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PERSPECTIVES

ON LABOUR AND INCOME

Winter 2009
Vol. 21, No. 4

- Health and employment
- Changes in parental work time and earnings
- Work–life balance of older workers
- Job stability and unemployment duration in manufacturing
- Cumulative index *1989 to 2009*

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Sharanjit Uppal

This article examines the relationship between health and work. Poor mental and physical health were found to decrease the probability of being employed, particularly among men. For women, mental health problems were also associated with working fewer hours.

15 **Changes in parental work time and earnings**
Sébastien LaRochelle-Côté, Philippe Gougeon and Dominique Pinard

Between 1980 and 2005, parental work time increased by substantial margins, especially for families located at the bottom and in the middle of the earnings distribution. However, this increase occurred against a backdrop of a stronger increase in earnings for families at the top of the earnings distribution. This study finds that high earnings families earned more in 2005 than in 1980 for a given amount of parental work time, likely because of higher wages.

27 **Work–life balance of older workers**
Jorge Uriarte-Landa and Benoît-Paul Hébert

Although it has received some attention in the Canadian literature, the issue of work–life balance of older workers remains largely understudied. This article addresses that gap using data from the 2005 General Social Survey. Overall, 14% of Canadian workers age 55 and over reported being dissatisfied with their work–life balance in 2005. The sources of conflict most frequently cited were too much time on the job and too little time for the family. Work–life balance dissatisfaction was associated with having a disability, providing elder care, working long hours, occupying a managerial position and being a woman. At the same time, having an employed partner, being self-employed and enjoying one's job reduced the probability of work–life conflict. When the self-selection of older individuals out of employment was taken into account, the risk of work–life conflict did not vary with age.

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39 Job stability and unemployment duration in manufacturing
André Bernard

In 2008, job stability in manufacturing was at its second-lowest level in 27 years, and stability rates between manufacturing and non-manufacturing have never differed so much. Manufacturing workers experienced significant drops in their stability rates regardless of tenure in the firm. The difference in unemployment duration between ex-workers in manufacturing and non-manufacturing has also never been so high.

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.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0^s	value rounded to 0 (zero) where a meaningful distinction exists between true zero and the value rounded
p	preliminary
r	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
E	use with caution
F	too unreliable to be published

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Perspectives on Labour and Income
The quarterly for labour market and income information

Highlights

In this issue

Health and employment ... p. 5

- Among the population 15 to 64 years of age, approximately 10% of men and 12% of women reported fair or poor physical health. Also, 6% of men and 7% of women classified their mental health as fair or poor. Almost one-half of the population (46% of men and 54% of women) had at least one chronic physical condition. And 15% of men and 18% of women reported at least one mental health problem.
- The study included a number of models that looked at the relationship between various measures of health and the probability of working or the number of hours worked, while controlling for a number of other factors.
- For those in fair or poor mental or physical health, the chances of being employed were lower than for those reporting good to excellent health. The effect was stronger for men than for women.
- Similarly, the presence of at least one mental or physical condition reduced the chances of being employed and the effect was stronger for men.
- The chances of being employed for men and women whose current health status was worse or much worse than a year ago were lower compared with those whose health status was the same or better.
- Women reporting fair or poor mental health were estimated to work 136 hours (approximately 3.5 weeks) less annually than women in good to excellent health. Those with at least one mental health problem were estimated to work 102 hours (2.7 weeks) less than those with none.

Changes in parental work time and earnings ... p. 15

- Between 1980 and 2005, parental work time increased by substantial margins, especially for families located at the bottom and in the middle of the earnings distribution. From 1980 to 2005, the proportion of families with two parents working full time and full year more than doubled, from 15% to 32%.
- A good deal of the increase in parental work time occurred in the 1980s and was induced by the rising labour market participation of mothers.
- Over the same period, median parental earnings rose by 20% overall among two-parent families. However, earnings rose less rapidly for families at the bottom of the earnings distribution and increased faster for families located at the top.
- About 45% of the overall increase in parental earnings was due to the increased work time of parents, with each family type (low, middle and high earnings) contributing to the increase.
- The other part of the overall increase (55%) was due to rising returns to work for a given amount of parental work time. For the most part, these gains were concentrated among families with high earnings.
- Changes in the demographic characteristics of families with high earnings do not explain the higher returns on their work time. Rather, changes in the structure of wages likely explain this phenomenon.
- Between 1980 and 2005, single mothers also increased their work time by substantial amounts and saw a proportional increase in their earnings—including single mothers with low earnings. Conversely, single fathers with low earnings were the only ones to increase their work time, but experienced the worst declines in earnings.

Work–life balance of older workers

... p. 27

- Achieving a satisfactory balance between work and family can affect the health, productivity and retirement decisions of older workers. This article uses data from the 2005 General Social Survey to examine dissatisfaction with work–life balance among workers age 55 and over, the most commonly reported reasons for dissatisfaction, and the key factors and personal characteristics associated with work–life conflict.
- Older workers differ from their younger counterparts in a number of ways: more work part-time, they have a higher rate of self-employment, they are more likely to have a disability, fewer have a postsecondary education, and they are less likely to have children at home. As such, fewer care for children compared with younger workers, but they are more likely to provide elder care.
- Overall, 14% of older workers are dissatisfied with their work–life balance, compared with 25% of workers age 25 to 54. Among older workers, the sources of conflict most frequently cited were too much time on the job and too little time for the family.
- According to a statistical model, work–life balance dissatisfaction was associated with having a disability, providing elder care, working long hours, occupying a managerial position and being a woman. At the same time, having an employed partner, being self-employed and enjoying one's job reduced the probability of work–life conflict. When the self-selection of older individuals out of employment was taken into account, the risk of work–life conflict did not vary with age.

Job stability and unemployment duration in manufacturing

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- In 2008, the four-year retention rate for workers across the economy as a whole was 56%. In other words, 56% of workers in 2004 still had the same job in 2008.
- Meanwhile, in the manufacturing sector, the probability was 48%. This was the lowest proportion since 1992, and a significant drop from the 62% peak recorded in 1998. It is the widest gap ever recorded between manufacturing and non-manufacturing retention rates.
- Manufacturing workers experienced significant drops in their stability rates regardless of tenure in the firm. For example, between 1998 and 2008, stability rates fell by 22% for workers with less than two years of tenure in their jobs and by 23% for workers with 20 years or more of tenure.
- Ex-manufacturing workers tend to experience significantly longer unemployment spells than their counterparts from the non-manufacturing sector. In 2008, the average expected duration of 10.9 weeks for a new spell of unemployment for manufacturing workers was significantly higher than for non-manufacturing workers (9.7 weeks).

What's new?

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  Canadian lone-mother employment

  Labour reallocation in Canada

  Time spent in unpaid household work

Perspectives

Health and employment

Sharanjit Uppal

Costs associated with illness are significant. In 1998, the latest year for which figures are available, the economic burden of illness stood at $159.4 billion—$83.9 billion in direct costs (hospital care, drugs, physician care, care in other institutions, and additional direct health expenditures) and $75.5 billion in indirect costs of mortality and long-term and short-term disability (Health Canada 2002).[1]

This study examines the relationship between health status and labour market outcomes for working-age men and women (ages 15 to 64). If health problems lead to lower labour productivity, participation or supply (hours worked), then they impose a cost on the economy in terms of production loss.[2] Hence, a better understanding of the relationship between health and labour market activities enables better estimates of the costs of health limitations. And, given the aging of the population—in 2008, 28% were age 45 to 64 compared with 19% in 1991—coupled with the health problems and disabilities associated with aging, the relationship between health and labour market behaviour becomes more pressing. In addition, other implications of poor health include employers' sick leave costs,[3] Employment Insurance sickness benefits, increased dependence on Canada Pension Plan disability benefits, and employer costs to accommodate workers with limitations.

Previous studies have dealt primarily with physical health, even though one in five Canadians is predicted to experience a mental illness during their lifetime, with most beginning during adolescence or young adulthood (Health Canada 2006). In addition, most of the literature deals with the U.S. population and focuses mainly on older working-age men because of an increase in the incidence of early retirement. The few Canadian studies focus mostly on disability.[4]

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This paper uses the 2002 Canadian Community Health Survey (CCHS): Mental Health and Well-being (Cycle 1.2) to study the relationship between health status and labour market behaviour (see *Data source and definitions*). Because the CCHS is a health survey, it thoroughly identifies health conditions. In addition, Cycle 1.2 has a strong focus on mental health, which is more or less ignored by other surveys and not covered in as much

Data source and definitions

The **Canadian Community Health Survey** (CCHS) collects information related to health status, health care utilization and health determinants for the Canadian population. Information for 2002 (Mental Health and Well-being, Cycle 1.2) for the 10 provinces was collected between May and December 2002. The survey covered the civilian population age 15 or older, living in private dwellings. Excluded from the sampling frame are reserves and Crown lands, health care institutions, and certain remote regions.[5]

The sample was restricted to the working-age population, age 15 to 64. Individuals were considered to be employed if they worked at, or were absent from, a job or a business in the previous week. This included part-time jobs, seasonal work, contract work, self-employment, babysitting and any other paid work, regardless of the number of hours worked. Hours worked were defined as annual hours worked and were calculated by multiplying usual weekly hours of work by weeks worked in the 12 preceding months.

Four measures of health status were used: self-reported physical and mental health, presence of a chronic condition or a mental health condition (health conditions had to be long term and diagnosed by a health professional), number of chronic physical and mental health conditions, and self-reported change in health status over the past year.

Some limitations apply. First, the data set is cross-sectional and hence unobserved heterogeneity cannot be accounted for. Second, information on the severity of a health problem is not available. However, one of the health status measures used is number of health problems, which might serve as a proxy for severity. Third, hourly earnings are not available. These are commonly used as a control in the hours worked regression. But the models do include information on age, education, occupation and job characteristics, which are all determinants of earnings. Fourth, annual hours worked are based on usual hours and weeks worked. However, this is usually the best proxy available.

Table 1 Health characteristics of the working-age population, 15 to 64 years of age[1]

	Men	Women
	number	
Observations	13,126	14,590
	%	
Employed	80.5	69.4
Self-reported physical health		
Good/very good/excellent	89.9	88.0
Fair/poor	10.1	12.0
Self-reported mental health		
Good/very good/excellent	94.3	92.7
Fair/poor	5.8	7.3
Chronic physical conditions		
None	54.3	46.2
One	26.5	26.8
Two	11.8	13.7
Three or more	7.4	13.4
Mental health problems		
None	84.8	82.4
One	9.7	9.6
Two	3.2	4.9
Three or more	2.3	3.1
Change in health status		
Compared with one year ago current health status is:		
Much better/somewhat better/ about the same	90.2	89.4
Worse/much worse	9.8	10.6

1. Weighted percentages.
Source: Statistics Canada, 2002 Canadian Community Health Survey, Cycle 1.2, Mental Health and Well-being.

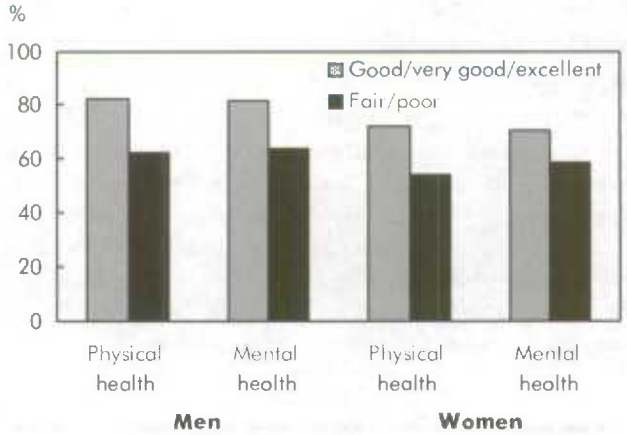
depth by the other cycles of CCHS. Employment and hours worked are both captured. Various health status definitions and estimation techniques are used to check the robustness of the results. The paper also uses models to address the possibility of two-way causality between health and employment.

Overview

The advantage of CCHS Cycle 1.2 is its strong focus on mental health, an issue that has been largely ignored until recently. Approximately 10% of men and 12% of women reported fair or poor physical health (Table 1). Also, 6% of men and 7% of women classified their mental health as fair or poor. Almost one-half of the population (46% men and 54% women) had at least one chronic physical condition. And 15% of men and 18% of women reported at least one mental health problem. The most common physical problem among men was back problems (20%), followed by high blood pressure (11%), arthritis/rheumatism (10%) and asthma (7%). Among women, back problems were also the most common (20%), followed by migraine headaches (17%), arthritis/rheumatism (15%) and asthma (10%). The most common mental health problems for men were substance dependence (5%), anxiety disorders and major depression (both 4%) and learning disabilities (3%).[6] For women, they were anxiety disorders and major depression (both 6%), social phobias (4%) and eating disorders (3%). Respondents were also asked about changes in health over time. Compared with the previous year, 10% of men and 11% of women reported their current health as worse or much worse.

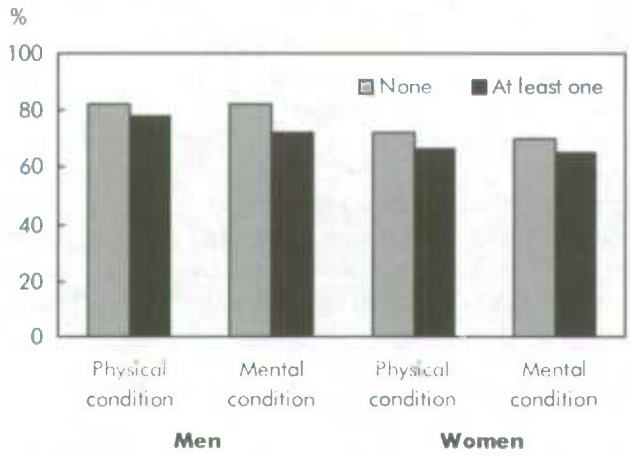
Health problems are clearly associated with adverse employment outcomes (Chart A). Whereas 83% of men and 72% of women with good to excellent physical health were employed, only 62% and 54% of those with fair or poor physical health had a job. Similarly for mental health, 82% of men and 70% of women with good to excellent mental health were employed compared with 64% and 59% of those with fair to poor mental health. The difference in employment rates was greater for men than for women (21 percentage points versus 18 for physical health, and 18 points versus 11 for mental health).

Chart A Employment and self-reported health



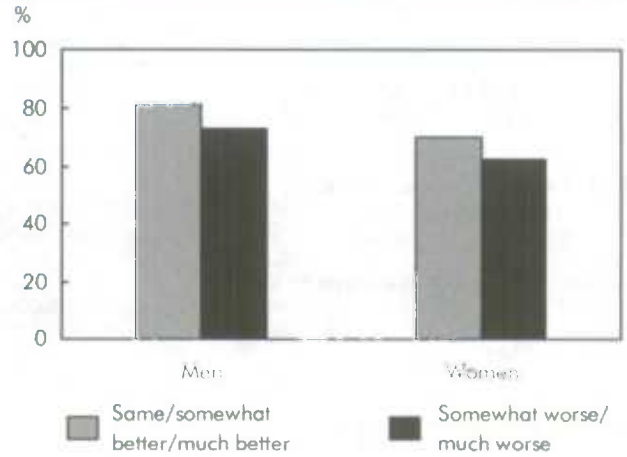
Source: Statistics Canada, 2002 Canadian Community Health Survey, Cycle 1.2, Mental Health and Well-being.

Chart B Employment and presence of health conditions



Source: Statistics Canada, 2002 Canadian Community Health Survey, Cycle 1.2, Mental Health and Well-being.

Chart C Employment and changes in health status[1]



1. Change in self-reported health status from one year ago.
Source: Statistics Canada, 2002 Canadian Community Health Survey, Cycle 1.2, Mental Health and Well-being.

The general conclusion that those with relatively poor physical or mental health are less likely to be employed does not change with the definition of health status. The difference in employment rates among those reporting no health conditions and those reporting at least one was similar for men and women for physical conditions (4.2 percentage points versus 5.6) and almost twice as high for men for mental conditions (9.7 points versus 4.9) (Chart B). The corresponding difference for change in self-reported health status was fairly close (8.1 points for men and 7.7 for women) (Chart C).

Poor health also appears to be related to hours worked (Table 2). Those reporting good to excellent physical health worked more hours than those reporting fair to poor health. The difference was twice as great for women (approximately 3 weeks compared with 1.5 for men). For mental health, the corresponding difference was almost triple (around 4 weeks versus 1.5). Similarly, those reporting no mental health problems were likely to work longer than those reporting at least one, the difference being slightly higher for women. The opposite was true for physical conditions. Those reporting the presence of at least one chronic physical condition worked about two weeks more than those reporting none. Finally, change in health status over the previous year showed almost no difference in

Table 2 Annual hours worked by health status, individuals age 15 to 64

	Men	Women
	hours	
Self-reported physical health		
Good/very good/excellent	2,179	1,719
Fair/poor	2,125	1,611
Self-reported mental health		
Good/very good/excellent	2,177	1,719
Fair/poor	2,122	1,567
Chronic physical conditions		
None	2,144	1,666
At least one	2,214	1,749
Mental health problems		
None	2,190	1,733
At least one	2,075	1,590
Change in health status		
Compared with one year ago current health status is:		
Much better/somewhat better/ about the same	2,174	1,718
Worse/much worse	2,180	1,627

Source: Statistics Canada, 2002 Canadian Community Health Survey, Cycle 1.2, Mental Health and Well-being.

Table 3 Model results for health and employment[1]

	Men	Women
	odds ratio	
Self-reported physical health		
Good/very good/excellent	1.00	1.00
Fair/poor	0.37*	0.56*
Self-reported mental health		
Good/very good/excellent	1.00	1.00
Fair/poor	0.47*	0.69*
Alternative health measure 1		
No chronic physical condition	1.00	1.00
At least one chronic physical condition	0.67*	0.81*
No mental health problem	1.00	1.00
At least one mental health problem	0.58*	0.73*
Alternative health measure 2	coefficient	
Number of chronic physical conditions	-0.36*	-0.17*
Number of mental health problems	-0.21*	-0.16*
Alternative health measure 3	odds ratio	
Compared with one year ago current health status is:		
Much better/somewhat better/ about the same	1.00	1.00
Worse/much worse	0.61*	0.70*

* significant at the 1% level
1. Dependent variable = 1 if employed 0 otherwise.
Note: Models controlled for individual and household characteristics and geographic regions.
Source: Statistics Canada, 2002 Canadian Community Health Survey, Cycle 1.2, Mental Health and Well-being.

hours worked for men reporting a worsening condition compared with the rest. Women whose health improved or stayed the same worked around two weeks more than those whose health deteriorated.

Empirical results

Logistic regressions were used to calculate the odds of having a job (Table 3).[7] The four sets of results relate to four different definitions of health status. For those in fair or poor physical health, the odds of being employed were lower than for those reporting good to excellent health—by 0.63 for men 0.44 for women.[8] Similar figures relating to mental health were 0.53 and 0.31. The first alternative measure of health, presence of a condition, did not change the qualitative conclusion. The presence of at least one physical condition reduced the odds of being employed by 0.33 for men and by 0.19 for women; for mental conditions, the reductions were 0.42 and 0.27.[9] Not only did the presence of a condition affect the odds of being employed but so did the number of conditions. Each additional physical condition decreased the logarithm of the odds of employment by 0.36 for men and 0.17 for women; each additional mental condition, by 0.21 and 0.16. Change in health status from the previous year is an important variable, as it avoids the problem of two-way causality between current health status and current employment status as current employment status is not likely to affect the change in health status over the previous year. The odds of being employed for men whose current health status was worse or much worse than a year ago were lower by 0.39 compared with those whose health status was the same or better. The comparable figure for women was 0.30.

