeless in the official count of the unemployed might boost the national unemployment rate by up to several tenths of a percentage point. As most homeless persons reside in major urban areas, the unemployment rates of Canada's large CMAs would be increased even more by the inclusion of the homeless. And as most homeless live in the inner city, the official rate for these districts likely significantly underestimates the true unemployment rate and hence actual labour market conditions.

The underground economy represents a further challenge for the accurate measure of the labour force status of the population. When asked whether they work or not, people working in the underground economy may be tempted to lie in fear of the Statistics Canada sharing information with the Canada Revenue Agency (CRA). They may misrepresent their labour market status to avoid CRA scrutiny. If the size of the underground economy is substantial and if persons declare themselves unemployed when

they are working in the underground economy, this may warrant caution in accepting the unemployment rate as a true reflection of market conditions, the official unemployment may overestimate the true unemployment rate and hence may not capture actual labour market conditions.

D. The incidence and duration of unemployment

The duration of unemployment has important consequences especially for the economic well-being of the unemployed as well as for labour market conditions. The annual or quarterly official unemployment rate is obtained by averaging monthly unemployment rates. It does not distinguish between incidence of unemployment, defined as the proportion of the labour force experiencing a bout of unemployment over the course of a year, and duration of unemployment, defined as the average time an unemployed persons has been unemployed. The official unemployment rate therefore does not shed light on the nature of unemployment and the distribution of unemployment among the labour force.

As an example suppose that the annual unemployment rate is 12 per cent. This could represent a situation where all members of the labour force were unemployed one month of the year or a situation where 12 per cent of the labour force were unemployed for every month of the year. The former situation would indicate stronger labour market conditions with a high level of labour market turnover, while the latter would indicate a more acute problem with regard to demand conditions. Riddell (2000) analyzes the situation and concludes that a longer duration of unemployment is hence often seen to be a structural problem. In short, the crude percentage figure hides crucial distinctions related to incidence and duration.

Statistics Canada produces estimates of the average duration of uncompleted spells of unemployment and the average incidence of unemployment can be derived from average duration and total unemployment (Table 13). It is interesting to note that although the unemployment rate was lower in 2006 than 2000 (6.3 pert cent versus 6.8 per cent), the proportion of the labour force that actually experienced a bout of unemployment was higher (22.4 per cent versus 20.7 per cent). In that sense, a rise in the incidence of unemployment is not indicative of a deterioration of labour market conditions. In fact, in a buoyant economy with flexible labour markets we could expect greater incidence of unemployment than in a stagnant economy with rigid labour markets. More importantly from the point of view of labour market conditions, the duration of unemployment had fallen significantly from 17.2 weeks in 2000 to 14.6 weeks in 2006 (Table 13A). Hence duration of unemployment is a more relevant indicator of both the level and trends in labour market conditions than incidence of unemployment or even the unemployment rate.

E. Discouraged workers

Discouraged workers are not included in the official definition of the unemployed as they do not meet the criterion of having looked for work in the past four weeks.

Consequently, use of the unemployment rate as a indicator of labour market conditions may be biased if there are a large number of discouraged workers. There are two approaches which provide different estimates of discouraged workers: Statistics Canada estimates and estimates derived from differences in provincial participation rates.

1) Statistics Canada definition of discouraged workers

According to Statistics Canada, discouraged searchers are "those persons who reported wanting to work at a job or business during reference week and were available but who did not look for work because they believed no suitable work was available"[6] (Statistics Canada, 2006). Discouraged workers can pose a more serious problem for the reliability of the official unemployment rate as a measure of labour market conditions since their presence indicates unused labour supply that is not captured by the official unemployment rate.

Craig Riddell (2000) summarizes the discouragement phenomenon well when he writes that "many spells of job search end in labour force withdrawal....rather than employment....The classic definition of structural unemployment involves situations in which there are unemployed workers in one region or occupation or skill category and unfilled vacancies in different regions, occupations or skill categories. Such unemployment may result in job search, but if workers are well informed about the situation they face it is also likely to show up as desiring work but not searching. Thus some of what we conceptually refer to as structural unemployment appears likely to show up as non-participation rather than unemployment in our labour force statistics"

2) Participation rate differentials across provinces

The official estimate of discouraged workers produced by Statistics Canada may underestimate the true number of discouraged workers if individuals are so discouraged that they do not even report that they want to work. A second way to estimate discouragement is through provincial differences in labour fore participation rates. Labour force participation rates vary considerably between provinces. This phenomenon indicates that there may be potentially varying degrees of unused labour capacity across provinces in inverse relationship with the participation rate. If one assumes that the desire to work is the same in all provinces, then differences in participation rates reflect differences in labour demand, which in turn means that in some regions there are a greater number of discouraged workers than in others.[7]

[6] Note that "prior to January 1997, the definition of a discouraged searcher was limited to those who looked for work within the previous 6 months but not during the last 4 weeks although they were available, and did not look because they believed no suitable work was available. The change in concept and question wording results in a complete break in the series" (Statistics Canada, 2006).

[7] Note that potential labour supply may also be influenced by the age structure and educational attainment of the population. Therefore provincial differences in participation rates may reflect these supply side differences as well as differences in labour demand conditions.

Applying the participation rate of the province with the highest labour force participation to the working age population in each province gives a hypothetical estimate of the potential labour force for each province. Subtracting the actual provincial employment levels from this potential unused labour force and dividing by the latter and multiplying by 100 gives us an estimate of the potential unused labour force for each province which includes both unemployed and discouraged workers (Table 14). In 2006, Newfoundland had the highest rate of unused labour capacity estimated at 31.3 per cent, double its unemployment rate of 14.8 per cent.[8] Alberta, on the other hand, had the lowest rate of unused capacity at 3.4 per cent. By definition, this number was identical to Alberta's official unemployment rate since it displayed the highest participation rate of the ten provinces and was thus used as a benchmark.

F. Unused labour supply in terms of potential hours

The unemployment rate is an estimate of the proportion of the labour force who are not working and want to work. Hence it captures labour market conditions in terms of the unmet demand for persons available for work. But it does not capture the unmet demand (or potential underutilized supply) for the number of hours that the unemployed or involuntary part-time workers (or even full-time workers who wish to work more hours) would like to supply at going wage rates if work were available. Thus, the unemployment rate may differ from the ratio of unused hours to total potential hours of labour supply.

As noted earlier, a significant proportion of the employed (4.3 per cent in 2006) are involuntary part-timers. These persons are not included in the unemployment rate even through they represent an unused labour supply, which can be measured in terms of potential hours lost. A labour force utilization measure based on hours captures these persons, unlike the unemployment rate where a person is defined as employed even if he/she works one hour per week. The unemployment rate hence fails to capture involuntary part-time employment, which can be an important dimension of labour market conditions.

As noted above, there are two additional, and offsetting, reasons why the unemployment rate may differ from the ratio of unused hours of total potential hours of labour supply to total potential hours. First, full-time and part-time workers may wish to supply more labour at going wages. Second, the hours worked sought by the unemployed may differ from the actual hours worked of the employed. For example, in 2006, 22.1 per cent of the unemployed were looking for part-time work (up from 11.7 per cent in 1976),

[8] Newfoundland with a working age population of 472,700 and a labour force of 253,100 thus has a serious problem with regard to discouraged workers. This is in large part due to the limited availability of work in rural areas in Newfoundland. Actual employment in Newfoundland is 215,700. At Alberta's participation rate, potential labour force would be 313,932, which means that potential unused labour supply is 98,232 or 31.3 per cent. As noted, the unemployment rate does not account for discouraged workers. Furthermore since Statistics Canada restricts the definition of discouraged workers, their estimate of discouragement will be much less than that obtained from the differential provincial participation rate approach.

while only 18.0 per cent of workers were part-time (Table 15). Thus the average number of hours an unemployed person wishes to work is less that the average number of hours an employed person actually works.

Thus the unemployment rate fails to measure potential and actual labor supply in terms of hours, which is a more appropriate metric of labour supply. Thus the unemployment rate may provide misleading signals on labour market conditions if there is a significant divergence between the person-based and hours-based measures of unused labour supply.

G. Economic hardship associated with unemployment

The unemployment rate sheds no light on the economic hardship associated with unemployment. The economic hardship caused by unemployment, both financially and emotionally, is likely greater for a household head who is the primary or even sole income earner, than for a secondary earner, a full-time high school student looking for part-time work, or a pensioner looking for work to supplement his income. Yet the unemployment rate gives the same weight to all four situations even though the degree of economic hardship suffered differs significantly. As Saito (2000) notes "… a middle-aged head of household who loses a job has great difficulty finding a new job, further aggravating the level of severity" (Saito, 2000). Hence for the aspect of labour market conditions related to the economic hardship from inadequate labour demand, the unemployment rate provides little insight.

H. Effective utilization of the skills of the employed

The official unemployment rate does not capture the effective utilization of the skills of the employed. Persons who are overqualified for their jobs are underemployed and their skills are not effectively used. An engineer working as a taxi driver, not by choice, but because of an inability to find a suitable job represents an example of the ineffective use of skills of the labour force. But the unemployment rate will not capture any mismatch between the skills of the workforce and the skills required by the available jobs. The engineer taxi driver could be earning more using his engineering skills. He is overqualified for his actual job and underemployed. This is a waste of skills and resources that could benefit the individual and the economy if this mismatch did not exist. The failure of the unemployment rate to detect such a situation indicates that it is an inadequate indicator of this aspect of labour market conditions. Even with a low unemployment rate the labour market may suffer from a significant underutilization of the skills of the employed workforce. Underemployment particularly affects recent immigrants.

I. Loss in terms of the effective labour supply, that is skills levels of the unemployed

The official unemployment rate itself also does not shed light on the qualifications of the underemployed and therefore says little about the loss to the economy in terms of

effective labour supply from unemployment. If unemployment is a phenomenon that primarily affects the poorly skilled, it would represent less of an economic loss than if it affected the highly skilled. One would never know this from the unemployment rate itself. Of course, the unemployment rate can be broken down by educational attainment and by skill level but this is a step removed from the simple tracking of the unemployment rate.

III. Alternative Indicators of Labour Market Conditions

A number of labour market indicators in addition to the official aggregate unemployment rate have been proposed to gauge labour market conditions. This section of the report will identify a number of indicators that may be useful for measuring labour market conditions, both in terms of levels and rates of change; explain in what way these indicators may be capturing labour market conditions in a manner that is different from the unemployment rate; and assess their strengths and weaknesses. The indicators to be assessed are:

- unemployment rates by gender and age group;
- unemployment rates by educational attainment and skills;
- unemployment rates by hardship indicators;
- unemployment rate based on US job search criteria;
- hours-based underutilization of labour
- the job vacancy rate;
- the labour force participation rate;
- the employment rate;
- discouraged workers and the rate of unused labour supply;
- the duration of unemployment;
- the incidence of unemployment;
- the job loss rate;
- other indicators (hours worked, skill shortages, underemployment, wages)

A. Unemployment rates by gender and age group

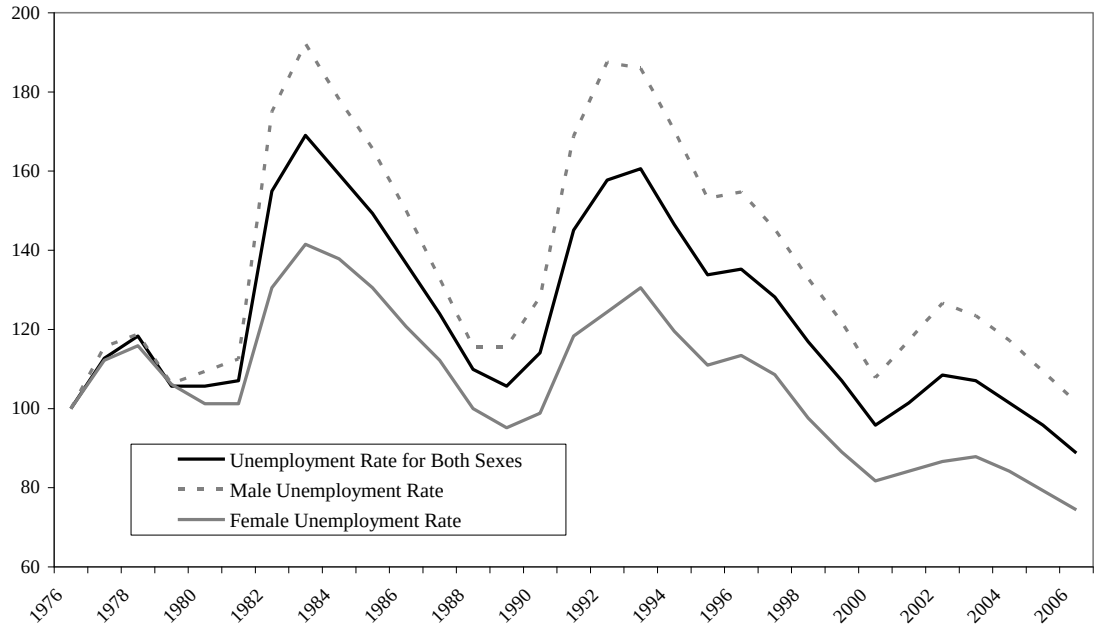
The focus of public discussion on labour market conditions is largely the official aggregate unemployment rate. But Statistics Canada also releases unemployment rate estimates for detailed age and sex groups. These data provide much insight into labour market conditions and may at times paint a different picture of the labour market than the one given by the aggregate unemployment rate. Thus for a deeper understanding of the labour market it is more useful to examine the unemployment rates for particular subsets of the total labour force such as men and women, and the three main age groups: prime age persons (25-54), youth (15-24), and older persons (55 and over).

