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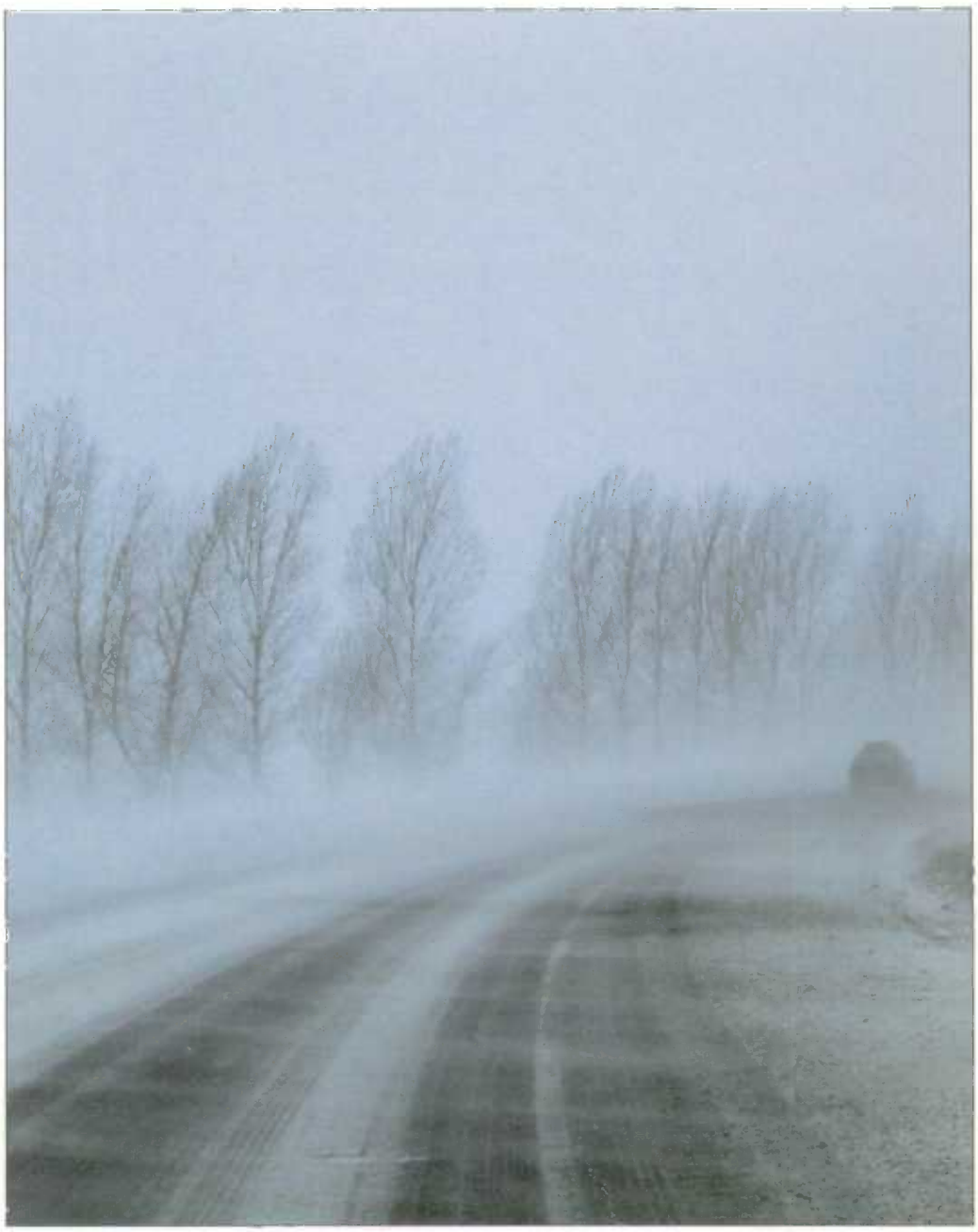

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PERSPECTIVES

ON LABOUR AND INCOME

Departments

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Highlights

In this issue

High-income canadians ... p. 7

- In 2004, 5% of Canadian taxfilers had an income of $89,000 or more; only 1% reached $181,000 or more.
- In 2004, the top 5% of taxfilers received 25% of total income and paid 36% of income and payroll taxes.
- The prevalence of high income peaks in the 45-to-64 age group. In 2004, individuals of that age represented less than a third of all income recipients, but made up more than half of the top 5%.
- Calgary had the highest proportion of families with income over $250,000 in 2004, but Toronto had by far the most families with such incomes, almost one-third of the national total.
- Of the 1.2 million taxfilers who made up the top 5% of income recipients in 2004, three-quarters were men, even though men accounted for less than half of all taxfilers. However, since 1982 there has been an 11% increase in the portion of women in the top 5% of tax filers.

Spending patterns in Canada and the U.S. ... p. 21

- In the last two decades, overall consumer spending patterns have not changed significantly in either Canada or the United States. These patterns were closer for core labour force age households than for retirees.
- Among older households, proportionately more live in owned houses and drove owned vehicles in the United States than in Canada
- Both Canadian and American households allocate one-third of their spending dollar to housing and one-fifth to transportation.
- Canadians spend more than Americans on public transportation; in both countries, those 75 and over generally spend the most.
- Between the early 1980s and 2003, household spending on health increased slightly more in Canada, but it still remained much lower than in the United States.

Economic integration of immigrants' children ... p. 31

- Compared with their third-generation and higher peers, young Canadians with two immigrant parents are more likely to be visible minorities, and live in large urban centres in Ontario and British Columbia. They also tend to have more years of schooling, and are less likely to have ever been married or had children by the end of the six-year period of study.
- Geographic clustering into relatively prosperous areas and a tendency to delay childbirth—and to a lesser extent, higher levels of education—contribute to a significant earnings advantage among young women with two immigrant parents, compared with their peers with two native-born parents.
- Second-generation young men show little evidence of an earnings advantage. In fact, everything else being equal, some visible minority men with two immigrant parents appear to have a significant earnings disadvantage compared with their peers with native-born parents.

Pensions and retirement savings of families

... p. 43

- A decline in the pension coverage of male employees between 1978 and 2005, combined with a slight decrease in men's labour force participation, led to a 10 percentage point decline in the proportion of men with an RPP over the last two decades. In contrast, the percentage of women with an RPP rose, thanks to a strong increase in their participation rate and a slight increase in RPP coverage among female employees.
- The increase in the proportion of women with an RPP almost fully offset the decline among men. As a result, the percentage of individuals with an RPP changed very little over the last two decades: from 24% in 1978 to 22% in 2005.
- The proportion of couples with at least one RPP fell moderately over the past 15 to 20 years, as the growth in the proportion of wives with an RPP helped mitigate a substantial decline in the proportion of husbands with an RPP.
- On average, retirement savings of Canadian families rose over the last two decades. However, the distribution of retirement savings became more unequal. While two-parent families in the top 20% of the earnings distribution increased the sum of their RPP and RRSP contributions since the mid-1980s, contributions of those in the bottom 20% stagnated. To a large extent, the uneven growth in retirement savings appears to be driven by the sharp increase in family earnings inequality.

Depression at work

... p. 57

- In 2002, nearly half a million employed Canadians aged 25 to 64, almost 4% of the workforce, reported a major depressive episode in the previous 12 months. An additional million workers had experienced depression during some other period.
- In 2002, the majority (71%) of 25- to 64-year-old Canadians who reported having experienced a major depressive episode in the previous 12 months were employed; however, symptoms associated with this condition may have hampered their ability to perform their jobs.
- Overall, workers with major depression had been totally unable to work or carry out normal activities for 32 days in the previous year.
- In Canada, the cost of productivity losses in the form of short-term disability days due to depression was estimated at $2.6 billion in 1998.
- The occurrence of depression in the workforce was twice as prevalent among women as men (5.1% vs. 2.6%) and was much more common among persons who were divorced, separated or widowed (7.5%)—as opposed to those married or in a common-law relationship (3.0%).

What's new?

... p. 71

- **From Statistics Canada**

Registered retirement savings plans

Savers and investors

Delayed transitions of young adults

Women in the core public administration

Investment and long-term growth in labour productivity

Trade and industrial specialization

- **From other organizations**

Productivity in the past decade

Trend labour supply in Canada

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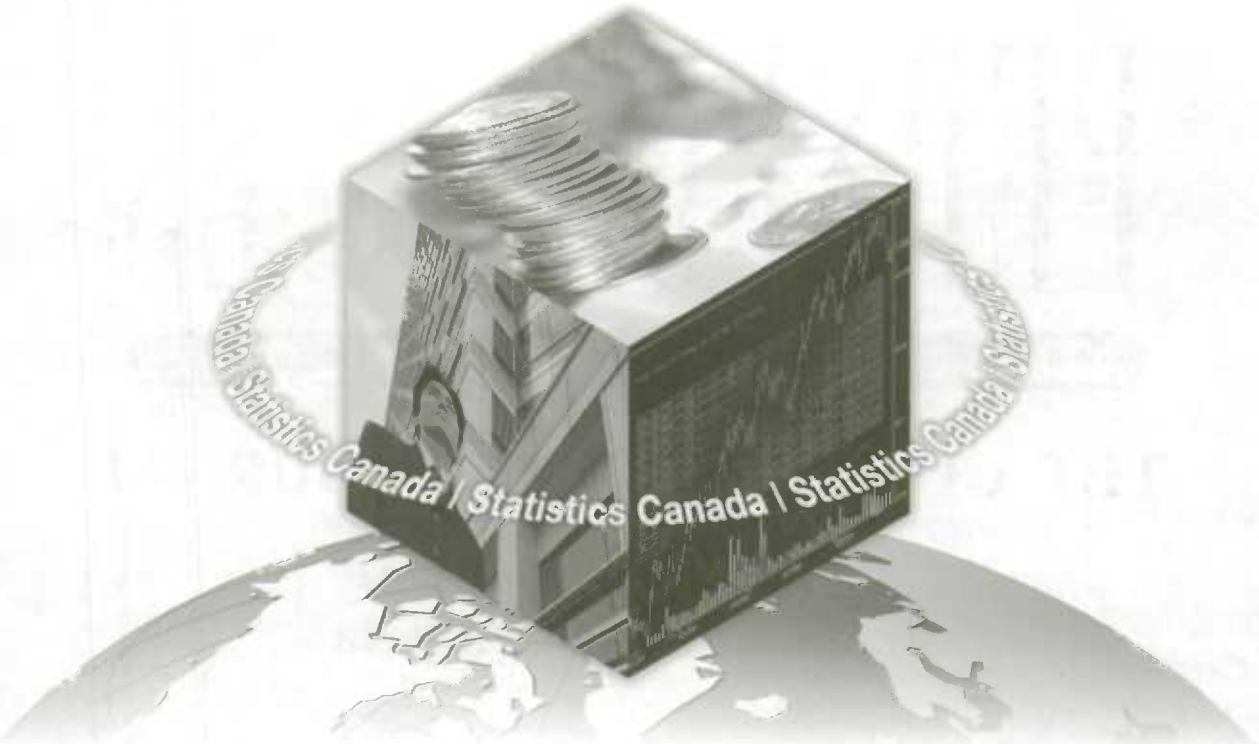

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High-income Canadians

Brian Murphy, Paul Roberts and Michael Wolfson

Media interest in those with very high incomes seems never-ending. However, this interest goes beyond celebrity watching. Canada has a progressive system of taxes and transfers, which means that high-income recipients contribute a disproportionate portion of total taxes, which in turn help finance a range of government activities including transfer payments to those lower in the income distribution. The status of the high-income population is thus important to the financing of government activities. Changes to the income tax system may affect their behaviour. For example, increasing tax rates have been tied to issues such as the brain drain.

Considerable effort has been devoted over time and across countries to measure and characterize those with low incomes, but not those with high incomes. One reason is that only a few data sources (income tax data in particular) can support the study of this relatively small population. This study uses tax returns and survey data to explore trends in the number and characteristics of high-income Canadians, as well as their wealth and the effective income tax rates they face. It is intended to help inform current debate on topics such as tax fairness and income inequality.

There is no agreed-upon definition of high income, either in terms of absolute dollar thresholds or as a fixed percentage of the population. While defining poverty exhibits similar difficulties, numerous studies have discussed concepts such as 'deprivation' and 'straitened circumstances,' providing some general support for selecting a threshold below which one is considered to be in low income. No corresponding literature exists for defining high income.

Survey data tend to have very small sample sizes at the upper tail of the income distribution, and also tend to suffer from a higher level of underreporting. The T1 Family File (T1FF) overcomes these problems. The T1FF has had very good coverage, even of those with low or zero income, since the advent of refundable income tax credits—for children in 1978 and for everyone (the GST credit) in 1992. Additionally, the T1FF systematically links spouses and dependent children into families as appropriate (Patenaude and Clark 2000).[1]

Where to draw the high-income line?

A number of thresholds have been used for defining high income. Just as with low income, these thresholds can be absolute dollar figures or expressed in terms of relative portions of the population. In each case, the aim is to describe the upper tail of an income distribution and separate those with high income from those without (Table 1).

Absolute nominal thresholds

Thresholds defined in nominal dollar terms are the simplest. Absolute thresholds refer to a particular dollar amount—for example, $100,000. Those with incomes higher than a given figure are considered to have high income. However, such thresholds suffer from changing monetary conditions, most particularly the effect of inflation. What might have seemed a sufficiently high threshold amount one or two decades ago may not be viewed the same way today, to the extent that some groups' income levels have risen or earnings have been eroded by inflation.

Examples of commonly applied absolute nominal thresholds include $250,000, the highest income grouping used for many years by the Canada Revenue Agency (CRA);[2] $150,000, used in Statistics Canada's census tables; $100,000, used by the province of Ontario in their 'sunshine list' made available under the *Public Sector Salary Disclosure Act* (Campbell 1996); and the threshold at which the top federal tax rate begins—$113,804 in 2004.[3]

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Relative thresholds

While absolute nominal thresholds are easy to understand, they suffer from changing 'real' values in the face of inflation. One alternative, as in the case of income tax bracket thresholds, is to index to the CPI so that their value is maintained. However, as with the longstanding discussion of relative versus absolute poverty or low-income lines, a parallel argument exists for defining high income in a relative manner. According to this argument, when the income of an average worker rises (because of real per capita economic growth, not just inflation), the threshold for high income ought to rise in the same proportion. A relative threshold divides an income distribution using a quantile cut-point to define those with higher incomes.[4]

Examples of relative threshold cut-offs include individuals or families at or above three times the median income (Murphy, Finnie and Wolfson 1994), the top third (Morissette and Ostrovsky 2005), the top fifth and top tenth (Morissette and Zhang 2006), the top 5% (Frenette, Green and Picot 2004; Atkinson 2003), and the top 1% (Rashid 1994). Each of these thresholds was used to divide the total 2004 income distribution for individuals and families into those with high incomes and those without.[5] These thresholds convey the wide variation in what may be considered high income. For individuals in 2004, it could be $37,000 (top third of the income distribution) or $250,000 (top 0.6%). In comparison, the top third of families had a high-income threshold of $64,000, while an income of $250,000 would categorize 1.5% of families as high-income.

Table 1 Income thresholds for individuals and families

	Individuals		Families	
	Cut-off	Above cut-off	Cut-off	Above cut-off
Absolute threshold	$	%	$	%
CRA	250,000	0.6	250,000	1.5
Census tables	150,000	1.4	150,000	5.4
Ontario 'sunshine list'	100,000	3.7	100,000	15.3
Top federal tax rate	113,804	2.4	113,804	11.3
Relative threshold				
Three times median	75,000	8.1	129,000	8.2
Top third	37,000	33.3	64,000	33.3
Top 20%	50,000	20.0	88,000	20.0
Top 10%	69,000	10.0	119,000	10.0
Top 5%	89,000	5.0	154,000	5.0
Top 1%	181,000	1.0	305,000	1.0

Source: Statistics Canada, T1 Family File, 2004

Not surprisingly, different thresholds produce varying pictures of the high-income category. Given the arbitrariness of any specific choice, the analysis uses a range of thresholds. However, the predominant focus is on relative thresholds, and generally those involving the top 10% of the population or less.

The income parade

Jan Pen, a Dutch economist, uses the image of a parade of dwarfs (and a few giants) to illustrate the general shape of income distribution (Pen 1971, 48). Everyone in the country lines up in a parade in order of income. People with average income have the average height, and those with more or less than the average have their statures magically stretched or shrunk in proportion. The parade is timed to pass in front of a reviewing stand over a period of exactly one hour.

A Canadian with the average income in 2004 would not pass the reviewing stand until 40 minutes into the one-hour parade. At about the 54-minute mark, individuals would be about twice the average height (in the 90th percentile). At 57 minutes, those passing by would be two and a half times the average (95th percentile), and only two and a half minutes later they would be 5 times the average (99th percentile). With less than 4 seconds remaining in the parade, the passers by (top 0.1%) would be about 19 times the average height. The last fraction of a second would be taken up by giants at over 165 times the average height (top 0.01%).

Then and now

On the one hand, the cut points up to and including the 80th percentile for individuals, and up to the median for families have been generally stable for over two decades (Table 2). On the other hand, the top 1% and smaller groups experienced major increases, much more so from 1992 to 2004 than in the previous decade.

Table 2 Income thresholds

	Individuals			Families		
	1982	1992	2004	1982	1992	2004
	2004 $ ('000)					
Bottom 1%	0	0	0	0	1	0
Bottom 5%	0	2	1	3	7	7
10%	2	5	5	9	11	11
20%	8	10	10	17	16	17
25%	11	12	12	21	20	21
40%	19	18	19	33	31	33
50%	25	23	25	42	39	43
60%	31	30	31	51	49	55
75%	44	42	44	69	69	77
80%	49	47	50	76	77	88
90%	64	63	69	99	102	119
Top 5%	80	78	89	123	128	154
Top 1%	142	139	181	210	220	305
Top 0.1%	383	402	648	546	597	1,045
Top 0.01%	1,360	1,319	2,833	1,781	1,949	4,301

Source: Statistics Canada, T1 Family File

Table 3 Income cut-off as a proportion of median income

	Individuals			Families		
	1982	1992	2004	1982	1992	2004
	%					
25%	44	51	48	50	50	49
50%	100	100	100	100	100	100
75%	177	180	181	163	174	180
90%	258	273	282	235	258	277
Top 5%	322	339	364	294	324	358
Top 1%	572	601	737	501	558	707
Top 0.1%	1,544	1,743	2,644	1,301	1,511	2,425
Top 0.01%	5,475	5,723	11,552	4,243	4,934	9,976

Source: Statistics Canada, T1 Family File

For example, for individuals, the real-dollar median was essentially flat at $25,000 in 1982 and in 2004, while for families, the 50% threshold fluctuated between $39,000 and $43,000. Some variation did occur in the lower-income quantile cut points, but it was relatively limited. The first decile for individuals, for example, increased in real dollars from approximately $2,000 in 1982 to $5,000 by 2004; the change for families was from $9,000 to $11,000.

By contrast, the cut points for the highest quantiles increased significantly—the top 5% of individuals from $80,000 to $89,000, and the top 0.01% from $1,360,000 to $2,833,000. Similar changes occurred for families. One way of illustrating the magnitude of these constant dollar changes is to relate them to the median (Table 3). The highest percentiles of income earners, whether individuals or families, experienced very high growth. In 1982, the top 5% of individual incomes were 322% of the corresponding median; by 2004 this had increased to 364%. A similar change was observed for families.

These changes were more dramatic for the very highest quantile thresholds. In 1982, the top 0.01% income threshold for individuals was 55 times larger than the median, and by 2004, it was over 115 times larger. For families, the pattern was the same—over 40 times the median in 1982 and 100 times by 2004.

Threshold income values, in constant dollars or as a proportion of the median, can understate the magnitude of changes in the income distribution. For example, the constant dollar threshold for the top 5% of individual filers and top 5% of families increased by 11% and 25% respectively from 1982 to 2004. However, the average income of the top 5% of individuals increased 34% (from $133,000 to $178,000) while that of families jumped 50% (Table 4).

These increases, for the most part, were not paralleled in lower parts of the income spectrum. Individuals with incomes in the bottom four-fifths, for example,

Table 4 Average income

	Individuals			Families		
	1982	1992	2004	1982	1992	2004
	2004 $ ('000)					
Bottom 5%	-90	0	0	-12	2	2
Bottom 10%	-5	2	2	-1	6	6
Bottom 20%	2	5	5	6	10	10
20% to 40%	14	14	14	25	23	25
40% to 60%	25	23	25	42	40	43
60% to 80%	40	37	40	63	62	70
Top 20%	79	77	93	120	124	158
Top 10%	102	100	128	153	160	215
Top 5%	133	130	178	197	206	296
Top 1%	269	268	429	380	404	684
Top 0.1%	852	822	1,641	1,143	1,196	2,493
Top 0.01%	2,903	2,547	5,920	3,658	3,490	8,443

Source: Statistics Canada, T1 Family File

experienced little or no real increase in mean income. Families in the first and fourth quintiles did experience some growth, but those in the second and third quintiles saw little or no change. Increases in average incomes were generally limited to the top quintile and were increasingly marked in the higher reaches of the upper tail.

More people or higher incomes?

Yet another way to display these trends is by the shares accruing to each segment of the income spectrum (Table 5). Whether the bottom 90% or 95%, whether individuals or families, their shares of the income pie decreased, especially between 1992 and 2004. In contrast, the share of the top 5% increased by about one-quarter, the top 1% by about half, and the top 0.1% and 0.01% by nearly 100%. For example, the top 0.01% of individuals had less than 1% of all income in 1982 and in 1992, but by 2004 they had 1.7%.

Table 5 Shares of income

	Individuals			Families		
	1982	1992	2004	1982	1992	2004
			%			
Bottom 5%	-1.0	-0.1	0.0	-0.8	0.2	0.2
5% to 10%	0.1	0.6	0.4	0.6	0.9	0.7
10% to 15%	0.6	1.0	0.9	1.1	1.2	1.1
15% to 20%	1.1	1.4	1.2	1.5	1.5	1.3
20% to 25%	1.5	1.7	1.5	1.9	1.7	1.6
25% to 30%	1.9	2.0	1.8	2.3	2.1	1.9
30% to 35%	2.3	2.3	2.1	2.6	2.4	2.2
35% to 40%	2.8	2.7	2.5	3.0	2.8	2.6
40% to 45%	3.2	3.0	2.8	3.5	3.2	2.9
45% to 50%	3.7	3.5	3.2	3.9	3.6	3.3
50% to 55%	4.2	3.9	3.7	4.3	4.0	3.7
55% to 60%	4.7	4.5	4.2	4.8	4.5	4.2
60% to 65%	5.2	5.0	4.7	5.3	5.0	4.7
65% to 70%	5.9	5.6	5.3	5.8	5.6	5.3
70% to 75%	6.6	6.3	5.9	6.4	6.3	6.0
75% to 80%	7.3	7.1	6.7	7.1	7.0	6.7
80% to 85%	8.2	8.0	7.7	7.9	7.9	7.7
85% to 90%	9.4	9.3	9.0	9.0	9.1	8.9
90% to 95%	11.2	11.2	11.0	10.7	10.9	11.0
Top 5%	21.0	20.9	25.3	19.3	19.9	24.1
Top 1%	8.5	8.6	12.2	7.4	7.8	11.2
Top 0.1%	2.7	2.6	4.7	2.2	2.3	4.1
Top 0.01%	0.9	0.8	1.7	0.7	0.7	1.4

Note: Total income includes capital gains and RRSP withdrawals.
Source: Statistics Canada, T1 Family File

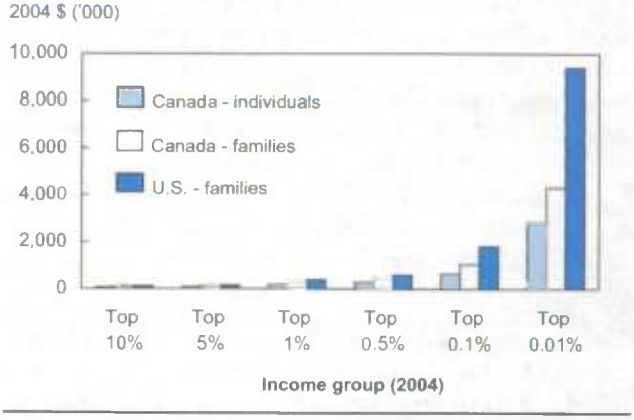
Shares of income as a relative indicator say little about the absolute numbers who have high income. In 1982, the proportion of individuals reporting $100,000 or more stood at 2.6%. This fell to 2.3% in 1992 before climbing to 3.7% in 2004. By 2004, therefore, not only had the share of income accruing to the top 5% of individuals grown, so too had the number of high-income recipients.

The situation was similar for families, except that they saw a steady increase from 1982 to 2004. From 1982 to 1992, the proportion of families receiving $100,000 or more increased from 9.7% to 10.6%. However, from 1992 to 2004, it increased by over 4.5 percentage points to 15%—from less than 1 in 10 families in 1982 to more than 1 in 7 by 2004. The proportions of families reporting at least $500,000 more than doubled.

Richer down south?

Comparisons between Canada and the U.S. are made constantly, for everything from the cost of gasoline and housing to the incomes of physicians and corporate executives. Many of these discussions touch on income. Up to some point in the first two-thirds of the income distribution, Canadian families equaled or even surpassed their American counterparts in the mid-1990s (Wolfson and Murphy 1998). But how do those with high incomes compare? The most striking

Chart A Income threshold disparity most striking at the extreme high end



Note: Purchasing power parity adjusted Canadian dollars.
Sources: Statistics Canada, T1 Family File; U.S.: Piketty and Saez (2003), updated tables and figures

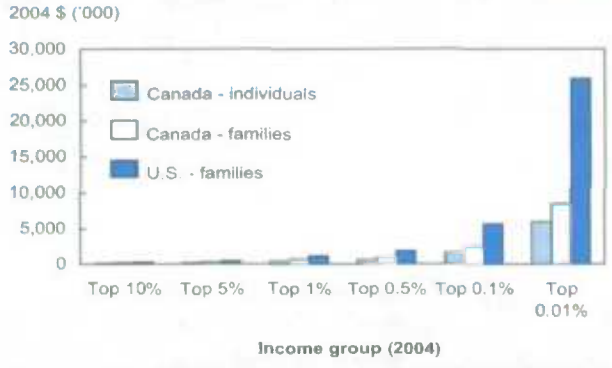
difference is the increasing divergence from the 90th percentile threshold to the top 0.01 percent cut-off (Chart A). In Canada, the top 5% of tax filing families in 2004 had an income of at least $154,000. The 5% threshold for the U.S. was only slightly larger at $165,000 (using purchasing power parity values). However, further up the income distribution, the U.S. and Canadian thresholds diverge considerably. The threshold for the top 0.01% in Canada is approximately $4.3 million, compared with $9.4 million in the U.S.[6]

However, these differences pale when comparing average income: $296,000 for the top 5% of families in Canada in 2004, compared with $416,000 for the U.S., or 40 percent more (Chart B). The differences grow even larger higher up the income distribution. For the top 0.01%, the U.S. average ($25.8 million) was over 3 times the Canadian figure ($8.4 million).[7]

Where the money comes from

From 1946 to 2000, those with the highest incomes saw their main income sources change (Saez and Veall 2003). In the 1940s they relied on a combination of wages, capital (dividends, interest and capital gains) and entrepreneurial sources (self-employed professionals and sole proprietorship owners). For those with the very highest incomes (top 0.1% and 0.01%), however, wages were relatively less important. By the 1990s, wages and salaries had become increasingly more important for all high-income recipients, while capital and entrepreneurial sources had become less important.

Chart B Average income disparity even more pronounced



Note: Purchasing power parity adjusted Canadian dollars.
Sources: Statistics Canada, T1 Family File; U.S.: Piketty and Saez (2003), updated tables and figures

This paper focuses on three main income sources: employment (wages and self-employment), investments (dividends and interest), and capital gains.[8] From 1982 to 2004, non-high-income (bottom 95%) individuals and families increased the proportion of income from employment from 90% to 95%. Investment income became less important, while capital gains remained unimportant.

Meanwhile, the highest-income individuals increased their proportion from employment at a considerably faster rate between 1982 and 2004—the top 1% from 59% to 74%, the top 0.01% from 36% to 62%. These two groups also saw an increase in capital gains income—the top 1% from 8% to 15%, the top 0.01% from 21% to 24%. Correspondingly, both groups experienced decreases in the proportion of investment income—the top 1% from 33% to only 10%, the top 0.01% from 43% to just 14%. Similar patterns occurred for families.

Characteristics of high-income Canadians

The high-income group is quite different from the overall population in socio-demographic terms (Table 6). Of the 1.2 million Canadians who make up the top 5% of income recipients, three-quarters were men, even though men were a minority of individual income recipients in general (48%). This relationship becomes even more skewed the higher one proceeds up the income distribution. About one in nine individuals in the top 0.01% of income recipients were women in 2004. However, women have made substantial gains in their representation in the top 5% of taxfilers, gaining a further 10% share since 1982. These gains did not extend into the top 0.1%, where women's share was stable.

The prevalence of high income peaks in the pre-retirement years. In 2004, individuals aged 45 to 64 represented less than a third of all income recipients (33%), but were the majority in the top 5% (54%). In the top 0.01%, those aged 45 to 64 accounted for 3 in 5 high-income individuals. Individuals aged 25 to 44 years were the second largest group of high-income recipients in the top 5%, but seniors (23%) were second in the top 0.01%.

Almost half of the top 5% of individuals (46%) lived in Ontario, followed distantly by Quebec (18%), Alberta (15%) and British Columbia (13%). However, among the top 0.01% of individuals, Alberta was second at 23%, while Quebec was fourth at just 10%.

Table 6 Individual taxfilers by income group

	Total	Bottom 95%	Top 5%	Top 1%	Top 0.1%	Top 0.01%
			'000			
Total	**23,438**	**22,253**	**1,186**	**237**	**24**	**2**
			%			
Men	48.3	46.8	75.7	78.8	84.3	88.7
Women	51.7	53.2	24.3	21.2	15.7	11.3
Age						
0 to 24	13.0	13.7	0.3	0.3	F	F
25 to 44	36.9	37.0	35.2	28.8	22.0	x
45 to 64	32.9	31.7	54.1	56.3	59.7	59.1
65 and over	17.3	17.6	10.4	14.6	18.1	22.6
Newfoundland and Labrador	1.7	1.7	0.8	0.7	F	F
Prince Edward Island	0.4	0.5	0.2	0.2	F	F
Nova Scotia	3.0	3.0	1.8	1.7	1.2	F
New Brunswick	2.4	2.5	1.2	1.0	F	F
Quebec	24.6	25.0	17.6	17.9	13.2	10.1
Ontario	37.9	37.5	46.2	47.1	50.4	51.1
Manitoba	3.6	3.7	2.3	2.1	1.7	F
Saskatchewan	3.0	3.1	2.0	1.8	1.2	F
Alberta	10.0	9.8	14.7	15.1	18.7	23.3
British Columbia	13.0	13.0	12.6	12.4	12.5	11.5
Single	43.4	44.5	21.8	19.4	17.1	17.3
Married	56.6	55.5	78.2	80.6	82.9	82.7

Source: Statistics Canada, T1 Family File, 2004

Over three-quarters (78%) of all high-income individuals were married, as were 83% of the top 0.01%.