Regardless of how health status was measured, relatively poor health had an adverse effect on the chances of being employed. The next step was to look at the relationship between health and hours worked for those who were employed (Table 4). The results were statistically significant only for women and then only for mental health. Women reporting fair or poor mental health were estimated to work 136 hours (approximately 3.5 weeks) less annually than women in good

Table 4 Model results for health and annual hours worked

	Men	Women
	coefficient	
Self-reported physical health		
Fair/poor	-65.6	-22.5
Self-reported mental health		
Fair/poor	-72.9	-135.8*
Alternative health measure 1		
At least one chronic physical condition	-28.4	11.2
At least one mental health problem	-7.5	-101.8*
Alternative health measure 2		
Number of chronic physical conditions	-8.4	-10.6
Number of mental health problems	-3.5	-37.9*
Alternative health measure 3		
Compared with one year ago current health status is:		
Worse/much worse	31.9	-58.5*

* significant at the 5% level or better
Note: Models controlled for individual and household characteristics, occupation type, job characteristics and geographic regions.
Source: Statistics Canada, 2002 Canadian Community Health Survey, Cycle 1.2, Mental Health and Well-being.

to excellent health. Those with at least one mental health problem were likely to work 102 hours (2.7 weeks) less than those with none. As the number of problems increased, work hours decreased. Each additional mental health problem reduced hours by 38 (one week) per year. Finally, women whose current health status was worse or much worse than one year ago were likely to work 59 fewer hours (1.5 weeks) than those whose health status was the same or better.[10]

The results on hours worked cannot be generalized across the entire population since excluding those without jobs would lead to a sample selection problem (Heckman 1976 and 1979). To overcome this, a Heckman maximum likelihood model was estimated. In the first stage, a probit of participation that included both those working and those not working was estimated. Then the inverse Mills ratio was computed and included in the second stage (hours worked), which was restricted to employed individuals to correct for sample selection bias (Table 5). The results were very similar quantitatively and the qualitative conclusion remained the same—mental health problems are associated with a decrease in hours worked by women.

Table 5 Controlling for selection: health and annual hours worked

	Men	Women
	coefficient	
Self-reported physical health		
Fair/poor	-48.5	-23.7
Self-reported mental health		
Fair/poor	-60.6	-136.5*
Alternative health measure 1		
At least one chronic physical condition	-23.9	10.4
At least one mental health problem	-0.6	-103.1*
Alternative health measure 2		
Number of chronic physical conditions	-5.1	-10.8
Number of mental health problems	-1.1	-38.1*
Alternative health measure 3		
Compared with one year ago current health status is:		
Worse/much worse	39.7	-58.2*

* significant at the 5% level or better
Note: Models controlled for individual and household characteristics, occupation type, job characteristics and geographic regions.
Source: Statistics Canada, 2002 Canadian Community Health Survey, Cycle 1.2, Mental Health and Well-being.

As mentioned, causality between health problems and labour supply measured in the same period is likely to be two-way. Poor health can be associated with adverse labour market outcomes. But, at the same time, adverse labour market outcomes might lead to poor health (especially mental). For example, being unemployed might cause depression. In the absence of a longitudinal dataset, this was partly avoided by using change in health status over the previous year. Another way to address the problem of causality (and selection bias) in a cross-sectional dataset is to use propensity score matching methods (Rosenbaum and Rubin 1983 and 1985, Heckman et al. 1997 and 1998, Dehejia and Wabha 1999 and 2002, and Smith and Todd 2005). The basic idea is to use a statistical matching technique to mimic randomization in control and treatment groups in experimental studies. The control group was those with no health problems and the treatment group was those with health problems. If all observations in the control and treatment groups were similar for all observable characteristics, then having any health problems might explain labour market outcomes accurately (see *Propensity Score Matching Methods* for details).[11] Both self-reported health and presence of a chronic condition had a negative effect on employment (Table 6).[12] Men with fair or poor physical health had a 24 percentage point reduction in their chances of being employed. The reduction for women was 19 points. Similarly, figures for men and women with fair or poor mental health were 21 points and 14 points

Table 6 Propensity score matching methods for health and employment

	Men	Women
	percentage point	
Self-reported physical health		
Fair/poor	-0.24*	-0.19*
Self-reported mental health		
Fair/poor	-0.21*	-0.14*
Alternative health measure 1		
At least one chronic physical condition	-0.08*	-0.05*
At least one mental health problem	-0.11*	-0.08*

* significant at the 1% level
Note: The control variables with which propensity scores are computed are age, education, presence/age of children, and student status. The matching method used is Nearest Neighbour.
Source: Statistics Canada, 2002 Canadian Community Health Survey, Cycle 1.2, Mental Health and Well-being.

Propensity Score Matching Methods

The algorithm proposed by Dehejia and Wabha (2002) to estimate propensity scores was used in this study. Another study (Uppal and Sarma 2007) used this same methodology, as follows, to study the impact of disabilities and chronic illnesses on employment of older men and women.

- Start with a probit model to estimate the propensity score.
- Rank all observations by the estimated propensity score in oscending order.
- Impose the Common Support Restriction (i.e. discard observations that are outside the intersection of the supports of the propensity score of treated and control groups).
- Split the sample into five blocks of equol score intervals and test whether the averoge propensity scores of treated and control groups are the same in each block.
- Split the interval into halves and test ogain if the test fails in at least one interval. Continue this step until the average propensity scores of treated and control groups do not differ.
- Test that means of each covariate do not differ between the treated and control groups in each block. This is a necessary requirement for Balancing Hypothesis (i.e. observations with the same propensity score have the same distribution independent of treotment).
- Use a less porsimonious specificotion if the means of one or more observable characteristics differ.

The STATA program developed by Becker ond Ichino (2002) to estimote the propensity score ond compute the averoge treotment effect on the treated groups wos used. Following the olgorithm, a probit model was estimated to predict the probobility of hoving o physical or mental heolth problem and test for balancing hypothesis. In all cases, the covariate means were equal at the 5% level of significance. In order to compute the average treatment effect on the treated groups, it was necessary to match the treated and control groups on the basis of propensity scores. In practice, it is olmost impossible to match the scores precisely, however, various matching methods ore used in literature. In this study, the stratification and the nearest neighbour methods were used. The results presented in this study are from the nearest neighbour method since they were very similar to those from the stratification.

respectively. The effect on hours worked was once again inconclusive for men (Table 7). Whereas self-reported physical and mental health appeared to affect hours worked, the results for the presence of a chronic condition were statistically insignificant. For women, as before, mental health seemed to have a negative effect on hours worked.

The following conclusions can be drawn. Both mental and physical health problems adversely affected the probability of being employed. This effect appeared to be stronger for men than for women. In addition, mental health problems were associated with a decrease in hours worked by women, while the results were inconclusive for men.

Summary

Illness imposes a significant cost on Canadian society. In 1998, the economic burden of illness was $159.4 billion. This is likely much higher today given the aging of the population and the increased likelihood of older cohorts suffering from illnesses. Health problems affect the economy through various channels such as reduced productivity, reduced labour force participation, increased sickness and EI benefits, and costs associated with assistive devices and structural modifications.

One expected impact of poor health status is on employment. In this study, the 2002 CCHS, which had a strong focus on mental health problems, was used to examine the relationship between poor health and labour market outcomes. Approximately 46% of men and 54% of women in the working-age population (15 to 64) had a chronic physical condition. Also, 15%

Table 7 Propensity score matching methods model for health and hours worked

	Men	Women
	percentage point	
Self-reported physical health		
Fair/poor	-91.4*	-82.8*
Self-reported mental health		
Fair/poor	-194.4*	-93.5*
Alternative health measure 1		
At least one chronic physical condition	-14.7	-13.4
At least one mental health problem	-46.8	-87.9*

* significant at the 10% level or better

Note: The control variables with which propensity scores are computed are age, education, presence/age of children, student status, accupation type, and job characteristics. The matching method used is Nearest Neighbour.

Source: Statistics Canada, 2002 Canadian Community Health Survey, Cycle 1.2, Mental Health and Well-being.

of men and 18% of women had a mental health problem. These health problems can affect both home and work activities. Whereas some of the existing literature explores the relationship between physical health/disabilities and labour market outcomes, the relationship with mental health is largely ignored. This study used a source with a strong focus on mental health to study the relationship between mental and physical health problems and employment and hours worked. Various measures of health status and different estimation techniques were used to check for the robustness of the results. Separate models were estimated using self-reported physical and mental health, presence of a chronic physical or mental health condition, the number of chronic physical or mental health conditions, and self-reported change in health over the past year. The study showed that relatively poor mental and physical health decreases the probability of being employed. This adverse effect appeared to be stronger for men. Mental health problems were associated with women working fewer hours.

Perspectives

Note

1. Figures for 2000 will be available shortly.
2. See Tompa (2002) for a discussion on health and productivity.
3. See Marshall (2006) for a discussion of sick leave.
4. Maki 1993, Harkness 1993 and Campolieti 2001 study the impact of disability pensions on labour force participation. These studies by and large conclude that disability pensions have a negative effect on labour force participation. However, Harkness 1993 also finds that a bigger deterrent to labour force participation is the lower expected wage rate due to a disability. Hum and Simpson 1996 and Galarneau and Radulescu 2009 find disability leads to a reduction in hours worked. Campolieti 2002, Morissette et al. 2004 and Pyper 2006 focus on older cohorts and also find a negative relationship between poor health and employment.
5. For more information on the survey, see Statistics Canada (2004a).
6. Mental health conditions refer to prevalence in the 12 months preceding the interview. For more information, see Statistics Canada (2004b).
7. Some labour supply studies focus on individuals age 25 to 59, the core working-age population. This study looked at the population age 15 to 64. Individuals 15 to 24 are more likely to have mental health problems than those 25 to 64, and individuals 60 to 64 are more likely to have physical conditions. Excluding those two age groups would systematically exclude people more likely to have mental or physical health problems. Thus, like Hum and Simpson 1996, the entire working-age population was considered, while controlling for student status and age, among other controls. However, additional analyses on those 25 to 59 showed no qualitative changes in the conclusions.
8. All models used the following control variables: age, age-squared, education, student status, immigrant status, marital status, presence and age of children, and geographic indicators.
9. Mental health and physical health might be expected to be correlated. In the sample used, the Pearson correlation coefficient between the presence of mental and physical health conditions was 0.09 for men and 0.12 for women.
10. In addition to the controls included in the employment model, the hours worked regressions added self-employment status, occupation and work shift.
11. A shortcoming of using propensity score matching for causal inference is that this method is based on the assumption that the selection process depends on observed variables. A bias might arise if the selection is also affected by some unobserved variables.
12. Models were estimated for only two measures of health: self-reported mental and physical health, and presence of a chronic physical condition or mental health problem. The number of chronic physical conditions and mental health problems could not be considered as propensity scores, and can only be computed for binary outcomes. Change in health status was not considered as causal inference, and was not a problem in this case.

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Changes in parental work time and earnings

Sébastien LaRochelle-Côté, Philippe Gougeon and Dominique Pinard

Families are spending a lot more time on the job than the previous generation, mostly due to the rising labour market participation of women. The weekly work hours of couples increased from an average of 58 in 1976 to 65 hours in 2008 (Marshall 2009). The increase in parental work time brings increased attention to issues related to work–life balance among policymakers, family service providers and the general public.

One question of primary importance for family well-being is whether increases in family work time translated into higher family earnings, particularly in the case of families with children. If not all parents benefited financially from increases in work time, a number of well-being issues could arise, for a variety of reasons. First, time and financial resources are found to be important determinants of children's outcomes in later life, even more so for very young children (Phipps and Lethbridge 2006). Second, lower-income working families may be unable to afford services such as day care or after-school programs that can be used as substitutes for the parental care of children. Third, families lacking both time and money may face a particular set of challenges in trying to achieve a better work–family balance (Bernstein and Kornbluh 2005). This article examines the link between parental work time and earnings across various types of families (see *Data source and definitions*).

Studies examining the relationship between family work time and family earnings in Canada have taken a descriptive approach based on percentiles. In what appears to be the only study describing the link between family work time and family income over time in Canada, Yalnizyan (2007) found that incomes increased the most among families at the top of the income distribution (beyond the 90th percentile) without increases in work time. Families at the bottom of the earnings distribution were working more on average, but not earning more. Burton and Phipps (2007) also used a decile approach to study international differences in work time patterns across the income distribution, and found that many families located in the bottom decile of the income distribution worked a high number of hours, at least in Canada and the United States.

The use of deciles brings about a number of limitations. The first relates to the sample size in the Survey of Consumer Finances and the Survey of Labour and Income Dynamics. Although the decile approach divides the sample into equal sub-groups, the quantity of these groups is likely to limit the precision of estimates related to analytically significant groups within deciles.

Deciles can also be difficult to interpret since families in one decile today might not experience the same living standards as families in the same decile twenty-five years ago. For instance, families currently in the bottom decile earn less relative to the median family, depend more on government transfers, and therefore face a different set of challenges than their counterparts a generation ago. Similarly, families in the top decile today are undoubtedly different from those in 1980 since relative earnings increased in the top decile.

This article takes a new approach to family hours and earnings. First, it studies changes in work time from 1980 to 2005 across three groups of families with children: those below two-thirds of median family earnings ('low' earnings), families above four-thirds of

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Data source and definitions

This study examines the evolution of parental work patterns across the family earnings distribution using census information for the years 1981, 1991, 2001 and 2006. The census provides detailed information on sources of income at the family level, but for the year preceding the census year. For example, family earnings in the **2006 Census** are based on the 2005 calendar year. The study focuses on families with children under 16 years of age, and with parents under 55. The sample is restricted to families with at least one working parent since the study links family earnings to time spent at work by family members. Two-parent families represented the largest share of total families, numbering 2.5 million in every census year. Single-parent families represented a growing portion of families, doubling from 250,000 in 1981 to more than 500,000 in 2006.

The census was most recently conducted in 2006 and gathered information on a variety of socio-economic characteristics for 20% of Canadian households. Using the census ensures a better coverage of families across the entire distribution of earnings (Frenette, Green and Picot 2006). However, the census lacks data on weekly hours worked by individuals, which would allow detailed estimates of working time. However, work status (full-time versus part-time) for the weeks worked is collected. Full-time is defined as working at least 30 hours per week, and full-year is defined as working at least 50 work weeks per year. A part-time week refers to anything between 1 and 29 hours, and a part-year of work includes everything between 1 and 49 weeks of work.

Families living in a collective dwelling, families including non-permanent residents, and families with members who immigrated in the census year (or in the previous year) were excluded from the sample. This latter restriction is necessary because annual earnings statistics for these families would be biased downwards since they spent none or only part of the reference year in Canada. Family earnings include wages and salaries, net farm income, and net income from a non-farm unincorporated business and/or professional practice from both parents in the case of two-parent families and from the lone parent among single-parent families. All earnings figures have been deflated by using the national Consumer Price Index and are expressed in 2005 dollars. Outliers are addressed by removing the 1% of families with the highest earnings and the 1% of families with the lowest earnings. This adjustment is necessary because means are required to decompose the impact of changing family work time on changing family earnings, and means tend to be disproportionately influenced by families located at the extremes of the earnings distribution.

the median ('high' earnings), and families between two-thirds and four-thirds of the median ('middle' earnings). It also looks at the association between parental work time and earnings for these three types of families. The advantage of this approach is that both the size and relative earnings of each group can vary.

A second innovation is the use of census data. The census has two major advantages: consistent information about the work patterns of families since 1980 and a large sample size, thereby enabling study of the evolution of work time and earnings across all family types, including lone parents.

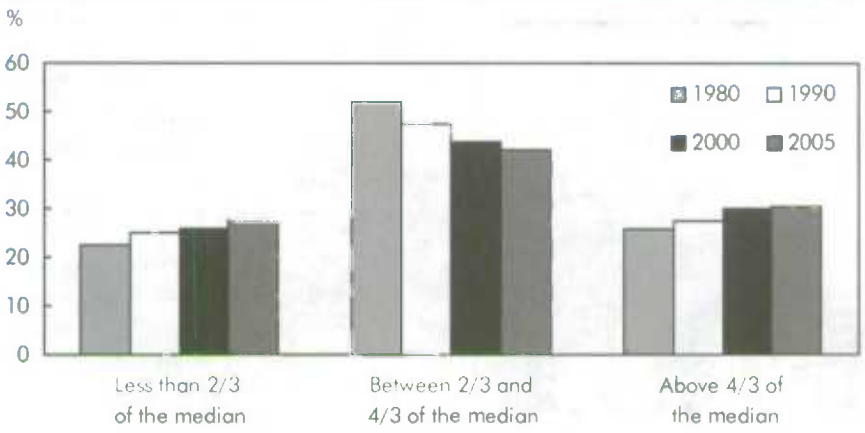
A third innovation is the use of decomposition techniques to examine the extent to which the growth in average parental earnings can be correlated with changes in parental work time at various points of the earnings distribution. More sophisticated decomposition techniques will also be used to determine the 2006 distribution of earnings if family work time and other family and personal characteristics had stayed the same over the past 25 years.[1]

This paper focuses on families with children less than 16 years of age. The first part of the analysis examines the evolution of two-parent families, while the second covers single-parent families.[2] Because the focus is on changes in parental work time and earnings over time, families with two non-working parents (and non-working single parents) are excluded from the sample. These exclusions represent a very small portion of two-parent families (less than 3%), a higher portion of single fathers (10% to 15%) and a larger, but declining, share of single mothers (from a high of 38% in 1980 to a low of 23% in 2005). It should be noted, therefore, that the exclusion of families without working adults may create a bias of unknown magnitude—especially among lone mothers.

Changes in parental earnings

In 1980, more than 50% of two-parent families earned between two-thirds and four-thirds of the median (Chart A). Other families were almost evenly divided between those that earned less than two-thirds of the median (22%) and those that earned more than four-thirds of the median (26%). Subsequently, the proportion of families between two-thirds and four-thirds of the median (the middle) shrank in every census year, and the number of families rose at the extremes. By 2005, the proportion of families in the middle was 42%, the proportion of families with less than two-thirds of the median was 28%, and the proportion of those above four-thirds of the median was 30%. Hence, parental earnings became more 'polarized' over the last 25 years, similar to the results of another recent study (Heisz 2007).

Chart A Fewer families in the middle earnings group



Note: Families in which neither parent worked are excluded.
Source: Statistics Canada, Census of Canada, 1981 to 2006.

Not only did earnings become more polarized, but relative earnings across low, middle and high groups also changed. More particularly, median earnings rose faster for those located at the top of the distribution (Chart B). Between 1980 and 2005, median earnings for all families increased from $58,400 to $70,100, or 20%. By comparison, median earnings rose by 29% for families located above four-thirds of the median, and by 13% for families located below two-thirds of the median. The growth in median earnings for families located in the middle was very close to the overall growth (20%).