1) Gender

Unemployment levels and rates differ significantly by gender and one obtains very different perspectives on trends in labour market conditions from the two unemployment rates. For example, the fall in the aggregate unemployment rate by 0.8 percentage points between 1976 and 2006 was completely driven by the 2.1 percentage point fall in the female unemployment rate from 8.2 per cent to 6.1 per cent (Table 16B). The male unemployment rate actually rose 0.1 percentage points from 6.4 per cent to 6.5

per cent. Labour market conditions over the last 30 years, as manifested by the official unemployment rate, have thus improved significantly for women, but not for men. The aggregate unemployment rate masks these trends (Chart 11).

Chart 11: Comparison of Trends in the Unemployment Rate by Gender, 1976-2006, 1976=100



Source: Table 16B.

The per cent annual movements in the male and female unemployment rates are virtually identical to those of the aggregate unemployment rate, with a correlation coefficients of 0.994 and 0.997 respectively (Table 17).[9]

2) Prime-Age Group

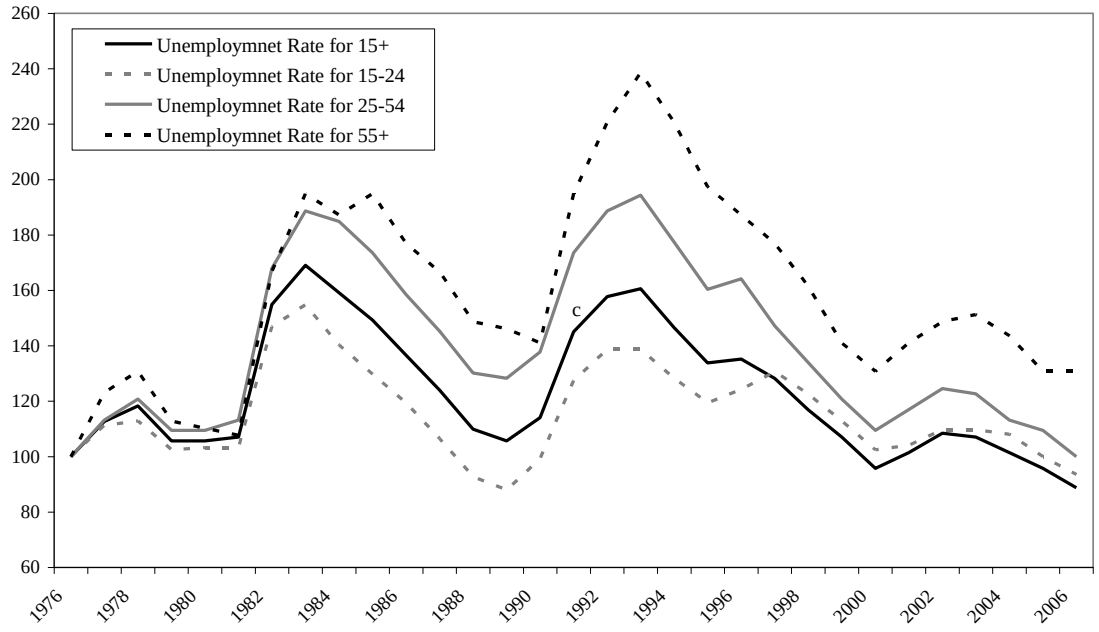
The population aged 25 to 54, often called the prime age group, is by far the largest of the three broad age groups accounting for 70 per cent of the labour force in 2006, compared to 16 per cent for the 15-24 group and 14 per cent for the 55 and over group. It is also the age group with the highest degree of labour force attachment, with a participation rate of 86 per cent, above that of the 15-24 group (66 per cent) and well above that of persons 55 and over (32 per cent) (Table 18). From this perspective, some

[9] Of course, these very high correlation coefficients follow largely from the fact that total unemployment estimates are driven by estimates of unemployment for males and estimates of unemployment for females. The larger the share of the sub-group, the larger the correlation with aggregate unemployment will be. Nonetheless, strong correlation coefficients reinforce the idea that using disaggregated data on unemployment might add only very little information to the aggregate unemployment rate. The differences in trends between total unemployment and disaggregated unemployment are, in general, minimal. Yet, one element not captured by correlation coefficients is the difference in levels of unemployment between various groups, which is important when devising policies. While these cross-sectional differences are important, if they persist through time they do not contribute much to an understanding of changing labour market conditions.

observers argue that the unemployment rate of this group better reflects labour market conditions than the all-ages unemployment rate.

Between 1976 and 2006 the aggregate unemployment rate in Canada fell 0.8 percentage points from 7.1 per cent to 6.3 per cent. But the unemployment rate for the prime age labour force was unchanged at 5.3 per cent in both years (Table 16B and Chart 12). Thus from the perspective of prime-age workers, labour market conditions, as manifested by the unemployment rate, have not improved over the past 30 years, in contrast to the improvement indicated by the aggregate unemployment rate.

Chart 12: Comparison of Trends in the Unemployment Rate by Age, 1976-2006, 1976=100



Source: Table 16B.

The unemployment rate for prime age men is particularly important as a labour market indicator because this group has an extremely high level of labour force attachment. No other major age-sex group has labour force participation comparable to this group (91 per cent). Consequently, the unemployment experience of prime age men is particularly important for monitoring labour market conditions. And the trend in this indicator has diverged significantly from that of the aggregate unemployment rate, rising 1.0 points from 4.4 per cent to 5.4 per cent between 1976 and 2006, compared to the 0.8 point fall in the aggregate unemployment rate.

3) Young Persons

Persons in the age group 15-24, referred to as "youth," had in 2006 an unemployment rate nearly double the national average – 11.6 per cent versus 6.3 per cent. Labour market conditions for the group certainly appear much below average, at least as

proxied by the unemployment rate (Table 16B). In contrast to the prime age group, the trend in the unemployment rate for youth has been identical to that of the overall unemployment rate, down 0.8 points between 1976 and 2006.

4) Older Persons

Persons 55 and over had in 2006 an unemployment rate of 5.1 per cent, below the national average of 6.3 per cent (Table 16B). But, in contrast to both the youth and prime age labour force, this age group saw a marked deterioration in its labour market situation as proxied by the unemployment rate, with the latter rising 1.2 percentage points from 1976 to 2006.

5) Relationship between the Annual Movement in the Aggregate Unemployment Rate and the Unemployment Rates by Gender and Age Group

While the long-term movement over the 1976-2006 period of the two gender-specific unemployment rates and the three age-group-specific unemployment rates differs from that of the aggregate unemployment rate (Table 19), on a year-to-year basis the different series are highly correlated (Table 17). The correlation coefficient between the annual variation in the prime-age unemployment rate and the aggregate unemployment rate is almost unity (0.990), while that between the youth unemployment rate and the aggregate unemployment rate is almost as high (0.969), with the correlation coefficient between the older age group and the aggregate unemployment rate close behind (0.939). This suggests that on a short to medium term basis, the trend in the aggregate unemployment rate provides a good proxy for trends in the unemployment rate by age group and gender.

B. The unemployment rate by education attainment

The aggregate unemployment rate provides no information on the state of labour market conditions facing persons from different educational backgrounds. An examination of unemployment rates by the educational attainment of the unemployed is needed. Even when the unemployment rate is low, the unemployment rate of persons with limited formal education attainment can be very high in both absolute and relative terms. For example, the unemployment rate of those with less than high school in 2006 was around 12 per cent, double that of the overall unemployment rate (Table 20A). Equally, the unemployment rate for persons with high levels of formal education tends to be low. In 2006, the unemployment rate for persons with a university degree was 4.0 per cent, about two-thirds of the overall rate.

While the aggregate unemployment rate masks the absolute state of labour market conditions facing persons with different educational attainment, the rate of change in the unemployment rate by educational attainment is in general highly correlated with the rate of change in the aggregate unemployment rate (Table 17). From this perspective, a

tracking of trends in the aggregate unemployment rate provides an accurate picture of trends in the unemployment rate of the labour force by educational attainment.

As Table 17 shows, the correlation coefficient between the annual movement of the aggregate unemployment rate and the unemployment rate of persons with some high school, high school graduation, some postsecondary, postsecondary, and a bachelor's degree was very high – between 0.93 and 0.97. It was lower for the groups on the two extremes of the educational distribution, those with 0-8 years education and those with above a bachelor's degree – 0.845 in both cases. Thus the trends in unemployment for these two educational attainment groups provides non-redundant information about the developments in their labour market conditions, as proxied by the unemployment rate. This information cannot be obtained from the aggregate unemployment rate. The reasons why trends in the aggregate unemployment rate are less useful as a predictor for trends in the unemployment rate of these two groups are not clear. The fact that these groups represent a relatively low proportion of the population contributes to the lower correlation with total unemployment. Moreover, these two groups are likely most affected by the increasing returns to skills in the Canadian economy, which could explain in part why their trend departs from the trend in aggregate unemployment.

C. Unemployment rate by hardship indicators

The level and trends in the official unemployment rate may shed little light on the level and trends in the hardship and suffering inflicted by unemployment on society. This section discusses four indicators of hardship associated with unemployment and assesses what information this indicators provide about labour market conditions independent of the unemployment rate. The indicators are: the unemployment rate of heads of household, the number and proportion of families with one employed earner who is unemployed, the proportion of the unemployed who are students, and the proportion of the unemployed who are older workers.

1) Head of Household

The unemployment rate of the head of household has traditionally been used as a hardship indicator given the key role of this person, usually male, as the family breadwinner. The higher this unemployment rate, the greater the hardship, both economic and psychic, inflicted by unemployment. Given the important influence of non-heads of households on the aggregate unemployment rate, the head of household unemployment rate may not track the latter. Unfortunately, Statistics Canada does not appear to produce an unemployment rate for the head of household (or for married men for that matter). This is likely because the concept of head of household has become ambiguous with the increased equality between the sexes. In many households, women now earn more than men. Who is then the head?

A time series on the unemployment rate for married men is available for the United States. It tracks the aggregate unemployment rate very closely with a correlation coefficient of 0.972. This suggests that the rate provides little additional information on

trends in economic hardship related to the unemployment over and above that provided by the unemployment rate.

2) Unemployment rate for one earner families

A second hardship indicator is the unemployment rate for families with one earner. This measure is better than the unemployment rate for household heads as, unlike the latter, it excludes households with more than one earner. The economic hardship for households with an unemployed head can be offset by the income from other family members.

Again, the higher this unemployment rate, the greater the economic hardship suffered by the household. Unfortunately, Statistics Canada does not appear to produce an unemployment rate for households with one earner or labour force participant so it is not possible to ascertain to what degree this rate deviates from that of the overall unemployment rate. But it is likely that the correlation is high.

3) The age structure of the unemployed

A case can be made that the economic and psychological hardship associated with unemployment is much greater for the old than the young. This is because the difficulty of finding a job for someone 55 and over is much greater than for a younger person, as reflected in the greater duration of unemployment. There may also be greater stigma attached to unemployment for an older person than for a younger person. Some might see unemployment at this late stage in the life cycle as a sign of career failure. Thus an increase in the share of the total unemployed in the 55 and over age group may be indicative of a greater cost to society from unemployment.