Overall, from 1992 to 2004, each demographic group experienced real increases in income.[9] Some groups, such as individuals aged 45 to 64 and those living in Alberta, experienced much larger changes, with both seeing increases of approximately 60%. Overall, though, many groups experienced very little change—younger individuals (under 45), older individuals (65 and older), and those living in the smaller provinces.

Individual taxfilers, for the most part, saw little overall change from 1992 to 2004. Aggregate total income, for instance, increased by 10% for taxfilers aged 25 to 44. However, the bottom 95% experienced no change whereas those in the top 5% saw an increase of approximately 30%. The increase was even greater in the top 0.01%, where income more than doubled.

Overall, individuals in the highest income ranges experienced the largest changes in aggregate total income from 1992 to 2004. High-income individuals in Alberta more than doubled their aggregate income ratio, while the province's top 0.01% more than quintupled theirs. Other groups in the top 0.01% that experienced large increases included men and women, individuals in Quebec and Ontario, middle-aged individuals (45 to 64), and both single and married persons. No group in the bottom 95% had a ratio larger than 1.6.

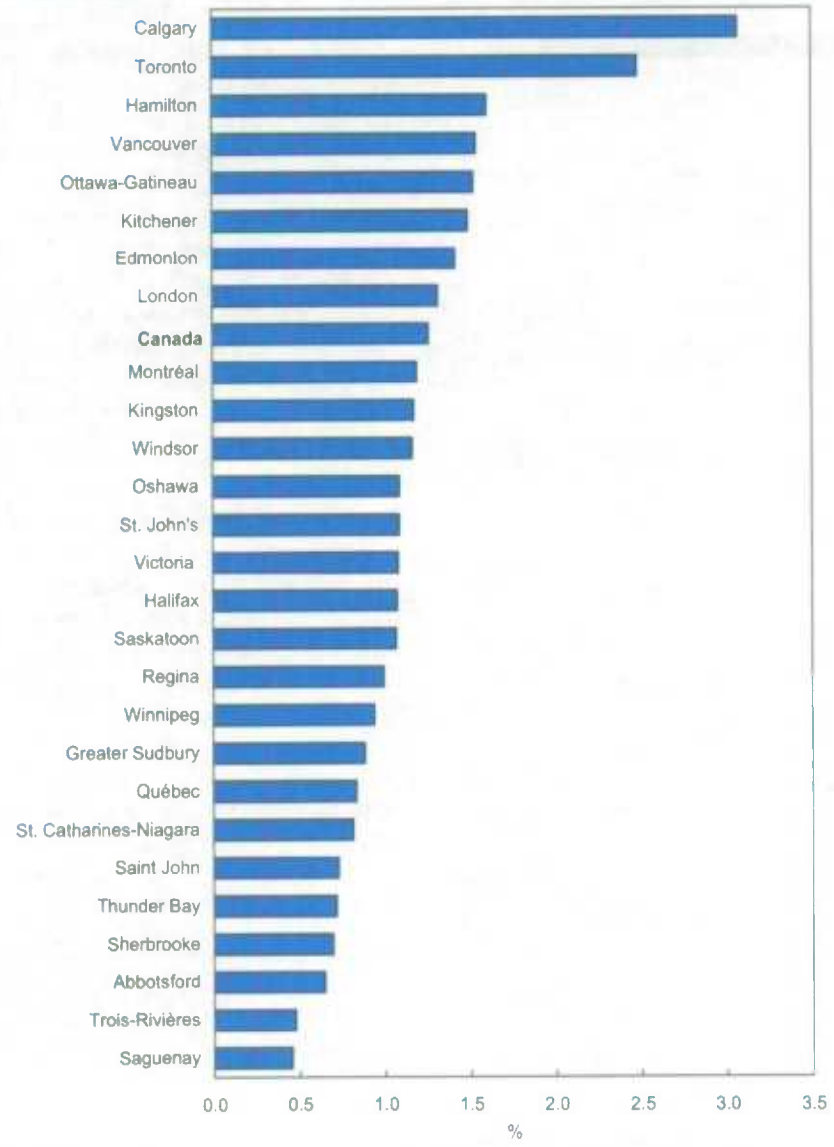
In 2004, 1.3% of families had incomes over $250,000 (Chart C). Of 27 urban centres examined, fully 17 had at least 1.0% of families with such incomes, with Calgary (3.1%) and Toronto (2.5%) standing out. Almost one-third (30.6%) of all families with incomes over $250,000 lived in Toronto, followed more distantly by Montréal (11.4%), Vancouver (8.2%), and Calgary (8.0%) (Chart D). This distribution and the province of these urban centres mirrored the provincial distribution of individuals.

Wealth of high-income Canadians

Economic well-being is not solely a function of income, but also of wealth. In fact, "consumption inequality is probably the better measure of inequality in well-being or economic resources" (Crossley and Pendakur 2006, 147). Given that both income and wealth are used to fund current consumption and together constitute economic well-being, to what degree are high-income Canadians also high-wealth Canadians?

The T1FF contains no information on assets or debts, only the taxfiler's annual income, deductions and tax credits. Statistics Canada's periodic Survey of Financial Security (SFS) measures income and net worth, and was most recently conducted in 2005 with a sample of 9,000 dwellings. The previous study was conducted for 1999 and had 23,000 dwellings. Given the sparseness of high-income families, the 1999 SFS was used to ensure adequate sample size. The sampling techniques used also help ensure a good response from high-income neighbourhoods.[10]

Chart C Eight of 27 census metropolitan areas had a higher than average proportion of families with income over $250,000



Note: Excludes capital gains.
Source: Statistics Canada, T1 Family File, 2004

Average income and net worth

In 1999, the average income for the bottom 80% of families was $38,000 while their average net worth was about five times higher at $192,000. The top 1% had average income of $366,000 and average net worth of $1.9 million, also roughly five times income. It follows that both the average income and average wealth of the top 1% are about 10 times that of the bottom 80%. The implication is that some lower-income families have relatively high net worth (for example the elderly) while some high-income families have relatively low net worth (the young).

Not surprisingly, the importance of housing and vehicular assets declines as income increases. While houses and cars accounted for 31% of average net worth for the 80% of families with the lowest incomes, they accounted for only 16% for the top 1%. These top income families had 61% of their net worth in financial assets compared with 37% for the bottom 80%. Pension assets are far more evenly distributed—21% of net worth for the top 1% of families, 32% for the bottom 80%.

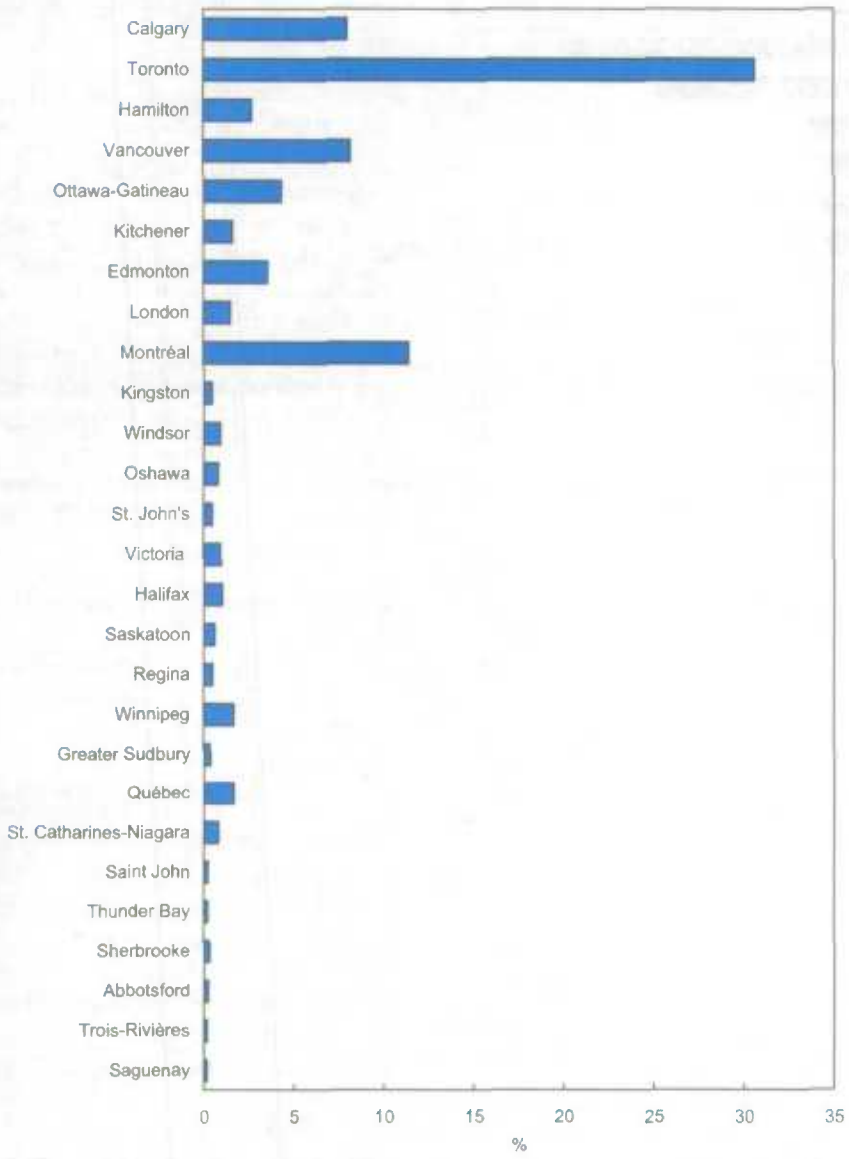
Concentration of income and wealth

While the distribution of annual income is highly concentrated, wealth-holding is even more so (Davies 1991).

Concentration of income and wealth (more precisely, net worth) can be examined several ways. One is to look at either income or wealth on its own. Another is to look at the joint distribution. In 1999, the 5% of families with the highest net worth held 35% of all net worth but received only 12% of income. The 5% of families with the highest incomes received 18% of total income and held 19% of net worth. Therefore, the concentration of wealth in the top 20th of the wealth distribution was almost twice the concentration of income in the top 20th of the income distribution.

The top 1% of families show similar but somewhat more pronounced patterns, with a share of wealth 2.4 times that of income. In fact, some of the very highest

Chart D Toronto is home for almost one-third of families with income over $250,000



Note: Census metropolitan areas ordered by incidence of high-income families; income excludes capital gains.
Source: Statistics Canada, T1 Family File, 2004

income families had lower net worth than many families further down in the income distribution. At first glance, it may seem odd that the share of wealth of high-income families so closely follows their share of income. However, wealth accumulation takes time and as such, life-cycle effects and age must be taken into consideration.

Not surprisingly, the elderly had a higher median net worth at all levels of income. Their overall median was $214,000, 2.5 times larger than the $84,000 for the non-elderly. Even among lower-income elderly, median net worth was higher than for younger families, who had not had the time to accumulate assets. The gap decreases as the high income of younger families starts to provide wealth accumulation, narrowing the gap to about 2:1 in the top few vingtiles. The elderly shares peak in the lower half of the distribution and then drop steadily through the upper half because incomes of the elderly decline as people retire from the labour market.

The very high-income elderly (top 1%) derive a smaller proportion of their net worth from principal residence and the actuarial value of pensions than do their younger counterparts. The very high-income elderly also have a significantly larger share of net worth in financial assets—68% compared with 35% for elderly families in the top 5% of income recipients.

The question of taxes

The ratio of taxes to total income rises with income. In 2004, the bottom 95% of the taxfiler population received 75% of income and paid 64% of taxes, while the top 5% received 25% of income and paid 36% of taxes.[11]

Tax rates are an important indicator of the fairness of a tax system. The pattern of tax rates in relation to income is an indicator of vertical equity of the system, where a basic principle is taxation according to ability to pay. This is generally interpreted to mean that those with higher incomes should face higher rates. However, fairness also

means that people in similar circumstances should be taxed in a similar way (horizontal equity). The tax system is also asked to meet other, often competing goals, such as simplicity, efficiency, revenue generation, and the granting of various concessions and incentives referred to as tax expenditures. The political process determines the appropriate balance.

A number of different tax rates can be examined. Nominal (statutory) tax rates are provided in legislation and are higher for higher incomes. The marginal tax rate applies to the last dollar of income. These rates are sensitive to the kind of income and the unit of analysis—individual or family. The effective tax rate (ETR) is simply the ratio of taxes paid to total income.

The more common approach to calculating the ETR is to divide the taxes paid by all filers in a group by their corresponding income. This method shows that 20.2% of all income goes for taxes. The second method is to calculate each filer's ETR and then average these individual rates. This results in lower effective tax rates, 12.2% overall.[12] In the first case, the effective tax rate is weighted by income, giving more significance to the tax rates paid by high-income Canadians. In the second case, each individual's rate has the same importance. This can be seen by the convergence of the two rates as income increases and group size declines (Chart E). The latter method is used in the rest of this analysis. Either way, however, shows a generally progressive structure of effective tax rates in Canada. From 11.4%, the rate climbs to 27.1%, 30.5%, 32.3%, before dipping marginally to 31.7% for the highest income group.

The ETRs may still seem low, averaging well under 20% overall and about 28% for the top 5%, especially when compared with the top statutory tax rate of 46% in Ontario in 1995. It is important, however, to keep in mind the difference between average and statutory marginal tax rates. ETRs are always lower because the income in the denominator has been taxed at a mixture of statutory rates, including an initial bracket, determined largely by personal tax credits, where the rate is essentially zero.

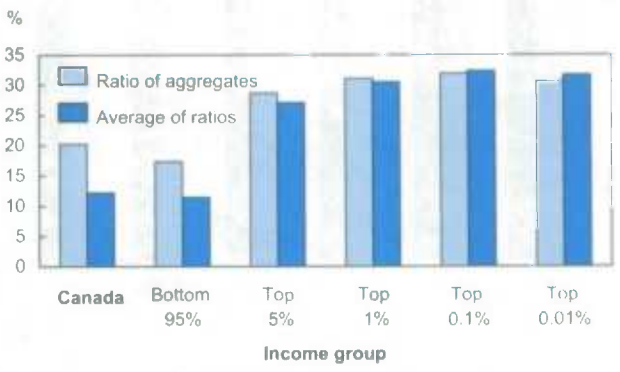
The distinction between marginal and average rates can be illustrated using the Social Policy Simulation Database and Model (Bordt et al. 1990). The tax and transfer system rules, rates and levels from each of the years 1984 to 2004 were applied to fixed populations of individual taxfilers and the results split into two income groups: the bottom 95% and the top 5%.[13]

For the bottom 95%, ETRs generally increased through the 1980s, remained roughly constant at just over 15% throughout the 1990s, and declined at the turn of the millennium, remaining steady through 2004. More fluctuation was evident in the high-income population because of high-income surtaxes and numerous changes to top federal tax brackets. They had a more pronounced rise in the mid-to-late 1980s, declining more sharply in 1988 with the introduction of tax reform, which reduced 10 brackets to 3 and converted many deductions to tax credits.

Marginal tax rates, in contrast, were estimated by simulating the incremental tax liability each individual would have incurred if their earnings had been increased by a small amount. The resulting marginal tax rates were then averaged across all filers within each income group. They are consistently at least 15 percentage points higher than the ETRs for the bottom 95%.[14] For high-income Canadians, the gap is naturally smaller at about 5% to 10%, as a greater proportion of income is subject to the top marginal rate. This gap has been shrinking as a result of the major tax reforms of 1998 and 2000/2001.

While the progressive structure of statutory income tax rates causes simulated marginal tax rates to rise with income, tax rates also vary significantly within a given income range. The group with the largest range is the top 0.01% where 90% of filers experience an ETR of between 9% and 46%. The filers in the 19th vingtile have the smallest spread, from 14% to 32%. This nar-

Chart E Effective individual income tax rates vary by method of calculation



Source: Statistics Canada, T1 Family File, 2004

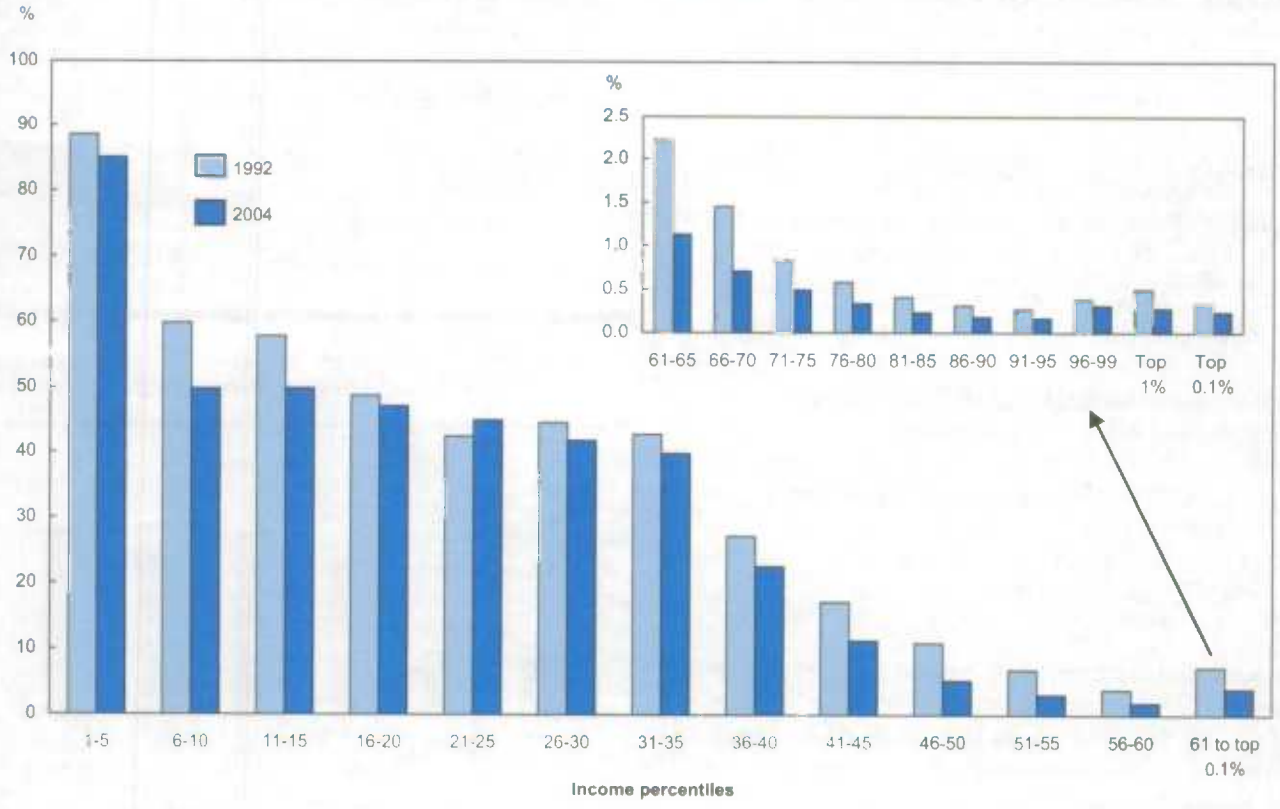
rower range of ETRs indicates a more homogeneous use of deductions and credits than any other income group among the top 60% of filers. Fully 5% of individuals with incomes in excess of $3.5 million paid effective tax rates of less than 10% after deductions and credits.

Over 85% of the 5% of Canadians with the lowest incomes in 2004 paid no income or payroll taxes (Chart F). While some individuals may have no income taxes payable, Employment Insurance and Canada or Quebec Pension Plan contributions may still be payable. The proportion paying no taxes drops sharply after the first vingtile but remains over 40% until the 35th percentile. It then drops quickly to below 1% approximately two-thirds of the way up the income distribution.

In the upper tail of the income distribution, a small increase in the proportion of filers paying no tax can be seen beginning with the top 5%. The proportion of filers paying no tax remains below 0.5%, and in the very highest income group, about 100 filers paid no tax. Tax deductions such as business losses and gifts to the Crown are responsible for a number of these situations. The proportion of filers reporting zero taxes declined at almost all income levels between 1992 and 2004.

While a very few high-income Canadians reduce their taxes to zero, far more have relatively high ETRs (Chart G). In 2004, 3% of individual taxfilers experienced ETRs in excess of 30%. Only 1% of non-high-income filers had ETRs greater than 30%, compared with 37% of those with high income. For the higher-income groups, this proportion rises to between 58%

Chart F The proportion of taxfilers paying zero taxes declined at almost all income levels



Source: Statistics Canada, T1 Family File

and 65%. While the overall proportion of high-income Canadians (the top 5%) with ETRs over 40% is 3%, almost one-third of those in the top 0.01% have ETRs over 40%. These filers expose enough income to the top marginal rate to essentially bring their average rate close to the marginal rate.

ETRs are determined by the interplay of the distribution of income by source and the structure of the tax and transfer system. Both of these changed between 1992 and 2004. The income share of the top 5% increased from 20% to 24% while tax rates fell, especially with the reforms of 2000/2001.[15] The 2004 ETRs are slightly lower than 1992 for all the income groups shown. However, for the top 0.01% of individuals, the mean tax rate dropped by a quarter, from 42% to 31% (Chart H).

For the top 0.01%, the mean ETR in 2004 was 74% of the 1992 ETR. Overall, high-income Canadians increased their income share by 21% from 1992 to 2004. Meanwhile the tax rate dropped from 31% to 29% (a 6% reduction), while the share of total taxes paid by high-income Canadians went from 31% to 36% (an 18% increase). The differences were larger for the highest income group with a 26% drop in the tax rate and a 57% increase in the share of taxes paid.

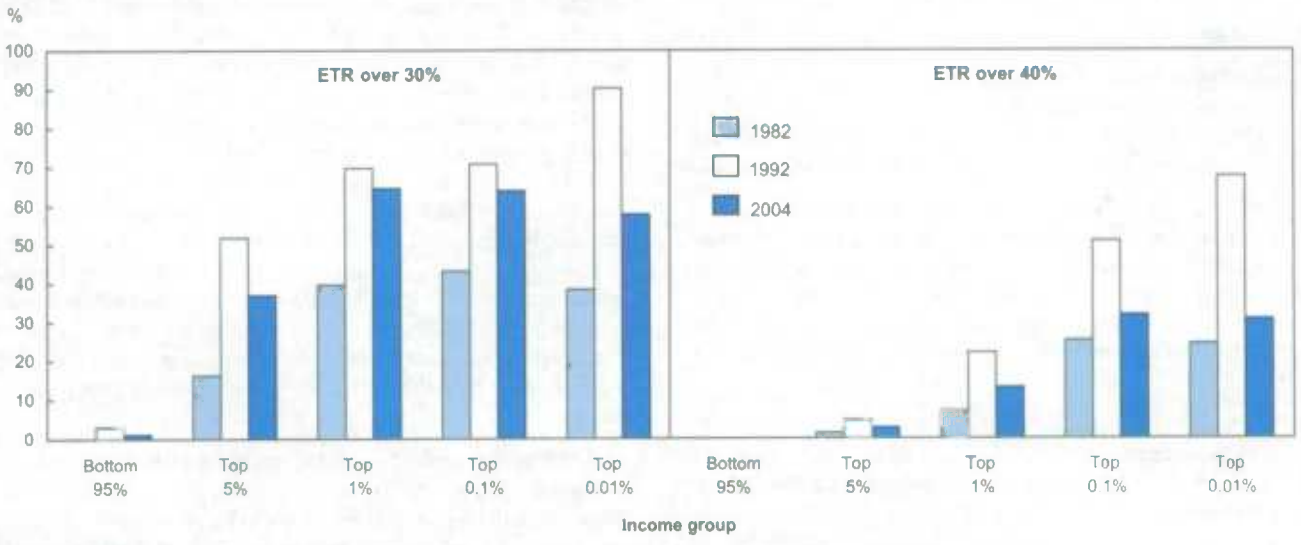
Conclusion

Some 5% of individual taxfilers had incomes of $89,000 or more in 2004. Regardless of the threshold used, incomes in the upper tail of the distribution as well as the share of total income increased substantially from 1992 to 2004. In contrast, individuals in the bottom 50% to 80% generally saw little improvement in constant dollar income.

Compared with the U.S., Canada had significantly fewer high-income recipients in 2004, and their incomes were considerably less. High-income Canadians increasingly receive more of their income from employment than from other sources.[16] Investment income has been a decreasing proportion, even among those with the highest incomes.

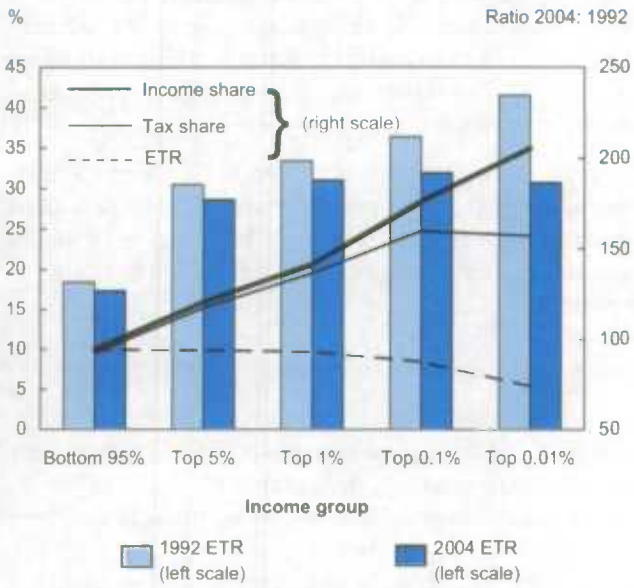
In line with their increasing share of total income, high-income Canadians have been paying an increasing share of total personal income taxes. As well, effective income tax rates are clearly higher in the higher-income groups, reflecting the progressive nature of the income tax system. But there is considerable heterogeneity in effective tax rates at the individual level. Effective rates vary widely across the income distribution as well as among individuals within the highest income group. Many in the top 0.01% of the distribution face an

Chart G High-income taxfilers more likely to face higher effective tax rates



Source: Statistics Canada, T1 Family File

Chart H For the top 0.01% of taxfilers, the mean ETR dropped by a quarter



Source: Statistics Canada, T1 Family File

effective tax rate of over 45%, while some pay as little as 10%. Interestingly, the proportion of taxfilers who pay zero taxes decreased between 1992 and 2004.

Perspectives

Notes

1 Whatever statistics for families are presented they include families of size one (usually referred to as unattached individuals or persons not in families). The incomes of families have not been adjusted with any equivalence scale.

2 Each year the CRA publishes tax statistics for taxfilers, including level of income, sources of income, and taxes paid. The $250,000 income level is not selected to conform to any particular governmental policy or regulation, but rather is chosen simply to represent a convenient measure of the highest level of income while protecting the confidentiality of individuals.

3 In contrast to the other nominal thresholds, this one is currently indexed to the CPI and refers to taxable income. In this it is more akin to an absolute low-income threshold, since virtually no low-income cut points fail to adjust at least for inflation.

4 These cut points are typically expressed in terms of percentiles, deciles, quintiles, quartiles, etc. An alternative relative threshold would be a level expressed as a multiple of a quantile, such as 10 times the median for a high-income threshold, similar to the more common half median used as a cut point for demarcating low income.

5 The T1 Family File provides information on individual taxfilers and families. For this study, each of these two groups is ordered from lowest to highest total income, and then divided into 10,000 equally sized quantiles, with corresponding dollar income thresholds for each. The total income associated with the change from one quantile to the next provides the dollar figure used to determine the value of any particular threshold. Except where noted, T1FF income figures include total capital gains and RRSP withdrawals.

6 There is an important caveat to this analysis of taxes paid. An unknown number of high-income individuals and families receive business income through a corporation, and may hold investments in corporations, trusts, or charitable foundations. These are used in sophisticated tax planning and are not considered in this analysis because of data limitations.

7 The U.S. data come from Piketty and Saez (2003), updated tables and figures.

8 This analysis of income sources following Saez and Veall (2003, 37) does not include other sources such as alimony, taxable social security benefits, or taxable Employment Insurance benefits. These are less important for high-income individuals. The total income variable in this paper does include them.

9 The change in aggregate income is represented by the ratio of 2004 income to 1992 income.

10 The SFS main sample consisted of approximately 21,000 dwellings. This area sample was a stratified, multi-stage sample selected from the Labour Force Survey sampling frame. The second portion of the sample, approximately 2,000 households, was drawn from geographic areas in which a large proportion of households had what was defined as high income. This sample was included to improve the quality of the estimates of net worth, as higher-income families tend to hold a disproportionate share of net worth. For purposes of this sample, the income cut-off was total family income of at least $200,000 or investment income of at least $50,000. The latter was used to take into account families that may not have high income from employment but who do have substantial assets that generate investment income.

11 The shares are calculated as the ratio of total income or taxes for each income group to total income or taxes for all Canadians. Total tax, federal plus provincial, includes repayment of social benefits and payroll taxes. Total income is reported on tax forms using *total* capital gains and dividend income plus the Child Tax

Credit and Sales Tax Credit. The Canada Revenue Agency publishes information on taxable capital gains and taxable dividend income. These have been adjusted to represent total income from these sources—that is, dividends are divided by 5/4 and capital gains by 3/4.

12 Some taxfilers report a negative income and some report taxes that exceed income. To control for the impact of such outliers and to preserve sample, tax rates were bounded between 0% and 100%.

13 The methodology employed shows the impact on tax rates of the changes to the tax system independent of business cycles and demographic change. The simulated average effective tax rates were roughly the same as those calculated using the T1FF data.

14 They are slightly lower than maximum combined federal plus provincial statutory rates in the tax system because they have been averaged across filers with different levels of income and deductions.

15 The level at which the highest federal tax rate starts to be paid increased to $100,000 from $60,000, and the lowest rate dropped from 17% to 16%. Provincial governments moved to their own rate schedules.

