



Summer 2008

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Hours polarization revisited

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Jeannine Usalcas

Hours of work can vary dramatically from job to job. And some research has indicated that the greater inequality of earnings into the mid-1990s was accompanied by increasing polarization of working hours. More recently, attention has focused on a decline in average working hours. This article quantifies changes in average work hours since the 1970s and examines how changes in the distribution of work hours contribute to the overall trend.

AND

17 Retiring together, or not

Grant Schellenberg and Yuri Ostrovsky

Throughout much of the last century, older couples faced only one retirement decision—the husband's. However, the dramatic rise and sustained participation of women in the paid labour force since the 1970s transformed the retirement transitions of married couples—increasingly, couples had to make two decisions and balance the preferences and constraints of partners who both made substantial contributions to household income. This article looks at the extent to which spouses synchronize the timing of their retirements, the factors associated with taking one or another pathway into retirement and changes in patterns of retirement through the 1990s.

25 Work-related training

Matt Hurst

Lifelong learning has become a virtual career necessity. Not all pressures to train come from the employer—employees have their reasons too. This article looks at how participation in job-related courses changed between 1993 and 2002 across a number of social and demographic characteristics. In particular, the factors affecting training, whether employer supported or self funded, are explored.



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- not available for any reference period not available for a specific reference
- period ... not applicable
- 0⁸ not statistically significant
- ^p preliminary
- revised
- x confidential ^E use with caution
- F too unreliable to be published

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35 Running a census in a tight labour market

Ted Wannell

The 2006 Census hit the streets during the hottest labour market in a generation, with many regional unemployment rates at long-term lows and wage increases outstripping price hikes. While technological advances reduced manpower needs, tens of thousands of temporary workers were still required—which proved to be a problem in many areas. Census managers extended the collection period and moved an unprecedented number of enumerators across regions to artain acceptable data quality while remaining within budget.

41 Life after teenage motherhood

May Luong

The general view is that teenage childbearing will have long-term negative effects on the well-being of the mother—she may have more difficulty completing high school, which means she may be less likely to pursue postsecondary education and acquire skills for better jobs. Since low-skilled jobs tend to pay less, teenage mothers would have a higher likelihood of living in low income. This study looks at women aged 30 to 39 to determine whether teenage childbearing is related to lower long-term socioeconomic characteristics, with the focus on educational attainment, labour force participation, and living in low income.

51 Low-income children

Dominique Fleury

There was almost no change in the proportion of children under age 18 living in a low-income family from 1989 to 2004, despite government interventions and a strong economy since the 1990/ 1992 recession. In addition, the disparity between well-off and lowincome children increased, the economic situation of families of well-off children having improved. Family situation and parents' insufficient employment had the greatest influence on children's vulnerability to low income. It is a changing phenomenon, as few children remain in low income for several consecutive years.

Highlights

In this issue

Hours polarization revisited ... p. 5

- Between 1997 and 2006, the average standard work week continued to decline, despite stronger growth in full- rather than part-time employment.
- In 2006, fewer workers were at the extremes under 15 hours or 49 hours or more—marking a shift from the increasing polarization seen from the 1980s to mid-1990s.
- Women increased their hours as more worked 30 to 40 hours. Men's hours declined as fewer worked 49 or more. Older workers had the largest shift away from very long hours and the largest growth in working between 15 and 39 hours in 2006.
- The strong labour market in the last ten years attracted more women, mothers with dependent children, youth and older workers into the labour force—groups that generally prefer varied hours.

Retiring together, or not ... p. 17

- Among 29% of dual-earner couples in which one spouse retired in 2001, the other spouse retired within two years. However, the most common pattern was for a wife to retire after her husband (43%).
- Dual-earner spouses appear to be retiring in a more independent manner. Between 1986 and 2001, the proportion of dual-earner spouses retiring within two years of each other declined by 2 percentage points and the proportion retiring within four years declined by 11 points. Conversely, the proportion of wives retiring five or more years later increased by 7 points; the proportion of husbands by 4 points.

Among the factors associated with spousal retirement transitions are the husband's age, the age difference between the spouses, receipt of Employment Insurance benefits, earnings and pension coverage.

Work-related training ... p. 25

- Participation in job-related training supported by the employer remained fairly steady at about 23% from 1993 to 2002.
- However, participation in job-related training with no employer support rose from 4% to 10% over the same period, almost entirely because of full-time workers.
- Education is a prime driving force behind participation in job-related training, and its effect grew larger between 1993 and 2002 for women.

Life after teenage motherhood ... p. 41

- Women who had their first child under age 20 (teenage mothers) were 17 percentage points less likely to have completed high school than women who had their first child later (adult mothers). Teenage mothers were also at least 14 percentage points less likely to complete their postsecondary studies than adult mothers.
- Overall, almost no difference was seen in labour force participation between teenage mothers and adult mothers of similar education levels. The only difference was that teenage mothers with postsecondary education were more likely to be in full-year full-time employment than adult mothers with postsecondary education.

Highlights

- Teenage mothers and adult mothers with similar education had almost the same probability of living in low income.
- Unlike in the United States, a smaller proportion of immigrants in Canada were teenage mothers. Only 9% of immigrants who were a visible minority and 6% of immigrants who were not a visible minority were teenage mothers compared with 11% of those Canadian-born and not a visible minority.

Low-income children

... p. 51

- Low income among children is a very dynamic phenomenon in Canada. Many children experienced low income between 1999 and 2004, but few remained in this situation for the entire period.
- While children living in lone-parent families are much more vulnerable to low income, those in twoparent families are not exempt from it. In 2004, half of the children living in low income were part of a two-parent family. In both one-parent and twoparent families, total work effort in the family and parents' working conditions were key indicators of vulnerability to low income.
- Despite sustained economic growth since the mid-1990s, the rate of low-income among children was no lower in 2004 than in 1989—the peak of the previous business cycle. Indeed, the gap between the net family income of low-income children and that of other children widened in the past decade.

What's new?

... p. 61

From Statistics Canada

Community vulnerability to population and employment decline

Earnings inequality and earnings instability of immigrants

Income security in retirement among the working population

Employment growth among lone mothers in Canada and the United States

Income of Canadians

How families respond to layoffs

From other organizations

Driving forces of the Canadian economy

Understanding productivity

A wave of protectionism?

Minority self-employment in the United States Obesity, disability, and the labour force

Hours polarization revisited

Jeannine Usalcas

rom the student with a part-time job to the workaholic manager, working hours can vary dramatically. The economy supplies jobs according to the demands of both employers and employees, although the match is not necessarily perfect. Workers unable to find a sufficient amount of work may suffer financially; those in very demanding jobs may compromise other aspects of their lives. Employers may be in control when labour is in abundant supply, but may have to tailor jobs into more attractive packages of hours and benefits when the labour market is tight.

Research to the mid-1990s showed that greater inequality of earnings was accompanied by increasing polarization of work hours (Morissette 1996). Not only were more people working very short and very long hours, but longer hours were concentrated among those with higher earnings and shorter hours among those with low earnings.

Recent attention has focused on a decline in actual working hours. Although a portion of the decline could be explained by survey methodology, other factors played a part (Galarneau, Maynard and Lee 2005). These included shifts in family work patterns, more growth in industries with lower average hours and the aging of the workforce. This article quantifies the decline in average usual working hours over 10 years and examines how changes in the distribution of working hours contributed to the overall trend.

Canada is not the only country showing a decline in usual hours worked per week. Of the 24 countries reported in the OECD database, 22 showed a decline in their weekly usual hours worked since 1997 (for further details see *International comparisons*).

Jeannine Usalcas is with the Labour Statistics Division. She can be reached at 613-951-4720 or jeannine.usalcas@statcan.ca. Over the last thirty years, the average workweek declined, from 38.6 hours in 1976 to 36.5 in 2006. The bulk of the decline occurred between 1976 and 1996 (-1.6 hours) and can be explained mostly by more employment growth in part-time work than in full-time (30 hours or more). The proportion of people working part time increased from around 13% in 1976 to a high of 19% in 1996. But after 1997, part-time growth weakened, and full-time became stronger. Why then the continuing decline in usual hours when more full-time workers are coming into the labour market?

This paper uses the Labour Force Survey to look at average usual hours worked per week (at main job) and changes in work-hour distributions (see *Data sources and definitions*). Work-hour changes reflect employment growth, demographic shifts and shifts in industry, occupation, class of worker and educational attain-

Chart A Average full-time hours down, average part-time up



ment patterns. The paper also examines provincial differences and compares Canada with other countries.

Full-time hours declined, part-time hours increased

Between 1997 and 2006, hours worked by full-time workers declined, from 41.5 hours to 40.8, having remained stable at around 42 hours between 1976 and 1996 (Chart A). This decline in the last 10 years occurred even as full-time employment increased-its share climbing from 80.9% in 1997 to 82.0% in 2006. At the same time, average hours for part-time workers increased, from 16.5 hours in 1997 to 17.2 hours 2006.

Moving away from polarization of hours

Looking at the hours distribution provides further insight. Although a majority work 35 to 40 hours per week (59% in 2006), shifts have occurred.

Increases occurred as more worked 30 to 48 hours in the last 10 years-72.8% of all workers reported working within this band of hours in 2006 compared with 69.6% in 1997 (Chart B). On the other hand, fewer worked at the extremes—under 15 hours and 49 or more.

This is a shift away from the polarization of the 1980s to mid-1990s-when an increasing proportion of people were working shorter (less than 30) and longer hours (49 or more) (Sunter and Morissette 1994).

Average hours for part-time workers are increasing because fewer are working under 15 hours per week. On the other hand, full-time hours

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More working 30 to 40 hours and fewer

Source: Statistics Canada, Labour Force Survey

at the extremes

Chart B

are decreasing because fewer people are working 49 hours or more. The fastest growing proportion is in the middle range of 30 to 40 hours per week.

Women, men, youth, core-age and older workers have all moved away from working shorter and longer hours. This is despite major workhour differences between these groups. Women and youth tend to work short to standard hours. whereas men work standard to longer hours (35 hours or more). Schedules for older workers are much more dispersed.

Women increasing hours

Not only are women more likely now to be employed, they have also increased their work hours (Table 1). In 2006, women worked an average of 33.1 hours per week, an increase of 0.6 hours since 1997. Over the period, women showed a large shift from short- or parttime hours (less than 30) toward 30 to 40 hours.

Since 1997, a larger share of the increase in employment went to women (54.8%) than to men, and the vast majority was full-time (87.1%). Only from 1976 to 1981, an era when full time was the norm. was a larger proportion of women working full time than now. In 2006, 73.9% of women were working 30 hours or more, compared with 70.7% in 1997.

Mothers influencing hours shift

One in three women aged 15 to 54 (35.3%) were mothers of children under 16 years of age in 2006. These mothers played a large role in the growth of both employment and hours worked in the past decade. Mothers of young children are becoming more attached to the labour market, as more of them are highly educated and start their careers before having children. Over the last 30 years, mothers have seen their employment rate almost double, from 39.1% in 1976 to 72.9% in 2006.

Table 1 Employment distribution by usual hours

	Both s	exes	M	en	Won	nen
	1997	2006	1997	2006	1997	2006
				%		
All ages						
1 to 14 hours	6.6	5.5	4.0	3.6	9.6	7.6
15 to 29 hours	12.5	12.5	6.5	7.2	19.7	18.5
30 to 34 hours	6.4	7.0	4.1	4.4	9.1	9.8
35 to 39 hours	20.2	21.5	14.5	16.0	27.0	27.7
40 hours	36.9	37.9	45.6	46.1	26.5	28.8
41 to 48 hours	6.2	6.4	8.6	8.9	3.3	3.5
49 hours or more	11.3	9.2	16.7	13.8	4.8	4.0
Average hours	36.7	36.5	40.2	39.6	32.5	33.1
15 to 24						
1 to 14 hours	21.1	17.5	17.4	14.4	25.2	20.5
15 to 29 hours	24.3	26.6	20.3	22.2	28.8	31.0
30 to 34 hours	7.7	8.0	6.2	6.9	9.2	9.2
35 to 39 hours	10.6	11.7	8.7	9.9	12.6	13.6
40 hours	27.6	28.8	34.3	35.4	20.2	22.1
41 to 48 hours	4.3	4.0	6.1	5.7	2.4	2.2
49 hours or more	4.4	3.5	7.0	5.5	1.6	1.4
Average hours	28.3	28.8	31.0	31.3	25.2	26.3
25 to 54						
1 to 14 hours	3.5	2.6	1.3	1.1	6.0	4.2
15 to 29 hours	10.0	9.0	3.5	3.5	17.6	15.2
30 to 34 hours	6.0	6.5	3.4	3.5	9.1	9.9
35 to 39 hours	22.6	23.9	16.0	17.5	30.4	31.1
40 hours	39.2	41.1	48.6	49.9	28.2	31.4
41 to 48 hours	6.6	7.0	9.3	9.7	3.5	3.9
49 hours or more	12.1	9.8	17.9	14.8	5.2	4.3
Average hours	38.3	38.3	42.0	41.4	34.0	34.9
55 and over						
1 to 14 hours	8.5	7.2	5.1	4.9	14.0	10.3
15 to 29 hours	14.0	14.7	9.2	9.8	21.9	21.2
30 to 34 hours	7.3	7.9	6.1	6.2	9.3	10.2
35 to 39 hours	15.6	20.0	11.9	14.8	21.8	26.9
40 hours	33.5	32.0	40.1	38.7	22.8	23.0
41 to 48 hours	5.5	6.0	7.1	8.3	3.0	3.0
49 hours or more	15.5	12.2	20.5	17.3	7.2	5.4
Average hours	36.8	36.3	40.2	39.3	31.4	32.3

The extension of maternity and parental benefits from the Employment Insurance program in 2000 also encouraged more mothers to stay in the labour market (Zhang 2007). Benefits from this program allow them to care for their infants longer (up to 12 months) and to return to their jobs (labour codes protect jobs of employees taking paid or unpaid maternity or parental leave). Based on the most recent Employment Insurance Coverage Survey, the proportion of mothers with insurable incomes increased, from 73.5% in 2002 to 76.5% in 2006. Eight in 10 mothers who received benefits returned or planned to return to their jobs within two years and the average duration of time away was 12 months in 2006.

Over the last 10 years, the proportion of mothers working part time dropped as more worked 30 to 40 hours per week. In 2006, 68.5% of mothers with children under 16 at home worked between 30 and 40 hours versus 62.1% in 1997. Mothers with children under 6 increased their usual hours at work by 1.6, to 33.2, while mothers with children 6 to 15 increased their hours by 1.2, to 33.9 (Chart C). Both groups of mothers are approaching the average hours worked of mothers without dependent children at home. During the same period, hours changed minimally for mothers without dependent children at home (34.4 in 2006).

While hours increased for mothers with children under 16 at home, their employment was up only 8.7% in the 10 years. It was women without children under 16 at home who experienced the largest employment gains, close to 30%. They also increased their hours in the middle range, as 69.8% of women without young children at home worked 30 to 40 hours in 2006 compared with 67.2% in 1997.

Men are cutting back hours

As mentioned, men's weekly work hours differ greatly from women's. Men are more likely to work standard to long hours and fewer work part time. Hours worked by men in the last 10 years shifted from the extreme short and long hours toward the 15 to 48 range.



The decline in the proportion of men working very long hours (49 or more) was much more significant than the decline in short hours (less than 15), especially for men aged 25 to 54 and those 55 or older. In 1997, 16.7% of men of all ages worked 49 hours or more compared with 13.8% in 2006, while the proportion working under 15 hours was virtually unchanged. Unlike women, who experienced an increase in their average usual hours, men saw a decline in their workweck, as fewer men worked verv long hours.

Core-age, older workers, youth also influenced trend

In 2006, a larger share of core-age workers (aged 25 to 54) worked 30 to 48 hours (78.6%) than 10 years earlier (74.4%). This shift toward the middle ranges resulted from fewer women working part time and fewer men working 49 hours or more. This led to an increase in the average workweek for core-age women and a decline for core-age men, leaving the overall usual hours in 2006 unchanged since 1997, at 38.3.

Compared with core-age workers, older workers have schedules that vary much more. In 2006, older workers were more likely to work part time than core-age workers (21.9% versus 11.6%), and were more likely to have longer workwecks—18.2% worked 41 hours or more, compared with 16.8% of those aged 25 to 54.

Among both men and women and all age groups, workers aged 55 and over had the largest shift away from very long hours (49 or more) and the largest growth in working between 15 and 39 hours in 2006. As a result, the standard workweek for older workers declined by 0.5 hours to 36.3 in 2006.

Interestingly, the increase in working 15 to 29 hours by older workers was for men only. While a larger proportion of older men worked 15 to 29 hours in 2006, fewer worked a 40-hour schedule (or 49 hours or more). This might indicate that older men are phasing into retirement as more of them cut back their hours or take on parttime hours after their career jobs are finished. In 2006, almost three in four men aged 55 and over worked part time out of personal preference compared with one in four men 25 to 54 (Marshall and Ferrao 2007).

Data sources and definitions

With the exception of the international numbers, data in this article are from the Labour Force Survey. The LFS collects information on both usual and actual hours worked. This paper looks only at hours that respondents usually work during the week at their main jobs. These usual hours do not take into account overtime, holidays, vacations, illness or strikes.

Since 1997, the usual hours question has included only hours worked in a week for regular pay rates. Before the 1997 redesign, if an employee usually worked unpaid or paid overtime hours, those hours were included as usual hours worked. Since 1997, these hours have been captured separately.

Most of the international data come from the OECD statistical database at http://www.oecd.org/document/25/0,3343,en_2825_495670_38939225_1_1_1_1,00.html.



Chart D More self-employed work longer hours, but the proportion is decreasing

In 2006, full-time students represented 40% of employed youth (up from 38% in 1997). They increased their hours worked by 1.7 from 1997, to an average of 15.2, as a greater proportion worked between 15 and 29 hours in 2006. Non-student youth increased their work week by 0.5 hours in 2006, as a larger proportion worked 35 to 40 hours.¹

Even the self-employed working shorter hours

Work hours of the self-employed differ greatly from those of employees (Chart D). In 2006, business owners were four times more likely to work long hours (41 or more) than employees in private firms or public institutions (42.9% versus 10.7%). Fewer of the self-employed worked between 30 and 40 hours (36.5% versus 71.7%).

Although all age groups influenced the trend toward 30 to 48 hours, older workers may have had a larger influence than core-age workers or youth. Their employment growth during this period was far greater—their share of employment increased from 10% in 1997 to 14% in 2006, while the share of core-age workers declined (from 75% to 70%) and the share of young workers remained at 15%.

The vast majority of those 15 to 24 usually worked 40 hours or less a week in 2006 (92.5%). Their workweek averaged 28.8 hours in 2006, up 0.5 from 1997. This average is strongly influenced by two main groups: full-time students, who tend to work part time; and non-student youth, whose hours vary but most of whom work between 30 and 40 hours.





Source: Statistics Canada, Labour Force Survey.

Despite these differences, a larger proportion of the self-employed moved from short and, particularly, long workweeks to 30 to 40 hours over the past decade.

The self-employed are, however, less prominent today: in 1997, they represented 17.1% of the employed, but by 2006 their share had declined to 15.2%. Although more business owners moved toward 30 to 40 hours, privatesector employees likely had a larger impact on the overall work week average, since they were the only group to see an increase in employment numbers and they made up the largest component of employment. In 2006, 65.4% of the employed worked for private firms compared with 63.5% in 1997.

Service sector major influence

The shift toward service-related jobs in the last 10 years also had a large impact on average hours. The service-producing sector accounted for 76% of employment in 2006, and 85% of all new jobs since 1997. Workers in this sector tend to work short or standard hours, whereas those in the goodsproducing sector tend to work standard to long hours (Chart E).

Of the 11 major industries in the service sector, only two did not follow the general trend toward an increased proportion of workers in the 30 to 40 range at the expense of short and long hours. Workers in transportation and warehousing had growth in long hours only (41 or more) while those in information, culture and recreational services had growth only in short hours (less than 30).

In the goods-producing sector, more workers in agriculture and construction reported working 30 to 48 hours, while in manufacturing all of the growth was in the 30 to 40 range. Forestry, fishing, mining, oil and gas extraction, and utilities showed an increase in long hours only (41 or more) (Chart F).

These industry changes are mirrored by occupations, as most service-related occupations had growth in the proportion working 30 to 40 hours. Trades, transport and equipment operators, and occupations unique to primary industry had growth in those putting in 30 to 48 hours, while processing, manufacturing and utilities had longer hours in 2006 than 10 years earlier, with a growth in schedules exceeding 40 hours (Chart G).

In the ten-year period, close to 80% of all employment growth was in white-collar occupations: natural and applied sciences; health; social science, education, government service, and religion; art, culture, recreation and sport; sales and service; and business, finance and administrative services

Chart F Goods-producing industries have longest work weeks



Source: Statistics Canada, Labour Force Survey.



Chart H

Chart G Blue-collar workers and managers have the longest work weeks

Source: Statistics Canada, Labour Force Survey

(Chart H). These occupations all saw large growth in 30 to 40 hours. On the other hand, blue-collar occupations (those in primary industries; processing, manufacturing and utilities; and trades, transport, and equipment operators) and management, which tend to have longer hours, experienced below average employment growth.

Education matters

Not only are those with postsecondary accreditation more likely to be employed, they are also more likely to be working standard rather than long hours (Table 2). Between 1997 and 2006, most of the employment growth among adult workers (aged 25 and over) was among those with a college diploma, trade certificate or university degree. In 2006, 71.4% of those aged 25 and over with postsecond-



Greater growth in white-collar jobs (except managers),

where hours are more flexible and varied

ary accreditation usually worked 30 to 40 hours per week compared with 66.7% of workers without postsecondary education.

From 1997 to 2006, the proportion of those with postsecondary education working long hours (41 or more) declined sharply, particularly for men with a university degree. Whereas 27.1% of men with a university degree worked 41 hours or more in 1997, only 21.5% did so in 2006. In fact, men without postsecondary education were more likely to be working 41 hours or more (28.1%) than men with a university degree in 2006. This decline in long hours for men with a university education brought their average usual hours down by 1.3 to 39.8 in 2006, a much larger decline than for men in the other

Statistics Canada — Summer 2008

Table 2 Distribution of usual hours worked by education (age 25 and over)

	1-29	30-40	41 or more	Average
1997		%		hours
Less than postsecondary Men Women	15.1 6.3 26.1	65.1 64.9 65.3	19.8 28.8 8.6	38.4 42.1 33.6
Postsecondary certificate or diploma Men Women	14.4 5.0 25.2	68.5 69.6 67.1	17.1 25.3 7.6	37.8 41.6 33.5
University degree Men Women	13.4 7.1 21.3	66,4 65,8 67,2	20.1 27.1 11.5	38.3 41.1 34.8
2006 Less than postsecondary Men Women	13.9 6.4 23.2	66.7 65.5 68.2	19.4 28.1 8.6	38.5 41.8 34.3
Postsecondary certificate or diploma Men Women	13.0 5.5 21.1	71.3 71.1 71.5	15.7 23.4 7.4	37.8 41.0 34.3
University degree Men Women	13.1 7.7 18.8	71.5 70.7 72.3	15.4 21.5 8.9	37.5 39.8 34.9

between 1997 and 2006. Compared with 10 years carlier, more people were working 40 to 48 hours per week in Alberta, while fewer worked less than 30 or 49 hours or more.

Quebec stood out with the largest hours increase in the 15 to 40 range, while fewer worked long hours. This province had the largest proportion of people working 15 to 40 hours per week, 84.4% in 2006 versus the Canadian average of 78.9%. Average usual hours were the lowest at 35.5 hours per week, and showed the largest decline (-0.8 hours) from 1997 to 2006.

Many reasons have been cited for Quebec's shorter workweek compared with other provinces: a preference for shorter schedules; the public-sector norm of a 35-hour work week (versus 37.5 in other provinces); and the high

two educational groups.

While education seems to influence hours worked by men, the standard workweek for women varies minimally by education. In 2006, women with less than postsecondary certification and women with a postsecondary diploma worked an average of 34.3 hours per week while women with a university degree worked 34.9 hours.

Quebec has shortest average workweek

Newfoundland and Labrador was the only province to buck the trend away from growth in workweeks of 30 to 40 hours, with an increase in the share of people working 41 or more hours (Chart I). The growth in long hours started in 2003, and by 2006, Newfoundland and Labrador had the highest average usual hours worked at 38.9, an increase of almost one hour since 1997.

Alberta also had an increase in its average usual hours worked—to 38.3 per week in 2006—prompted by the highest employment growth rate of all provinces

Chart I Only three provinces had increases in usual hours worked



Source: Statistics Canada, Labour Force Survey.

unionization rate, which may also affect work hours among the non-unionized. Quebec also has a larger share of workers with a short-year, full-time schedule (Heisz and LaRochelle-Côté 2007).

International comparisons

Trends in Canada's usual hours worked were quite similar to those in other countries (Table 3). Of the 16 countries listed, 14 had declines in average usual hours of work between 1997 and 2006, with more consistent declines occurring for men.

At 36.5, Canada's average usual hours rank in the middle, although in many countries, men's average workweek is longer than in Canada. For women, their average workweek ranked as the 6th highest. This high ranking in hours matches Canada's high rate of employment for women. Among OECD countries, Canadian women ranked 5th in their rate of employment, as 69.0% of women aged 15 to 64 were employed in 2006. Only Denmark (73.2%), Norway (72.3%), Sweden (72.1%) and Switzerland (71.1%) had higher rates.

The Nordic countries (Denmark, Norway, Sweden, Finland and Iceland) all have high rates of labour market participation among mothers. These countries offer generous maternal and parental leave benefits and subsidized childcare services for preschool children services that have been proven to encourage women's ongoing participation in the labour market.

When looking at the more detailed hour categories (available only for selected countries), most OECD countries (11 of 14), like Canada, had declines in the proportion of people working long hours (50 or more) (Chart J).

Results were mixed in 30 to 40 hours worked, as almost half of the countries had increases while the others had declines.

Canada experienced a decline in the part-time rate (less than 30 hours) from 1997 to 2006, a trend also observed in only four other countries: France, the United States, New Zealand and Sweden (Table 4). Despite the decline, Canada's part-time rate remained close to the combined rate of the G7 countries, the OECD average and Europe.

The Canadian part-time rate fell for women while increasing marginally for men. Seven other countries





Note: Data for Australia are for 1998 instead of 1997; Norway and Japan, 2002 instead of 1997; and Japan is for 49 hours or more.

Source: Organisation for Economic Co-operation and Development (OECD).

had declines in women's part-time rates, with similar decreases in Sweden, Norway, France, New Zealand, and the United Kingdom. At 26.2% in 2006, the part-time rate for Canadian women was among the low-est, whereas for men it was among the highest—at 10.9%, almost double the European average of 6.5%.

	M	Men		Women	
	1997	2006		1997	2006
			Hours		
Australia	42.3	41.1		30.9	30.9
Belgium	40.6	40.5		33.3	32.3
Canada	40.2	39.6		32.5	33.1
Denmark	37.7	38.5		32.4	31.9
Finland	40.8	39.8		36.7	35.7
France	41.1	41.2		34.3	34.3
Germany	41.2	40.0		32.7	30.2
Ireland	44.3	40.3		34.1	31.6
Italy	41.4	41.8		35.7	33.9
Luxembourg	41.0	40.1		34.7	33.6
Netherlands	38.0	36.1		25.5	24.3
New Zealand	43.7	42.6		32.0	32.4
Norway	39.0	36.9		31.4	30.1
Sweden	39.6	38.8		33.6	33.9
Switzerland	42.1	40.7		29.7	28.5
United Kingdom	44.1	41.8		30.9	31.3

Table 3 Average usual weekly hours at main job, selected countries

Note: Switzerland uses 2005 instead of 2006.

Source: Organisation for Economic Co-operation and Development (OECD).

Summary

Usual hours of work declined even as more full-time workers came into the labour market between 1997 and 2006. Average usual hours fell because more people were working 30 to 48 hours (especially 30 to 40 hours), as the drop in very long hours (49 or more) more than offset the decline in short hours (under 15).

Women, with a stronger presence in the labour market now than ever before, increased their hours. More moved from part-time hours to 30 to 40 hours. Men's hours, however, declined, as fewer worked very long hours.

Canada's strong labour market in the last 10 years also influenced hours worked. It attracted more women, mothers with dependent children, youth and older workers into the labour force—groups that generally prefer varied hours.