The share of the unemployed aged 55+ nearly doubled from 6.3 per cent of the total unemployed in 1976 to 11.3 per cent in 2006 (Table 16A). This development reflected both a higher unemployment rate relative to other age groups and a greater share of the labour force for this age group. In contrast, the aggregate unemployment rate fell 0.8 points from 7.1 per cent to 6.3 per cent (Table 16B). In other words, the two indicators give very different signs about labour market conditions

4) Unemployment rate for students

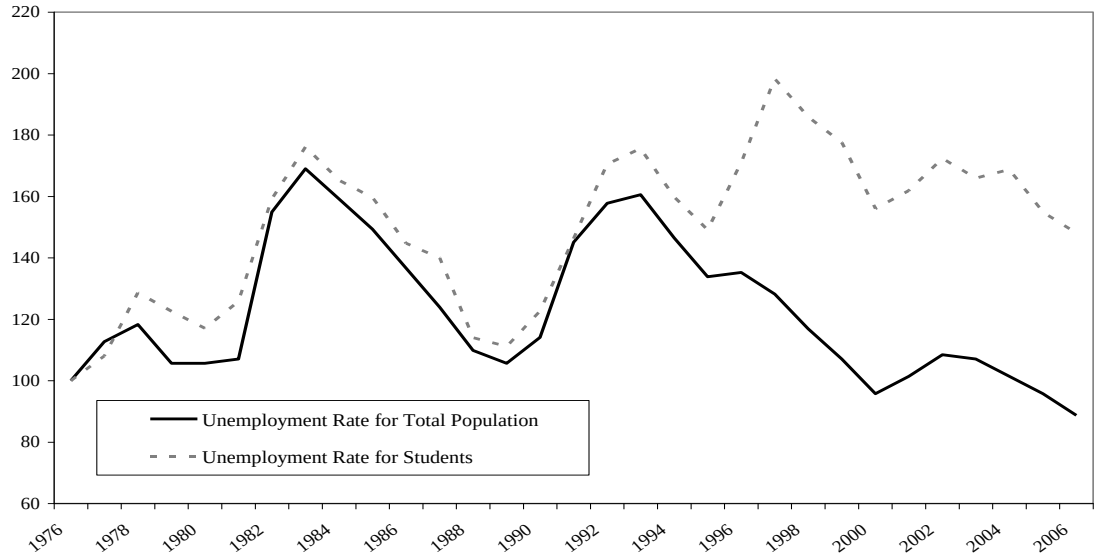
Students represent a subset of the youth population, although students aged 25 to 29 are also included in the official LFS estimates for students. Statistics Canada counts only full-time students who are looking for part-time work as part of the labour force and hence unemployed. Full-time students looking for full-time work are not included as part of the labour force because it is assumed they are not available for full-time work.[10] Part-

[10]"Full-time students currently attending school and looking for full-time work are not considered to be available for work during the reference week. They are assumed to be looking for a summer or co-op job or permanent job to start sometime in the future, and are therefore not part of the current labour supply"

time students are counted as part of the labour force if they are looking for either part-time or full-time work.

It is argued that the economic hardship associated with unemployment is less for students, particularly full-time students, than for other groups. This is because many students live at home and are financially supported by their families. Students also have access to financial assistance to pursue their studies.

Chart 13: Comparison of Trends in the Unemployment Rate for Total Population and the Unemployment Rate for Students, 1976-2006, (1976=100)



Source: Table 22 A.

The unemployment rate for students in 2006 was 11.2 per cent, up sharply from 7.6 per cent in 1976 (Table 21A and Chart 13). This trend stands in contrast to the youth unemployment rate, which fell over the period. The share of students in total unemployment doubled from 7.5 per cent to 14.4 per cent. Virtually all this increase was for full-time students. In contrast to the rise in the share of the unemployed 55 and over in total unemployment, the rise of the share of the unemployed constituted by students may imply that the economic hardship represented by the unemployment rate has fallen. This aspect of labour market conditions is not captured by the aggregate unemployment rate

While the long run trends in the student unemployment rate and the aggregate unemployment rate diverge, they track one another fairly well over the business cycle and on a year to year basis. The trend in the unemployment rate for all students aged 15-29 is positively correlated with the trend in the official unemployment rate with a correlation coefficient of 0.798 (Table 17). This is a less tight relationship than that between the age group and gender unemployment rates and the aggregate rate. The relationship between part-time students and the aggregate unemployment rate is much stronger than that between the full-time students and the unemployment rate (correlations coefficient of

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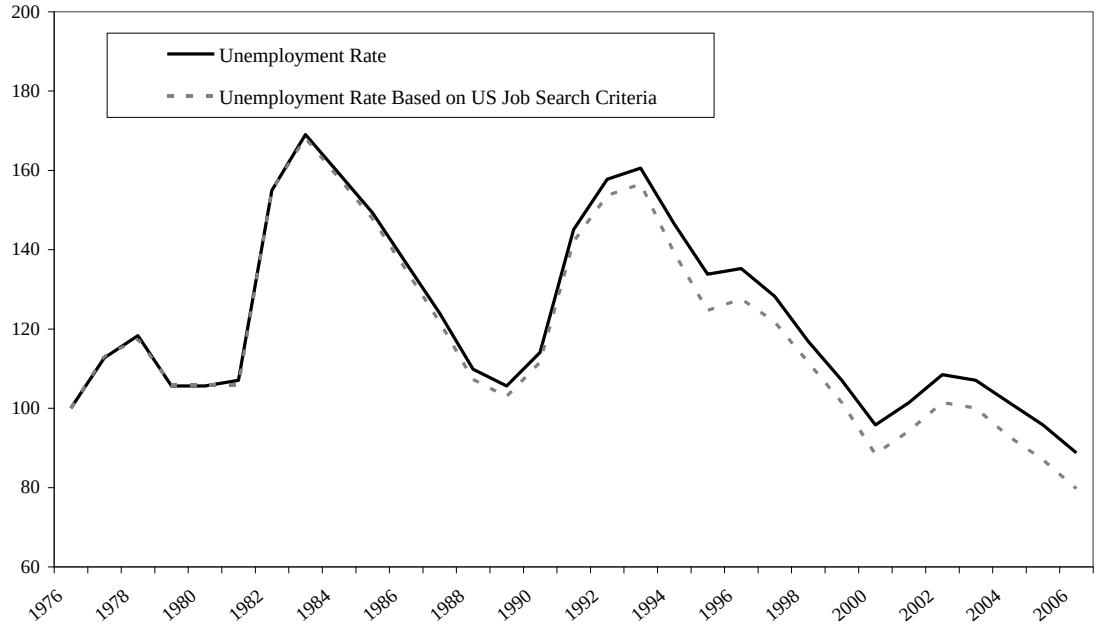
(Statistics Canada, 2006) In contrast, in the United States, the BLS Current Population Survey includes full-time students looking for full-time work as unemployed.

0.866 versus 0.588) as part-time students are more affected by the yin and yang of the business cycle and emerging and disappearing employment opportunities.

D. Unemployment rate based on US job search criteria

Canada and the United States and other OECD countries follow the ILO guidelines in defining and measuring unemployment and all other labour market variables. However, as noted earlier Canada and the United States differ on what is considered as search criteria to qualify for inclusion in the labour force. Using the US definition to measure unemployment in Canada reduces the estimate of the unemployment rate in 2006 by 0.8 percentage points from 6.3 per cent to 5.5 per cent (Table 12). This is because persons who search for jobs passively, i.e. look at newspaper ads are no longer counted as unemployed under the US definition.

Chart 14: Comparison of Trends in the Unemployment Rate and Trends in the Unemployment Rate Based on US Job Search Criteria, 1976-2006, (1976=100)



Source: Table 12.

Over the 1976-2006 period the use of this alternative unemployment rate gives a slightly more optimistic take on long-run developments in labour market conditions in Canada. According to this measure, the unemployment rate fell 1.4 percentage points between 1976 and 2006, in contrast to only 0.8 points for the official measure. The growing importance of passive job searchers in Canada (from 0.2 per cent to 0.8 per cent of the labour force) explains this divergence in the two measures (Chart 14).

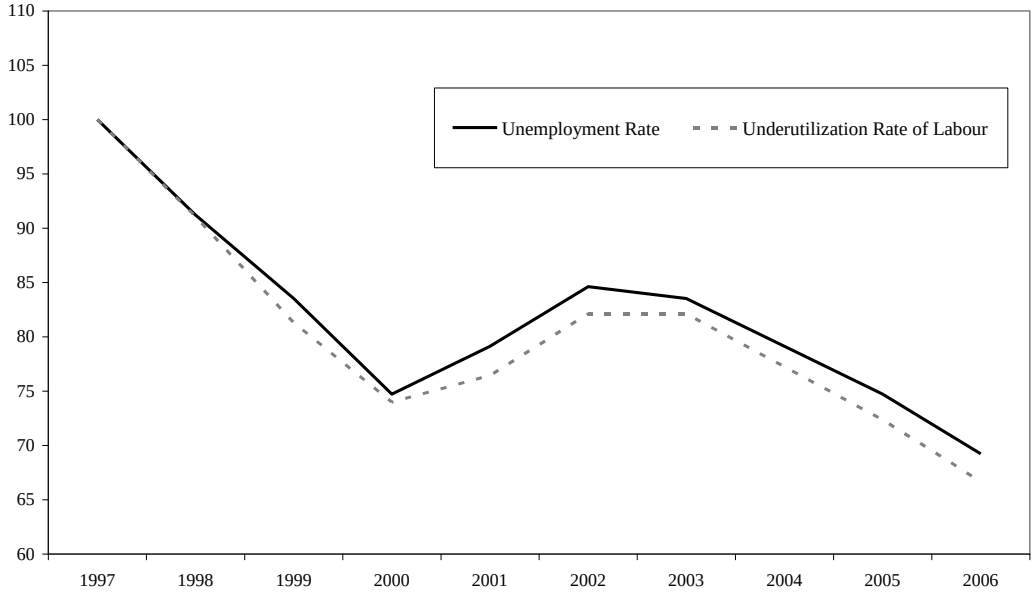
This gap between the two measures has been developing at a slow rate over 30 years and has little effect on the year-to-year variation between the two unemployment

measures. Indeed, the correlation coefficient is 0.998.[11] From this perspective, the annual movement in the official unemployment rate and the rate based on US definitions are virtually identical.

E. Hours-based underutilization rate of labour

As noted in the previous section, the hours that involuntary part-timers wish to work if they had full-time jobs are not captured in the person-based official unemployment rate. Statistics Canada does produce a supplementary unemployment measure that includes involuntary part-time workers measured in terms of full-time equivalents (two involuntary part-time workers each wanting to work an additional 20 hours per week would be one full-time equivalent).

Chart 15: Comparison of Trends in the Unemployment Rate and Trends in the Hours-based Underutilization Rate of Labour, 1997-2006, (1997=100)



Source: Table 23A.

This measure shows that labour market conditions are not as robust as indicated by the official unemployment rate. In 2006, the rate of underutilization of labour was 8.2 per cent (Table 22), 1.9 points above that of the official unemployment rate (6.3 per cent). Between 1997 (the first year for which Statistics Canada produced estimates for this series) and 2006 this measure fell 4.1 percentage points, compared to 2.8 points for the official unemployment rate. Thus this measure indicates a greater improvement in labour market conditions in Canada over the past decade than the official unemployment rate (Chart 15).

[11] Again, this large correlation is the direct consequence of both measures differing for only a very small share of their respective population. Indeed, passive job-lookers represent only a very small proportion of the population. The same holds for all measures of unemployment which are adjusted to take into account a slightly larger or smaller proportion of unemployed such as unemployment with discouraged workers or unemployment including underutilization of part-time workers.

On a short term, however, the movement between the two measures are highly correlated, with a correlation coefficient of 0.975. From this perspective, the tracking of the annual movement of the utilization rate of labour that includes the hours of involuntary part-time workers provides no more information about trends in labour market conditions than the official unemployment rate itself.