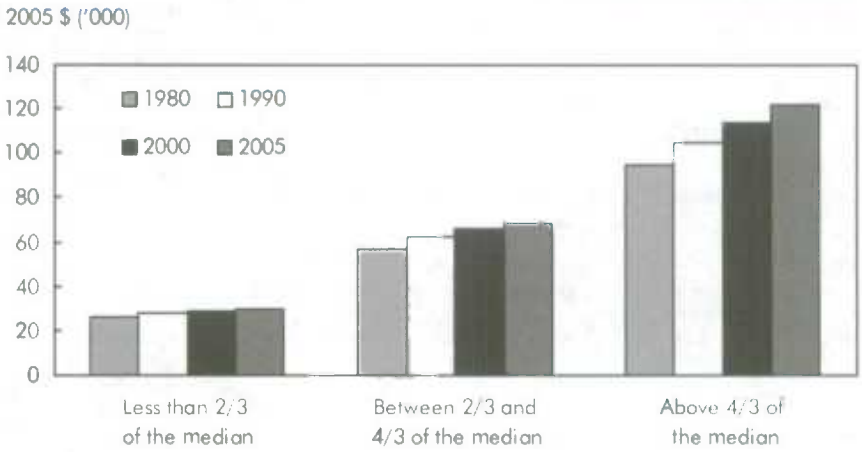
The ratio of median earnings illustrates the growing gap between families at the top and other types of families. Between 1980 and 2005, the ratio of median earnings between families at the top and families in the middle grew little (from 1.7 to 1.8), but the ratio of top-to-bottom earnings families went from 3.6 to 4.1. By and large, these results point to growing polarization *and* growing dispersion of earnings across Canadian families.

Changes in parental work time

Because the census does not provide information on work hours for the preceding year, changes in parental work time can be best described by combining the number of weeks worked with work status (full-time or part-time). The work patterns of individuals were therefore divided across three categories of work time patterns: individuals working full year and full time (FYFT); those with 'lower' labour market engagement (full year and part time, part year and full time, or part year and part time); and those not working at all.

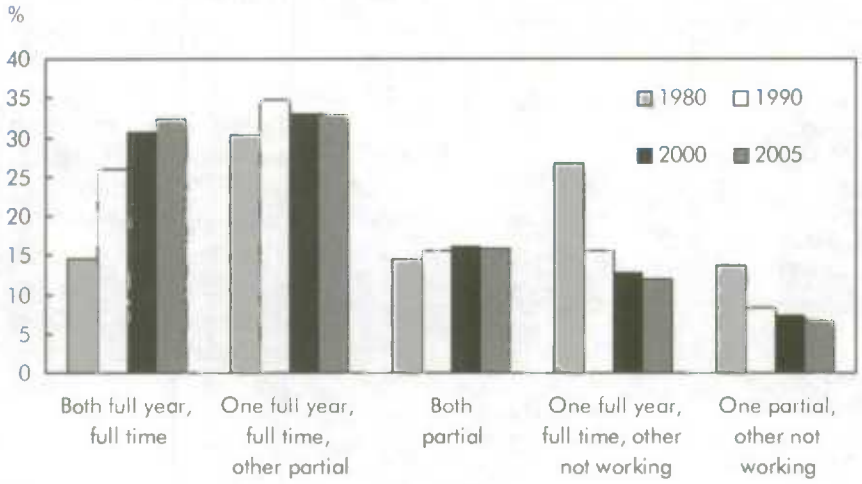
In the case of two-parent families, five categories of working families were created: both parents working FYFT; one parent working FYFT and another with a lower labour market engagement; two parents with a lower labour

Chart B Greater gains in parental earnings in the top earnings group



Note: Families in which neither parent worked are excluded.
Source: Statistics Canada, Census of Canada, 1981 to 2006.

Chart C Proportion of families with two full-year, full-time working parents doubles



Note: Families in which neither parent worked are excluded.
Source: Statistics Canada, Census of Canada, 1981 to 2006.

market engagement; one parent FYFT and another parent not working; and one parent with lower labour market engagement and another parent not working. The first and second categories are the most labour intensive of the five (at least in terms of time spent in the labour market), while the fourth and fifth categories are less labour intensive. As noted, families with two parents not working at all were dropped from the sample, but these amounted to a very small portion.

According to these definitions, the work patterns of two-parent families changed substantially over the past 25 years (Chart C). The share of families with two parents working FYFT rose from 15% in 1980 to 32% in 2005 (+18 percentage points). The share of families with one parent working FYFT and another not working declined by a substantial margin (-15 percentage points). A great deal of these changes took place in the 1980s.

Changes in work time for all three types of families—low, middle and high earnings—are shown in Table 1. Top earnings families had a larger share of two parents working full year and full time than those with lower earnings. In 2005, nearly 50% of all high earnings families had two parents working FYFT, compared with 32% of middle earnings families and only 13% of low earnings families. Conversely, low earnings families were more likely to have at least one parent out of the labour market (34%) compared with middle earnings families (15%) and high earnings families (9%). Hence, families working the most also tended to earn the most.

However, changes over time add a new dimension to the story. Between 1980 and 2005, work time increased somewhat faster among families located in the middle and at the bottom of the earnings distribution than at the top. The share of two FYFT parents among middle earnings families more than doubled, and the share with one FYFT and one parent with a lower labour market engagement increased by 5 per-

Table 1 Change in work patterns by earnings groups, two-parent families

	1980	2005
	%	
Less than 2/3 of the median	**100.0**	**100.0**
Both full year, full time	4.3	13.5
One full year, full time, other partial	17.7	28.4
Both partial	22.0	23.8
One full year, full time, other not working	25.4	17.3
One partial, other not working	30.6	17.1
Between 2/3 and 4/3 of the median	**100.0**	**100.0**
Both full year, full time	11.4	32.5
One full year, full time, other partial	33.2	38.1
Both partial	13.1	14.1
One full year, full time, other not working	31.7	11.8
One partial, other not working	10.6	3.5
Above 4/3 of the median	**100.0**	**100.0**
Both full year, full time	29.8	49.4
One full year, full time, other partial	36.0	30.1
Both partial	11.0	11.2
One full year, full time, other not working	18.1	7.4
One partial, other not working	5.1	1.9

Note: Families in which neither parent worked are excluded.
Source: Statistics Canada, Census of Canada, 1981 and 2006.

centage points (a total of 26 percentage points for the top two categories), accompanied by declining shares in the two least labour-intensive categories (a reduction of 27 percentage points). At the bottom of the distribution, the share of families in the top two working categories almost doubled (from 22% in 1980 to 42% in 2005) while the share of families in less labour-intensive categories decreased by corresponding amounts.

The share of families at the top of the earnings distribution with two FYFT workers also increased by a significant margin (20 percentage points), but the share with one FYFT worker and one with lower labour market engagement fell. As a result, the share of high earnings families in the top two labour-intensive categories grew by 14 percentage points. Overall then, the similarities in family work patterns between middle and top earnings families increased even as their median earnings diverged.

Table 2 Decomposition of growth in average earnings, two-parent families

		Change 1980 to 2005	
	Total	In average earnings within groups	In shares
	percentage point		
Total	**27.6**	**15.2**	**12.4**
Less than 2/3 of the median	7.1	2.6	4.5
Between 2/3 and 4/3 of the median	8.2	3.9	4.3
Above 4/3 of the median	12.3	8.7	3.6
	percent shares		
Total	**100.0**	**55.1**	**44.9**
Less than 2/3 of the median	25.7	9.4	16.3
Between 2/3 and 4/3 of the median	29.7	14.1	15.6
Above 4/3 of the median	44.6	31.5	13.0

Note: Families in which neither parent worked are excluded.
Source: Statistics Canada, Census of Canada, 1981 and 2006.

Link between changes in work time and earnings

Are the changes in parental work time related to changes in family earnings? To answer this question, a decomposition technique can be used to examine whether changing work time among low, middle and top earnings families contributed to changes in overall earnings.[3] With this technique, the overall growth in average parental earnings (28%) can be broken down into changes in the average earnings of various groups, weighted by groups' shares of the population.[4] Then the change in overall earnings can be attributed either to the change in groups' average earnings or to a change in the groups' shares of the population.[5] While the latter shows the effect of the changing work time of each group on overall earnings growth, the former can be interpreted as changes in returns to work associated with a given amount of parental work time. Another advantage of this method is that each cell shows the percentage increase in earnings that would have occurred had no other factors changed. For instance, Table 2 shows that had nothing changed except the rise in the labour supply of high earnings families, average earnings would have risen by 4 percent.

Changes in parental work time were responsible for nearly one-half of the growth in average family earnings over the period from 1980 to 2005 (45%), with changes in average earnings (or returns to work) explaining the remainder (55%). However, the contribution of work time to earnings growth was different across the family earnings distribution. Increasing work activity among families at the bottom and in the middle each contributed 16% of the overall increase, while increasing work activity in high earnings families contributed 13%. Changes in returns to work were more important, as increases in average earnings among middle and lower earnings families explained 24% of the overall increase, while increases among high earnings families accounted for nearly one-third of the overall growth.

Hence, much of the overall increase in family earnings was found among high earnings families, but that increase was proportionately higher than the increase in their time spent at work. Indeed, families at the top of the earnings distribution contributed 45% of the overall increase in average earnings, but less than one-third of this was due to an increase in work time. Families in the middle and at the bottom respectively contributed 30% and 26% of the overall increase in earnings, but contrary to top earnings families, the vast majority of their contribution was rooted in an increase in parental work time.[6]

What if today's families had the same characteristics as those in 1980?

The link between changes in work time and overall earnings raises an interesting question. If work time patterns had remained the same as those in 1980,

Building alternative distributions of earnings

The DFL method involves developing alternative distributions of earnings by multiplying the weights of the 2005 sample of families by a 'reweighting factor' that accounts for changes in parental work time patterns and family and personal characteristics. Simply put, it allows us to answer the following question: "What would the density of family earnings be in 2005 if families had the same work patterns and the same personal characteristics as those in 1980?"

In mathematical terms, the 2005 density of earnings can be expressed as

$$f(w,t_w=2005;t_{p|x}=2005,t_x)=\iint f(w|p,x,t_w=2005)dF(p|x,t_w=2005)dF(x|t_w=2005)$$

where w=earnings, p=work patterns, and x=family characteristics.

Applying 1980 work patterns to our density of 2005 earnings yields

$$f(w,t_w=2005;t_{p|x}=1980,t_x=2005)=\iint f(w|p,x,t_w=2005)\,\Psi_{p|x}(p,x)x\,dF(p|x,t_w=1980)dF(x|t_w=2005)$$

where $\Psi_{p|x}(p,x)$ is a reweighting factor that applies 1980 work patterns (conditioning on 2005 family characteristics) to our density of earnings. Applying Bayes' rules, this factor can also be expressed as

$$\Psi_{p|x}(p,x)=\alpha_1\frac{\Pr(p=1|x,t_{p|x}=1980)}{\Pr(p=1|x,t_{p|x}=2005)}+\alpha_2\frac{\Pr(p=2|x,t_{p|x}=1980)}{\Pr(p=2|x,t_{p|x}=2005)}+\ldots+\alpha_5\frac{\Pr(p=5|x,t_{p|x}=1980)}{\Pr(p=5|x,t_{p|x}=2005)}$$

where p refers to our 5 categories of parental work time. Probabilities are then estimated through a series of multinomial logit regressions applied to our 2005 and 1980 sample of families.

Finally, applying the 1980 personal characteristics on the 2005 density of family earnings yields

$$f(w,t_w=2005;t_{p|x}=1980,t_x=1980)=\iint f(w|p,x,t_w=2005)\,\Psi_{p|x}(p,x)x\,dF(p|x,t_w=1980)\,\Psi_x(x)x\,dF(x|t_w=1980).$$

Using Bayes' rules, this can also be written as

$$\Psi_x(x)=Pr(t_x=1980|x)/Pr(t_x=2005|x)x\,Pr(t_x=2005)/Pr(t_x=1980).$$

The probability of being in period i, given individual attributes x, can be estimated by using a logit model in which observations for both 1980 and 2005 are pooled together. The $Pr(t_i=1980)$ is equal to the weighted number of observations in 1980 divided by the weighted number of observations in both 1980 and 2005.

The DFL decomposition has also been conducted in reverse order to confirm the validity of the results.

would the polarization and increase in earnings dispersion have been dampened? An empirical strategy was designed to address this question.

In doing so, it is important to control for changes in family and personal characteristics. If changes in family characteristics, for instance the education level of women,[7] were concentrated in certain areas of the earnings distribution, it would affect the change in family earnings in a particular way. It is therefore important to examine the extent to which these characteristics, in addition to changes in work time, affected the distribution of earnings.[8]

A semi-parametric decomposition method along the lines of the one proposed in Dinardo, Fortin and Lemieux (1996) can be used to achieve these objectives. This method—henceforth called DFL—relies on the imposition of counterfactuals on the observed distribution of earnings in order to construct the distribution that would have prevailed if work time patterns and family and personal characteristics had remained the same as those in 1980. These counterfactual distributions can be estimated by reweighting all observations on a sequential basis (see *Building alternative distributions of family earnings*). These new distributions can then be used to compute hypothetical statistics on polarization and median earnings across family types for the year 2005 (Table 3).

According to this technique, had work patterns remained the same as those in 1980, the share of families below two-thirds of the median would be 28% and the share of families above four-thirds of the median would be 31%. In other words, if work time patterns had been the same as those in 1980, polarization would still have increased. Furthermore, if family and personal characteristics had been the same as those in 1980, the proportion of two-parent families at the two extremities would have increased even

Table 3 Multivariate earnings decomposition, two-parent families

	Real 2005 distribution	Alternative 2005 distribution: 1980 work patterns	Alternative 2005 distribution: 1980 work patterns and family characteristics
		%	
Total	**100.0**	**100.0**	**100.0**
Less than 2/3 of the median	27.5	28.3	30.0
Between 2/3 and 4/3 of the median	42.1	40.6	38.7
Above 4/3 of the median	30.4	31.1	33.0
Earnings growth	**20.0**	**11.8**	**-13.3**
Less than 2/3 of the median	13.4	4.6	-22.1
Between 2/3 and 4/3 of the median	20.1	11.8	-13.6
Above 4/3 of the median	28.7	21.9	-4.6

Note: May not add to 100 due to rounding. Families in which neither parent worked are excluded.
Source: Statistics Canada, Census of Canada, 1981 and 2006.

further. In fact, this technique suggests that changes in work time and family characteristics had a dampening effect on polarization over this period.

So why wasn't polarization reduced by applying 1980 work patterns and personal characteristics to the 2005 distribution? Changes in wages, in particular, likely explain most of these trends. In past decades, increases at the very top of the income distribution have mostly been driven by increases in wages (Murphy, Roberts and Wolfson 2007). The drivers behind this phenomenon remain elusive. Possible explanations include the emergence of very specific high-wage skills or industries, changes in the bargaining power of workers with medium or low earnings, and changes in the labour compensation of high-income individuals (Sharpe, Arsenault and Harrison 2008). Unfortunately, these hypotheses are difficult to verify with existing survey data.[9]

Table 3 also shows how parental earnings would have changed if family characteristics and family work time patterns remained the same as those in 1980. While the overall median grew by 20% over the period, growth would have been more muted (12%) if work patterns had not changed. These results suggest that work hours accounted for approximately one-half of the overall increase in median earnings.

While work time contributed to the overall change in earnings, its magnitude was not the same across the distribution. Had work time patterns remained the same as those in 1980, median earnings for families at the bottom of the earnings distribution would have grown by 5%—about one-third of the actual growth rate (13%). Conversely, median earnings among families at the top of the distribution would have grown by 22%—three-quarters of the actual growth rate (29%). Growth among families in the middle would have been 12%, as opposed to a real increase of 20%. This reinforces the earlier observation that changes in work time had a greater impact on earnings for families at the bottom and in the middle of the earnings distribution.

If both work patterns and personal characteristics had remained the same as those in 1980, the growth in median earnings would have been negative (-13%), highlighting the importance of changes in family and personal characteristics (including increases in educational attainment) for earnings growth. Again, these changes would not have been the same across the earnings distribution. Changes in median earnings would have been -22% among families with lower earnings, while the same figure would have been -5% among high earnings families—resulting in a higher hypothetical earnings gap between these two types of families.

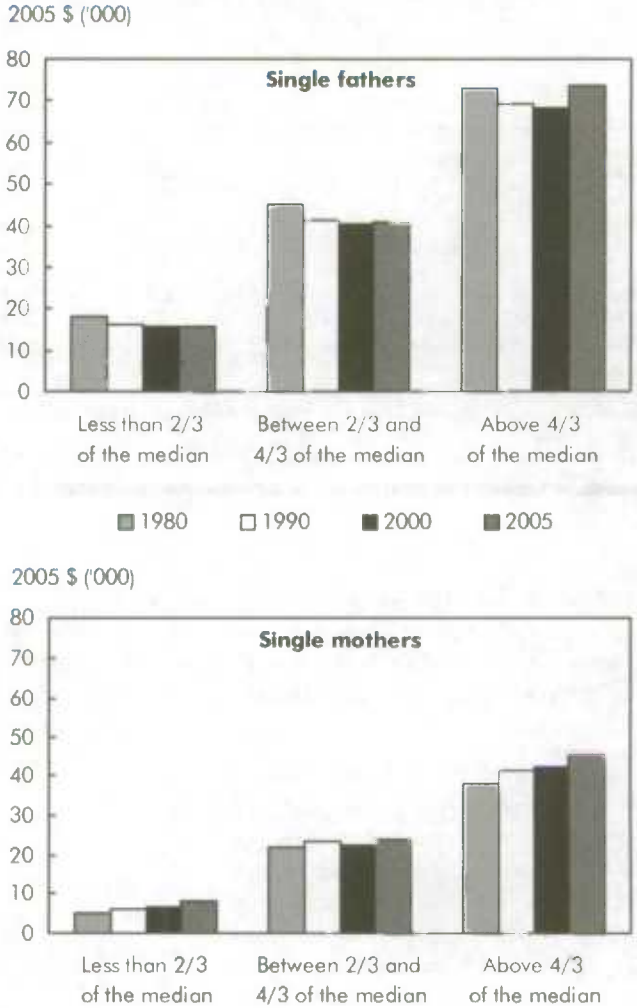
If work time patterns and family characteristics of two-parent families had remained the same as those in 1980, then polarization would not have been dampened—it would have increased even more. Earnings levels would also be somewhat different, especially for families located at the bottom of the distribution, which means that the earnings gap between top and bottom earnings families would have grown by even wider margins. This suggests that increases in polarization and in the earnings gap cannot be linked to changes that took place in work patterns or in the demographic characteristics of families, and that other factors, possibly linked to changes in the wage structure, likely played a role in changing family earnings.

Table 4 Earnings distributions, single parents

	1980	1990	2000	2005
		%		
Single fathers	**100.0**	**100.0**	**100.0**	**100.0**
Less than 2/3 of the median	25.8	28.3	28.6	29.6
Between 2/3 and 4/3 of the median	48.3	43.0	39.9	38.9
Above 4/3 of the median	26.0	28.7	31.5	31.5
Single mothers	**100.0**	**100.0**	**100.0**	**100.0**
Less than 2/3 of the median	34.8	36.1	34.0	34.5
Between 2/3 and 4/3 of the median	29.7	28.9	28.1	29.9
Above 4/3 of the median	35.6	35.0	37.9	35.6

Note: Excludes single parents who did not work in the reference year.
Source: Statistics Canada, Census of Canada, 1981 to 2006.