A number of factors influenced the decline in the category over 49 hours: more jobs in the services sector (where hours are more varied and flexible); and less prominence for groups that tend to work long hours

	Men			Woi	men
	1997	2006		1997	2006
			%		
OECD countries	7.6	8.1		25.7	26.4
Europe	5.4	6.5		26.3	28.7
G-7 countries	8.5	8.7		27.6	27.8
Australia	14.6	16.0		41.0	40.7
Belgium	4.4	6.7		30.5	34.7
Canada	10.5	10.9		29.4	26.2
Denmark	11.1	11.4		24.5	25.6
France	5.9	5.1		25.8	22.9
Germany	4.1	7.6		31.4	39.2
Ireland	6.9	7.7		27.6	34.9
Italy	5.1	5.3		22.2	29.4
Japan	12.9	12.8		38.3	40.9
Netherlands	11.1	15.8		54.9	59.7
New Zealand	10.4	10.1		37.0	34.5
Norway	7.7	10.6		36.5	32.9
Sweden	6.5	8.4		22.6	19.0
Switzerland	7.1	8.8		45.7	45.7
United Kingdom	8.2	9.9		41.0	38.8

Table 4 Part-time employment rate in selected countries

Source: Organisation for Economic Co-operation and Development (OECD).

7.8

17.8

19.4

8.2

(e.g. the self-employed, workers in the goods-producing sector, and managers and blue-collar workers). Those with postsecondary education were also less likely to be working long schedules than 10 years earlier. Work-life balance may also play a part in this—as more women, and particularly mothers, join the labour market, it becomes more important to balance work and personal life. The trend toward fewer people working long hours per week is also occurring in many other countries.

Perspectives

Notes

United States

1. Student and non-student hours and employment are based on 8-month averages (January to April and September to December).

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Retiring together, or not

Grant Schellenberg and Yuri Ostrovsky

Retirement continues to change in many ways. This is certainly evident in terms of its timing, given the declining rate of labour force participation among older men between the 1970s and mid-1990s and its reversal in more recent years (Marshall and Ferrao 2007). Likewise, the process appears to be changing, given phenomena such as post-retirement employment (Schellenberg et al. 2006), phased retirement and diverse pathways into retirement (Nouroz and Stone 2006). Retirement is also changing in the extent to which it is being navigated by dual-earner couples.

Throughout much of the 20th century, older couples faced only one retirement decision—the husband's. Women who had paid employment during their life typically left the workforce at an early age to care for children and work on an unpaid basis in the home. However, with the dramatic rise and sustained participation of women in the paid labour force since the 1970s, retirement transitions of married couples have been transformed. Increasingly, couples must make two decisions rather than just one and must balance the preferences and constraints of partners who both make substantial contributions to household income.

This has added new complexities to retirement decisions. Researchers generally agree that couples prefer to retire together, in large part because retirement is more enjoyable when it can be shared with a spouse (Gustman and Steinmeier 2004, An et al. 2004, Moen et al. 2001, Szinovacz and Davey 2005). However, the opportunity to retire 'jointly' may be constrained by factors such as age differences, health conditions, pension eligibility, job loss and career aspirations.

The authors are with the Business and Labour Market Analysis Division. Grant Schellenberg can be reached at 613-951-9580 or grant.schellenberg@statcan.ca. Yuri Ostrovsky can be reached at 613-951-4299 or yuri.ostrovsky@statcan.ca. To date, evidence on spousal retirement transitions in Canada has been sparse. In the mid-1990s, about onethird of couples retired within one year of each other (Gower 1998). More recently, about half of couples approaching retirement intended to retire at the same time (Schellenberg et al. 2006). However, trends in the actual retirement outcomes of spouses have yet to be documented.

This article addresses several questions regarding retirements in dual-earner couples: the extent to which these spouses synchronize the timing of their retirements; the factors associated with taking one or another spousal pathway into retirement; and changes in spousal patterns of retirement through the 1990s (see *Data sources and definitions*).

With more wives employed, retirement becomes more complex

Most Canadians approaching retirement are married, which has changed little over the last 30 years. Between 1976 and 2006, the proportion of women aged 55 to 64 who were married or in a common-law relationship remained just over 70% (Table 1), while men in such relationships remained over 80%,³ The most noticeable changes in marital status have been the

Table 1 Marital status of persons aged 55 to 64

			and the second se	
	1976	1986	1996	2006
Men			%	
Married/common-law	85.8	83.9	83.3	80.0
Separated/divorced	3.7	5.5	8.2	10.6
Widowed	3.3	3.4	2.5	1.9
Never married	7.2	7.2	6.0	7.5
Women				
Married/common-law	70.8	71.3	72.1	71.6
Separated/divorced	4.7	7.5	10.9	14.3
Widowed	16.9	15.6	12.3	7.9
Never married	7.5	5.6	4.7	6.2

Source: Statistics Canada, Labour Force Survey.

Data sources and definitions

This study uses a 20% version of the Longitudinal Administrative Database (LAD), which is derived from taxation data. LAD files provide detailed information about both individual and family income for those who filed income tax forms between 1982 and 2005. The 20% sample is randomly selected from all tax-filing Canadians and, once selected, individuals remain in the sample for as long as they appear on the annual T1 Family File (T1FF). Census families are formed from the personal data that filers provide on other family members. Filers are attached to their spouses (legal or common-law) by social insurance number or by matching age, sex, address and marital status. Baseline labour force information comes from the monthly Labour Force Survey, which covers the civilian, non-institutionalized population in the 10 provinces.

Dual-earner couples approaching retirement are defined by identifying those with a husband 55 to 69 years of age. The sample is limited to couples in which both partners derive their earnings primarily from paid employment rather than self-employment and have average annual earnings of \$2,000 or more over at least three consecutive years prior to the retirement of one or both.¹

Retirement can be defined in various ways, depending in part on the information available (Bowlby 2007). While the

LAD provides a great deal of income detail, it contains limited information on demographic and labour market characteristics. Consequently, retired individuals are identified on the basis of changes in their income characteristics over time—more specifically, when their annual earnings decline to less than 10% of their average during the three previous years and remain below that level over the next five years. For example, an individual with annual earnings of \$75,000 over three years would be identified as retired if annual earnings dropped below \$7,500 and subsequently remained below that amount. The definition allows for the possibility that retirees might maintain some involvement in paid employment and also recognizes that some people might 'come out of' retirement.²

Using these criteria, the retirement patterns of dual-earner couples in which at least one spouse retired in 1986, 1991, 1996 or 2001 were identified. For the 2001 retiring cohort, for example, both spouses had earnings of \$2,000 or more in 1998, 1999 and 2000 (i.e. they were a dual-earner couple) and in 2001 the earnings of at least one spouse fell below the 10% threshold. Retirees whose spouse's earnings fell below the 10% threshold in 2001 or later were also identified.

increase in separated or divorced and the decline in widowed. For individuals approaching retirement without a spouse, this is usually the case due to divorce or separation rather than widowhood or never having married. (The retirement characteristics of these individuals are outside the scope of this article.)

The employment histories of women in these couples have changed markedly. In 1976, almost one-half of married women aged 55 to 64 were not in the labour force after age 40 (Table 2). Over one-quarter (27%) had never worked in a paid job and another 19% had last worked before 40. Given their limited involvement in the paid labour force, these women did not retire in the usual sense nor was their paid employment a consideration in their husband's retirement decision.

In 2006 the situation was very different. Less than 4% of married women aged 55 to 64 had never worked and only 10% had last held a paid job before age 40. Instead, the vast majority (77%) were either currently employed (48%) or had held a paid job at age 50 or older (29%). In short, most married women now retire from paid employment and most married couples face the possibility of joint retirement.

Table 2 Employment history of married individuals aged 55 to 64

	1976	1986	1996	2006
Men			%	1.1
Currently employed	76.4	65.9	56.6	65.1
Not currently employed				
Last worked age 50 or older	18.5	26.9	34.4	26.4
Last worked age 40 to 49	1.6	2.2	3.7	3.8
Last worked before age 40	3.2	4.9	4.8	4.2
Never worked	0.3	0.1	0.6	0.5
Women				
Currently employed	24.9	28.2	33.2	48.0
Not currently employed				
Last worked age 50 or older	21.9	27.4	32.2	29.0
Last worked age 40 to 49	7.2	10.8	9.9	9.5
Last worked before age 40	18.7	22.3	15.6	10.0
Never worked	27.2	11.3	9.0	3.6

Source: Statistics Canada, Labour Force Survey.

Most wives retire after husbands

Among dual-carner couples in the 2001 retiring cohort, 29% of the spouses retired within two years of each other (Chart A). This includes couples in which both retired in 2001 (14%) and those in which one



spouse retired in 2001 and the other the following year (15%).4 The incidence of joint retirement generally falls within a range of about 20% to 40% (Blau 1998, Hurd 1990, O'Rand and Farkas 2002, Johnson 2004, Gower 1998).5 Furthermore, the tendency for joint retirement is supported by the clustering of retirements within a two-year period. But while a significant proportion of couples retired jointly, the most prevalent pattern was for women to retire after their husband. In 28% of retiring couples, the husband retired in 2001 and the wife had still not retired by 2005. In another 15% of couples, the wife retired two to four years after the husband. However, more than a quarter (28%) of wives retired first. This includes 11% of couples in which the wife retired in 2001 and the husband retired two to four years later, and another 17% in which the husband had not retired by 2005.

Some trends are evident (Chart B). Between 1986 and 2001, the proportion of dual-earner couples in which both partners retired within two years of each other declined by 2 percentage points. Furthermore, the proportion of wives retiring two to four years after their husband declined by just over 4 points, as did the proportion of husbands retiring two to four years after their wife. This 11-point decline in the middle of the distribution was offset by increases at the ends. Between 1986 and 2001, the proportion of wives retiring five or more years after their husband increased by 7 points, while the proportion of husbands retiring five or more years after their wife increased by 4 percentage points. The same patterns were evident for the 1991 or 1996 retiring cohorts. Overall, this suggests that spousal retirement is becoming more disjointed.

Many factors influence spousal retirement

The probability of following one or another of these pathways into retirement is likely influenced by many factors, including age differences between spouses. To assess the relative importance of various factors, a multivariate model was constructed. The 1991, 1996 and 2001 retiring cohorts were pooled and a set of characteristics was introduced to determine their relationship to the likelihood of retiring in one way or another. The marginal effects of these characteristics show how much the predicted probability of taking a given spousal pathway into retirement changes when a specific characteristic is changed by a small amount (Table 3). For example, the model yields a predicted probability of joint retirement of 35.1% (that is, spouses retiring within two years of each other). A oneyear increase over the average age of husbands increases the probability by 3.2 percentage points, with other characteristics remaining constant. (Pension contributions prior to retiring-an important variablewere not available for the 1986 cohort, so multivariate analysis was restricted to the 1991, 1996 and 2001 cohorts.)

The first three variables were the age of the husband, the age difference between the spouses, and whether the couple was legally married or in a commonlaw relationship.

The likelihood of spouses retiring jointly is greater among older than younger couples. A one-year increase in the age of the husband decreases the likelihood that either spouse retires five or more years after the other by about 2 percentage points, and increases the likelihood of joint retirement by 3.2 points. Perhaps not surprisingly, if a husband in a dual-earner couple is 65, his or his wife's retirement is likely to be accompanied (or closely followed) by the other's retirement. In contrast, if the husband is 55, his or his wife's retirement is less likely to be accompanied by the other's retirement. The other spouse is more likely to continue working.



The age difference between spouses also matters. A one-year increase in the age difference reduces the predicted probability of joint retirement by 2.1 percentage points and increases the probability of a wife retiring five or more years after her husband by 3.7 points. In short, a wife who is much younger than her husband is more likely to continue working after he retires than a wife who is about the same age as or older than her husband. The retirement patterns of couples in commonlaw relationships were not significantly different from those legally married.

Events en route to retirement may also influence spousal transitions. The loss of a job, for example, may force one spouse into retirement prematurely and reduce the prospects for joint retirement. Exposure to job loss was included in the model using a yes/no variable indicating if either spouse had received Employment Insurance

(EI) benefits in the year prior to retirement.6 The receipt of EI benefits was significantly associated with spousal retirement patterns. Husbands and wives receiving such benefits were far more likely to retire before their spouse than those who did not receive them. For example, the predicted probability of a wife retiring five or more years after her husband increased by 11.1 percentage points if he received EI benefits prior to retiring. Likewise, the predicted probability of a husband retiring five or more years after his wife increased by 8.1 points if she received EI benefits prior to retiring. One interpretation is that when one spouse enters retirement via unemployment, the other continues working to shore up their financial resources. Indeed, in families with no working-age children, the earnings of wives increased following the lavoff of their husband, offsetting approximately 22% of the husbands' earnings losses

(Morissette and Ostrovsky 2008). Interestingly, while a husband's receipt of EI benefits decreased the likelihood of joint retirement, a wife's receipt of EI benefits increased the likelihood. It is not clear why this is the case.

Financial characteristics were also important. Average earnings of husbands and wives prior to retirement were correlated with spousal retirement transitions. Specifically, compared with those earning less than \$15,000, husbands and wives earning \$45,000 or more were significantly less likely to continue working five or more years after their spouse's retirement (decreases in predicted probabilities of 4.9 and 3.7 percentage points respectively). Conversely, husbands and wives with incomes of \$45,000 or more were significantly more likely to retire jointly, with the predicted probability increasing by 5.7 and 4.4 points respectively. This is consistent with other studies. (O'Rand and Farkas 2002) that found higher-income couples more likely to retire together.

The wife's contribution to a couple's total earnings prior to retirement was correlated with spousal retirement patterns. Specifically, a one percentage point increase in the wife's contribution to preretirement earnings was associated with a 0.2-point increase in the predicted probability that she would retire five or more vears after her husband. One might speculate that wives who contribute a larger share of income shoulder greater responsibility for the financial well-being of the household and hence have greater incentive to continue working. However, the LAD does not provide information to test this hypothesis.

Table 3 Chang	e in	predicted	probability	of	spousal	retirement	transitions
---------------	------	-----------	-------------	----	---------	------------	-------------

	Wife first			Husband fi	
	Husband 5 or more years later	Husband 2 to 4 years later	Both spouses within 2 years	Wife 2 to 4 years later	Wife 5 or more years later
Predicted probability of outcome	12.1	12.7	% 35.1	17.4	22.7
Husband's age	-2.1	0 ^s	3.2	0.7	-1.8
Age difference between spouses	-0.9	-1.2	-2.1	0.5	3.7
Common-law status'	0 ^s	0 ^s	0 ^s	0 ^s	0 ^s
Husband with Employment Insurance ²	-6.8	-7.2	-5.3	8.3	11.1
Wife with Employment Insurance ²	8.1	9.6	6.5	-9.0	-15.3
Husband's earnings \$15,000 to \$44,999 ³ \$45,000 or more ³ Wife's earnings \$15,000 to \$44,999 ³ \$45,000 or more ³	0 ^s -4.9 0 ^s 0 ^s	0s 0s	0 ^s 5.7 0 ^s 4.4	0s 0s 0s	0 ^s 0 ^s -3.7
Wife's share of earnings	-0.2	-0.1	0 ^s	0 ^s	0.2
Husband contributed to pension ⁴	-5.5	0 ^s	0 ^s	3.6	0 ^s
Wife contributed to pension ⁴	-2.9	-2.4	~2.1	5.9	1.6
1996⁵	1.5	1.3	0 ^s	0 ^s	0 ^s
2001⁵	4.1	-2.4	-4.4	-2.6	5.3

1. Compared with legally married couples.

2. Compared with those not receiving Employment Insurance.

3. Compared with those earning less than \$15,000.

4. Compared with those not contributing to a pension.

5. Compared with 1991.

Source: Statistics Canada, Longitudinal Administrative Database, 1991, 1996 and 2001.

Furthermore, whether husbands and wives in dualearner couples made pension contributions prior to retirement was significantly correlated with retirement transitions. Specifically, compared with wives not making pension contributions, those who did so were significantly more likely to continue working after their husband's retirement and significantly less likely to retire first. For example, the predicted probability of a wife retiring two to four, or five years after her husband increased by 5.9 and 1.6 points respectively if she contributed to a pension.

Finally, the results of the multivariate model showed that, holding the characteristics discussed above constant, the predicted probability of dual-earner spouses retiring within two years of each other declined by 4.4 percentage points between 1991 and 2001, and the likelihood of retiring two to four years apart declined by about 2.5 points. In contrast, the likelihood of a wife retiring five or more years after her husband increased by 5.3 points and the likelihood of a husband retiring five or more years after his wife increased by 4.1 percentage points. This trend also held during the latter half of the decade, as husbands and wives were significantly more likely to retire five or more years after their spouse in 2001 than in 1996.

Conclusion

As a result of the widespread entry and sustained participation of women in the paid labour force, many Canadians now approaching retirement are part of a dual-earner couple. As such, the timing of their retirement can be assessed not only in terms their age, but also relative to the timing of their spouse's retirement. And just as the age of retirement has changed considerably, so too has the sequencing of retirement in dual-earner couples. Overall, evidence indicates that the retirements of such couples became increasingly disjointed through the 1990s. From a research standpoint, one implication of this study is that identifying spousal retirement patterns simply as wife first, husband first or joint may miss an important part of the bigger picture. The growing disjointedness of spousal retirement is attributable to the declining proportions of husbands and wives retiring two to four years after their spouse and the increasing proportions retiring five or more years after. This shift would be obscured using broad wife-first/husband-first categories.

With the imminent retirement of the baby boom generation, much discussion focuses on how older workers might be encouraged to stay on the job (OECD) 2006), and retirement incentives and constraints imposed by public programs, pension rules and workplace policies (OECD 2005). Spousal factors are another consideration, as an increasing proportion of older workers might take the plans and preferences of their partner into account when making their own retirement decisions. Such considerations could have either a positive or negative impact on labour supply. With husbands generally two to three years older than wives, a preference to retire jointly could be realized with wives leaving the labour force a few years earlier than they would have left otherwise, or with husbands working a few additional years. However, the potential impact of spousal considerations could be mitigated by the increasingly independent manner in which spouses in dualearner couples appear to be retiring.

Perspectives

Notes

- 1. Identifying whether self-employed individuals are retired, based on changes in their net self-employment incomes, could be problematic. For example, a selfemployed individual who is actively working may report negative or zero net self-employment income resulting from business losses or expenses. Hence, a year-over-year decline in net self-employment income might not necessarily signal labour force exit. Conversely, an individual receiving net income from self-employment might no longer be actively engaged in the workforce.
- 2. Two additional definitions of retirement were used in the early stages of analysis. Individuals were identified as retired when their annual earnings declined to zero following at least three consecutive years of \$2,000 or more. Once identified as retired, carnings were not tracked in subsequent years to determine if they became

positive again (i.e. the individual came out of retirement). Individuals were also identified as retired when annual earnings declined to less than 10% of their average during the three years prior to retirement. This definition allowed for the possibility of some limited involvement in paid employment after their initial retirement. Once individuals were identified as retired, their earnings were not tracked in subsequent years. Trends in the timing of spousal retirement based on these definitions were comparable to those in the body of the article.

- 3. The Labour Force Survey does not provide information on marital history so the proportion who had divorced and remarried cannot be determined.
- 4. The precision of the estimate of relative timing of each spouse's retirement is limited by the annual earnings data. If one spouse retires at the end of January, his or her annual earnings for the year will likely fall below the 10% threshold and that spouse will be identified as a retiree. If the other spouse retires at the end of March the same year, his or her annual earnings will not likely fall below the 10% threshold, until the following year. Consequently, the spouses will be identified as having retired in two consecutive years, when in fact the dates were only two months apart.
- 5. Differences within this range are attributable to factors such as different data sources, sample selection criteria, age cohorts, reference periods and definitions of retirement. Blau tracks the labour force exits of a sample of persons born between 1906 and 1911 and estimates that 30% to 40% of spouses in dual-earner couples retired within one year of each other. Hurd examines a slightly younger cohort and estimates the incidence of joint retirement at about 25%, while O'Rand and Farkas track women in their 50s and early 60s from 1989 to 1997 and estimate the incidence of joint retirement at 33% to 39%. Johnson uses 1992 to 2002 and estimates the incidence of joint retirement at 19%. In one of the few Canadian studies, Gower estimates that about one-third of dualearner spouses leave the labour force within one year of cach other.
- 6. Individuals actively seeking employment are counted as unemployed by the Labour Force Survey. This could include older workers who come out of retirement or who look for work after leaving a career job. Such individuals may not have applied or qualified for Employment Insurance benefits, so they would be missed by the El benefit variable. Consequently, the El benefit variable is likely a weak proxy for unemployment. Furthermore, El eligibility rules were tightened in the early 1990s so the receipt of benefits may be a better proxy for job loss in 1996 and 2001 than it was in 1991.

7. Simple cross tabulations show that wives with earnings of \$45,000 or more are far more likely to retire five or more years after their husband than wives in lower earnings categories. However, this bivariate correlation disappears when other characteristics, such as pension coverage and receipt of EI benefits, are taken into account.

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Work-related training

Matt Hurst

ifelong learning has become a virtual career necessity. In nearly all industries, technological change is placing an ever-higher value on skills. This often requires some kind of training, whether it be learning to run a machine processing oil sands or to use software analyzing investments.

Not all pressures to train come from the employer-employees have their own objectives and motivations to pursue job-related training. The motivation may be to keep a job, get a promotion, or land a position with another employer. It is also linked to higher income (Hum and Simpson 2001, Lynch 1997). For example, an electrical engineer may take a course in a new computer system for power consumption management to gain increased responsibilities, an improved résumé, and hopefully a promotion. Non-economic reasons such as intellectual challenge or the excitement of learning something new also come into play.

Using the Adult Education and Training Survey (AETS), this article looks at how participation in job-related courses changed from 1993 to 2002 across a number of social and demographic characteristics. In particular, the factors

Matt Hurst is with the Social and Aboriginal Statistics Division. He can be reached at 613-951-1955 or matt.hurst@statcan.ca. affecting employer-supported training as well as training that is not employer supported are explored. Tabulations are complemented by a multivariate analysis (see *Data source and definitions*).

More training in the new millennium

Overall, participation in job-related course training increased from 1993 to 2002. Although participation rates fell by 3 percentage points from 1993 to 1997 (from 26% to 23%), they rebounded strongly in 2002, reaching 31% (Table 1). One Canadian study looking at both course and program training, using the AETS, found a similar trend (Xu and Lin 2007). The increase in training at the turn of the millennium was also found in American studies of work-related training courses. In the United States, rates remained about the same at 22% and 23% between 1995 and 1999 (Creighton and Hudson 2002), then jumped to 27% in 2004/2005 (O'Donnell and Chapman 2006).

Employer support makes a difference

Job-related training is fairly common. Almost one-third of workers (about 3.9 million) took

	1993	1997	2002
		%	
Participation rate			
Total	26	23(*)	31(*)
Employer support	23*	21*(*)	23*
No employer support (ref)	4	3(*)	10(*)
Courses per trainee		average	
Total	1.6	1.3(*)	2.0(*)
Employer support	1.6	1.3(*)	2.0(*)
No employer support	1.4	1.3	2.2(*)
Duration of all training courses		hours	
Total	45	43	57(*)
Employer support	40*	38*	56*(*)
No employer support (ref)	80	80	73

Table 1 Participation in training courses by employed Canadians

* significantly different from the reference category (ref) [p < 0.05]

(*) significantly different from the 1993 figures (p < 0.05)

 Columns do not add to totals because of a small group of people who took one or more employer supported courses and one or more courses not supported by the employer. Source: Statistics Canada, Adult Education and Training Survey.

Data source and definitions

The Adult Education and Training Survey' was conducted in 1994, 1998 and 2003 as a supplement to the Labour Force Survey (LFS) and asked about education and training activities in the previous year. The analysis was restricted to employed persons aged 25 to 64, yielding samples of about 19,500 for 1993, 16,200 for 1997, and 17,400 for 2002. Employed persons are people who had a job, including working students and the self-employed, in the week preceding the LFS interview. The sample is representative of Canada's 10 provinces, excluding persons living on Indian reserves, full-time members of the Armed Forces, and people in institutions.

This article is about people who take job-related course training. Job-related courses are any learning activity given through a course, workshop, seminar or tutorial. Selfdirected learning is not included. No limits were placed on course length. A course was considered job-related if it was taken for a current or future job, rather than for personal interest or other reasons.

Program and course training participation rates differed across a number of important characteristics, but resource constraints precluded an analysis of both. Course training was chosen because it is the larger contributor to the overall participation rate. For example, in 2002, 86% of participants took one or more courses. The analysis excludes programs leading to a degree, certificate or diploma from accredited high schools, registered apprenticeship and trade or vocational institutions, colleges or CEGEPs, and universities. Courses taken for hobbies or personal development are also excluded. The 1994 and 1998 surveys covered all training activities and asked whether they were job-related, but the 2003 survey asked only about job-related training. The effect of this change on the ability to compare mean participation rates from 2002 with earlier years is not known. However, the conclusions of this study are based on regression model results, which are not sensitive to the survey change in 2002.

For 1997 and 1993, employees were asked if employers "provide the training, pay for courses or transportation, give time off, or give support in any other way." For 2002, the main question used to identify an employer-supported course was whether the employer was "providing or paying for the training, allowing a flexible work schedule, providing transportation, or any other type of support." The latter version may have prompted more respondents to say their training was employer-supported since the concept of a flexible work schedule is broader than giving time off. For this reason, the 2002 participation rate for training without employer support may be underestimated.

Logistic regression was used to estimate the relationship between training participation and personal and job characteristics. The dependent variable is binary—equal to one for those who took at least one training course and zero for those who took none. An odds ratio for a particular group may be interpreted as how many times higher (or lower, if less than 1) their odds of participation are than that of the reference group.

Samples were divided into two groups—those who took training with employer support and those who took it without. Men and women were also considered separately, creating four groups in total.

job-related courses in 2002, the majority employer supported. Employer support included providing training, paying for fees or transportation and providing flexible work schedules. Between 1993 and 2002, the participation rate for those taking employer-supported training remained steady at 23%. A study using the Workplace and Employee Survey, with a much shorter time span (1999 and 2001), had similar findings (Xu and Lin 2007). However, a small but growing group of people take courses with no employer support. The participation rate of that group more than doubled, from 4% to 10% from 1993 to 2002.

Although respondents were working at the time of the survey, some did not work in the reference year. In 1997, about 3% who had taken training without employer support had not worked that year. In 2002, this figure remained unchanged. This factor does not account for the increase in training without employer support. The growing participation in training without employer support suggests a demand that is not being met by employers. If employers wanted employees trained, then it is likely that they would support training in some way. It appears training without employer support is solely the employee's decision. An employee may wish to self-finance training because its purpose is to obtain general skills applicable to a wide range of occupations. While general-skills training may be good for the employee, the employer may feel it increases the chances that the employee will change jobs, leading to a loss on their investment if they provide funding (Lynch 1997).

Data on training objectives, first seen in the 2003 AETS, support this notion. In 2002, 57% of people who took training with the objective of finding or changing jobs and/or starting their own businesses had employer support, compared with 82% who did not

have this objective. Similarly, 60% of employees seeking change took courses without employer support, whereas only 30% who did not have this objective took courses without support. Therefore the types of courses that help employees switch jobs, and may not be a good investment for the employer, are not given as much support. At the same time, employees appear to take this situation in stride, with only 3% of employees feeling that lack of employer support was a barrier to training.

Training with employer support

Not surprisingly, participation in employer-supported training is related to time spent at work. Full-time employees had higher odds of participation than parttimers (Table 2). For instance, in 2002, women who worked full time had twice the odds of training with employer support. For an employer, the funds invested in training pay off more for employees who work full days. Employers may also be less willing to invest in part-time employees, since these jobs are more likely to be temporary.

Type of work is also an important factor. Blue-collar workers, or those in clerical, sales and service jobs, are less likely to participate in training compared with people in professional or managerial jobs. In 2002, men and women in clerical, sales and service jobs had 0.6 times the odds of participating in employer-supported training compared with those in professional and managerial jobs. The results were very similar in 1993 and 1997.