16 This agrees with the findings of Saez and Veall (2003).

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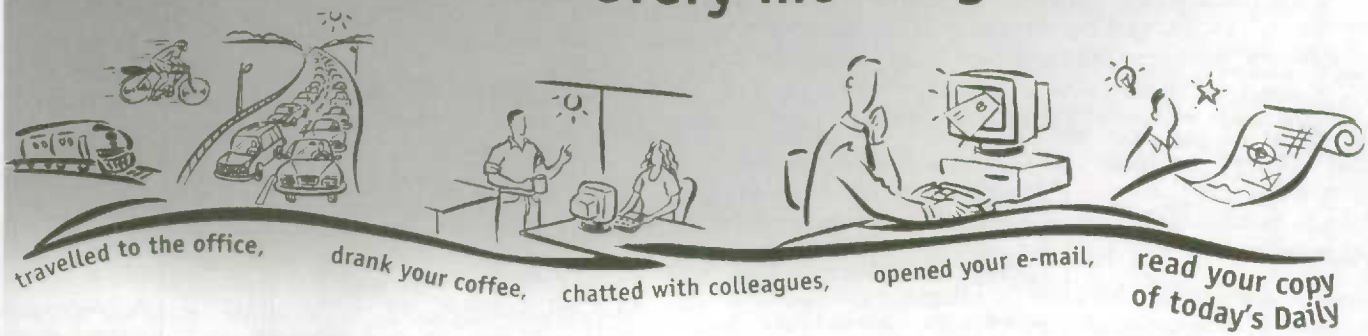

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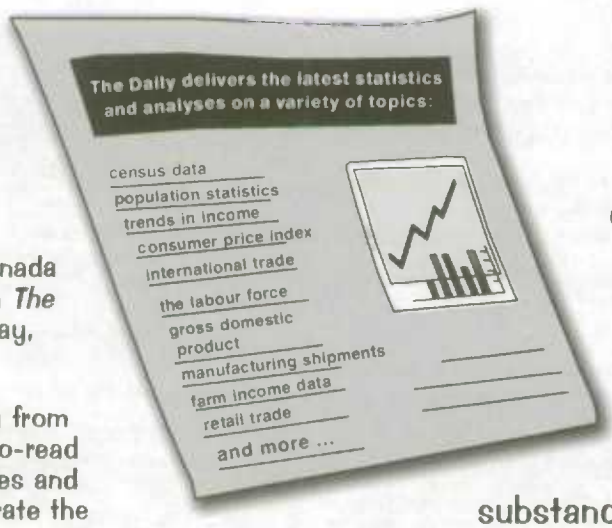

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Spending patterns in Canada and the U.S.

Raj K. Chawla

In addition to sharing a border, Canada and the United States share many demographic and economic characteristics. For instance, both have aging populations, the median age in 2005 reaching 38.0 in Canada and 35.9 in the U.S. In that year, two-thirds of each country's working-age population was in the labour force, and unemployment was low at 6.8% in Canada and 5.1% in the U.S. Persons 65 and over accounted for 13.1% of the population in Canada compared with 12.3% in the U.S. And in both countries, the majority lived in conventional two-spouse households.

While the business cycle and economic integration by way of NAFTA have varied to some degree in Canada and the U.S., both countries have moved from a high-interest environment in the early 1980s to a low-interest one in the 2000s. At the same time, consumer spending rose as a percentage of economic activity (from 52.8% to 58.9% in Canada and from 61.4% to 70.0% in the U.S.), causing the personal savings rate to fall.[1]

On average, income and spending change in predictable patterns as people age. Young people earn less and borrow to pay for houses and possessions. Through the middle years, work experience brings a rise in income, which along with increased family size spurs spending. Income tends to peak for workers in their 50s and spending declines as mortgages are paid off and the nest empties, leaving greater potential for savings. Retirement signals a reduction in income but also in spending as employment-related expenses disappear. While these general patterns hold in most advanced economies, they can vary from country to country and change over time. This article compares household spending in Canada and the U.S. between the early 1980s and 2003.[2]

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Households are grouped by age of the reference person in order to compare spending in peak income years and after retirement. All money figures are in 2003 Canadian dollars (see *Data sources and definitions*). Seven categories of expenditure are used: food, housing, clothing, transportation, health, recreation, and 'other.' Since the means are based on two cross-sectional sources, an increase over time for a given component implies that households spent more in 2003 than their counterparts spent in the early 1980s.

Little difference in the demographics of households in Canada and the U.S.

Between the early 1980s and 2003, Canadian households aged slightly more than their U.S. counterparts. In Canada, the median age of the reference person rose from 42.9 in 1982 to 47.9 in 2003, while in the U.S. it went from 43.5 to 46.9 between 1984 and 2003 (Table 1). In 2003, the proportions of households with a reference person 75 and over were fairly close—9.3% in Canada, 9.9% in the U.S. On the other hand, the proportion of young households (under 35) was higher in the U.S. by 4.3 percentage points.

The average Canadian household was a little larger than its American counterpart in the early 1980s, but by 2003 it was the same size—2.5 persons. In both countries, household size peaked in the 35-to-44 age group (3.2) and then dropped as the age of the reference person increased, reaching 1.5 for elderly households (75 and over).

The rate of homeownership was similar in both countries for households in the 15-to-54 age range, but the gap widened for older groups in favour of the U.S.—from 6 or 7 percentage points for those in the 55-to-64 group to 13 or 14 points for the 75-and-over group in 2003. The rate of homeownership has increased in both countries over the last 25 years, leaving the overall gap virtually unchanged. Nonetheless, downsizing with advancing age was evident in both countries as the rate of homeownership dipped after age 65.

Table 1 Demographics of households

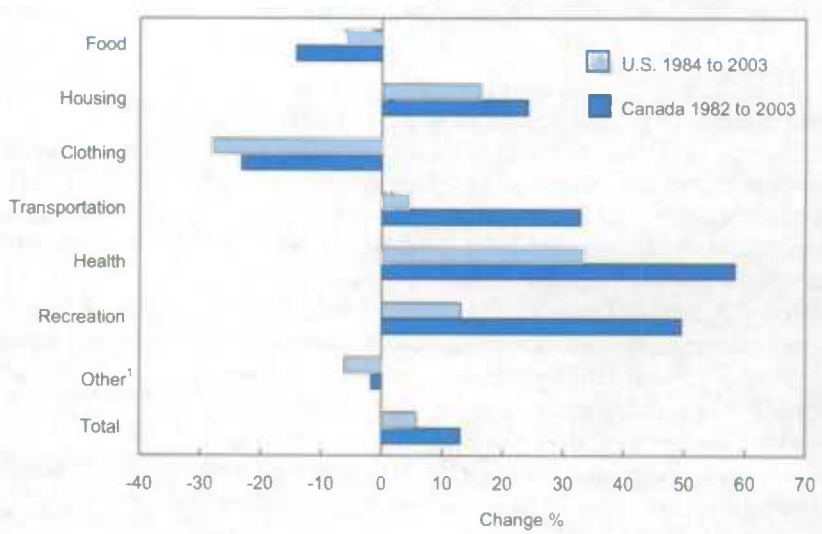
	Households				Average household size				Own home			
	Canada		United States		Canada		United States		Canada		United States	
	1982	2003	1984	2003	1982	2003	1984	2003	1982	2003	1984	2003
	'000				Persons				%			
Total	**8,410**	**12,033**	**90,223**	**115,356**	**2.8**	**2.5**	**2.6**	**2.5**	**60.7**	**65.8**	**62.0**	**67.0**
Reference person	%				Persons				%			
Under 25	6.5	3.5	9.8	7.3	2.0	2.1	1.8	1.8	12.1	16.4	12.0	15.0
25 to 34	25.5	16.6	22.2	17.1	2.8	2.6	2.8	2.9	46.7	49.0	48.0	48.0
35 to 44	20.4	22.8	19.0	21.2	3.7	3.2	3.4	3.2	71.0	68.5	69.0	69.0
45 to 54	15.8	22.2	14.4	20.1	3.2	2.8	3.1	2.6	75.8	72.4	77.0	76.0
55 to 64	14.3	15.5	14.8	14.4	2.4	2.2	2.5	2.1	72.4	75.9	80.0	82.0
65 to 74	11.2	10.1	11.9	10.0	1.8	1.8	1.9	1.9	68.3	75.7	77.0	83.0
75 and over	6.3	9.3	7.9	9.9	1.5	1.5	1.6	1.5	56.7	64.0	69.0	78.0
	Years											
Median age	42.9	47.9	43.5	46.9	...	...	...	...	...	...	...	...

Sources: Statistics Canada, Family Expenditure Survey and Survey of Household Spending; U.S. Bureau of Labor Statistics, Consumer Expenditure Survey

Housing tops the expenditure list

In both the early 1980s and 2003, households in both countries allocated one-third of their spending dollar to housing and another one-fifth to transportation.[3] The third principal component was food, which accounted for another 15 to 21 cents. These three components made up 71 cents of each spending dollar in the early 1980s compared with around 75 cents in 2003 (Table 2). In both periods, households spent 17 cents per dollar on clothing, recreation and entertainment, and health. Overall spending patterns did not change drastically—Canadian households spent only 9 cents of their consumer dollar differently in 2003 than in the 1980s, their U.S. counterparts just 5 cents. However, with Canadian households spending relatively more, patterns in the two countries had become more similar by 2003.

Chart A Consumer spending on health showed the greatest increase in both countries



1 Personal care, reading materials, education, tobacco products and alcoholic beverages, gifts and contributions, and miscellaneous.

Sources: Statistics Canada, Family Expenditure Survey and Survey of Household Spending; U.S. Bureau of Labor Statistics, Consumer Expenditure Survey

Table 2 Consumer expenditure of households

		Age of reference person						
	Total	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and over
Canada				CAN$ 2003				
1982	**37,700**	**32,200**	**39,600**	**47,100**	**46,600**	**34,200**	**23,000**	**16,700**
				%				
Housing	33.9	33.1	36.8	33.9	30.2	30.7	35.9	42.3
Transportation	16.2	17.6	15.3	15.1	17.2	18.7	16.6	11.7
Food	20.5	17.2	18.8	20.8	21.0	21.6	23.0	24.7
Clothing	8.2	8.5	7.8	8.8	9.1	7.7	6.6	6.1
Recreation	6.2	7.0	6.3	6.9	6.3	5.3	4.8	3.3
Health	2.6	2.0	2.3	2.5	2.8	3.0	2.8	3.1
Other[1]	12.5	14.4	12.7	12.0	13.4	13.0	10.4	8.8
				CAN$ 2003				
2003	**42,700**	**32,200**	**42,600**	**49,300**	**51,600**	**43,300**	**30,200**	**21,700**
				%				
Housing	37.3	34.3	40.2	39.2	35.4	34.0	35.6	43.5
Transportation	19.0	17.8	18.4	18.0	19.7	21.6	19.4	13.6
Food	15.5	14.9	14.5	15.3	15.1	15.4	17.7	18.7
Clothing	5.6	6.0	5.6	5.7	6.0	5.6	4.9	3.8
Recreation	8.2	8.8	8.9	8.6	8.1	7.9	7.2	5.1
Health	3.6	2.3	2.6	3.0	3.5	4.3	5.5	6.8
Other[1]	10.9	16.0	9.8	10.2	12.2	11.1	9.7	8.5
United States				CAN$ 2003				
1984	**41,500**	**26,900**	**42,700**	**52,800**	**53,000**	**43,000**	**31,000**	**21,600**
				%				
Housing	34.5	29.8	36.0	35.6	32.4	33.5	33.9	39.7
Transportation	22.2	26.4	23.0	20.8	24.0	22.4	20.7	14.0
Food	17.0	16.6	15.7	17.5	17.5	17.3	17.8	17.2
Clothing	6.8	7.5	6.9	7.7	6.6	6.7	6.1	4.3
Recreation	5.4	5.2	6.0	6.1	5.1	5.3	4.1	3.7
Health	5.4	3.0	3.7	4.0	5.0	6.2	10.3	14.9
Other[1]	8.7	11.6	8.6	8.5	9.4	8.7	7.0	6.3
				CAN$ 2003				
2003	**43,900**	**25,600**	**44,200**	**50,500**	**52,600**	**46,900**	**37,200**	**27,600**
				%				
Housing	37.9	34.4	40.4	39.5	36.8	36.3	35.9	39.0
Transportation	22.0	22.6	22.7	21.8	23.0	23.0	20.1	16.3
Food	15.1	16.5	14.9	15.4	15.0	14.6	15.2	14.4
Clothing	4.6	5.4	5.2	5.1	4.6	4.1	4.0	2.7
Recreation	5.8	4.6	5.5	6.2	5.7	6.4	6.7	4.1
Health	6.8	2.6	4.1	5.2	5.8	8.1	12.1	17.3
Other[1]	7.7	13.9	7.1	6.7	9.0	7.5	6.1	6.1

1 Personal care, reading materials, education, tobacco products and alcoholic beverages, gifts and contributions, and miscellaneous.
Sources: Statistics Canada, Family Expenditure Survey and Survey of Household Spending; U.S. Bureau of Labor Statistics, Consumer Expenditure Survey

Households in both Canada and the U.S. spent much more on housing, transportation, health, and recreation in 2003 than in the early 1980s, and less on food and clothing (Chart A). (The relatively larger growth in expenditures on transportation and recreation in Canada was partly due to the addition in 2003 of subcategories such as leasing and rental of vehicles under transportation, and packaged tours under recreation.) In contrast, inter-country differences in the rates of decline in expenditures on food and clothing were quite small.

Mean consumer expenditure drops as households move from their peak income years (45 to 54) through their elder years (75 and older) (Chart B). In Canada,

Data sources and definitions

Data for Canada were taken from the 1982 **Family Expenditure Survey** and the 2003 **Survey of Household Spending**. Even though many improvements in survey content, collection and processing have been introduced over the years, the core classification of total expenditure by components has remained unchanged. To reduce response burden, the 2003 survey included 425 questions compared with 625 in 1982. Both surveys used personal interviews. For more details, see Statistics Canada (1984, 2000, and 2005).

Data for the United States are from the 1984 and 2003 **Consumer Expenditure Survey** (CES), conducted by the U.S. Census Bureau for the Bureau of Labor Statistics. Data are collected in two parts: a diary, or recordkeeping survey completed by participating respondents over two consecutive weeks; and an interview survey, in which expenditures are obtained in five interviews conducted at three-month intervals (BLS, 2005, p.4). The diary captures expenses on small and frequently purchased items, whereas the interview survey collects details that consumers can reasonably recall for a period of three months or longer.

Total expenditure
Despite differences in collection, the basic framework and broad components of total expenditure in the two countries are fairly comparable. In Canada, it represents the sum of current consumer expenditure, contributions for security, other cash gifts and contributions, and personal income tax. In the U.S., it is the sum of the first three components only. The exclusion of income tax in the U.S. is due to the relatively weaker and nationally non-representative data on pre-tax income and income tax collected by the CES. Given such data limitations, any link between households' incomes and expenditures could not be compared; the focus is strictly on consumer expenditure as used by CES in the U.S.

Expenditures are transaction costs for goods and services consumed during a given reference year, including customs and excise taxes; federal, state (provincial) and local sales taxes; and other duties. Expenditures are out-of-pocket expenses as well as those for which payments were still to be made (for example, items purchased on credit or buy-now-pay-later plans). All expenditures are net of trade-in amounts. Items purchased for business purposes were excluded.

Current consumer expenditure comprises expenditures for food, shelter, household operation, furnishings and equipment, clothing, transportation, health, personal care, recreation, reading and printed materials, education, tobacco products and alcoholic beverages, and miscellaneous. For details, see Statistics Canada (1984, 2005) and BLS (2005). For this article, these 13 broad components have been collapsed into 7: housing, transportation, food, clothing, recreation, health, and the rest, primarily because the first 6 account for around 90% of total consumer expenditure (also referred to as total consumer spending). Since expenditures on housing, transportation, and health have risen over time in both Canada and the U.S., changes in these components are further studied in terms of their sub-components.

Housing expenditures include mortgage payments on an owner-occupied home, property tax, rent, maintenance, repairs, insurance, other property-related expenses, utilities (fuel, water, and electricity), expenditures on a vacation home, hotel or motel accommodation, household operation, furnishings, and equipment. In the 1982 Family Expenditure Survey, mortgage interest was included under shelter costs, while the principal was included under net changes in assets and debts.

Transportation costs cover private and public transportation. The former includes net outlay for vehicle purchases, rental, leases, licences and other charges, operation of owned or leased vehicles, and vehicle insurance.

Health expenditure includes all out-of-pocket costs for medical supplies and services and drugs, and premiums for health insurance.

A **household** consists of a person living alone or a group of persons occupying one dwelling unit (also treated as a consumer unit). The number of households, therefore, equals the number of occupied dwellings.

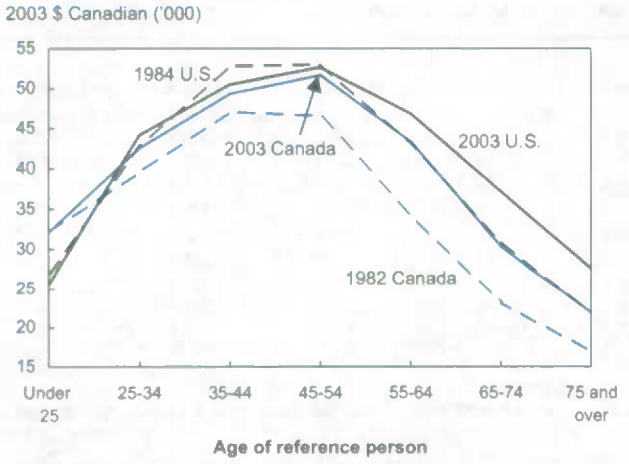
Households are classified by **age of head/reference person** to highlight how spending patterns change with age. Despite some differences, head (the concept used in 1982 in Canada) and reference person are used here synonymously. The husband was treated as the head in families consisting of couples with or without children, as was the parent in lone-parent families, and normally the eldest in all other families. On the other hand, the reference person was chosen by the household member being interviewed as the person mainly responsible for the financial maintenance of the household.

For both Canada and the U.S., data were first converted to 2003 dollars in their respective currencies. While the prices of all goods and services may not have risen at the same pace as the all-items CPI, the use of one conversion factor simplifies the analysis as it keeps the initial ranking of expenditure by components intact (Snider 2005). Then, to facilitate inter-country comparison of mean spending, all U.S. money data were converted into Canadian dollars using the GDP purchasing power parities (PPP) for 1984 and 2003 (see the OECD Web site at www.oecd.org/std/ppp). PPPs eliminate differences in price levels between countries.

A shift in consumer spending by component is quantified by an **index of differentiation**: $(\Sigma|P_{C,i} - P_{U,i}|)/2$, where $P_{C,i}$ and $P_{U,i}$ represent cents spent on component i in Canada and the U.S., and the summation is taken over all components of spending. This index shows the difference in two percentage distributions of spending, or put another way, the percentage points required to make the two distributions similar. This index can also be used to quantify a shift over time.

Average expenditure by item is obtained by dividing the aggregate amount for that item by total number of households rather than the number reporting that item. Per capita expenditure is the average expenditure divided by the average household size.

Chart B Consumer expenditure peaks in middle age



Sources: Statistics Canada, Family Expenditure Survey and Survey of Household Spending; U.S. Bureau of Labor Statistics, Consumer Expenditure Survey

it fell by 64% in 1982 and 58% in 2003. For households in the U.S., on the other hand, the corresponding drops were 59% in 1984 and 48% in 2003. While the inter-country gap in mean spending narrowed over time—more for households in their peak income years than for the elderly—the spending of elderly households increased more in the U.S. than in Canada.

In both the early 1980s and 2003, the elderly used about 40 cents of their spending dollar for housing. The rest was spent somewhat differently in the two countries—Canadians more on food and clothing, their U.S. counterparts more on transportation and health. Although spending on health increased among the elderly in both countries (from 3 to 7 cents in Canada and from 15 to 17 cents in the U.S.), those in Canada benefited from universal health care as well as provincially subsidized drug plans. Inter-country differences in elderly spending patterns remained almost unchanged—13.2 percentage points in 2003 compared with 14.5 points in the early 1980s, with differences largely attributable to U.S. spending on transportation, health, and food.

Like elderly households, those in their peak income years spent around one-third of every dollar on housing. The remainder was spent differently in the two countries, but the differences narrowed over time (from an index of differentiation of 11.2 percentage points in the early 1980s to 7.2 points by 2003), largely because Canadian households increased their spending on housing, transportation, and health.

Expenditure on housing

In 2003, 67% of American and 66% of Canadian households owned a home, with 30 to 43 cents of their spending dollar going toward shelter costs, household operation, and furnishings and equipment. Housing expenditures reached their peak in the 35-to-44 age group, whereas pre-tax income and overall consumer expenditure peaked in the 45-to-54 group. Between the early 1980s and 2003, mean spending on housing rose from $12,800 to $15,900 for Canadians and from $14,300 to $16,700 for Americans (Table 3).

In both countries, shelter alone accounted for 70% to 72% of total housing costs; the rest was attributed to household operation, furnishings and equipment. Regular mortgage payments were the major component for households in the 25-to-54 group. For elderly households, on the other hand, property taxes and maintenance and repairs accounted for most of the spending on owned quarters. The elderly, most of whom live in mortgage-free homes, spent about half the amount of those in their peak income years.

Households with a reference person under 25, who were mostly renters in both countries, spent the largest proportion on rent—45 cents of their housing dollar in 2003 in Canada and 51 cents in the U.S. Since homeownership rises with age until main income earners reach their mid-60s, rent expenditures fall in inverse proportion. The proportion spent on rent rises in later years as some of the elderly move to rental accommodation. This appears to be more prevalent in Canada, while more elderly Americans continue to live in owned homes.

Canadians spend more on public transportation

Like housing, the rate of vehicle ownership was higher in the U.S. than in Canada—88% versus 78% in 2003. While the overall gap widened from the early 1980s, it narrowed for the elderly as their ownership rate rose more in Canada (Table 4). The rate varied by age, attaining its highest value for those in the 45-to-54 age group in the U.S. (92%), but for those in the 55-to-64 group in Canada (83%) in 2003. Irrespective of age,

Table 3 Spending on housing

	Total	Age of reference person						
		Under 25	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and over
Canada				CAN$ 2003				
1982	**12,800**	**10,700**	**14,600**	**15,900**	**14,100**	**10,500**	**8,300**	**7,100**
				%				
Shelter	68.6	67.5	68.2	68.6	67.6	68.2	71.1	74.6
Owned	32.3	9.8	32.4	39.6	34.7	30.1	26.6	20.7
Mortgage	15.9	6.0	21.3	22.9	14.3	6.9	2.6	0.7
Property tax	7.8	1.1	5.0	7.9	9.9	11.8	11.3	10.5
Maintenance	8.6	2.7	6.2	8.8	10.5	11.4	12.8	9.6
Rented	18.4	48.0	22.8	11.9	11.2	13.7	20.0	32.2
Other accommodation	3.9	2.1	2.6	3.8	5.9	5.7	4.3	2.9
Utilities	13.9	7.6	10.4	13.3	15.8	18.7	20.1	18.8
Household operation	17.1	15.8	17.4	17.5	16.6	17.4	16.7	16.1
Furnishings/equipment	14.3	16.6	14.4	13.9	15.8	14.4	12.3	9.3
				CAN$ 2003				
2003	**15,900**	**11,000**	**17,100**	**19,300**	**18,300**	**14,700**	**10,800**	**9,400**
				%				
Shelter	71.4	70.3	71.2	71.4	71.6	70.4	71.2	74.4
Owned	39.7	15.1	37.9	44.5	43.4	39.0	33.0	25.7
Mortgage	22.0	9.4	25.5	28.5	24.8	16.6	7.1	2.6
Property tax	8.3	2.3	5.1	7.3	8.4	11.0	14.0	11.9
Maintenance	9.4	3.4	7.3	8.7	10.2	11.4	11.9	11.2
Rented	15.4	45.1	22.1	12.5	11.1	10.9	15.2	27.7
Other accommodation	4.1	2.0	2.5	3.5	5.0	5.9	5.3	3.4
Utilities	12.1	8.0	8.7	10.9	12.0	14.6	17.7	17.5
Household operation	17.5	17.9	16.9	18.1	17.0	17.7	18.1	17.7
Furnishings/equipment	11.1	11.8	11.9	10.5	11.5	11.9	10.8	8.0
United States				CAN$ 2003				
1984	**14,300**	**8,000**	**15,400**	**18,800**	**17,200**	**14,400**	**10,500**	**8,600**
				%				
Shelter	70.3	72.1	71.5	71.1	68.6	67.6	70.3	72.1
Owned	30.9	12.3	31.4	36.2	33.6	30.4	25.7	23.4
Mortgage	18.7	9.6	24.2	26.6	20.3	11.4	5.0	2.8
Property tax	6.3	1.0	3.4	5.0	7.0	10.7	10.5	9.8
Maintenance	5.8	1.7	3.7	4.5	6.3	8.4	10.1	10.8
Rented	16.0	43.3	22.5	13.4	9.3	9.4	11.4	19.5
Other accommodation	5.3	5.1	3.2	5.3	6.6	6.6	7.8	3.6
Utilities	18.0	11.3	14.3	16.2	19.2	21.2	25.4	25.6
Household operation	15.8	14.6	16.0	14.7	15.6	15.7	18.1	19.3
Furnishings/equipment	13.9	13.3	12.5	14.1	15.7	16.7	11.6	8.6
				CAN$ 2003				
2003	**16,700**	**8,800**	**17,800**	**20,000**	**19,400**	**17,000**	**13,300**	**10,800**
				%				
Shelter	72.5	74.5	72.9	72.8	73.1	70.6	71.7	72.7
Owned	39.2	10.8	33.6	43.1	44.1	42.1	40.0	31.4
Mortgage	22.0	6.3	23.4	28.2	26.2	20.0	12.5	4.0
Property tax	10.0	3.2	6.3	9.2	10.4	12.9	13.7	15.3
Maintenance	7.2	1.2	3.8	5.7	7.6	9.2	13.8	12.1
Rented	16.2	50.6	26.6	14.4	10.6	8.6	9.7	18.7
Other accommodation	3.3	3.0	1.7	2.6	4.4	4.5	3.9	3.4
Utilities	13.8	10.0	11.0	12.7	13.9	15.4	18.1	19.3
Household operation	16.3	15.1	16.2	16.4	15.4	16.1	17.3	19.7
Furnishings/equipment	11.1	10.4	10.9	10.8	11.5	13.4	11.0	7.6

Sources: Statistics Canada, Family Expenditure Survey and Survey of Household Spending; U.S. Bureau of Labor Statistics, Consumer Expenditure Survey

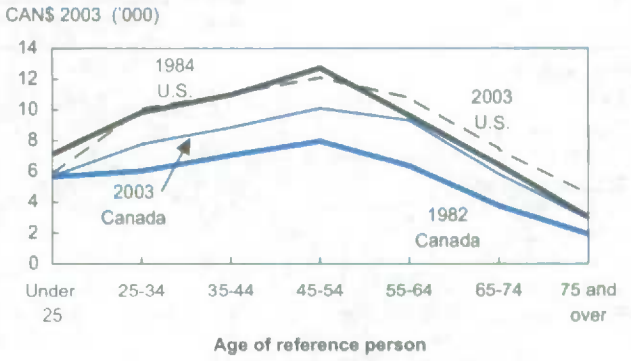
households in Canada spent less on transportation (Chart C). The elderly in both countries sharply increased their spending on private transportation from the early 1980s to 2003, more than offsetting declines in public transportation expenditures.

Canadians spent more than Americans on public transportation and its use became more extensive in retirement (when fewer households owned a vehicle). In their peak income years, Canadian households spent 8 cents of each transportation dollar on public transportation in 2003 while the elderly spent 11 cents; in the U.S., both spent around 5 cents.

Spending on health has risen in both Canada and the U.S.

Between the early 1980s and 2003, household spending on health increased from $1,000 to $1,500 in Canada and from $2,200 to $3,000 in the U.S. (Table 5). The gap in out-of-pocket spending on health narrowed slightly but remained large, reflecting differences in the health care systems of each country. Prescription drug expenditures grew by 112% in Canada compared with 62% in the U.S. Nevertheless, Canadian households aged 25 and over continued to pay less than Americans. Over the same period, health insurance premiums increased from one-third to one-half of health expenditures for an American household.

Chart C Canadians generally spend less on transportation



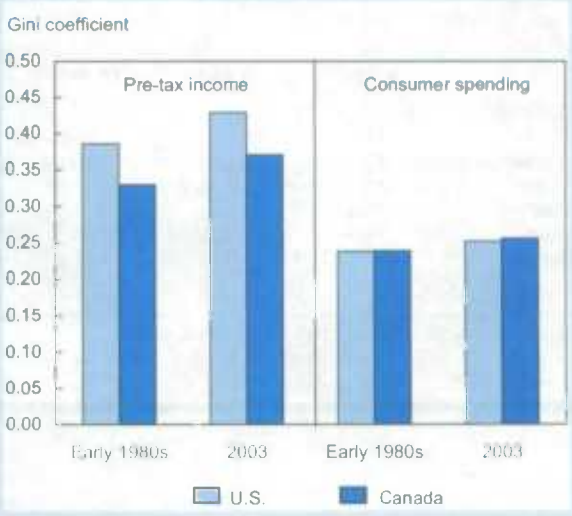
Sources: Statistics Canada, Family Expenditure Survey and Survey of Household Spending; U.S. Bureau of Labor Statistics, Consumer Expenditure Survey

Income and spending inequality

In both Canada and the U.S., consumer spending is more equally distributed than pre-tax income, largely because the former is less sensitive to transitory business and economic conditions. Lower spending inequality may also be attributed to basic thresholds households need to maintain for housing, transportation, food, clothing, or health (depending on the number and age of members). Pre-tax income remained more unequally distributed in the U.S. in 2003, whereas the inequality in consumer spending was fairly stable.[4] Using the Gini coefficient as a measure of inequality, spending inequality was about 40% less than income inequality in Canada compared with 46% in the U.S.

Even though pre-tax income inequality rose by about 12% in both countries between the early 1980s and 2003, spending inequality increased only around 7%. One of the key factors was the use of credit for consumption purposes. Households in both countries have liberal access to credit through credit cards and home equity loans. As a result, they had more personal debt liability in 2003 than at the beginning of the 1980s (see note 1).

The decomposition of overall spending inequality shows that expenditure on housing was the major contributor to inequality in both countries, followed by transportation.



Of the total spending inequality in the 1980s, these two components alone accounted for 49% in Canada and 58% in the U.S.; by 2003, their relative shares had increased to 56% and 62% respectively.