Chart D Declining earnings for most groups of single fathers...but increasing for single mothers



Note: Excludes single parents who did not work in the reference year.
Source: Statistics Canada, Census of Canada, 1981 to 2006.

Single-parent families

Single-parent families form an increasing portion of working families in Canada. Since such families are more likely to be financially vulnerable, the evolution of work time and earnings among these families was also examined.[10] Two categories were used to describe the work patterns of single parents: those working full year and full time, and those with lower labour market engagement (full year and part time, part year and full time, or part year and part time). Separate analyses were conducted for men and women because labour market trends evolved differently for single mothers and single fathers (Table 4).

Similar to two-parent families, the earnings of single fathers became more polarized over the period. The share of families located in the middle of the distribution declined from 48% in 1980 to 40% in 2000 (with the other two groups gaining more families as a result). Among single mothers, the distribution remained stable over the past 25 years, with 35% of working mothers in the high and in the low earnings group, and 30% in the middle.[11]

Earnings levels also changed considerably within groups. Earnings declined significantly for single fathers located at the bottom (-14%) and in the middle (-9%) of the distribution, and remained unchanged among single fathers located at the top (Chart D). Although their earnings remain lower than those of single fathers, single mothers in all earnings groups experienced significant increases in median earnings over the period—particularly those at both ends of the earnings distribution.

Were changes in earnings accompanied by changes in work time for single-parent families? In the case of fathers, the share of those working full year and full time remained quite stable in the middle and at the top of the earnings distribution (Table 5). Only fathers at

Table 5 Labour market engagement by earnings groups, single parents

	1980	2005
	%	
Single fathers		
Less than 2/3 of the median		
Full year, full time	34.3	40.3
Partial	65.7	59.7
Between 2/3 and 4/3 of the median		
Full year, full time	71.3	72.3
Partial	28.7	27.7
Above 4/3 of the median		
Full year, full time	78.7	80.0
Partial	21.3	20.0
All men		
Full year, full time	63.7	65.2
Partial	36.3	34.8
Single mothers		
Less than 2/3 of the median		
Full year, full time	8.1	19.8
Partial	91.9	80.2
Between 2/3 and 4/3 of the median		
Full year, full time	47.9	57.0
Partial	52.1	43.0
Above 4/3 of the median		
Full year, full time	73.6	77.3
Partial	26.4	22.7
All women		
Full year, full time	43.2	51.4
Partial	56.8	48.6

Note: Excludes single parents who did not work in the reference year.
Source: Statistics Canada, Census of Canada, 1981 and 2006.

Table 6 Decomposition of growth in average earnings, single parents

		Change 1980 to 2005	
	Total	in average earnings within groups	in shares
		%	
Single fathers	**-1.8**	**-2.4**	**0.6**
Less than 2/3 of the median	-1.2	-1.7	0.5
Between 2/3 and 4/3 of the median	-0.8	-0.8	0.0
Above 4/3 of the median	0.2	0.1	0.1
Single mothers	**20.3**	**13.7**	**6.6**
Less than 2/3 of the median	10.0	5.8	4.2
Between 2/3 and 4/3 of the median	3.5	1.9	1.6
Above 4/3 of the median	6.7	6.0	0.7

Note: Excludes single parents who did not work in the reference year.
Source: Statistics Canada, Census of Canada, 1981 and 2006.

the bottom of the earnings distribution saw a notable increase in their work time as the share of fathers working full year and full time in this group rose from 34% to 40%. However, these changes occurred against a backdrop of significant declines in earnings for fathers in the middle and at the bottom of the earnings distribution.

By contrast, the share of mothers working on a full-year and full-time basis rose across the distribution—especially at the bottom and in the middle—indicating a stronger correlation between changes in earnings and changes in work time for lone mothers.

Like two-parent families, the association between changes in work time and changes in earnings among single-parent families can be quantified by using decomposition techniques based on changes in average family earnings (Table 6). From 1980 to 2005, average earnings declined by 2% among single fathers and increased by 20% among single mothers. Among single fathers, most of the decline was associated with declines in returns to work in the middle and at the bottom of the distribution. In fact, were it not for the increase in work time of single fathers located at the bottom of the distribution, the decline in earnings would have been even steeper for single fathers.

Among single mothers, a significant portion of increasing earnings were linked to changes in average earnings within groups, especially for those located at the bottom and top of the earnings distribution. Increases in work time among single mothers at the bottom of the distribution also contributed to the overall increase. In fact, the combination of rising work time and rising returns to work at the bottom of the distribution was such that single mothers with lower earnings alone were responsible for one-half of the overall increase in earnings.

The DFL decomposition method was applied to data for single fathers and single mothers separately (Table 7). The technique indicates that earnings polarization among single fathers would not have evolved differently if work patterns and family characteristics had stayed the same. Furthermore, changes in earnings would not have been much different either—perhaps not a surprise, given the modest changes in work time among single fathers. Note that earnings would have declined by even larger amounts in all three groups if

Table 7 Multivariate earnings decomposition, single parents

	Alternative 2005 distribution		
	Real 2005 distribution	1980 work patterns	1980 work patterns and family characteristics
		%	
Single fathers			
Distribution	100.0	100.0	100.0
Less than 2/3 of the median	29.6	29.4	30.9
Between 2/3 and 4/3 of the median	38.9	39.1	37.7
Above 4/3 of the median	31.5	31.5	32.2
Earnings growth	-7.5	-7.0	-15.8
Less than 2/3 of the median	-13.7	-13.4	-22.2
Between 2/3 and 4/3 of the median	-9.1	-8.8	-16.9
Above 4/3 of the median	0.7	1.0	-7.0
Single mothers			
Distribution	100.0	100.0	100.0
Less than 2/3 of the median	34.5	34.8	35.7
Between 2/3 and 4/3 of the median	29.9	29.0	26.4
Above 4/3 of the median	35.6	36.2	38.1
Earnings growth	9.6	4.9	-16.0
Less than 2/3 of the median	58.0	49.7	15.7
Between 2/3 and 4/3 of the median	8.2	2.9	-18.4
Above 4/3 of the median	21.3	17.5	-2.4

Note: Excludes single parents who did not work in the reference year.
Source: Statistics Canada, Census of Canada, 1981 and 2006.

personal characteristics (including rising educational attainment) had stayed the same.

The results were similar for single mothers: their distribution across earnings groups would change very little if work patterns and personal characteristics had stayed the same as those in 1980. However, earnings would not have grown as much over the past 25 years for single mothers if work patterns had stayed the same, especially for those located in the middle of the earnings distribution (3% instead of 8%). Moreover, if single mothers had retained the personal and family characteristics of 1980, earnings growth would have been much more modest for single mothers at the bottom of the distribution, and would have been negative for women in the top two earnings groups. As such, changes in the characteristics of women—including a rise in the proportion of university-educated women—also accounted for much of the earnings increase among single mothers.[12]

Summary

Time and money are both important resources for families with children for a number of reasons. First, families with two working parents may need to substitute purchased services for the care of their children. Second, time and money have been shown to affect the long-term socio-economic outcomes of children. Third, families lacking both time and money might face a particular set of challenges in trying to achieve a better work–family balance. Understanding the link between changes in parental work time and earnings is therefore important.

This study used census data to examine whether changes in work time have been accompanied by corresponding increases in parental earnings for various types of families. Families were divided into three groups: those located below two-thirds of the median (low earnings); families located between two-thirds and four-thirds of the median (middle earnings); and families above four-thirds of the median (high earnings). Two-parent families in every group—especially those located at the bottom and in the middle of the earnings distribution—were found to have increased their work time by substantial margins. However, the changes in work time occurred against a backdrop of a stronger increase in earnings for families at the top of the earnings distribution.

Looking only at the effect of changing work patterns on the increase in parental earnings, a large portion (45%) was associated with the rising work effort for all types of families—particularly those located in the middle and at the bottom of distribution. However, a good deal of the overall increase (55%) was due to an increase in average earnings obtained for a given amount of parental work time—particularly among families with high earnings.

Furthermore, even though changing work patterns contributed to the overall increase in earnings, they had little impact on earnings polarization. If families had kept the

same work patterns and demographic characteristics as those in 1980, polarization would have increased faster and the earnings gap between top and bottom families would have been greater. Since parental work hours did not contribute to growing earnings polarization and dispersion, these phenomena are likely related to changes in the wage structure.

This study also examined the evolution of work time and earnings among single fathers and mothers. Work time increased little among single fathers except for those located at the bottom of the distribution, while earnings fell substantially for fathers at the bottom and in the middle of the distribution. Among single mothers, in contrast, increases in work time were accompanied by substantial growth in earnings, particularly among those located at the bottom of the distribution. However, single mothers in all types of families continued to earn much less than their male counterparts in 2005.

Clearly, not all families benefited financially from the increase in family work time over the last 25 years. Today's families face a different set of choices and constraints than families in 1980, and may therefore organize their work time differently. Nevertheless, such results raise the possibility that many families have to work more than a generation ago to meet their financial expectations.

Perspectives

Notes

1. This paper does not examine why parental work patterns have changed over the period. Rather, it examines the extent to which changing family work patterns can be linked to changes in family earnings.
2. The proportion of families with two parents as a share of all families declined over the period from 1980 to 2005, while the share of single-parent families rose.
3. Defining the share of low, middle and high earnings families in every working category i as γ_i, and average earnings in every cell as E_i, the portion of the total change in average earnings between 1980 and 2005 associated with changes in average earnings within groups is $[\gamma_{i\,05}(E_{i\,05} - E_{i\,80})]/E_{05}$, and the portion due to changes in group i shares is $[E_{i\,05}\,(\gamma_{i\,05} - \gamma_{i\,80})]/E_{05}$. With this method, changes in overall earnings can be attributed either to changes in the groups' average earnings or to a change in the groups' share of the population.
4. The growth in average parental earnings is based on the 'trimmed' distribution, with the top and bottom 1% of earners removed. It compares with a 20% increase in median earnings.
5. While changes in average earnings are somewhat different from changes in the median, the median cannot be used in this particular decomposition method as it cannot be decomposed across family types. The disadvantage of this method is that average earnings tend to be influenced by extreme values. To minimize this effect, the top 1% and the bottom 1% of the distribution were removed from the sample.
6. Families located in various parts of the earnings distribution in 2005 were not the same as those in 1980, and may have organized their work lives differently than those who were in the same categories in 1980.
7. From 1981 to 2006, the share of women with at least a university degree rose from 7% to 26% among two-parent families.
8. Changes in family characteristics include age, education level, immigration status and province of residence.
9. An examination of Gini coefficients across the five types of family work patterns confirmed that the changing structure of wages possibly played a role in the increase in polarization. Between 1980 and 2005, the Gini coefficient rose in all types of family work patterns, suggesting that polarization was not due to changes in work patterns.
10. Because non-working families form a larger portion of single-parent families than two-parent families (especially among single mothers), the single-parent families analyses may involve selection issues.
11. The cutoff points across the three types of families were much lower for single mothers than for single fathers since single mothers tend to have lower earnings.
12. According to the census, the proportion of single mothers with a university degree rose from 7% to 15% between 1981 and 2006.

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Work–life balance of older workers

Jorge Uriarte-Landa and Benoît-Paul Hébert

Work–life conflict among older workers remains largely understudied, despite its potential impact on health, productivity and retirement decisions. This article examines work–life balance among older workers, 55 years of age and over, focusing on dissatisfaction with work–life balance, the most commonly reported reasons for dissatisfaction, and key factors and personal characteristics associated with work–life conflict.

While there has been a plethora of work–life balance studies, most of this research has focused on younger workers with children. In Canada, work–life balance of older workers has started to garner attention, but mostly in the context of elder care (Pyper 2006, Habtu and Popovic 2006, and Williams 2005). Gaining a more comprehensive understanding of this issue is important for several reasons. First, work–life conflict has been associated with negative health and productivity outcomes (Duxbury and Higgins 2003). Second, research suggests that work–life balance plays an important role in retirement decisions. In the U.S., work–family conflict among 52- to 54-year-olds has been associated with higher odds of planning to retire within the next ten years (Raymo and Sweeney 2005). In Canada, over 25% of retirees report that they would have continued working if they had been able to work part time or shorter/fewer days, while 6% would have done so if they had suitable caregiving arrangements (Morissette, Schellenberg and Silver 2004).

Within this context, this article sets out to examine work–life balance among workers age 55 years and over, using data from Statistics Canada's 2005 General Social Survey. The first section introduces some of the potential sources that may contribute to work–life conflict among older workers. The second compares selected socio-demographic, household, and work-related characteristics of older workers with their core-age counterparts (25 to 54). The prevalence of dissatisfaction with work–life balance as well as the most commonly reported reasons for dissatisfaction are then presented. Finally, multivariate analysis is used to measure the impact of various factors on the probability of work–life balance dissatisfaction among older workers (see *Data source and definitions*).

Potential sources of work–life conflict among older workers

Several recent studies have pointed to the need to broaden the scope of work–life balance research beyond the context of families with children to include older workers (Yeandle 2005, Hirsch 2003, Gardiner et al. 2007). They argue that as workers get older, many are likely to experience changes in their family situations, health or interests outside of work that may become sources of work–life tension. Examples of such changes include:

- Development of caregiving responsibilities – While most older workers have finished raising their own children, many are likely to take on new roles as caregivers for elderly parents or other relatives. Some of these workers are also likely to develop new child care responsibilities following the arrival of grandchildren. Combining care and employment might be challenging without the support of flexible working arrangements.
- Disability onset – Older workers face a much higher risk of developing a disability than their younger counterparts. The demands associated with managing disability can be a source of tension in relation to employment, in particular, in the absence of appropriate supports and accommodations.

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- Changes in family circumstances – Paid work demands can conflict with the process of coping with emotionally demanding events such as a divorce, a separation or the loss of a spouse or parent.
- Changes in preferences – As people age, their perspectives and priorities change. For some, pursuing a career may become less important later in life relative to spending time with the family, undertaking recreational pursuits or volunteering in the community.

Characteristics of older workers

Most older workers are men

In 2005, there were 2.3 million older workers (age 55 and over) in Canada, representing 14% of the total workforce (Table 1). About three-fifths of these workers were men—a higher proportion than among core-age workers (25 to 54). The majority of older workers (84%) were age 55 to 64.

Table 1 Socio-demographic characteristics of core-age and older workers

	25 to 54	55 and over
	'000	
Total	**11,681**	**2,254**
	%	
Sex		
Men	54.4	60.9*
Women	45.6	39.1*
Age		
55 to 59	...	57.2
60 to 64	...	26.8
65 and over	...	16.0
Disability		
No	74.1	61.6*
Yes	25.9	38.5*
Post-secondary education[1]		
No	38.0	46.3*
Yes	62.0	53.8*
Annual personal income		
Under $30,000	25.6	26.5
$30,000 to $59,999	45.9	41.6*
$60,000 to $99,999	21.1	20.6
$100,000 and over	7.5	11.4*

* significantly different from workers age 25 to 54
1. Degree, certificate or diploma.
Source: Statistics Canada, General Social Survey, 2005.

As expected, the GSS data show that older workers were far more likely to have a disability than their younger counterparts (38% vs. 26%).[1] Thus, for many older workers, functioning at work and outside of work might be challenging unless appropriate aids, supports and accommodations are provided.[2]

Older workers were less educated than their younger counterparts. Overall, 54% of them had a post-secondary degree or certificate, compared with 62% of core-age workers. A higher proportion of older workers than core-age workers reported annual personal incomes of $100,000 and over (11% vs. 7%)—likely the result of higher seniority and work experience.

Many older workers are self-employed or work part time

Self-employment and part-time work were quite common among older workers, possibly indicating a conscious transition towards retirement (Table 2).[3] They were twice as likely as their core-age counterparts to work less than 30 hours per week (20% vs. 9%). Self-employment was particularly high at 31%, compared with 18% among workers age 25 to 54.

Older workers—perhaps due to their high self-employment rate—had more flexibility than their younger counterparts in terms of when and where they worked. Almost one-half of them (48%) indicated that

Table 2 Selected work-related characteristics of core-age and older workers

	25 to 54	55 and over
	%	
Weekly hours worked (all jobs)		
Less than 30	9.3	20.0*
30 or more	90.7	80.0*
Type of worker		
Paid worker	82.0	68.6*
Self-employed	18.0	31.4*
Working arrangements[1]		
Flexible schedule	40.7	47.7*
Regular daytime schedule	73.0	71.9
Working some hours at home[2]	19.0	25.0*

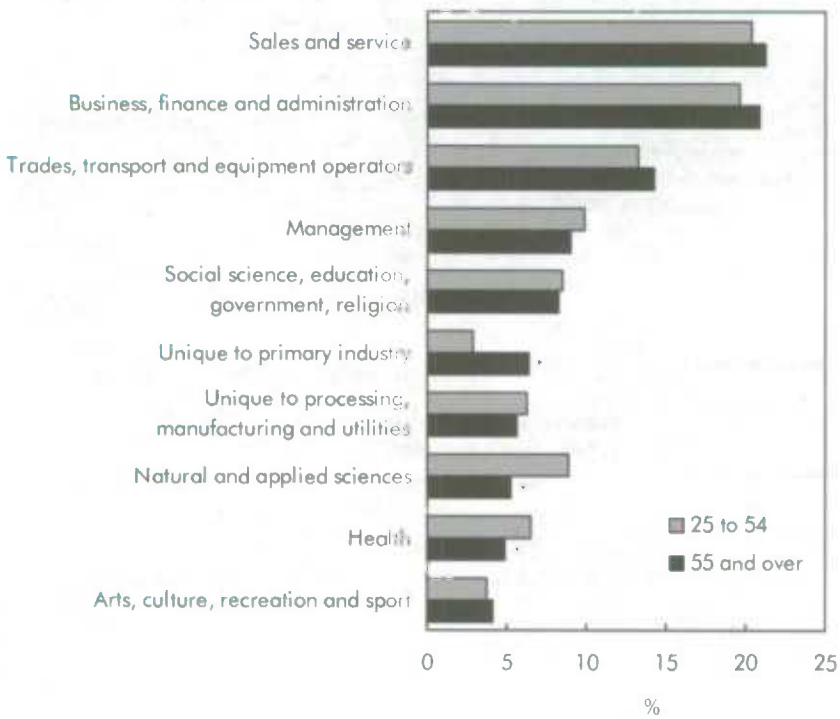
* significantly different from workers age 25 to 54
1. Categories are not mutually exclusive.
2. Excluding overtime.
Source: Statistics Canada, General Social Survey, 2005.

they were able to choose the start and end times of their work days, compared with 41% of core-age workers. About one in four usually worked some hours from home (excluding overtime), compared with one in five core-age workers.

There was no discernible difference between older and younger workers in terms of work schedule types. Overall, 72% of older workers had a regular daytime schedule (i.e. non-shift work),[4] virtually the same proportion as in the core-age group.