Employees with longer tenure are more likely to undergo training than those with shorter tenure. For instance, in 2002, women with more than one year of tenure had more than twice the odds of participating in employer-supported training, after accounting for other factors. The opposite might be expected to be true, since a new job usually requires more training. One explanation for this is that employers might prefer to invest in training after the employee has shown loyalty to the firm so that their investment is not lost (Hui and Smith 2005). Another explanation is that new workers are often hired specifically for the skills they bring to the job, whereas longer-tenured workers may need refresher courses.

Employees in large organizations (more than 500 employees) are more likely than those in small ones (fewer than 20) to receive employer-supported training. This is not surprising since larger firms tend to

have more developed and better-financed human resource departments to offer training. Also, employees in large firms have more opportunities to change jobs within their organizations. This lowers the training-investment risk for larger firms (Chowhan 2005).

However, this positive firm-size effect was reduced over time. For women and men, the odds of participating in the employer-supported training were 2.7 and 5.7 times higher in 1993 in large versus small firms, respectively, compared with only 1.8 and 2.2 times in 2002. This is reflected in the convergence of participation rates between small and large firms. From 1993 to 2002, men's participation in employer-supported training in small firms rose by 4 percentage points, while in large firms it dropped 7 points (Table 3). This latter drop is noteworthy since 38% of employed men worked in large firms in 1993, compared with 52% in 2002.

This growing alignment in participation rates for small and large firms might be a result of smaller firms conducting more computer-training courses and larger firms conducting fewer. Larger firms were early to introduce computers as productivity tools for employees. With computers new to the workplace, employees needed training to use them. However, no change was seen in the participation rates for courses taken in data processing and computer science technologies from 1993 to 2002, regardless of firm size.

Since the public sector has always been a staunch supporter of training, it is not surprising that its employees have a training advantage over their private-sector counterparts.²

For 1993 and 1997, not engaging in collective bargaining reduced the odds of participation in course training, but by 2002, no difference was evident.

Personal characteristics are also related to training. Both univariate and multivariate techniques show that 55- to 64-year-olds take less training than workers aged 25 to 34. While health, recreation and fitness courses could be helpful and easily transferable into retirement (Underhill 2006), this would not be the case for training that would be used only at work, such as for specialized software or machinery,.

Higher levels of education are associated with greater participation in employer-supported training—a result confirmed throughout the adult training literature. Furthermore, the effect of higher education for women was larger in 2002 than in 1993. Specifically, women

	Men Women					
	1993	1997	2002	1993	1997	2002
	_		odda	ratio		
Age			0003	1000		
25 to 34 (ref)	1.0	1.0	1.0	1.0	1.0	1.0
35 to 44	1.1	0.9	0.9	1.0	1.1	1.2
45 to 54	0.9	0.9	0.9	1.0	1.1	1.1
55 to 64	0.8	0.6*	0.6*	0.5*	0.8	0.8(*)
Less than high school (ref)	1.0	1.0	1.0	1.0	1.0	1.0
High school graduate Postsecondary diploma	1.5*	1.9*	2.3*(*)	2.1*	2.1*	2.6*
or certificate	2.3*	2.8*	3.3*	2.3*	2.5*	3.9*(*)
University degree	2.2*	2.7*	2.9*	2.3*	3.1*	5.4*(*)
No children (ref)	1.0	1.0	1.0	1.0	1.0	1.0
1 child	1.0	1.1	0.8*	1.4*	1.2	0.8(*)
2 children	1.2	1.3*	1.1	1.5*	1.1	1.0(*)
3 or more	1.0	1.3	0.8	1.1	1.2	0.9
No spouse (ref)	1.0	1 0	1.0	1.0	1.0	1.0
Spouse	1.3*	1.4*	1.3*	1.0	1.0	1.1
Eull-time job (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Part-time job	0.4*	0.5*	0.5*	0.5*	0.7*(*)	0.5*
Unionized (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Non-union	0.7*	0.8*	0.9(*)	0.8*	0.8*	1.0
Professional and managerial (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Clerical, sales and service	0.6*	0.7*	0.6*	0.5*	0.6*	0.6*
Blue collar	0.6*	0.6*	0.6*	0.4*	0.3*	0.4*
One year or less in job (ref)	1.0	1.0	1.0	1.0	1.0	1.0
1 to 6 years in job	1.6*	2.3*	1.5*	2.3*	1.8*	2.1*
6 to 20 years in job	1.8*	2.4*	1.6*	3.1*	2.4*	2.1*
20 and over	2.0*	2.9*	1.6*	2.7*	2.6*	2.4*
Firm size (employees)						
Less than 20 (ref)	1.0	1.0	1.0	1.0	1.0	1.0
20 to 99	2.1*	1.4*	1.6*	1.3	1.7*	1.3
100 to 500 Over 500	2.6* 5.7*	3.0* 2.6* ^(*)	1.7* 2.2*(*)	2.3* 2.7*	2.3* 2.1*	1.7* 1.8*(*)
Public sector (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Private sector	0.7*	0.7*	0.6*	0.6*	0.8*	0.6*
Newfoundland and Labrador	0.8	0.7	1.0	0.6*	0.7	0.9
Prince Edward Island	1.0	1.2	1.3	1.9*	1.1	1.0(*)
Nova Scotia	1.1	1.4*	1.3	0.9	1.2	1.7*(*)
New Brunswick	1.0	0.7	1.5*(*)	0.6*	0.7	1.2(*)
Quebec	0.7*	0.5*	1.1(*)	0.6*	0.5*	1.0(*)
Ontario (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Manitoba	1.2	0.9	1.3	1.2	1.1	1.2
Saskatchewan	1.2	1.5*	1.5*	1.2	1.2	1.2
Alberta	1.0	1.0	1.2	1.5*	1.2	1.2
British Columbia	1.2	1.1	1.2	1.4*	1.1	1.4*

Table 2 Odds ratios associated with job-related employer-supported training

* significantly different from the reference category (ref) [p < 0.05] (*) significantly different from the 1993 figures (p < 0.05) Source: Statistics Canada, Adult Education and Training Survey.

	Men		Women			
	1993	1997	2002	1993	1997	2002
			c	%		
Total	23	20(*)	22	23	22	25(*)
25 to 34 (ref)	21	18(*)	24	22	21	26
35 to 44	26*	21*(*)	24	26*	24	26
45 to 54	24	23*	22	24	24	27
55 to 64	15*	13*	14*	11*	13*	18*(*)
Loss than high school (rof)	10	0	7(*)	7	7	e
High school graduate Postsecondary diploma	19*	17*	18*	21*	18*	17*
or certificate	27*	22*(*)	25*	25*	24*	28*(*)
University degree	34*	29*(*)	29*(*)	33*	33*	40*(*)
No children (ref)	20	16(*)	21	20	21	27(*)
1 child	22	21*	20	25*	24	24
2 children	27*	2/*	26*	27*	23(*)	25
3 or more	23	24*	20	20	22	21*
No spouse (ref)	19	14(*)	20	23	22	26(*)
Spouse	24*	22*	23	23	22	25
Full-time job (ref)	23	21(*)	23	26	24	29(*)
Part-time job	6*E	9*E	9*E	13*	15*	15*
Unionized (ref)	27	24(*)	30	30	28	38(*)
Non-union	22*	21	25 *(*)	19*	22*	24*(*)
Professional and managerial (ref)	34	29(*)	29(*)	34	32	35
Clerical, sales and service	19*	16*	20*	16*	16*	17*
Blue collar	16*	14*	15*	8*	7*E	10*
One year or less in job (ref)	12	10	16(*)	10	12	14(*)
1 to 6 years in job	21*	19*	23*	21*	21*	26*(*)
6 to 20 years in job	26*	23*(*)	23*(*)	29*	26*	27*
20 and over	27*	23*	22*	24*	27*	34*(*)
Firm size (employees)						
Less than 20 (ref)	10	10	14(*)	12	12	17(*)
20 to 99	10*	15*	22*	18*	22*	22*
100 to 500	73*	27*	26 *	20*	20*	24+
Over 500	39°	27*(*)	32*(*)	33*	29 ^{*(*)}	34*
Private sector (ref)	19	17(*)	18	16	17	17
Public sector	34*	32*	37*	32*	31*	37*(*)
Newfoundland and Labrador	20	16*	22	18	17*	24
Prince Edward Island	21	17	22	36*	24(*)	27
Nova Scotia	25	26	24	22	27	34*(*)
New Brunswick	23	18*	27*	16*	10*	28(*)
Ouches	401	4 (3 #/#)	22	10	1.57	20'
Quebec	19	13	22	10	14-	25
	24	22	21	24	24	24
Manitoba	24	21	24	25	22	28
Saskatchewan	25	25	24	24	26	29"
Аірепа	24	21	23	27	26	25
British Columbia	25	21	22	27	24	28

Table 3 Participation in employer-supported training

* significantly different from the reference category (ref) [p < 0.05] (*) significantly different from the 1993 figures (p < 0.05) Source: Statistics Canada, Adult Education and Training Survey.

who had a university degree had 2.3 times the odds of participating compared with those who did not finish high school in 1993, whereas, in 2002, the odds ratio was 5.4. So, having a better education had a larger positive effect in 2002 than in 1993 on the odds of training.

In 1993, having one or two children improved the odds of training for women. In 2002, having children had no effect.

In 1993, women in Newfoundland and Labrador, New Brunswick and Quebec had lower odds of participation in employer-supported training than women in Ontario. In Prince Edward Island, Alberta and British Columbia, their odds were higher.

Comparing 2002 and 1993 results for women, the odds of participation in several provinces changed to the point where they were the same as the Ontario benchmark. For Prince Edward Island, the odds fell from 1.9 times relative to those in Ontario in 1993 to 1.0 in 2002 (meaning the odds of participation were the same in both provinces). For New Brunswick and Quebec, the odds ratios increased to the Ontario level over the same period. In 2002, women in Nova Scotia and British Columbia had higher odds of participation than in Ontario.

In 1993, living in Quebec reduced men's odds of participation relative to Ontario. However, by 2002, this difference disappeared. Also in 2002, men in New Brunswick and Saskatchewan had higher odds of training than men in Ontario.

Training without employer support

As mentioned earlier, the participation rate for training without employer support is much lower than for training with employer support. Most people reported only one type of training (with employer support or without employer support)—rarely both (less than 1% in 1993, and only 2.5% in 2002).

Tenure is an important factor for those who undertake training activities on their own. Having more than one year of tenure lowers the odds of participation with no employer support for men and women (Table 4). For instance, men in 2002 with six years or more of tenure had two-fifths the odds of those with one year or less. Since less employer-supported training is offered to workers with less than one year of tenure, this suggests a training gap for recent hires. Many are bridging the gap by taking training without employer support. However, the notion that employers do not supply enough training resources to employees seems unfounded, since only 2% of employees in 2002 with one year of tenure or less thought a lack of employer support was a barrier to training.

Men employed part time in 1993 had much higher probabilities of training without employer support than those with full-time employment. With less job security, part-time workers might be particularly keen to acquire the skills they need to do their jobs well, and therefore participate in training even without employer support. The effect was not seen in 1997 or 2002. This suggests that from 1993 to 2002, the odds of men in full-time jobs training without employer support increased relative to men in part-time positions. The incidence of training without employer support for men increases from 3 percent to 9 percent from 1993 to 2002, and for part-time workers there is no change (Table 5).

Workers in Quebec had lower odds of participating in training without employer support than those in Ontario.

The increase in the incidence of training without employer support from 1993 to 2002 was seen across all characteristics, with no one factor predominating. It is noteworthy that the odds of participating in training without employer support rose for men in fulltime jobs from 1993 to 2002 relative to men in part-time employment.

Summary

The rapid change of pace in today's economy demands more skills from workers than ever before. One way to meet the need is by taking training courses (see *Courses are very diverse*). From 1993 to 2002, the incidence of employer-supported training remained steady at 23 percent. However, the incidence of taking training without employer support increased from 4 percent to 10 percent over the same period. This suggests that Canadians have seen a clear need to improve their job skills using their own resources. Over this period, men in full-time employment participated more in training without employer support compared with those in part-time employment where participation levels remained the same. In 1993, 1997 and 2002, higher levels of education were associated with

	Men			Women		
	1993	1997	2002	1993	1997	2002
	odds ratio					
Age	1.0	1.0			1.0	
25 to 34 (ref)	1.0	1.0	1.0	1.0	1.0	1.0
35 to 44	1.5	1.3	1.1	1.9*	1.0	1.1(**)
45 to 54	0.9	1.1	1.2	2.0*	1.4	1.1(*)
55 10 64	0.3*	0.7	1.2(*)	0.7	0.7	1.2
Less than high school (ref)	1.0	1.0	1.0	1.0	1.0	1.0
High school graduate	2.5*	4.1*	2.3*	1.3	2.9	1.2
Postsecondary diploma						
or certificate	3.4*	4.1*	2.5*	2.6*	6.4*	2.4*
University degree	5.5*	7.3*	3.4*	2.8"	5.6*	3.4*
No children (ref)	1.0	1.0	1.0	1.0	1.0	1.0
1 child	3.3*	0.7(*)	0.7(*)	0.9	0.7	0.9
2 children	1.8*	0.6(*)	1.0	0.8	1.0	1.1
3 or more	1.6	1.0	1.1	0.9	1.1	1.1
No spouse (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Spouse	0.5	1.3	1.0	1.2	0.6*(*)	0.8
Full-time job (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Part-time job	4.2*	1.5	1.6(*)	0.8	1.0	1.1
Unionized (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Non-union	0.9	0.8	1.1	1.0	1.6	1.3*
Professional and managerial (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Clerical, sales and service	1.8*	1.6	0.8(*)	1.0	0.6*	0.6*
Blue collar	0.9	1.3	0.8	0.8	1.2	0.7
One year or less in job (ref)	1.0	1.0	1.0	1.0	1.0	1.0
1 to 6 years in job	0.4*	0.5*	0.6*	0.4*	0.3*	0.6*
6 to 20 years in job	0.3*	0.5	0.4*	0.3*	0.2*	0.6*(*)
20 and over	0.2*	0.2*	0.4*	0.4*	0.2*	0.7
Firm size (employees)						
Less than 20 (ref)	1.0	1.0	1.0	1.0	1.0	1.0
20 to 99	1.0	0.8	0.9	1 1	0.8	0.9
100 to 500	1.4	1.0	1.2	0.9	1.3	1 1
Over 500	1.2	1.5	1.1	1.0	1.0	1.4*
Public sector (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Private sector	1.1	1.1	0.9	0.8	0.5*	0.8
Newfoundland and Labrador	0.9	0.5	1.2	0.4	0.8	0.7
Prince Edward Island	0.5	0.9	1.0	12	1.2	1.3
Nova Scotia	1.5	1.2	0.9	1.2	0.6	07
New Brunswick	0.6	0.5	0.6	0.4*	0.9	0.6
Quebec	0.4*	0.3*	0.4*	0.4*	0.2*	0.4*
Ontario (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Manitoba	0.9	0.6	1.3	0.9	0.6	0.7*
Saskatchewan	0.8	0.4	1.1	0.8	0.5	0.7
Alberta	1.1	0.8	0.9	1.3	0.8	0.8
British Columbia	1.2	0.8	1.1	1.4	1.0	1 1

Table 4 Odds ratios associated with training without employer support

* significantly different from the reference category (ref) [p < 0.05] (*) significantly different from the 1993 figures (p < 0.05) Source: Statistics Canada, Adult Education and Training Survey.

	Men			Women		
	1993	1997	2002	1993	1997	2002
				%		
Total	3	3	9(*)	5	3(*)	11(*)
25 to 34 (ref)	4	3	7(*)	4	4 ^E	10(*)
35 to 44	4 ^E	2 ^E	9(*)	5*	3(*)	10(*)
45 to 54	2*	2E	10*(*)	6*	3(*)E	11(*)
55 to 64	1*E	F	10(*)	2*E	F	11(*)
Less than high school (ref)	1E	15	A(*)E	2E	F	∆ E
High school graduate	3*E	2*E	7*(*)	3	2 *(*)E	6*(*)
Postsecondary diploma	0	-		0	-	0
or certificate	A*E	3*	R *(*)	6*	⊿ *(*) E	1 1 *(*)
University degree	5*E	A*	15*(*)	7*	5*	17*(*)
Oniversity degree	J	~+	15	r	5	16.57
No children (ref)	2	3	9(*)	5	4	11(*)
1 child	5*E	2 ^(*) €	7	5 ^E	2 ^{(*)E}	9(*)
2 children	3	2E	9(*)	4	3	11(*)
3 or more	3€	3 ^E	10(*)	5 ^E	4 E	1 1(*)
No opouro (rof)	AE	2F	Q(±)	E	E E	10(*)
No spouse (rer)	4-	3-	0(*)	0	D - 2(#)	1.1(*)
Spouse	3	2	9/	C	3."	11
Full-time job (ref)	3	2	9(*)	5	3(*)	10(*)
Part-time job	12*E	5 ^{(*) E}	13*	5	4	11(*)
Uniopized (rof)	3	DE	G(*)	5	AE	1 1 (*)
Non union	A	2	G(*)	5	ユ つ *(*)	7*(*)
Non-union	-+	5	0	5	2	1
Professional and managerial (ref)	3	3	12(*)	6	5	14(*)
Clerical, sales and service	5 ^E	3 ^E	8*(*)	4	2 *(*)	8*(*)
Blue collar	2€	2*E	6*(*)	3*E	F	7*(*)E
One year or less in job (ref)	7	5 ^E	11	10	7 E	11
1 to 6 years in job	2*E	3*E	Q(*)	5*	3 *(*)	10(*)
6 to 20 years in job	3*	2*E	Q(*)	2*	2*	1 1 (*)
20 and over	1*E	1*E	8*(*)	F	2*E	11
Firm size (employees)	3E	DE	(*)	5	(*)E	6
20 to 99	AE	2*E	6E	IS E	2(*)E	6
100 to 500		DE	75	AE	AE	Q(*)
Over 500	3 ^E	3 ^E	6(*)	5	3(*)E	10*(*)
			0.41		(A)F	A (4)
Private sector (ref)	3	3	8(-)	4	2(=)=	8(-)
Public sector	3	2⊧	11*(*)	6*	5*	13*(*)
Newfoundland and Labrador	3 ^E	F	12 ^{(*)E}	F	F	9(*)E
Prince Edward Island	F	F	10 ^{(*)E}	6 ^E	5 ^E	14 ^{(*)E}
Nova Scotia	5 ^E	3 ^E	10 ^{(*)E}	6 ^E	F	10
New Brunswick	F	F	8(*)E	3*E	4 E	10(*)
Quebec	1*E	F	6(*)	3*E	1 *E	7*(*)
Ontario (ref)	3E	3	9(*)	5	4 E	12(*)
Manitoba	3E	2*E	11(*)	∆ E		Q(*)
Saskatchewan	2E	F	10(*)	SE.	RE	11(*)
Alberta	AE	à E	Q(*)	7	A(*)E	11(*)
British Columbia	AE	AE	11(*)	QE	AE	1 2(*)

Table 5 Participation in training without employer support

* significantly different from the reference category (ref) [p < 0.05](*) significantly different from the 1993 figures (p < 0.05) Source: Statistics Canada, Adult Education and Training Survey.

Courses are very diverse

The concept of a job-related course is fairly broad. In 2002, the most frequently taken courses were in business, management and public administration. This is not surprising since a large portion of those taking courses are in professional or managerial jobs. In second and fourth places were mathematics, computer and information sciences; and architecture, engineering and trades. This likely reflects the importance of computer skills and information technology in the workplace, and the importance of training in the engineering and trades fields. In third and fifth places were health, recreation and fitness; and personal improvement.

In 1993, workers taking training averaged roughly 1.6 courses. This rose to two courses in 2002, and the average duration increased. Courses taken without employer support were about the same duration in both years.

Note: Will not add to 100% because people can take more than one type of course.

Source: Statistics Canada, Adult Education and Training Survey, 2002.



higher odds of participation for Canadians who took training without employer support. Also, one year or less of tenure was associated with higher odds of participation.

For those taking training with employer support, a number of key factors also influenced their participation rates. Higher education levels, more than one year of tenure, larger firm size, professional or managerial work, and public-sector employment led to higher odds of training participation for each year examined (1993, 1997 and 2002). For women, the period from 1993 to 2002 saw an increase in the impact of education on participation, which is particularly important given the already large effect of education relative to other factors examined.

Perspectives

Notes

- 1. Information in the AETS will now be collected in the Access and Support to Education and Training Survey from Statistics Canada, scheduled to start in 2008.
- 2. Public-sector employees are those in public administration at the federal, provincial and municipal levels, as well as in Crown corporations, liquor control boards and other government institutions such as schools (including universities), hospitals and public libraries.

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Perspectives on Labour and Income

The quarterly for labour market and income information
Running a census in a tight labour market

Ted Wannell

anadians value government services that are timely, cost effective and appropriate to their needs (Marson 2007). Many services such as schooling, health care, public transit and immigration support—require information on small geographic areas for effective delivery. Moreover, accurate population counts are needed to determine the intergovernmental transfers that support these services. The Census of Population is conducted every five years to meet the needs of all levels of government in serving the public.

In addition to supporting service delivery, the census also enables research on a wide range of social and economic issues. Income inequality, returns to education, the integration of immigrants and changing patterns of employment are just a few of the topics that have been explored with census data. Moreover, demographic information is of great value to Canadian businesses, providing them with commercial opportunities.

While the census provides input to a number of other government activities, it is a huge and labour-intensive activity in and of itself. A small core of project managers within Statistics Canada begins planning each census years in advance. In the year leading up to the census, hundreds of Statistics Canada employees are reassigned to temporary duties in the design, development and implementation of the census. Finally, thousands of temporary workers are hired to conduct the footwork necessary to complete the collection fieldwork. For the 2001 Census, 36,000 enumerators and other field staff were hired.

Although census content remains relatively consistent across time,¹ Statistics Canada is continually examining means to remain relevant to evolving information

Ted Wannell is with the Labour and Household Surveys Analysis Division. He can be reached at 613-951-3546 or ted.wannell@statcan.ca. needs and to maintain and improve the quality of the data, the sense of confidentiality for respondents and the efficiency of operations. To advance these aims, the inner workings of the 2006 Census experienced greater changes than they had for decades. Most conspicuous to respondents was the collection methodology.

2006 Census innovations

In the past, census forms were distributed and picked up by enumerators at every dwelling in the country. Enumerators put a very personal face on census collection, strengthening the connection between community-based collection and downstream community benefits. Even though most of the forms were filled out by respondents without enumerators present, the impression that enumerators recruited from their own neighbourhoods might see their personal data was a perceived confidentiality issue for some.

For the 2006 Census, for the first time, forms were mailed out to 70% of households. In the remainder of the country, addresses needed to be verified by enumerators who left questionnaires at the same time (list/ leave areas). Both sets of households then had the option to return their paper forms by mail or online, using a secure Internet form. For all returns, quality issues and incompleteness were dealt with by telephone follow-up from one of three central locations. The Internet form had automated quality checks built in so that the amount of follow-up was significantly lessened. Overall, one in five households responded by Internet, the highest proportion among countries that have introduced an Internet-response option.

Changes to data capture and processing were less visible to the public but nevertheless integral to the overall plan. Capture operations were centralized in Ottawa-Gatineau and automated through the use of high-speed scanners and software able to digitize handwritten responses. Even though the primary motives for the changes were to provide response options, increase long-term efficiencies and address privacy concerns, the new processes also resulted in a significant reduction in anticipated staffing. Since enumerators had fewer tasks to complete relative to earlier censuses, they could cover larger areas and thus fewer needed to be hired and trained. Moreover, the built-in quality controls in the Internet forms were designed to reduce the volume of call-backs required to resolve missing or incomplete responses. Overall, these and other changes led to a drop in planned temporary staffing from 36,000 in 2001 to some 27,000 in 2006.

As is common with large-scale projects and now required by federal government policy, the 2006 Census operated under a risk-management framework. Some of the significant risks identified during planning were the development schedule for all the new information-technology components, the functionality of the Internet forms, the ability of the hardware to handle Internet traffic at peak times, and the ability to recruit enumerators in several cities in Alberta with very tight labour markets. In the end, technological developments came off very well, but labour shortages proved to be more acute and widespread than anticipated.

A hot labour market

In 2006, the census took place in the hottest labour market in a generation. In the 12 months leading up to the May 16 Census Day, the economy had added more than 400,000 full-time jobs while shedding 36,000 part-time positions (Statistics Canada 2006). In May alone, full-time employment increased by 151,000. Nationally, the unemployment rate was at a 32-year low of 6.1%. The unemployment rate dipped to 3.4% in Alberta and was under 5% in all provinces west of Ontario. Although unemployment was somewhat higher in eastern Canada, many regions were nevertheless at long-term lows.

The accelerating demand for employment had an inflationary impact on wages. While the Consumer Price Index had increased 2.8% in the preceding 12 months, average earnings were up 3.8%. In the tight Alberta labour market the increase was 7.3%. As a point of reference, average hourly earnings were \$19.60 nationally and \$20.95 in Alberta, compared with the legislated rate of \$11.88 for enumerators and \$15.62

for supervisors (or piece-rate equivalents). These rates were set to account for the generally tighter national labour market in 2006 and a different mix of tasks compared with 2001.

The big day approaches

Since the 2006 Census was to rely heavily on the mailout of forms, it was important that they be mailed to correct addresses. Addresses were generated from a central database, the Address Register (AR), based on information collected from the past few censuses and updated through a variety of sources, including field verification. The field verification of the address information from the AR is called 'block canvassing' and it represents the first labour-intensive field work of the census cycle. Block canvassing for the 2006 Census was carried out in two waves, beginning in September 2005 and ending in April 2006. The late block canvassing focused on areas like new subdivisions, where changes to the list of addresses were expected. Approximately 2,000 temporary workers were hired for block canvassing, with no major problems being encountered.

In the weeks before census day, the technological innovations were the foremost concern of the management team—particularly the Internet application. A team of external experts had certified the security of the Internet applications, but would the online form engage respondents and perform under such realworld situations as dropped connections and userbased interruptions? Would the hardware handle the volume? To experience, as best as possible, census day conditions, the application underwent a series of automated volume tests simulating large numbers of concurrent users prior to going live.

On census day and during the following weeks, the Internet application worked very well. The number of respondents who could log on at one time was limited in order to avoid bogging down the system, but this 'graceful deferral' had to be invoked only for six hours on Census Day. (The peak was on Census Day when the total number of responses was almost 300,000.) Respondents who were deferred were asked to come back and try later—in many cases that meant only a few minutes. Overall, one in five respondents chose to use the Internet, which was at the high end of the forecast range. And the data proved to be of high quality relative to paper responses.

The role of enumerators

As mentioned earlier, 70% of households live in areas covered by the AR. They received their census forms along with the invitation to respond by Internet—in the mail about one week before census day. The delivery of census forms to households not covered by the AR (list/leave) represented the first major task for the small army of census enumerators. It took place about the same time as the mail-out—in the two weeks leading up to census day.

Since the accuracy of population estimates for small areas is important for the delivery of public services such as education and programs for the elderly, achieving consistently high response rates across the country is a key objective of the census. The second major task for enumerators was to follow up on households from which no response, either by paper or Internet, had been received 10 days after census day. The enumerators had to determine whether the dwelling at the address was indeed occupied and, if so, collect the form from occupants or help them complete the form. Non-response follow-up was to have continued into July with collection activities wrapping up by the end of that month.

Enumerators were hired by a network of local field offices according to standards and wage levels set in federal legislation. The network consisted of 3 regional centres, 36 local offices and 38 sub-local offices. Hiring for list/leave and non-response follow-up operations began in April 2006 with the goal of hiring 27,000 enumerators in phases during this process. Approximately 260,000 applications were received.

The first signs of problems

Past censuses have run into hiring difficulties in localized areas with tight labour markets. As identified in the risk management document, some difficulties were expected in Alberta where unemployment was at an unprecedented low and wages were rapidly rising. The 2006 wage rates had been set to account for a tighter labour market and the more skill-intensive follow-up work, but once the rates had been legislated few options were available. To make the temporary enumeration jobs as attractive as possible, some enumerator positions were offered at supervisors' pay rates where shortages were most acute.

While response to recruitment efforts seemed adequate in the aggregate, the geographic distribution of applicants was very uneven. In areas covering 9,000 collection units and representing about 4,500 jobs no applications were received. These were mainly rural areas. Thus it was evident early on that enumerators from adjacent units would have to be moved in to cover the workload. Moreover, many of those who did report were willing to work only part-time hours. Although these problems were particularly acute in hot labour markets in Alberta, a number of other trouble spots cropped up: Vancouver, Toronto and Montreal, without question, but also medium- and smaller-sized cities in Ontario and Atlantic Canada (e.g. rural and bedroom communities just north of Toronto— Orangeville, Stouffville/Uxbridge; Halifax/ Dartmouth; and eastern P.E.I.).