Table 4 Spending on transportation

	Total	Age of reference person						
		Under 25	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and over
Canada								
					CAN$ 2003			
1982	**6,100**	**5,700**	**6,100**	**7,100**	**8,000**	**6,400**	**3,800**	**2,000**
					%			
Owned/leased a vehicle	80.0	69.9	85.6	89.4	87.9	79.7	66.5	41.2
Private transportation	90.5	89.8	91.1	91.8	89.9	90.3	89.2	80.2
Purchase	30.3	31.1	28.1	30.9	31.9	30.6	32.1	21.9
Rent/lease[1]	..	..	..	..	..	..	..	..
Operation	48.5	46.9	51.6	49.8	46.2	47.3	44.7	45.4
Insurance	11.7	11.9	11.5	11.1	11.8	12.3	12.3	13.0
Public transportation	9.5	10.2	8.9	8.2	10.1	9.7	10.8	19.8
					CAN$ 2003			
2003	**8,100**	**5,700**	**7,800**	**8,900**	**10,200**	**9,400**	**5,900**	**3,000**
					%			
Owned/leased a vehicle	78.3	60.8	75.9	82.5	81.4	83.3	78.7	62.8
Private transportation	91.4	87.0	90.5	91.3	91.5	93.0	92.2	89.0
Purchase	34.5	36.4	33.7	34.2	34.0	38.4	32.4	26.4
Rent/lease[1]	7.8	4.2	8.7	8.0	8.5	7.1	7.1	5.0
Operation	35.2	30.9	34.4	35.8	35.1	34.4	37.1	40.4
Insurance	13.9	15.5	13.8	13.3	13.9	13.1	15.6	17.1
Public transportation	8.6	13.0	9.5	8.7	8.5	7.0	7.8	11.0
United States								
					CAN$ 2003			
1984	**9,200**	**7,100**	**9,800**	**11,000**	**12,700**	**9,600**	**6,400**	**3,000**
					%			
Owned/leased vehicle	85.0	68.0	88.0	91.0	92.0	90.0	81.0	60.0
Private transportation	94.1	96.3	94.9	94.4	94.7	93.1	91.4	86.0
Purchase	42.1	49.3	46.6	39.2	42.7	40.4	37.6	25.8
Rent/lease[1]	3.1	2.4	3.2	3.7	3.0	2.9	2.7	2.9
Operation	40.7	38.5	38.3	43.2	40.9	40.8	41.5	43.3
Insurance	8.1	6.2	6.7	8.3	8.1	9.1	9.6	14.0
Public transportation	5.9	3.7	5.1	5.6	5.3	6.9	8.6	14.0
					CAN$ 2003			
2003	**9,600**	**5,800**	**10,100**	**11,000**	**12,100**	**10,800**	**7,500**	**4,500**
					%			
Owned/leased a vehicle	88.0	71.0	89.0	91.0	92.0	91.0	87.0	76.0
Private transportation	95.1	96.0	95.8	95.4	95.1	94.3	93.8	93.8
Purchase	48.0	47.9	48.5	47.9	47.4	49.4	46.1	47.5
Rent/lease[1]	5.6	4.7	6.1	5.5	5.6	5.6	5.7	4.7
Operation	29.9	32.6	30.0	30.8	29.8	28.5	30.1	26.2
Insurance	11.6	10.8	11.2	11.2	12.3	10.7	12.0	15.3
Public transportation	4.9	4.0	4.2	4.6	4.9	5.7	6.2	6.2

1 In 1982, data on this component was not collected.
Sources: Statistics Canada, Family Expenditure Survey and Survey of Household Spending; U.S. Bureau of Labor Statistics, Consumer Expenditure Survey

In the U.S., out-of-pocket spending on health increases steadily with age. In Canada, households with a reference person aged 55 to 64 spent the most. The inter-country gap in health spending was largest among the elderly. However, between the early 1980s and 2003, spending on health by the elderly grew faster in Canada (3 times) than in the U.S. (1.5 times), narrowing the gap somewhat.

Table 5 Spending on health

	Total	Age of reference person						
		Under 25	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and over
Canada				CAN$ 2003				
1982	**1,000**	**600**	**900**	**1,200**	**1,300**	**1,000**	**600**	**500**
				%				
Direct costs	63.6	58.5	58.4	62.0	63.8	63.7	80.5	79.7
Medical supplies and services	43.7	38.4	40.0	44.2	45.5	40.4	53.5	55.3
Drugs	19.9	20.1	18.4	17.9	18.2	23.3	27.0	24.4
Health insurance premiums	36.4	41.5	41.6	38.0	36.2	36.3	19.5	20.3
				CAN$ 2003				
2003	**1,500**	**700**	**1,100**	**1,500**	**1,800**	**1,900**	**1,700**	**1,500**
				%				
Direct costs	66.7	69.4	60.8	64.4	66.1	65.1	72.1	78.6
Medical supplies and services	40.1	43.1	40.2	42.4	42.5	37.0	34.2	40.6
Drugs	26.6	26.3	20.6	22.0	23.7	28.2	37.9	38.0
Health insurance premiums	33.3	30.5	39.2	35.6	33.9	34.9	27.9	21.4
United States				CAN$ 2003				
1984	**2,200**	**800**	**1,600**	**2,100**	**2,700**	**2,700**	**3,200**	**3,200**
				%				
Direct costs	64.7	71.2	66.6	69.1	68.4	63.9	56.0	62.1
Medical supplies and services	48.8	56.1	53.5	55.3	53.9	46.3	37.5	43.1
Drugs	15.9	15.1	13.1	13.7	14.5	17.6	18.5	19.0
Health insurance	35.3	29.1	33.2	31.0	31.6	36.1	44.0	37.9
				CAN$ 2003				
2003	**3,000**	**700**	**1,800**	**2,600**	**3,100**	**3,800**	**4,500**	**4,800**
				%				
Direct costs	48.2	48.7	44.8	47.3	53.0	48.6	45.6	47.3
Medical supplies and services	28.9	30.4	31.1	33.0	34.5	28.1	22.4	22.1
Drugs	19.3	18.3	13.8	14.3	18.5	20.5	23.1	25.2
Health insurance	51.8	51.5	55.2	52.7	47.0	51.4	54.4	52.7

Sources: Statistics Canada, Family Expenditure Survey and Survey of Household Spending; U.S. Bureau of Labor Statistics, Consumer Expenditure Survey

Summary

Compared with the early 1980s, households in 2003 in both Canada and the United States spent proportionately more on housing, transportation and health, and less on food and clothing. While the market value of homes accelerated over this period, so did the cost of furnishings, rent, household operation, and property taxes. Similarly, vehicle costs were up in 2003. An increase in health expenditures was due to the rising costs of prescribed drugs and other medical services for households in Canada and to rising health insurance premiums in the U.S.

Overall, the spending patterns of households in Canada and the U.S. were more similar in 2003 than in the early 1980s, largely because of changes in the spending patterns of Canadians. For example, Canadian households spent 11% less than Americans on housing in the early 1980s but only 4% less by 2003. Similarly the gap in transportation expenditures narrowed from 34% to 17%. Because of universal health care, households in Canada continued to spend much less on health, although the gap narrowed from 56% in the 1980s to 48% in 2003.

Households in both countries reached their maximum spending in their peak income years, age 45 to 54, after which both income and spending began to slide. Spending patterns were more alike for households in the 45-to-54 group than for those 75 and over. The elderly in both countries improved their shares of total spending, largely because of improved levels of income. More elderly lived in owned homes and drove owned vehicles in the United States, while their counterparts in Canada spent more on public transportation.

Spending patterns evolve over time and are affected by many things, including business cycles and changes in demographics. While economic integration and the ascendance of consumer spending may be eroding differences in spending patterns, distinctive models of health care delivery in Canada and the U.S. dampen the convergence.

Notes

1 In Canada, the personal savings rate declined from 20.2% in 1982 to 1.6% in 2005, while dropping in the U.S. from 7.5% in 1981 to -0.4% in 2005. Over the same period, households in both countries increased their indebtedness—from 55 cents to $1.16 per dollar of disposable income for Canadians and from 61 cents to $1.24 for Americans.

2 Expenditures are generally considered a better long-term measure of economic behaviour since families tend to smooth spending over time by borrowing against future income or by drawing down savings at different points in the life cycle.

3 Using the U.S. definition, expenditure on housing includes the sum of expenditures on shelter, household operation, and furnishings and equipment. Although separate data on these three components are available for both countries, the classification of items varied slightly; for instance, expenditures on telephone services are treated under utilities in the U.S. and as part of household operations in Canada. Moreover, broader groups of expenditure are used to condense the size of statistical tables presented here.

4 As a check for the robustness of this conclusion based on Gini coefficients, Theil's T-measure of inequality when applied on grouped data for relative shares of spending by age was calculated and showed a similar conclusion.

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Economic integration of immigrants' children

Boris Palameta

Much has been written about the ever-widening gap in earnings and low-income rates between recent immigrants to Canada and their native-born counterparts (Picot and Hou 2003, Frenette and Morissette 2003, Aydemir and Skuterud 2004, and Picot, Hou and Coulombe 2007). However, challenges associated with the integration of immigrants often extend beyond the first generation. If the children of immigrants—the second generation—experience similar impediments to social and economic integration as their parents did, then low socioeconomic status may persist, risking the creation of persisent underclasses. For example, in some European cases, low educational attainment and low socioeconomic status in the parental generation is linked to relatively low educational attainment among immigrants' children, leading to less successful labour market outcomes (Osterberg 2000, Nielsen, Rosholm, Smith and Husted 2001, and Van Ours and Veenman 2002, 2003). Second-generation disadvantage is also postulated in the case of some immigrant communities in the United States (Zhou 1997), although empirical evidence has been limited by lack of information on parental birthplace.

For several good reasons such scenarios of second-generation disadvantage may not apply to Canada. First, immigrants are on average just as educated or more educated than the native-born, largely because education weighs heavily in the criteria used for admission into Canada. Second, the educational attainment of immigrants' children tends to exceed that of their peers with two native-born parents (Boyd and Grieco 1998, Boyd 2002, and Hansen and Kucera 2004). Third, Canada is one of only two OECD countries (Australia is the other) where the second generation performs as well as those with native-born parents on standardized math and reading tests given to 15–year–olds (OECD 2007).[1] Fourth, the correlation between parental earnings and the eventual earnings of their children tends to be low in Canada—for immigrants and non-immigrants alike (Aydemir, Chen and Corak 2005). Therefore, even if immigrant earnings deficits in relation to the native-born are increasing, it does not necessarily mean that immigrants' children will be worse off than the children of Canadian-born parents.

The high educational attainment of the second generation in Canada—sometimes termed the 'main legacy of immigration'—is often used to explain the higher earnings and wages enjoyed by the second generation, relative to those of third generation and higher Canadians (Hum and Simpson 2004). Returns on education may, however, vary by parental region of origin (Aydemir, Chen and Corak 2005).

Most previous research on the second generation in Canada has focused on older cohorts, most of whose parents came from the United States, the United Kingdom or Europe prior to the changes in Canada's *Immigration Act* in the 1960s. These changes abolished national origin as a criterion of admission and ushered in a new era of immigration from non-traditional source countries, primarily in Asia. This paper focuses on young second-generation Canadians, born between 1967 and 1982, many of whose parents would have come from non-traditional source countries.

The family characteristics, geographical distribution, educational attainment, and labour force attachment of second-generation Canadians, aged 17 to 29, are compared with those of their peers with native-born parents (see *Data source and definitions*). In addition, wages and earnings are examined over a six-year period among members of the cohort who are working rather than going to school. Regression models are used to examine the role variables such as education, geography and childbirth play in explaining earnings differences between second-generation and other Canadian youth. Looking at 17– to 29–year–olds may yield a somewhat incomplete picture of new labour

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Data source and definitions:

The **Survey of Labour and Income Dynamics** (SLID) covers roughly 97% of the Canadian population, excluding those who live in the territories, in institutions, on Indian reserves or in military barracks. Each panel of respondents, approximately 15,000 households and 30,000 adults, is surveyed for six consecutive years. A new panel is introduced every three years, so two panels always overlap. Although three complete panels are available (1993 to 1998, 1996 to 2001, and 1999 to 2004), only the last two were used since parents' country of birth was not asked prior to 1996.

The sample (9,163) consisted of persons aged between 17 and 29 in the first year of the panel, divided into groups based on their own and their parents' place of birth:

First generation, recent immigrants, 5.5% of the population. Born outside Canada, had lived in Canada less than 10 years when the panel began. Most arrived as adolescents.

First generation, established immigrants, 5.8% of the population. Born outside Canada, had lived in Canada 10 or more years when the panel began. Most arrived under the age of 12 (although a few arrived older).

Second generation, 10.1% of the population. Born in Canada to two immigrant parents.

The '2.5 generation', 8.4% of the population. Born in Canada to one immigrant parent and one native-born parent.

Third generation and higher Canadians, 64.8% of the population. Born in Canada to two native-born parents. (Because of their different educational attainments and age/earnings profiles, aboriginals are excluded.)

The remaining 5.4% of the population was unclassified because either their own place of birth or their parents' place of birth was unknown.

In addition to descriptive statistics comparing the groups above, based on their characteristics in the first year they were interviewed, models are used to compare earnings of the groups over the six years in sample.

Significance testing was conducted using bootstrap weights and SUDAAN version 9.0, to account for the complex design of SLID.

force entrants, since the outcomes of those who were in school at those ages are not captured. Nevertheless, young cohorts are often used to analyze second-generation labour market outcomes (for example, Maani 1994, Nielsen, Rosholm, Smith and Husted 2001, and Van Ours and Veenman 2002), since children of immigrants from non-traditional source countries are less represented in older samples.

Second-generation youth less spread out geographically than peers with native-born parents

All groups averaged between 23 and 24 years of age when they were first interviewed (Table 1), so differences for other characteristics are not likely to be age-related.

Almost 9 in 10 young recent immigrants—and 6 in 10 young established immigrants—had a mother tongue other than English or French. A substantial minority (40%) of second-generation Canadians also had a mother tongue other than either of the two official languages. The majority of young immigrants were part of a visible minority, as were a substantial minority (30%) of those with two immigrant parents. Linguistically and ethnically, those with only one immigrant parent resembled those with native-born parents more than they did those with two immigrant parents—only 4% were visible minorities, and less than 2% had a mother tongue other than English or French.

Immigrant and second-generation youth are much more concentrated geographically than other Canadian youth. They are more likely to live in Ontario or British Columbia, and less likely than other Canadians to live in the Atlantic provinces, Saskatchewan or Quebec. In fact, for third-generation and higher young people, Quebec has the highest numbers followed by Ontario; by far the most immigrant and second-generation youth, however, are found in Ontario, followed by British Columbia. Ontario and British Columbia are the two biggest immigrant-receiving provinces, and most of their children choose to stay there.[2]

The overwhelming majority of young immigrants and youth with two immigrant parents, as well as a slight majority of youth with one immigrant parent, live in large urban centres. By contrast, almost 3 in 10 young Canadians with native-born parents live in small towns or rural areas.

Table 1 Basic demographics of immigrants' children

	First generation		Second generation		
	Recent immigrant	Established immigrant	Two immigrant parents	One immigrant parent	Third generation and higher
Average age	23.7	23.7	22.6	22.9	23.0
			%		
Mother tongue					
English	11.7*	37.7*	57.2*	92.2*	65.5
French	1.2*	3.9*	2.9*	6.0*	33.4
Other	86.3*	58.0*	39.9*	1.7	1.1
Visible minority	74.9*	52.4*	29.5*	4.4*	0.5
Region, year 1					
Atlantic	1.0*	2.0*	1.5*	3.8*	12.2
Quebec	13.4*	14.5*	10.5*	9.5*	31.4
Ontario	53.6*	52.2*	59.7*	44.4*	27.0
Manitoba	2.5	1.8*	4.0	3.9	4.3
Saskatchewan	1.1*	0.7*	0.9*	1.8*	4.3
Alberta	7.8	10.2	8.2	12.2	10.6
British Columbia	20.6*	18.6*	15.3	24.5*	10.3
Residence, year 1					
Rural	0.8*	2.3*	2.8*	7.6*	14.8
Urban					
Less than 30,000	1.4*	3.7*	2.9*	9.0*	14.9
30,000 to 99,999	2.7*	6.6*	3.8*	11.2	12.1
100,000 to 499,999	9.4*	9.9*	12.9*	17.5	19.0
500,000 or more	85.6*	77.6*	77.5*	54.7*	39.0

* Significantly different from the third generation and higher, at the 0.05 level or less.
Note: Some categories may not sum to 100% because of missing values.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 1996-2001 and 1999-2004

Second-generation youth more likely to live with parents, delay marriage and childbirth

Young men and women with two immigrant parents were more likely than those with two native-born parents to be living with their parents. Furthermore, although the majority of third-generation and higher youth who lived with their parents in year 1 moved out at some point in the next five years, most second-generation men and half of second-generation women remained with their parents for the full six years (Table 2).

Consistent with living with their parents longer, second-generation youth also delay marriage and having children relative to those with native-born parents. By the final year they were interviewed, 6 in 10 third-generation and higher women had been married at some point in their lives, and almost half had had a child. By comparison, less than half of women with two immigrant parents had been married and only one-third had had a child. Among second-generation men with two immigrant parents, 7 in 10 had never been married by the final year they were interviewed, and only 2 in 10 had had a child. These differences are not age-related, since average ages were similar.

Second-generation youth more educated, less likely to drop out of high school

The groups differed little in educational activity. Between 45 and 55% of young women were students when first interviewed, with no significant differences between groups. Among young men, only those with two immigrant parents were significantly more likely than the third generation to be students.

Because the education of many in the sample was ongoing, differences in educational attainment were examined only for those who were not full- or part-time students. Consistent with previous studies on older cohorts, children of immigrants tended to be more educated than those with native-born parents. Although the results on educational attainment are based on the first year in sample, and thus represent only those who were not in school at the time (less than half of the population), a similar pattern is found if year 6—by which time the majority of the population had completed their schooling—is used.

Male children, with either one parent or both parents being immigrants, were significantly less likely than the third generation to drop out of high school, although no significant differences were seen between groups in the proportion of university graduates.[3]

Young women with two immigrant parents had a remarkably low rate of dropping out of high school, significantly lower than all other groups; but again, no significant differences were seen for university graduation.[4]

Table 2 Family and educational characteristics of immigrants' children

	First generation		Second generation		Third generation and higher
	Recent immigrant	Established immigrant	Two immigrant parents	One immigrant parent	
			%		
Men					
Living with parents, year 1	70.4*	66.1*	73.4*	61.1	51.8
Moved out in the subsequent 5 years	16.9*	36.5*	31.8*	50.5*	64.5
Single/never married, year 6	58.5	61.5	70.5*	59.3	51.9
Ever had, adopted or raised a child, year 6	31.2	24.7	18.7*	25.0	32.4
Women					
Living with parents, year 1	39.2	52.5	65.8*	42.9	43.5
Moved out in the subsequent 5 years	40.3*	34.4*	50.7*	58.3	64.5
Single/never married, year 6	34.6	45.7	53.3*	43.7	39.3
Ever had, adopted or raised a child, year 6	60.9*	38.0	33.3*	37.8*	47.2
Educational activity, year 1[1]					
Men	57.3	52.5	59.8*	53.4	46.2
Women	51.5	54.3	53.4	53.9	48.8
Educational attainment[2]					
Men					
Less than high school	25.1	16.1	10.7*	9.0*	20.5
High school diploma	20.5	25.2	28.2	32.9	25.8
Some postsecondary	11.0	16.9	13.2	25.1	16.4
Non-university certificate	31.3	26.5	30.8	17.8	27.3
University degree	12.2	15.3	16.2	14.8	9.9
Women					
Less than high school	19.6	13.5	1.7*	12.0	14.4
High school diploma	30.1	21.4	25.9	19.2	22.5
Some postsecondary	20.8	7.2*	17.4	18.9	18.2
Non-university certificate	19.8	36.1	32.5	29.3	31.3
University degree	8.2	21.8	21.2	18.7	13.3
Years of schooling[2]					
Men	13.0	13.4	13.8*	13.1	12.8
Women	12.4	13.8	14.6*	13.9	13.3

* Significantly different from the third generation and higher, at the 0.05 level or less.
1 Full- or part-time students.
2 Excluding full- and part-time students.
Note: Some categories may not sum to 100% because of missing values.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 1996-2001 and 1999-2004

Overall, both male and female youths with two immigrant parents averaged one more year of education than their counterparts with native-born parents.

Second-generation women more likely to be employed, have higher earnings

Three measures of labour force participation were compiled: the proportion employed all year during the first year in sample, the proportion with at least one spell of unemployment during the year, and the proportion who did not work (were unemployed or not in the labour force) all year. Full-time and part-time students were excluded (Table 3).

No significant differences existed between groups of young men, for any of the three measures. For young women, on all three measures, those with two immigrant parents did significantly better than those with native-born parents—they were more likely to work all year, less likely to have a period of unemployment, and less likely not to work all year.

Table 3 Labour force participation and earnings of immigrants' children

	First generation		Second generation		
	Recent immigrant	Established immigrant	Two immigrant parents	One immigrant parent	Third generation and higher
Men			%		
Employed all year	65.2	73.9	66.7	66.5	67.1
Unemployed at least once in year	19.9	16.1	27.0	25.0	24.9
No work all year[1]	F	F	4.0	8.8	6.9
Median earnings			2004 $		
Hourly, main job	11.03	13.59	14.12	14.07	13.08
Annual, all jobs ('000)	23.8	27.2	28.7	25.9	25.5
Women			%		
Employed all year	32.2*	71.2	75.7*	59.0	55.6
Unemployed at least once in year	25.8	13.3	9.6*	26.6	21.9
No work all year[1]	48.8*	13.9	9.8*	12.1	20.2
Median earnings			2004 $		
Hourly, main job	9.28*	14.58	15.92*	12.37	11.26
Annual, all jobs ('000)	15.4	23.6	27.5*	21.5	18.2

* Significantly different from the third generation and higher, at the 0.05 level or less.
1 Unemployed or not in the labour force.
Note: First year in sample and excluding full- and part-time students.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 1996-2001 and 1999-2004

Hourly (main job) and annual (all jobs) earnings were tabulated for all groups, for the first year they were interviewed. Full-time and part-time students, and those with self-employment earnings, were excluded. No significant differences were found for young men for either hourly or annual earnings. For women, however, the pattern seen in educational attainment and labour force participation repeated—those with two immigrant parents did better, with significantly higher earnings.

Higher earnings are commonly attributed to higher levels of education. However, in this case, other variables such as geography need to be investigated. Ontario and British Columbia, where second-generation youths are concentrated, may provide better-paying jobs in larger firms. Although the differences in educational attainment between second- and third-generation women are not that large, the former women might be getting a higher return on their education because of where they live.

Other important factors might be marital status and presence of children. Delaying marriage and childbirth generally has positive effects on women's earnings, and second-generation young women were less likely to have ever been married or had children than their third- and higher generation counterparts.

In order to investigate these possibilities, multilevel growth models were specified. Like regression models, multilevel models allow the effect of any one variable to be examined while all other variables are held constant. They offer the additional advantage of estimating the dependent variable not just at one point in time, but also its rate of change over time. For example, second- and third-generation Canadians can be compared not only in terms of their average earnings at the start point (year 1) but also their average rates of earnings growth over the full six-year period (see *Multilevel growth models*).

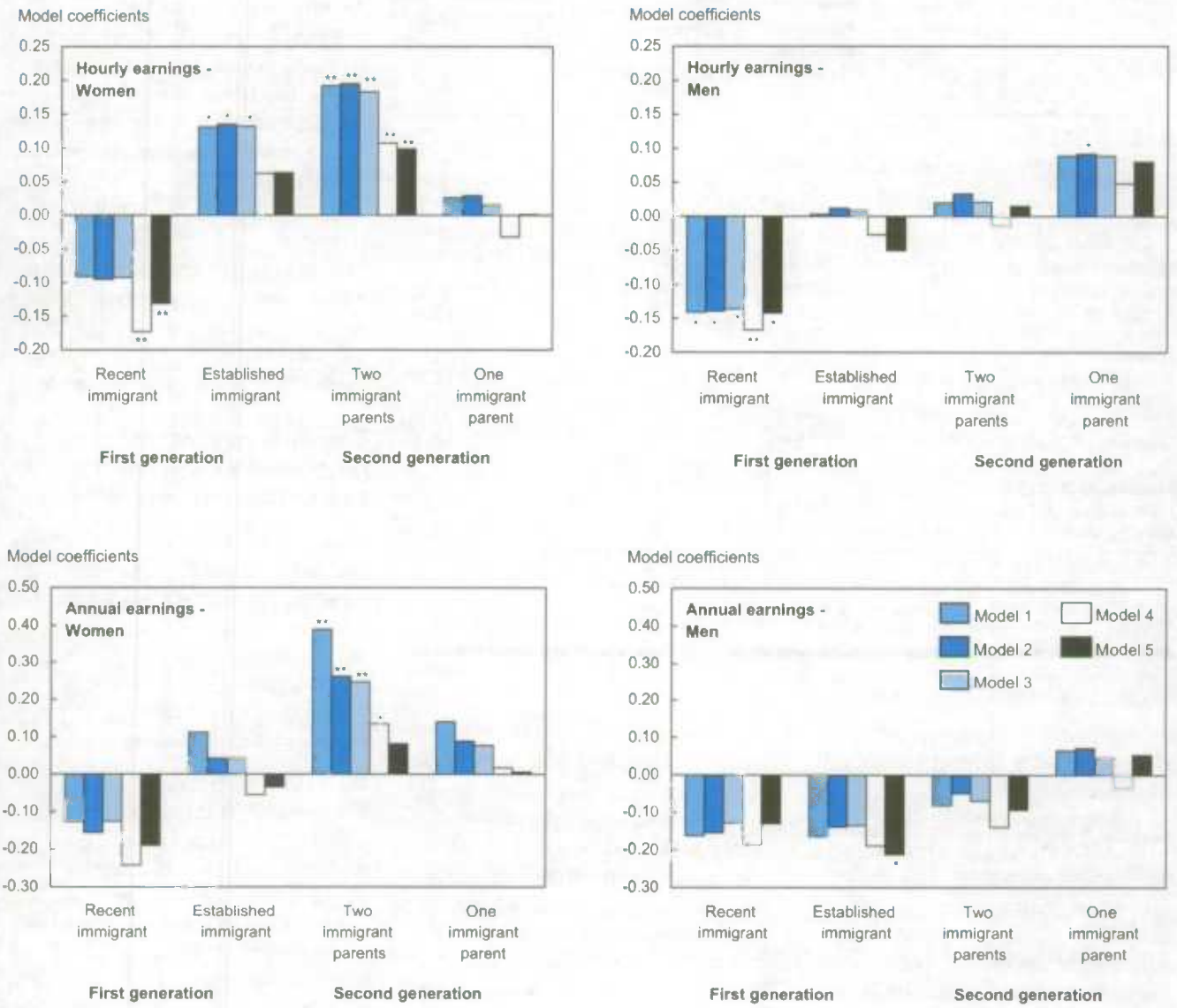
Earnings advantage for young women with two immigrant parents

Each model compares hourly and annual earnings of each of the various immigrant and second-generation groups with those of their third-generation and higher counterparts, once other factors (such as age, education and province) have been taken into account.[7]

With only age and panel taken into account (Model 1), established immigrant women, as well as women with two immigrant parents, have significantly higher year 1 hourly earnings than their counterparts with two native-born parents—roughly 13% and 19% higher, respectively (Chart A).[8] Furthermore, since rates of earnings growth among the various groups are not significantly different from one another, these initial advantages are maintained over the six-year period.[9]

Which factors are responsible for the relative hourly earnings advantage among established immigrant women and women with two

Chart A Among women aged 17 to 29, those with two immigrant parents had the best earnings



* Significantly different from third generation and higher at the 0.05 level or less.
** Significantly different from third generation and higher at the 0.01 level or less.
Note: First year in sample and excluding full- and part-time students.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 1996-2001 and 1999-2004

immigrant parents? The advantage present in Model 1 is maintained when marital status and children are added (Model 2)—meaning that the advantage cannot be explained by differences between groups in marital status or presence of children. When education is added (Model 3), advantage dips slightly (from 19% to 18%) for young women with two immigrant parents, perhaps reflecting their lower high school dropout rate.

However, when geographic variables (province/region, rural/urban, and urban size) are added (Model 4), the earnings advantage of established immigrant women is no longer statistically significant, and among women with two immigrant parents it drops to about 10%. Thus, a little under half of the wage advantage among young women with two immigrant parents can be accounted for by their tendency to cluster in large urban centers in Ontario and British Columbia, while young women with native-born parents are more evenly distributed, with sizeable populations living in smaller cities and rural areas in less economically prosperous regions such as Quebec and Atlantic Canada.

Geographic clustering also resulted in higher hourly earnings among young recent immigrant women than they would have had, had they been more evenly distributed. In Models 1 through 3, their wages are not significantly different from those of women with native-born parents. However, when geographic clustering is accounted for in Model 4, their disadvantage becomes evident.

Young women with two immigrant parents also had a large annual earnings advantage relative to those with native-born parents. With nothing other than age and panel accounted for (Model 1), their earnings were on average 39% greater. Furthermore, the rates of growth in annual earnings were not significantly different for the two groups, meaning that the advantage was maintained for the entire six-year period of the study.

A large part of the annual earnings advantage arises because women with two immigrant parents are less likely to have children than their third-generation and higher counterparts. When marital status and the presence of children are accounted for, the earnings advantage drops from 39% to 26%.[10] It drops slightly to 25% when education is added, but drops sharply to 13% when geographic variables are added, indicating once again the effect of geographic clustering. Job and employer characteristics, such as working full-time, working in a large firm, unionization, occupation and industry, also account for some of the earnings advantage. When these characteristics are added (Model 5), the difference between young women with two immigrant parents and their counterparts with native-born parents is no longer statistically significant.

Among young men, few differences between those with immigrant or native-born parents

Apart from a 9% advantage in Model 2 among young men with one immigrant parent, no significant differences in hourly earnings were seen between young men with immigrant parents and those with native-born parents. Young recent immigrant men, however, had a 14 to 17% hourly earnings disadvantage compared with those with native-born parents. Since rates of growth are no different for the two, this disadvantage persisted throughout the six-year period.

Little evidence was found for statistically significant differences in annual earnings between the groups. Earnings coefficients were consistently large and negative among immigrants—both recent and established—and young men with two immigrant parents, but the large variability in earnings within each of these groups prevented the results from attaining statistical significance. With all other variables accounted for (Model 5), established immigrant men had significantly lower year 1 annual earnings (roughly 21% lower) than those with native-born parents. However, this was offset by the roughly 5% higher rate of earnings growth among established immigrant men, allowing them to catch up with their third-generation and higher counterparts.

Some young visible minority men with two immigrant parents at earnings disadvantage

Some census data suggest that earnings returns to education among 25– to 37–year–old Canadian men with immigrant parents vary by parental region of origin (Aydemir, Chen and Corak 2005). For example, those with parents from Eastern or Southern Europe, and those with parents from the Caribbean, Central and South America or Oceania earned 8% and 28% less, respectively, than those with parents from traditional source countries in North America, and Northern or Western Europe, despite having almost equal levels of education. Furthermore, those with parents from Africa or Asia also earned 8% less than those with parents from traditional source countries, despite having nearly twice the rate of university graduation. Among women, earnings were more in line with education—those with parents from Africa or Asia had the highest rates of university graduation and also earned the most.