The occupational profile of older workers was also similar to that of their younger counterparts (Chart A). As in the core-age group, over one-half of older workers were employed in three broad occupational groups: sales and service (21%); business, finance and administration (21%); and trades, transport and equipment operators (14%). This was followed by occupations in management (9%) and social science, education, government, and religion (8%). One notable difference with respect to younger workers was that older workers were twice as likely to have jobs in primary industries (6% vs. 3%).

Chart A Occupational distribution of core-age and older workers



* significantly different from workers age 25 to 54
Source: Statistics Canada, General Social Survey, 2005.

Most older workers are empty-nesters

Older workers differed from their younger counterparts in terms of household characteristics. Just 3% of older workers were living with children under the age of 15, compared with 40% of core-age workers (Table 3). At the same time, older workers were more likely than those age 25 to 54 to be living with a spouse or common-law partner (77% vs. 72%).

Even though few older workers had young children, more than one-quarter (26%) participated in unpaid child care—compared with 48% of core-age workers (Table 4). There were important differences with respect to the core-age group in terms of the location and intensity of child care. While core-age workers most frequently provided child care inside their households, older workers' child care took place predominantly outside their homes—likely reflecting care of someone else's children (e.g. grandchildren). On average, older workers who provided child care devoted substantially less time to this activity than their younger counterparts (12 hours versus 33 hours per week).

Many older workers were elder care providers—20% indicated that they provided care to seniors in need of assistance, compared with 16% of workers age 25 to 54. As in the core-age group, most of this care took place outside the household.

Finally, about 5% of older workers provided some form of care or assistance to non-senior adults.

Data source and definitions

Data are from the **2005 General Social Survey** (GSS) on time use (over a 24-hour period on a diary day). The GSS interviews Canadians age 15 and over in the 10 provinces on a wide range of social issues. In 2005, the sample size was 19,600. The target population of this study included all respondents age 55 and over who were working at the time of the survey—resulting in a sample of 1,832.

Work–life balance is based on self reports. The 2005 GSS determined satisfaction with work–life balance by asking "Are you satisfied or dissatisfied with the balance between your job and home life?" Respondents who indicated that they were 'dissatisfied' were, then, asked eight questions regarding the reasons for their dissatisfaction.

Job satisfaction is measured in the GSS with a scale ranging from 1 (dislike the activity) to 5 (enjoy the activity). These ratings are combined into three categories: "unsatisfied with job" (a rating of 1 or 2), "relatively satisfied" (a rating of 3), and "very satisfied" (a rating of 4 or 5).

Child care activities stemmed from the following GSS questions: "Last week, how many hours did you spend looking after one or more of the children in your household, without pay?" and "Last week, how many hours did you spend looking after one or more children outside of your household, without pay?" Children are defined as being 14 years or younger.

Elder care activities were determined using the following GSS questions: "Last week, how many hours did you spend providing unpaid care or assistance to one or more seniors who live in your household?" and "Last week, how many hours did you spend providing unpaid care or assistance to one or more seniors who live outside your household?" Seniors are defined as being 65 years or older.

The **non-senior adult** care variable was constructed from the two elder care questions as well as nine other GSS variables. These variables indicated the time spent providing help or assistance to other adults in terms of personal care, medical care, housework, house maintenance, travel, correspondence and other care, as well as time spent caring for a disabled or ill person. Respondents who spent 30 minutes or more during the diary day in these activities and who did not report any elder care activity in the elder care questions were defined as "non-senior adult care providers."

People with disabilities are those who reported that they had difficulty hearing, seeing, communicating, walking, climbing stairs, bending, learning or doing any similar activities; or who had a physical condition, mental condition or health problem that reduced the amount or kind of activity that they could do at home, at work, at school, or in other activities (like leisure or transportation). The 2005 GSS does not contain any information on the type, duration or severity of disability.

Probit regression estimates the probability of an outcome based on a set of explanatory variables. This technique allows the relationship between each explanatory variable and the outcome to be examined, while holding all other specified variables constant. This article uses a **probit model with selection**, allowing the estimation of the probability of work–life balance dissatisfaction controlling for selection out of employment (based on the method proposed by Van de Ven and Van Pragg 1981). Results are reported in terms of marginal effects—that is, the change in the predicted probability of being dissatisfied with work–life balance associated with a change in a given variable, controlling for all other explanatory variables in the model. Bootstrap weights are used to estimate the standard errors to account for the complex sample design of the GSS.

Table 3 Household characteristics of core-age and older workers

	25 to 54	55 and over
	%	
Partner in household		
No	28.4	23.0*
Yes	71.6	77.0*
Child(ren) in household		
No	43.7	73.8*
Youngest child age 0 to 14	40.4	3.3*
Youngest child age 15 and over	15.9	23.0*

* significantly different from workers age 25 to 54
Source: Statistics Canada, General Social Survey, 2005.

Work–life balance of older workers

About 14% of older workers dissatisfied with work–life balance

Older workers were less likely to be dissatisfied with their work–life balance than their core-age counterparts. (Chart B). Overall, 14% of older workers reported being dissatisfied with the balance between their jobs and home lives, compared with 25% of workers age 25 to 54. This 11 percentage point spread with younger workers was the same for men and women.

Prevalence of dissatisfaction drops sharply after age 65

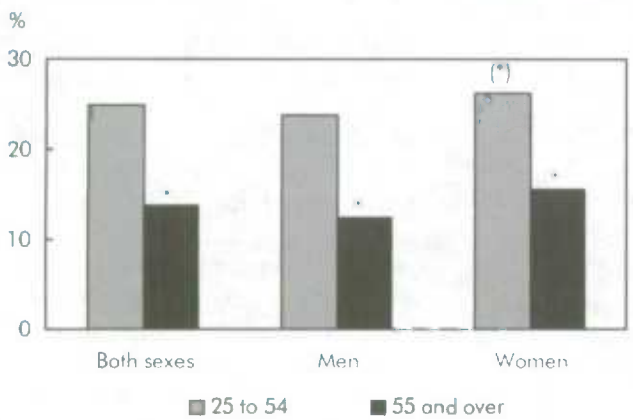
The proportion of older workers who were dissatisfied with their work–life balance varied significantly by age (Chart C). It hovered around the 15 to 16%

Table 4 Caregiving characteristics[1] of core-age and older workers

	25 to 54	55 and over
		%
Participation rates		
Child care	48.3	25.6*
Inside household	38.5	3.7*
Outside household	20.6	22.7
Elder care	15.9	20.5*
Inside household	1.5	1.8 E
Outside household	14.7	19.3*
Non-senior adult care	4.6	5.2
Average hours per week, participants		hours
Child care	33.0	12.0*
Inside household	36.7	23.2*
Outside household	9.9	9.8
Elder care	5.2	5.8
Inside household	12.0	17.9 E
Outside household	4.4	4.6
Non-senior adult care[2]	13.6	14.9 E

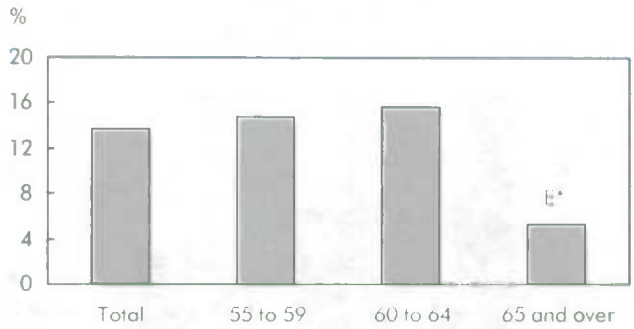
* significantly different from workers age 25 to 54
1. Irrespective of location, unless otherwise noted.
2. Daily average in minutes divided by 60 (to convert to hours), and multiplied by 7 (to convert to weeks).
Source: Statistics Canada, General Social Survey, 2005.

Chart B Work–life balance dissatisfaction by sex, core-age and older workers



* significantly different from workers age 25 to 54 at the 0.05 level
(*) significantly different from men in same age group at the 0.05 level
Source: Statistics Canada, General Social Survey, 2005.

Chart C Work–life balance dissatisfaction by age, older workers



* significantly different from workers age 55 to 59 at the 0.05 level
Source: Statistics Canada, General Social Survey, 2005.

range for those age 55 to 64, dropping sharply to 5% for those age 65 and over. This pattern will be revisited later in the paper.

Top reason for dissatisfaction: Too much time on the job...

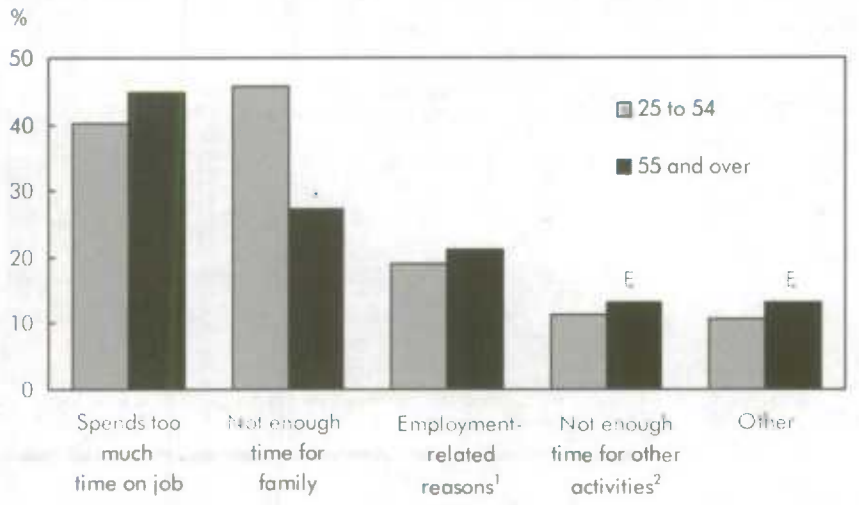
As shown in Chart D, close to one-half of older workers who were dissatisfied with their work–life balance reported spending too much time on the job (45%). This was by far the most commonly reported reason for dissatisfaction within this group, followed by not having enough time for the family (27%), other employment-related reasons (21%), and not having enough time for other activities (13%).

Older workers were very similar to core-age workers in terms of the reasons behind work–life balance dissatisfaction, with one important exception. Older workers were considerably less likely than their younger counterparts to associate their dissatisfaction with not having enough time for the family, the most common reason among the younger group (46% versus 27%).

...but most wouldn't cut back on work hours at the sacrifice of pay

Although spending too much time on the job was by far the most common source of work–life conflict for older workers, not many were willing to cut back on their work hours at the sacrifice of pay. Indeed,

Chart D Reasons for work–life balance dissatisfaction, core-age and older workers



* significantly different from workers age 25 to 54 at the 0.05 level
1. Excluding spending too much time on the job.
2. Excluding work or family-related activities.
Note: Same respondent can select more than one reason.
Source: Statistics Canada, General Social Survey, 2005.

only 27% of those reporting this source of work–life conflict indicated that they would prefer to work fewer hours for less pay (at their current wage rate). Thus, for many of these workers, financial considerations—and not necessarily lack of employer flexibility—appeared to be the key factor making it difficult to cut back on hours.[5]

Modeling work–life balance dissatisfaction

Although cross tabulations indicate that the risk of work–life balance dissatisfaction among older workers varies with age, multivariate analysis is required to determine whether this finding persists after controlling for other relevant characteristics. One issue is that older workers are increasingly likely to leave employment for retirement as they age. Research has shown that this is not a random process and people with certain characteristics are more likely to withdraw from the labour market. In particular, workers most likely to experience work–life conflict may also be more likely to retire, thereby self-selecting out of the sample providing information on work–life balance.

Ignoring this self-selection could result in biased estimates (Heckman 1979). This difficulty was addressed by using a probit model with selection following the method proposed by Van de Ven and Van Pragg (1981). This technique provides estimates of the probability of work–life balance dissatisfaction based on a set of explanatory variables while controlling for the selection of older individuals out of employment.[6]

The probit model with selection was used to investigate the relationship between dissatisfaction with work–life balance and the characteristics of older workers along three dimensions: socio-demographics, care responsibilities and job-related characteristics. The results are reported in terms of marginal effects: the change in the probability of reporting work–life balance dissatisfaction associated with a given characteristic (Table 5).[7]

After accounting for selection, the risk of work–life conflict does not vary with age

In stark contrast to the descriptive results, the multivariate analysis did not point to a decrease in the risk of work–life balance dissatisfaction after age 65. Indeed, after controlling for other factors and accounting for the self-selection of older individuals out of employment, no discernible difference in the risk of work–life conflict by age was found.

Further analysis revealed that correcting for selection mattered mostly for age. While estimates obtained from the probit model with selection were generally close to those produced by a probit model that did not account for selection (results not shown), this was not the case for the age variable. Whereas the model without selection still pointed to a decline in the probability of reporting work–life dissatisfaction with age, the model with selection indicated that age was related to the probability of working, but not to the probability of reporting work–life dissatisfaction.

Table 5 Multivariate model of dissatisfaction with work–life balance (selected results[1]), workers age 55 and over

	Marginal effects[2]
	%-point change
Sex (ref. men)	
Women	11.0*
Age (ref. 55 to 59)	
60 to 64	n.s.
65 and over	n.s.
Disability (ref. no)	
Yes	7.1*
Spouse or common-law partner (ref. no partner)	
Yes, partner employed full time	-8.2*
Yes, partner employed part time	-11.6*
Yes, partner not employee	n.s.
Child care (ref. no child care)	
Less than 4 hours per week	n.s.
4 or more hours per week	n.s.
Elder care (ref. no elder care)	
Less than 4 hours per week	n.s.
4 or more hours per week	14.3*
Occupation (ref. sales, service, manufacturing)	
Management	9.1*
Business, finance, administration, natural and applied sciences	n.s.
Social science, education, health, arts	7.7*
Trades, primary industry	n.s.
Weekly hours worked (all jobs) (ref. less than 30)	
30 to 39	n.s.
40 to 49	n.s.
50 or more	20.4*
Job satisfaction (ref. unsatisfied with job)	
Relatively satisfied	-27.9*
Very satisfied	-37.4*
Type of worker (ref. paid worker)	
Self-employed	-6.1*

* significantly different from the reference group (ref.) at 0.05 level or better
n.s. not significant
1. The full model (in coefficient form) can be seen in Table 6.
2. Computed at mean values of independent variables included in probit model (baseline probability equal to 13.9%).
Source: Statistics Canada, General Social Survey, 2005.

Higher risk of work–life conflict for women...

Previous research suggests that women tend to experience higher levels of work–life conflict than men (Duxbury and Higgins 2008). This holds true among older workers too as women were 11 percentage points more likely than men to report dissatisfaction with work–life balance.

It was hypothesized that gender could be mediating the effects of some of the variables in our model (e.g. caregiver-related variables). However, tests for interactions between gender and these variables did not reveal any significant effects.

These findings are significant in light of the increasing presence of women among older workers. According to Labour Force Survey data, female representation among workers age 55 and over has been increasing steadily for more than three decades.[8] If this trend persists into the future, it is likely to put upward pressure on the overall prevalence of work–life balance dissatisfaction among older workers.

...workers with disabilities...

Having a disability was associated with a higher chance of experiencing work–life conflict. Indeed, the probability of being dissatisfied with work–life balance was over seven percentage points higher for older workers with disabilities, relative to those without disabilities.

The association between disability and work–life conflict has also been reported in studies targeting the workforce age 15 and over (e.g. Frederick and Fast 2001).[9] However, this finding is of special relevance in the context of older workers, given the sizeable proportion of individuals in this group reporting a disability (38%).

...elder caregivers...

Elder care is frequently identified as a major source of tension in the work–life balance literature. It is often complicated by distance as the care recipients frequently live in different communities from the caregivers. Those providing 'indirect' care from afar tend to experience feelings of guilt and increased stress. Furthermore, elder care providers typically have had to adjust their priorities, including spending less time with their own families, paying less attention to their own health, and taking fewer vacations (Duxbury and Higgins 2008, Duxbury and Higgins 2005).

The finding that elder care responsibilities place workers at a significantly higher risk of experiencing work–life conflict also applies to older workers. Older workers who provided four or more hours of elder care per week were over 14 percentage points more likely to report dissatisfaction with work–life balance

relative to those without any elder care responsibilities. While few older workers spent this amount of time in elder care in 2005 (8%), this share is likely to increase in the future as Canada's population continues to age and the number of seniors who need support increases.

...managers...

Work–life balance dissatisfaction among older workers varied significantly depending on occupation. Consistent with findings in the broader work–life balance literature (Skinner and Pocock 2008), those in managerial jobs faced the highest risk of experiencing work–life conflict. The probability of being dissatisfied with work–life balance was nine percentage points higher for managers, relative to workers in sales, service and manufacturing occupations. Jobs in social sciences, education, health and the arts were also associated with a higher probability of dissatisfaction.[10]

...and those working long hours

The strong positive association between the amount of hours worked and the likelihood of experiencing work–life conflict has long been established in the work–life balance literature (Kanter 1977). Working long hours limits the amount of time workers are physically available for family or other non-work-related activities (Voydanoff 1988). At the same time, high job demands can build up over time and hamper one's ability to function outside of work (Guerts and Demerouti 2003).

Older workers were no exception to this rule. Those working 50 or more hours per week were over 20 percentage points more likely to report dissatisfaction with work–life balance, compared with those working less than 30 hours per week.

Lower risk of work–life conflict for those with an employed partner...

The presence of a partner can have a mixed impact on work–life balance. On the one hand, marriage can increase demands outside of work while simultaneously decreasing the amount of control individuals have over their time. On the other hand, a spouse can be a source of emotional and tangible support in times of stress, thereby increasing an individual's sense of control (Duxbury and Higgins 2008).

In the case of older workers, having a spouse or common-law partner decreased the risk of work–life balance dissatisfaction, particularly if that partner was employed.[11] Those with an employed partner were between 8 and 12 percentage points less likely to be dissatisfied with their work–life balance than those without a partner.[12] In contrast, there was no discernible difference in the likelihood of work–life balance dissatisfaction between older workers with non-working partners and those without partners. These effects did not differ significantly for men and women.

...those who enjoyed their jobs...

Previous research suggests that enjoying work can reduce stress on time and work–family balance (Frederick and Fast 2001, Williams 2005). This seemed to be the case for older workers too. The probability of being dissatisfied with work–life balance was over 37 percentage points lower for those who were very satisfied with their jobs, relative to those who did not enjoy what they did.

...and the self-employed

Self-employment also appeared to lower the likelihood of work–life balance dissatisfaction among older workers, perhaps by allowing them to gain better control of their work activities relative to paid employees. The probability of being dissatisfied with work–life balance was six percentage points lower for the self-employed, relative to those who were in paid employment.

This contrasts with results from studies targeting the general workforce. Most notably, a recent OECD study of European workers age 15 to 64 found that being self-employed was significantly associated with increased conflict between work and family life (OECD 2004). Also, Skinner and Pocock (2008) found that paid employees and the self-employed in Australia were equally satisfied with their work–life balance.