Overall, no more than 17,000 enumerators were on the job at any point during the 2006 Census. This number dwindled rapidly to 9,000, with only 3,000 willing to work more than 20 hours per week.

Although the labour issues appeared early in the collection period, the scope and acuity of the problems did not become evident until interim response rates were tallied in preparation for non-response followup. Response rates were slightly lower than anticipated across the country and were particularly low in the areas with list/leave hiring problems. These two observations had several implications. First, without a late wave of responses, non-response follow-up would generally require more labour input than anticipated. Second, the demand for this labour would be greatest in areas where hiring difficulties were most acute. Finally, the patterns of non-response could lead to data quality problems if they weren't successfully addressed in the follow-up.

Assessment and response

The risk-management framework is intended to guide response to these types of problems. Since the early returns indicated widespread non-response issues, some national-level responses were required. The first was to extend the Census communications program, which normally tapers off after the collection period. The program emphasized the importance of the census and highlighted the two response options. The second general response was to extend the collection period for one month.

The decision to extend the collection period was influenced by very positive experiences on the technical side. The Internet application was working well, producing very clean data and, as mentioned, the level of use was at the high end of expectations. The highspeed scanners were working to specification in the central processing facility and passing good volumes of data for further processing. One important aspect of processing is a loop-back to telephone follow-up where incomplete responses are noted by quality control software. The high quality of the Internet response data and the quick pass-through from the scanned data resulted in a lower volume of work and rapid progress for this manual process. Thus it was anticipated that the collection period could be extended, at least for a short period, without affecting subsequent processing and dissemination milestones. It also provided the opportunity to try another process innovation, shifting some non-response follow-up from field enumerators to the telephone unit that had been doing the failed edit follow-up.

Another piece of the technological puzzle would help guide the non-response follow-up. Since individual responses could be coming from either the Internet or paper forms, a control file that integrated responses from both sources was required. This file was continually updated and could therefore be used to direct the most intensive follow-up activities to areas with the lowest response rates.

With the extension of the collection period and the geographic targeting of activities, the human resource philosophy of non-response follow-up gradually changed from trying to hire more people to more effectively using those already on the job. As overall response rates inched upwards and were tallied in the control file, active collection management could kick in. Enumerators in areas with high response rates were shifted to nearby areas with low response rates. For example, enumerators from suburban or nearby rural areas would be shifted to city centres where response rates were generally lower. This shifting of resources had occurred in previous censuses, but not to the extent required in 2006.

While the movement of enumeration 'triage' teams was effective in many areas, in others widespread labour shortages or other difficulties (like the reluctance of some rural enumerators to work in downtown neighbourhoods) called for further escalation. Several weeks into the collection extension, it was clear that adequate response rates could not be achieved for some areas with available staff in the region. With the volume of processing winding down, temporary workers from the Ottawa processing centre were recruited for local non-response follow-up since Ottawa was one of the problem areas. More significantly, a call went out to headquarters employees to volunteer for follow-up activities in other areas where non-response remained high—particularly Alberta. Overall, some 400 employees responded to the call and 130 were selected and trained. Most were deployed to Alberta for nonresponse follow-up and, working long hours, provided the push required to achieve adequate response rates in many areas. A peripheral benefit of this exercise is that ongoing staff now have a better appreciation for some of the collection challenges and issues faced by field staff.

Downstream consequences

Large-scale collection activities and the Internet application were cut off at the end of August. As a result, processing activities had to be extended until mid-October. Review of the remaining milestones indicated that compressing the activities to meet the original dissemination targets presented unreasonable risks to the quality of the information to be released. Therefore, in October 2006 the decision was made to set back the first release date by one month. Since the technological innovations had been anticipated to speed up the release schedule by one month compared with the 2001 Census, in the end, the labour-shortage issue offset the gains from the technological advances.

In terms of data quality, it is difficult to pinpoint the impact of labour shortages. Response rates to all surveys have generally been declining in recent years and the census proved to be no exception, as evidenced by somewhat lower than anticipated response rates across the country. Certainly, some areas presented particular difficulties, resulting in unprecedented actions. Active collection management limited the impact, but some variation in results persisted. Overall, a response rate of 98% had been targeted for the 2006 Census collection activities, while the actual rate achieved was 97.3% (comparable to the 98.4% in 2001). Of the 47,500 collection units across the country, 55% achieved the benchmark, 35% were certified with somewhat lower rates, and the remaining 10% were accepted with an average response rate of 94% after remedial actions (Office of the Auditor General of Canada 2007). More detailed data-quality indicators are produced along with census releases and through specialized post-censal studies.

Obviously some of the measures taken to increase response rates in the most affected areas resulted in relatively higher collection costs in those areas. But these higher-than-expected costs were managed within the context of greater-than-expected savings from technological developments and the lowerthan-expected staffing levels early in the collection period. As a result, the 2006 Census was managed within its allotted budget. An examination of the management of the 2006 Census by the Office of the Auditor General concluded the actions taken appropriately balanced accuracy, timeliness and cost.

Lessons learned

Although considered the riskiest aspect of the 2006 Census, the process and technological innovations contributed significantly to the overall operation. The mail-out of questionnaires using the Address Register reduced listing costs and increased respondents' sense of confidentiality. The Internet-response option yielded high-quality data with little need for post-collection follow-up. The paper questionnaire scanners performed to specification resulting in significant savings compared with manual entry. The master control system required to integrate the paper and Internet responses increased the ability to actively manage the non-response follow-up process. All of these positives helped to offset the difficulties encountered on the human resources side.

Given these successes, the 2011 Census will re-use the 2006 technological approaches while increasing the targets for mail-out areas and the Internet. Through further investments in the Address Register in the coming years, the target for mail-out coverage will be increased from 70% in 2006 to 80% in 2011. As for Internet response, the aim is to almost double the rate to 40%. This seems attainable since recent polling by a private contractor indicated that the Internet was the preferred method of survey response by over half of those polled.

Achieving these goals should also significantly reduce the labour input required for the list/leave and failed edit (telephone) follow-up operations.

Even assuming the best-case scenarios for Address Register development and Internet-response take-up, the 2011 Census will remain a labour-intensive undertaking requiring approximately 20,000 temporary workers. Plans to minimize the type of staffing difficulties encountered in 2006 include a higher hourly pay rate, improved geo-mapping tools to better match applicants to available positions, a streamlined hiring process to more quickly confirm to applicants if they have been retained for jobs, improved communication strategies, and additional tools for recruiters (like labour-force profiles for their respective areas).

Perspectives

Note

1. Changes to the forms (particularly the long form) do occur over time, subject to a prescribed consultation process during each inter-censal period.

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Life after teenage motherhood

May Luong

he general view has been that teenage childbearing will have long-term negative effects on the mother's well-being. The argument being that these individuals will have more difficulty completing high school because of the time off required for pregnancy, recuperation and childcare. And so, it is also less likely that they will be able to continue on to postsecondary education to acquire the skills for better jobs. Since low-skilled jobs tend to pay less, it follows that teenage mothers will have a higher likelihood of living in low income.

Indeed, American research during the 1970s and 1980s consistently documented the negative effects of teenage childbearing across a range of outcomes, finding that teenage mothers were more likely to be socially and economically disadvantaged throughout their lives than women who delayed childbearing. Teenage mothers were also less likely to complete their education, be employed and earn high wages, or be married. Furthermore, they were more likely to have larger families and receive welfare (Haves 1987). Not only is the well-being of teenage mothers affected by their situation, teenage motherhood is also a repetitive cycle that can affect the likelihood that their children end up in the same situation. Indeed, one study found that, in the U.S., daughters of teenage mothers were 25 percentage points more likely to become teenage mothers themselves (Kearney and Levine 2007).

However, according to more recent research, the link between teenage childbearing and a poor socioeconomic outcome may not be causal—the probability of being a teenage mother and the probability of being disadvantaged later on may be due to having a disadvantaged family background from the start.¹ That is, women from disadvantaged backgrounds are more likely to end up disadvantaged even if they delay childbearing. And while teenage childbearing continues to

May Luong is with the Labour and Household Surveys Analysis Division. She can be reached at 613-951-6014 or may.luong@statcan.ca. be a significant indicator of lower socioeconomic outcomes, the effect is smaller than originally believed (Ashcraft and Lang 2006; Levine and Painter 2003; Klepinger et al. 1997 and 1995; Ahn 1994; Hoffman et al. 1993).

Although research in the United States has placed tremendous efforts in disentangling the causal effects of teenage childbearing and family background, the research on this issue in Canada remains scarce. Most research in Canada has focused on trends in incidence and abortion rates using vital statistics data. Furthermore, the bulk of the research has been on educational outcomes, with few studies on other long-term socioeconomic outcomes such as labour force participation and living conditions. And while U.S. studies

Chart A Canada's teenage birth rate in the mid-range among developed countries



Sources: Statistics Canada, Health Statistics Division, Canadian Vital Statistics Database; U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; National Vital Statistics System as published by Guttmacher Institute; Statistics Sweden, online statistical database. show that teenage childbearing occurs predominantly among visible minority groups, Canada's very different ethnic profile suggests that the characteristics of teenage mothers in Canada may be very different.

Certainly the birth rate differs between the two countries. Canada remains far below the United States, which had a rate of 41.1 births per 1,000 teenage women in 2004 and has traditionally had the highest teenage birth rate of all developed countries (Chart A). In 2004, Canada had 31,611 teenage pregnancies (30.5 per 1,000 women aged 15 to 19), of which 14,075 resulted in live births (4.2% of all births that year). And although Canada's teenage birth rate fell dramatically from 35.7 to 13.6 during the last two decades, in 2004 it was still almost seven times higher than Sweden's, which continues to have one of the lowest teenage birth rates of all developed countries.

Using the Survey of Labour and Income Dynamics (SLID), this study examines the personal and long-term socioeconomic characteristics of women aged 30 to 39 who gave birth as teenagers (see *Data source and definitions*). SLID carries information on the educa-

tion of the parents of teenage mothers, which provides a proxy for family background. Specifically, this paper compares women who were teenage mothers with those who were adult mothers with respect to educational outcome, long-term labour force participation, and low-income status.

Teenage motherhood more than double among women with Aboriginal background

Among women who reported an Aboriginal background, 24% were teenage mothers compared with just 10% of other mothers. While Aboriginal background in SLID includes only those living off-reserve and is not representative of the whole Aboriginal population, those who reported an Aboriginal background in this study represented 3.8% of the sample compared with 3.5% of the population in 2001 and 4.0% in 2006.⁴

Unlike in the United States, immigrant women (visible minority or not) in Canada have a lower likelihood of being teenage mothers than native-born women not in a visible minority (Chart B). These results likely

Data source and definitions

The Survey of Labour and Income Dynamics (SLID) covers roughly 97% of the Canadian population, excluding those in the territories, in institutions, on Aboriginal reserves or in military barracks. Each panel of respondents, approximately 15,000 households and 30,000 adults, is surveyed for six consecutive years. A new panel is introduced every three years, so two panels always overlap. This study pools the first cross-sectional wave of each of the five existing panels of SLID (1993, 1996, 1999, 2002 and 2005) in order to attain an adequate sample of women who were teenage mothers.

The study was restricted to women aged 30 to 39 in each reference year.² The upper age limit minimized cohort differences while maintaining an adequate sample of teenage mothers; the lower limit gave teenage mothers a chance to 'catch up' to adult mothers in terms of education. For example, most women graduate from high school by age 17 or 18, and college or university by age 22 to 25, but because teenage mothers may have a harder time completing their studies due to the birth of their first child (and possibly subsequent children), they may not have completed their highest level of education until their late twenties or older.

The sample excluded women who had never given birth (5,262) or for whom the age at first birth is missing (700). The final sample consisted of 19,064 mothers aged 30 to 39 during the reference year, just over 10% of whom gave birth as teenagers.

Teenage mothers are women who had their first birth under the age of 20. **Adult mothers** had their first birth at age 20 or older. A binary variable was derived using the selfreported 'age at first birth.' This was set to 1 for first birth under age 20 and 0 for first birth at a later age.³

Education refers to the highest level completed at the time of the survey, recoded into three groups: less than high school; high school diploma; and postsecondary degree, certificate or diploma.

Low income measures (LIMs) are set at 50% of median family income and adjusted for the number of people, reflecting the economies of scale inherent in family size and composition. The adjustment is based on the family equivalence scale, which is the sum of the 'equivalences' for each family member. The oldest person receives an equivalence of 1.0 and the second oldest person 0.4. All others 16 and older receive an equivalence of 0.4 and those under 16 receive 0.3. This adjusts family income for family size and composition in order to enable comparison of incomes for all families.

Disability status summarizes several questions. Starting with the 1999 reference year, the screening questions were significantly modified to reflect those used in the 2001 Census. For this reason, interpretation of the results must be made with care.



Chart B Teenage childbearing lower among immigrants and visible minorities

Note: Results are restricted to those with a valid response. Source: Statistics Canada, Survey of Labour and Income Dynamics, 1993, 1996, 1999, 2002 and 2005.

reflect varying immigration policies leading to differences in the ethnic, cultural and socioeconomic status of immigrants. That is, in Canada immigrants tend to be more educated because of the focus on skilled applicants, and women of educated families are less likely to be teenage mothers (Galarneau and Morissette 2004). Furthermore, the difference between the U.S. and Canada in the prevalence of teenage childbearing within visible minority groups may be partly attributable to different ethnic profiles.

Teenage mothers more likely to marry in their teens but not before their first birth

About half of teenage mothers also married in their teens, compared with only 8% of adult mothers (Table 1). And while 71% of the latter married in their twenties, only 28% of the former did so. Furthermore, teenage mothers were more likely to remain single (19% versus 13%).

Although teenage mothers tend to marry young, 39% waited at least one year after having their first child. Only 20% of teenage mothers married prior to giving birth and 22% married in the same year. The majority of adult mothers, on the other hand, married prior to their first birth (72%) with only 6% marrying the same year and 8% the subsequent year. While 19% of teenage mothers never married, 46% reported being in common-law relationships during the reference year.

Table 1 Marriage and marital status of teenage and adult mothers

	Teenage mothers		Adult mothers
Age at first marriage		%	
Under 20	49*		8
20 to 24	19*		43
25 to 29	9*		28
30 to 39	4*		7
Never married	19*		13
Marriage and birth			
Married prior to birth	20*		72
Married same year as birth	22*		6
Married post birth	39*		8
Never married	19*		13
Current marital status			
Married	60*		76
Common-law	14*		10
Separated	9*		5
Divorced	7*		4
Widowed	F		0 ^E
Never married	10*		5

 statistically significant from adult mothers at the 0.05 level or better

Note: Results are restricted to those with a valid response. Source: Statistics Canada, Survey of Labour and Income Dynamics, 1993, 1996, 1999, 2002 and 2005.

Although individuals in common-law parmerships have many characteristics similar to the married, it was not possible to combine these groups since no date was provided for the formation of the union.

Although most teenage mothers were eventually married (60%) by the time they were in their 30s, the proportion still trailed that of adult mothers (76%). On the other hand, teenage mothers were more likely to live in common-law relationships (14% versus 10%). Nevertheless, teenage mothers were still more likely to separate or divorce. Furthermore, teenage mothers were almost three times more likely to report marrying more than once (16% versus 6%).

Since teenage mothers, by definition, started their families at a younger age, they would also have had more time to have subsequent children. Indeed, teenage mothers, on average, had larger families (2.5 children) than adult mothers (2.0 children). However, adult mothers may also have delayed the completion of their families. So, while teenage mothers are more likely to have completed their family formation, adult mothers may still be having more children well into their 30s or later.

Table 2 Marginal effects of the impact of teenage motherhood on education

	High school graduation	Completing postsecondary education
	Baselir	ne probability (%)
	91	55
Marginal effects		% points
Timing of motherhood and marriage Teenage, married before age 20 Teenage, not married before 20 Adult, married before age 20 Adult, not married before 20	-17* -17* -7* ref	-19* -14* -17* ref
Father's education Less than high school High school diploma Postsecondary completed	ref 5* 7*	ref 10* 22*
Mother's education Less than high school High school diploma Postsecondary completed	ref 5* 8*	ref 10* 19*
Personal background Aboriginal Non-aboriginal Immigrant Non-immigrant Visible minority Non-visible minority	-4* ref 0 ref 2 ref	-12* ref 6 ref -1 ref
Elementary or high school education Newfoundland and Labrador Prince Edward Island Nova Scotia New Brunswick Quebec Ontario Manitoba Saskatchewan Alberta British Columbia Elsewhere	-4* -5* -2 -3* ref -1 4* 2 1 -5*	7* 4 -5* -2 ref -8* 3 -4 -5 -11*
Wave 1993 1996 1999 2002 2005	-2 ref 1 3* 3*	-3 ref 2 7* 11*
Year of birth 1949 to 1955 1956 to 1960 1961 to 1965 1966 to 1970 1971 to 1975	3 2* ref 1 0	4 1 ref 1 -1

* statistically significant from the reference category (ref) at the 0.05 level or better Source: Statistics Canada, Survey of Labour and Income Dynamics 1993, 1996, 1999, 2002, 2005.

Teenage mothers less likely to have completed high school or postsecondary education

Separate logit regressions examined women's outcomes for high school and postsecondary completion (see Modeling socioeconomic outcomes). The sample consisted of women aged 30 to 39 in each reference year who had previously given birth. The baseline probabilities of completing high school and postsecondary education among all mothers were 91% and 55%, respectively (Table 2). As expected, even after controlling for other factors, the timing of motherhood was found to be significantly related to the chances of finishing high school or postsecondary education. Teenage mothers were 17 percentage points less likely to complete high school and between 14 and 19 points less likely to complete postsecondary studies. This is consistent with a study using the Youth in Transition Survey, which found teenage pregnancy and childrearing to be related to dropping out of high school (Bowlby and McMullen 2002).5

The timing of marriage and its interaction with the timing of motherhood was also significant. Marriage and birth do not necessarily coincide for young mothers. For example, the first birth for married teenage mothers may have been planned, but for those who were single the birth was more likely to be unplanned. Therefore, the combination of the timing of motherhood and marriage may reflect some unobserved differences either in personal characteristics or in their situations that may influence educational outcomes. The results show that teenage mothers not married prior to age 20 were slightly more likely to

Modeling socioeconomic outcomes

While descriptive analysis can provide some information on the relationship between teenage childbearing and long-term socioeconomic outcomes, multivariate analysis takes other factors that may influence these outcomes into account.

The outcomes studied were educational attainment, labour force participation, and living in low income. The education models used separate logit regressions estimating the marginal effects of teenage childbearing and other controls on the probability of completing high school and postsecondary school. A multinomial logit regression estimated the marginal effects of teenage childbearing and other controls on the probability of full-year, full-time employment, some employment, and not working. The income model used a logit regression to estimate the marginal effects of teenage childbearing and other controls on the probability of living in low income.

Logit regressions were chosen for the education and income models since the outcome variable had two responses. Similarly, the multinomial logit regression was chosen for the labour model because the outcome variable had three responses. Bootstrap weights were used to account for the effect of multi-stage sample selection in SLID. Stata was used to implement the model and bootstrap weights.

Note: Younger teenage mothers (age at first birth 17 and under) and older teenage mothers (age at first birth 18 to 19) were tested separately but no significant differences were evident, so the two groups were collapsed into one.

complete postsecondary school, having a 5 percentage point smaller decline than those married prior to age 20.

As expected, family background variables were statistically significant and showed that women of fathers with completed postsecondary education were 7 percentage points more likely to complete high school and 22 points more likely to complete postsecondary studies than women whose fathers had completed less than high school. Similarly, women whose mothers had completed postsecondary education were 8 points more likely to complete high school and 19 points more likely to complete postsecondary studies. Even parents who completed only high school were positively related to the likelihood of completing high school and postsecondary studies for women (between 5 and 10 percentage points). The interactions between age at first birth and parental education were not statistically significant and were subsequently dropped. Overall, parental education would seem to have a great influence on a woman's own educational outcome, regardless of teenage motherhood.

Immigrant and visible-minority status were also included in the model but were not statistically significant. The findings make sense—Canada's immigration policies are concentrated on skill selection, so many immigrants are going to be highly educated. Women with an Aboriginal background were found to be less likely to complete high school (-4 percentage points) or postsecondary studies (-12 points), consistent with previous research (Siggner and Costa 2005).

The model also controlled for the province or territory where most of the elementary or high school education was completed.⁶ Although the results suggest some statistically significant differences between a few provinces and Ontario, they reflect conditions some 11 to 25 years prior to the reference year. Controls for cohort effect were not statistically significant. Finally, respondents from the 2002 and 2005 surveys were 3 percentage points more likely to have completed high school and 7 to 11 points more likely to have completed postsecondary studies than the 1996 respondents. This is not surprising since increasing emphasis has been put on higher educational attainment in order to qualify for better jobs. This can be seen especially in the higher marginal effect in recent years for postsecondary graduates."

Education helps counter negative effects of teenage childbearing on labour market participation

Previous research on the consequences of teenage childbearing has focused on education because, in most cases, it largely determines earnings, labour force participation, and occupation. Little research has delved more deeply into other socioeconomic outcomes of teenage childbearing. However, because job-related skills acquisition and significant earnings growth are concentrated at the start of one's career, teenage motherhood may affect a woman's long-term wage rates. Indeed, in this study, real composite wage rates⁸ for teenage mothers were \$10.93 compared with \$13.29 for adult mothers,9 consistent with other studies. Women in Canada who postponed having children earned at least 6% more than those who had children early (Drolet 2002). Similarly, in the U.S. teenage childbearing reduced white women's earnings by 23% and black women's by 13% (Klepinger et al. 1997).

Among mothers aged 30 to 39 in the reference year, the baseline probability of full-year full-time employment was 41%; for some employment, 34%; and for not working, 24%. The results demonstrate an impor-

tant relationship between teenage childbearing and education on labour force participation (Table 3). The interaction between the timing of motherhood and education level shows that teenage mothers with less than high school were 9 percentage points less likely to be in full-year full-time employment and more likely not to have worked during the reference year than adult mothers who graduated high school. Similarly, adult mothers with less than high school were 10 points less likely to be in full-year full-time employment and 13 points more likely to be not working during the reference year. However, what is striking is that teenage mothers with a high school diploma were no different from the reference group. Furthermore, teenage mothers with a postsecondary degree or certificate were actually more likely to be in full-year full-time employment than adult mother counterparts (13 percentage points versus 5 points above the reference profile). The results suggest that education plays an important role in women's labour force participation. That is, women who were teenage mothers were just as likely, if not more so, than adult mothers of a similar education level to work full year, full time. However, other unobserved characteristics such as family support, social network and a variety of other resources, or psychological traits may be at play.

Family background remains an influence even in the long run. Women whose mothers finished high school or postsecondary studies were 5 percentage points more likely to work full-year full-time than women whose mothers had less than high school. Possibly, mothers act as role models for their daughters and highly educated mothers may instil values that encourage higher educational attainment and labour force participation. However, fathers with completed postsecondary education had a statistically significant negative effect. This counterintuitive result may be due to omitted variables. For example, parental income, parental divorce and growing up with only one parent could influence outcomes. However, since SLID is limited to parental education, it was not possible to control for other potentially relevant background information.

In terms of personal background, immigrant women were 7 percentage points less likely to be working full year and more likely to be not working than nonimmigrants. This may reflect immigrant women's preference to stay home with their children even if they are no longer of preschool age. Also, immigrant women may have fewer employment opportunities due to language barriers. Recognition of foreign credentials and foreign work experience, and limited job contacts may also be factors. Visible minority women were no more or less likely to be in full-year full-time employment than other women. However, visible minority women were less likely to be in other forms of labour force participation and more likely to be not working. Women who reported an Aboriginal background did not have a statistically different likelihood of being in full-year full-time employment. The results suggest that differences in women with an Aboriginal background and labour force participation were explained by other factors in the model.

Compared with married mothers, only single (never married) mothers were statistically different. Single mothers were 12 percentage points less likely to be in full-year full-time employment and 13 points more likely to not have worked during the reference year. This finding is consistent with previous research on lone mothers and their labour force participation (Dooley and Finnie 2001).

Other controls were also included and found to be statistically significant. These include disability status, province of residence, area size of residence, and year for which the respondent was surveyed.

Education matters more in determining low income

As noted, women who were teenage mothers have much lower average earnings than women who were adult mothers. However, their total personal after-tax income was not statistically different (\$16,500 versus \$17,500).^{10,11} Although government transfers to families of the former were higher than to families of the latter (a difference of \$2,600), after-tax family incomes showed a much larger gap. Families of women who were teenage mothers, on average, had after-tax income of \$40,300 compared with \$47,300 for families of adult mothers. However, most of the difference disappeared once family size was taken into account. Families of women who were teenage mothers had adjusted after-tax income of \$19,900 compared with \$23,800 for families of adult mothers.¹²

Nevertheless, 21% of families of women who were teenage mothers had adjusted income below the low-income measure (LIM) compared with just 12% of adult mother families. However, as with the labour outcomes, the logit model on the probability of living below the LIM showed a statistically significant (at the 0.05 level or better) interaction between timing of motherhood and education.¹³ Both women who were

Table 3 Impact of teenage childbearing on labour force attachment of mothers aged 30 to 39

	Full-year full-time employment	Some employment	Did not work
		Baseline probabilit	y (%)
	41	34	24
Marginal effects		% points	
Timing of motherhood and educatio	n		
Teenage less than high school	-9*	1	8*
Teenage, high school diploma	-1	-1	1
Teenage postsecondary completed	13*	2	-15*
Adult less than high school	-10*	~3*	13*
Adult, high school diploma	rof	rof	rof
Adult, postsecondary completed	5*	5*	-10*
Father's education			
Less than high school	ref	ref	ref
High school diploma	-1	1	0
Postsecondary completed	-6*	3	3
Mother's education			
Less than high school	ref	ref	ref
High school diploma	5*	-3*	-1
Postsecondary completed	5*	- 1	-4*
Personal background			
Immigrant	-7*	-1	7*
Non-immigrant	ref	ref	ref
Visible minority	1	-9*	8*
Non-visible minority	ref	ref	ref
Aboriginal background	0	-6*	5
No aboriginal background	ref	ref	ref
Disability reported	-15*	-2	17*
No disability reported	ref	ref	ref
Children born (mean = 2, ref)	-9*	3*	6*
Living with preschool-age children	-5*	-1	6*
No preschool-age children	ref	ref	ref
Gave birth during year	5	-6*	1
Did not give birth during year	ref	ref	ref
Age (mean = 35, ref)	1*	0	-1*
Marital status			
Married	ref	ref	ref
Common-law	2	-1	-2
Separated	2	-3	1
Divorced	5	-9*	4
Widowed	-8	-12	20
Never married	-12*	-1	13*

* statistically significant from the reference category (ref) at the 0.05 level or better Source: Statistics Canada, Survey of Labour and Income Dynamics 1993, 1996, 1999, 2002, 2005. teenage mothers and adult mothers with less than high school were more likely to be living below the LIM than adult mothers with a high school diploma (4 and 5 percentage points respectively). Likewise, women who were teenage mothers and adult mothers who completed postsecondary studies were 3 and 5 points less likely to fall below the LIM. Overall the baseline probability of living in low income was 9% a.

Conclusion

Teenage childbearing has been shown to have negative and long-term effects on women's socioeconomic outcomes. Overall, teenage mothers in Canada had a lower probability than adult mothers of completing high school and postsecondary education, even after controlling for family background and other characteristics. Teenage childbearing and education are significantly related to a woman's labour market participation. In terms of labour force participation, the results suggest education matters more than family background-women with similar education had similar likelihoods of being in fullyear full-time employment. Only women who were teenage mothers with a postsecondary education were more likely to be working full year full time during the reference year than women who were adult mothers with similar education. And although the mean wages for teenage mothers were lower than for women who were adult mothers, teenage mothers and adult mothers with similar education were almost equally likely to be living in low income. Furthermore, family background was no longer statistically significant for these mothers when it came to the likelihood of living in low income. These results suggest that education may help counter the negative effects of teenage childbearing. However, other unobserved characteristics such as family support, social network and a variety of other resources, psychological traits, and other factors may also have an influence on outcomes.