F. The Job Vacancy Rate

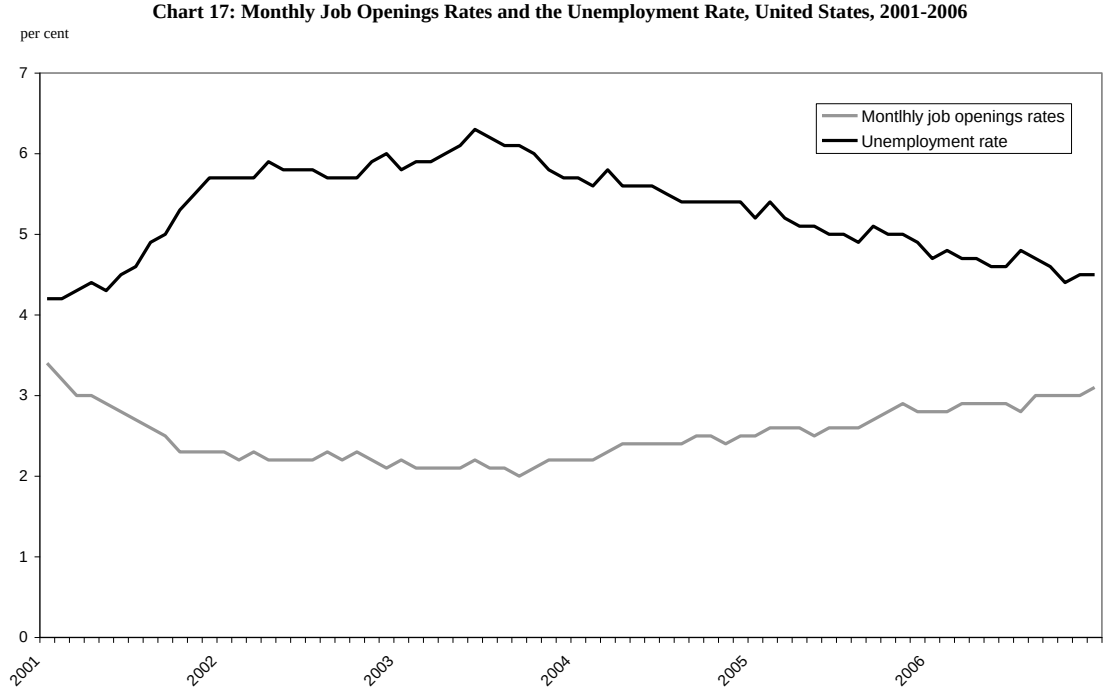
Labour market conditions are heavily dependent on labour demand. The job vacancy rate, or Job Opening Rate as it is called in the United States, is an excellent indicator of labour demand conditions (Table 23). An increase in the number of vacancies in an economy is a direct reflection of greater labour demand.

Chart 16: Comparison of Trends in the Unemployment Rate and Trends in the Help Wanted Index, 1981-2002

Source: Table 32.

In Canada, the Job Vacancy Survey was used to measure the number of job openings available in the market until it was terminated in 1978. In 1981, the Help Wanted Index replaced the former until it was also terminated in 2002 (Table 24). Termination was due to the inability of the index to account for all job ads, since the index was based on newspaper ads but did not include ads posted on the internet. This meant that it was not giving a complete picture about market conditions. Currently, no job vacancy information is collected by Statistics Canada. In the United States the Job Openings Survey was established in 2000 to obtain monthly information on demand conditions in the labour market.

Chart 17: Monthly Job Openings Rates and the Unemployment Rate, United States, 2001-2006



Source: Table 23

The annual rate of change in the Help Wanted Index from 1981 to 2002 is negatively correlated with the rate of change in the unemployment rate, with a correlation coefficient of -0.864 (Chart 16 and Table 32). When the demand for labour, as proxied by the Help Wanted Index, falls, the unemployment rate rises, and vice versa. This is not surprising since there are fewer hirings, more persons will not be able to find work and will be unemployed.

In the United States the monthly movement in the job opening rate is even more negatively correlated with the trend in the US unemployment rate with a correlation coefficient of -0.936 (Table 17).

The job vacancy rate is an excellent indicator of labour market conditions. But given its high negative correlation with the unemployment rate, it provides a similar perspective on trends in labour market conditions to that of the unemployment rate. In any case, this variable cannot be used for the analysis of the Canadian labour market since Statistics Canada does not gather information on it.

G. Labour force participation rates

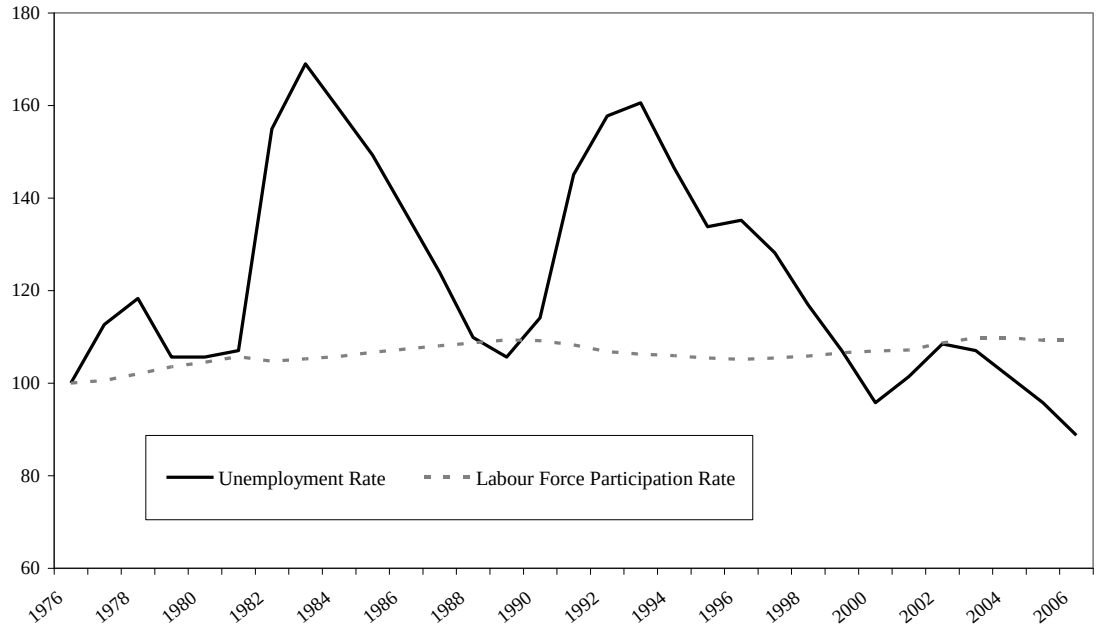
The level of labour force participation, defined as the labour force (employed and unemployed persons) divided by the working age population, is an indication of labour market conditions. Buoyant labour demand attracts persons into the labour force and raises the participation rate while stagnant demand has the opposite effect. This cyclical component of the participation rate trend is also accompanied by a structural component

determined by such factors as the increased educational attainment of women and their changing role in society, which has greatly increased female labour force participation.

As noted earlier in the report the participation rate in Canada increased from 61.5 in 1976 to 67.2 in 2006 with all the increase due to the increased participation of women (Table 4A).

Given the cyclical component of the participation rate, it is not surprising that the annual movement in the rate is negatively correlated with the unemployment rate, although the correlation coefficient is relatively weak -0.396.[12] The low correlation suggests that non-cyclical factors also play an important role in affecting the participation rate on a year-to-year basis (Chart 18).

Chart 18: Comparison of Trends in the Unemployment Rate and Trends in the Labour Force Participation Rates, 1976-2006, (1976=100)



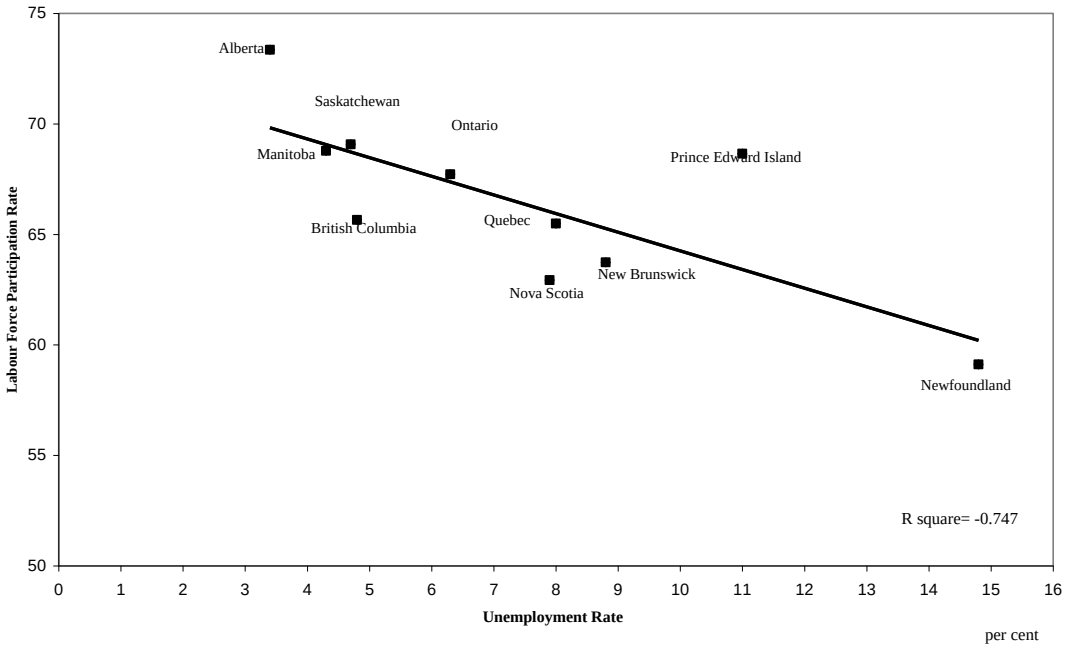
Source: Table 4A.

The correlation coefficient with the unemployment rate is much higher for the male participation rate than for the female rate (-0.573 versus -0.179). This indicates that the male participation rate is much more influenced by labour market conditions than the female rate or, conversely, that non-cyclical factors over the period had a much larger role for trends in female participation rate than for trends in male participation rates.

[12] Labour force participation rates by province are also negatively correlated with the unemployment rate. The trend in the labour force participation rate has most strongly negatively correlated with the trend in the unemployment rate in New Brunswick (-0.55) and most weakly correlated in Saskatchewan (-0.04).

Chart 19: Relationship between the Unemployment Rate and the Labour Force Participation Rate for Canadian Provinces, 2006

per cent



The participation rate measures a different dimension of the labour market than the unemployment rate. For this reason, the participation rate is a useful indicator of labour market conditions that provides different insight into the nature of labour market developments than the unemployment rate.

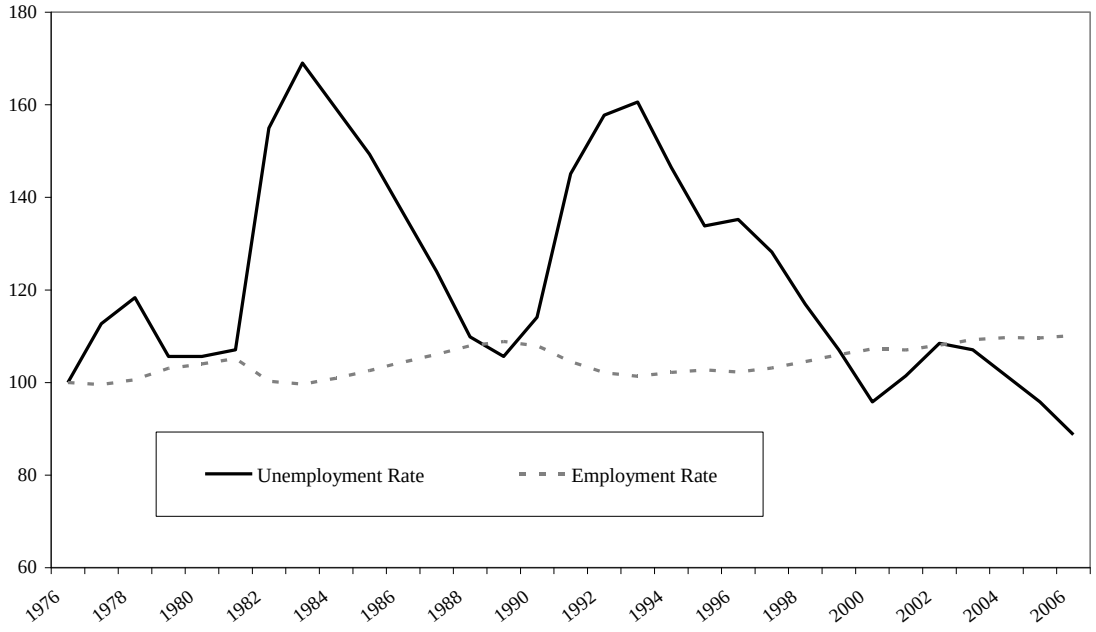
At the provincial level, the cross-sectional relationship between the unemployment rate and the labour force participation rate is very close. The correlation coefficient for 2006 between the two variables is -0.747 (Chart 19). In other words, provinces with low unemployment also have high participation rates and vice versa.