Child care has little impact

Work–life balance studies targeting the younger workforce have consistently found a strong association between child care provision and the risk of work–life conflict. Interestingly, no discernible difference in the risk of work–life balance dissatisfaction was found between older workers who were participating in child care activities and those who were not. One potential explanation is the level of responsibility associated with this type of care. As noted earlier, older workers were likely to be providing care to children who were not their own (e.g. grandchildren), and, thus, presumably did not bear primary responsibility for this type of care in most instances. Consequently, older workers might have much more flexibility than their younger counterparts in terms of the timing and amount of

Table 6 Employment and work–life balance dissatisfaction probit with selection results, persons age 55 and over

	Employment equation	Work–life balance dissatisfaction equation
Dependent variable	Employment status =1 if 'employed' =0 if 'not employed'	Work–life balance =1 if 'dissatisfied' =0 if 'not dissatisfied'
Explanatory variables		coefficients
Sex (ref. men)		
Women	-0.676*	0.464*
Age (ref. 55 to 59)		
60 to 64	-0.262*	0.097
65 and over	-0.717*	-0.254
Disability (ref. no)		
Yes	-0.227*	0.311*
Spouse or common-law partner (ref. no partner)		
Yes, partner employed full time	0.349*	-0.360*
Yes, partner employed part time	0.547*	-0.566*
Yes, partner not employed	-0.160*	-0.028
Elder care (ref. no elder care)		
Less than 4 hours per week	0.023	0.169
4 or more hours per week	-0.114	0.530*
Education (ref. high school or less)		
Some postsecondary	0.528*	0.242
College diploma or certificate	0.419*	0.091
University degree or above	0.561*	0.190
Annual personal income (ref. under $30,000)		
$30,000 to $59,999	...	-0.266
$60,000 to $99,999	...	-0.014
$100,000 and over	...	0.160
Occupation (ref. sales, service, manufacturing)		
Management	...	0.412*
Business, finance, administration, natural and applied sciences	...	0.202
Social science, education, health, arts	...	0.358*
Trades, primary industry	...	0.268
Weekly hours worked (all jobs) (ref. less than 30)		
30 to 39	...	0.167
40 to 49	...	0.271
50 or more	...	0.823*
Job satisfaction (ref. unsatisfied with job)		
Relatively satisfied	...	-0.787*
Very satisfied	...	-1.195*
Type of worker (ref. paid worker)		
Self-employed	...	-0.294*
Child care (ref. no child care)		
Less than 4 hours per week	0.434*	-0.180
4 or more hours per week	-0.017	-0.190
Non-senior adult care (ref. no)		
Yes	-0.201	0.203

child care they provide, thereby reducing the risk of conflict with their own work demands.

Summary

Overall, 14% of Canadian workers age 55 and over reported being dissatisfied with their work–life balance in 2005. Close to one-half of those who were dissatisfied felt they spent too much time on the job, while over one-quarter indicated that they did not have enough time for their families. Financial considerations—and not necessarily lack of employer flexibility—appeared to be a major factor making it difficult to cut back on hours.

Work–life balance dissatisfaction among these workers was associated with having a disability, providing elder care, working long hours, occupying a managerial position and being a woman. At the same time, having an employed partner, being self-employed and enjoying one's job reduced the probability of work–life conflict. When the self-selection of older individuals out of employment and other confounding factors were taken into account, the risk of work–life conflict did not vary with age.

The strong association between disability and work–life balance dissatisfaction, combined with the high prevalence of disability among older workers (38%), make disability a major piece of the work–life balance puzzle for this population. Further research on the particular barriers faced by older workers with disabilities and more information on how these vary with the nature of their disabilities would shed light on this major source of work–life conflict.

Table 6 Employment and work–life balance dissatisfaction probit with selection results, persons age 55 and over (concluded)

Dependent variable	Employment equation: Employment status =1 if 'employed' =0 if 'not employed'	Work–life balance dissatisfaction equation: Work–life balance =1 if 'dissatisfied' =0 if 'not dissotisfied'
	coefficients	
Flexible schedule (ref. no)		
Yes	...	0.019
Regular daytime schedule (ref. no)		
Yes	...	-0.139
Work some hours at home[1] (ref. no)		
Yes	...	-0.013
Urban/rural (ref. rural and small town areas[2])		
Large urbon centres	0.002	0.140
Immigrant (ref. no)		
Yes	-0.076	-0.060
Pension main source of income (ref. no)		
Yes	-1.568*	
Constant	0.513*	-0.589
athrho (P > | t |)	-0.308 (0.085)	
Prob > F	0.000	

* significantly different from the reference group (ref.) at 0.05 level or better
1. Excluding overtime.
2. Including Prince Edward Island.
Source: Statistics Canada, General Social Survey, 2005.

The higher risk of work–life conflict associated with the provision of four hours or more of elder care per week is also worth noting. While only 8% of older workers spent this amount of time in elder care in 2005, this share is likely to increase in the future as a result of population aging.

Extrapolating from ongoing trends, further increases in the share of older workers who are women combined with potential increases in the proportion providing elder care could make work–life conflict more prevalent among older workers in the coming years.

Notes

1. Disability rates in the GSS are typically higher than those in the Participation and Activity Limitation Survey (PALS) due to methodology differences between both surveys. Most notably, PALS uses a two-stage process to identify people with disabilities: respondents need to report activity limitations at the time of the census and again at the time of the PALS survey (PALS repeats the same census disability filter questions, plus a more detailed set of disability screening questions). In contrast, the GSS uses a one-stage process, where respondents are asked activity limitation questions only once. In the case of the 2005 GSS, these questions consisted of the disability filter questions from the 2001 Census.
2. Some people with disabilities need aids and devices to perform daily tasks; assistance with everyday activities such as meal preparation, personal care, housework or paying bills; as well as special dwelling modifications (e.g. ramps and lifting devices) to enter, leave or move around their residences (Statistics Canada 2003 and 2008). Some also need accommodations in order to be able to work, including reduced work hours, modified or reduced duties, accessible transportation, workstation modifications and accessible washrooms (Canadian Council on Social Development 2005 and Williams 2006).
3. Marshall and Ferrao (2007) advance this interpretation based on the relatively high proportion of older workers that enter into these working arrangements by preference. Indeed, the 2005 GSS data show that over one-half of part-time workers age 55 and over did not want to work full time, compared with only 20% of part-timers age 25 to 54.
4. Shift work has been associated with increased work–life conflict in several studies (e.g. Williams 2008).
5. The 2005 GSS data on financial satisfaction provide additional evidence. Among older workers dissatisfied with their work–life balance because they spent too munch time on the job, those unwilling to cut back on work hours and pay reported lower levels of satisfaction with their finances than their counterparts (an average rating of 6.0 versus 7.4 on a scale from '1 – Very dissatisfied' to '10 – Very satisfied').
6. This corrective method for sample selectivity is analogous to Heckman's (1979) well-known method, but is specifically designed for probit analysis.

7. The model includes two equations: an employment equation—accounting for the probability of being employed—and a work–life balance dissatisfaction equation. Our discussion focuses on the key results from the 'work–life balance dissatisfaction' equation. The full model is presented Table 6.

8. From 30% in 1976 to 44% in 2008.

9. Using logistic regression, Frederick and Fast (2001) report much higher odds of being satisfied with work–life balance for employees in good or excellent health, relative to those with poor or fair health: 2.9 times higher among women, 2 times higher among men.

10. It is difficult to interpret this result because these jobs, some of which are quite different in nature, were included as part of one common occupational category due to small sample sizes.

11. Williams (2008), in a study of full-time shift workers, also finds variations depending on the employment status of the partner. She reports that full-time shift workers (age 19 to 64) were more likely to be satisfied with their work–life balance when their spouse worked full time (71%) than when their spouse worked part-time (57%) or was not in the labour force (68%).

12. Although the marginal effect varied from 8 to 12 points if the partner was employed full-time or part-time, the difference between these two groups was not statistically significant.

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Job stability and unemployment duration in manufacturing

André Bernard

The Canadian manufacturing sector has experienced significant job losses over the past few years. From 2004 to 2008, employment fell by 322,000, a decline of 14%. In relative terms, manufacturing's share of total employment fell from 14% in 2004 to 12% in 2008.[1] Until late 2008, the manufacturing decline occurred in the context of robust growth elsewhere in the economy. While trends in manufacturing employment are informative, they do not provide information on the dynamics of the manufacturing labour market. This paper addresses some of these issues by investigating job stability and the duration of new unemployment spells across the business cycle.

Job losses, like those recently experienced in manufacturing, will translate into less job stability for workers unless declines in voluntary quits totally offset increases in the number of layoffs. Jobs of shorter duration are less likely to provide promotions, increases in pay and opportunities for training, which are correlated to tenure in the firm (Heisz 1996). Workers changing jobs often are also less likely to accumulate pensionable service[2] or qualify for Employment Insurance (EI) benefits. If a decline in job stability were driven by voluntary quits, it would still have consequences for firms, since hiring and retention costs could rise.

Job losses also normally translate into higher unemployment. There are two important dimensions to unemployment: incidence and duration. The duration of unemployment spells can significantly affect an individual's well-being (Corak 1993). Since the probability of finding a job decreases as the unemployment spell lengthens, other negative outcomes—such as social exclusion, loss of self esteem and health problems—may emerge (Dubé 2004). Moreover, long unemployment spells may increase the number of individuals who exhaust their EI benefits.

In this paper, job stability is measured using retention rates (see *Retention rates*). The extent to which the retention rates of certain groups have been affected by the recent turmoil in manufacturing is examined. In particular, whether workers with lower or higher tenure in the firm have been more affected is studied. Recent trends in very short-term retention rates are also investigated to determine potential implications on qualification for EI benefits. Finally, trends in the duration of unemployment in manufacturing and in the rest of the economy are presented.

This study uses Labour Force Survey (LFS) data from 1976 to 2008, corresponding to the full period of available annual data at the time of writing (see *Data sources and definitions*). This long time span allows for a comparison between the recent period of job losses in manufacturing and previous downturns like the 1991/92 recession.

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Table 1 Four-year job retention rate

	1982	1992	2000	2004	2008
			%		
All of the economy	**52.3**	**51.8**	**57.2**	**57.8**	**56.0**
Manufacturing, unadjusted	56.9	53.0	65.4	62.4	52.5
Manufacturing, adjusted for age and sex	51.8	47.9	61.6	57.4	48.1
Non-manufacturing	51.3	51.5	55.8	57.0	56.6

Note: Differences between manufacturing (unadjusted) and non-manufacturing are significant at the 5% level or better.
Source: Statistics Canada, Labour Force Survey.

Retention rates

This paper uses synthetic cohort analysis techniques. These techniques use duration variables found in cross-sectional surveys to make inferences on entry and exit dynamics. For example, it is possible to compute the probability that an individual with one year of tenure in a firm will remain in the same job another year by dividing the number of people with two years of tenure in a survey for a given month by the number of people with one year of experience in the survey for the corresponding month one year earlier. Since the survey is not longitudinal, the assumption is that workers with one year of experience and who were in the survey from the previous year are representative of workers with two years of experience and who are in the current survey. Therefore, it is possible to calculate retention rates for various groups of workers, according to initial tenure in the firm or other personal characteristics.

This methodology has been used in a number of studies to look at the evolution of job stability in Canada and the United States (for example, see Heisz 1996 and 2002, Swinnerton and Wial 1996, and Neumark et al. 1999). These papers found very little empirical evidence of a decrease in job stability in either Canada or the United States, although there was a general impression that workers were becoming less likely than previous generations to remain in the same job for long periods of time. Heisz and Côté (1999) looked at job stability in the service sector and showed that there was great heterogeneity in particular industries.

Specifically, following Heisz (2002), the retention rate for a group of workers with initial tenure of t-i is

$$(1)\ R_{t,c}=N_{t,c}/N_{t-i,c-i}$$

where $N_{t,c}$ is the number of people during survey period c with a tenure of t and $N_{t-i,c-i}$ is the number of people during survey period c-i with a tenure of t-i.

Using retention rates for all possible groups of initial tenure, by using (1) the average retention rate can be computed:

$$R_c=y_1R_{1,c}+y_2R_{2,c}+y_3R_{3,c}+y_4R_{4,c}+y_5R_{5,c}+\ldots$$

where yi corresponds to the proportion of individuals with tenure i during survey period c-i, so that

$$y_1+y_2+y_3+y_4+y_5+\ldots=1.$$

Retention rates can be computed for any given interval between current and initial tenure. In this study, four-year retention rates are computed and the tenure variable is grouped into two-year intervals (the variable in the LFS is expressed in months).[3] For example, $R_{1,c}$ is equal to the number of workers with a tenure of between four and six years in survey (c) divided by the number of workers with a tenure of between 0 and 2 years in the corresponding survey four years earlier (c-48). Four-year retention rates were selected to focus on workers' odds of remaining in their jobs over the longer term, and two-year intervals were chosen to provide better sample size. In addition, LFS respondents tend to give approximate answers when asked how long they have been working in their current jobs. For example, workers with an actual tenure of four or six years may respond five years. If that happens often, the hypothesis that workers with tenure of five years in the current survey are representative of workers with tenure of four years in the corresponding survey one year earlier will not be as realistic, especially with lower sample sizes. Using four-year retention rates and grouping the tenure into intervals of two years circumvents this problem.

Retention rates are computed for each month and then converted to annual averages.

Job stability in manufacturing close to its lowest level in 32 years

Between 1980 and 2008, the four-year retention rate for the economy as a whole varied from 52% to 58%. Averaged over the past three decades, there was a 55% probability that workers would remain in their jobs for four years. Although the retention rate exhibits a cyclical pattern (retention rates tend to be lower in times of economic downturn), there has been no clear upward or downward trend in overall job stability over this period. In 2008, the four-year retention rate for the economy as a whole was 56% (Table 1).

The situation is quite different in manufacturing. Manufacturing workers were significantly less likely to hold onto their jobs for four years than workers in the rest of the economy. In 2008, the adjusted four-year retention rate in manufacturing was 48% (Chart A). Without adjusting for age and sex, the retention rate in manufacturing is higher, at 53%, indicating that men and women of different age groups tend to experience different patterns of job stability. In contrast, in 2008 the retention rate in non-manufacturing was 57%, which is significantly higher than both the adjusted and unadjusted manufacturing retention rate.[4] Manufacturing workers were therefore 15% less likely than other workers to stay in their jobs in the long term, even though manufacturing jobs are almost exclusively full-time and are much more likely to be unionized.[5]

Retention rates in manufacturing have not been consistently lower than in the rest of the economy. In fact, manufacturing retention rates were higher, sometimes by a significant margin, than those in non-manufacturing for most of the 1980s and 1990s. Manufacturing retention rates exhibit a strong cyclical pattern. Reten-

Data sources and definitions

This paper uses the Canadian Labour Force Survey (LFS), a monthly survey of about 54,000 households whose objective is to provide timely information on the labour market including estimates of employment and unemployment by personal characteristics. It is representative of the civilian non-institutionalized population 15 years of age and over. The LFS measures employment by number of workers, which can differ from the actual number of jobs since some workers hold multiple jobs. The LFS is primarily a cross-sectional survey but, for employed individuals, contains information on tenure for the main job and, for unemployed individuals, information on the in-progress duration of the unemployment spell and the industry of the last job held, thus allowing for inferences on employment and unemployment dynamics. The job tenure variable in the LFS is available for all employees and is given in months. The duration of the unemployment variable is available for all previously employed individuals who are unemployed at the time of the survey. Information is not provided for individuals out of, or entering, the labour force.

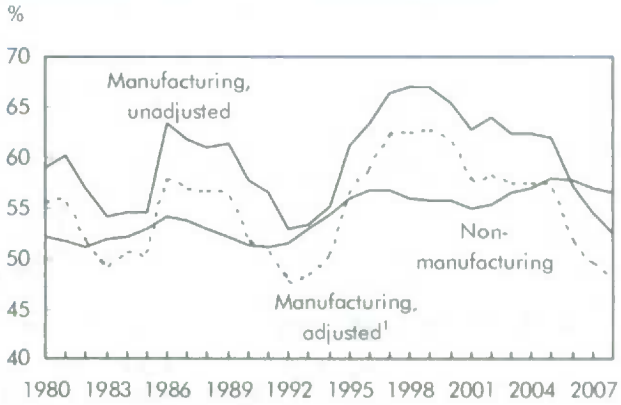
Throughout the paper, the manufacturing sector is compared with the rest of the economy and identified using North American Industry Classification System (NAICS) industries 31 to 33. Self-employed individuals are excluded.

Most of the statistics on the manufacturing sector were adjusted to control for age and sex, in particular to account for the fact that women are under-represented in manufacturing. To do so, weights of individuals in manufacturing were adjusted so that the age–sex structure of manufacturing workers would be the same as that of non-manufacturing workers. Five age groups (15 to 24, 25 to 34, 35 to 44, 45 to 54, and 55 and over) were used to calculate separate adjustment factors for men and women.

tion rates in the rest of the economy are much more stable, but also follow the business cycle. Even then, the recent drop in the manufacturing retention rate is somewhat more pronounced than the drop that occurred during the period leading up to the 1991/92 recession: the manufacturing retention rate fell by 17% from 1986 to 1992, and by 22% from 2000 to 2008.

In absolute terms, the manufacturing retention rate, recorded since 1981, is at its second-lowest level ever, only marginally higher than in 1992. It has followed a steady downward trend in recent years, going from a peak of 62% in 1998 to 48% in 2008. Thus the recent job losses in manufacturing have been accompanied by a significant decrease in job stability for manufacturing workers. Because voluntary quits tend to go down in times of economic slowdown (Morissette 2004), this decrease in job stability was likely driven by layoffs.

Chart A Job retention rates follow the business cycle



1. For age and sex.
Source: Statistics Canada, Labour Force Survey.

Workers with 10 to 19 years of initial tenure hit harder by declining job stability

While the manufacturing retention rate has decreased in recent years, rates are likely to vary according to the tenure of workers. Accordingly, manufacturing and non-manufacturing retention rates were computed for five categories of initial tenure: less than 2 years, 2 to 5 years, 6 to 9 years, 10 to 19 years, and 20 years or more (Table 2).

Table 2 Number of workers by years of job tenure

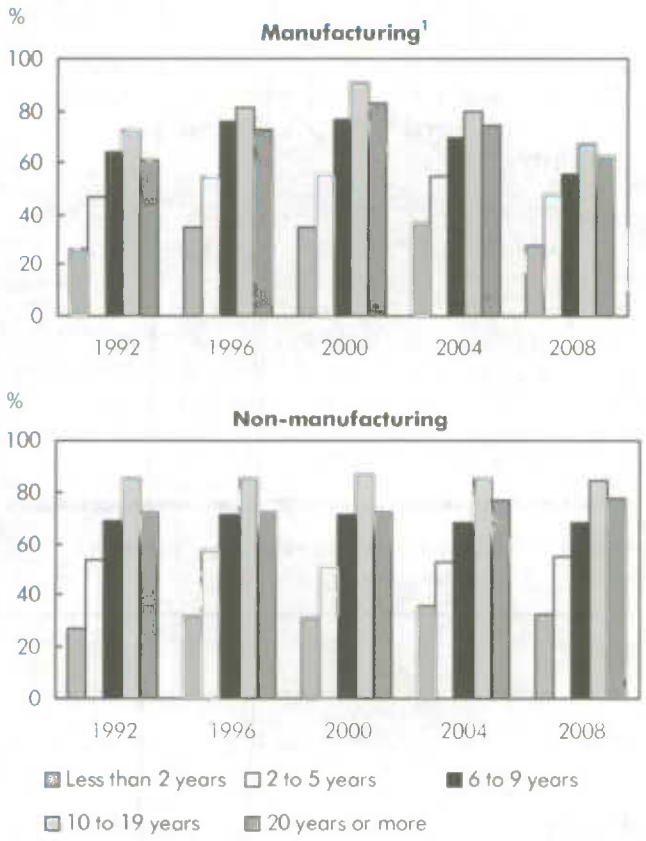
	Manufacturing		Non-manufacturing	
	'000	%	'000	%
Total	**1,759**	**100.0**	**13,625**	**100.0**
Less than 2 years	465	26.4	4,734	34.7
2 to 5 years	408	23.2	3,316	24.3
6 to 9 years	267	15.2	1,807	13.3
10 to 19 years	339	19.3	2,127	15.6
20 years or more	280	15.9	1,641	12.0

Source: Statistics Canada, Labour Force Survey, 2008.