In summary, the results from this study suggest that teenage childbearing is related to lower educational achievements, which may in turn lead to longer-term effects on labour force participation and rates of living in low income. However, teenage mothers and adult mothers with similar levels of education also had similar labour market participations and rates of living in low income—suggesting that education is more important in determining labour force participation and income in the long run.

Perspective

Notes

1. Previous research has raised the endogeneity of teenage mothers as a predictor of educational attainment. Individuals intending to attain a high level of education can use preventive measures (e.g. birth control or abortion) to avoid pregnancy if they expect teenage childbearing to affect their schooling. Furthermore, high achievers may perceive their opportunity costs as education foregone if they become teenage mothers, while low achievers may not perceive any opportunity costs in education foregone given that they do not perceive education as important. Therefore, those who become teenage mothers may be those who never expected to achieve a high level of education. The perception of educational attainment may affect the probability of teenage motherhood. To correct for this endogeneity, researchers have employed instrumental variable (IV) analysis-estimating the probability of a teenage birth for each respondent in the survey with variables (instruments) correlated with the probability of a teenage birth but not with high school completion. The estimated probability is then used as a regressor in the model to estimate the probability of completing high school. Compared with the traditional analysis, which treats teenage childbearing as an exogenous variable, IV analysis finds that the teenage childbearing variable remains significant but with smaller estimated coefficients and marginal effects (Klepinger et al. 1995). In this study, teenage childbearing is treated as an exogenous variable since SLID does not lend itself to IV analysis. Consequently, results are likely to be accurate in predicting teenage childbearing as statistically significant in explaining the probability of finishing high school and postsecondary school. However, the estimated marginal effects may be overestimated.

- 2. The original target population included both women and men who had been teenage parents. However, men represented only 14% of the subsample. This low proportion of men suggests possible under-reporting and selection bias. With this in mind, the study focused only on women.
- 3. Due to the continuous nature of the original 'age at first birth' variable, it was possible to separately analyze younger teenage mothers (age at first birth less than 18) and older teenage mothers (age at first birth 18 or 19). Although on occasion older teenage mothers had characteristics closer to those of young adult mothers (age at first birth 20 to 24), more often than not they were more similar to younger teenage mothers.
- 4. Birth rates from Vital Statistics are not available by ethnicity, so the teenage Aboriginal birth rate, on- and off-reserve, is unknown.
- 5. The Youth in Transitions Survey could be used to study the educational outcomes of teenage childbearing. However, since the survey is only in its fourth cycle it would not be possible to observe longer-term socioeconomic outcomes such as employment and income of women in their 30s.
- 6. Information on the area of residence of women prior to or during the completion of high school or postsecondary school is not available in SLID.
- 7. Some other variables were tested but subsequently dropped as not statistically significant, based on the adjusted wald-test: age in reference year; and year of childbirth. As well, years since first birth was dropped since it is highly correlated with age at first birth. The total children born to the mother was also dropped as it is available only for the reference year. In order to determine the effect on high school and postsecondary completion, the model would require the total number of children prior to high school and postsecondary completion, however, this is not available in SLID. Furthermore, other research has found that after controlling for age at first birth, educational differences by number of children become quite small and unimportant (Grindstaff et al. 1991).
- 8. In 2005 dollars.
- Older mothers who had their first birth in the reference year and were not employed full year were excluded in estimating the average composite hourly earnings.
- 10. All figures are in 2005 dollars.

- 11. Older mothers who had their first birth in the reference year and were not employed full year were excluded in estimating income averages, because those on maternity leave with their first child during the reference year will likely have a lower income compared with previous years and would therefore bias the results.
- 12. Income was adjusted using the family equivalence scale to reflect family size and composition. For more details on the family equivalence scale, see *Data source and definitions*.
- 13. The logit model for low income estimated the probability of living below the LIM. Covariates were interaction between timing of motherhood and education, parental education, personal background, marital status, familyrelated variables, demographic characteristics, disability status, survey year, age and year of childbirth.

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Low-income children

Dominique Fleury

hildhood poverty has been the focus of more than a few studies. Some of these studies have indicated that children who experience poverty, especially persistently, are at higher risk of encountering difficulties—health problems, developmental delays and behaviour disorders—and they are also more likely to fall into low income themselves in adulthood (Kornberger et al. 2001, Finnie and Bernard 2004). The negative effects associated with poverty are inconsistent with the general opinion that all children should live in conditions that allow them to reach their full potential.

But defining and measuring poverty among children is not straightforward, not only because for the most part children do not earn any income, but also because Canada, like many developed nations, has no official definition of poverty. Even so, it does have surveys of family income that enable various measures of low income to be defined. Some analysts question the validity of family income as an indicator of children's well-being, and still wonder about the actual link between the low-income experience, especially temporary, and an increased risk of encountering problems in adulthood. However, most agree that it is unfortunate when families with children do not have a sufficiently high income for suitable housing, food, clothing or some family activities.

Using the Survey of Labour and Income Dynamics (SLID) and the survey that preceded it, this study looks at changes in the number, proportion and characteristics of children living in families whose income falls below various low-income cut-offs (Statistics Canada 2006). The starting point is 1989, the peak of the previous economic cycle. Since the recession of 1990/1992, Canada has enjoyed a lengthy period of expansion, which could be expected to have had a positive

Dominique Fleury is with Human Resources and Social Development Canada. She can be reached at 613-957-6308 or dominique.fleury@hrsdc-rhdsc.gc.ca. impact on family incomes. However, despite sustained economic growth since the mid-1990s and the implementation of a federal program in 1998 to reduce child poverty in Canada (the National Child Benefit), the rate of low-income among children was no lower in 2004 than in 1989 (Chart). The objective of this study is to learn more about children with low-income status in Canada (see *Data source and definitions*).

Rate and severity of low income among children in 2004

According to the low income after tax cut-off (LICO-IAT), 872,000 children under the age of 18 in 2004 (or 13% of all Canadian children¹) lived in low-income families, whose average income after tax was \$21,400. On average, these families would have needed an additional \$8,000 not to be considered low income.



Chart Evolution of the rate of low income in children, working-age adults and seniors

Source: Statistics Canada, Survey of Labour and Income Dynamics.

Data source and definitions

The **Survey of Labour and Income Dynamics** (SLID) has collected information on income, labour and the characteristics of individuals and their families since 1993. SLID allows both cross-sectional and longitudinal analysis.

SLID samples selected for this study were from 1994 to 2004 for the cross-sectional analysis, and from 1999 to 2004 (Panel 3) for the longitudinal analysis.

The target population for the cross-sectional analyses was children under the age of 18. In 2004, roughly 6.8 million children lived in 3.8 million economic families.

The target population for the longitudinal analysis was children between the ages of 0 and 12 in 1999 (to ensure that no child would be over age 17 by 2004) for whom information was available every year between 1999 and 2004. Close to 4 million children met this criterion.

The trend analysis was limited to the period 1994 to 2004 because income data published in 2003 had major revisions for 1980 to 2003. These changes affected the lowincome statistics, but only the most up-to-date SLID files were publicly available and not the Survey of Consumer Finances (the income survey prior to SLID).

Low-income measures:

While no generally accepted definition of 'poverty' exists in Canada, the following low-income measures are widely used: the **low-income cut-off** (LICO) before and after tax,

Almost half of these low-income children lived in a situation that could be considered fairly severe since their family's income was below 75% of the low income after tax cut-off. By contrast, the average family income for children not in low-income families that year was 3.4 times higher, at \$72,800.²

Overall, market income accounts for 80% of total income for families with children, but for only 40% among low-income families with children. The latter received a greater proportion from social assistance, child benefits and other transfers. Nevertheless, less than two in five low-income children (38%) lived in families that received social assistance in 2004, and more than four in five were able to count on some market income (85%).

Certain family characteristics increase vulnerability to low income

Family work effort and type are the factors most strongly associated with the risk of low income for children. According to specification A of the logistic regression model (Table 1), children who lived in a family whose main income recipient was not in the the low income measure (LIM) before and after tax, and the market basket measure (MBM).

With each of these measures, individuals—in this case, children—are considered to be in low income in a given year when the annual income of their economic family is below a pre-determined cut-off.

Individuals are in **persistent low income** when their annual family income cumulated over several consecutive years is below the total of the low-income cut-offs associated with their family for the same period.

An economic family comprises all individuals living under the same roof and related by blood, marriage, common-law marriage or adoption.

For more information on the LICO, LIM and MBM, please consult the following documents:

- 1) http://www.hrsdc.gc.ca/en/cs/sp/sdc/pkrf/publications/ research/2002-000662/SP-628-05-06e.pdf
- 2) http://www.statcan.gc.ca/english/research/75F0002MIE/ 75F0002MIE2004011.pdf

Given that the **low income after tax cut-off** (LICO-IAT) is the most widely used in Canada, it was used for this study. However, the market basket measure was also used to test the validity of the results—most of the results stood up to the change in measure.

labour market for most of the year were the most vulnerable to low income in 2004, followed by those whose main income recipient was unemployed or still in school. Children whose main income recipient was self-employed also had a higher risk of being in low income than those whose main income recipient was an employee. Furthermore, regardless of the main income recipient's labour market status, children from single-parent families were much more vulnerable to low income than children from two-parent families. Children who lived in families with several siblings were also more vulnerable to low income.

However, living in a two-parent family is not a guarantee against low income, since half of low-income children (51%) lived with two parents in 2004. Children's vulnerability to low income depends not only on their family type, but also on the family's work ability and effort.

More than two-thirds (68%) of all Canadian children lived in families with two income earners in 2004, compared with only one in five low-income children (21%). Although in many cases (45%) the low-income children's family type simply did not allow for the possi-

	Distrit	Distribution Specification		ation A	n A Specification B	
	Low	income	Entimated	Difference	Fatimated	Difference
	Yes	No	probability ¹	lowest	probability1	lowest
		%	%	% point	%	% point
Children's characteristics						
Boy	52.2	51.7	12.8	0.0	13.0	0.3
Girl	47.8	48.4	12.9	0.1	12.7	0.0
Under age 6	29.8	29.6	12.3	0.0	12.8	0.0
Age 6 to 11	36.0	32.9	13.0	0.7	12.9	0.1
Age 12 to 17	34.2	37.6	13.1	0.8	12.9	0.1
Region of residence						
Atlantic	6.2	7.0	14.7	3.2*	17.1	5.8*
Quebec	18.9	22.9	11.5	0.0	11.3	0.0
Ontario	40.8	40.5	13.2	1.7	12.5	1.2
Prairies	16.7	18.0	12.5	1.0	12.1	0.8
British Columbia	17.4	11.6	14.1	2.6	16.0	4.7*
Size of inhabited region						
Rural	5.4	14.1	5.1	0.0	5.2	0.0
Urban, population under 500,000 Urban, population 500,000	35.0	38.8	11.5	6.4*	11.3	6.1*
and over	59.6	47.1	16.4	11.3*	16.5	11.3*
Family type						
One parent	45.3	12.1	27.9	18.7*	33.5	25.0*
Two parents	51.3	85.0	9.4	0.2	8.5	0.0
Other family	3.1	2.9	9.2	0.0	12.2	3.7
One child	18.9	24.1	9.6	0.4	8.8	0.0
Two children	35.4	46.3	10.9	1.3	10.7	1.9
Three or more children	45.8	29.3	18.1	8.5*	19.4	10.6"
Main income recipient ²						
Under age 30	15.6	7.4	19.1	8.4*	21.9	11.6*
Age 30 to 39	46.2	39.3	14.0	3.3*	14.0	3.3*
Age 40 and over	38.3	53.4	10.7	0.0	10.3	0.0
Education						
Less than high school diploma	19.5	11.2	17.8	9.2*	19.6	12.3*
High school diploma	31.6	22.3	14.3	5.7*	15.6	8.3*
More than high school diploma	36.9	39.7	12.4	3.8*	11.3	4.0*
University	11.8	26.7	8.6	0.0	7.3	0.0
Work limitations						
Yes	16.8	6.9	15.4	2.8	20.1	7.9*
No	83.2	93.1	12.6	0.0	12.2	0.0
Recent immigrant						
Yes	12.8	5.4	22.2	10.5*	26.8	15.5*
No	87.2	94.6	11.7	0.0	11.3	0.0
Aboriginal off-reserve						
Yes	8.0	4.0	16.4	3.7	17.5	4.9*
No	92.0	96.0	12.7	0.0	12.6	0.0
Main activity						
Employee	26.2	76.6	5.6	0.0		
Self-employed	18.9	15.7	15.8	10.2*	* *	
Unemployed	8.4	1.9	34.3	28.7*	**	
Student	9.0	1.2	27.2	21.6*		
Not working	33.8	4.7	39.3	33.6*		**

Table 1 Impact of personal and family characteristics and main income recipient on risk of low income among children

difference in predicted probability is statistically significant to a confidence level of 95%
 Corresponds to the probability that a child with a particular characteristic would be in a low-income situation compared with another child without this characteristic, all others being equal.

2. Since the main income recipient gender variable is too closely correlated with being in a one-parent family, it has been omitted from the regressions.

Source: Statistics Canada, Survey of Labour and Income Dynamics, 2004.

bility of two income earners (e.g. single-parent families), many others lived in families in which not all the parents were employed. In particular, for more than one-third (34%) of low-income children from singleparent families, the parent did not declare any earnings, and more than 60% of low-income children from two-parent families lived in a family in which neither or only one parent declared earnings.

Moreover, parents' labour market participation does not always protect children from low income. In 2004, more than 40% of low-income children lived with at least one parent who declared a significant work effort (i.e. worked at least 910 paid hours during the year), and more than 20% lived in families with at least two earners.

Parents' work does not always protect children from low income because some parents have working conditions that do not enable them to meet their family's financial needs. Low-income children's parents who worked in 2004 had less favourable working conditions than other workers. They worked fewer hours (500 fewer),³ were more likely to be self-employed (33% versus 16%), and had atypical work schedules (33% versus 25%). In addition, chances were much higher that they earned less than \$10 per hour (49% versus 4%), had non-unionized jobs (85% versus 63%) or had jobs that did not offer additional benefits such as a dental or supplementary health plan (61% versus 17%).

In addition to family work effort, parents' working conditions and family type, some parents' personal characteristics are associated with a greater vulnerability of children to low income. Children dependent mainly on one parent with at the very most a high school diploma, who was under the age of 30, a recent immigrant, an Aboriginal person living offreserve or who had limitations at work were at higher risk of having low family incomes in 2004.4 However, the association between low income and the last two characteristics was statistically significant only when the main income recipient's labour market status was omitted from the model (Table 1, specification B). This means that these characteristics affect family income through their influence on labour market participation. However, in the absence of information on parents' labour market status, children who depend primarily on one parent with a limitation at work or of Aboriginal origin were at higher risk of low income. The three other characteristics (being of recent immigrant status, having no more than a high school diploma, or being under the age of 30) were associated with low income for children even when the main income recipient's labour market status was taken into consideration, but to a lesser degree.

A third model specification was also used to capture the effect of the total family work effort. It indicated that family work effort is the best predictor of low income for children. Its effect was even more significant than the labour market status of the family's main income recipient or the family type. Children who lived in families with no earners were at the greatest risk of low income. In fact, their probability of living in a low-income situation was 71% in 2004. By contrast, the probability of low income among children who lived in a family whose main income recipients declared not being in the labour force for most of the year was 39%. Furthermore, this specification showed that children in families with one earner (single-parent family or not) were more likely to live in low income (23%) than children who could count on the economic support of two parents (5%).

To date, the association between children's place of residence and the risk of being in a low-income situation has not been analyzed. Given that the LICO-IAT does not control for differences in the cost of living in different communities of the same size in Canada, it is difficult to establish a firm link between the region of residence and the probability of low income among children.

Using LICO-IAT suggests that children who lived in rural areas were much less at risk of belonging to lowincome families in 2004 than children in large cities (their estimated low-income probabilities were 5% and 16% respectively). However, with the market basket measure, which accounts for differences in the cost of living across communities, children's vulnerability to low income was very similar whether they lived in rural or urban areas (16% versus 17%).

Furthermore, with the LICO-IAT, only children in the Atlantic provinces stood out as being at slightly higher risk of low income compared with children elsewhere in Canada. However, the market basket measure revealed more significant provincial differences in the vulnerability of children to low income. For example, children in British Columbia were the most likely to be in a low-income situation in 2004 (their low-income probability was estimated at 23%), followed by children in the Atlantic provinces (20%). Children in Quebec were the least vulnerable (8%).

	Lo	w income		Not low income
	Income ¹	Differ- ence ²	Severe situation ³	Income ¹
	2004 \$	%	%	2004 \$
1994	20,200	29.6	52.5	60,200
1995	19,700	30.3	53.3	60,600
1996	20,000	29.3	50.3	61,300
1997	20,100	29.8	50.7	62,500
1998	20,300	29.2	51.5	63,900
1999	20,600	28.4	47.4	65,500
2000	21,300	27.0	43.1	68,400
2001	20,500	28.3	47.9	70,100
2002	20,700	28.2	49.1	70,000
2003	20,700	28.1	46.5	70.400
2004	21,400	27.7	48.3	72,800

Table 2 Evolution of the severity of situation of low-income children

1. After tax.

 The formula used to calculate the difference in income for each low-income child is the following: 1-(family income after transfers and tax + low-income cut-off after tax).

 Family income after transfers and tax for low-income children is below the 50% low-income cut-offs associated with their family.

Source: Statistics Canada, Survey of Labour and Income Dynamics. Low-income children

between the family income of low-income children and their low-income cut-off was 30% in 1994, slightly but not statistically different than the gap 10 years later (28% in 2004) (Table 2). The proportion of low-income children in severe low income was 53% in 1994, slightly higher than the 2004 rate (48%). However, the average family income difference between low-income children and other children was greater in 2004 than in 1994 (\$51,400 compared with \$40,000).6 This increase in income inequality seems to be due to a significant increase in the family income of children not living in a low-income situation during this period-more specifically, a major income increase for families at the highest end of the income distribution-rather than an income decline for economically disadvantaged families.

Income taxes and transfers play an important role in reducing low income

Every year between 1994 and 2004, the redistribution of income through income taxes and transfers helped reduce the rate and severity of low income for children. Comparing market income, rather than income after tax and transfers, with the Statistics Canada low income after tax cut-off, shows that 22% of children, rather than 13%, would have had low-income status in 2004 (Table 3)—i.e. an additional 584,000 children

Since the market basket measure is more specific in determining differences in the cost of living across Canada, it should generally be more effective in identifying the impact of the region of residence and its size on the rate of low income among children.

Changes in low income among children in the past few years

From 12% in 1989, low income among children steadily increased to a peak of 19% in 1996, before declining to 12% in 2001. Since then, it has remained fairly stable despite sustained economic growth.⁵ Furthermore, the severity of low income among children remained fairly stable between 1994 and 2004. The average difference Table 3 Low income in children, comparing low-income cutoffs after tax, with market income or income after tax

	Rate		Number o	f children	Difference		
	Market income	Income after tax and transfers	Market income	Income after tax and transfers	Market income	Income after tax and transfers	
		%		'000		%	
1994	25.1	16.8	1,753	1,174	63.5	29.6	
1995	25.0	16.7	1,753	1,171	63.9	30.3	
1996	28.0	18.7	1,968	1,319	61.4	29.3	
1997	26.6	17.9	1,871	1,260	61.4	29.8	
1998	24.8	15.6	1,737	1,093	60.3	29.2	
1999	22.9	14.6	1,596	1,015	58.4	28.4	
2000	21.5	13.9	1,491	967	57.0	27.0	
2001	21.5	12.2	1,484	844	55.8	28.3	
2002	22.1	12.3	1,519	849	53.6	28.2	
2003	21.7	12.7	1,480	867	54.8	28.1	
2004	21.5	12.9	1,456	872	53.9	27.7	

Source: Statistics Canada, Survey of Labour and Income Dynamics

Cross-sectional analysis

To estimate the impact of certain characteristics on the risk of low income among children in 2004, a logistic regression model was used. The binary dependent variable had a value of 1 if the child lived in a low-income family in 2004, 0 otherwise.

Explanatory variables covered children's personal characteristics, as well as family and main income recipient characteristics. Given the important interactions between different explanatory variables of interest, different specifications were estimated.

Specification A included all the children's personal characteristics, as well as the characteristics of their family and the main income recipient, *including labour market status*. This regression was used to determine the importance of the association between the labour force attachment of the family's main income recipient and the risk of low income. However, the effects of a number of other characteristics were reduced, since they are partly captured through the impact they have on the labour market status of the main income recipient.

Specification B included all the children's personal characteristics, as well as the characteristics of their family and the main income recipient, *excluding labour market* status. This regression was used to determine the direct association between several characteristics that affect labour market status and then the risk of low income.

Specification C included all the children's personal characteristics, as well as the characteristics of their family and the main income recipient, *excluding labour market status but including total family work effort*. Given that family type (single-parent, two-parent or other) and the main income recipient's labour market status (employed, self-employed, unemployed, student, not working) are too strongly correlated to the total family work effort, these two variables had to be excluded from the model in order to see to what extent the total number of income earners in the family was associated with low income.

Since the coefficients estimated using Logit are not easy to interpret (due to the non-linear nature of the Logit-type function), the predicted probabilities were derived from the coefficients estimated for each selected model specification. Only those probabilities derived from estimated coefficients significantly different from zero (with a 95% confidence level) were discussed.

in the absence of income redistribution. Moreover, the low-income gap would have been 54% in 2004, rather than the observed 28%.

Every year since 1994, income taxes and transfers reduced the rate of low income for children by eight or nine percentage points. However, their impact on low-income severity in 2004 was less than it had been 10 years earlier. Taxes and transfers reduced the low-income gap by an average of 26 percentage points in 2004 compared with 34 in 1994.

Every year, government transfers represented a significant proportion of the after-tax income of low-income families with children—between 59% and 67%. However, the source of these transfers evolved significantly between 1994 and 2004. Since 1999, the most important source has been child benefits (federal and provincial), whereas in previous years, social assistance represented the biggest portion of transfer income. More specifically, 36% of the income of low-income families with children in 1994 was from social assistance, while 16% came from child benefits. Ten years later, these proportions were practically reversed, with 31% of their family income coming from child benefits and 17% from social assistance (Table 4).

Table 4 Income components after transfers and tax for lowincome families with children

	Income	Net market income	Social assistance	Employment Insurance	Benefits for children	Other transfers
	2004 \$			%		
1994	18,900	35.5	35.8	6.3	16.0	6.3
1995	18,500	34.9	36.4	5.9	15.9	6.8
1996	18,700	33.5	36.2	3.8	18.3	8.1
1997	18,500	33.7	33.1	3.9	20.0	9.2
1998	18,500	32.9	29.8	4.1	25.1	8.2
1999	19,000	35.7	25.8	2.3	27.0	9.2
2000	19,200	38.0	22.4	2.8	28.2	8.6
2001	18,700	34.8	23.0	2.4	30.1	9.6
2002	18,900	37.9	21.2	2.9	30.2	7.7
2003	19,300	38.1	20.4	3.7	29.8	8.1
2004	19,700	40.8	16.7	3.5	31.1	7.6

Source: Statistics Canada, Survey of Labour and Income Dynamics.

Adding up all the low-income gaps indicates that a total of \$3.3 billion in additional income (from market income, transfers or other sources) would have been required for all low-income families with children to move above the low-income thresholds in 2004.

Children no more likely to be in a family vulnerable to low income in 2004 than in 1989

Many factors can make the rate of low income in children vary over time, including changes in the economy, government interventions, and changes in population composition. Regression analyses using 2004 data have revealed that some family characteristics are associated with a higher risk of low income for children. If the proportion of children in families with characteristics strongly associated with low income grows, then a greater proportion of all children will be vulnerable. This type of trend could mitigate the impact of economic growth and government interventions on low income among children. However, this does not seem to have been the case between 1989 and 2004.

In fact, the distribution of children based on certain characteristics identified as low-income risk factors precludes the conclusion that children were more likely to be in a family at high risk of low-income in 2004 than in 1989 (Table 5). On the one hand, they were more likely to be in a single-parent family or in a family whose main income recipient was a recent immigrant. On the other hand, fewer depended on a main income recipient under the age of 30 with less than a high school diploma. The rate of low income for children based on their family characteristics also evolved

characteristics and low income rate among children 1989 2004 Rate of low of

Table 5 Children's family and main income recipient's

			2001		
	Children	Rate of low income	Children	Rate of low income	
	'000'	%	'000	%	
All children	6,684.8	11.7	6,784.1	12.9	
Family Two parents Single parent Other family type	85.5* 12.2* 2.4	7.0 44.0* 15.8	80.8* 16.3* 3.0	8.2 35.7* 13.6	
0 income earners 1 income earner 2 or more income earners	4.6 25.1 70.2	84.0* 19.6* 4.1	4.0 24.5 71.5	78.8* 26.1* 4.6	
1 or 2 children 3 or more children	68.8 31.2	11.0 13.2*	68.6 31.4	10.2 18.7*	
Main income recipient Under age 30 Less than a high school	13.1*	25.7	8.4*	23.9	
diploma Recent immigrant	27.8* 6.7*	21.5 22.6*	12.2* 9.4*	19.6 26.1*	

* the estimates are statistically different between 1989 and 2004

Source: Statistics Canada, Survey of Consumer Finances, 1989; Survey of Labour and Income Dynamics, 2004.

little during this period. While it grew for children of recent immigrants and children in families with one income carner and three or more children, it fell for children in families with no income carners and children in single-parent families.

For many children, low income is a transitory situation

A snapshot of low income children for one year does not provide a complete picture of the situation. Indeed, several consecutive years of data provide additional useful information. For instance, the proportion of children affected by low income over a six-year period is much higher than in a single year. Of the children under age 13 in 1999, 22% experienced low income at least one year between 1999 and 2004, compared with just 12% in 1999. But the longer time frame also reveals that a small proportion of children are in a persistent lowincome situation. Between 1999 and 2004, 3% of children under age 13 in 1999 (or just less than 100,000) were in a low-income situation for all six years (Table 6).

Low income among children is a very dynamic phenomenon. The majority of children living in low income do not remain in that situation continuously, nor are children not in low income necessarily exempt from it. From 1999 to

Table 6 Persistence of low income

	'000	%
All children		
In 1999	486.1	12.3
At least 1 year	878.6	22.3
Every year	98.9	2.5
Persistent	275.2	7.0
After at least 1 yea	ır	
Only 1 year	317.9	36.2
2 years	185.9	21.2
3 to 4 years	190.9	21.7
5 to 6 years	183.9	20.9
Persistent ¹	275.2	31.3
1. Annual family incor	me cumulated	over

several consecutive years is below the low-income cut-offs in the same period. Source: Statistics Canada, Survey of Labour and Income Dynamics, 1999 to 2004.

2004, between 2% and 4% of children not in low income in a given year fell into it the following year. But between 28% and 46% of children in a lowincome situation in a given year climbed out the following year.⁷ However, approximately 30% of children who escaped low income between 1999 and 2000 re-entered it before 2005.

For children, entry into and exit from low income can be explained by changes in their family situation or their parents' labour market situation. Approximately 2% of children from 2003 fell into low income in 2004. For 42% of these children, the main reason was a change in their family environment (for example, parental separation or a new sibling); for 27%, it was mainly due to a lower employment income for the main income recipient; and for 31%, it resulted from a reduction in family income from other sources (transfers, second earner, etc.).

The main reasons behind children escaping low income are also interesting. Of the 28% of children in low income in 2003 but not in 2004, 20% escaped mainly due to a change in their family environment (for example, a new spouse for the parent or the departure of a sibling). The main reason for others was an increase in the income of their family members (50% due to an earnings increase for the main income recipient, and 29% from an increase in the family income from other sources).

Of all the children under 13 in 1999 who experienced low income for at least one year between 1999 and 2004, the average time in this situation was 2.7 years, or just under half of the study period. More than 30% of them experienced persistent in low income and 43% experienced low income from three to six years between 1999 and 2004, which represents a significant part of their childhood.