H. Employment rates

The employment rate, defined as employment over the working age population, is also an excellent indicator of labour market conditions. It indicates the degree to which an economy can productively employ its population. The higher the employment rate, the better labour market conditions and vice versa. The greater advantage of the employment rate over the unemployment rate as an indicator of labour market conditions is that it does not depend on an ambiguous definition of who is classified in the labour force and hence unemployed. The measurement of employment is thus a much easier task than the measurement of unemployment. A disadvantage of the employment rate as an indicator of trends in labour market conditions is that it has an upward trend component associated with the increased female labour force participation, so movement has both a structural and cyclical component which might be hard to disentangle.

The employment rate in Canada rose from 57.1 per cent in 1976 to 63.0 per cent in 2006 (Table 2A). An increase of 18 percentage points in the female employment rate associated with rising female participation accounted for all of the overall rise. Within the period the employment rate fell during downturns and rose during expansions (Chart 20). The year-to-year trend in the employment rate is strongly negatively correlated with the trend in the official unemployment rate, with a correlation coefficient of -0.890.[13] As employment rises, unemployment falls. This strong association between the rate of change of the employment rate and the unemployment rate means little additional information on trends in labour market conditions over and above that provided by the unemployment rate is furnished by the employment rate.

Chart 20: Comparison of Trends in the Unemployment Rate and Trends in the Employment Rate, 1976-2006, (1976=100)

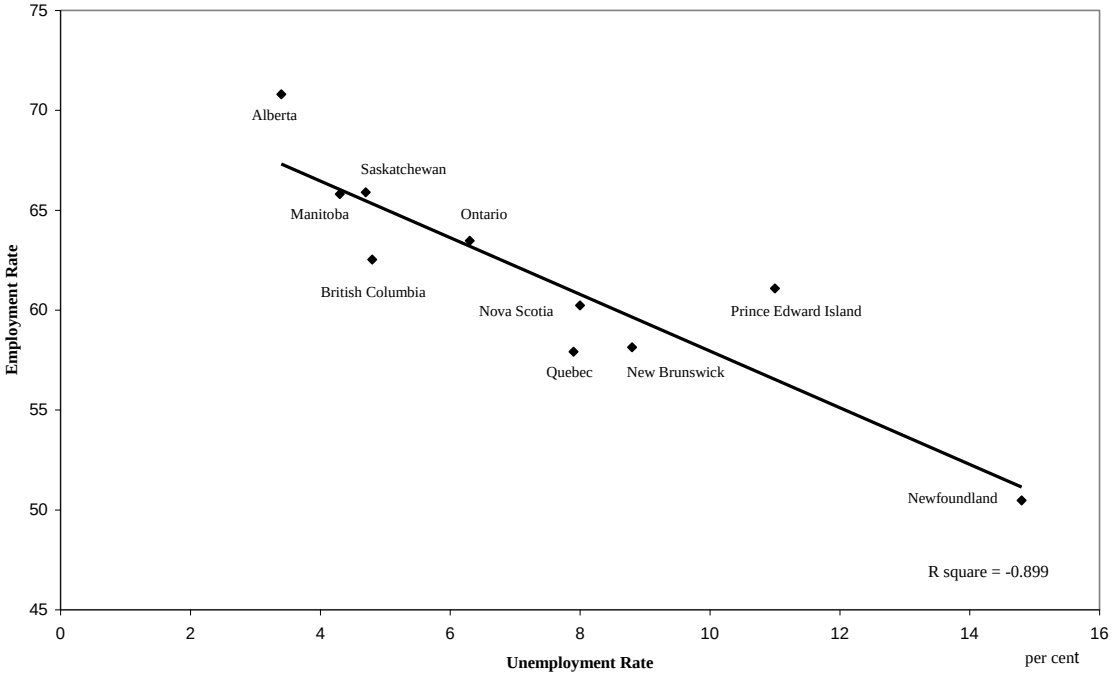


Source: Table 2B.

At the provincial level there is a strong negative relationship between the unemployment rate and the employment rate for the individual provinces for 2006 with a correlation coefficient of -0.899 (Chart 21). The provinces with high unemployment rates have low employment rates and vice versa.

[13] At the provincial level, the trends in employment rates show considerable variation in their correlations with the trend in the unemployment rate (Table 15). The trend in Quebec is strongly negatively correlated at -0.833, followed by that in Ontario at- 0.819. Saskatchewan's employment rate trend is the least correlated with a negative coefficient of -0.430.

per cent **Chart 21: The Relationship between the Unemployment Rate and the Employment Rate for Canadian Provinces, 2006**



I. Discouraged workers and the rate of unused labour supply

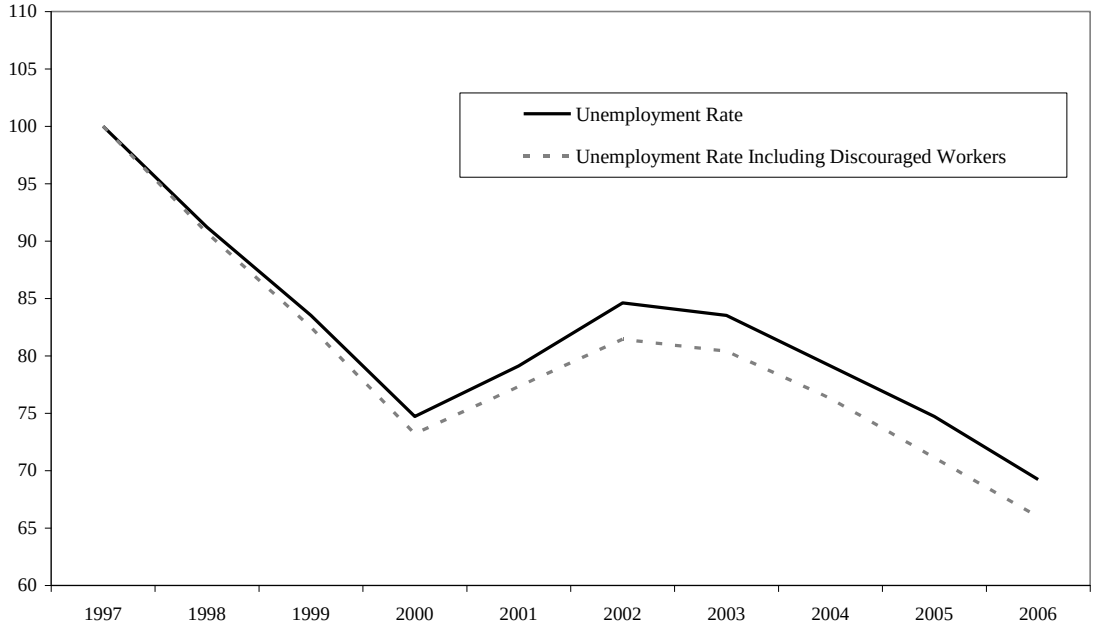
One factor affecting the correlation between the participation rate and the unemployment rate is the phenomenon of labour market discouragement. Discouraged workers are defined as persons available for work who would in principle like to work, but are not looking for work because they believe no suitable work is available. Hence they do not meet the "job search" criterion needed to be defined as unemployed and thus are not counted in the official unemployment rate. A measure of unemployment, or unused labour supply, which accounts for such workers, is thus a more accurate indicator of labour market conditions. Discouraged workers can be measured in two ways, directly through the LFS, and indirectly by inference from provincial labour participation rates.

1) Unemployment rate including discouraged workers

To obtain an estimate of the discouraged workers, Statistics Canada asks the Labour Force Survey respondents who had not looked for work in the four weeks prior to the reference week, but had looked in the previous six months, the reason for not looking for work. If respondents answer that it is because they believe that no suitable work is available, they are classified as discouraged workers. The exclusion of these discouraged workers in the official unemployment rate biases downward the official unemployment rate. Statistics Canada produces a supplementary measure of the unemployment rate that includes discouraged workers so it is easy to compare the two rates (Table 25 and Chart 22). Statistics Canada estimates that in 1997 (the first year for which estimates of discouraged workers consistent with the current estimates are available) there were 90,000 discouraged workers in Canada. Inclusion of these persons in the labour force

would increase the unemployment rate 0.6 percentage points from 9.1 per cent to 9.7 per cent. By 2006, the number of discouraged workers had dropped to 17,000, and inclusion in the labour force would have increased the unemployment rate only 0.1 percentage points from 6.3 per cent to 6.4 per cent.

Chart 22: Comparison of Trends in the Unemployment Rate and Trends in the Unemployment Rate Including Discouraged Workers, 1997-2006, (1997=100)



Source: Table 25.

On the one hand, the inclusion of discouraged workers in the unemployment rate increases the degree of measured slack in the labour market, giving a more pessimistic picture of labour market conditions. On the other hand, the inclusion of discouraged workers shows that labour market conditions have improved more than indicated by the official unemployment rate (Chart 22). The unemployment rate including discouraged workers fell 3.3 percentage points between 1997 and 2006, compared to 2.8 points for the official rate.

It is important to note the large provincial variation in the absolute and relative importance of discouraged workers. Newfoundland, with 2 per cent of the working age population in 2006, had 50 per cent of the discouraged workers while Ontario, with 38 per cent, had 2 per cent. In broad and diverse labour markets such as Ontario, there are always job openings so the concept of lack of availability of work does not apply. The opposite is the case in provinces such as Newfoundland where in the rural areas there are very limited employment opportunities.

Historically, discouraged workers have been an important labour market indicator that has given somewhat different signals than the unemployment rate. First, it indicated a greater degree of labour market slack than the official unemployment rate. Second, in the past decade it showed a larger improvement in labour market conditions than the

official rate. However, the annual movements in the two rates, measured in terms of per cent changes, have been extremely close, with a correlation coefficient of 0.995. This is not surprising since both measures cover essentially the same population.

As the number of discouraged workers, as captured by the LFS, has fallen drastically in the last decade and now is miniscule (0.1 per cent of the labour force in 2006), there is virtually no difference between the level of the official unemployment rate and the rate including discouraged workers and no difference between the absolute changes (not just the per cent changes) in the two rates. From this perspective, inclusion of discouraged workers as defined by Statistics Canada would normally not contribute any new information to an analysis of national labour market conditions over and above that provided by the unemployment rate.

There are two situations where this may not be the case. First, if the number of discouraged workers reverted to previous levels due to a major downturn in the economy, then it would be important to include discouraged workers as an indicator of labour market conditions. Second, for analysis of high unemployment regions such as Newfoundland where the concept of labour market discouragement is relevant, it is essential to include discouraged workers in any examination of labour market conditions.

2) Unused labour supply based on differential provincial participation rates

The second measure of labour market discouragement is calculated from provincial differences in labour force participation rates. A case can be made that there are no inherent reasons why participation rates should differ between provinces other than differences in labour demand.[14] Thus the actual existence of such differences means that there are significant variations in labour demand conditions between provinces. If labour demand were stronger in the low-participation rate provinces, the participation rate would be higher.

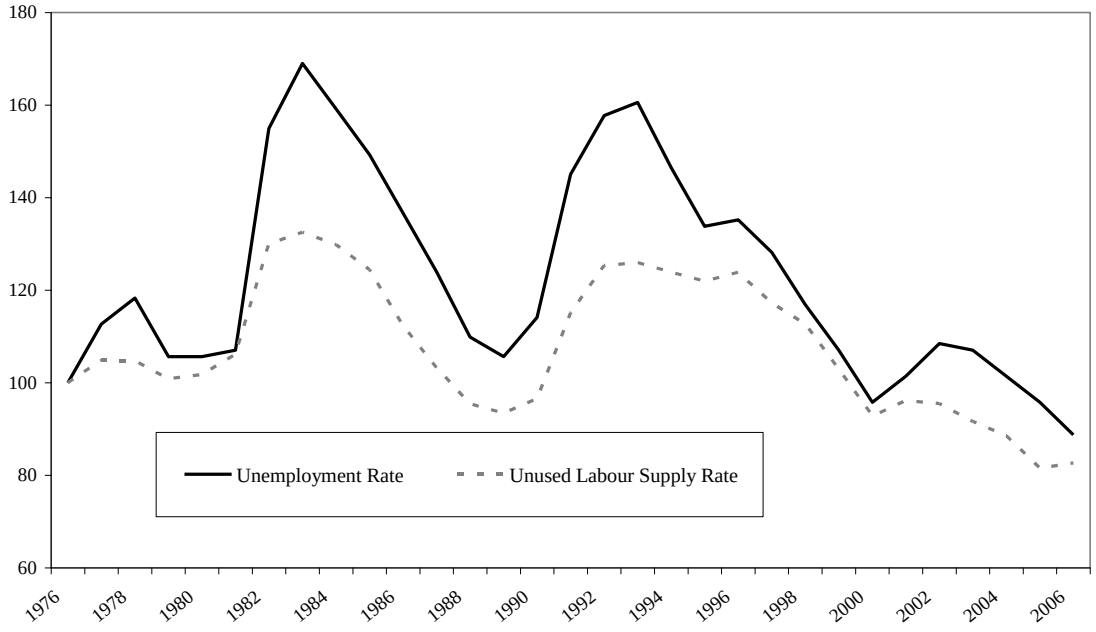
Applying the participation rate of the lowest unemployment province,[15] Alberta, to the working age population of each province gives a hypothetical labour force and unused labour supply (the hypothetical labour force minus the actual employment). A rate of unused labour supply can be calculated by dividing unused labour supply by the hypothetical labour force. This measure of potential unused labour supply provides a different perspective on labour market slack than the unemployment rate and may be a better indicator of true labour market conditions. This unused labour supply can be considered a broadly defined measure of unemployment which includes discouraged workers.