Retention rates in both manufacturing and non-manufacturing tend to be higher for groups of workers with higher initial tenure. The exception is workers with 20 years or more of tenure, a result that can be attributed to their higher probability of retirement (Chart B).

Nonetheless, the pattern of the overall manufacturing retention rate is reflected in all five groups of initial tenure. Manufacturing retention rates for 2008 for all five groups were either at, or close to, their lowest levels over the 32-year period covered by this study. In all cases, there is a strong pro-cyclical pattern that is more pronounced than in non-manufacturing. In addition, the decline in the manufacturing retention rate in the last 10 years is substantial for each group (a decline of between 19% and 28%).

Chart B Manufacturing job stability declines at all tenure levels and non-manufacturing job stability changes little



1. Adjusted for age and sex.
Source: Statistics Canada, Labour Force Survey.

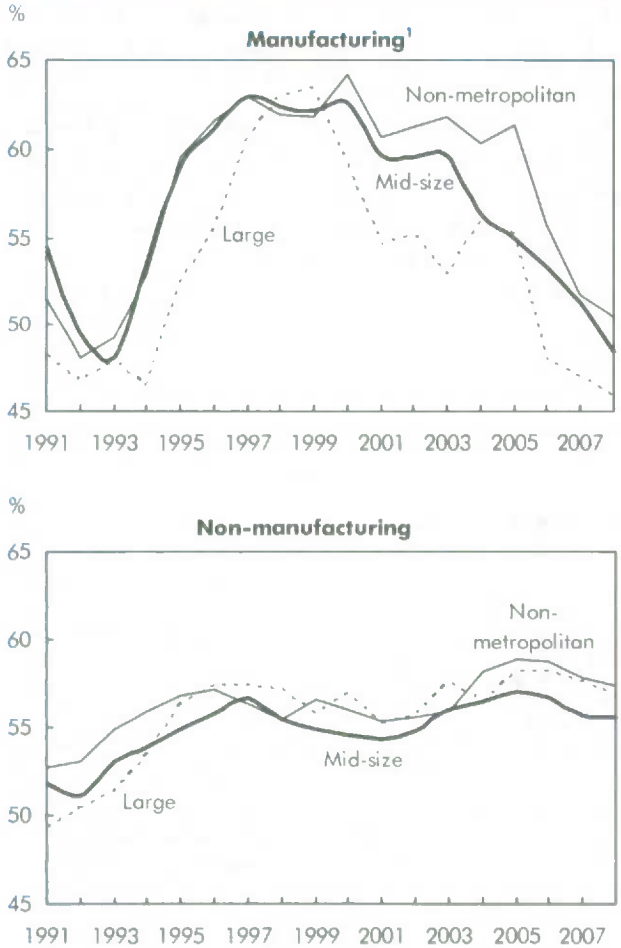
Despite the overall similarities, the retention rates fell somewhat more for workers with intermediate tenure between 1998 and 2008. The rates fell by 28% and 25% for workers with 6 to 9 and 10 to 19 years of initial tenure respectively. By comparison, they fell by 22%, 19% and 23% for workers with less than 2, 2 to 5, and 20 years or more of initial tenure respectively. Variations in retention rates for workers with intermediate tenure are more likely to be driven by variations in layoffs, since these workers are less likely to quit than new entrants in a firm. The average age of workers with 6 to 9 and 10 to 19 years of tenure was 41 and 45 respectively. The loss of a long-term job at this stage in life is accompanied by particular adjustment difficulties. These workers are less mobile and have fewer job opportunities than younger laid-off workers, but are likely to have children at home and are too young to retire (Gray and Finnie 2009). In most cases, they have not attended school for many years, making a radical career change more difficult, and they may have acquired a set of firm-specific skills over the years that are of limited value in other industries.

Manufacturing job stability lower in large urban centres

Big-city economies are very different than the economies of smaller cities. The latter tend to be less diversified and more dependent on sectors like manufacturing. With fewer alternative employment opportunities, laid-off workers may be more likely to leave smaller centres, creating a downward spiral in their economies.

Despite their diverse economies, large urban centres were actually hit harder by declining manufacturing job stability than non-metropolitan areas (Chart C).[6,7] In 2008, the adjusted manufacturing retention rate was 46% in large urban centres, compared with 50% in non-metropolitan areas. The difference between these rates and the rates for their respective non-manufacturing sectors is also greater in large urban centres than in non-metropolitan areas. In addition, the manufacturing retention rate has been on a downward trend in large urban centres since 2000, whereas it has only begun to drop in non-metropolitan areas since 2005.

Chart C Manufacturing and non-manufacturing job stability higher outside big cities



1. Adjusted for age and sex.
Source: Statistics Canada, Labour Force Survey.

Short-term job stability for newly employed individuals lower in manufacturing

In Canada, most workers need to work between 420 and 700 insurable hours, depending on the regional unemployment rate, to qualify for Employment Insurance benefits (Service Canada 2009). If short-term job stability were to decline rapidly, this could mean that fewer people would qualify for EI. To investigate short-term job stability in manufacturing, four-month retention rates for workers with less than two months of initial tenure were computed. The four-month interval was chosen because it roughly corresponds to 700 hours of work for an individual working full time. Estimates of the retention rate for groups of workers just starting their jobs are ideal, but because of sample size issues and the unprecise nature of the job tenure variable (see *Retention rates*), an initial interval of two months was selected.

Short-term job stability increased substantially for both manufacturing and non-manufacturing in the late 1990s (Chart D). In addition, both sectors followed very similar paths. The average retention rate between 1980 and 1996 was 36% for both adjusted manufacturing and non-manufacturing. Between 1997 and 2008, both averages increased to 46%. While this increase occurred during a period of strong employment growth, it was also a period in which legislated changes were made to the EI system (Lin 1998).[8]

Since 2005, short-term job stability has been lower in manufacturing than in non-manufacturing. In 2008, the adjusted manufacturing short-term retention rate was 45%, compared with 47% in non-manufacturing. However, this difference is lower than the difference observed for overall job stability. In addition, the short-term manufacturing retention rate represents a drop of 9% compared with the 2004 high point.

Chart D Initial job stability has increased in recent years

1. For age and sex.
Source: Statistics Canada, Labour Force Survey.

Ex-manufacturing workers tend to stay unemployed longer than ex-workers in other sectors

In 2008, the average expected duration of a new unemployment spell for manufacturing workers (11.8 weeks) was significantly higher than for non-manufacturing workers (9.7 weeks) (see *Expected complete duration of unemployment*).[11] Even after controlling for age and sex differences between the two sectors, there was still a difference. The adjusted average expected duration of a new unemployment spell was 10.9 weeks in manufacturing, versus 9.7 weeks in non-manufacturing (Table 3).

In absolute terms, the expected duration of a new manufacturing unemployment spell in 2008 was lower than it was during the 1980s and 1990s (Chart E). Much of this can be explained by the downward trend in the overall unemployment rate in Canada. From the mid-1990s until the recent economic slowdown, the Canadian economy has been mainly characterized by strong economic and employment growth with labour shortages in some sectors. As a result, between 2006 and 2008, the national unemployment rate hovered around its lowest levels since 1976.

Although expected unemployment durations for manufacturing and non-manufacturing are not particularly high by historical standards, the difference has never been as great between the two as in recent years. Since 1977, the years with the largest difference in the expected unemployment duration between manufacturing and non-manufacturing were between 2006 and

Expected complete duration of unemployment

Using the retention rate formula (see *Retention rates*, equation (1)) but looking instead at a sample of unemployed individuals and replacing the tenure variable with the duration of the in-progress unemployment spell, unemployment retention rates can be computed, and so can the average expected complete duration of unemployment spells:[9]

Average Expected Completed Duration of Unemployment

$$= 1 + R_{1'c} + R_{1'c} * R_{2'c} + R_{1'c} * R_{2'c} * R_{3'c} + R_{1'c} * R_{2'c} * R_{3'c} * R_{4'c} + \ldots$$

This formula relates the duration of unemployment to the sum of the conditional probabilities of staying unemployed for each period of time (Sider 1985). Corak (1993) used a similar methodology to look at the duration of unemployment spells in the 1981/82 and the 1991/92 recessions in Canada and showed, among other things, that fluctuations in the duration of unemployment accounted for 65% of the fluctuations in the unemployment rate. The duration of the in-progress unemployment variable is grouped, following Corak (1993) into progressively larger intervals (monthly and quarterly intervals) because of sample size issues. Quarterly intervals are converted back into monthly equivalents by being raised to the 1/3 power, specifically

$R_{1'c}$ = Number of people unemployed for 5 to 8 weeks in survey c/

Number of people unemployed for 1 to 4 weeks in survey c-1

$R_{2'c}$ = Number of people unemployed for 9 to 12 weeks in survey c/

Number of people unemployed for 5 to 8 weeks in survey c-1

$R_{3'c}$ = Number of people unemployed for 13 to 16 weeks in survey c/

Number of people unemployed for 9 to 12 weeks in survey c-1

$R_{4'c} = R_{5'c} = R_{6'c}$ = (Number of people unemployed for 27 to 39 weeks in survey c/

Number of people unemployed for 13 to 26 weeks in survey c-3)$^{1/3}$

$R_{7'c} = R_{8'c} = R_{9'c}$ = (Number of people unemployed for 40 to 52 weeks in survey c/

Number of people unemployed for 27 to 39 weeks in survey c-3)$^{1/3}$.

The variable indicating the industry of the last job is only available for individuals who have been unemployed for less than one year. Therefore, these estimates of the expected duration of completed unemployment spells by industry will be lower than could be obtained by taking the full sample of unemployed workers into account. To correct for this bias, the expected duration of completed unemployment was computed for each year for all individuals for a restricted sample of workers with incomplete unemployment duration of 52 weeks or less, and a larger sample of individuals with an incomplete duration of unemployment of 98 weeks or less. The difference between the two estimates was then used as an estimate of the bias resulting from the use of only spells of 52 weeks or less for the estimates by industry. For example, in 2008, the unrestricted (98 weeks or less) expected complete duration of unemployment was 9.9 weeks, compared with 9.4 weeks for the restricted (52 weeks or less) sample, a difference of 5.3%. The manufacturing and non-manufacturing estimates for 2008 were therefore multiplied by 1.053.

For most of the years, the unemployment duration is top-coded at 99 weeks in the LFS, so a 98-week restriction cannot be avoided. However, only a small fraction of unemployment spells last more than 98 weeks.[10]

Estimates of the expected duration of unemployment are computed for each month and then converted to annual averages.

Table 3 Expected complete duration of unemployment (weeks)

	1982	1992	2000	2004	2008
			%		
All of the economy (spells of 98 weeks or less)	**18.2**	**18.8**	**12.4**	**11.0**	**10.5**
Manufacturing, unadjusted	15.5	16.9	11.3	10.7	11.8
Manufacturing, adjusted for age and sex	15.6	16.2	10.8	10.7	10.9
Manufacturing, adjusted for education and sex	..	16.7	11.4	11.1	11.9
Manufacturing, layoffs only, adjusted for age and sex	15.3	16.5	11.7	11.3	12.0
Non-manufacturing	16.0	15.5	10.9	10.2	9.7
Non-manufacturing, layoffs only	16.3	16.0	11.3	10.8	10.4

Note: Differences between manufacturing (unadjusted) and non-manufacturing are significant at the 5% level or better.
Source: Statistics Canada, Labour Force Survey.

2008, with manufacturing unemployment being longer by 12% to 17%. Compared with previous periods of economic downturn, the difference was only 4% in 1992, and in 1982 ex-workers in manufacturing had expected unemployment spells 3% shorter than others. Overall then, the data indicate that while the labour market conditions for unemployed workers are generally better than in past downturns, the relative difficulties have increased for unemployed manufacturing workers.

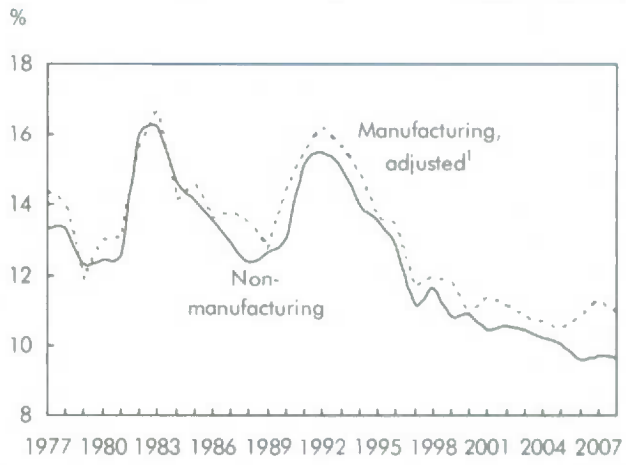
Education doesn't explain the longer unemployment spells in manufacturing

The level of education can have an impact on the duration of an individual unemployment spell.[12] Although the gap has narrowed in recent years, unemployed individuals whose last job was in manufacturing are, on average, less likely to hold a university degree and more likely to have at most a high school diploma.[13] To verify that the gap between manufacturing and non-manufacturing is not merely due to differences in education attainment, the manufacturing unemployment duration was adjusted by sex and education level (Chart F).[14] Interestingly, the gap between the manufacturing and non-manufacturing expected unemployment duration actually widens once education is controlled for. In 2008, the adjusted expected duration was 11.9 weeks in manufacturing, compared with 9.7 weeks in non-manufacturing, a 23% difference. Moreover, this larger gap with non-manufacturing once education is controlled for is observed for each year since 1991. These results suggest that education is not a factor explaining the longer unemployment spells for ex-manufacturing workers.[15]

Laid-off manufacturing workers experience longer unemployment spells

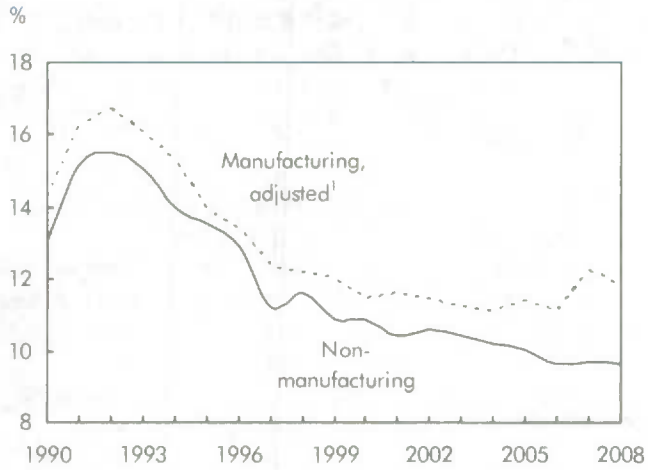
Workers can become unemployed as a result of a layoff or a voluntary quit. Given the increase in the number of layoffs in manufacturing in recent years, it is useful to verify how the unemployment duration of laid-off manufacturing workers compares with that of laid-off non-manufacturing workers. We find that the gap between manufacturing and non-manufacturing workers still holds even when the sample is restricted to laid-off individuals. In 2008, unemployment spells in manufacturing were 15% longer, on average, than

Chart E Long-term decline in unemployment duration, but growing difference between manufacturing and non-manufacturing



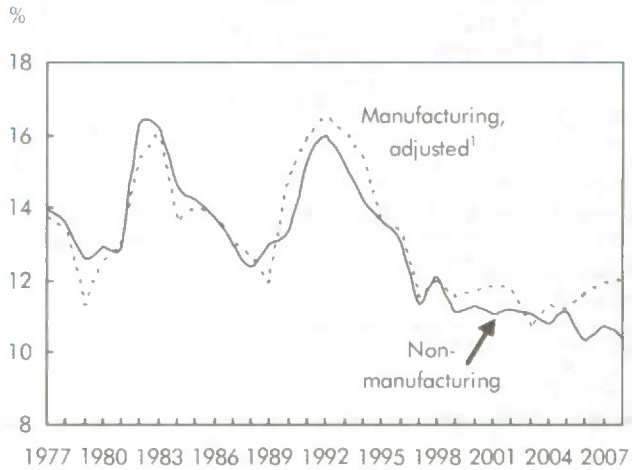
1. For age and sex.
Source: Statistics Canada, Labour Force Survey.

Chart F Education does not explain differing unemployment duration for manufacturing and non-manufacturing



1. For age and sex.
Source: Statistics Canada, Labour Force Survey.

Chart G Growing gap in expected duration of unemployment for workers laid off from manufacturing versus other jobs



1. Sample restricted to layoffs only, adjusted for age and sex.
Source: Statistics Canada, Labour Force Survey.

in non-manufacturing, the largest gap during the 32 years covered in this study (Chart G). The duration patterns for laid-off workers are very similar to those for all unemployed individuals. This suggests that the rise in the duration of unemployment for manufacturing workers is not driven by voluntary quits.

Summary

This paper applied synthetic cohort analysis techniques to Labour Force Survey (LFS) data to document changes in job stability and the expected duration of unemployment spells in the Canadian manufacturing sector. The study was motivated by falling employment in this sector in recent years.

In 2008, job stability in manufacturing was at its second-lowest level in 29 years. Moreover, the difference in stability rates between manufacturing and non-manufacturing has never been so high. Job stability declined regardless of worker tenure, although workers with medium tenure were the most affected. Previous research documents large wage losses for high-tenure workers who lose their jobs (Morissette et al. 2007). Their situation is often also tenuous: they are too young to retire, have firm-specific skills that may not transfer to other industries, and are still likely to have dependent children.

Manufacturing workers in large urban centres have seen a greater decrease in their job stability than workers in non-metropolitan areas, and the difference with non-manufacturing is also greater in large urban centres.

Although the expected duration of unemployment remains below levels experienced in previous recessions, the difference in duration between ex-workers in manufacturing and ex-workers in non-manufacturing has never been as high as in 2007 and 2008. The rise in the expected duration of new unemployment spells in manufacturing and the difference with non-manufacturing still holds when education is controlled for or when only a sample of laid-off individuals is considered.

The analysis provides evidence that the recent job losses in manufacturing have been accompanied by a significant drop in job stability and longer unemployment spells. Not only do manufacturing jobs tend to be shorter in duration, but their associated unemployment spells tend to last longer. These trends correspond to

business cycle patterns noted for previous downturns. The difference this time is the widening gap between manufacturing and non-manufacturing job stability. A full assessment of the resulting adjustment experiences for these two groups would require longitudinal data.