Only a few factors help predict persistence of low income for children

Of all the children in a low-income situation in 1999, only those whose main income recipient was not in the labour market, was 30 years of age or older or had at most a high school diploma had a significantly higher risk of persistent low income (Table 7). For example, the risk of persistent low income when the main income recipient was not in the labour market in 1999 was more than 60%, while it varied between 22% and 24% for lowincome children whose parent was either self-employed or an employee. While a parent's selfemployment seems to be a determining factor of low income among children in a given year, it is

not associated with persistent low income. The same can be said for children in a single-parent family. In fact, the probability of persistent low income for children is similar for those in a single-parent (40%)or two-parent (45%) family, whereas in a given year, children in single-parent families are clearly at higher risk of low income. And low-income children whose main income recipient was under the age of 30 were at lower risk of persistent low income than those whose main income recipient was older, while for the risk of low income in a given year, the opposite was true (Tables 1 and 7).8

Conclusion

The proportion of children under the age of 18 living in a low-income family was virtually the same in 2004 as in 1989, despite the steady economic growth since the 1990-1992 recession. More than 12% of children lived in a low-income family in 2004, and more than 22% of children experienced an episode of low income between 1999 and

Longitudinal analysis

To estimate the impact of certain characteristics on the risk lowincome children in 1999 had of experiencing persistent low income between 1999 and 2004, another logistic regression model was used. In this model, the binary dependent variable had a value of 1 if the lowincome child in 1999 experienced persistent low income between 1999 and 2004, 0 otherwise. The explanatory variables were the same as those in specification A for the crosssectional analysis, except some had to be categorized differently (e.g. variables on age and the education level of the main income recipient), given the limited number of observations.

Table 7	Impact of characteristics of low-income
	children under 13 years in 1999 on
	their risk of persistent low income

	Distribution of low-income children in 1999	Estimated probability of persistent low income from 1999 to 2004
		%
All children	100.0	41.5
Boy	54.2	40.7
Girl	45.9	42.3
Under age 6	40.7	42.2
Age 6 to 12	59.3	42.1
Province	10.0	10 0
Quebec	25.2	40.0
Ontario	31.8	34.6
Prairies	21.3	54.5
British Columbia	10.8	35.9
Region		
Rural	7.1	45.0
Urban, population	20 4	40.0
Urban population	30.1	40.0
500,000 and over	54.9	37.1
Family type		
Single parent	55.7	39.9
Two parents	41.3	44.6
Other family	F	F
One child	14.0	39.3
Three or more children	30.2	49.0
	40.0	57.7
Under 30 years	23.6	33.5
30 years and over	76.4	44.8*
Educational level comple	ted	
High school diploma	54.3	55.2*
More than a high school		0.012
diploma	45.7	27.9
Work limitations		
Yes	10.9	49.5
No	89.1	42.0
Recent immigrant		
Yes	15.1	62.9
	64.9	30.7
Aboriginal off-reserve	5.0	E0 4
No	94.2	41.3
Main activity during the	07.L	41.0
Employee	26.2	24.3
Self-employed	18.0	21.7
Unemployed	F	F
Student	8.6	53.1
Not working	42.7	60.8*

 difference in predicted probability is statistically significant to a confidence level of 95%

Source: Statistics Canada, Survey of Labour and Income Dynamics, 1999 to 2004. 2004. Children who experienced an episode of low income remained in this situation on average for almost half (2.7 years) of the 1999 to 2004 study period.

Furthermore, the severity of low income for children was the same in 2004 as 10 years prior, and since the economic situation of the well-off children in Canada improved significantly in the past decade, income inequality widened.

Family situation and parents' lack of employment are the factors that most influenced children's vulnerability to low income. While children in single-parent families were clearly more vulnerable to low income, those in two-parent families were not exempt from it. In 2004, more than half of low-income children lived in a two-parent family. Whether children were part of single- or two-parent families, their parents' labour market situation was a key determining factor in the risk of getting into a low-income situation. Children in families with no workers were the most vulnerable to low income, while those with one parent working were more vulnerable than those with both parents working. However, even parents' substantial work effort does not always protect children from low income if salary or working hours are insufficient.

Low income for children is a very dynamic phenomenon in Canada. Many children experience low income, but few remain in that situation for several consecutive years. In addition, in the last decade, income taxes and transfers have played an important role in reducing the rate and severity of low income among children. However, despite sustained economic growth and a significant increase in child benefits, many children remain in that situation in Canada. In 2004, low-income families with children would have needed more than \$3 billion in additional income (from market income, transfers or other sources) to surpass lowincome cut-offs.

Perspectiv

Notes

 Since the publication of Income in Canada: 2004, some minor changes have been made to the Survey of Labour and Income Dynamics data. These changes may slightly affect the number of children identified as being in a lowincome family using LICO-IATs. As a result, the estimates of the number of low-income children that appear in the most recent Statistics Canada publication (877,000 according to the LICO-IATs) differ slightly from the estimates in this study (872,000).

- 2. The median family income of children not living in a low-income situation (\$62,700) was significantly lower than their average income; however, this is not the case for low-income children (\$20,600). This suggests that the average family income of children from financially well-off families was probably biased upward by very high income levels. Despite this difference, the median family income of children not living in a low-income situation was three times higher than that of low-income children.
- 3. It is not possible to determine whether the fewer working hours result from unfavourable labour market conditions or a lower work effort.
- 4. It is not possible to determine whether the greater vulnerability to low income of recent immigrants, individuals with work limitations and Aboriginal persons can be attributed to discrimination rather than to other characteristics not observed in the data.
- 5. The low income rates of 12.2% in 2001 and 12.9% in 2004 are not statistically different. After this study began, the 2005 and 2006 low-income data were published and showed that the rate of low income among children in 2005 was 11.7%, which equals the unrevised 1989 rate. Revisions to the 1989 data would likely raise the rate of low income that year only slightly, not enough to make it significantly different from the 2005 rate.
- 6. This statement is also true for income adjusted to take family size into account, when a purely relative measure is used (LIM-IAT) to identify low-income children, and when the median rather than the average income is compared, although in the latter case, the difference is smaller.
- 7. Even though the annual exit rates are much higher than the entry rates, it does not necessarily mean that fewer children live in low income every year. The entry rate into low income is the proportion of children who did not live in a low-income situation in a given year, but did the following year, while the low-income exit rate is the

proportion of children who lived in a situation of low income in a given year, but did not the following year. Since different denominators are used, even if the exit rate seems higher than the entry rate, the absolute number of people who escape low income is not necessarily higher than the absolute number of people entering low income. For example, between 2003 and 2004, the 2.3% entry rate corresponded to 84,000 children, while the exit rate of 28.4% equalled 99,000 children.

8. While few characteristics are associated with significant persistent low income, it is perhaps due to the small number of observations available for analysis. Among other things, the results lead one to believe that recent immigrant status is positively associated with persistent low income for children.

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What's new?

Recent reports and studies

From Statistics Canada

Community vulnerability to population and employment decline

Over the last two decades, one of the most important factors of change for Canadian communities has been the process of global economic integration.

Globalization has opened new economic opportunities for various sectors, such as the primary resource sector. However, the economies of regions relying on these sectors have become more vulnerable to declines in population and employment in the wake of foreign competition. Indeed, 1 in every 5 communities in Canada are vulnerable to a loss of population, and about 1 in 20 are vulnerable to a decline in employment.

The most vulnerable communities are in regions characterized by a steady and constant loss of population over the past two decades—the Prairies, northern Ontario, northern Quebec and the most remote regions of Atlantic Canada.

For more information, see the April 14, 2008 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

Earnings inequality and earnings instability of immigrants

Instability in carnings for immigrants usually declines substantially after several years in Canada. This is consistent with the view that during their first years in Canada, immigrants move more frequently from one job to another, or have part-time or temporary jobs. As they gain Canadian experience, immigrants are likely to find more stable employment.

Based on their earnings in the four years after landing, the earnings instability of immigrants who came to Canada between 1998 and 2000 was substantially higher than the earnings instability of those who arrived between 1980 and 1982. It was also higher than the earnings instability of those who came between 1983 and 1985. Business cycles also had an impact on earnings instability for immigrants. While instability generally decreased during the first several years in Canada, it rose rapidly during the recession years in the early 1990s and fell in subsequent years.

Earnings inequality rose among recent immigrants over the last two decades. Although foreign education, the ability to speak one of the official languages and birthplace account for a large part of immigrants' earnings inequality (up to 44% depending on the cohorts considered), much remains unexplained.

For more information, see the April 9, 2008 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

Income security in retirement among the working population

On average, Canadian workers at age 75—when most are retired—had family disposable incomes that were 80% of their incomes at age 55, when they were working. However, the extent to which they maintained their income in retirement varied with the level of income.

Disposable incomes for wealthier Canadian workers declined significantly after they headed into the retirement years, but those with low incomes encountered relatively little change.

Among workers with average incomes at age 55, family disposable income fell after age 60, declined until 68, then stabilized at about 80% of their income level at 55.

Lower income workers (those in the bottom 20% of the income distribution) experienced little change in income as they moved from age 55 through their retirement years. This was largely because of the income maintenance impact of the public pension system.

For more information, see the March 10, 2008 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

Employment growth among lone mothers in Canada and the United States

Employment rates and earnings among lone mothers rose by virtually identical magnitudes in Canada and the United States between 1980 and 2000, but for different reasons.

During the 20-year span, employment rates of single mothers rose by 12 percentage points in Canada and by 13 points in the United States. Earnings of all single mothers increased by almost 40% in both countries.

In Canada, employment and earnings improved mostly because of demographic change. That is, these women were much better educated and significantly older in 2000 than their counterparts in 1980, and gains in aggregate employment and earnings reflected this. Two-thirds of the employment gains were associated with change in these demographic characteristics.

In the United States, changes in these demographic variables were less important, accounting for less than one-third of the overall employment gains over a similar period. Most of the gain was associated with changing labour market behaviour and unmeasured variables.

For more information, see the March 7, 2008 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

Income of Canadians

Median family income (pre-tax) increased by 11.1% (in constant dollars) between 1980 and 2005. As a result of strong economic growth fostered by gains in employment, a further 2.1% increase was observed between 2005 and 2006. At the same time, government transfers also increased, leading to a similar increase in after-tax family income.

Families had an estimated after-tax median income of \$58,300 in 2006, up 2.1% from 2005 in real terms. It was the third consecutive annual increase. In 2006, the increase was mainly the result of gains in both market income and government transfers.

The gain in after-tax income was shared by most family types, including senior families (the main income earner aged 65 or over), and younger, working-age families. Senior families had a median after-tax income of \$42,400, up 2.9%. Working-age families had a median of \$62,000, a 1.8% gain.

Both senior and working-age family median after-tax income increased by roughly 18% in real terms since 1996.

Persons living alone (unattached individuals) had a median after-tax income of \$22,800 in 2006, up 4.6% from 2005.

For more information, see the May 5, 2008 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

How families respond to layoffs

Married women in at least some Canadian families were able to adjust to their husband's layoff by increasing their own employment income during the 1990s.

One set of families—those that had no children aged 15 or over—appeared to have adjusted partially to the layoff of the husband through an increase in the wife's employment income. Five years after the husband's layoff, the increase in the wife's earnings offset about one-fifth of the loss experienced by the husband.

Husbands in these families experienced earnings losses that averaged \$12,200 (in 2002 dollars). However, wives increased their earnings by roughly \$2,700, somewhat mitigating the income loss.

For more information, see the February 21, 2008 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

From other organizations

Driving forces of the Canadian economy

This paper analyzes the Canadian economy for the post-1960 period, using an accounting procedure developed in Chari, Kehoe, and McGrattan (2006), which identifies factors that help align the predictions of the neoclassical growth model with the observed macroeconomic variables. Total factor productivity and the consumption-leisure trade-off (productivity and labour factors) are found to be key to understanding the changes in output, labour supply and labour productivity observed in the Canadian economy.

A decomposition of the labour factor for Canada and the United States shows that the decline in the gender wage gap is a major driving force for the decrease in labour market distortions. Moreover, the milder reduction in labour market distortions observed in Canada is due to a relative increase in effective labour taxes in Canada. See *Driving Forces of the Canadian Economy: An Accounting Exercise* by Simona E. Cociuba and Alexander Ueberfeldt, Working Paper 2008-14, May 2008, Bank of Canada.

Understanding productivity

This extensive review of the rapidly expanding research on productivity, both at the macro and micro levels, focuses primarily on Canadian papers, but also draws on selected studies from other countries, especially the United States, where such work sheds important light on particular aspects of productivity growth. Key results of the studies and the important methodological features that underpin those results are highlighted along with areas for further research. See Understanding Productivity: A Review of Recent Technical Research by Richard Dion and Robert Fay, Discussion Paper 2008-3, February 2008, Bank of Canada.

A Wave of protectionism?

Given the U.S. current account deficit, pressure is high on Asian countries to revalue their currencies. Calls from some U.S. policymakers for tariffs on imports from China have sparked fears of a world-wide surge in protectionism. This study evaluates the risk of protectionism, considering the economic effects of tariffs and the incentives for policymakers to adopt tariffs. Following the political economy literature, the paper distinguishes 'benevolent' policymakers who care about long-term GDP—and 'myopic' policymakers, for whom short-term considerations are important.

An analysis of the economic effects using the Bank of Canada's Global Economy Model shows that the gains from import tariffs are small: in the short-term, tariffs raise the price of imports and shift consumption toward domestically produced goods; but they also lead to a real appreciation. This improves the terms of trade, but falling export volumes lead to a reduction in GDP in the long run. In the political dimension, the paper concludes that a 'benevolent' policymaker would not adopt tariffs, because of negative long-term economic consequences, but 'myopic' policymakers might be tempted to exploit short-term political gains. Given the potentially high costs of protectionist trade policies, protectionism is viewed as an important risk. See A Wave of Protectionism? An Analysis of Economic and Political Considerations by Philipp Maier, Working Paper 2008-2, January 2008, Bank of Canada.

Minority self-employment in the United States

Changes in self-employment have occurred since the early 1980s in the United States. Random samples of approximately twenty million US workers are examined from the Basic Monthly files of the CPS (BMCPS), the 2000 Census and the 2006 American Community Survey (ACS). In contrast to the official definition of self-employment, which simply counts the unincorporated self-employed, the paper also includes the incorporated self-employed. The paper presents evidence on trends in self-employment for the US by race, ethnicity and sex.

Evidence is also presented for construction, which has self-employment rates roughly double the national rates and strikingly high racial and male/female disparities in self-employment rates. The construction sector is also important given the existence of publicsector affirmative action programs at the federal, state and local levels directed at firms owned by women and minorities. Disparities between the selfemployment rates of white men and white women and minorities in construction narrowed in the 1980s, widened during the 1990s after the US Supreme Court's decision in Croson but then narrowed again since 2000 after several legal cases that found such programs constitutional. Despite this, substantial disparities remain, particularly in earnings.

The paper also finds evidence of discrimination in the small business credit market. Firms owned by minorities in general and blacks in particular are much more likely to have their loans denied and to pay higher interest than is the case for white males. This is only partially explained by their lack of creditworthiness and is consistent with a finding of discrimination in the credit market by banks. See *Minority Self-Employment in the United States and the Impact of Affirmative Action Programs* by David G. Blanchflower, NBER Working Paper No. 13972, April 2008, National Bureau of Economic Research.

Obesity, disability, and the labour force

Men of prime working age have increased their nonemployment rates over the past 30 years. At the same time, disability rates have also increased despite a backdrop of generally improving health in the U.S. population. However, obesity has increased substantially over this period. The paper finds that changes in the characteristics of male workers including age, race, ethnicity, and obesity levels—can explain a large portion (around 40%) of the increase in non-employment. See "Obesity, disability, and the labor force" by Kristin F. Butcher and Kyung H. Park, *Economic Perspectives*, issue Q I, 2008, Federal Reserve Bank of Chicago.

In the works

Some of the topics in upcoming issues

Profile of the Canadian armed forces

The socio-demographic and occupational characteristics of the Canadian military, with a comparison of the prevalence of work stress, as well as social and psychological well-being among service members and the general working population.

Work-life balance among shift workers

Shift workers play an important role in an economy that demands goods and services 24/7. This paper examines the time-use patterns and work-life balance of Canada's shift workers.

Change in wealth of Canadians

The wealth situation of the young, elderly and those in their peak earnings span of life cycle.

Parental benefit claim patterns

The use of parental leave by fathers and its impact on family and workplace dynamics and how both mothers and fathers are making use of the additional 25 weeks of parental benefit.

Wages of older workers

With the aging of the baby-boomers, age-earnings profiles will be of even more importance in forecasting future pension benefits payout.

Remittances by recent immigrants in Canada

A look at the characteristics of immigrants who send money back to relatives, as well as the incidence of remitting and the amounts remitted by immigrants from a wide range of countries.

Employment in the trades

An analysis of employment trends in selected trade occupations using socioeconomic and job characteristics.

Job quality

An examination of recent contrary employment trends in "well-paid" manufacturing and "low-paid" retail trade.

Immigrants: Still settling for less?

Despite their higher education level, immigrants continue to be over-represented in low-skilled jobs and to have lower earnings than Canadian-born workers.

Varia

In this issue: Provincial labour force differences by level of education; Work absence rates

PREVIOUS UPDATES

Retirement – Summer 2006 Minimum wage – Winter 2006 Work absence rates – Summer 2007 Gambling – Summer 2007

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Employment Insurance Statistics Program Gilles Groleau 613-951-4091

Major wage settlements Workplace Information Directorate (Human Resources and Social Development Canada) 819-997-3117 or 1 800 567-6866

Labour income Anna MacDonald 613-951-3784

Survey of Labour and Income Dynamics Survey of Financial Security Survey of Household Spending Client Services 613-951-7355 or 1-888-297-7355

General Social Survey

Education, Work and Retirement Aging and Social Support Time Use Client Services 613-951-5979

Pension surveys

Pension Plans in Canada Survey Bruno Pépin 613-951-4023

Quarterly Survey of Trusteed Pension Funds Gregory Sannes 613-951-4034

Special surveys

Adult Education and Training Survey Client Services 613-951-7608 or 1 800 307-3382

National Graduates Survey Client Services 613-951-7608

Provincial labour force differences by level of education

Canada is a diverse country. Its ten provinces and three territories are endowed with varying natural resources and have developed their own industrial infrastructures and labour markets. Nevertheless, education is always a major factor in the ability to find a job. This issue of *Perspectives on Labour and Income* launches a series examining key labour market indicators by education and province for 1990 and 2006. The variables covered include sex, age, full-/part-time work, occupation, industry, multiple job holdings, hours worked, and earnings. The objective is to provide a better understanding of how provincial economies utilize workers with different levels of education.

N early half of 26.2 million persons aged 15 or older had completed postsecondary education in 2006 compared with one-third of 21.2 million in 1990. The proportion with postsecondary education increased not only because more young people are proceeding to higher education, but also because of the relatively larger intake of immigrants with higher education and skills. Of the additional working-age population between 1990 and 2006, 84.5% had postsecondary education.

Nearly half of the increased working-age population between 1990 and 2006 had a community college certificate or diploma



In both 1990 and 2006, the proportion with a university degree was highest in Ontario, followed by Alberta and British Columbia, and lowest in Newfoundland and Labrador. Some of the growth in the proportion of degree holders in the first three provinces could be attributed to their relatively larger intake of immigrants (who are selected on the basis of education and skills). Persons with less than postsecondary education constituted the largest group in each province. In 1990, Prince Edward Island led the ranking at 72.2%, while Nova Scotia trailed at 64.3%. By 2006, the proportion had dropped, the rakings had changed and the range had widened—Manitoba led with 58.3% and Quebec trailed at 48.8%. At the same time, the range in the proportion of university degree holders rose from 6.9 points to 10.4 points, indicating that the education differential between provinces increased over the 1990 to 2006 period.

Working-age population by education and province

		Les	s than posts	econdary		Complete	d postsecond	ary
	Population 15 and over	Total	Less than high school	Completed high school ¹	Total	Certificate/ diploma	Bachelor's degree	Advanced degree
1990	'000				%			
Canada	21.214.7	67.3	37.8	29.5	32.7	21.8	7.5	33
Newfoundland and Labrador	439.8	71.6	48.5	23.1	28.4	22.6	4.0	1.8
Prince Edward Island	98.1	72.2	48.3	23.9	27.8	21.0	4 9	1.9
Nova Scotia	697.0	64.3	42.4	21.8	35.7	25.6	6.9	3.3
New Brunswick	569.1	71.1	44.3	26.9	28.9	21.1	5.6	2.2
Quebec	5.457.0	68.1	43.4	24.8	31.9	22.6	6.5	2.7
Ontario	7,960.0	66.8	35.8	31.0	33.2	20.5	8.6	4.1
Manitoba	824.2	71.8	41.9	29.9	28.2	18.3	7.0	2.9
Saskatchewan	733.8	71.0	42.0	29.1	29.0	21.0	6.0	2.0
Alberta	1.889.8	64.6	32.0	32.6	35.4	23.6	8.5	3.2
British Columbia	2,545.9	65.6	29.2	36.4	34.4	23.4	7.7	3.4
2006								
Canada	26.185.1	51.2	23.2	28.0	48.8	29.9	13.2	5.8
Newfoundland and Labrador	427.7	56.7	30.8	26.0	43.3	32.5	7.3	3.5
Prince Edward Island	112.3	54.1	28.3	25.8	45.8	31.9	9.7	4.2
Nova Scotia	762.8	51.5	26.6	24.9	48.5	32.3	11.5	4.7
New Brunswick	611.3	55.9	27.1	28.8	44.1	30.6	9.9	3.7
Quebec	6,251.5	48.8	26.5	22.3	51.2	33.8	12.6	4.8
Ontario	10,229.0	50.1	21.6	28.6	49.9	28.6	14.3	7.0
Manitoba	892.0	58.3	27.1	31.2	41.7	25.7	12.1	4.0
Saskatchewan	746.4	57.6	26.9	30.7	42.4	28.3	10.7	3.4
Alberta	2,641.3	52.0	20.8	31.2	48.0	29.6	13.1	5.3
British Columbia	3,511.0	53.0	19.6	33.4	47.0	27.4	13.5	6.1

1. Includes those who had some postsecondary education.

As expected, participation in the labour force increases with education. In both 1990 and 2006, the participation rate for those with less than a postsecondary education ranged from 66% in Alberta to 46% in Newfoundland and Labrador. However, for those with a university degree, Newfoundland and Labrador had the highest participation rate (91.1%) in 1990. But this fell to 81.0% by 2006, indicating that new degree holders—the majority women—were participating at lower rates. With Newfoundland and Labra-

dor dropping to fifth place in 2006, Alberta moved into top spot. Alberta also had the highest participation rate for those with a certificate or diploma from a community college. Ontario, which ranked second in 1990, slid to fifth place in 2006 as its overall participation rate fell from 69.5% to 67.7%.

While the range of participation rates remained around 20 percentage points for those with less than postsecondary education, it narrowed from 10.5 points to 6.8 points for those with a university degree.

Participation rate by education and province

	Population 15 and over	Less than postsecondary			Completed postsecondary		
		Total	Less than high school	Completed high school ¹	Total	Certificate/ diploma	University
			_	%	-	1.1.1	
1990							
Canada	67.1	60.2	49.7	73.7	81.5	79.5	85.4
Newfoundland and Labrador	56.7	46.4	37.5	65.1	82.5	80.3	91.1
Prince Edward Island	65.6	60.0	51.7	76.9	80.2	77.2	89.6
Nova Scotia	61.9	53.3	44.3	70.7	77.4	74.3	85.1
New Brunswick	60.0	52.7	41.8	70.5	78.1	75.4	85.5
Quebec	64.2	55.7	45.7	73.2	82.4	80.4	87.5
Ontario	69.5	63.3	53.8	74.2	82.2	80.1	85.5
Manitoba	67.3	61.4	51.1	75.9	82.3	79.9	86.5
Saskatchewan	66.6	61.0	50.1	76.7	80.2	78.1	85.9
Alberta	72.5	66.3	55.2	77.3	83.9	83.2	85.5
British Columbia	66.9	61.5	49.3	71.3	77.2	75.6	80.6
2006							
Canada	67.2	56.9	41.9	69.4	78.0	76.6	80.1
Newfoundland and Labrador	59.2	46.3	33.2	61.8	76.2	74.6	81.0
Prince Edward Island	68.7	61.5	48.1	76.2	77.0	74.6	82.7
Nova Scotia	62.9	52.6	38.1	68.0	73.9	70.8	79.9
New Brunswick	63.7	54.6	38.9	69.4	75.3	73.5	79.3
Quebec	65.5	52.3	39.3	67.6	78.1	77.3	79.6
Ontario	67.7	57.2	41.6	69.0	78.3	76.7	80.6
Manitoba	68.8	61 3	46.6	74 1	79.2	77 7	817
Saskatchewan	69.1	62 1	46.5	75 9	78.5	76.5	82.6
Alberta	73 4	66.2	52.8	75.1	81.1	79.7	83.3
British Columbia	65.7	57.1	40.7	66.7	75.3	74.5	76.5

1. Includes those who had some postsecondary education.

The unemployment rate is inversely related to education. In all provinces, a person with more education is less likely to be unemployed. For persons with less than a postsecondary education, the unemployment rate ranged from 21.9% in Newfoundland and Labrador to 7.6% in Ontario in 1990 and from 20.1% in the former to 4.4% in Alberta in 2006. Even though the overall rate of unemployment was highest in Newfoundland and Labrador, in both 1990 and 2006 its rate for university degree holders was lower than Quebec's. The unemployment rate spread for those with a university degree, however, was only 2.5 percentage points in 2006, down from 3.0 points in 1990.

Alberta's unemployment rate of 3.4% in 2006 was the lowest in Canada, replacing Ontario whose 6.2% was the lowest in 1990. The low rate in Alberta was largely due to the demand for labour by its booming economy. This also likely opened up employment opportunities for persons with less than a postsecondary education—a group more likely to experience unemployment in other provinces. For instance, this group had an unemployment rate of 11.2% in Quebec and 8.7% in Ontario, compared with just 4.4% in Alberta. This conclusion is further supported by the group's high participation rate of 66.2% compared with 52.3% in Quebec and 57.2% in Ontario.

Unemployment rate by education and province

	Population 15 and over	Less than postsecondary			Completed postsecondary		
		Total	Less than high school	Completed high school'	Total	Certificate/ diploma	University
			1	%			
1990							
Canada	8.1	9.9	12.4	7.8	5.4	6.3	3.8
Newfoundland and Labrador	17.0	21.9	25.9	17.1	10.0	12.0	3.0
Prince Edward Island	14.4	18.1	21.2	13.9	7.8	8.8	5.0
Nova Scotia	10.7	13.1	14.8	11.1	7.6	8.8	5.0
New Brunswick	12.1	15.1	18.7	11.7	7.0	8.4	3.7
Quebec	10.4	12.6	14.8	10.1	7.3	8.1	5.6
Ontario	6.2	7.6	9.5	6.1	3.9	4.7	2.6
Manitoba	7.4	8.6	10.4	7.0	4.9	5.3	4.2
Saskatchewan	7.0	8.2	10.0	6.6	4.9	5.2	4.0
Alberta	6.9	8.4	11.3	6.4	4.6	5.2	3.4
British Columbia	8.4	10.1	14.0	8.0	5.8	6.5	4.3
2006							
Canada	6.3	8.5	12.3	6.5	4.6	5.1	4.0
Newfoundland and Labrador	14.8	20.1	25.9	16.5	10.5	12.8	4.3
Prince Edward Island	11.0	15.2	20.9	11.3	7.1	8.2	4.7
Nova Scotia	7.9	10.8	15.1	8.3	5.7	6.6	4.1
New Brunswick	8.8	12.0	18.0	8.8	5.9	7.1	3.4
Quebec	8.0	11.2	15.3	8.5	6.0	6.6	4.9
Ontario	6.3	8.7	12.5	7.0	4.5	4.7	4.2
Manitoba	4 3	5.7	9.1	3.9	2.8	2.8	2.8
Saskatchewan	4.7	6.0	8.5	4.7	3.2	3.4	2.8
Alberta	34	4 4	6.4	3.4	2.6	2.8	24
British Columbia	4.8	5.9	9.0	4.8	3.8	3.9	3.6

1. Includes those who had some postsecondary education.

The strong relationship between education and the likelihood of being employed prevailed in all provinces in both 1990 and 2006. Alberta had the highest employment rate in both 1990 and 2006, 67.6% and 70.8% respectively. The strong increase reflects the effect of an economic boom, which has resulted in employment growth of 46.5% compared with 25.0% for Ontario and just 4.3% for Newfoundland and Labrador. Persons with less than a postsecondary education had the highest employment rate in Alberta, 63.3%

compared with 52.2% in Ontario and 36.9% in Newfoundland and Labrador. On the other hand, for those with a university degree, Newfoundland and Labrador had the highest rate in 1990 (88.3%), falling to 77.5% in 2006. As with the participation rate, the interprovincial range for the employment rate also narrowed, from 11.2 percentage points to 7.6 points for those with a university degree compared with around 25 points for those with less than a postsecondary education.