Multilevel growth models

The sample

To investigate differences in hourly and annual earnings among the different groups, a sub-sample of non-students with paid employment in year 1 was selected from the original sample of 17– to 29–year–olds. This sub-sample had high labour force attachment, with an average of around five years of paid employment over the six-year period and little variability between groups.

Average number of years of paid employment

	Men	Women
Recent immigrant	4.7	4.8
Established immigrant	5.2	4.9
Native-born		
Two immigrant parents	5.0	5.0
One immigrant parent	5.1	5.2
Native-born parents	5.2	5.1

Multilevel models

Multilevel models are ideal for investigating continuous outcomes (like earnings) whose values change systematically over time.

Why multilevel? At the first level are individual growth trajectories—in the simplest case of linear growth, each person's trajectory can be described with an intercept (starting point) and a slope (linear rate of change). At the second level are average trajectories, with individual and group deviations from the average. This allows differences in intercept and slope to be examined.

For example, consider the following linear growth model for hourly earnings (wage):

Level 1:

$Y_{ij} = \beta_{0i} + \beta_{1i}(TIME_{ij}) + \varepsilon_{ij}$

where Y_{ij} is logwage, β_{0i} is the intercept (person i's initial logwage), TIME represents the number of years since the initial interview and β_{1i} is the slope (the rate of change in logwage from year to year).

Level 2:

$\beta_{0i} = \gamma_{00} + \mu_{0i}$

where γ_{00} is the mean logwage and μ_{0i} is person i's deviation from the mean.

$\beta_{1i} = \gamma_{10} + \mu_{1i}$

where γ_{10} is the mean slope (growth in logwage) and μ_{1i} is person i's deviation from the mean.

Combining level 1 and level 2:

$Y_{ij} = (\gamma_{00} + \mu_{0i}) + (\gamma_{10} + \mu_{1i})TIME_{ij} + \varepsilon_{ij}$

Multiplying and rearranging:

$Y_{ij} = [\gamma_{00} + \gamma_{10}(TIME_{ij})] + [\mu_{0i} + \mu_{1i}(TIME_{ij})] + \varepsilon_{ij}$

$[\gamma_{00} + \gamma_{10}(TIME_{ij})]$ represents the average trajectory →fixed effects

$[\mu_{0i} + \mu_{1i}(TIME_{ij})]$ represents individual deviations from the average trajectory →random effects

Adding time-invariant predictors:

Let IMMPAR = 0 if Canadian-born parents, 1 if immigrant parents.

Level 1: $Y_{ij} = \beta_{0i} + \beta_{1i}(TIME_{ij}) + \varepsilon_{ij}$

Level 2: $\beta_{0i} = \gamma_{00} + \gamma_{01}(IMMPAR_i) + \mu_{0i}$

where γ_{00} is the mean intercept for people with Canadian-born parents and $(\gamma_{00} + \gamma_{01})$ is the mean intercept for people with immigrant parents

$\beta_{1i} = \gamma_{10} + \gamma_{11}(IMMPAR_i) + \mu_{1i}$

where γ_{10} is the mean slope for people with Canadian-born parents and $(\gamma_{10} + \gamma_{11})$ is the mean slope for people with immigrant parents

Combining levels 1 and 2, multiplying and rearranging:

$Y_{ij} = [\gamma_{00} + \gamma_{10}(TIME_{ij}) + \gamma_{01}(IMMPAR_i) + \gamma_{11}(IMMPAR_i \cdot TIME_{ij})] + [\mu_{0i} + \mu_{1i}(TIME_{ij})] + \varepsilon_{ij}$

Focusing on the fixed effects:

γ_{00} = the average intercept for those with Canadian-born parents

γ_{10} = the average slope for those with Canadian-born parents

γ_{01} = the average difference in intercept between those with Canadian-born parents and those with immigrant parents

γ_{11} = the average difference in slope between those with Canadian-born parents and those with immigrant parents

Adding time-varying predictors:

Let UNIV = 0 if not a university graduate, 1 if a university graduate.

Level 1: $Y_{ij} = \beta_{0i} + \beta_{1i}(TIME_{ij}) + \beta_{2i}(UNIV_{ij}) + \beta_{3i}(UNIV_{ij} \cdot TIME_{ij}) + \varepsilon_{ij}$

Level 2: $\beta_{0i} = \gamma_{00} + \gamma_{01}(IMMPAR_i) + \mu_{0i}$

$\beta_{1i} = \gamma_{10} + \gamma_{11}(IMMPAR_i) + \mu_{1i}$

$\beta_{2i} = \gamma_{20}$

$\beta_{3i} = \gamma_{30}$

The composite model would be:

$Y_{ij} = [\gamma_{00} + \gamma_{10}(TIME_{ij}) + \gamma_{01}(IMMPAR_i) + \gamma_{11}(IMMPAR_i \cdot TIME_{ij}) + \gamma_{20}(UNIV_{ij}) + \gamma_{30}(UNIV_{ij} \cdot TIME_{ij})] + [\mu_{0i} + \mu_{1i}(TIME_{ij})] + \varepsilon_{ij}$

Focusing on the fixed effects:

γ_{00} = the average initial (log)wage for non-university graduates with Canadian-born parents

$\gamma_{00} + \gamma_{01}$ = the average initial wage for non-university graduates with immigrant parents

$\gamma_{00} + \gamma_{20}$ = the average initial wage for university graduates with Canadian-born parents

$\gamma_{00} + \gamma_{01} + \gamma_{20}$ = the average initial wage for university graduates with immigrant parents

γ_{10} = the average rate of wage growth for non-university graduates with Canadian-born parents

$\gamma_{10} + \gamma_{11}$ = the average rate of wage growth for non-university graduates with immigrant parents

Multilevel growth models (concluded)

$\gamma_{10} + \gamma_{30}$ = the average rate of wage growth for university graduates with Canadian-born parents

$\gamma_{10} + \gamma_{11} + \gamma_{30}$ = the average rate of wage growth for university graduates with immigrant parents

Initial levels and growth rates in both hourly (pure wage rate) and annual earnings (wage rate plus hours worked) were estimated. Because men and women tend to have different rates of earnings growth, their outcomes were estimated separately. Each of the four outcomes (men's hourly and annual earnings, and women's hourly and annual earnings) was estimated with five models.

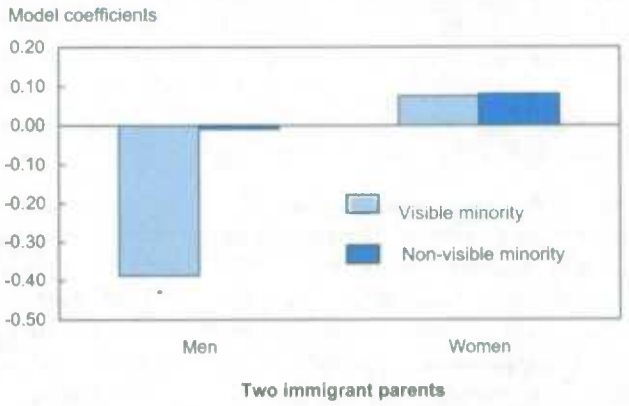
Model 1 used the predictors generations in Canada, age in year 1, and panel (1996 to 2001 or 1999 to 2004). Subsequent models added time-varying predictors: **Model 2**, marital status (and, for women, the presence of children[5]); **Model 3**, education; **Model 4**, geographic characteristics (province/region, rural/urban residence, and urban size); and **Model 5**, job/employer characteristics (firm size, unionization, occupation, industry, and full-/part-time status).

In addition to new variables, each model kept all of the variables of the one preceding it, so that Model 5 contained the full set of predictors. Each of the models also included a term testing for linear growth (time) and interactions between each of the other variables and time to test for differences in growth rates. A quadratic term (time squared) was added to each model to test for decelerating rates of growth.[6] Possible interactions between generations in Canada and other predictors such as education, province, urban size and presence of children were investigated, but interaction terms were not statistically significant and so were discarded from the models. For each model, only fixed effects are reported since random effects cannot be estimated accurately using weighted data from a complex survey design.

Small sample sizes in the current study prevent dividing those with two immigrant parents into groups based on parental region of origin. However, visible minority status is a useful proxy, since most of those with parents from non-traditional source countries other than Eastern or Southern Europe are likely to be visible minorities; in contrast, most of those with parents from traditional source countries are not likely to be visible minorities.

With all other variables accounted for (Model 5), young visible minority men with two immigrants parents earned roughly 38% less in year 1 than their counterparts with native-born parents (Chart B).[11] Men with two immigrant parents who were not visible minorities, on the other hand, were no different from those with native-born parents. Among young women with two immigrant parents, magnitudes of earnings coefficients were very similar between visible minorities and those who were not visible minorities—neither was significantly different from those with native-born parents.

Chart B Visible minority men aged 17 to 29 had the lowest annual earnings



* Significantly different from third generation and higher at the 0.05 level or less.
Note: First year in sample and excluding full- and part-time students.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 1996-2001 and 1999-2004

Conclusion

Young second-generation Canadians aged 17 to 29—that is, young men and women born in Canada to two immigrant parents—differ from those with two native-born parents in several ways. Some of these differences may influence their earnings as they enter the labour market. Consistent with previous research on older populations, young men and women with two immigrant parents had more years of schooling than their counterparts with native-born parents, largely as a result of significantly lower high school dropout rates. However, differences in earnings between young second-generation men and women

and their third- and higher generation counterparts were largely accounted for by factors other than education in a sub-population with a high rate of labour force participation over the six-year period of the study.

With education accounted for, young women with two immigrant parents still had significantly higher hourly and annual earnings than those with native-born parents, over the entire six-year period. Roughly half of the hourly earnings advantage can be explained by geographic distribution. Three-quarters of young Canadians with two immigrant parents are concentrated in Ontario and British Columbia, and more than three-quarters live in large urban centres—in contrast, half of their counterparts with native-born parents live in less economically prosperous regions such as Atlantic Canada, Quebec, Manitoba and Saskatchewan, and about 60% live in smaller cities, small towns and rural areas.

A large part of the annual earnings advantage among young women with two immigrant parents is also a likely product of geographic clustering. However, another large part is because they were less likely to have been married or had children. By the end of the six-year period (when they had reached the ages of 22 to 34), less than half of women with two immigrant parents had ever been married, and only a third had given birth to, adopted, or raised children. In contrast, over 60% of those with native-born parents had been married, and close to half had had children.

The situation is quite different for young-second generation men. They displayed little evidence of an hourly or annual earnings advantage relative to their third- and higher generation counterparts. In fact, generalizations about young second-generation men are difficult to make, since they tend to be more heterogeneous in terms of earnings than their female counterparts. Part of the extra heterogeneity arises because visible minority status has no bearing on women's earnings, but it has a large effect on men's earnings.

Among young men born in Canada to two immigrant parents, visible minorities fare markedly worse—everything else being equal, their annual earnings are significantly lower than those of young men with native-born parents. Second-generation men who are not visible minorities, on the other hand, are no different from those with native-born parents—in fact, some evidence suggests that the hourly earnings of those with one immigrant parent might be higher. These results are consistent with census findings on an older population (aged 25 to 37), which showed that second-generation men whose parents came from Africa, Asia, the Caribbean, or Central and South America, and most of whom are visible minorities, had equal or greater levels of education but lower earnings than those with parents from traditional source countries in North America, and Northern and Western Europe (Aydemir, Chen and Corak 2005).

Explanations of lower earnings among visible minority immigrants usually centre on language deficits and lack of recognition of foreign educational credentials or work experience. These explanations are unlikely to apply to their children, born and educated in Canada. Other possible explanations based on cultural barriers, job networks and systemic discrimination are outside the scope of this paper because data are difficult to obtain (however see Beck, Reitz and Weiner 2002). Statistics Canada's Ethnic Diversity Survey shows that on many indicators of social cohesion and integration (such as trust, sense of belonging and perceived discrimination), visible minorities score lower in the second generation than they did in the first, suggesting that even if economic prospects are improving for many in the second generation, social inclusion is not improving (Reitz and Banerjee 2007).

Perspectives

Notes

1 Performance deficits among second-generation students relative to their peers with native-born parents are particularly high in Germany, Belgium, the Netherlands, Switzerland, Austria and France.

2 The regional distribution of the sub-population of young people living apart from their parents is similar to that shown in Table 1.

3 Although the magnitude of difference between some pairs of groups appears to quite large, a large error is associated with these estimates, due to small sample size.

4 The pattern of no significant differences in university graduation between those with two immigrant parents and those with two native-born parents continued to hold through year 6. In addition, even when only degrees higher than a bachelor's were considered, no significant differences were found between groups in year 1 or year 6.

5 For men, the presence of children was very closely correlated with marital status.

6 The time-squared term was not significantly different from zero in the models estimating women's hourly and annual earnings growth, and therefore was removed from these models.

7 For the sake of brevity and presentation, coefficients associated with other factors in the models are not presented. In general, they tend to conform to familiar patterns of results. For example, older age groups tend to have higher initial hourly earnings, but slower rates of growth, while university education is associated with both higher initial hourly earnings and faster growth. Complete results of all models are available from the author.

8 When logwage is estimated, the coefficient associated with a particular group is a good approximation of the average percentage difference in wage between that group and the reference group.

9 Since rates of earnings growth rarely differ significantly between groups, they are not presented, but are available from the author.

10 Having children had little or no effect on hourly earnings, but a large negative effect on hours worked (and therefore annual earnings).

11 The relatively large coefficient associated with visible minority earnings growth (.060) suggests that some members of this group may catch up somewhat in subsequent years. However, the heterogeneity within the group was sufficient to prevent the result from achieving statistical significance.

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Pensions and retirement savings of families

René Morissette and Yuri Ostrovsky

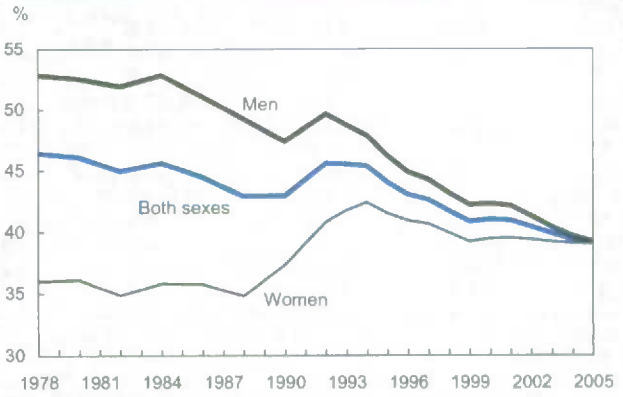
Are Canadian families better prepared for retirement today than in the past? Since the late 1970s, the proportion of employees covered by a registered pension plan (RPP) has dropped (Chart A)—the decline in coverage by defined-benefit RPPs more than offsetting growth in coverage by defined-contribution plans. Over the 1978 to 2005 period, male employees saw their RPP coverage decrease by almost 15 percentage points while female employees enjoyed little growth in coverage. However, the stagnation for women masks two opposing trends. Between the mid-1980s and the mid-1990s, RPP coverage fell slightly among women aged 25 to 34 but rose among those aged 35 to 54 (Morissette and Drolet 2001).

However, the individual-level data cannot be used to assess whether families are better prepared for retirement now than in the past. That depends, among other things, on changes in the degree to which men and women with high earnings and good RPP coverage marry each other. For instance, the share of couples with at least one RPP might not have fallen over the last two decades if some men who experienced a drop in RPP coverage married women who experienced the opposite.

This notion is more than a remote possibility. Decades ago, women married to high-income men typically did not work outside the home, while those married to lower-income men often did so to alleviate very tight family budgets.

In the 1970s, women married to higher income men increasingly began to enter the labour market. Since most of them were highly educated and since highly educated workers generally have relatively good pension coverage, the entry of these women into the labour market may have increased RPP coverage among wives of high-income males. This in turn may have partly offset the decline in pension coverage experienced by some higher-income men.

Chart A Pension coverage of men and women has converged



Source: Statistics Canada, Pension Plans in Canada

While changes in women's labour market participation may have affected the degree to which families prepare for retirement, changes in the distribution of family earnings likely played an important role as well. Since the early 1980s, family earnings inequality rose in Canada, as families at the top of the earnings distribution enjoyed much greater increases in employment income than those at the bottom (Frenette, Green and Picot 2006). In the absence of behavioural changes in savings rates, these changes in the distribution of family employment income likely changed the distribution of retirement savings.

This paper documents the evolution of pension coverage and retirement savings of families between 1986 and 2004 (see *Data sources and definitions*).

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Table 1 Pension coverage of men and women

	Employees with an RPP[1]				Taxfilers contributing to an RPP[2]			
	Men		Women		Men		Women	
	25 to 34	35 to 54	25 to 34	35 to 54	25 to 34	35 to 54	25 to 34	35 to 54
	%							
1984	54.2	69.3	46.7	45.7	..	..	..	..
1986	49.8	66.8	43.4	46.9	27.7	41.5	28.4	33.4
1987	48.6	67.1	41.9	46.5	27.1	40.7	28.1	33.8
1988	49.2	67.0	42.9	49.8	27.0	40.6	28.6	35.5
1989	50.2	68.0	43.7	50.1	26.2	39.9	28.2	36.1
1990	48.5	67.6	43.8	50.2	26.0	39.7	28.6	36.8
1991	..	..	..	..	25.5	39.2	28.7	37.6
1992	..	..	..	..	25.3	39.1	29.3	38.6
1993	46.6	68.2	46.3	52.3	24.8	39.1	29.0	39.0
1994	47.0	70.2	46.0	55.0	23.6	38.2	28.2	39.0
1995	42.6	67.6	40.9	52.9	22.7	37.5	27.4	38.9
1996	43.1	63.8	41.2	52.2	21.7	36.7	26.3	38.6
1997	42.0	63.0	41.0	51.9	21.1	35.9	25.2	37.6
1998	40.5	60.8	39.7	51.7	20.7	34.8	25.0	36.8
1999	43.2	64.1	42.0	53.1	19.7	33.0	24.7	35.8
2000	48.2	63.6	45.6	55.7	19.5	32.1	25.2	35.7
2001	48.2	62.8	44.8	55.6	19.5	31.5	25.4	35.6
2002	45.0	58.2	44.0	50.8	19.9	31.3	26.2	35.9
2003	45.1	60.3	45.5	54.9	21.1	32.8	28.3	38.1
2004	45.4	59.1	42.4	54.8	21.4	32.8	28.8	38.3

1 Main job held by paid workers in May (LMAS and SLID) or December (SUM).
2 Taxfilers with annual wages and salaries of at least $1,000 (1994 dollars).
Sources: Statistics Canada, Survey of Union Membership, 1984; Labour Market Activity Survey, 1986 to 1990; Survey of Labour and Income Dynamics, 1993 to 2004; Longitudinal Administrative Databank, 1986 to 2004

Declining RPP coverage for men

Trends since the mid-1980s

Over the 1984 to 2004 period, LMAS and SLID indicate that, between 1986 and 1997, the percentage of employees covered by an RPP fell significantly among young men (aged 25 to 34) and prime-aged men (35 to 54), dropped slightly among young women and rose among prime-aged women (Table 1). Similar qualitative patterns are found with LAD, based on the percentage of tax filers contributing to an RPP.[3]

Both SLID and LAD suggest that pension coverage of prime-aged men fell and that pension coverage of young women rose between 1997 and 2004. However, SLID paints a more optimistic picture for young men and prime-aged women. It suggests that RPP coverage rose slightly for these two groups, while LAD indicates it remained virtually unchanged.

The divergence appears to arise because the SLID question used to measure pension coverage was more inclusive in 2000 than in 1998. This would explain why pension coverage of women aged 35 to 54 rose fully 4 percentage points between 1998 and 2000 (using SLID) while the percentage of female tax filers contributing to an RPP fell by one percentage point (using LAD). Changes in SLID question wording appear to have generated other spurious changes in pension coverage. Among prime-aged men and women, pension coverage fell by roughly 5 percentage points between 2001 and 2002 and then rose between 2002 and 2003. In contrast, LAD indicates a fairly stable percentage between 2001 and 2003 (Table 2). The combined results suggest that analyzing trends in RPP coverage with SLID is problematic after 1998. The remainder of this paper relies on LAD or PPIC to make inferences on RPP coverage for the 1998 to 2004 period.

Nevertheless, it is clear that, between 1986 and 2004, RPP coverage fell for young men and prime-aged men, changed little for young women (falling between 1986 and 1997 and then rising between 1997 and 2004), and rose for prime-aged women.

Table 2 Taxfilers[1] with a positive pension adjustment

	Men		Women	
	25 to 34	35 to 54	25 to 34	35 to 54
	%			
1991	37.8	54.7	35.5	43.8
1996	32.9	51.5	33.4	46.0
2001	32.7	47.9	34.4	45.7
2002	32.3	46.6	34.6	45.2
2003	33.0	47.0	36.1	46.3
2004	32.7	46.3	36.2	46.2

1 Annual earnings of at least $1,000 (1994 dollars).
Source: Statistics Canada, Longitudinal Administrative Databank

Regardless of the measure used, the proportion of men with an RPP fell for the married and unmarried (Table 3). For instance, 34% of married men aged 35 to 54 contributed to an RPP in 2004, compared with 43% in 1986. In contrast, RPP coverage dropped slightly among unmarried women but rose substantially among the married. In 2004, 38% of married women aged 35 to 54 contributed to an RPP, up from 31% in 1986. As a result, the mid-1980s gap in pension coverage between the two (with unmarried women being covered by a pension plan much more often than married women in 1986) had completely disappeared by 2004.

The growth in the incidence of RPPs among prime-aged married women likely reflects both increased labour force participation and their RPP coverage. It suggests that focusing solely on the decline in the proportion of husbands with an RPP may lead one to overestimate the decline in the percentage of couples with at least one RPP.

Cross-cohort convergence for women

One important issue is whether the drop in RPP coverage of young men led to a downward shift in their age-coverage profile. In other words, has the decline in their RPP coverage upon entering the labour force been fully offset by relatively fast growth in coverage in subsequent years?

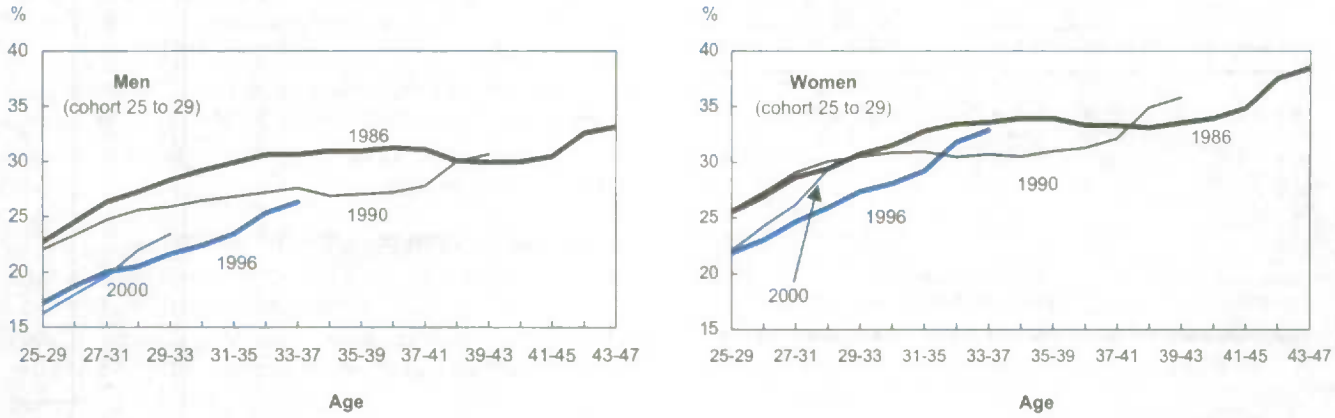
To investigate this question, four cohorts of young men and women, from 1986, 1990, 1996 and 2000 were examined to see what percentage contributed to an RPP between 1986 and 2004 (cohort aged 25 to 29 in 1986), 1990 and 2004 (the 1990 cohort), 1996 and 2004 (the 1996 cohort), and 2000 and 2004 (the 2000 cohort).

Table 3 Taxfilers[1] with an RPP, by age, sex and marital status

	Men				Women			
	25 to 34		35 to 54		25 to 34		35 to 54	
	Unmarried	Married[2]	Unmarried	Married[2]	Unmarried	Married[2]	Unmarried	Married[2]
				%				
Contributing to RPP								
1986	21.5	31.4	35.9	42.8	29.0	28.0	41.5	30.7
1991	20.8	28.7	33.9	40.5	28.0	29.1	42.4	36.0
1996	16.9	25.0	31.8	37.9	23.0	28.0	41.2	37.7
2001	16.3	21.9	27.9	32.5	23.0	26.9	36.4	35.3
2004	17.9	24.0	29.3	33.9	25.8	30.7	38.4	38.3
With positive pension adjustment								
1991	30.7	42.6	46.6	56.6	34.4	36.1	49.2	42.0
1996	26.2	37.4	44.4	53.3	29.7	35.3	48.7	45.0
2001	27.9	36.2	42.2	49.6	31.6	36.1	46.4	45.4
2004	28.0	36.2	41.4	47.7	32.7	38.3	46.5	46.1

1 Annual earnings of at least $1,000 (1994 dollars)
2 Includes common-law relationships
Source: Statistics Canada, Longitudinal Administrative Databank

Chart B Pension coverage has declined for all new labour force entrants, and for men the gap persists



Source: Statistics Canada, Longitudinal Administrative Databank

The 1996 cohort of young men entered the labour market with a 5 percentage-point lower RPP coverage than the 1986 cohort (Chart B). Eight years later, a gap of about 4 percentage points was still observed. Thus, the decline in RPP coverage experienced by the 1996 cohort of young men at entry (compared with the 1986 cohort) was not fully offset by relatively fast growth in coverage in subsequent years. A different story emerges for young women. While fewer members of the 1996 cohort contributed to an RPP when they entered the labour market (compared with the 1986 cohort), the incidence of RPP contributions almost fully converged during the subsequent eight years. (Part of the convergence observed in the last few years may have reflected the fairly rapid growth in coverage observed for all cohorts between 2002 and 2004.)

Why did RPP coverage fall?

Analysts have put forward a number of explanations to account for the decline in RPP coverage over the last two decades. First, increases in competition—from abroad or within industries—may have induced existing firms to cut labour costs by terminating some pension plans. New firms entering a market may also have avoided offering plans to maximize their chances of survival during their first few years of operation. Second, increases in employers' contributions to CPP/QPP may have played a role (Frenken 1996). Third, any increase in administrative costs (like an increase in hourly fees for actuarial services in defined-benefit plans) may have reduced the incentive to provide RPPs and led firms either to move to group RRSPs or to offer no retirement plans at all. Fourth, legislative changes introduced during the 1980s and early 1990s regarding vesting, locking in and cost sharing may have increased the costs of providing pension plans. (Many pension experts also cite court decisions that forced sponsors to share fund surpluses with beneficiaries.) Fifth, holding employees' rates of contributions and rates of return in financial markets constant, increases in workers' life expectancy made defined-benefit plans more costly for employers. Sixth, in recent years, low long-term interest rates have also increased the costs of offering defined-benefit RPPs. Seventh, it has sometimes been argued that employers have responded to the (assumed) greater 'tastes for mobility' of today's workers by offering alternative non-wage benefits, like group RRSPs, rather than conventional defined-benefit RPPs.

Two additional explanations are possible for RPP coverage decline since the mid-1980s. Employment moved towards low-coverage industries, and unionized jobs (many of which offer RPPs) became relatively less important as Canada's unionization rate fell (Morissette and Drolet 2001). Using the 1986 LMAS

Data sources and definitions

Pension Plans in Canada (PPIC) data come from the federal and provincial pension supervisory authorities. All pension plans registered with these authorities are included in the database. While PPIC provides a wealth of information on each pension plan (for example, employee contribution formula, benefit formula, and indexing of defined benefits and defined contribution benefits), as well as on the sex and province of residence of RPP members, it lacks information on important worker and job characteristics such as age, education, occupation, union status and firm size. As a result, it cannot be used to calculate coverage rates for workers of, say, different ages.

The Survey of Union Membership of 1984 (SUM), the Labour Market Activity Surveys of 1986-1990 (LMAS), and the Survey of Labour and Income Dynamics of 1993-2004 (SLID) combine information on RPP coverage, worker attributes and job characteristics.

One limitation of these household surveys is that the questions used to measure pension coverage change somewhat over time, thereby making inferences about the evolution of RPP coverage difficult for some groups, especially after 1998.

The Longitudinal Administrative Databank (LAD) of Statistics Canada overcomes this limitation. It provides two consistent measures of RPP coverage throughout the 1986 to 2004 period. Along with the household surveys, LAD can provide pension coverage for different age-sex categories. However, because it is based on tax records, it cannot be used to analyze RPP coverage by education, occupation, union status or industry.

All these data sets can be used to document trends in RPP coverage at the individual level. However, PPIC, SUM and LMAS do not contain family identifiers, so they cannot be used to document trends at the family level. With its large sample size, LAD allows an examination of the evolution of pension coverage of couples, lone-parents and unattached individuals over the 1986 to 2004 period.

Between 1984 and 1998, SUM, LMAS and SLID measured pension plan coverage by asking employees:

"Are you covered by a pension plan connected with this job (do not count, CPP/QPP, deferred profit-sharing plans or personal savings plans for retirement)?"

In 1999, 2000 and 2001, the question in SLID was changed to:

"In your job with this employer, did you have an employer pension plan?"

Additional questions were asked to assess whether respondents contributed to their pension plans, participated in a group RRSP or had their employer contribute to their group RRSP.

In 2002, the SLID question was changed once more:

"In your job with this employer, did you have an employer pension plan *not* including a group RRSP?"

The additional questions regarding employees' contributions to their pension plans, participation in a group RRSP and employers' contributions to a group RRSP remained intact. Then, in 2003 and 2004, SLID went back to the wording used from 1999 to 2001. The questions regarding employees' contributions to their pension plans and employers' contributions to a group RRSP remained unchanged while the question regarding employees' participation in a group RRSP was modified.

These changes in wording may have affected the trends in pension coverage that one can derive from SLID. Because the third version explicitly excludes group RRSPs while the second does not do so, some respondents interviewed in 1999 to 2001 or 2003 to 2004 may have reported their participation in a group RRSP. If so, pension coverage, as measured in SLID, should artificially drop between 2001 and 2002 and then increase between 2002 and 2003. Indeed, this spurious U-shaped pattern is observed for men and women aged 35 to 54.