[14] Differences in age structure and levels of educational attainment by province may be supply-side factors that account for provincial differences in labour force participation rates so the numbers presented in this section likely overestimate the true number of discouraged workers.

[15] The calculation can be made with the participation rate of the province with the highest participation rate. This was also Alberta over the 1976-2006 period so the results are comparable.

In 2006, the rate of unused labour supply in Canada was 14.2 per cent (Table 14 and Chart 23), 7.9 per cent above the official unemployment rate of 6.3 per cent. Thus this labour market indicator shows a much higher degree of labour market slack than the official unemployment rate. In 1976, the unused rate of labour supply was 15.2 per cent, 8.1 points above the unemployment rate of 7.1 per cent. Thus the 1.0 percentage point fall in the rate of unused labour supply between 1976 and 2006 is slightly greater in absolute terms than the 0.8 percentage point fall in the official unemployment rate, suggesting only a 0.2 per cent decrease in non-participating unused labour supply (discouraged workers). This small decrease in the arguably broader measure of discouraged workers (0.2 percentage point) is significantly lower than the decrease in the official measure of discouraged workers (0.5 percentage point). However, it should be noted that the annual movement between the rate of unused labour supply and the official unemployment rate (measured in per cent changes) were strongly positively correlated, with a correlation coefficient of 0.891.

Chart 23: Comparison of Trends in the Unemployment Rate and Trends in the Unused Labour Supply Rate, 1976-2006, (1976=100)



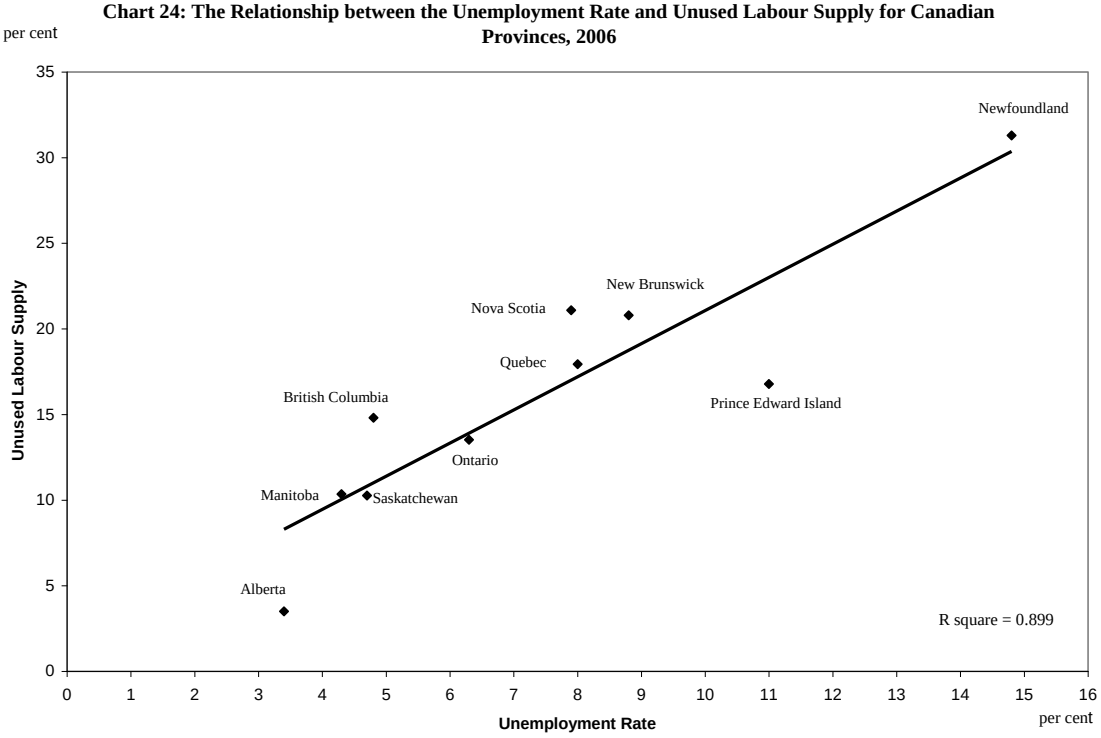
Source: Table 14.

The rate of unused labour supply as an indicator of labour market condition is even more important at the provincial level than at the national level, with very high rates in the low-participation rate provinces. For example, the rate of unused labour supply in Newfoundland in 2008 was 27.4 per cent, 13 percentage points above the 14 per cent official unemployment rate. Thus this measure provides a very different cross-sectional perspective than that given by the unemployment rate on labour market conditions in provinces with low participation rates.

Analyzing the relationship between the unemployment rate and the unused labour supply for the provinces for 2006, we see that there is a close relationship across

provinces with a correlation coefficient of 0.899 (Chart 24). Therefore the provinces with high unemployment rates also have high unused labour supply.

Chart 24: The Relationship between the Unemployment Rate and Unused Labour Supply for Canadian Provinces, 2006



J. Duration and incidence of unemployment

1) Duration of unemployment

Duration of unemployment is an important indicator of labour market conditions. Greater duration of unemployment generally means that labour market conditions are deteriorating and vice versa. The importance of duration of unemployment for analysis of labour market conditions was discussed in more detail earlier in the report.

The average duration of uncompleted spells of unemployment was 14.6 weeks in 2006,[16] up from 13.9 weeks in 1976 (Table 13A and Chart 25). The increased duration was accounted for by the more than doubling of the proportion of the unemployed without work for 52 weeks and over, from 3.9 per cent in 1976 to 8.3 per cent in 2006.

It should be noted that the current average duration of unemployment is well below that experienced in the mid-1990s when duration was around 25 weeks and up to 15 per cent of the unemployed were without work for more than one year. In 1993 and

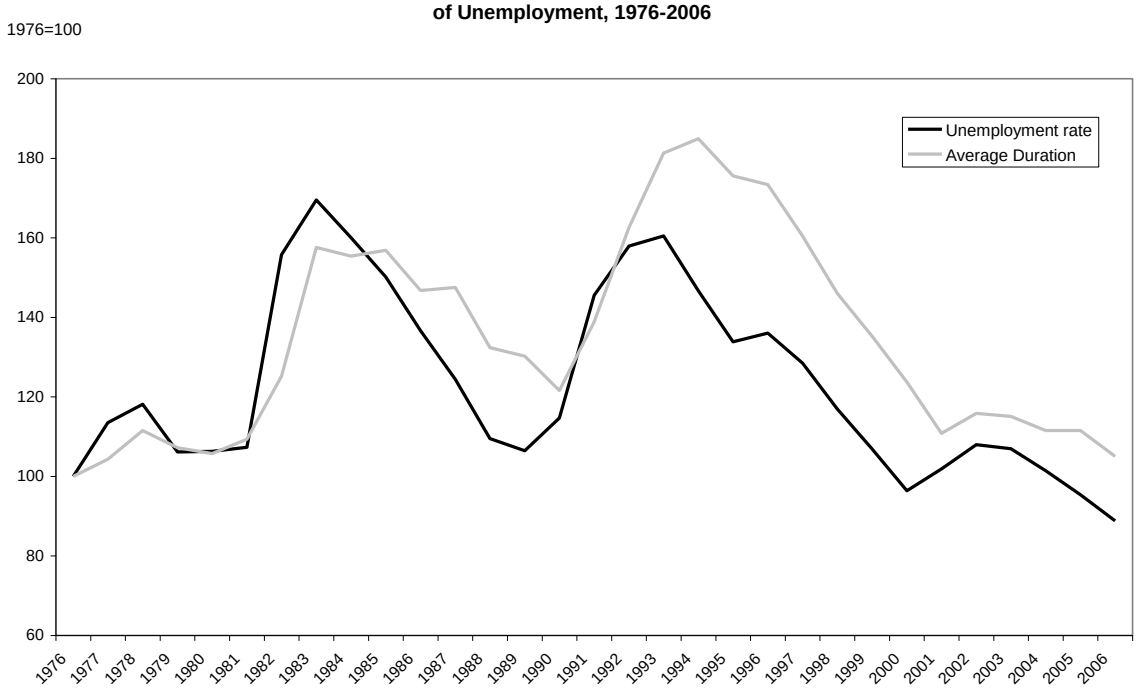
[16] This average duration measure has been top coded at 99 weeks. If the average duration of unemployment is not top coded, the average duration would be 16.7 weeks (Table 16B). The no top code series is only available from 1997.

1994 around 225,000 persons were unemployed for more than one year, compared to only 50,000 in 2006.

The 0.7 week (5 per cent) increase in the duration of unemployment between 1976 and 2006 lies in contrast to the 0.8 percentage points (11 per cent) fall in the official unemployment rate from 7.1 per cent to 6.3 per cent. Thus an assessment of long-term labour market conditions based on the duration of unemployment shows a deterioration, compared to an improvement based on the unemployment rate.

In contrast to most other alternative labour market indicators surveyed in this report, the annual relationship between per cent changes in average duration of unemployment and the unemployment rate is not particularly strong. The relationship is certainly positive, but the correlation coefficient is only 0.649. This, however, does not properly capture the relationship between the unemployment rate and the duration of unemployment. Actually, we would expect that duration increases *following* an increase in the rate of unemployment. Indeed, the relationship between the rate of change in unemployment in a given year and the change in the duration of unemployment in the following year is significantly stronger, with a correlation coefficient of 0.811.

Chart 25: Comparison of Trends in the Unemployment Rate with Trends in Average Duration of Unemployment, 1976-2006



Source: Table 13.

2) Incidence of unemployment

The incidence of unemployment, that is the proportion of the labour force experiencing a spell of unemployment during the year, is a somewhat ambiguous indicator of labour market conditions. In principle, a higher incidence reflects a deterioration in labour market conditions as more persons are laid off and experience

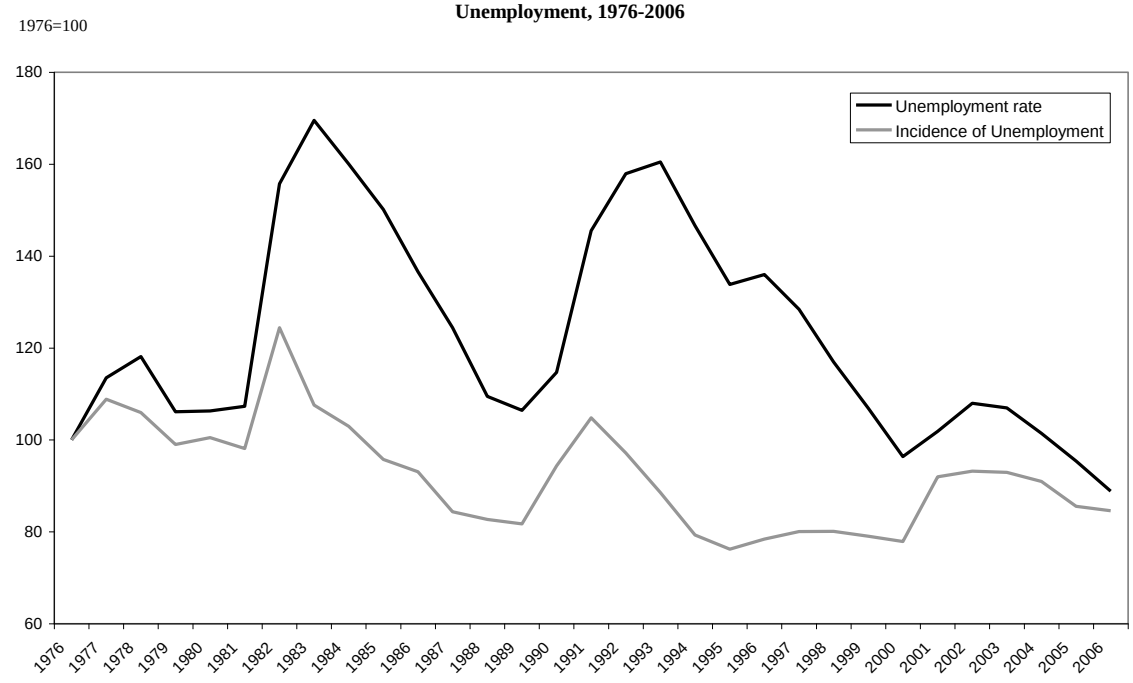
unemployment, and a lower incidence reflects an improvement in labour market conditions. But the optimal incidence of unemployment is not zero as a certain amount of labour market turnover or frictional unemployment is healthy.