Employment rate by education and province

	Population 15 and over	Less than postsecondary			Completed postsecondary		
		Total	Less than high school	Completed high school'	Total	Certificate/ diploma	University
				%		1111	
1990							
Canada	61.7	54.2	43.5	68.0	77.0	74.4	82.2
Newfoundland and Labrador	47.0	36.2	27.7	54.1	74.3	70.7	88.3
Prince Edward Island	56.2	49.2	40.7	66.2	74.0	70.4	85.1
Nova Scotia	55.3	46.2	37.7	62.8	71.5	67.8	80.8
New Brunswick	52.8	44.7	34.0	62.3	72.7	69.1	82.4
Quebec	57.5	48.7	39.0	65.8	76.4	73.9	82.6
Ontario	65.3	58.4	48.7	69.7	79.0	76.3	83.2
Manitoba	62.3	56.1	45.7	70.6	78.2	75.7	82.9
Saskatchewan	61.9	56.0	45.1	71.7	76.4	74.1	82.5
Alberta	67.6	60.7	49.0	72.3	80.1	78.8	82.5
British Columbia	61.3	55.3	42.4	65.6	72.7	70.6	77.1
2006							
Canada	63.0	52.1	36.7	64.8	74.3	72.7	76.9
Newfoundland and Labrador	50.4	36.9	24.5	51.5	68.2	65.1	77.5
Prince Edward Island	61.1	52.3	38.1	67.9	71.6	68.4	78.8
Nova Scotia	57.9	46.9	32.4	62.3	69.6	66.1	76.6
New Brunswick	58.1	48.1	31.9	63.3	70.9	68.3	76.7
Quebec	60.2	46.4	33.3	61.9	73.4	72.2	75.7
Ontario	63.5	52.2	36.4	64.1	74.8	73.1	77.2
Manitoba	65.8	57.8	42.3	71.2	77.0	75.6	79.3
Saskatchewan	65.9	58.4	42.5	72.3	76.0	73.9	80.3
Alberta	70.8	63.3	49.5	72.6	79.0	77.5	81.3
British Columbia	62.5	53.7	37.0	63.5	72.5	71.6	73.8

1. Includes those who had some postsecondary education.
Employment for persons with less than a postsecondary education grew by 17.3% in Alberta and 8.3% in British Columbia, whereas it fell in all other provinces. On the other hand, employment levels increased in all provinces for persons with a certificate or diploma from a community college or a university

degree. The growth was higher for women, reflecting the change in the mix of an economy generating more services jobs—in retail and wholesale trade and the public sector (mostly women)—and fewer goods-producing jobs—in manufacturing, construction, and utilities (mostly men).

Growth in employment by education, province and sex from 1990 to 2006

		L	ess than posts	econdary	Completed postsecondary			
	Population 15 and over	Total	Less than high school	Completed high school'	Total	Certificate/ diploma	University	
				%				
Both sexes								
Canada	26.0	-9.8	-36.1	11.7	77.9	65.1	101.0	
Newfoundland and Labrador	4.3	-21.6	-45.4	4.2	35.9	28.8	57.7	
Prince Edward Island	24.5	-8.6	-37.3	27.1	82.2	69.0	115.8	
Nova Scotia	14.7	-11.1	-41.1	24.0	44.6	35.0	65.0	
New Brunswick	18.3	-9.2	-38.2	16.8	60.2	54.0	74.2	
Quebec	19.9	-22.0	-40.2	-3.1	77.0	67.5	97.9	
Ontario	25.0	-13.8	-42.1	8.9	82.8	71.4	99.6	
Manitoba	14.2	-9.5	-35.1	13.7	57.5	51.4	67.9	
Saskatchewan	8.2	-13.9	-38.5	8.4	48.0	37.0	73.8	
Alberta	46.5	17.3	-8.2	34.3	86.9	72.1	115.4	
British Columbia	40.8	8.3	-19.1	22.5	87.9	63.7	134.9	
Men								
Canada	19.9	-11.2	-37.5	14.3	65.2	59.3	75.0	
Newfoundland and Labrador	-6.1	-27.8	-50.9	0.7	23.3	21.2	28.9	
Prince Edward Island	13.9	-15.1	-39.4	24.4	77 1	88.7	55.9	
Nova Scotia	5.3	-17.8	-44.6	20.0	34.6	31.2	40.9	
New Brunswick	9.7	-14.6	-40.1	12.7	50.0	51.3	47.2	
Quebec	12.1	-24.1	-42.0	-1.8	62.6	59.9	68.1	
Ontario	19.9	-14.2	-43 7	13.6	70.1	63.4	79.2	
Manitoba	10.0	-9.0	-33.5	16.7	45.8	53.9	33.8	
Saskatchewan	2.9	-13.7	-37.5	12.0	37.8	35.9	A1 A	
Alberta	43.6	16.8	-8.0	35.9	79.8	76.8	85.1	
British Columbia	34.0	7.5	-20.5	24.3	70.5	53.1	101.7	
Women								
Canada	33.5	-8.1	-33.9	9.0	93.6	71.8	138-1	
Newfoundland and Labrador	17.7	-127	-36.6	8.9	50.5	37.0	100.0	
Prince Edward Island	37.3	0.0	-34.3	29.9	86.8	54.2	204.3	
Nova Scotia	26.2	-2.2	-35.5	28.1	55.9	38.6	96.8	
New Brunswick	29.2	-1.8	-34.8	21.6	71 3	56.8	106.0	
Quebec	30.1	-19.1	-37 1	-4.5	95.3	76.5	1/11 3	
Ontario	31.2	-13.4	-39.7	4.2	98.5	80.6	128.0	
Manitoba	19.5	-10.0	-37 6	10.8	71 3	48.7	116.0	
Saskatchewan	15.1	-14 1	-40.4	4.4	58.6	28.1	119.9	
Alberta	50.1	18.0	R E	207	0.00	50.1 66.2	160.0	
British Columbia	49.2	9.2	-17.0	20.6	111 3	77 4	100.0	

1. Includes those who had some postsecondary education.

Women represented 44.4% of the employed in 1990 and inched up to 47.1% by 2006. Although women's share increased in all provinces, Prince Edward Island remained on top with 45.2% and 49.9% respectively.¹ Over the period, women's share of employment increased by only 1.1 percentage points in Alberta compared with 3.6 points in Quebec and 5.6 points in Newfoundland and Labrador.

Women's share for those with a university degree is more dramatic. As more women earned bachelor's and higher degrees, their share of employment jumped from 40.4% to 56.9% in Prince Edward Island, from 41.1% to 53.0% in Manitoba and from 41.8% to 47.8% in Ontario. Their share was lowest in British Columbia in 1990 (39.6%) and in Ontario in 2006 (47.8%). Among the employed with more than a bachelor's degree, the largest increases in women's share occurred in Manitoba (28.6% to 46.9%) and New Brunswick (32.7% to 49.4%).

The interprovincial range for women's share was 4.8 percentage points for those with less than a postsecondary education, 8.6 points for those with a community college certificate or diploma, 13.8 points for holders of a bachelor's degree, and 11.6 for those with an advanced degree.

Women's share of employment by education and province

		L	ess than posts	econdary	Completed postsecondary				
	Population 15 and over	Total	Less than high school	Completed high school ¹	Total	Certificate/ diploma	University		
4000				%			1.21		
1990		44.0	20.0	40.5	44.5	10.0	44.0		
Canada	44.4	44.3	39.2	48.5	44.5	40.3	41.2		
Newfoundland and Labrador	43.5	41.3	37.8	45.0	46.3	48.2	40.5		
Prince Edward Island	45.2	41.4	34.7	49.7	52.5	57.2	40.4		
Nova Scotia	44.6	42.6	37.6	48.4	47.1	48.9	43.4		
New Brunswick	44.5	42.4	37.2	47.1	47.5	48.3	45.9		
Quebec	43.3	42.8	37.5	48.2	43.9	45.4	40.6		
Ontario	45.1	45.4	40.6	49.2	44.7	46.7	41.8		
Manitoba	44.8	44.1	39.8	48.0	46.0	48.9	41.1		
Saskatchewan	43.9	40.9	35.5	45.9	49.1	52.1	42.3		
Alberta	44.2	44.9	39.9	48.2	43.3	45.0	40.0		
British Columbia	44.5	45.7	40.3	48.5	42.7	44.2	39.6		
2006									
Canada	47.1	45.2	40.6	47.3	48.5	48.2	48.8		
Newfoundland and Labrador	49.1	45.9	44.0	47.0	51.3	51.3	51.4		
Prince Edward Island	49.9	45.3	36.4	50.8	53.8	52.2	56.9		
Nova Scotia	49.1	46.9	41.2	50.0	50.8	50.2	51.7		
New Brunswick	48.5	45.9	39.2	49.1	50.8	49 1	54 3		
Quebec	46.9	44 4	39.4	47.5	48.5	47.9	49.5		
Ontario	47 4	45.6	42.3	47.0	48.6	49.2	47.8		
Manitoba	46.8	43.9	38.3	46.7	50.0	48.0	53.0		
Saskatchewan	46.6	40.8	34.4	44.2	52.7	52.5	53.0		
Alberto	40.0	15 2	30.9	47.6	15 1	12.5	48 4		
British Columbia	47.1	46.1	11 3	47.0	48.0	47.0	18 2		

1. Includes those who had some postsecondary education.

As the level of education rises, the likelihood of working full time increases. Overall, between 79.7% and 84.8% of employed persons worked full time in 2006 compared with between 77.7% and 87.6% in 1990. The proportion was the lowest in British Columbia in 2006 and Saskatchewan in 1990, and highest in Newfoundland and Labrador in both years. Also in both years, 83% or more of those with a postsecondary education were working full time.

Between 1990 and 2006, the proportion of university graduates employed full time dropped in all provinces, with the largest declines in Newfoundland and Labrador and British Columbia. On the other hand, those with a community college certificate or diploma increased their share of full-time employment in five provinces: Prince Edward Island, New Brunswick, Manitoba, Saskatchewan and Alberta.

Proportion employed full-time by education and province

		L	ess than posts	econdary	Cor	Completed postsecondary			
	Population 15 and over	Total	Less than high school	Completed high school	Total	Certificate/ diploma	University		
4000		1.1		%					
1990		20.0	35.0	00.4			00.0		
Canada	83.0	79.8	/5.8	83.1	87.7	86.7	89.6		
Newfoundland and Labrador	87.6	84.0	82.9	85.2	92.1	91.7	93.4		
Prince Edward Island	82.9	81.0	79.8	82.6	87.1	86.2	89.5		
Nova Scotia	82.9	78.0	75.2	81.4	88.5	87.7	90.1		
New Brunswick	84.0	80.6	76.1	84.6	89.4	88,1	92.3		
Quebec	84.6	82.9	82.1	83.8	86.8	85.6	89.4		
Ontario	83.0	79.0	73.9	83.2	88.8	87.9	90.2		
Manitoba	79.8	76.4	71.9	80.5	85.9	84.4	88.3		
Saskatchewan	77.7	75.0	69.9	79.6	82.6	80.8	87.0		
Alberta	83.0	79.4	73.1	83.6	87.9	87.4	88.8		
British Columbia	82.2	79.2	71.9	83.0	86.4	85.5	88.1		
2006									
Canada	82.0	76.6	69.6	79.8	85.9	85.6	86.4		
Newfoundland and Labrador	84.8	78.8	75.5	80.6	89.3	90.1	87.2		
Prince Edward Island	84.1	79.9	74.4	83.2	88.0	87.8	88.6		
Nova Scotia	81.2	74.0	67.1	77.9	86.4	86.3	86.5		
New Brunswick	83.9	78.8	70.6	82.7	88.4	88.3	88.5		
Quebec	81.8	76.8	76.4	77.1	84.7	84.1	86.0		
Ontario	82.3	75.6	66.1	797	86.9	86.5	87.5		
Manitoba	80.3	75.5	67.2	79.8	85.3	85.6	84.8		
Saskatchewan	81.4	77 1	66.4	82.6	85.9	86.0	85.6		
Alberta	83.9	79.6	69.9	84.0	87.7	88.1	87.1		
British Columbia	79.7	76.1	67.1	79.2	82.7	82.8	82.5		

1. Includes those who had some postsecondary education.

About 60% of employed Canadians had a postsecondary education in 2006 compared with 40% in 1990. Among those with a postsecondary education, the proportion of university graduates inched up from 35.5% to 40.1%, with 7 in 10 having a bachelor's degree.

The proportion of the employed with a postsecondary education rose in all provinces over the 1990 to 2006 period, with the largest increases in Quebec (20.2 percentage points) and Ontario (18.6 points), and the smallest in Alberta (11.6).² The proportion with a uni-

Distribution of employment by education by province

		Les	s than post	secondary	Соп	npleted posts	econdary	Deserves	
1	Employed 15 and over	Total	Less than high school	Completed high school ¹	Total	Certificate/ diploma	University	holder share of post- secondary	Bachelor's share of degrees
1990	'000'					%			
Canada	13 086 4	59.2	26.7	32.5	40.8	26.2	14.5	25.5	60.2
Newfoundland	15,000.4	33.2	20.7	JZ.J	40.0	20.5	14.3	30.0	00.3
and Labrador	206.9	55.1	28.6	26.5	44 9	33 0	11.0	24.5	67.0
Prince Edward	200.0	00.1	20.0	20.0	44.0	55.5	11.0	24.0	07.0
Island	55.1	63.2	35.0	28.1	36.7	26.3	10.3	28.2	70.2
Nova Scotia	385.3	53.8	29.0	24.8	46.2	31.3	14.9	32.2	66.0
New Brunswick	300.3	60.3	28.5	31.7	39.7	27.6	12.1	30.5	71.2
Quebec	3,140.3	57.7	29.4	28.3	42.3	29.0	13.3	31.4	69.6
Ontario	5,194.1	59.8	26.7	33.1	40.2	24.0	16.2	40.3	66.3
Manitoba	513.8	64.6	30.7	33.9	35.4	22.2	13.2	37.2	69.0
Saskatchewan	454.2	64.2	30.6	33.6	35.8	25.1	10.7	29.9	73.8
Alberta	1,276.8	58.1	23.2	34.9	41.9	27.6	14.4	34.3	72.1
British Columbia	1,559.6	59.2	20.2	39.0	40.8	26.9	13.8	34.0	68.9
2006									
Canada Newfoundland	16,484.3	42.4	13.5	28.8	57.6	34.5	23.1	40.1	69.5
and Labrador Prince Edward	215.7	41.5	15.0	26.5	58.5	41.9	16.6	28.4	67.0
Island	68.6	46.4	17.6	28.7	53.6	357	179	33.4	70.7
Nova Scotia	441.8	41.7	14.9	26.8	58.3	36.9	21.4	36.8	71.9
New Brunswick	355.4	46.2	14.9	31.3	53.8	35.9	17.8	33.2	73.8
Quebec	3,765.4	37.5	14.6	22.9	62.5	40.6	21.9	35.1	72.2
Ontario	6,492.7	41.2	12.4	28.9	58.8	32.9	25.8	44.0	66.6
Manitoba	587.0	51.2	17.4	33.7	48.8	29.5	19.4	39.7	74.8
Saskatchewan	491.6	51.1	17.4	33.7	48.9	31.7	17.1	35.1	76.7
Alberta	1,870.7	46.5	14.5	32.0	53.5	32.4	21.1	39.5	72.1
British Columbia	2,195.5	45.5	11.6	33.9	54.4	31.3	23.1	42.4	69.2

1. Includes those who had some postsecondary education.

versity degree (bachelor's or above) was highest in Ontario in both years (partly due to its larger intake of immigrants), followed by Nova Scotia in 1990 but by British Columbia in 2006. Despite the progress in level of education, just over half of the employed in Manitoba and Saskatchewan in 2006 still had less than a postsecondary education.



Employment among people with postsecondary education has increased in all provinces

People with less education or fewer skills are much more likely to experience unemployment. Between 54% and 69% of the unemployed had less than a postsecondary education in 2006, down considerably from between 68% and 83% in 1990. Although unemploy-

ment remains concentrated among those with less education, their share is falling. This is primarily a consequence of the overall increase in educational attainment in the working-age population.

Distribution of unemployment by education by province

		Les	s than post	secondar y	Con	npleted posts	econdary	Degree	
1	Employed 15 and over	Total	Less than high school	Completed high school'	Total	Certificate/ diploma	University	holder share of post- secondary	Bachelor's share of degrees
1990	.000					%			
Canada Newfoundland	1,158.3	73.4	42.6	30.9	26.6	20.2	6.4	24.1	78.9
and Labrador	42.3	75.7	48.9	26.7	24.3	22.7	1.7	6.8	100.0
Prince Edward Island	9.3	82.8	55.9	26.9	18.3	15.1	3.2	17.6	66.7
Nova Scotia	46.1	67.9	42.1	25.8	31.7	25.2	6.5	20.5	80.0
New Brunswick	41.3	78.2	47.7	30.5	21.8	18.4	3.4	15.6	85.7
Quebec	365.1	71.4	43.9	27.4	28.6	21.9	6.7	23.4	81.2
Ontario	341.5	75.2	42.5	32.7	24.8	18.2	6.6	26.8	76.7
Manitoba	40.9	76.8	45.0	31.8	23.0	15.6	7.3	31.9	83.3
Saskatchewan	34.4	76.2	44.8	31.4	24.1	18.3	5.8	24.1	90.0
Alberta	94.1	72.6	40.1	32.5	27.4	20.5	6.9	25.2	81.5
British Columbia	143.4	72.7	35.8	37.0	27.3	20.4	6.8	25.1	73.5
2006									
Canada Newfoundland	1,108.4	58.2	28.4	29.9	41.8	27.6	14.2	34.0	70.1
and Labrador	37.5	60.3	30.1	30.1	39.5	35.2	4.3	10.8	75.0
Prince Edward Island	8.5	67.1	37.6	29.4	32.9	25.9	7.1	21.4	83.3
Nova Scotia	38.1	58.8	30.7	28.1	41.2	30.4	10.8	26.1	70.7
New Brunswick	34.2	65.2	33.9	31.3	34.8	28.4	6.4	18.5	77.3
Quebec	328.7	54.5	30.2	24.2	45.5	32.7	12.8	28.1	70.8
Ontario	434.6	58.9	26.5	32.4	41.1	24.3	16.8	40.8	68.4
Manitoba	26.5	69.1	38.9	30.2	30.9	18.5	12.5	40.2	81.8
Saskatchewan	24.0	66.7	32.9	33.8	32.9	22.9	10.0	30.4	79.2
Alberta	66.8	59.4	27.8	31.6	40.4	25.9	14.5	35.9	69.1
British Columbia	109.6	57.5	23.0	34.5	42.5	25.5	17.1	40.1	70.6

1. Includes those who had some postsecondary education.

		L	ess than posts	econdary	Completed postsecondary				
	Not in labour force	Total	Less than high school	Completed high school ¹	Total	Certificate/ diploma	University		
4000	.000			%					
1990 Gaaada	6 0 70 1	04.6	57.0	22.6	10 5	12.6	4.0		
	100.7	01.0	37.5	19.6	10.5	10.2	4.0		
Newroundland and Labrador	190.7	00.0	70.0	10,0	10.4	12.0	1.4		
Prince Edward Island	33.7	70.0	62.0	10.0	10.0	13.9	4.0		
Nova Scotla	200.0	10.0	02.0	10.0	45.0	12.0	4.0		
New Brunswick	1.051.0	04.2	04.4	19.0	10.0	13.0	2.0		
Quebec	1,951.0	04.4	00.0	10.0	10.0	12.4	3,2		
Untario	2,424.4	80.6	54.3	20.3	19.4	13.4	0.0		
Maniloba	269.6	84.0	02.7	22.0	10.4	10.7	4.1		
Saskatchewan	Z45.Z	02.9	02.0	20.3	17.1	13.7	5.4		
Alberta	518.9	79.3	5Z.Z	21.1	20.7	14.5	0.2		
British Columbia	842.8	10.3	44.7	31.0	23.1	11.2	0.0		
2006									
Canada	8,592.4	67.2	41.1	26.1	32.8	21.3	11.5		
Newfoundland and Labrador	174.6	74.7	50.3	24.3	25.3	20.2	5.1		
Prince Edward Island	35.1	66.7	47.0	19.7	33.6	25.9	7.7		
Nova Scotia	282.8	65.8	44.3	21.4	34.2	25.4	8.8		
New Brunswick	221.7	70.0	45.7	24.3	30.1	22.3	7.8		
Quebec	2,157.3	67.5	46.5	20.9	32.5	22.2	10.3		
Ontario	3,301.7	66.5	39.0	27.5	33.5	20.7	12.8		
Manitoba	278.5	72.2	46.4	25.8	27.8	18.3	9.4		
Saskatchewan	230.9	70.6	46.6	23.9	29.4	21.5	7.9		
Alberta	703.8	66.0	36.8	29.2	34.0	22.5	11.5		
British Columbia	1,205.9	66.3	33.9	32.3	33.7	20.3	13.4		

Distribution of those not in the labour force by education by province

1. Includes those who had some postsecondary education.

Source: Statistics Canada, Labour Force Survey.

A person may be out of the labour force for various reasons including school attendance, sickness, homecare responsibility, voluntary or involuntary withdrawal, or retirement. In each province, the majority of those not in the labour force had less than a postsecondary education in both 1990 and 2006. However, in Ontario, Alberta and British Columbia, 12% to 13% had a university degree in 2006 compared with just 6% in 1990. A similar jump can be seen at the national level. There is a growing pool of highly educated individuals who may be drawn into the labour market should their circumstances change.

Notes

- 1. Estimates for Prince Edward Island may have larger sampling variability because of small sample sizes.
- 2. A relatively higher proportion of the employed with a community college certificate or diploma in Quebec pushed its ranking to the top.

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Work absence rates

There are many kinds of absence. Some, such as annual vacation, are generally considered beneficial for both the organization and the employee. Since they are usually scheduled, their effect on the organization can be fairly easily absorbed; the same can be said of statutory holidays. Other absences, such as those caused by illness and family-related demands, are generally unavoidable, as are those due to inclement weather.

Absenteeism, a term used to refer to absences that are avoidable, habitual and unscheduled, is a source of irritation to employers and co-workers. Such absences are disruptive to proper work scheduling and output, and costly to an organization and the economy as a whole. Although absenteeism is widely acknowledged to be a problem, it is not easy to quantify. The dividing line between avoidable and unavoidable is difficult to draw, and absenteeism generally masquerades as legitimate absence. The Labour Force Survey (LFS) can provide measures of time lost because of personal reasons-that is, illness or disability, and personal or family responsibilities. However, within these categories, it is impossible to determine if an absence is avoidable or unscheduled. LFS data on absences for personal reasons can, however, be analyzed to identify patterns or trends that indicate the effect of absenteeism (see Data source and definitions).

Recent trends-1997 to 2007

Since 2000, both the incidence and the number of days lost for personal reasons (illness or disability, and personal or family responsibilities) have shown a rising trend (Chart). Several factors have contributed: notably, an aging workforce; the growing share of women in the workforce, especially those with young children; high worker stress;¹ and more generous sick- and family-related leave benefits.

In an average week in 1997, excluding women on maternity leave, about 5.5% (484,000) of all full-time employees holding one job were absent from work for all or part of the week for personal reasons.² By 2007, the figure had risen to 8.8% (969,000) (Table 1). Total work time missed also rose steadily, from



3.0% of the scheduled week in 1997 to 4.1% in 2007. Extrapolated over the full year, work time lost for personal reasons increased from the equivalent of 7.4 days per worker in 1997 to 10.2 days in 2007.

Variations in absence rates in 2007

Absence for personal reasons differs among various worker groups. Several factors are responsible, principally working conditions (physical environment, degree of job stress, employer-employee relations, collective agreement provisions, work schedules); adequacy and affordability of community facilities such as child-care centres and public transportation; family circumstances, especially the presence of preschool children or other dependent family members; and physical health of the worker, a factor closely related to age. Measuring the effects of these and other contributing factors is not easy since many are not captured by the LFS. However, some insight is gained by examining personal absences in 2007 by selected demographic characteristics, occupation and industry, and other attributes such as union and job status.

Demographic differences

In 2007, excluding women on maternity leave, an estimated 8.8% of full-time employees missed some work each week for personal reasons: 6.2% for own illness or disability, and 2.5% for personal or family responsibilities (Table 2). As a result, full-time employees lost about 4.1% of their work time each week.

On average, each full-time employee lost 10.2 days in 2007 for personal reasons (8.1 for own illness or disability plus 2.1 for personal or family demands). This amounted to an estimated 113 million workdays for all full-time employees. Men lost fewer days than women—8.8 (6.7 for illness or disability plus 2.1 for personal or family demands) versus 12.0 (9.9 plus 2.1).

The presence of preschool-aged children exerts a strong influence on work absences for personal or family responsibilities. In 2007, full-time employees in families with at least one preschool-aged child lost an average of 5.8 days, compared with only 1.6 for those in families without children.

The growing prevalence of family-leave entitlements in the workplace, the extension of Employment Insurance parental benefits,³ and the greater involvement of fathers in child care appear to have eliminated the difference between the sexes with respect to personal and family-related absences (Marshall 2003; Marshall 2008, forthcoming). In 1997, women with preschool-aged children and working full time lost 4.1 days for such reasons, compared with 1.8 days for men in similar circumstances. By 2006, the gap had narrowed considerably (6.2 days for women versus 5.4 for men), and in 2007, it actually reversed (6.3 days for men versus 4.8 for women).

Workdays missed because of illness or disability tended to rise with age, from an average of 5.9 days for youth (15 to 19) to 11.4 for full-time employees aged 55 to 64.

Industry and sector

Work absence rates differ by sector (public or private) and industry, with almost all of the difference arising from illness and disability absences (Table 3). Contributing factors include the nature and demands of the job, the male–female composition of the workforce, and the union density—the last being a strong determinant of the presence of paid sick or family leave.

Full-time employees in the public sector (more likely unionized or female) lost more work time in 2007 for personal reasons (12.8 days, compared with 13.0 in 2006) than their private-sector counterparts (9.5 days, unchanged from 2006).

At the major (2-digit) industry level, the most workdays were missed by employees in health care and social assistance (14.3 days), transportation and warehousing (12.2), and public administration (12.2).

The lowest averages were recorded by full-time workers in professional, scientific and technical services (6.6 days). Those in accommodation and food services (8.1), primary industries other than agriculture (8.5), and finance, insurance, real estate and leasing (8.9) also missed fewer workdays.

Occupation

Contributing factors for absence rates by occupation are similar to those for industry (Table 4). Again, as by major industry, differences arise mainly from time lost due to illness or disability.

The most days lost in 2007 were recorded for fulltime employees in health occupations (15.6), and occupations unique to production (12.8). Workers in management (6.4), and in culture and recreation (6.6) recorded the fewest days lost.

Union coverage, job status, workplace size and job tenure

Full-time workers who belonged to unions or were covered by collective agreements missed more workdays on average in 2007 for personal reasons than their non-unionized counterparts (14.0 versus 8.4) (Table 5).

Workers with permanent jobs (more likely to be unionized) lost more workdays (10.4) than those whose jobs were not permanent (8.3). Days lost tended to rise with workplace size, increasing from a low of 8.8 in workplaces with fewer than 20 employees (firms more likely to have low union rates) to 11.8 in workplaces with more than 500 employees (firms likely to have high union rates).

Days lost tended to rise with job tenure, with almost all the differences arising from illness and disability. Employees with tenure of up to one year lost 7.8 days, while those with over 14 years lost 12.2 days (the latter group were also likely older).

Province and CMA

Work absence levels differed by geographic area (Table 6), with most of the variation again arising from illness or disability.

Full-time employees in Nova Scotia (12.0) and Quebec (12.0) lost the most work time in 2007. Those in Alberta (9.0) and Ontario (9.3) lost the least.