LAD provides the percentage of tax filers participating in a contributory RPP and the percentage of tax filers with a positive pension adjustment and thus, most likely an RPP.[1] The first measure, which covers roughly three-quarters of all RPP members, is available back to 1986. The second is available only back to 1991. These two measures allow a comparison of trends in pension coverage at the individual level with those derived from LMAS and SLID.

LAD contains information on individuals' contributions to both RPPs and to registered retirement savings plan (RRSPs).[2] Using these two variables, it is possible to assess whether retirement savings of individuals and families have grown since the mid-1980s. Since these two variables do not reflect employers' contributions to RPPs, they provide only a partial assessment of Canadians' preparedness for retirement. Employer contributions to RPPs are captured through the pension adjustment variable.

and 1997 SLID and performing Oaxaca-Blinder decompositions on age/sex-specific models show that these two factors can account for at least three-quarters of the decline in RPP coverage for men and young women between 1986 and 1997. More precisely, the decline in unionization can account for at least 40% of the decline in RPP coverage for these groups.

To provide additional evidence on the importance of inter-industry employment shifts and de-unionization in RPP coverage decline, microdata from the 1986 LMAS and 1997 SLID can be pooled to estimate individual-level regressions (where controls for industry or union status are added to a constant term and a binary indicator that equals 1 for 1997 data, 0 other-

wise) (Table 4). Models with no controls (including only a constant term and the aforementioned binary indicator) indicate that RPP coverage of men aged 25 to 54 fell by 5.3 percentage points during the 1986 to 1997 period. Adding a control for (2-digit) industry reduces this decline to 2.2 points while adding a control variable for union status reduces it even more to 1.5 percentage points. When both controls are added, the decline almost vanishes, suggesting—as did Morissette and Drolet 2001—that employment shifts toward low-coverage industries and de-unionization accounted for a large share of the drop in men's RPP coverage.[4] Similar qualitative conclusions hold when findings for men and women are combined.

Arguably, the decline in unionization occurred in conjunction with several potential confounders: increases in competition between firms, increases in workers' life expectancy, increases in employers' contributions to CPP/QPP and legislative changes. Since the individual-level regressions do not control for these potential confounders, they might overestimate the impact of de-unionization. One extreme view is that de-unionization might simply be a proxy for unmeasured factors that reduced RPP coverage uniformly in all industries. While increases in competition between firms might have differed across industries, it is reasonable to assume that increases in workers' life expectancy, increases in employers' contributions to CPP/QPP and legislative changes tended to affect RPP coverage to the same degree in all industries.

Under this assumption, the hypothesis that de-unionization is simply a proxy for unmeasured factors that reduced RPP coverage uniformly in all industries can be tested using the following equation:

$$(1)\ Y_{jt} = a_j + \beta U_{jt} + \alpha_t + \varepsilon_{jt}$$

where a_j is an industry-specific fixed effect, Y_{jt} and U_{jt} denote the percentage of workers covered by an RPP and the percentage of unionized workers in industry j in year t, respectively, and ε_{jt} is an error term. The term α_t captures the influence of unmeasured factors that influence RPP coverage in an undifferentiated manner in all industries. First-differencing the equation leads to the following model:

$$(2)\ \Delta Y_j = \beta \Delta U_j + \alpha' + \Delta \varepsilon_j$$

where changes in industry-level RPP coverage over the 1986 to 1997 period, ΔY_j, are related to changes in the unionization rate in various industries, ΔU_j, and where $\alpha' \equiv \alpha \bullet 11$. If de-unionization is simply a proxy for unmeasured factors that reduced RPP coverage uniformly in all industries, then β should equal zero when estimating equation (2). Conversely, if de-unionization reduced RPP coverage, industries that experienced declines in unionization should also have experienced declines in RPP coverage. Under this second scenario, β would be positive.

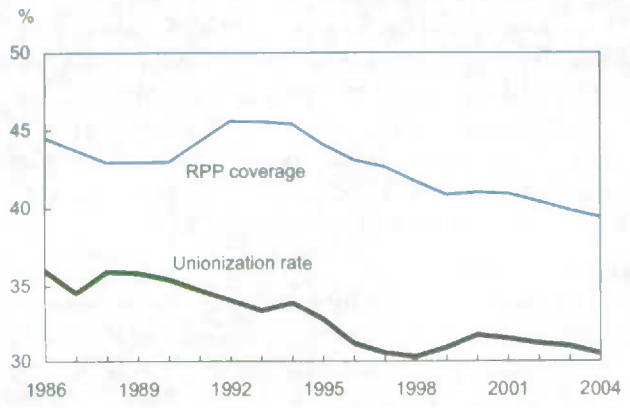
The numbers strongly support the notion that de-unionization tended to reduce RPP coverage. Whichever samples are used, equation (2) βs range between 0.39 and 0.75, suggesting that industries that experienced an extra 10 percentage-point decline in unionization also experienced at least an extra 4-point decline in RPP coverage. Furthermore, these estimates of the impact of de-unionization are very similar to those from individual-level regressions—between 0.35 and 0.51. Therefore, unless industries that experienced sharp declines in unionization also experienced strong increases in competition, the numbers suggest that de-unionization had a sizeable impact on workers' RPP coverage during the 1986 to 1997 period.

Table 4 Unionization and RPP coverage, 1986 to 1997

	Both sexes	Men	Women
		% point	
Individual-level regressions[1]			
No controls	-2.5	-5.3	1.3
Industry	0.0	-2.2	2.9
Union status	0.3	-1.5	2.7
β value	(0.48)	(0.44)	(0.51)
Industry and union status	1.5	-0.1	3.4
β value	(0.39)	(0.35)	(0.42)
Industry-level regressions[2]			
Weighted, β value	(0.56)	(0.39)	(0.75)
Unweighted, β value	(0.45)	(0.60)	(0.56)

1 Paid workers aged 25 to 54 and employed in their main job in December 1986 or December 1997.
2 The dependent variable is the change in the percentage of workers covered by an RPP in a given industry over the 1986 to 1997 period.
Note: In both regressions, the union status variable is statistically significant at the 5% level (two-tailed test).
Sources: Statistics Canada, Labour Market Activity Survey, 1986; Survey of Labour and Income Dynamics, 1997; authors' calculations

Chart C The influence of unionization on RPP coverage has waned



Sources: Statistics Canada, Pension Plan in Canada; Labour Market Activity Survey, 1986 to 1990; Survey of Labour and Income Dynamics, 1993 to 2004

The influence of unionization on RPP coverage is likely to have waned after 1997, since RPP coverage kept falling, even though the unionization rate changed very little between 1998 and 2004 (Chart C). In contrast, employment shifts toward low-coverage industries appear to have persisted. This can be seen by applying the 2004 distribution of employment by industry (4-digit NAICS codes) to the 1997 vector of industry-specific values of RPP coverage (obtained from SLID 1997): RPP coverage in the aggregate drops by roughly 1.5 percentage points from 1997 values.[5] Since PPIC data suggest that RPP coverage fell by about 3 percentage points between 1998 and 2005 (Table 5), inter-industry employment shifts seem to have been an important contributor both during the 1986 to 1997 period and subsequently.

Why did RPP coverage fall since the mid-1980s? This was likely in response to a wide variety of factors. Since the impact of some factors—for example, growing competition between firms and increases in workers' life expectancy—is difficult to quantify, a complete decomposition of the sources is virtually impossible. Nevertheless, evidence strongly suggests that both de-unionization and employment shifts toward low-coverage sectors played important roles. And, while the decline in RPP coverage since the mid-1980s likely reflects a wide variety of factors, the influence of some—such as, unionization and low long-term interest rates—has clearly changed over time.

Modest decline in family RPP coverage

The proportion of families with at least one RPP depends on the proportion of RPP holders among men and women of working age as well as the degree to which those with an RPP marry each other. The proportion of RPP holders in year t is given by the equation:

$$(3)\ RPP_t/POP_t = [RPP_t/L_t] * [L_t/LF_t] * [LF_t/POP_t]$$

where RPP_t, L_t, LF_t and POP_t all refer to individuals aged 15 and over and denote the number of RPP members, the number of employees (including incorporated self-employed individuals), the labour force and the working-age population, respectively.[6] Clearly,

Table 5 Individuals with an RPP[1]

	Men				Women			
	RPP/L	L/LF	LF/POP	RPP/POP	RPP/L	L/LF	LF/POP	RPP/POP
				%				
1978	52.9	83.0	77.6	34.1	36.0	83.5	46.5	14.0
1984	52.9	77.9	76.9	31.6	35.8	81.2	53.0	15.4
1988	49.3	81.6	76.8	30.9	34.8	83.6	56.5	16.4
1994	47.9	77.4	73.3	27.2	42.4	81.3	57.7	19.9
1998	43.2	79.4	72.2	24.8	39.9	81.8	57.8	18.9
2003	40.4	81.9	73.0	24.2	39.2	85.0	60.9	20.3
2005	39.2	82.5	73.2	23.7	39.1	85.7	62.0	20.8

1 Individuals 15 and over.
Sources: Statistics Canada, Labour Force Survey; Pension Plans in Canada

the proportion of RPP holders among individuals of working age depends on three factors: the RPP coverage of employees [RPP_t/L_t], the proportion of employees among labour market participants [L_t/LF_t], and the participation rate [LF_t/POP_t]. Thus, a decline in pension coverage of employees does not necessarily lead to a decrease in the proportion of individuals with an RPP. For instance, the proportion of women with an RPP could increase over time if increases in women's participation rates more than offset any decrease in their pension coverage.

The decline in men's RPP coverage between 1978 and 2005, combined with a slight decrease in their participation rates, led to a 10 percentage-point decline in the proportion of men with an RPP. In contrast, the percentage of women with an RPP rose, the result of a strong increase in labour market involvement and a slight increase in RPP coverage. In 2005, 21% of women of working age had an RPP, compared with only 14% in 1978. The growing incidence of RPPs among women almost fully offset the decline in the proportion of men with an RPP. As a result, the overall percentage of those with an RPP changed very little, from 24% in 1978 to 22% in 2005. Dividing RPP_t by the number of individuals aged 15 to 64 yields corresponding estimates of 27% and 26% for 1978 and 2005, respectively (data not shown). Taken together, these numbers suggest that the percentage of couples with at least one RPP may not have changed much over the last two decades.

About one half of young couples and almost two-thirds of prime-aged couples had at least one RPP in 2004 (Table 6). More importantly, couples did not experience a massive decline in pension coverage over the last two decades. While the percentage of couples with at least one RPP did fall, the drop was moderate—only 3 to 5 percentage points.

This was the case because the growth in the proportion of wives with an RPP helped mitigate a substantial decline in the proportion of husbands with an RPP. For instance, RPP membership among husbands aged 35 to 54 fell substantially, from 56.7% in 1991 to 47.7% in 2004. In contrast, participation in an RPP rose by over 5 percentage points among their wives. Part of the increase benefited couples in which both partners had an RPP (0.8 percentage point). The net result was that the proportion of prime-aged couples with at least one RPP fell less than 5 percentage points (from 66.5% to 61.9%), about half the 9-point decline for prime-aged husbands with an RPP. The growing proportion of wives with an RPP also constrained the decline in RPP coverage among young couples.[7]

Table 6 Couples[1] with RPPs

	Husband[2] 25 to 34				Husband[2] 35 to 54			
	None	Husband only	Wife only	Both	None	Husband only	Wife only	Both
				%				
Contributing to RPP								
1986	57.9	23.2	10.7	8.2	48.5	31.6	8.6	11.3
1991	58.8	19.9	12.5	8.9	47.9	26.4	11.5	14.2
1996	62.7	17.1	12.3	7.8	49.5	23.9	12.7	13.9
2001	64.6	14.7	13.1	7.5	53.5	20.0	14.0	12.5
2004	60.9	14.9	14.8	9.4	51.0	19.7	15.1	14.2
Positive pension adjustment								
1991	45.0	28.5	12.3	14.2	33.5	36.2	9.8	20.5
1996	49.7	24.6	12.9	12.8	35.5	32.4	11.4	20.7
2001	49.3	22.7	14.1	13.9	37.2	28.4	13.2	21.2
2004	48.4	21.4	15.3	14.9	38.1	26.4	14.2	21.3

1 Includes common-law relationships.
2 Husband has annual wages and salaries of at least $1,000 (1994 dollars).
Source: Statistics Canada, Longitudinal Administrative Databank

Table 7 Prime-aged couples with RPP, by earnings[1]

	1991	1996	2001	2004
With positive pension adjustment		%		
Bottom 20%				
None	73.1	76.2	75.3	75.6
Husband	20.4	17.1	16.7	15.4
Wife	5.1	5.3	6.2	7.1
Both	1.4	1.3	1.8	1.9
Middle 20%				
None	23.3	24.3	26.6	27.9
Husband	49.1	45.0	37.7	34.7
Wife	11.7	14.0	16.0	17.3
Both	15.9	16.7	19.7	20.1
Top 20%				
None	16.7	18.2	21.9	22.4
Husband	26.1	23.7	22.2	21.1
Wife	10.0	11.9	14.4	15.3
Both	47.1	46.2	41.4	41.2

1 Husband has annual earnings of at least $1,000 (1994 dollars) and aged 35 to 54.
Source: Statistics Canada, Longitudinal Administrative Databank

While the proportion of couples with at least one RPP fell slightly, the fraction where both partners hold an RPP changed very little. Both in 1991 and 2004, about 15% of young couples and one-fifth of prime-aged couples held two RPPs.[8]

Trends similar across earnings levels

These averages potentially mask significant differences across segments of the earnings distribution. High-income couples have—as expected—much better RPP coverage than their lower-paid counterparts (Table 7). Throughout the 1991 to 2004 period, roughly 80% of prime-aged couples in the top fifth of the earnings distribution had at least one RPP and at least 40% of them had two RPPs. In contrast, only one-quarter of their counterparts in the bottom fifth had at least one RPP and very few (2% at most) held two RPPs. Did the percentage of couples with at least one RPP fall more among couples at the lower end than among those in the upper end? No—between 1991 and 2004, the proportion of prime-aged couples with at least one RPP fell by roughly 3, 5 and 6 percentage points in the bottom, middle and top fifths, respectively. Meanwhile, the proportion with two RPPs fell by 6 points at the top but rose by 4 points in the middle. Hence, participation in RPPs became more polarized among 'middle-class' couples, as they became more likely not only to have no RPPs but also to have two.

Uneven growth in retirement savings

While pension coverage provides useful information on an important component of workers' total compensation and of families' retirement packages, it is silent on the extent to which Canadian families prepare themselves for retirement. One way to address this issue is to examine how contributions to tax-assisted retirement savings programs have evolved over time.[9]

On average, Canadian couples appear to be better prepared for retirement now than two decades ago: average retirement savings of couples grew during the 1986 to 2004 period. Combined, RPP and RRSP contributions grew from $2,000 in 1986 to $3,300 in 2004 among young couples (Table 8). Likewise, prime-aged couples saw their RPP and RRSP contributions rise from $3,900 in 1986 to $5,400 in 2004. For both young and prime-aged couples, most of the increase in total contributions came from an increase in husbands' RRSP contributions. In both cases, husbands' RPP contributions fell, on average. However, that drop was more than offset by husbands' and wives' growing RRSP contributions. Summing pension adjustments and RRSP contributions also implies that retirement savings of two-parent families grew over the 1991 to 2004 period. However, with this broader measure, more than half of the increase in retirement savings can be attributed to wives' growing pension adjustments and RRSP contributions.

The increase in total contributions differed markedly across segments of the earnings distribution. Young and prime-aged couples in the top fifth of their earnings distributions enjoyed increases in combined RRSP and RPP contributions of $3,500 and $4,000, respectively, between 1986 and 2004 (Table 9).[10] Those in the middle fifth also experienced significant growth. In contrast, their counterparts at the bottom saw the sum of their RRSP and RPP contributions stagnate, although some increase was observed during the second half of the 1990s among prime-aged couples.[11] Similar qualitative conclusions can be drawn from the sum of pension adjustments and RRSP contributions.

Table 8 Average RPP and RRSP contributions and pension adjustment of couples[1]

	Husband 25 to 34				Husband 35 to 54			
	Husband		Wife		Husband		Wife	
	RPP/PA	RRSP	RPP/PA	RRSP	RPP/PA	RRSP	RPP/PA	RRSP
				$				
RPP and RRSP contributions								
1986	600	800	300	300	1,200	1,700	400	600
1991	600	1,000	300	400	1,100	2,000	500	800
1996	500	2,000	300	900	1,000	3,300	500	1,400
2001	400	1,900	300	900	800	2,900	500	1,300
2004	500	1,600	400	800	1,000	2,600	600	1,200
RRSP contributions and pension adjustment[2]								
1991	1,600	1,000	700	400	3,100	2,000	1,000	800
1996	1,400	2,000	700	900	2,900	3,300	1,100	1,400
2001	1,500	1,900	900	900	3,000	2,900	1,400	1,300
2004	1,600	1,600	1,000	800	3,000	2,600	1,500	1,200

1 Husband has annual earnings of at least $1,000 (1994 dollars).
2 In 2002 dollars.
Source: Statistics Canada, Longitudinal Administrative Databank

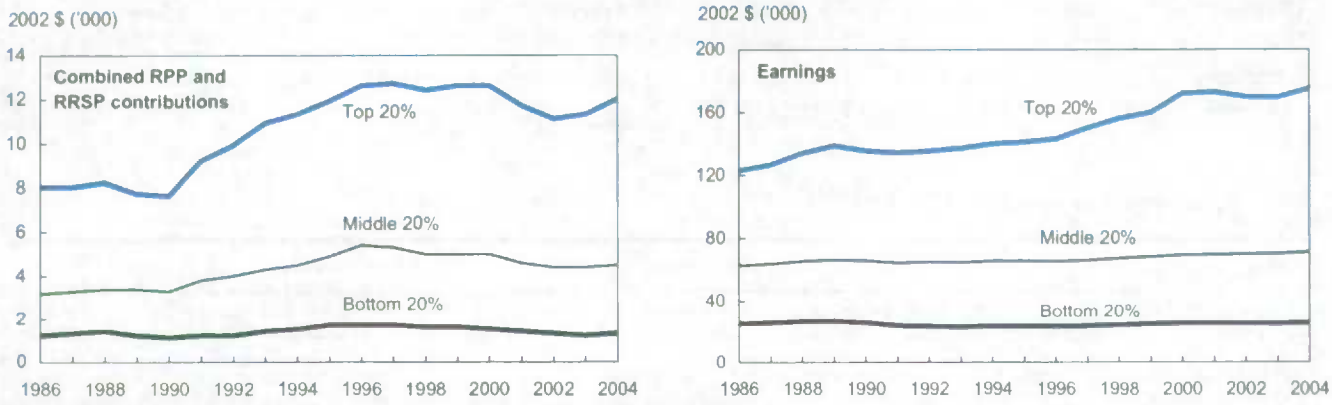
Table 9 Pension contributions of couples by earnings[1]

	Husband 25 to 34			Husband 35 to 54		
	Bottom 20%	Middle 20%	Top 20%	Bottom 20%	Middle 20%	Top 20%
			$			
Combined RRSP and RPP						
1986	400	1,600	4,600	1,200	3,200	8,000
1991	400	1,800	5,400	1,200	3,800	9,200
1996	600	3,000	8,800	1,700	5,400	12,600
2001	500	2,600	8,600	1,400	4,600	11,700
2004	400	2,400	8,100	1,300	4,500	12,000
Combined RRSP and pension adjustment						
1991	500	3,000	8,900	1,500	6,000	14,600
1996	700	4,000	12,100	2,000	7,600	18,200
2001	600	3,900	12,600	1,800	7,400	18,100
2004	600	3,800	12,100	1,600	7,200	18,000

1 Husband has annual earnings of at least $1,000 (1994 dollars).
Source: Statistics Canada, Longitudinal Administrative Databank

Hence the distribution of retirement savings became more unequal. In 1986, combined RRSP and RPP contributions made by couples at the top were at least $4,200 (or at least 6.7 times) greater, on average, than those made by their counterparts at the bottom. By 2004, combined contributions by the former were at least $7,700 (or at least 9.2 times) greater, on average, than those by the latter. Similar patterns are observed from 1991 to 2004 with the broader measure of retirement savings. Part of this increase in inequality in retirement savings is no doubt associated with the growth in family earnings inequality that took place between 1986 and 2004 (Chart D). Prime-aged couples in the top fifth saw their average earn-

Chart D The increase in retirement savings inequality mirrored the increase in earnings inequality



Source: Statistics Canada, Longitudinal Administrative Databank

ings rise from $122,700 (in 2002 dollars) to $175,100. In contrast, their counterparts at the bottom experienced virtually no growth in employment income ($24,600 in 1986 and $25,000 in 2004).[12]

Among prime-aged couples, retirement savings of women remain below those of men, reflecting in part their lower participation rates (Table 10). However, as a result of their growing labour market participation, retirement savings have generally increased more among women than men over the 1991 to 2004 period. For instance, among prime-aged couples in the top fifth, women's retirement savings rose by $1,900. In the middle fifth, women's savings rose by $900. In contrast, men's retirement savings increased by $1,300 and $300. As a result, wives' share of savings increased.

Summary

Since the late 1970s, the proportion of employees covered by RPPs fell as employers moved away from defined-benefit plans to a greater extent than they increased the supply of defined-contribution RPPs. While increases in competition between firms, increases in workers' life expectancy, increases in employer contributions to CPP/QPP and EI, legislative changes in the 1980s, and low long-term interest rates in recent years may all have contributed, employment shifts toward low-coverage industries and de-unionization

Table 10 Pension adjustment and RRSP contributions of husbands and wives, by earnings, prime-aged couples[1]

	1991	1996	2001	2004
			$	
Bottom 20%				
Husband				
PA	400	300	450	400
RRSP	800	1,200	900	800
Wife				
PA	100	100	100	100
RRSP	200	400	400	300
Middle 20%				
Husband				
PA	3,000	2,900	2,900	2,900
RRSP	1,800	2,900	2,500	2,200
Wife				
PA	600	800	1,100	1,200
RRSP	600	1,000	1,000	900
Top 20%				
Husband				
PA	6,100	5,800	5,600	5,600
RRSP	3,800	6,200	5,900	5,600
Wife				
PA	2,900	3,000	3,400	3,700
RRSP	1,900	3,200	3,200	3,000

1 Husband has annual earnings of at least $1,000 (1994 dollars).
Source: Statistics Canada, Longitudinal Administrative Databank

Appendix

The following table replicates Table 5 but redefines RPP as the number of RPP members in defined-benefit plans. The percentage of men with a defined-benefit RPP fell from 32% in 1978 to 19% in 2005, the percentage of women with a defined-benefit RPP rose from 13% to 17% during that period, and the percentage of individuals with a defined-benefit RPP fell from 22% to 18%. Using the number of individuals aged 15 to 64 as a denominator, the percentage of individuals with a defined-benefit RPP falls from 25% to 21%.

Individuals with a defined-benefit RPP[1]

	Men				Women			
	RPP/L	L/LF	LF/POP	RPP/POP	RPP/L	L/LF	LF/POP	RPP/POP
				%				
1978	48.9	83.0	77.6	31.5	34.5	83.5	46.5	13.4
1984	48.9	77.9	76.9	29.2	33.7	81.2	53.0	14.5
1988	44.9	81.6	76.8	28.1	32.0	83.6	56.5	15.1
1994	42.3	77.4	73.3	24.0	38.3	81.3	57.7	17.9
1998	36.5	79.4	72.2	20.9	35.1	81.8	57.8	16.6
2003	32.5	81.9	73.0	19.4	33.1	85.0	60.9	17.1
2005	30.9	82.5	73.2	18.7	32.7	85.7	62.0	17.4

1 Individuals aged 15 and over.
Sources: Statistics Canada, Labour Force Survey; Pension Plans in Canada

appear to have been key factors underlying the decline in RPP coverage between the mid-1980s and the late 1990s.

While sharp declines in RPP coverage of men and slight declines in their overall labour force participation caused a substantial decrease in the proportion holding RPPs, the substantial growth in women's labour force participation and, to a lesser extent, the slight increase in their aggregate coverage rate, almost fully offset these trends. The net result was that the overall percentage of RPP holders among individuals of working age changed very little between 1978 and 2005. In both years, roughly one quarter of Canadians aged 15 to 64 had an RPP.

Abstracting from potential substitution effects between men and women of different ages and skills, the growing labour market involvement of wives had a positive impact on families' RPP coverage. Specifically, because wives of prime-aged husbands increased both their labour force participation and their RPP coverage, the proportion of prime-aged couples with at least one RPP fell much less than the proportion of prime-aged husbands with RPPs. As a result, Canadian couples experienced only a moderate (rather than a substantial) decline in RPP coverage over the past two decades.

On average, Canadian families are better prepared for retirement today than their counterparts were in the past. However, this scenario does not apply universally. Two-parent families located in the bottom 20% of the earnings distribution are not better prepared for retirement now than in the past. However, those located in the top 20% appear better prepared. Canadian families' contributions toward retirement, which were fairly unequal in the mid-1980s, have become even more unequal over the last two decades. To a large extent, the growth in inequality in retirement savings seems to reflect the large increase in family earnings inequality over the last two decades. This increase in family earnings inequality is in turn driven by a widening dispersion of the permanent component of family earnings, rather than by factors that are transitory in nature (Morissette and Ostrovsky 2005).

Several caveats should be noted. First, this study has examined the evolution of retirement preparedness since the mid-1980s, not the degree to which current retirement savings are adequate to maintain living

standards once retirement age is reached. Second, preparedness for retirement was measured using two different rubrics—the first measure used the sum of contributions to registered pension plans (RPPs) and registered retirement savings plans (RRSPs); the second used the pension adjustment variable, thus implicitly adding employer RPP contributions. However, neither the move from defined-benefit RPPs to defined-contribution RPPs (and its implications in terms of economic security for Canadian workers) nor the increased longevity of seniors was taken into account. These two factors will clearly influence families' living standards after retirement.

Recent research has shown that the maturation of the Canada and Quebec Pension Plans led to a substantial reduction in income inequality among the elderly between the early 1980s and the mid-1990s (Myles 2000). Part of this reduction in inequality may be lost in coming years, since growing inequality in contributions toward retirement among families could, in the absence of offsetting factors, make the distribution of family income among seniors more unequal.

Perspectives

Notes

1 The pension adjustment is the sum of credits for the year, if any, from deferred profit-sharing plans or benefit provisions of RPPs. Membership in deferred profit-sharing plans is very small compared with membership in RPPs: in 1993, the former represented only 7% of the latter (Frenken 1995). As a result, changes in the percentage of tax filers with positive pension adjustment should reflect mainly changes in the percentage of tax filers who are members of RPPs.

2 Information on individuals' contributions to RRSPs is available back to 1982 while individuals' contributions to RPPs are available back to 1986.

3 The percentages shown with LAD are smaller than those shown with the LMAS and SLID for two reasons. First, the denominator used (the number of tax filers with annual earnings of at least $1,000 in 1994 constant dollars, in LAD, versus the number of workers employed in May in their main job in the LMAS and SLID) is bigger in LAD than it is in the LMAS or SLID. Second, tax filers contributing to an RPP are only a subset of all RPP members.

4 Apart from industry and union status, Morissette and Drolet (2001) include controls for occupation, province, age and part-time status in their analysis.

5 Among employees for whom industries of employment are known (96% of the employees in the cross-sectional sample drawn from SLID 1997), aggregate RPP coverage in SLID drops from 46.3% to 44.7% with this standardization.

6 Ideally, one would like to define equation (3) for individuals aged 15 to 64. This is not possible since the Pension Plans in Canada database provides no information on age.

7 The percentage of young couples with at least one RPP fell by 3.4 percentage points between 1991 and 2004, less than the 6.4-point decline in the proportion of young married men with an RPP.

8 The percentage of prime-aged couples where both partners contribute to an RPP rose from 11% in 1986 to 14% in 2004.

9 RRSP contributions include contributions to group RRSPs in addition to individual RRSPs. Tax data do not distinguish the former from the latter.

10 The growth in husbands' RRSP contributions was the main factor underlying the increase in total contributions made by couples in the top fifth. The second most important factor was the growth in wives' RRSP contributions. For instance, among prime-aged couples, husbands' RRSP contributions increased by $2,400 between 1986 and 2004 while wives' RRSP contributions grew $1,500. In contrast, in the bottom fifth, husbands' RRSP contributions remained unchanged while wives' RRSP contributions grew a modest $200.

11 One potential explanation for the stagnation of retirement savings of families in the lowest levels of the earnings distribution is that some may have few incentives to save for retirement, given the current structure of the transfer programs targeted for seniors (for more details see Shillington 1999). Alternatively, the stagnation of their family earnings may also have constrained their retirement savings (Chart D).

12 Retirement savings rates changed very little among families in the bottom or top fifths. Among families in the middle fifth, rates rose slightly, from 5.1% in 1986 to 6.3% in 2004.

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Depression at work

Heather Gilmour and Scott B. Patten

Worldwide, depression is the leading cause of chronic disability (Ustun, Yuso-Mateos, Chatterji et al. 2004). It can affect many aspects of life, including work. In fact, the impact of depression on job performance has been estimated to be greater than that of many other long-term ailments, such as arthritis, hypertension, back problems and diabetes (Kessler, Greenberg, Mickelson et al. 2001).

Although the various disabilities associated with depression may seriously impede an individual's ability to find and keep a new job,[1] many people who have recently had a major depressive episode (depression) are in the workforce. In 2002, the majority (71%) of 25- to 64-year-old Canadians who reported having experienced a major depressive episode in the previous 12 months were employed; however, symptoms associated with this condition may have hampered their ability to perform their jobs.

Indeed, depression among the employed has been linked with both absenteeism and diminished productivity (known as 'presenteeism'). In Canada, the cost of productivity losses in the form of short-term disability days due to depression was estimated at $2.6 billion in 1998 (Stephens and Joubert 2001).[2]

This article is based on results from the 2002 Canadian Community Health Survey (CCHS), cycle 1.2: Mental Health and Well-being, and the 1994/1995 to 2002/2003 National Population Health Surveys (NPHS) (see *Data sources and methodology*). The prevalence of a major depressive episode among employed Canadians aged 25 to 64 is first studied according to selected job, health and sociodemographic characteristics (see *Definitions*). The impact of depression on work impairment is then assessed via associations with reduced work activities, mental health disability days and work absences, using multivariate logistic regression models.

In this study, work impairment covers both absenteeism (absent from work one or more days the previous week) and presenteeism (reduced work activities). A third measure of impairment (at least one mental health disability day in the previous two weeks) combines elements of both, in that it represents days spent mostly or entirely in bed (absenteeism), as well as days respondents had to cut down on activities or expend extra effort to perform them (see *Work impairment*).