In contrast to the rise in the average duration of unemployment between 1976 and 2006, the incidence of unemployment has fallen. In 2006, 22.4 per cent of the labour force experienced a bout of unemployment, down from 26.5 per cent in 1976 (Table 26). This 15.5 per cent fall in the incidence of unemployment was close to the fall in the official unemployment rate (0.8 points or 11.3 per cent).

As seen in Chart 26, the incidence of unemployment tracks fairly closely the unemployment rate, rising in recessions and falling in expansions. The correlation coefficient between the two variables is 0.685.

Given the similar long-term developments in the incidence of unemployment and the unemployment rate and the somewhat correlated annual movements in the two variables, the incidence of unemployment offers little additional information on labour market conditions than that obtained from the unemployment rate.

Chart 26: Comparison of Trends in the Unemployment Rate and Trends in the Incidence of Unemployment, 1976-2006



Source: Table 26

K. Rate of involuntary job loss

The unemployed are made up of both job losers and job leavers, as well as new entrants or re-entrants into the labour force. It can be argued that persons who leave their jobs involuntarily constitute a greater labour market problem than persons who leave

their jobs voluntarily. An increase in the number of job losers therefore represents deterioration in labour market conditions and vice versa. The opposite might be said about an increase in job leavers.

The job loss rate, defined as job losers divided by employment, was 5.4 per cent in 2006, down 1.8 percentage points (or 25 per cent) from 7.2 per cent in 1976 (Table 27). Job losers represented 80.9 per cent of the unemployed in 2006, down from 94.5 per cent in 1976. These improvements in job loss indicators reflect a larger improvement in long-term labour market conditions than experienced by the official unemployment rate (0.8 points or 11 per cent).

Chart 27 Comparison of Trends in the Unemployment Rate with Trends in the Job Loss Rate as Indicators of Labour Market Conditions, 1976-2006

Source: Table 27.

The year to year movement in the job loss rate closely tracks the unemployment rate, rising in recessions and falling in recoveries (Chart 27). This is not surprising since job loss results in a flow into unemployment. The correlation coefficient between the two rates over the 1976-2006 period was a very high 0.9544. The correlation coefficient was even higher for job loss of a permanent nature (0.956), but much lower for job loss of a temporary nature (0.531). This low rate, which is surprising considering one might expect temporary layoffs to be more cyclical than permanent layoff, may reflect measurement problems for temporary layoffs.

Thus the job loss rate is a useful labour market indicator that has exhibited a more pronounced long-term improvement than the unemployment rate and hence provides a different perspective on trends in labour market conditions, even if its annual variation is very similar to that of the unemployment rate.

L. The type of work sought by job searchers

The unemployed can be decomposed into those who are looking for work and those who are on temporary layoff or who have a future job start and therefore do not have to look for work to be classified as unemployed. The unemployed looking for work can in turn be classified into those looking for full-time work and those looking for part-time work.

The proportion of the unemployed who are looking for work has been fairly stable over the last 30 years in the 85-92 per cent range (Table 15). But the share of the unemployed looking for part-time work has risen significantly, doubling from 11.7 per cent in 1976 to 22.1 per cent in 2006. This development may be related to the increased proportion of students and women in the labour force, many of whom prefer part-time work. A fall in the share of the unemployed looking for full-time work from 75.1 per cent to 65.2 per cent was the counterpart of the rise in the share looking for part-time work.

A case can be made that the unemployed looking for full-time work are in a more precarious situation than the unemployed looking for part-time work. Thus the decrease in the share of the unemployed looking for full-time work may reflect a fall in economic hardship experienced by the unemployed and an improvement in labour market conditions.

The annual change in the proportion of the unemployed looking for full-time work is positively correlated with the movement in the official unemployment rate, with a correlation coefficient of 0.792. On the other hand, the trend in the proportion of the unemployed looking for part-time work is negatively correlated with the trend in the official unemployment rate, with a correlation coefficient of -0.651.[17]

M. Other indicators

This final section of this part of the report briefly reviews four additional labour market indicators: skill shortages, underemployment, hours worked, and wages.

1) Skill shortages

Skill shortages are an important indicator of labour market conditions. The increase in the proportion of employers in manufacturing reporting skills shortages as the main constraint on production increased from 7.8 per cent in 2000 to 8.3 per cent in 2006 (Table 6). This is a change of similar magnitude to the fall in the unemployment rate from 6.8 per cent to 6.3 per cent over the period. The annual movement in this measure of

[17] The rate of change in future job starters as a proportion of the unemployed is not surprisingly strongly negatively correlated with the trend in the unemployment rate with a coefficient of -0.841. When the unemployment rate rises, there will be fewer future job starts. The rate of change in the percentage of the unemployed who are on temporary lay off is also negatively correlated with the rate of change in the unemployment rate, but the correlation coefficient is a very weak -0.181.

skill shortages and the unemployment rate in manufacturing were correlated over the 1992-2006 period, with a correlation coefficient of -0.617.

Even though changes in skill shortages and the unemployment rate move closely together, data on skill shortages are a very useful labour market indicator to complement the official unemployment rate. They address an additional dimension of the labour market, namely excess demand for labour, in contrast to excess supply of labour represented by the unemployment rate. Unfortunately aggregate data on skill shortages beyond the manufacturing sector for assessing labour market imbalance are not available for Canada.

2) The degree of underemployment of the labour force

Any underemployment of the skills of workforce means that it is not being effectively used, resulting in wasted potential. Measurement of the mismatch between the skills or educational attainment of workers and the skills and educational requirement of their positions would be extremely useful for a more nuanced understanding of labour market conditions than that given by the unemployment rate. The latter considers someone employed even when their skills are underutilized. Unfortunately, Statistics Canada does not produce statistics on underemployment or skills mismatch.

3) Actual average hours worked including paid and unpaid overtime

Actual hours worked reflect the state of labour market conditions. When there is strong labour demand, employers ask workers to work longer hours. They convert part-time positions to full-time positions and offer more overtime hours. The opposite happens during periods of weak labour demand. Thus changes in average actual hours worked can in principle shed light on labour market conditions, particularly in the short-term.

In Canada, average hours worked fell 1.4 hours or 4.0 per cent from 35.3 per week in 1976 to 33.9 per week in 2006 (Table 28). The unemployment has fallen 0.8 points or 11 per cent over the same period so these two indicators give a somewhat different picture of long run trends in labour market conditions. One reason for this is that the trends in average hours also include structural factors such as the increase in part-time employment, which reduces average hours for all workers.

The annual movement in average hours worked is negatively correlated with the unemployment rate, but the correlation coefficient is a low -0.377. This weak association may reflect hours mismeasurement or the importance of non-cyclical factors for the determination of hours worked.

Actual hours worked in overtime (both paid and unpaid) may in theory provide a better indication of fluctuations in labour demand than actual hours worked. But the Labour Force Survey shows that the average overtime hours exhibited only small fluctuations over the 1997-2006 period (Table 29). For all workers average overtime ranged from 1.7 to 2.0 hours per week, while for workers working overtime, overtime

hours ranged was from 8.5 to 9.3 hours.[18] Surprisingly, there was found to be a positive, albeit small, association between annual per cent changes in average overtime hours and the unemployment rate, with a correlation coefficient of 0.221.

4) Trends in wages

Buoyant labour demand in theory puts upward pressure on both nominal and real wages while stagnant labour demand has the opposite effect. Thus trends in wages may shed light on both states in labour market conditions across jurisdictions and trends in those conditions. For example, nominal wage increases were highest in Alberta in 2006 (Table 30). Not surprisingly, Alberta was the province with the highest labour market participation rate as manifested by its extremely low unemployment rate (3.4 per cent).

At the national level, the relationship between annual per cent changes in hourly real wages and the unemployment rate over the 1997-2006 was negative as one would expect, but it was extremely weak, with a correlation coefficient of -0.158 (Table 31). Perhaps surprisingly, the relationship between nominal wage increases and the unemployment rate was positive, with a correlation coefficient of 0.199. For a variety of reasons, however, wages generally adjust to changes in labour market conditions with a lag. Indeed, the relationship between annual per cent changes in unemployment and the annual per cent changes in real wages the following year was, at -0.669, much stronger than that for contemporaneous changes. Similarly, the correlation coefficient between changes in unemployment and nominal wage increases in the following year was -0.701.

Wage trends, particularly nominal wage changes, do indeed reflect the tightness in the labour market, particularly over space. They should be included in any portfolio of labour market condition indicators.

N. Summary

Exhibit 1 presents a summary of the above discussion by comparing the labour market conditions as represented by the official aggregate unemployment rate and other labour market indicators. Comparisons are made for the current situation in 2006 (at least for the supplementary and disaggregated unemployment rates as absolute comparisons are not meaningful between other indicators and the unemployment rate) and the long run movement over the 1976-2006 period (in per cent). The correlation coefficient of short-term (annual) fluctuations of a given variable with the aggregate unemployment rate within the 1976-2006 period are also provided.[19] This latter comparison is based on the correlation coefficient for annual per cent changes in the values of the variables.

[18] There was somewhat more variation in the proportion of employees working overtime, from a high of 22.5 in 2006 (when the unemployment rate was lowest) to a low of 18.3 per cent in 1998.

[19] When data is not available for the entire 1976-2006 period, the comparisons and correlation coefficients relate to the period for which data is available.

Exhibit 1: Comparison of Labour Market Conditions Between the Official Aggregate Unemployment Rate and Other Labour Market Indicators

	Level comparison (2006)	Short-term Changes (correlation coef.)	Long-term Changes (1976-2006)
Disaggregated U.R.			
Gender			
Male	worse	0.994	worse
female	better	0.997	better
Age Group			
15-24	worse	0.969	worse
24-54	better	0.990	worse
55+	better	0.948	worse
Age/Sex Groups			
Males 15-24	worse	0.972	worse
Females 15-24	worse	0.895	worse
Males 25-54	better	0.985	worse
Females 25-54	better	0.939	better
Males 55+	better	0.938	worse
Females 55+	better	0.763	worse
Educational Attain.			
0-8 years	worse	0.845	worse
Some high school	worse	0.950	worse
High school grad.	worse	0.966	worse
Some postsecond.	Better	0.968	worse
Postsecondary	better	0.965	worse
University degree	better	0.928	worse
Bachelor's	better	0.928	worse
Above Bachelor's	better	0.845	worse
Students	worse	0.967	much worse
Supplementary U.R.			
US definition of UR	better	0.998	better
Underutilization of labour in hours	worse	0.975	better
discouraged workers	worse	0.996	better

	Level comparison (2006)	Short-term Changes (correlation coef.)	Long-term Changes (1976-2006)
Other Lab. Mark. Indicators			
Job Vacancy Rate	---	-0.865	--
Participation Rate	---	-0.396	---
Employment Rate	---	-0.890	better
Unused Labour Supply	worse	0.915	better
Duration of unemployment	---	0.649	worse
Incidence of Unemployment	---		better
Job Loss	-----	0.954	better
Skill Shortages	----	-0.617	better
Average Hours worked	---	-0.377	worse
Average Overtime (all employees)	---	0.221	----
Average Overtime (employees working overtime)		-0.467	-----
Nominal Wages	----	0.199	----
Real Wages	---	-0.158	----
Composite Index 1	----	0.788	worse
Composite Index 2	----	0.988	same

Note: Descriptor refers to the performance of the labour market indicator relative to the unemployment rate. The long-term performance or the unemployment rates by educational attainment refers to the 1990-2006 period only. The educational attainment variable refers to the 1990-2006 period. The skill shortages variable refers to the 1992-2006 period for manufacturing. The official unemployment rate plus discouraged searchers as well as the official unemployment rate plus involuntary part-timers is for the 1997-2006 period. The variables for overtime work and nominal hourly and real hourly wages are based on the 1997-2006 period. The job vacancy rate is for the 2001-2006 period. Finally, the Composite Index 1 is for the 1981-2002 period.