Among the census metropolitan areas, Thunder Bay (14.6), Gatineau (13.3) and Saguenay (12.0) lost the most days per full-time worker. Calgary (8.1), Kitchener (8.3) and Toronto (8.4) had the least.

Perspectives

Notes

- For more information on this subject, see Margot Shields, "Stress, health and the benefit of social support," *Health Reports* (Statistics Canada Catalogue 82-003-XIE) vol. 15, no. 1, January 2004. Also see Cara Williams, "Sources of workplace stress," *Perspectives on Labour and Income* (Statistics Canada Catalogue 75-001-XIE) vol. 4, no. 6, June 2003 online edition.
- 2. 1997 marks the introduction of the revised Labour Force Survey questionnaire.
- 3. In December 2000, changes in Employment Insurance regulations extended the duration of parental leave benefits from 10 to 35 weeks. The 35 weeks can be taken by one (qualifying) parent, or they can be split between both (qualifying) parents.

References

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Marshall, Katherine. 2008. "Fathers' use of parental leave". *Perspectives on Labour and Income*. Vol. 9, no. 6. June (forthcoming). Statistics Canada Catalogue no. 75-001-XIE.

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Data source and definitions

The data in this article are annual averages from the Labour Force Survey (LFS). They refer to full-time employees holding only one job. Part-time, self-employed and unpaid family workers are excluded because they generally have more opportunity to arrange their work schedules around personal or family responsibilities. Multiple jobholders, too, are excluded because it is not possible using LFS data to allocate time lost, or the reason for it, to specific jobs. Women on maternity leave are also excluded. Some human resource practitioners exclude persons on long-term illness or disability leave (exceeding one year) from their attendance management Such persons are, however, included in statistics. Statistics Canada's work absence estimates if they count themselves as employed (that is, they continue to receive partial or full pay from their employer). In 2007, the number of employed persons on such long-term illness or disability leave averaged only 25,000 in a typical week. Their exclusion would have reduced the weekly work absence incidence for illness or disability from 6.2% to 6.0%, the inactivity rate from 3.2% to 3.0%, and days lost per worker that year from 8.1 to 7.5.

Personal reasons for absence are split into two categories: 'own illness or disability' and 'personal or family responsibilities' (caring for own children, caring for elder relative, and other personal or family responsibilities). Absences for these two reasons represented about 31% of all time lost by full-time paid workers each week in 2007. Vacations, which accounted for 43% of total time away from work, are not counted in this study, nor are statutory holidays, which represented 8%. Maternity leave represented 11% and other reasons, 7%.

The incidence of absence is the percentage of full-time paid workers reporting some absence in the reference week. In calculating incidence, the length of work absence—whether an hour, a day, or a full week—is irrelevant. The **inactivity rate** shows hours lost as a proportion of the usual weekly hours of full-time paid workers. It takes into account both the incidence and length of absence in the reference week.

Days lost per worker are calculated by multiplying the inactivity rate by the estimated number of working days in the year (250).

Reasons for work absences in the LFS

The LFS sets out the following reasons for being away from work:

- own illness or disability
- caring for own children
- caring for elder relative (60 years or older)
- maternity leave (women only)
- other personal or family responsibilities
- vacation
- labour dispute (strike or lockout)
- temporary layoff due to business conditions
- holiday (legal or religious)
- weather
- job started or ended during week
- working short time (because of material shortages, plant maintenance or repair, for instance)
- other

As normally published, personal or family responsibilities consist of caring for own children, caring for elder relative, and other personal or family responsibilities.

		Incidence	1		Inactivity ra	te ²	Days lo	ost per work	er in year ³
	Total	Illness or disability	Personal or family respon- sibilities	Total	Illness or disability	Personal or family respon- sibilities	Total	Illness or disability	Personal or family respon- sibilities
		%			%			days	
Both sexes									
1997	5.5	4.1	1.4	3.0	2.5	0.5	7.4	6.2	1.2
1998	5.7	4.3	1.4	3.1	2.6	0.5	7.8	6.6	1.2
1999	6.0	4.5	1.5	3.2	2.7	0.5	8.1	6.8	1.3
2000	6.3	4.8	1.5	3.2	2.7	0.5	8.0	6.7	1.3
2001	7.0	5.3	1.8	3.4	2.8	0.6	8.5	7.0	1.5
2002	7.8	5.6	2.1	3.6	3.0	0.7	9.1	7.4	1.7
2002	7.5	5.5	2.0	37	3.0	0.7	9.2	7.5	1.7
2003	7.6	5.5	2.0	37	3.0	0.7	9.2	7.5	17
2004	0.0	6.0	2.1	3.0	3.1	0.7	9.6	7.8	1.8
2005	0.0	5.0	2.5	2.0	2.0	0.7	9.7	7.6	2.1
2006	0.2	0.0	2.4	0.5	2.0	0.9	10.2	9.1	2.1
2007	0.0	0.2	2.5	4.1	3.2	0.0	10.2	0.1	۷.۱
Men									
1997	4.6	3.4	1.2	2.5	2.1	0.4	6.3	5.3	0.9
1998	4.9	3.7	1.2	2.7	2.3	0.4	6.9	5.8	1.0
1999	5.2	3.9	1.3	2.8	2.4	0.4	7.0	5.9	1.1
2000	5.5	4 1	14	2.8	24	0.4	7.0	5.9	1.1
2001	6.1	4.6	1.6	3.1	2.5	0.5	7.6	6.3	1.3
2001	6.7	4.8	1.0	3.2	2.6	0.6	8.0	6.5	1.6
2002	6.5	4.0	1.9	2.2	2.0	0.0	8.2	6.6	15
2003	0.5	4.6	2.0	2.0	2.0	0.0	8.0	6.4	1.6
2004	0.0	4.0	2.0	J.∠ 2.4	2.0	0.7	0.0	6.0	1.0
2005	1.2	0.2	2.1	3.4	2.1	0.7	0.0	0.3	1.7
2006	1.2	5.1	2.1	3.5	2.1	0.0	0.7	0.7	1.9
2007	1.5	5.1	∠.4	3.5	∠.1	0.8	0.0	0.7	∠.⊺
Women									
1997	6.7	5.1	1.7	3.6	3.0	0.6	9.1	7.6	1.5
1998	6.7	5.1	1.6	3.7	3.1	0.6	9.2	7.8	1.5
1999	7.1	5.4	1.8	3.8	3.2	0.6	9.6	8.0	1.6
2000	7.5	5.7	1.8	3.8	3.2	0.6	9.4	7.9	1.5
2001	8.2	6.2	2.0	3.9	3.2	0.7	9.8	8.0	1.8
2002	9.2	6.7	24	4.3	3.5	0.8	10.7	8.7	1.9
2003	8.9	6.6	23	4 3	3.5	0.8	10.7	8.8	1.9
2004	80	6.6	23	43	3.6	0.7	10.8	9.0	19
2005	0.5	7.0	2.5	4.5	37	0.8	11.2	Q 1	2.0
2003	0.C	1.0	2.0	4.0	3.6	1.0	11.2	9.1 8.0	2.0
2000	3.0	0.0	6.1	9.0 4 0	0.0	1.0	12.0	0.0	2.4
2007	10.3	1.5	2.0	4.0	3.9	0.9	1∠.0	5.9	∠.1

Table 1 Absence rates for full-time employees by sex, 1997 to 2007, excluding maternity leave

Absent workers divided by total. 1

Hours absent divided by hours usually worked.
 Inactivity rate multiplied by working days in year (250).
 Source: Statistics Canada, Labour Force Survey.

	Incidence ¹		1	1	Inactivity ra	te ²	2 Days lost per worker in year3			
	Total	Illness or disability	Personal or family respon- sibilities	 Total	Illness or disability	Personal or family respon- sibilities	Total	Illness or disability	Personal or family respon- sibilities	
Age		%			%			days		
Both sexes	8.8	6.2	2.5	4.1	3.2	0.8	10.2	8.1	2.1	
15 to 19	8.4	6.0	2.4	3.2	2.4	0.8	8.0	5.9	2.1	
20 to 24	8.1	5.9	2.2	3.0	2.4	0.6	7.6	6.0	1.5	
25 to 34	9 1	6.0	3.1	3.7	2.6	1.1	9.3	6.6	28	
25 to 44	8.0	6.1	2.9	4 1	3.1	1.0	10.1	77	2.4	
45 to 54	0.5	6.2	2.0	4.4	2.7	0.7	10.1	0.2	1.7	
45 10 54	0.0	0.3	2.2	4.4	3.1	0.7	10.9	3.Z	1.7	
55 10 64	8.9	7.0	1.9	3.Z	4.5	0.0	12.9	11.4	1.0	
65 and over	7.7	5.8	1.8	4.3	3.7	0.6	10.8	9.2	1.6	
Men	7.5	5.1	2.4	3.5	2.7	0.8	8.8	6.7	2.1	
15 to 19	7.7	5.3	2.4	2.9	2.2	0.8	7.4	5.4	1.9	
20 to 24	7.2	5.3	1.9	2.8	2.3	0.5	7.1	5.7	1.4	
25 to 34	7.7	4.7	3.0	3.3	2.0	1.3	8.2	5.1	3.1	
35 to 44	7.6	4.9	2.6	3.4	2.4	1.0	8.6	6.1	2.5	
45 to 54	72	5.2	2.0	3.7	3.1	0.6	9.3	7.8	1.4	
55 to 64	7 8	6.2	1.6	4.6	4.1	0.5	11.5	10.3	1.1	
65 and over	6.4	5.0	F	3.6	3.1	F	9.1	7.7	F	
	40.0			4.0	0.0	0.0	10.0	0.0	0.4	
Women	10.3	1.5	2.8	4.8	3.9	0.9	12.0	9.9	Z.1	
15 to 19	9.5	7.1	2.4	3.6	2.6	1.0	9.0	6.6	2.4	
20 to 24	9.2	6.7	2.5	3.3	2.6	0.7	8.3	6.5	1.8	
25 to 34	10.9	7.8	3.2	4.4	3.5	0.9	10.9	8.7	2.2	
35 to 44	10.6	7.5	3.1	4.9	3.9	0.9	12.2	9.9	2.3	
45 to 54	10.0	7.5	2.5	5.2	4.4	0.8	12.9	10.9	2.0	
55 to 64	10.2	8.0	2.2	5.9	5.1	0.8	14.9	12.8	2.1	
65 and over	10.0	7.5	F	5.7	4.9	F	14.3	12.3	F	
Educational attainment										
Deth erver	0.0	6.0	2.5	4.4	2.0	0.0	10.2	0.4	2.4	
Both sexes	0.0	0.2	2.0	9.1	3.2	0.0	10.2	0.1	4.1	
Less than grade 9	9.Z	7.1	Z.1	0.0	4.8	0.8	13.9	12.0	1.9	
Some secondary	10.0	1.5	2.5	5.2	4.3	0.9	13.1	10.9	2.2	
High school graduation	8.3	6.0	2.3	3.9	3.1	0.8	9.8	7.8	2.0	
Some postsecondary	9.1	6.6	2.5	4.0	3.3	0.8	10.1	8.1	2.0	
Postsecondary certificate										
or diploma	9.3	6.6	2.7	4.4	3.6	0.9	11.1	8.9	2.1	
University degree	7.8	5.2	2.6	3.2	2.3	0.9	7.9	5.7	2.2	
Presence of children										
Both sexes	8.8	6.2	2.5	4.1	3.2	0.8	10.2	8.1	2.1	
With children	0.3	6.0	2 2	43	3.2	1.2	10.8	7 9	29	
Preschoolers -	3.3	0.0	0.0	4.0	2.0	1.4	10.0	1.3	2.3	
under 5 vears	11.3	6.0	5.4	5.1	2.8	2.3	12.7	6.9	5.8	
5 to 12 years	8.8	5.8	3.0	3.8	29	0.8	9.4	7.3	21	
13 years and over	8.3	6.2	2 1	43	3.6	0.6	10.6	9 1	1.5	
Mithout children	Q.J Q.A	G A	2.0	3.0	2.0	0.0	0.0	8.2	1.6	
without children	0.4	0.4	2.0	5.5	3.3	0.0	3.0	0.2	1.0	

Table 2 Absence rates for full-time employees by sex, age, education and presence of children, 2007, excluding maternity leave

Absent workers divided by total.
 Hours absent divided by hours usually worked.
 Inactivity rate multiplied by working days in year (250).
 Source: Statistics Canada, Labour Force Survey.

		Incidence	31		Inactivity r	ate ²		Days lost worker in y	per vear ³
	Total	Illness or disability	Personal or family respon- sibilities	Total	Illness or disability	Personal or family respon- sibilities	Total	Illness or disability	Personal or family respon- sibilities
		%			%			days	
All industries	8.8	6.2	2.5	4.1	3.2	0.8	10.2	8.1	2.1
Public employees	10.6	8.0	2.6	5.1	4.2	0.9	12.8	10.4	2.4
Private employees	8.2	5.7	2.5	3.8	3.0	0.8	9.5	7.4	2.0
Goods-producing	8.3	5.6	2.7	3.9	3.1	0.8	9.8	7.7	2.1
Primary	6.7	4.5	2.3	3.4	2.6	0.8	8.5	6.5	2.1
Agriculture	82	5.3	3.0	3.7	2.8	0.9	9.2	7.1	2.2
Other	6.2	4.2	2.0	3.3	2.5	0.8	8.3	6.3	2.0
Litilities	0.2	6.9	23	4.5	3.6	0.8	11.2	9.1	21
Othities	3.4	0.5	2.5		0.0	0.0	0.4	7.2	2.1
Construction	1.8	5.3	2.5	3.7	2.9	0.8	9.4	1.3	2.1
Manufacturing	8.7	5.9	2.8	4.1	3.2	0.9	10.2	8.1	2.1
Durable Non-durable	8.7 8.8	5.8 6.0	2.8	3.9	3.1	1.0	9.7	8.7	2.0
Service-producing	8.9	6.4	2.5	4.1	3.3	0.8	10.3	8.2	2.1
Trada	Q 1	5.7	2.4	37	29	0.8	93	73	2.0
Wholesole	7.5	5.1	2.9	3 4	2.5	0.8	8.6	6.6	19
Retail	8.3	5.9	24	3.9	3.0	0.8	9.7	7.6	2.1
Transportation and	0.0	0.5	6_ , T	0.0	0.0	0.0	107 C 7	1.0	
warehousing	8.7	6.5	2.2	4.9	4.1	0.8	12.2	10.1	2.1
Finance, insurance,	0.0	- 0	0.5	0.5	0.0	0.7		7.0	1.0
real estate and leasing	8.3	5.8	2.5	3.5	2.8	0.7	8.9	7.0	1.0
Finance and Insurance	5.0	0.0	2.0	3.7	2.9	0.7	9.1	5.0	1.0
Real estate and leasing	1.1	4.6	2.3	J, I	2.4	0.7	1.0	5.5	1.3
Professional, scientific and technical	7.6	4.8	2.8	2.6	1.9	0.7	6.6	4.8	1.8
Business, building and support services	10.0	7.1	2.9	4.2	3.3	0.9	10.6	8.3	2.4
Educational services	9.7	7.0	2.6	4.2	3.3	0.9	10.6	8.3	2.3
Health care and	10.8	8.6	2.2	5.7	4.9	0.8	14.3	12.3	2.0
Information, culture	7.6	5.4	2.2	3.7	29	0.8	9.3	7.3	2.0
A second dation and	1.0	0.4	2.2	0.1	Δ	0.0	0.0		
Accommodation and	6.0	5.0	1.8	2 3	25	0.7	R 1	63	1 R
Tood services	0.0	5.0	1.0	0.2	2.0	4.0	0.1	7 4	2.4
Other services	8.3	5.6	2.8	3.8	2.8	1.0	9.5	7.1	2.4
Public administration	11.3	8.0	3.3	4.9	3.7	1.2	12.2	9.3	2.9
Federal	14.2	9.9	4.3	6.0	4.4	1.6	15.0	11.0	4.0
Provincial	11.4	8.2	3.2	5.0	4.0	1.0	12.5	10.0	2.0
Local, other	1.9	5.6	6.6	3.5	2.1	0.0	0.7	0.7	2.0

Table 3 Absence rates for full-time employees by industry and sector, 2007, excluding maternity leave

Absent workers divided by total. 1

Hours absent divided by hours usually worked.
 Inactivity rate multiplied by working days in year (250).
 Source: Statistics Canada, Labour Force Survey.

	Incidence ¹		,1		Inactivity	rate ²	Days lost per worker in year ³			
	Total	Illness or disability	Personal or family respon- sibilities	Total	Illness or disability	Personal or family respon- sibilities	Total	Illness or disability	Personal or family respon- sibilities	
All occupations	8.8	% 6.2	2.5	4.1	% 3.2	0.8	10.2	days 8.1	2.1	
Management	6.2	4.2	2.0	2.6	1.9	0.6	6.4	4.8	1.6	
Business, finance and administrative Professional Financial and administrative Clerical	10.1 7.8 8.9 11.2	7.1 5.5 6.0 8.0	3.0 2.3 2.8 3.2	4.2 2.9 3.8 4.7	3.3 2.2 2.9 3.8	0.9 0.7 0.8 0.9	10.5 7.3 9.4 11.8	8.3 5.5 7.3 9.5	2.1 1.8 2.1 2.3	
Natural and applied sciences	8.0	5.0	2.9	3.0	2.1	0.9	7.4	5.2	2.2	
Health Professional Nursing Technical Support staff	10.7 6.8 10.3 10.6 12.7	8.8 4.9 8.6 8.5 10.7	1.9 F 1.7 2.1 2.1	6.3 2.6 6.5 6.0 7.8	5.5 2.1 5.7 5.1 7.0	0.8 F 0.8 0.9 0.7	15.6 6.6 16.2 15.1 19.5	13.7 5.2 14.3 12.8 17.6	1.9 F 1.9 2.3 1.9	
Social and public service Legal, social and religious Teachers and professors Secondary and elementary Other	9.9 10.5 9.5 11.0 6.1	7.1 7.5 6.8 8.0 4.1	2.8 3.0 2.7 2.9 2.1	4.4 5.0 4.0 4.8 2.5	3.4 3.9 3.1 3.7 1.7	1.0 1.1 1.0 1.1 0.7	11.1 12.4 10.1 12.0 6.2	8.5 9.6 7.6 9.2 4.4	2.6 2.8 2.5 2.7 1.9	
Culture and recreation	7.7	5.3	2.4	2.7	2.0	0.6	6.6	5.0	1.6	
Sales and service Wholesale Retail Food and beverage Protective services Childcare and home support Travel and accommodation	7.8 6.3 7.7 6.8 7.9 10.5 8.9	5.7 4.1 5.6 5.1 6.0 7.6 6.7	2.1 2.3 2.0 1.8 1.9 2.9 2.2	3.8 2.4 3.8 3.6 4.3 4.2 4.6	3.0 1.8 3.0 2.8 3.4 3.4 3.8	0.8 0.6 0.8 1.0 0.8 0.8	9.6 6.0 9.4 9.0 10.8 10.5 11.5	7.6 4.5 7.5 7.0 8.4 8.5 9.4	1.9 1.5 1.9 2.0 2.4 2.1 2.1	
Trades, transport and equipment operators Contractors and supervisors Construction trades Other trades Transport equipment operator Helpers and labourers	8.5 6.0 9.3 8.3 rs 7.8 10.1	6.0 4.0 6.4 5.7 5.7 7.3	2.5 2.0 2.8 2.6 2.1 2.7	4.4 2.4 4.6 4.1 5.0 5.2	3.6 1.8 3.6 3.2 4.1 4.2	0.9 0.6 1.1 0.9 0.8 1.0	11.1 6.1 11.6 10.1 12.4 13.0	8.9 4.6 8.9 8.0 10.3 10.5	2.2 1.5 2.6 2.2 2.0 2.4	
Occupations unique to primary industry	6.8	4.5	2.3	3.5	2.7	0.8	8.9	6.7	2.1	
Occupations unique to production Machine operators	10.0	7.1	2.9	5.1	4.1	1.0	12.8	10.4	2.5	
and assemblers Labourers	9.8 10.8	6.9 7.8	2.8 3.0	5.0 5.7	4.0 4.7	1.0 1.1	12.4 14.4	10.0 11.7	2.4 2.7	

Table 4 Absence rates for full-time employees by occupation, 2007, excluding maternity leave

1. Absent workers divided by total.

Absent workers divided by hours usually worked.
 Inactivity rate multiplied by working days in year (250).
 Source: Statistics Canada, Labour Force Survey.

		Incidence	9 ¹		Inactivity	rate ²		Days lost worker in y	per rear ³
	Total	Own Illness or disability	Personal or family respon- sibilities	Total	Own Illness or disability	Personal or family respon- sibilities	Total	Own Illness or disability	Personal or family respon- sibilities
		%			%	- I.		days	
Workplace size									
Both sexes	8.8	6.2	2.5	4.1	3.2	0.8	10.2	8.1	2.1
Under 20 employees	7.7	5.2	2.4	3.5	2.7	0.8	8.8	6.8	2.0
20 to 99 employees	8.9	6.2	2.7	4.0	3.1	0.9	10.0	7.8	2.2
100 to 500 employees	9.4	6.8	2.6	4.5	3.6	0.8	11.2	9.1	2.1
Over 500 employees	9.6	7.2	2.4	4.7	3.9	0.9	11.8	9.7	2.1
Job tenure									
Both sexes	8.8	6.2	2.5	4.1	3.2	0.8	10.2	8.1	2.1
1 to 12 months	7.9	5.4	2.5	3.1	2.3	0.8	7.8	5.7	2.0
Over 1 to 5 years	8.7	6.0	2.6	3.8	2.9	0.9	9.5	7.3	2.2
Over 5 to 9 years	9.2	6.4	2.8	4.5	3.5	1.0	11.2	8.7	2.6
Over 9 to 14 years	9.1	6.3	2.8	4.4	3.5	0.9	10.9	8.7	2.2
Over 14 years	9.2	7.0	2.2	4.9	4.2	0.7	12.2	10.5	1.7
Job status									
Both sexes	8.8	6.2	2.5	4.1	3.2	0.8	10.2	8.1	2.1
Permanent	8.9	6.3	2.6	4.2	3.3	0.9	10.4	8.3	2.1
Non-permanent	7.7	5.3	2.4	3.3	2.5	0.8	8.3	6.3	2.0
Union coverage									
Both sexes	8.8	6.2	2.5	4.1	3.2	0.8	10.2	8.1	2.1
Union member or covered	-10								
by collective agreement	10.6	8.1	2.5	5.6	4.6	1.0	14.0	11.6	2.4
Non-unionized	7.8	5.3	2.5	3.4	2.6	0.8	8.4	6.4	2.0

Table 5 Absence rates for full-time employees by workplace size, job tenure, job status and union coverage, 2007, excluding maternity leave

Absent workers divided by total. 1.

Housen divided by hours usually worked.
 Inactivity rate multiplied by working days in year (250). Source: Statistics Canada, Labour Force Survey.

	Incidence ¹		Inactivity rate ²			rate ²		Days lost p worker in ye			
	Total	Illness or disability	Personal or family respon- sibilities		Total	Illness or disability	Personal or family respon- sibilities	Т	otal	Illness or disability	Persona or family respon sibilities
Province and region		%			1.1	%				days	
Both sexes	8.8	6.2	2.5		4.1	3.2	0.8	1	0.2	8.1	2.1
Atlantic	8.7	6.5	2.3		4.3	3.6	0.7	1	0.8	9.0	1.8
Newfoundland and Labrador	7.6	5.7	19		3.9	3.3	0.6		9.8	8.2	1.6
Prince Edward Island	7.6	5 3	2.3		3.4	27	0.6		8.4	6.8	1.6
Nova Scotia	9.7	7.2	2.5		4.8	4.0	0.8	1	20	9.9	2 .
Now Prupswick	8.6	63	2.0		1.2	3.5	0.7	1	0.5	8.8	1.8
New Drunswick	0.0	0.3	2.2		4.2	3.0	0.7	1	2.0	0.0	2
Quebec	9.4	0.0	2.0		4.0	3.9	0.9	1	2.0	3.0	2.4
Ontario	8.5	5.8	2.7		3.1	2.9	0.9		9.3	1.2	2.4
Prairies	8.9	6.3	2.6		3.8	3.0	0.9		9.6	1.5	2.
Manitoba	9.8	7.0	2.8		4.3	3.5	0.9	1	0.8	8.7	2.4
Saskatchewan	9.5	6.8	2.8		4.2	3.3	0.9	1	0.5	8.3	2.2
Alberta	8.4	5.9	2.5		3.6	2.8	0.8		9.0	6.9	2.1
British Columbia	8.1	6.1	2.0		4.0	3.3	0.7	1	0.1	8.2	1.9
СМА											
Both sexes	8.8	6.2	2.5		4.1	3.2	0.8	1	0.2	8.1	2.1
All CMAs	8.7	6.2	2.6		3.9	3.1	0.8		9.8	7.7	2.1
St. John's	9.0	6.8	2.2		4.5	3.8	0.7	1	1.3	9.5	1.8
Halifax	9.6	7 1	2.4		4.4	3.6	0.8	1	1.0	9.0	2.0
Saint John	9.2	6.6	2.5		4 5	3 7	0.8	1	12	9.2	2.0
Saduopay	8.9	6.3	F		4.8	4.0	F	1	2.0	9.9	F
Ouébec	8.5	6.1	2.5		4.2	3.4	0.8	1	0.6	8.5	2
Montréal	0.0	7 1	2.8		4 7	3.8	0.9	1	1.8	9.5	2
Trois Pivières	9.5	6.0	2.0		4.0	3.1	0.0 E	4	0.0	7.8	
Charbracke	0.0	6.0	E		4.0	3.6	E	1	0.0	9.1	1
Sherbrooke	447	0.2	26		4.4	3.0	1.2	1	2.2	10.1	2
Gatineau	11.7	0.1	3.0		0.0	4.0	1.0	4	0.7	10.1	0.
Ottawa	10.8	7.4	3.4		4.3	3.2	1.1	4	1.0	0.0	2.1
Kingston	10.1	6.4	3.6		4.5	3.2	1.2	1	1.2	8.1	3.
Greater Sudbury/					4.5						
Grand Sudbury	9.5	6,8	Н		4.3	3.4	-	1	0.8	8.5	1
Toronto	7.8	5.2	2.6		3.4	2.5	0.9		8.4	6.3	2.
Hamilton	8.3	5.9	2.4		3.5	2.9	0.6		8.7	7.3	1.
St. Catharines-Niagara	8.5	6.1	2.4		4.1	3.3	0.8	1	0.2	8.2	2.
London	9.0	6.7	2.4		4.2	3.5	0.6	1	0.4	8.9	1.0
Windsor	8.9	6.0	2.9		4.2	3.3	1.0	1	0.6	8.2	2.
Kitchener-Waterloo	8.5	5.7	2.9		3.3	2.6	0.8		8.3	6.4	1.1
Oshawa	8.5	5.9	2.6		3.8	3.0	0.8		9.6	7.6	2.
Thunder Bay	10.7	8.0	F		5.8	4.8	F	1	4.6	12.1	ſ
Winnipeg	97	7.0	2.6		4.2	3.4	0.8	1	0.5	8.5	2.0
Regina	10.2	7.5	27		4.3	3.5	0.8	1	0.7	87	2
Saskatoon	8.8	6.3	2.5		3.6	2.8	0.8		9.0	7 1	1
Calgary	7.0	5.7	2.3		33	2.5	0.8		8 1	6.2	1
Edmonton	0.0	J.1 6 E	2.0		1.0	2.0	0.0		0.0	80	2
Abbeteferd	0.9	0.0	2.4		4.0	3.2	V.0		1 7	0.0	۷. ۲
ADDUISTOIO	0.3	0.4	10		4./	3.9	07		9.6	3.0	4
vancouver	1.2	5.3	1.9		3.4	2.1	0.7		0.0	0.8	1.
VICTORIA	9.7	1.2	2.5		4.4	3.5	0.9	1	1.1	0.9	2
Non-CMAs	8.7	6.2	2.5		4.4	3.5	0.9	1	1.0	8.9	2
Urban Centres	9.0	6.6	2.4		4.4	3.6	0.8	1	1.0	9.0	2.

Table 6 Absence rates for full-time employees by province, region and census metropolitan area (CMA), 2007, excluding maternity leave

1. Absent workers divided by total.

Hours absent divided by hours usually worked.
 Inactivity rate multiplied by working days in year (250).

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