Perspectives

Notes

1. These figures are from the Labour Force Survey (Bernard 2009). Data from the Survey of Employment, Payrolls and Hours (SEPH) show a similar decline in employment, but over a longer period. See Kowaluk (2009) for a detailed analysis of the manufacturing sector using SEPH and other business survey data.
2. In Canada, single-employer, defined-benefit pension plans still predominate among covered workers, complicating the transfer of benefits when they change jobs (Gougeon 2009).
3. See Heisz (2002) for an economy-wide analysis of one-year retention rates in Canada. Overall trends in one-year retention rates and four-year retention rates are generally similar, although four-year retention rates are more variable.
4. The difference between the unadjusted manufacturing retention rate and the non-manufacturing retention rate in 2008 is significant at the 5% level. Throughout this paper, significance tests were performed using the jackknife variance estimation technique (see Statistics Canada 2008 for details). Tests were only performed on unadjusted rates.
5. See Bernard 2009 for details about manufacturing job characteristics.
6. A census metropolitan area (CMA) is an urban area with a population of 100,000 or more.
7. The CMA variable has been in the LFS since 1987. Therefore, the four-year retention rates for large urban centres and non-metropolitan areas can only be computed since 1991.
8. Due to the nature of the retention rate calculations, attempting to isolate the specific effects of legislated changes to EI was beyond the scope of this study.
9. Another measure is the average duration of in-progress unemployment spells, corresponding to the average LFS duration variable. This measures how long individuals have been unemployed up to the point of the survey. See Tal (2009) for an analysis of unemployment duration using this measure. See Corak and Heisz (1995) for a discussion of alternative measures of unemployment duration.
10. See Dubé (2004) and Dubé and Dionne (2005) for a specific analysis of long unemployment spells.
11. The difference between manufacturing and non-manufacturing is significant at the 5% level.
12. Using the Survey of Labour and Income Dynamics (SLID), Dubé and Dionne (2005) find that holding a university degree is associated with higher odds of finding work. Also using SLID, Galarneau and Stratychuk (2001) find that having less than a high school diploma is associated with lower odds of finding work, but that the association is not statistically significant.
13. On average during the period from 1990 to 2008, 9% of unemployed individuals whose last job was in manufacturing had a university degree and 57% had at most a high school diploma. In comparison, 13% of unemployed individuals whose last job was not in manufacturing had a university degree and 51% had at most a high school diploma (Statistics Canada 2008).
14. The adjustment by age group was dropped because adjusting by age, sex and education level would require calculations involving very low cell counts, and therefore would yield very imprecise weight adjustments. The age adjustment was dropped for the sex adjustment because the average age of manufacturing and non-manufacturing workers is similar, whereas women are clearly underrepresented in manufacturing. Note that the definition of the education variable in the LFS changed in 1990 and therefore estimates pre- and post-1990 are inconsistent. As such, the adjusted expected duration is only presented for the period from 1990 to 2008.
15. A multivariate analysis with longitudinal microdata would be needed to fully assess the effect of education on the difference in unemployment duration between manufacturing and non-manufacturing.

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What's new?

Recent reports and studies

From Statistics Canada

Labour productivity

The labour productivity—which is a measure of real output per hour worked—did not change in the second quarter of 2009, marking the fifth consecutive quarter with little variation.

Since the second quarter of 2008, the real gross domestic product (GDP) of Canadian businesses has changed at roughly the same pace as hours worked, resulting in little change in productivity over the last five quarters. During that period, real GDP and hours worked both posted a cumulative decline of 4.9%.

Output and hours worked both fell 1.3% in the second quarter of 2009, after dropping 2.1% in the first quarter of the year.

A slight upturn in domestic demand led to an increase in output and productivity in the services-producing industries, which offset a decline in the goods-producing industries.

Hours worked in the goods sector fell 3.2%, a fourth consecutive quarterly decrease. Hours worked also shrank in service industries for a fifth straight quarter, but the rate of decline was much lower than in goods. Service sector hours were down 0.5% in the second quarter, much the same pace as in the previous two quarters.

South of the border, the contraction of real GDP decelerated sharply compared with the first quarter, while the pace of the downturn in hours worked remained steady, which translated into a strong gain in U.S. productivity in the second quarter.

For more information, see the September 15, 2009 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

GDP and self-employment of unincorporated enterprises

In 2005, there were over 1.5 million self-employed workers who were unincorporated, generating $93.2 billion of GDP, compared with $43.7 billion two decades earlier.

The unincorporated self-employed created most of the jobs in the business sector during the 1990s, adding 410,000 jobs between 1990 and 1998. However, employment in the unincorporated sector receded from 1999 to 2005, and its GDP grew slightly slower than in the previous decade.

Self-employed owners of the unincorporated sector are typically small-sized enterprises in which the entrepreneurs mainly work on their own or with a few staff—either paid workers or unpaid workers, including family members. The unincorporated sector crosses many industries and is comprised of landlords, insurance and stock brokers, physicians and dentists, lawyers, accountants and consultants, general and special trade contractors in construction, owner-operator carriers in trucking, and farmers, owners of retail stores, barbers, hair stylists and housecleaners.

As was the case with GDP, the compositional shift in the industry structure from goods to services of the self-employed was more pronounced for unincorporated businesses than for incorporated ones. The increase in the share of unincorporated self-employment for services occurred mainly in professional services, business and other support services, finance, education, health and information.

On the other hand, the goods sector registered a noticeable decline in the share of unincorporated GDP for agriculture. Conversely, the construction industry expanded, especially during the past decade, which saw a boom in housing starts.

For more information, see "Trends in gross domestic product and self-employment of unincorporated enterprises in the Canadian economy, 1987 to 2005" by Luke Rispoli, *Canadian Economic Observer*, September 2009.

Unpaid work: Volunteering

Almost 23 million Canadians, or 84% of the population age 15 and over, made a financial donation to a charitable or non-profit organization in 2007. During the same period, 12.5 million Canadians, or 46% of the population, volunteered their time through a group or organization.

The total amount of time volunteered through groups and organizations amounted to about 2.1 billion hours, which was equivalent to almost 1.1 million full-time jobs. On average, volunteers contributed 166 hours each.

The top 25% of volunteers—those who volunteered 171 hours or more—were widely distributed throughout the population. However, those who attend religious services on a weekly basis, those who have university degrees, and those with school-aged children in the household were much more likely than others to be top volunteers.

Provincially, the rate of volunteering in 2007 was highest in Saskatchewan, where 59% of the population aged 15 and over volunteered through a group or organization.

For more information, see the September 11, 2009 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

Canada's manufacturing sector: Adapting to challenges

Deindustrialization is almost always examined using a relative measure such as the share of manufacturing in the nominal GDP or the share in total employment. In Canada, these shares have fallen over the last 45 years, though somewhat less than in many other industrialized countries.

The share of value-added (GDP) is not a sufficient measure for determining whether deindustrialization is occurring, since it depends not just on how the manufacturing sector performs, but also on how all other areas of the economy perform. Also, shares reflect the fact that the nominal value of GDP has both a volume and a price component. Analysis of nominal GDP or employment shares tends to overlook the effect of the relatively large productivity growth in manufacturing on relative prices of this sector. Declines in relative prices are not indicative of a sector that has become moribund; rather they indicate that manufacturing has been undergoing rapid technological change.

A look at how the manufacturing sector has responded to specific shocks during the last 45 years shows that manufacturing remained resilient in the face of challenges stemming from demand shifts, relative price shifts and changes in tariff regimes.

For more information, see *The Canadian Manufacturing Sector: Adapting to Challenges* by John R. Baldwin and Ryan Macdonald, Economic Analysis Research Paper Series, July 2009.

Employment Insurance in 2008

In 2008, over half a million of unemployed individuals (571,800) had contributed to the Employment Insurance (EI) program and had had a valid job separation. These were considered 'potentially eligible' for regular employment insurance benefits, and they accounted for 52.2% of the 1.1 million unemployed Canadians.

Among those who were 'potentially eligible,' 82.2% received regular EI benefits because they had worked sufficient hours.

The Employment Insurance Coverage Survey provides a picture of who does or does not have access to EI benefits as well as maternity, parental and adoption benefits.

The number of women who had one child up to one year of age increased 2.6% to nearly 387,000 in 2008. Over three-quarters (77.0%) of these women had insurable employment.

Over 88% of mothers who had insurable employment received benefits in the form of maternity or parental benefits during their pregnancy, or after the birth or adoption of their child. These benefits were from either the EI program or the Quebec Parental Insurance Plan (QPIP).

The QPIP, which was introduced in 2006, continued to have a major impact on the number of fathers who claimed or intended to claim parental benefits. It included leave that applied exclusively to fathers. The proportion of fathers in Quebec who took or intended to take parental leave has nearly tripled since the introduction of the plan.

Nationally, the proportion of fathers who took or intended to take parental leave increased from 26.8% in 2007 to 28.2% in 2008. In 2005, 15.0% had claimed this type of leave. This increase mainly reflects the trend in Quebec. In 2008, three-quarters (74.9%) of Quebec fathers took advantage of the plan. Prior to the plan's introduction, in 2005, less than a third (27.8%) of fathers took parental leave.

For more information, see the July 23, 2009 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

From other organizations

The world economic outlook

This report from the IMF contains analysis and projections of economic developments in member countries, including Canada.

Looking at differences in labour market dynamics in the current global downturn, the report examines the impact of labour market flexibility by focusing on employment protection legislation (EPL) in advanced economies. (Data for emerging economies are unavailable.)

Advanced economies are grouped by their degree of EPL, which is measured by the Organisation for Economic Co-operation and Development's index of EPL strictness. Canada, the United Kingdom, and the United States are designated as having "low" EPL, and all other advanced economies are designated as having "medium/high" EPL.

The drop in output per employee is substantial for both groups in the current downturn, but it is particularly sharp among medium/high EPL economies, suggesting a greater degree of labour hoarding. The big difference between the two groups is in the employment rate response. During previous recessions and the current one, the initial employment losses were much greater among low EPL economies, but once the recovery has taken root, during previous cycles, low EPL economies also tended to register larger employment gains.

The stronger employment response in low EPL economies, relative to medium/high EPL economies, is consistent with the academic research, which suggests that employment protection reduces both inflows to and outflows from employment. See *World Economic Outlook*, International Monetary Fund, October 2009, 226 pages.

Youth unemployment in OECD countries

This article analyzes youth unemployment in selected Organisation for Economic Co-operation and Development countries over the 1980 to 2007 period. Adjustments are made to Canada's data in order to enhance comparability with U.S. definitions.

In addition to comparisons of the proportion that young people constitute of unemployment, the labour force, and the population, the article provides a more detailed picture of the youth labour market by examining less widely available data on combining school and work, youth living arrangements, and job turnover rates. The article also provides an indicator of 'idleness', which tracks trends and levels for the number of young people who are neither in school nor at work. The study finds that, in contrast to unemployment rates, idleness rates are consistently higher for persons aged 20 to 24 than for teenagers, suggesting that the rate of unemployment might be misleading as a measure of societal distress. See "A portrait of the youth labor market in 13 countries, 1980–2007" by Gary Martin, *Monthly Labor Review*, U.S. Bureau of Labor Statistics, July 2009.

Skilled immigrants in Canada's labour market

This paper estimates the effect of various individual attributes on the likelihood that a job applicant will receive an interview request. Among these attributes is the applicant's name. It finds that interview request rates for English-named applicants with Canadian education and experience were more than three times higher than for résumés with Chinese, Indian, or Pakistani names with foreign education and experience, but they were no different than for foreign applicants from Britain.

Also, Canadian applicants who differed only by name had substantially different call-back rates: those with English-sounding names received interview requests 40% more often than applicants with Chinese, Indian, or Pakistani names. The gap was particularly pronounced in administrative, finance, and retail jobs. See *Why do skilled immigrants struggle in the labour market? A*

field experiment with six thousand résumés by Philip Oreopoulos, National Bureau of Economic Research, working paper No.15036, September 2009.

Canadian lone-mother employment

This article examines the rise in Canadian lone-mother employment rates during the 1990s and similarities in trends between Canada and the United States. In both countries lone-mother employment rates increased during the 1990s, and the increases were largest for those with less education and lowest for those in the highest wage quartile.

However, there are differences in the Canadian and American experiences. In Canada, increases in lone-mother employment rates differed little by age of the lone mother's children, while in the U.S., increases were larger for women with young children. Also, lone-mother employment rate increases in the U.S. were largest for the lowest wage quartile, while in Canada they were largest for the middle two quartiles. It also appears that changes in policy regarding social assistance or income supplements for the working poor did not account for much of the increase in lone-mother employment rates in Canada during the 1990s. See "Canadian lone-mother employment rates, policy change and the US welfare reform literature" by Michael Shannon, *Applied Economics*, August 2009.

Labour reallocation in Canada

This article compares the pace of labour reallocation in Canada in recent periods to that experienced in the past. It looks at reallocation across sectors and across firms, and discusses the potential factors behind changes in the amount of this reallocation. The effect of fluctuations in commodity prices and the exchange rate is also examined, as is the relationship between reallocation and productivity.

Using sectoral employment data from the Labour Force Survey over the 1987 to 2008 period, the paper finds that the pace of reallocation was above average for the years 2005 to 2008. Negative employment growth in manufacturing contributed significantly to the high level of reallocation in each of those years; on average, it accounted for 36% of total reallocation. On the other hand, strong growth in construction accounted for 13% of the total dispersion over the whole period. Also, above-average growth in the extractive sector contributed in 2005 and 2006, and a pickup in employment growth in public administration played a major role in 2008.

Labour reallocation across firms appears to generate substantial labour productivity gains in manufacturing and the business sector as a whole. Overall, the response of the Canadian labour market to the appreciation of the dollar and the sharp increase in commodity prices showed that Canada does have relatively flexible labour and product markets. See "The changing pace of labour reallocation in Canada: Causes and consequences" by Danny Leung and Shutao Cao, *Bank of Canada Review*, Summer 2009.

Time spent in unpaid household work

Using data from the 2003 to 2007 American Time Use Survey, this article focuses on the time spent doing unpaid household work—work that is unpaid, economically productive, and done for one's own household.

On average, Americans spend more than 20 hours per week working in their own household without pay performing tasks that might be done by a paid worker. Women spend more time doing such unpaid household work, while men spend more time doing paid work.

Traditional gender roles were further apparent in that women spent more time on food and drink preparation, on cleaning and laundry, and sewing than did men, while men spent more time on maintenance and repairs, and lawn and garden care than did women.

Women were less likely than men to be employed (59% versus 72%), and among those who were employed, women were more likely to work part time than were men (31% versus 14%). See "Measuring time spent in unpaid household work: results from the American Time Use Survey" by Rachel Krantz-Kent, *Monthly Labor Review*, U.S. Bureau of Labor Statistics, July 2009.

In the works

Some of the topics in upcoming issues

Employer top-ups

An examination of the trends in the proportion of mothers with a paid job who receive a top-up from their employer after birth, as well as their socio-demographic and job characteristics.

Employment patterns of enrolled postsecondary students

A look at which postsecondary students are likely to be employed and their hours of work, earnings and job characteristics.

Laid-off workers

A study of the characteristics of workers affected by layoff between 2002 and 2006 and the effects of a layoff on subsequent labour market outcomes.

Student loans

An attempt at shedding some light on the effect of student loans on household financial behaviour, this study will examine historical default rates of student loans as one indicator of repayment hardship, and how families with student loans manage their household budgets and expenditures and continue to pay these loans.

Health factors and retirement among older workers

This study uses a longitudinal approach in attempting to fill some gaps on the relationship between early retirement and specific health factors, including health conditions, behaviours, and workplace stress.

Non-tax-sheltered investments

This study will examine families with investment income from non-tax-sheltered sources of saving and present a comparative profile of "investors" and "non-investors."

Job quality indicators

A look at the provincial differences in the socio-economic well-being of employed persons by occupation-education mix of factors.

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Links to insightful analysis and data on:

⇒ Cancer

Health Surveys

⇒ Canadian Community Health Survey (CCHS)

⇒ National Population Health Survey (NPHS)

⇒ Smoking and Tobacco Use Surveys

⇒ Health Care Survey

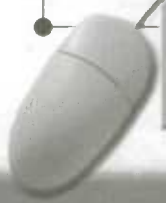
Sample links to related sites:

⇒ Canadian Cancer Statistics

⇒ Canadian Institute for Health Information (CIHI)

⇒ Health Canada

⇒ Canadian Health Network



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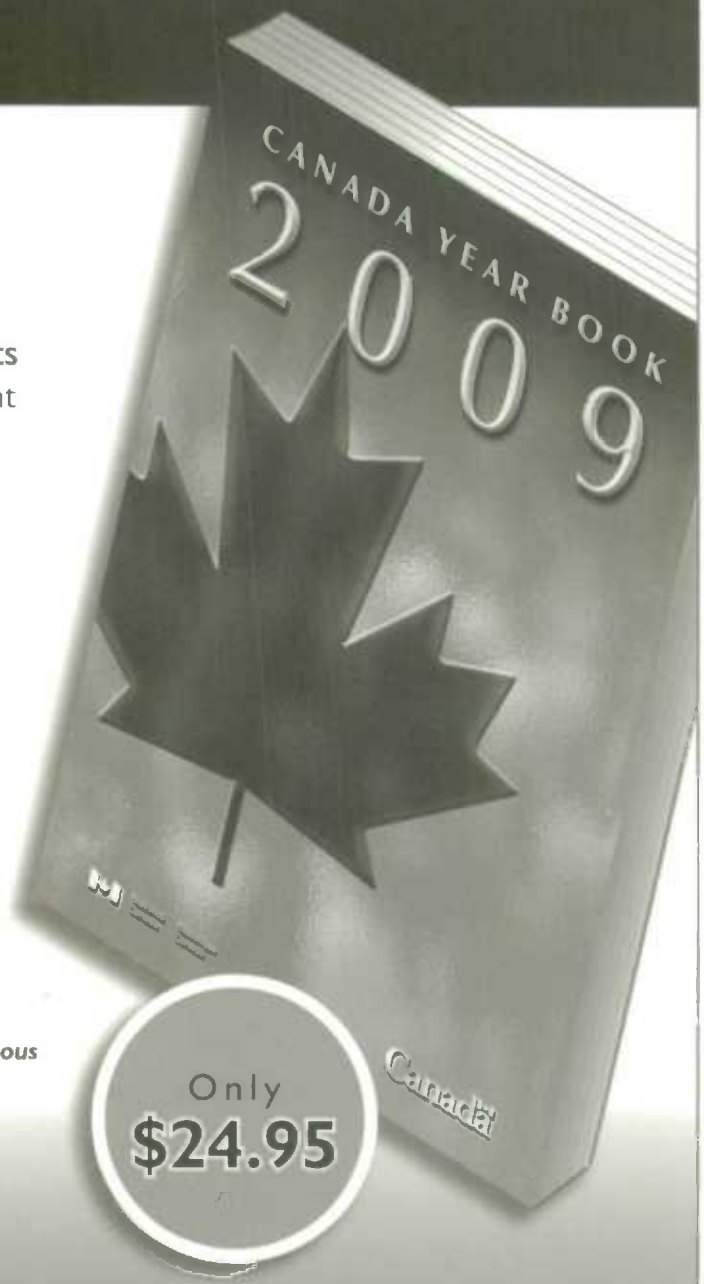

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