IV. Construction of a Composite Indicator of Labour Market Conditions

The previous sections have outlined some of the limitations that the unemployment rate suffers from as an indicator of labour market conditions and proposed additional labour market indicators. In this section, the feasibility of aggregating a set of indicators into a composite index or metric based on the indicators of labour market conditions identified in the previous section will be assessed.[20] Based on their importance as indicators of labour market conditions and their data availability, five indicators have been chosen to be aggregated to form this composite index. These are:

- the Help Wanted Index (HWI);
- the employment rate;
- the average duration of unemployment;
- incidence of the unemployment rate; and
- the job loss rate.

In this report we propose two different composite indicators to compare with the unemployment rate as an indicator of labour market conditions. Given the importance of the job vacancy rate as an indicator of labour market conditions, we feel it is important to include this variable in a composite index. However, the Help Wanted Index is only available for the 1981-2002 period. Hence we construct one composite index with all five indicators for the 1981-2002 period and a second composite index for four indicators excluding the HWI for the 1976-2006 period.

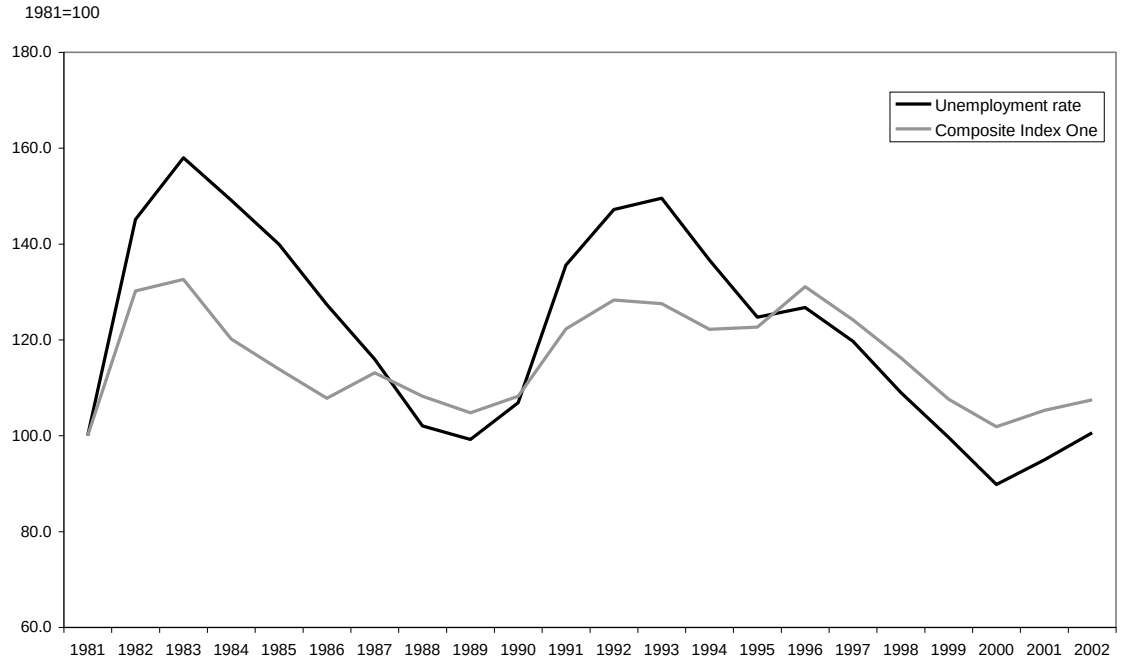
Composite Index 1, which uses 1981 as the base year, is thus comprised of the following indices: the HWI, the employment rate, the average duration of unemployment, incidence of the unemployment rate, and the job loss rate. We take the reciprocals of the employment rate and the HWI since both indices move in the opposite direction of the unemployment rate, and taking the reciprocals results in improvements or deteriorations in labour market conditions being represented by a fall or increase in all variables. In other words, falls in all indicators represent an improvement in labour market conditions and increases a deterioration. Equal weights were given to all variables in the construction of the composite index.

The second composite indicator, Composite Index 2, uses 1976 as the base year and is composed of the reciprocal of the employment rate, the average duration of unemployment, incidence of unemployment, and the job loss rate. Here again the construction of the composite indicator necessitates taking the reciprocals of one of the variables (employment rate) to facilitate comparisons since the employment rate moves in the opposite direction of the unemployment rate. Here too, equal weights were given to all variables.

[20] For discussion of the methodology of composite index construction see Salzman and Sharpe (2003). For an examples of composite indexes of well-being for Canada, see Osberg and Sharpe (1998, 2002, 2003, 2005, 2006a, and 2006b) and Michalos, Sharpe and Muhajarine (2006).

Chart 28 and Table 32A show the evolution of the Composite Index 1 over the 1981-2002 period. The overall index increased 7.5 per cent and since increases represent a deterioration, the labour market conditions as captured by the composite index, were 7.7 per cent worse in 2002 than in 1981. The development was almost completely accounted for by the 37.3 per cent deterioration in the HWI. (The switch from newspaper to internet ads may explain much of the large fall in the HWI). The 2002 indexes of the other four indicators were close to their 1981 values and small changes that did take place were largely offsetting. The index for the unemployment rate in 2002 was virtually identical to that in 1981, indicating no change in labour market conditions. The decision to include the HWI index in the composite index results in the composite index showing a greater deterioration in labour market conditions than the unemployment rate.

Chart 28: Comparison of Composite Index One with the Unemployment Rate as an Indicator of Labour Market Conditions, 1981-2002



Source: Table 32A.

Within the 1981-2002 period, movements in Composite Index 1 tracked the unemployment rate, rising in recessions and falling in expansions. However, the amplitude of the Composite Index 1 was dampened relative to that of the unemployment rate because of the inclusion of the employment rate, which exhibited very little variation.

Chart 29 and Table 32B show the evolution of the Composite Index 2 over the 1976-2006 period. The overall index fell 10.9 per cent and since decreases represent an improvement, labour market conditions as captured by the composite index were 10.9 per cent better in 2002 than in 1981. Three of the four indicators showed an improvement, with the index for the employment rate up 9.2 per cent, that for the incidence of unemployment down 15.4 per cent, and the job loss rate down 24.0 per cent. Only one

indicator, the average duration of unemployment, deteriorates, rising 5.0 per cent. The unemployment rate falls 11.2 per cent over the 1976-2006 period, almost identical to the change in Composite Index 2. The perspective on labour market conditions given by the composite index is basically the same as that provided by the unemployment rate.

Chart 29: Comparison of Composite Index Two with the Unemployment Rate as an Indicator of Labour Market Conditions, 1976-2002

Source: Table 32B.

Within the 1976-2006 period, movements in Composite Index 2 tracked the unemployment rate, rising in recessions and falling in expansions. However, the range of the fluctuations in Composite Index 2 is less than in Composite Index 1 because of the exclusion of the HWI, which experienced very large swings over the period. Like Composite Index 1, the movements in the index are also dampened relative to those of the unemployment rate because of the inclusion of the employment rate, which exhibited very little variation over the period.

The construction of composite indexes appears not to provide any great insight into labour market conditions different than that obtained from the unemployment rate, both on a long-term basis or over the short-term.

V. Conclusion

The main goal of this report has been the identification and assessment of relevant measures and indicators of labour market conditions in addition to the official unemployment rate. We examined the potential weaknesses and limitations associated with using the unemployment rate as the sole yardstick of labour market conditions and we then identified other measures that may also be used as labour market indicators and examined their trends in relation to the unemployment rate. Finally, we selected five labour market indicators with which to construct two composite indexes of labour market conditions and compared these composite indexes with the unemployment rate.

The key issue addressed was thus whether the unemployment rate provides an accurate picture of labour market conditions and whether the limitations entailed in the use of the unemployment rate identified in the previous sections of the report would warrant using other indicators, supplementary indicators, or even devising a composite indicator in an attempt to capture a more accurate picture of true conditions.

From this analysis, it can be concluded that the unemployment rate is in fact a very good indicator of labour market conditions, although it is wise to supplement it with other indicators. The construction of a composite index is not a good remedy to some of the limitations of the unemployment rate did and it does not provide a very different picture. The variables used in the composite index, at least at the aggregate level, tracked the unemployment rate very closely. The composite indexes thus did not provide any different information on labour market conditions than can be obtained from the unemployment rate.

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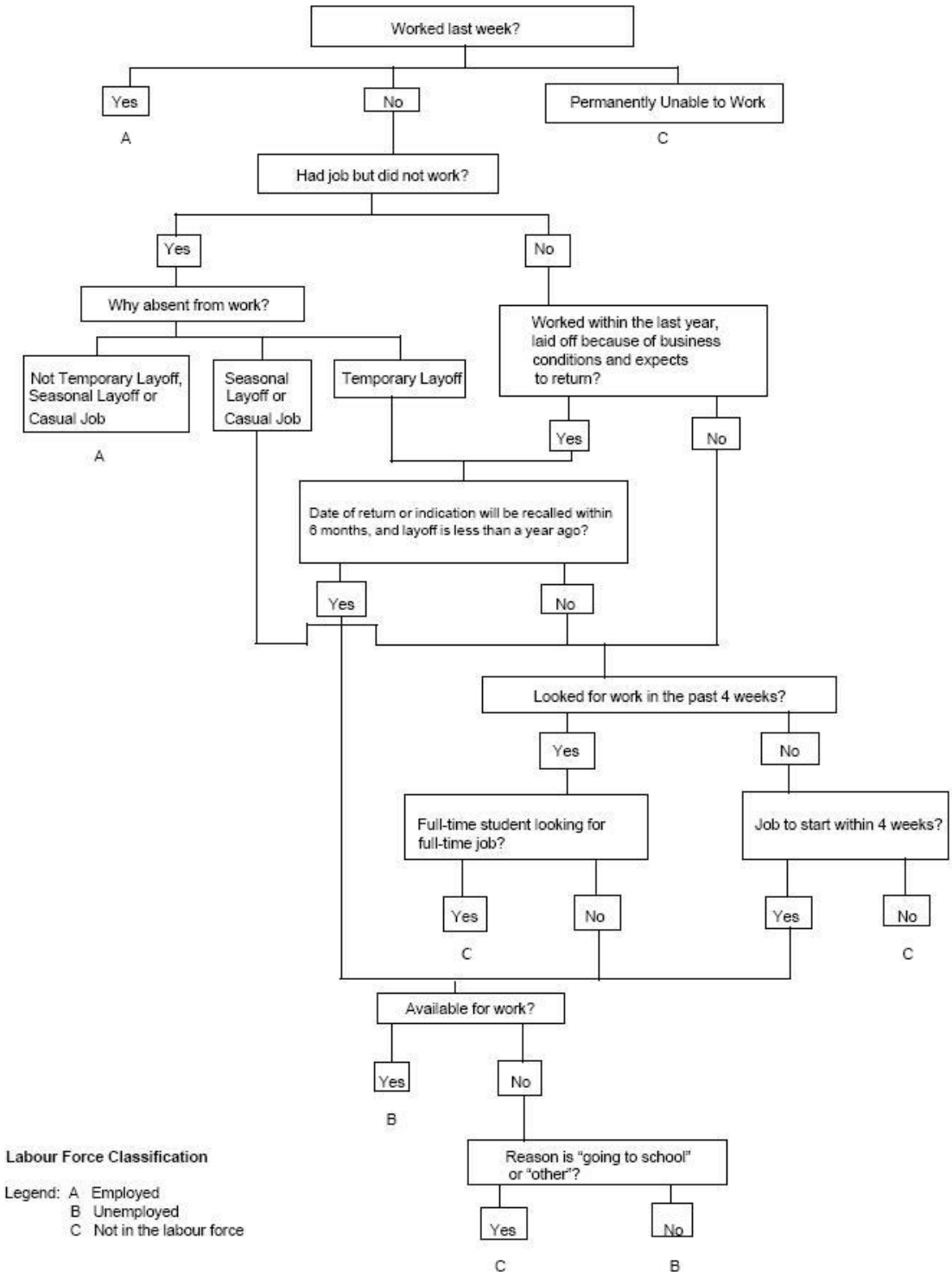
Appendix 1: Labour Force Classification



Source: Statistics Canada (2006)