Almost half a million workers live with depression

An estimated 489,000 Canadians aged 25 to 64 who were employed at the time of their 2002 CCHS interview (3.7% of workers) had experienced a major depressive episode in the previous 12 months (Table 1). Moreover, an additional million workers (8% of the workforce) had experienced depression some time in their lives, although not in the past year (data not shown).

The occurrence of depression in the workforce was twice as prevalent among women as men (5.1% vs. 2.6%)[3] and was much more common among persons who were divorced, separated or widowed (7.5%)—as opposed to those married or in a common-law relationship (3.0%). Workers who lived in lower-income households were also more likely to suffer from depression than those living in higher-income households (4.7% vs. 3.4%). Persons with chronic health conditions lasting at least 6 months—such as arthritis, diabetes or cancer—were almost twice as likely as those without these ailments to have been depressed.[4] Differences by age and education were not significant.

Previous research has shown that work stress is linked to depression and other psychological disorders (Wang 2005 and Shields 2006). Data from the 2002 CCHS

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support this finding. Indeed, workers who reported high levels of work stress were more likely to have reported depression in the last 12 months than workers who had lower levels of work stress (6.0% vs. 2.5%). In addition, workers reporting anxiety disorders in the past 12 months, or alcohol or drug dependency, were much more likely to have suffered a major depressive episode during that period than those who did not have these problems (20.0% vs. 2.9% for anxiety disorders).

Depression was also associated with several job-related characteristics, including occupation and shift work. Sales and service workers and those in white-collar jobs were more likely than blue-collar workers to have faced depression in 2002 (Table 1).[5] Regular evening and night shift workers were more likely to report a major depressive episode than those working a regular day schedule (5.6% vs. 3.5%).[6]

The prevalence of depression was relatively low among workers who spent more than 40 hours a week on the job (2.6%), compared with those who worked less than 30 hours (5.7%). This discrepancy may, in part, reflect the impact of mental health on hours worked—at the time of the survey, many recently or currently depressed individuals may not have been capable of working full-time.

Depression interferes with work

CCHS respondents who reported a major depressive episode in the previous year were asked to what degree, on a scale of 1 to 10, the illness had interfered with various aspects of their lives during the period the symptoms had been

Table 1 Prevalence of major depressive episode in previous 12 months among employed 25 to 64 year-olds

	'000	%
Total	**489.0**	**3.7**
Sex		
Men (ref)	184.6	2.6
Women	304.3	5.1 *
Age		
25 to 44	317.2	4.1
45 to 64 (ref)	171.8	3.2
Occupation		
White-collar	264.6	3.9 *
Sales or service	107.9	4.6 *
Blue-collar (ref)	77.6	2.5
Weekly work hours		
1 to 29	90.5	5.7 *
30 to 40 (ref)	273.5	4.1
Over 40	124.3	2.6 *
Work schedule		
Regular day (ref)	331.7	3.5
Regular evening or night	48.1[E]	5.6[E]*
Irregular or rotating shift	109.2	4.0
High self-perceived work stress		
Yes	260.5	6.0 *
No (ref)	216.6	2.5
Marital status		
Married or common-law (ref)	292.7	3.0
Divorced, separated or widowed	98.8	7.5 *
Single (never married)	96.5	5.0 *
Education		
High school graduation or less (ref)	151.5	3.5
Some postsecondary	35.5[E]	4.2[E]
Postsecondary certificate, diploma or degree	296.4	3.8
Household income		
Lowest, lower-middle or middle	114.6	4.7 *
Upper-middle or highest (ref)	344.1	3.4
Chronic condition		
Yes	328.2	4.9 *
No (ref)	159.8	2.5
Body Mass Index category		
Underweight or normal (ref)	241.0	4.0
Overweight	162.3	3.5
Obese	77.5	3.4
Anxiety disorder in past 12 months		
Yes	108.3	20.0 *
No (ref)	357.4	2.9
Anxiety disorder in lifetime, but not in past 12 months		
Yes	46.4	5.0 *
No (ref)	311.0	2.7
Alcohol or drug dependence in past 12 months		
Yes	28.7[E]	9.3 *
No (ref)	458.6	3.6

* Significantly different from the reference group (ref) at less than the 0.05 level.
Source: Statistics Canada, Canadian Community Health Survey, cycle 1.2; Mental Health and Well-being, 2002

Definitions

In the CCHS, respondents were initially asked if they had experienced several days or longer when most of the day they had felt sad, empty or depressed; or very discouraged about how things were going on in their lives; or they had lost interest in most things they usually enjoyed—like work, hobbies and personal relationships. Those responding in the affirmative to at least one scenario were asked more specific questions to determine if they had a lifetime history of major depression, and if they had experienced a major depressive episode in the previous 12 months.

In the NPHS, the criteria were simpler and respondents were asked only a subset of questions.

An overall score was calculated for each respondent, and the results transformed into a probability estimate of a diagnosis of major depression in the previous 12 months. An individual was considered to have experienced a major depressive episode if the probability of a correct diagnosis was 90% or greater. A complete listing of the specific questions for both surveys can be found in the original study (Gilmour and Patten 2007). In this analysis, CCHS estimates of a major depressive episode exclude persons reporting a lifetime episode of mania; these people are included in NPHS estimates, however.

Respondents were **employed** if they had worked the week before their interview, or had a job or business from which they had been temporarily absent, for reasons such as illness, vacation or family responsibilities. Both employees and the self-employed were surveyed.

CCHS **occupation** data were collapsed into three broad categories: white-collar (management; professionals; technologists, technicians and persons in technical occupations; and administrative, financial and clerical occupations), sales or service, and blue-collar (trades, transport and equipment operators; farming, forestry, fishing and mining; and processing, manufacturing and utilities). Occupations from the NPHS were categorized as white-collar (administrative and professional), sales or service, and blue-collar.

Weekly work hours is the number of hours *usually* worked at a job or business, including paid or unpaid extra hours.

Work schedules were: regular day schedule; regular evening or night shift; and rotating or irregular shift (split, 'on call', irregular and other work schedules).

Weekly work hours and schedules were based on the main job (i.e. the job involving the most weekly hours).

Household income ranges were based on the number of people in the household and their combined income from all sources in the preceding 12 months.

Chronic health conditions in the CCHS are long-term conditions that lasted or were expected to last six months or more and were diagnosed by a health care professional: asthma; arthritis and rheumatism; back problems (other than fibromyalgia and arthritis); high blood pressure; migraine headaches; chronic bronchitis, emphysema and COPD (chronic obstructive pulmonary disease); diabetes; epilepsy; heart disease; cancer; stomach and intestinal ulcers; the effects of a stroke; bowel disorders (e.g. Crohns disease, colitis); Alzheimers disease and other dementia; cataracts; glaucoma; and thyroid conditions.

The NPHS considered: asthma; arthritis and rheumatism; back problems (other than arthritis); high blood pressure; migraine headaches; chronic bronchitis and emphysema; diabetes; epilepsy; heart disease; cancer; stomach and intestinal ulcers, the effects of a stroke; Alzheimers disease and other dementia; and glaucoma.

Body Mass Index (BMI) was calculated by dividing weight in kilograms by height in metres squared. Three categories were used: underweight/normal (BMI less than 25), overweight (25 to 29), and obese (30 and over).

Respondents were considered to have had an **anxiety disorder** in the past 12 months if they met the diagnostic criteria for panic disorder, or agoraphobia or social anxiety disorder during that period.

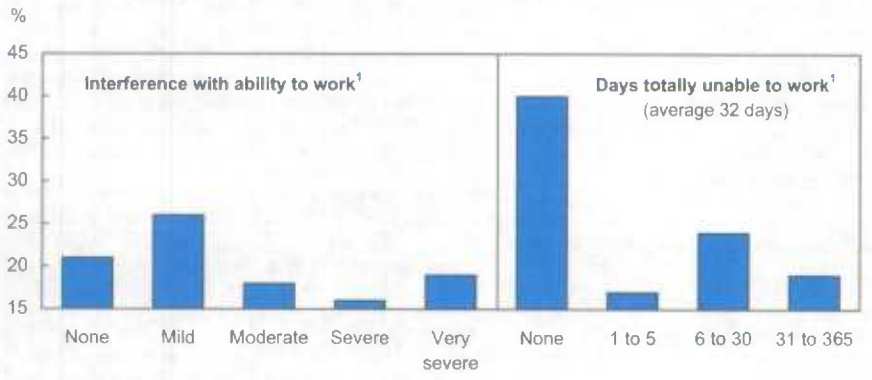
Alcohol or drug dependence in the past 12 months refers to respondents who met the criteria for dependence on alcohol or illicit drugs.

The **daily smoker** variable was available from NPHS respondents only.

Household size and income

Income range	People in household	Total household income
		$
Lowest	1 to 4	Under 10,000
	5 or more	Under 15,000
Lower-middle	1 or 2	10,000 to 14,999
	3 or 4	10,000 to 19,999
	5 or more	15,000 to 29,999
Middle	1 or 2	15,000 to 29,999
	3 or 4	20,000 to 39,999
	5 or more	30,000 to 59,999
Upper-middle	1 or 2	30,000 to 59,999
	3 or 4	40,000 to 79,999
	5 or more	60,000 to 79,999
Highest	1 or 2	60,000 or more
	3 or more	80,000 or more

Chart A Most workers experiencing depression reported some impact on their job performance



1 In the past 12 months.
Source: Statistics Canada, Canadian Community Health Survey, cycle 1.2; Mental Health and Well-being, 2002

most severe. They were also asked how many days depressive symptoms had rendered them totally unable to work or carry out normal activities.

Most workers (8 in 10) who had experienced depression in the 12 months prior to their interviews reported that their symptoms had interfered with their ability to work to some degree (Chart A). For example, one in five had experienced very severe interference with their ability to perform their jobs, and an additional one-third had experienced moderate to severe interference. On average, workers with major depression had been totally unable to work or carry out normal activities for 32 days in the course of the previous year.

The marked degree to which depression interferes with the ability to function at work is not surprising, since symptoms can include a loss of energy, disinterest in the job and a diminished ability to focus on tasks, combined with feelings of discouragement or hopelessness. Many elements crucial to competent job performance can be affected by such symptoms, for instance, time management, concentration, teamwork and overall output (Burton, Pransky, Conti et al. 2004).

Nonetheless, one in five workers who experienced depression in the previous year reported no interference at work. Even more (40%) never had a day when they had been totally unable to work or carry out normal activities. In the case of these workers, symptoms may have been relatively mild or not the kind to get in the way of work, or perhaps the impact of their depression had been greater in other aspects of their lives, such as their ability to carry out family responsibilities.[7] In fact, consistent with earlier research (Kessler, Berglund, Demler et al. 2003), mean interference scores (i.e. the degree to which depression was impeding various activities) were significantly higher in the realms of respondents' social lives and home responsibilities than those of work (Chart B).

Many aspects to work impairment

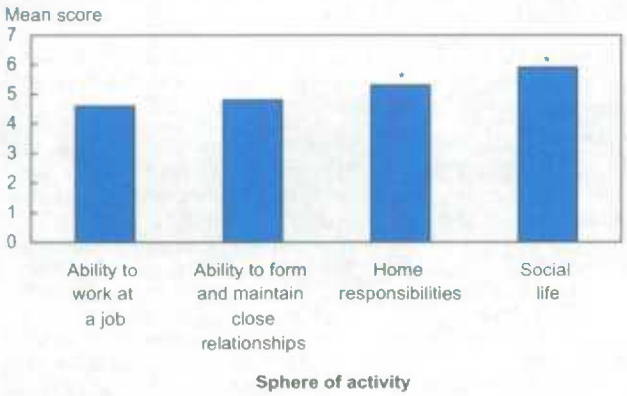
Workers who had experienced major depression were more likely than those with no history of the illness to report

- reduced work activities due to a long-term physical or mental condition or health problem
- at least one mental health disability day in the previous two weeks
- absence from work one or more days the previous week (see *Work impairment*).

Compared with workers declaring no history of major depression, those who had suffered an episode in the previous 12 months were about three times more likely (29% versus 10%) to report reduced work activities as a result of a long-term health condition (Chart C). Respondents who had not experienced depression in the previous year but had a lifetime history were also at increased risk of curtailing work activities (16%). In some cases, these workers may have intentionally cut back on their activities to reduce work stress and/or minimize the risk of another episode. They could also have been experiencing sub-clinical depression,[8] which has been linked to functional impairment (Martin, Blum, Beach et al. 1996).

Depression was also strongly associated with mental health disability days: 13% of workers who had experienced depression in the previous year reported at least one day in the two weeks preceding the interview when they had stayed in bed, cut down on normal activities or taken extra effort in carrying out

Chart B Depression affected non-work activities more significantly



* Significantly different from the Ability to work at a job score at less than the 0.05 level.
Note: Scores range from 0 (no interference) to 10 (very severe interference); for more details, see *Work impairment*.
Source: Statistics Canada, Canadian Community Health Survey, cycle 1.2; Mental Health and Well-being, 2002

cant, multivariate models that controlled for these factors and other possible confounders (e.g. respondents' sociodemographic and job characteristics), were carried out (see *Data sources and methodology*). When the effects of these factors were taken into account, the associations between depression and work impairment continued to persist. Indeed, workers who had experienced a major depressive episode in the previous year had twice the odds of reporting reduced work activities and recent work absences, and six times the odds of having taken one or more mental health disability days in the previous two weeks, compared with those who had no history of depression (Table 2).

Job characteristics may interact with the nature and severity of work impairment

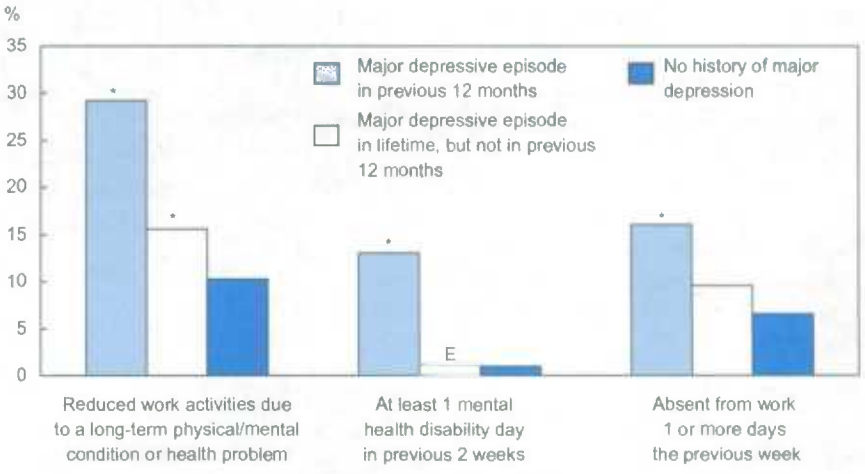
The association between depression and work impairment may be particularly strong for people in certain occupations and employment situations. Consequently, the models for work impairment were rerun with interaction terms between depression and occupation, working hours and work schedule.

daily activities because of emotional or mental health, or the use of alcohol or drugs. By contrast, only 1% of workers without a history of depression reported one or more mental health disability days.

Work absences were far more common among people who had experienced depression during the previous year than among those with no history of depression: 16% of workers with depression reported having been absent at least one day the previous week, compared with 7% of respondents who had never experienced depression.

Depression often co-exists with other psychiatric illnesses, substance abuse or physical illnesses or conditions that can impede an individual's ability to work. To determine whether the associations between depression and work impairment were statistically signifi-

Chart C Work impairment much higher among depression sufferers



* Significantly different from the estimate No history of major depression at less than the 0.05 level.
Source: Statistics Canada, Canadian Community Health Survey, cycle 1.2; Mental Health and Well-being, 2002

Data sources and methodology

The 2002 **Canadian Community Health Survey (Cycle 1.2): Mental Health and Well-being** (CCHS) was conducted over May to December 2002, and covered people aged 15 and older living in private households in the 10 provinces. Residents of institutions, members of the regular Armed Forces and civilian residents of military bases were excluded, as were people living on Indian reserves and in certain remote areas.

One person from each sampled household was randomly selected to be interviewed and proxy responses were not accepted. The resulting sample comprised 36,984 individuals aged 15 or older.

The **National Population Health Survey** (NPHS) has collected information about the health of Canadians every two years since 1994/1995. The reference period in the survey is the previous twelve months. To deal with seasonal variation, collection takes place in June, August, November and March. The survey covers residents of households and institutions in all provinces and territories, excluding Indian reserves, Armed Forces bases, and some remote areas.

In 1994/1995, a sub-sample was selected from the 10 provinces to create a longitudinal panel of 17,626 persons. This study used the panel's 5th cycle, (2002/2003).

Multivariate logistic regression models examined associations between a major depressive episode in the preceding year (or at some earlier period, or not at all) and work impairment. The models were re-run to include interaction terms between depression and various job characteristics.

Separate regressions were run on working respondents who had experienced depression in the previous 12 months to determine if various coping behaviours, as well as low co-worker, supervisor and emotional social support, were associated with work impairment.

Because of small sample sizes, the models were run for men and women combined. Interactions between sex and depression were not significant in any of the models.

Factors associated with reduced work activities and at least one disability day due to illness or injury in the previous two weeks were examined longitudinally. Four cohorts of observations were used for the analysis of reduced work activities (1994/1995 to 2000/2001 baseline years), and two cohorts (1994/1995 and 1996/1997 baseline years) for the analysis of at least one disability day in the previous two weeks. Workers aged 25 to 64 not reporting reduced work activities in baseline years were selected for the first model; those not reporting a disability day in the previous two weeks were selected for the second model.

Multivariate logistic regressions were carried out to examine workers baseline year characteristics in relation to reports of work impairment two years later. Some CCHS variables used in the cross-sectional models were not available on the NPHS's longitudinal file or were available for some cycles only.

All estimates and analyses were based on weighted data reflecting the age and sex distribution of the household population aged 15 and older in 2002 in the 10 provinces. To account for survey design effects, standard errors and coefficients of variation were estimated using the bootstrap technique (Yeo, Mantel and Liu 1999).

The interaction between depression and white-collar occupations was positive for reduced work activities. Although white-collar workers were generally less likely than blue-collar workers to reduce their work activities (Table 2), white-collar workers who had suffered a recent episode of depression had almost three times the odds of reducing their activities at work (data not shown). This difference may indicate that depression has a greater impact on activities that are more common in white-collar jobs compared with other occupations.

An association between depression and reduced work activities also emerged for people who regularly worked evening or night shifts, as opposed to those working regular daytime schedules.[9] A previous study showed relationships between evening shifts and psycho-social problems, chronic health conditions, sleep problems, and distress (Shields 2002). It may be that depressive symptoms compound the impact of other health problems that are associated with shift work, thereby resulting in greater work impairment.

Work impairment is associated with particular coping mechanisms and the absence of social support

In numerous studies, various types of coping behaviours and available support have been associated with the risk of depression and other mental illnesses (Park, Wilson and Lee 2004, Ramage-Morin 2004, and Wilkins 2004). However, few studies have examined whether these factors are also related to the job performance of workers with mental disorders.

CCHS results show that workers who had experienced a recent depressive episode often used coping mechanisms that differed from those of other workers (Chart D). For example, workers who had suffered a major

Table 2 Depression and selected characteristics related to work impairment outcomes, employed 25 to 64 year-olds

	Reduced work due to long-term physical/mental problem	At least 1 mental health disability day in previous 2 weeks	Absent from work 1 or more days in previous week
	Adjusted odds ratio		
Major depressive episode			
In past 12 months	2.4*	6.2*	2.3*
In lifetime but not in past 12 months	1.3*	0.9	1.4
No history of major depression (ref)	1.0	1.0	1.0
Sex			
Men	1.1	0.8	0.6*
Women (ref)	1.0	1.0	1.0
Age			
25 to 44	1.2	0.8	0.9
45 to 64 (ref)	1.0	1.0	1.0
Occupation			
White-collar	0.7*	1.0	1.0
Sales or service	1.0	1.1	0.7*
Blue-collar (ref)	1.0	1.0	1.0
Weekly work hours			
1 to 29	1.2	1.1	0.9
30 to 40 (ref)	1.0	1.0	1.0
Over 40	1.0	0.5*	0.8*
Work schedule			
Regular day (ref)	1.0	1.0	1.0
Regular evening or night	1.0	1.7	1.2
Irregular or rotating shift	1.2	1.5	1.2
High self-perceived work stress			
Yes	1.4*	1.8*	1.2
No (ref)	1.0	1.0	1.0
Marital status			
Married or common-law (ref)	1.0	1.0	1.0
Divorced, separated or widowed	1.0	1.2	1.1
Single (never married)	1.1	1.7*	0.7*
Education			
High school graduation or less (ref)	1.0	1.0	1.0
Some postsecondary	1.1	0.8	1.0
Postsecondary certificate, diploma or degree	0.9	0.9	1.0
Household income[1]			
Lowest, lower-middle or middle	1.1	1.0	0.9
Upper-middle or highest (ref)	1.0	1.0	1.0
Existing chronic condition[2]	4.7*	1.9*	1.1
Body Mass Index category[1]			
Underweight or normal (ref)	1.0	1.0	1.0
Overweight	1.2	1.4	1.2
Obese	1.5*	0.9	1.0
Anxiety disorder in previous 12 months[2]	2.2*	5.9*	1.0
Alcohol or drug dependence in previous 12 months[2]	1.4	3.8*	0.9

1 To maximize sample size, the models include a missing values category (odds ratios are not shown for these).
2 The reference group is the absence of the particular characteristic.
* Significantly different from the reference group (ref) at less than the 0.05 level.
Note: Some odds ratios with lower/upper confidence interval limits of 1.0 were statistically significant before rounding.
Source: Statistics Canada, Canadian Community Health Survey, cycle 1.2; Mental Health and Well-being, 2002

depressive episode were significantly more likely to report that they coped with stress by avoiding people (66% vs. 33% of non-depressed workers), using negative means of tension reduction (e.g. drinking alcohol or smoking more than usual—82% vs. 53%), blaming themselves (74% vs. 50%), or wishing the situation would go away (91% vs. 76%). Moreover, when dealing with stress, those with depression were less inclined to talk to others (76% compared with 83% for those without depression) or try looking on the bright side (88% vs. 95%).

Depressed workers were also more likely to report low levels of co-worker support (47% vs. 32%), low supervisor support (24% vs. 17%) and low emotional social support (24% vs. 12%).

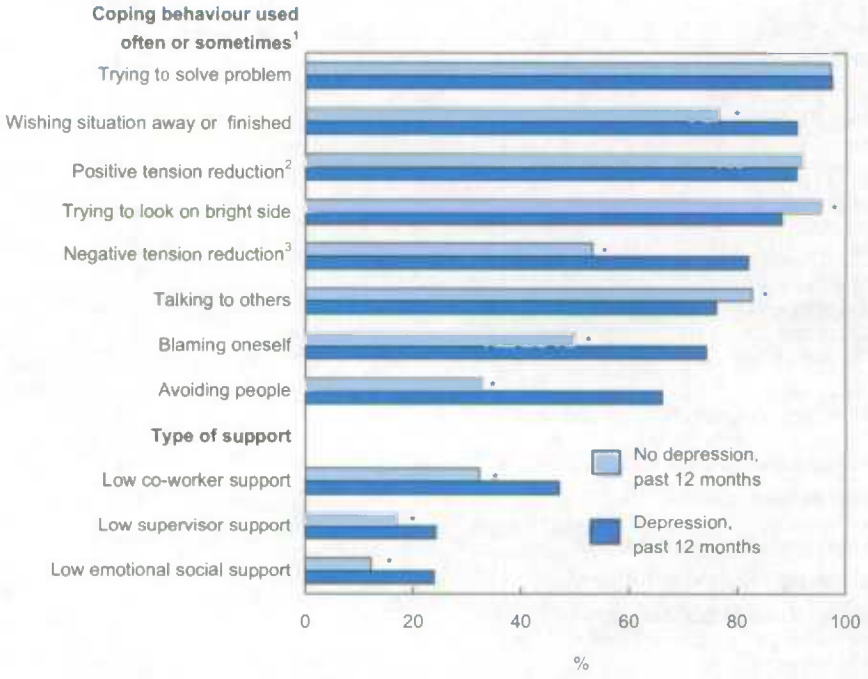
A multivariate model was used to adjust for sex, age, occupation, work hours, schedules, self-perceived work stress, marital status, education, income, chronic conditions, weight, and anxiety disorder or alcohol/drug dependence in the past 12 months. Coping behaviours and support variables were then entered individually. For the all workers group, the model also adjusted for depression.

Among employed respondents in general, most of the coping and support variables examined (7 out of 11—Table 3) were associated with having taken at least one mental health disability day in the previous two weeks, or having reduced work activities. When workers reporting a depressive episode were considered, only two variables were significant: trying to look on the bright side and low co-worker support.

'Trying to look on the bright side' reduced the odds of workers with depression taking at least one mental health disability day in the two weeks preceding their interviews. However, it is possible that the coping strategies assessed by the CCHS were influenced by the nature and extent of depressive symptoms. For example, because depressed people often have a negative perspective, the association with 'looking on the bright side' may reflect workers with mild, rather than moderate or severe, depression.

Low co-worker support increased the odds of depressed workers being absent from work one or more days the previous week. But because this analysis is cross-sectional, the direction of the association cannot be ascertained. It is not clear whether low co-worker support influenced work absence or vice versa.

Chart D Depression sufferers more likely to use negative coping behaviours



1 Respondents were not considered to use a particular coping behaviour when they reported doing it rarely or never.
2 Jogging or other exercise, praying or seeking spiritual help, doing something enjoyable.
3 Sleeping more than usual, eating more or less than usual, smoking more cigarettes than usual, drinking alcohol, using drugs or medication.
* Significantly different from the corresponding estimate for persons reporting a major depressive episode in the past 12 months at less than the 0.05 level.
Source: Statistics Canada, Canadian Community Health Survey, cycle 1.2: Mental Health and Well-being, 2002

Table 3 Coping behaviours and support related to work impairment outcomes, employed 25 to 64 year-olds

	Reduced work due to long-term physical/ mental problem		At least 1 mental health disability day in previous 2 weeks		Absent from work 1 or more days in previous week	
	All workers	Depression in past 12 months	All workers	Depression in past 12 months	All workers	Depression in past 12 months
	Adjusted odds ratio					
Coping behaviour used often or sometimes[1]						
Trying to solve problem	0.8	0.9	0.7	0.8	1.0	...
Wishing situation away or finished	1.3*	0.6	2.1*	0.6	0.9	0.8
Positive tension reduction[2]	0.9	0.5	1.1	2.1	0.7	0.4
Trying to look on bright side	0.9	0.7	0.5*	0.3*	0.9	1.4
Negative tension reduction[3]	1.4*	0.8	3.1*	2.6	1.2	1.2
Talking to others	0.8*	1.0	0.7*	0.6	0.9	1.6
Blaming oneself	1.1	1.7	1.3	1.3	1.1	1.4
Avoiding people	1.1	1.0	1.4	0.7	1.1	1.3
Type of support						
Low co-worker support	1.1	1.1	1.7*	0.8	1.1	1.9*
Low supervisor support	1.0	1.3	1.7*	1.1	1.3	1.1
Low emotional social support	1.5*	1.5	1.9*	1.7	0.7	1.1

1 As opposed to rarely or never (the reference group).
2 Jogging or other exercise, praying or seeking spiritual help, doing something enjoyable.
3 Sleeping more than usual, eating more or less than usual, smoking more cigarettes than usual, drinking alcohol, using drugs or medication.
* Significantly different from the reference (ref) group at less than the 0.05 level.
Note: Some odds ratios with lower/upper confidence interval limits of 1.0 were statistically significant before rounding.
Source: Statistics Canada, Canadian Community Health Survey, cycle 1.2; Mental Health and Well-being, 2002

Long-term consequences of depression

With cross-sectional data, it is not possible to determine whether depression leads to work impairment, or if workers who are limited in what they can do on the job are more likely to experience depression. Longitudinal data from the National Population Health Survey (NPHS) were used to shed light on the temporal sequence of these events.

For example, it is possible to examine whether workers who had experienced depression were more likely to suffer work impairments two years down the road. The longitudinal multivariate analysis shows that there are greater odds of work impairment two years later for individuals experiencing depression. Indeed, for workers who experienced depression the odds of having to reduce work activities two years later as a result of a long-term physical or mental condition were 1.4 times higher than for those who had not experienced a major depressive episode (Table 4). In addition, looking at work absences due to disability days taken shows that workers who were depressed had 1.8 times the odds of having these types of absences two years later, suggesting that the effects of depression on job performance can be long lasting. Other variables, however, were also indicative of work impairment. For example, workers who had chronic conditions, or were obese, also had higher odds of reducing their work activities or taking at least one disability day.

Conclusion

In 2002, nearly half a million employed Canadians aged 25 to 64, almost 4% of the workforce, reported the occurrence of a major depressive episode in the previous 12 months. An additional million workers had

Table 4 Depression and selected characteristics related to new cases[1] of work impairment 2 years later, employed 25 to 64 year-olds

	Reduced work due to long-term physical/ mental problem	At least 1 disability day in previous 2 weeks due to illness or injury
	Adjusted odds ratio	
Major depressive episode in previous 12 months[2]	1.4*	1.8*
Sex		
Men	0.9	0.7*
Women (ref)	1.0	1.0
Age		
25 to 44	0.8	1.0
45 to 64 (ref)	1.0	1.0
Occupation		
White-collar	0.8	1.2
Sales or service	0.8*	1.0
Blue-collar (ref)	1.0	1.0
Weekly work hours		
1 to 29	1.2	0.9
30 to 40 (ref)	1.0	1.0
Over 40	1.0	0.8*
Work schedule		
Regular day (ref)	1.0	1.0
Regular evening or night	1.3	1.2
Irregular or rotating shift	1.1	1.2
Marital status		
Married or common-law (ref)	1.0	1.0
Divorced, separated or widowed	1.2	1.4*
Single (never married)	1.3*	1.2
Education[3]		
High school graduation or less (ref)	1.0	1.0
Some postsecondary	0.7*	1.0
Postsecondary certificate, diploma or degree	0.7*	1.0
Household income[3]		
Lowest, lower-middle or middle	1.1	0.9
Upper-middle or highest (ref)	1.0	1.0
Chronic condition[2]	2.7*	1.8*
Body Mass Index category[3]		
Underweight or normal (ref)	1.0	1.0
Overweight	1.1	1.1
Obese	1.3*	1.4*
Low emotional social support[2]	1.2	0.9
Daily smoker[2]	1.4*	1.2

1 New cases were reported by respondents who had not declared work impairment two years earlier.
2 The reference group is the absence of the particular characteristic.
3 To maximize sample size, the models include a missing values category (odds ratios are not shown for these).
* Significantly different from the reference group (ref) at less than the 0.05 level.
Note: Some odds ratios with lower/upper confidence interval limits of 1.0 were statistically significant before rounding.
Source: Statistics Canada, National Population Health Survey, 1994-1995 to 2002-2003

experienced depression during some other period in their lives. The incidence of depression for women in the labour force was almost two times that of working men, and depression was less prevalent for workers who were married or in common-law relationships.

Consistent with similar research,[10] this study shows that depression is associated with both work absences and lost productivity in the form of reduced work activities. The analysis also reveals that depression has associations with work impairment that persist when the effects of workers' occupations, health conditions and sociodemographic characteristics are taken into account. There is also evidence that the effects of depression on job performance can be long lasting.

This analysis highlights the importance of white-collar occupations and night/evening shift work schedules in the link between depression and work impairment. As well, depressed workers dealing with stress often use coping mechanisms that may not be beneficial and differ from those favoured by other workers. Nevertheless, coping by trying to 'look on the bright side,' and the availability of co-worker support, may buffer the impact of depression on job performance.

Notes

1 See Lerner, Adler, Chang et al. 2004a; Marcotte and Wilcox-Gok 2001; and Virtanen, Kivimaki, Elovainio et al. 2005.

Work impairment

CCHS respondents reporting a major depressive episode in the preceding 12 months were asked more specific questions about the period lasting 1 month or longer, when their depression was most severe. They rated, on a scale of 0 (no interference) to 10 (very severe interference), how much their depression had interfered with:

- ability to work at a job
- home responsibilities
- ability to form and maintain close relationships with other people
- social life.

Odds ratios for **reduced work activities** were based on responses of often or sometimes (as opposed to never) to the CCHS question: "Does a long-term physical condition or mental condition or health problem reduce the amount or the kind of activity you can do: ... at work?" The NPHS question was similar, but responses were categorized as yes or no.

Respondents who had stayed in bed because of illness or injury (including nights spent as a patient in a hospital) during the previous two weeks were asked the number of days they did so.

Excluding days spent in bed, respondents were then asked if they had cut down on normal activities because of illness or injury; or, if it had taken extra effort to perform up to their usual level at work or when engaged in other daily activities. For both, the number of days was recorded. For any positive responses, persons were asked if this was due to emotional or mental health or use of alcohol or drugs.

CCHS respondents were considered to have experienced at least one mental health disability day in the previous 2 weeks if they reported spending at least one day during that period: in bed (most or all of the day) or having to cut down on normal activities (most or all of the day) or needing to expend extra effort to perform daily activities—because of their emotional or mental health, or their use of alcohol or drugs.

The equivalent NPHS-derived variable was compiled somewhat differently. Respondents were considered to have spent at least one disability day in the previous 2 weeks due to illness or injury if they had stayed in bed all or most of the day or cut down on normal activities as a result. The NPHS did not probe emotional or mental ill-health, or the use of alcohol or drugs.

2 This estimate combines the costs for people who suffered depression and distress at the same time, with the costs for those who suffered depression in isolation.

3 This pattern is also seen in the general population. For more information on gender differences in depression, see De Marco (2000), Noble (2005), Kuehner (2003), and Kessler, Berglund, Demler et al. (2003).

4 Other studies (for example, Kessler, Berglund, Demler et al. 2003, and Verhaak, Heijmans, Peters et al. 2005) have also associated depression with physical and mental comorbidity.

5 This finding is supported by other studies that have found differences in the prevalence of depression by occupation (De Marco 2000, Dewa and Lin 2000, and Wilhelm, Kovess, Rios-Seidel et al. 2004).

6 This association is consistent with earlier research that revealed a link between mental health and shift work (Shields 2002).

7 The 'days totally unable to work' variable likely underestimates the impact of depression on job performance, since this measure does not capture days when respondents went to work but could not fully carry out their duties. In other studies, mental disorders were found to be more strongly associated with days during which workers had to expend extra effort or cut back on work activities rather than complete days of work loss. Moreover, the former accounted for a greater proportion of the total economic costs of mental disorders borne by employers (Dewa and Lin 2000, Lim, Sanderson and Andrews 2000, and Stewart, Ricci, Chee et al. 2003).

8 Depressive symptoms are present but do not meet the diagnostic criteria for a major depressive episode.

9 This was evidenced by an odds ratio of 2.88, with a 95% confidence interval of 1.04 to 7.95 (data not shown).

10 See Lerner, Adler, Chang et al. 2004a, De Marco 2000, Lim, Sanderson and Andrews 2000, Stewart, Ricci, Chee et al. 2003, Kouzis and Eaton 1994, Lerner, Adler, Chang et al. 2004b, and Wang, Beck, Berglund et al. 2003.

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Links to insightful analysis and data on:

- Cancer

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- Canadian Community Health Survey (CCHS)
- National Population Health Survey (NPHS)
- Smoking and Tobacco Use Surveys
- Health Care
- Therapeutic Abortions
- Vital Statistics

Sample links to related sites:

- Canadian Cancer Statistics
- Canadian Institute for Health Information (CIHI)
- Health Canada
- Canadian Health Network

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What's new?

Recent reports and studies

FROM STATISTICS CANADA

Registered retirement savings plans

The number of taxfilers contributing to registered retirement savings plans (RRSPs), and the amount contributed both increased for the third consecutive year in 2006.

Contributions rose 5.8% to $32.4 billion. Almost 6.2 million taxfilers contributed to an RRSP in 2006, an increase of 60,000 or 1.0% from 2005. This was the highest level since 2001. Alberta had the largest gain in contributors, almost 26,000.

Almost 88% of taxfilers were eligible to contribute to an RRSP for the 2006 tax year, up from 86% in 2005. Of those eligible, about 31% actually made contributions, which is comparable to 2005.

For more information, see the November 8, 2007 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

Savers and investors

The number of taxfilers reporting investment income, as well as the amount, increased for the third consecutive year in 2006. Investment income refers to dividend income from taxable Canadian corporations and interest income from investments in non-tax-sheltered vehicles.

Nationally, over 8.2 million people reported $40.9 billion of investment income, the highest number since 2000, when some 8.5 million did so.

In 2006, the number of people reporting investment income was up 5.4%. Income was up 16.3%, more than double the 7.9% in 2005.

For more information, see the November 6, 2007 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

Delayed transitions of young adults

Young adults were taking longer to make key life transitions to adulthood in 2001 than their counterparts three decades earlier.

Overall, the transition to adulthood in 2001 was more protracted than in 1971. Young adults were leaving school later, staying longer in their parents' home, entering the labour market later, and postponing conjugal unions and childbearing.

Young women were generally making life transitions earlier than young men, as in 1971. However, women in 2001 were often making various transitions at different times than young women 30 years earlier.

For more information, see the September 18, 2007 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

Women in the core public administration

The core public administration (CPA)—the 178,000 or so federal public servants for whom the Treasury Board is the employer—represented 46.7% of total federal employment in 2006.

Overall, the federal public service was smaller in 2006 than 11 years earlier. Also, the composition of the CPA has been changing in tune with the times.

More women than men can now be found in both knowledge-based and less knowledge-based occupations in the CPA. (Knowledge-based workers include, among others, scientific and professional workers, and those involved in computer systems, while less knowledge-based workers include technical, operational and administrative staff.)

For more information, see the September 4, 2007 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

Investment and long-term growth in labour productivity

Investment in capital, rather than increased worker skills or technological change, was the most important factor in the growth in labour productivity in the business sector during the past four decades.

Between 1961 and 2005, labour productivity, one of the key indicators of an economy's health, rose at an annual rate of 2.1%.

During this 45-year period, increases in capital intensity were the most important factor, contributing about 55% of growth in labour productivity.

Multifactor productivity, the second most important factor, accounted for about one-quarter of the growth in labour productivity during this period. Growth in this area is often associated with technological change, organizational change or economies of scale.

The remainder, about 20%, came from changes in the composition of labour. A positive labour composition effect reflects the increase in the average educational attainment and experience levels of workers.

For more information, see the June 25, 2007 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

Trade and industrial specialization

Canada's manufacturing sector more than doubled its level of export intensity—that is, exports as a proportion of total manufacturing output—between 1974 and 1999.

However, this growing integration into the global markets through trade has not been accompanied by an increase in industrial specialization in the various regions of the country. This is particularly true of the post-1990 free-trade era.

It has long been thought that increased trade might lead to greater industrial specialization (the degree to which employment in particular places is concentrated in specific industries). Higher levels of industrial specialization are associated with greater vulnerability to economic shocks resulting from the loss of a key industry.

For more information, see the June 25, 2007 issue of *The Daily* on the Statistics Canada's website (www.statcan.ca).

FROM OTHER ORGANIZATIONS

Productivity in the past decade

Remarkably diverse patterns of labour productivity growth have been observed in advanced countries over the past 10 years or so. Labour productivity growth in Canada picked up over the late 1990s, only to fall back in the next five years to the sluggish pace of the 1974-to-1996 period.

The same pattern was observed in Australia and New Zealand, but with much less amplitude. In contrast, average productivity growth in 11 European Union countries has fallen markedly compared with the previous 20 years, while in the United States it has shifted to persistently higher levels.

These patterns reflect, to varying degrees, changes in trend productivity growth, business-cycle influences, lags in the impact of macroeconomic policies, and the effects of transitory sector-specific developments. See "Interpreting Canada's productivity performance in the past decade: Lessons from recent research" by Richard Dion, *Bank of Canada Review*, Summer 2007, p. 19-32.

Trend labour supply in Canada

Over the past 25 years, labour input growth has been driven by growth of the working-age population and a steady rise in the aggregate employment rate stemming from an increase in the labour market attachment of women.

Looking ahead, growth of the working-age population is projected to slow substantially over the coming decades, owing to the cumulative impact of past declines in the national fertility rate.

It appears that the increased proportion of older individuals in the working-age population, whose average employment rates are lower than those of prime-age workers, is beginning to exert downward pressure on the aggregate trend employment rate.

Aging of baby boomers is projected to put downward pressure on labour input growth. Without an offsetting increase in labour productivity, this will imply lower potential output growth in the coming decades. See "Trend labour supply in Canada: Implications of demographic shifts and the increasing labour force attachment of women" by Russell Barnett, *Bank of Canada Review*, Summer 2007, p. 5-18.

Varia

In this issue: International comparisons

Previous updates

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

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

Special surveys

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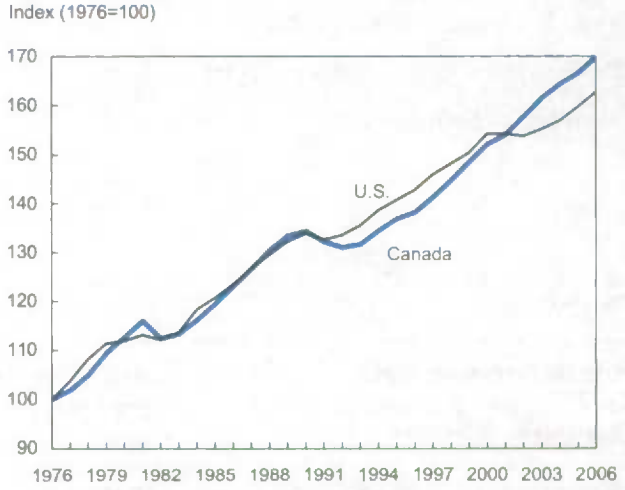
International comparisons

Employment growth in Canada and in the United States has historically been similar. However, during the 2001 to 2003 period, there was very little employment growth in the United States (0.6%), while Canada enjoyed a 4.8% increase.

From 2003 to 2006, employment growth picked up in the United States (4.9%) but was still slightly below the growth experienced in Canada (5.2%). A total of 3 million manufacturing jobs were lost in the United States between 2000 and 2006 (-16.6%). Canada also lost manufacturing jobs during this period (-5.8%) but employment has been steadily increasing in the services sector for both Canada and the United States.

Chart A Employment trends diverged between Canada and the United States



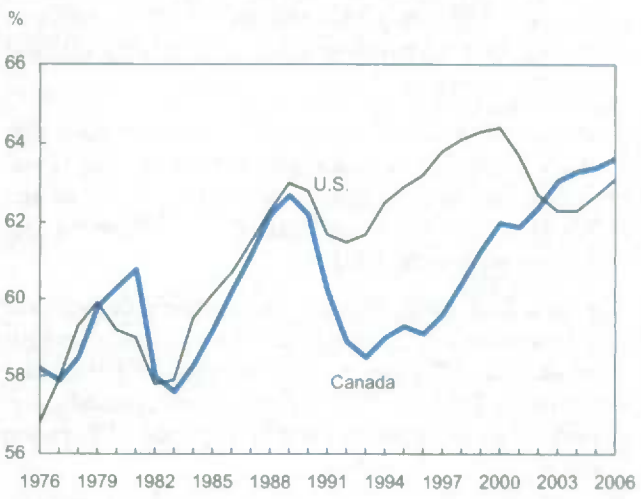
Note: Canadian data have been adjusted to approximate U.S. measurement concepts.
Sources: Statistics Canada, Labour Force Survey; U.S. Bureau of Labor Statistics, Current Population Survey

For the last four years, Canada's employment rate has remained at record levels, surpassing the employment rate of the United States for the first time in over two decades. In 2006, 63.6% of the Canadian population was employed compared with 63.1% of the American population—however, the gap is shrinking. A larger proportion of the American population was working in 2006 than in 2005 (0.4 percentage points), whereas the proportion of the Canadian population employed in 2006 was up only marginally (0.2 points) from a year earlier.

Historically, both labour markets have generally followed similar employment rate trends, but differences emerged in the 1990s and early 2000s. From 1989 to 1993, the Canadian economy shrank more than the U.S. economy: the gross domestic product fell 3.0% in Canada, twice the drop in the United States. At the same time, the Canadian employment rate fell 4.2 percentage points, while the American rate declined by 1.3 points.

In contrast, from the fourth quarter of 2000 to the third quarter of 2001, the U.S. economy suffered a mild recession (-0.6%) while the Canadian economy expanded slightly (0.1%). As both economies began to pick up in the fourth quarter of 2001, Canada's growth was much stronger. While Canada's employment rate continued on an upward trend, the U.S. rate declined after reaching its record high of 64.4% in 2000. Only in the last two years has the American employment rate shown signs of revival.

Chart B Canada maintains record high employment rate in 2006



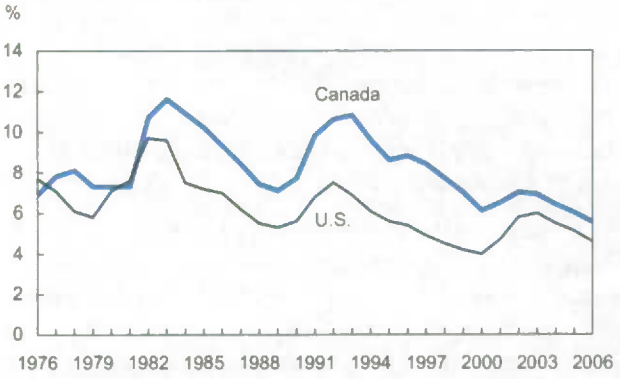
Note: Canadian data have been adjusted to approximate U.S. measurement concepts.
Sources: Statistics Canada, Labour Force Survey; U.S. Bureau of Labor Statistics, Current Population Survey

The Canadian unemployment rate (adjusted to the U.S. definition) has dropped in the last 13 years, from a high of 10.8% in 1993 to a new low of 5.5% in 2006. The U.S. unemployment rate, having reached a high of 7.5% in 1992, fell to a low of 4.0% in 2000 and then climbed to 6.0% in 2003. By 2006, it was down to 4.6%.

These recent changes in unemployment rates have narrowed the gap between the two countries. The Canadian rate has been within 1 percentage point of the U.S. rate for the last four years. The last time the gap was so small was in 1982.

The Canadian unemployment rate had been higher than the American rate throughout most of the previous three decades. The gap widened in 1984 and 1985 and again from 1991 to 1999. During these periods, the Canada–U.S. unemployment rate gap ranged between 3 and 4 percentage points.

Chart C The unemployment rate gap between the two countries continues to narrow



Note: Canadian data have been adjusted to approximate U.S. measurement concepts.
Sources: Statistics Canada, Labour Force Survey; U.S. Bureau of Labor Statistics, Current Population Survey

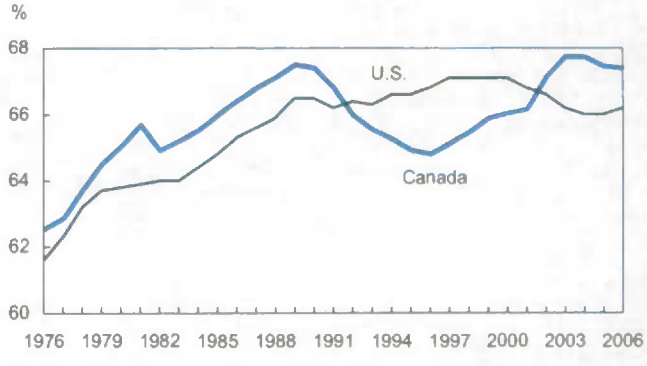
Since 2002, Canadians have been more likely than Americans to participate in the labour market. By 2006, 67.4% of the Canadian population was either employed or searching for work, compared with 66.2% of Americans.

While labour market participation trended up in Canada from 1996 to 2003, a declining proportion of Americans has participated in the labour market since 2001, after peaking at 67.1% from 1997 to 2000.

Since 2000, the participation rate for Canadian men remained constant but increased by 2.6 percentage points for women. American participation rates decreased by 1.3 percentage points for men and less than 1 point for women.

In 2006, Canadian youth were much more likely to be participating in the labour market (70.2%) than American youth (60.6%), whereas the participation rate of older workers (aged 55 and over) in the United States (38.0%) was well ahead of the rate for Canadian older workers (31.9%).

Chart D A higher proportion of Canadians than Americans are participating in the labour market



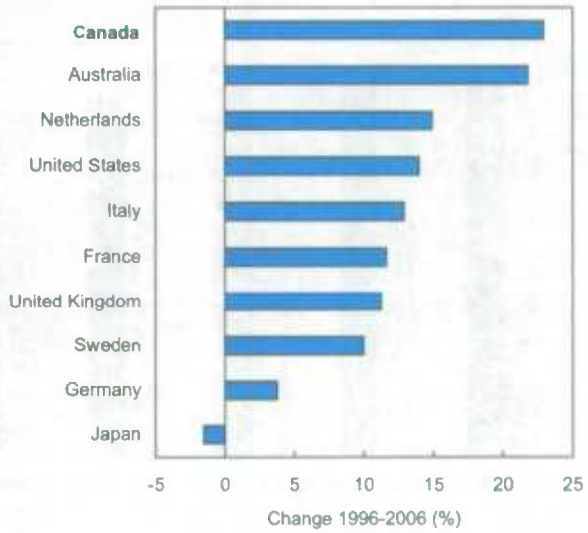
Note: Canadian data have been adjusted to approximate U.S. measurement concepts.
Sources: Statistics Canada, Labour Force Survey; U.S. Bureau of Labor Statistics, Current Population Survey

Canada ranked first among 10 countries in employment growth from 1996 to 2006, followed closely by Australia. Japan was the only country to see declines in employment. In service industries, each of the 10 countries enjoyed higher employment during this period, but Canada and Australia enjoyed the strongest growth rates (around 25%) while Japan and Germany had the weakest, between 10% and 14%.

In 2006, Germany (22%) and Italy (21%) had the highest proportion of their employment in manufacturing, while the United States (11%) and Australia (10%) had the lowest. From 1996 to 2006, manufacturing's share of employment fell sharply in the United States (from 16% to 11%), Japan (22% to 18%), Italy (25% to 21%), Sweden (19% to 15%) and the United Kingdom (19% to 13%), while in Canada manufacturing's share of employment fell by 1 percentage point (14% to 13%).

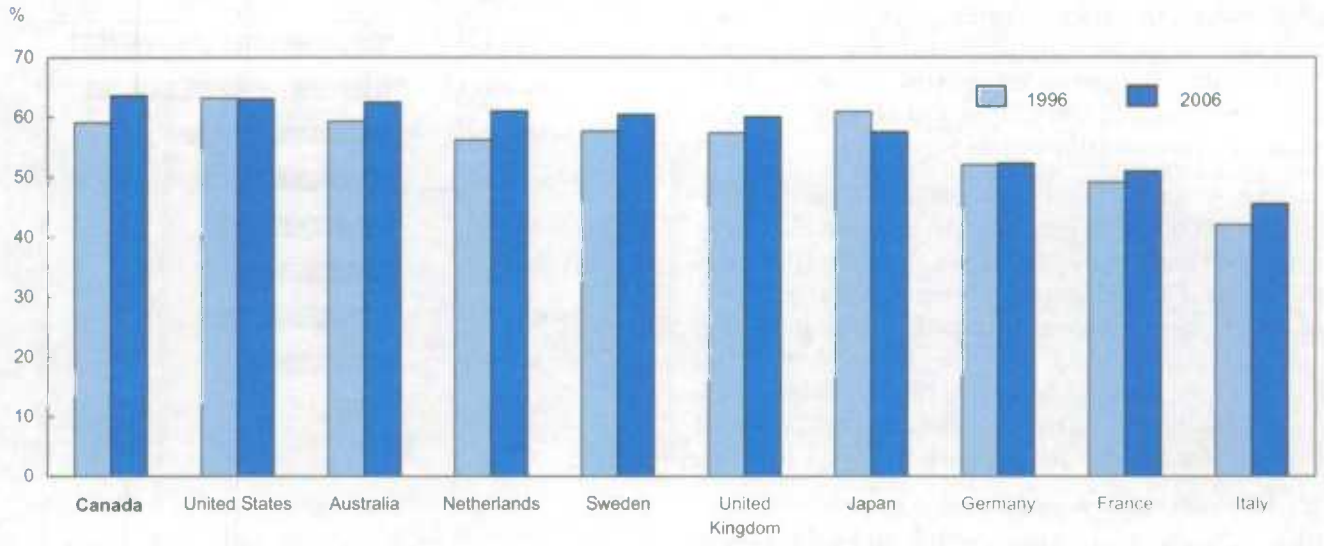
All 10 countries saw employment in primary industries (agriculture, forestry, hunting and fishing) lose share from 1996 to 2006. In Canada, the share fell from 4% to 3%, similar to the declines seen in the remaining countries. Italy, Japan and Australia had the highest share of employment in these industries, about 4% in 2006.

Chart E Canada's employment growth is tops



Note: Canadian data have been adjusted to approximate U.S. measurement concepts.
Source: U.S. Bureau of Labor Statistics

Chart F Canada has the highest employment rate



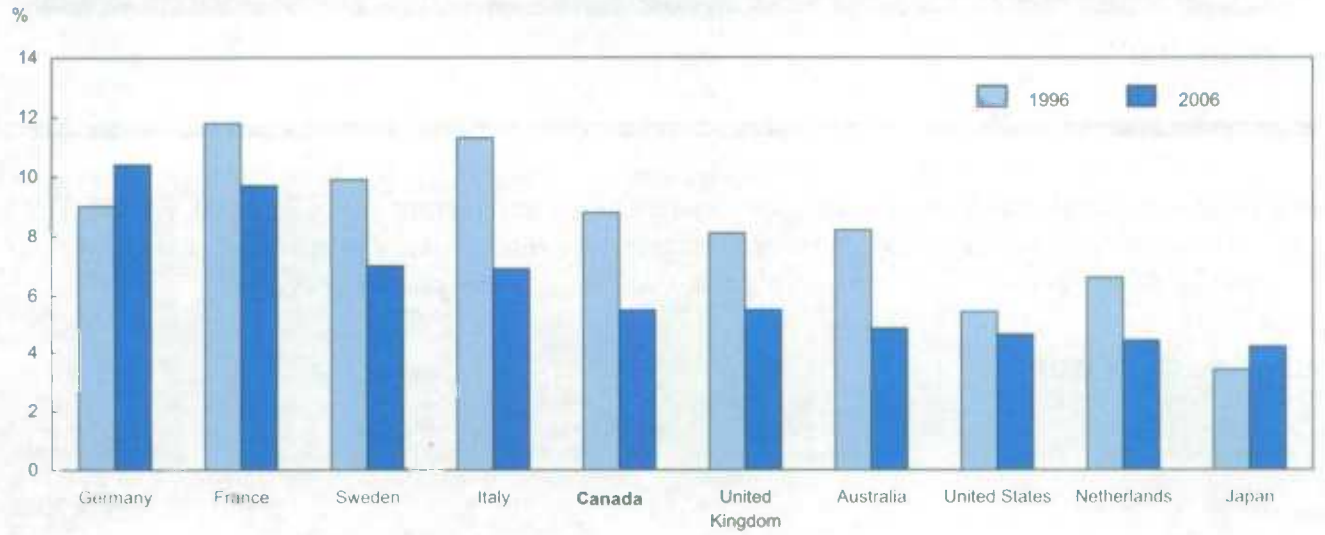
Note: Canadian data have been adjusted to approximate U.S. measurement concepts.
Source: U.S. Bureau of Labor Statistics

In 2006, Canada had the highest employment rate of the 10 countries examined. For the last four years, Canada has ranked tops among these countries. From 1996 to 2006, Canada's employment rate increased 4.5 percentage points. Australia, Sweden, the United Kingdom, France and Italy all saw rises of 2 to 3 percentage points. However, employment rates fell in Japan (-3.4 percentage points) and the United States (-0.1 point) during this period.

The Netherlands saw the highest increase in its employment rate from 1996 to 2006, 4.8 percentage points, as employment growth of 14.9% far outpaced working-age population growth of 6.0%. Canada posted healthy employment growth of 22.9% and substantial population growth of 14.1% during this nine-year period.

Since 2003, a higher proportion of women in Canada were working than in any other country, reaching an employment rate of 58.9% in 2006. The United States (56.6%) and Sweden (56.4%) followed. For men, rates were highest in the United States (70.1%), Japan (69.8%), Australia (69.6%), Canada (68.6%) and the Netherlands (68.3%).

Chart G Canada's unemployment rate ranks in the middle



Note: Canadian data have been adjusted to approximate U.S. measurement concepts.
Source: U.S. Bureau of Labor Statistics

Canada's unemployment rate was in the middle of the pack in 2006: Germany and France had the highest rates, while Japan and the Netherlands posted the lowest. Over the period 1996 to 2006, eight of the ten countries saw decreases in their unemployment rates.

Germany and Japan were the only countries that had increases in their unemployment rates from 1996 to 2006. Japan's unemployment rate rose steadily from the early 1990s onward—by 2002, it reached a record 5.4%. However, the rate declined to 4.2% in 2006. Germany's rate increased during this period—it declined from 9.0% in 1996 to 7.8% in 2000, then increased to 10.4% in 2006.

Unemployment rates among youth (aged 16 to 24) are generally higher than for other age groups. In 2006, youth unemployment rates in Canada, the United States and Australia were similar, around 10% to 11%. The lowest unemployment rates among youth were in the Netherlands (7.4%) and Japan (8.1%), while the highest were in France, Italy and Sweden (above 20%).

Cumulative index

1989 to 2007

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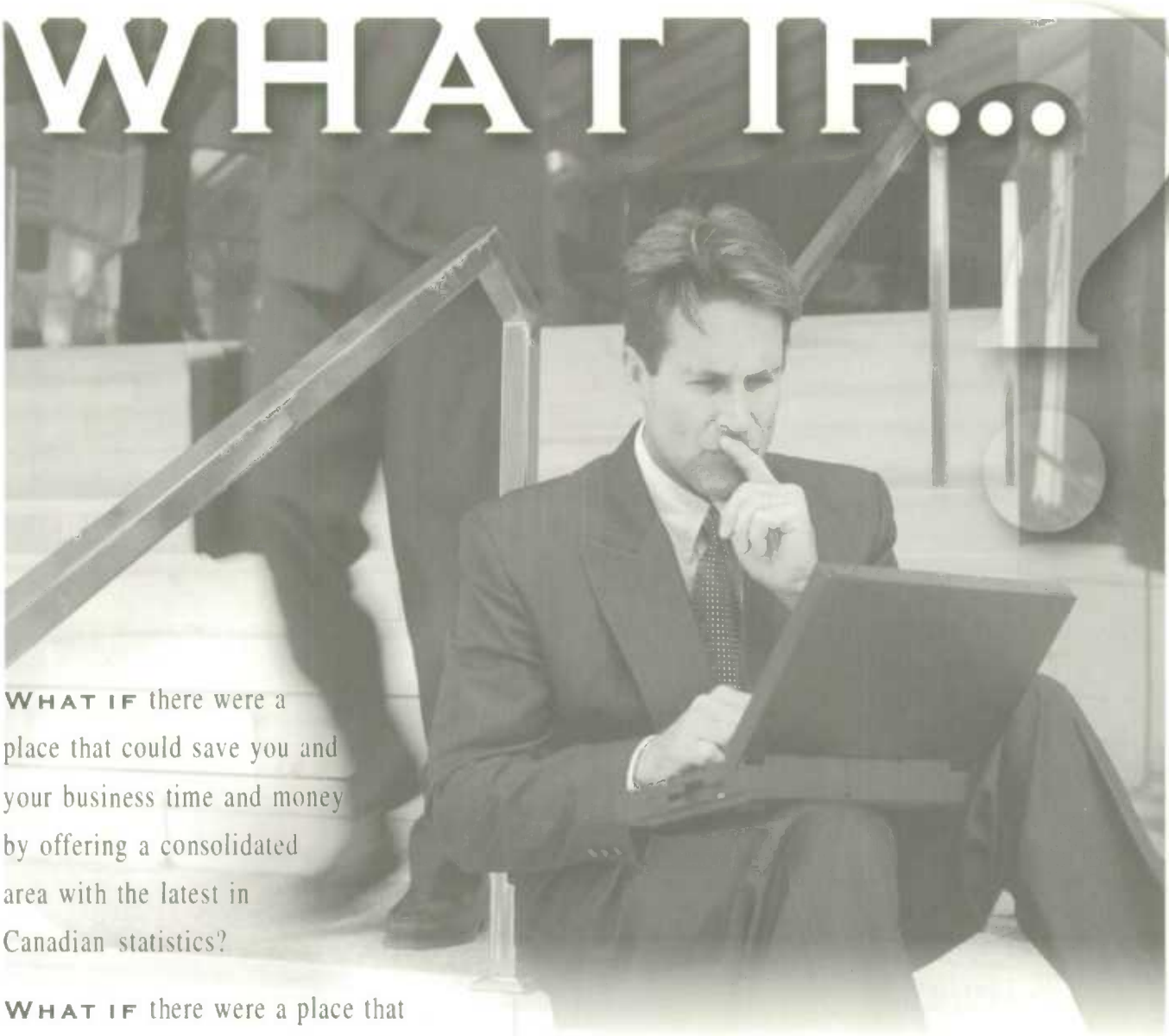

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