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■ RRSP investments

■ Earnings in the
last decade



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The following standard symbols are used in Statistics Canada publications:

.	not available for any reference period
-	not available for a specific reference period
...	not applicable
P	preliminary
R	revised
X	confidential
E	use with caution
F	too unreliable to be published

Highlights

In this issue

■ RRSP investments

- In 2005, 6 in 10 families held registered retirement saving plans, with a median value of \$25,000. Among younger families, 56% held RRSPs, compared with 68% of families whose major income recipient was between 45 and 54 years of age. Not surprisingly, those with higher incomes were more likely to own RRSPs and have larger amounts saved. Nearly 90% of families with incomes of \$85,000 or more owned RRSPs, compared with only 35% of families with incomes under \$36,500.
- Unlike most other components of their retirement savings, investors have control over what types of investments are held in RRSPs. The most common holding was mutual funds (38%), while guaranteed investment certificates were second (20%). Older families (55 to 64) were more likely to hold stable and predictable investment types within their RRSPs (26% held guaranteed investment certificates and 6% held Canada Savings Bonds) than younger families whose retirement investment horizon is significantly longer (15% and 3% respectively).
- The majority of families (59%) with RRSPs held their entire portfolios in investments with variable values (mutual funds, income trusts, stocks and bonds), while just one-quarter held only assets with predictable values (GICs, CSBs and treasury bills). Two-thirds of younger families held variable-value investments exclusively, substantially more than older families. Families with lower after-tax incomes were more likely to hold only investments with predictable values (35% for families with lower incomes, compared with 13% for families with after-tax incomes of \$85,000 or more).

■ Earnings in the last decade

- Between 1997 and 2007, average real earnings in the private sector rose a solid 15% in Alberta, compared with 5% to 6% in Quebec and Ontario and 3% in British Columbia. In Ontario and Quebec, average real earnings in manufacturing did not fall despite sharp employment decreases since 2004.
- Between 1997 and 2007, the percentage of jobs paying less than \$10.00 per hour (in 2002 dollars) fell markedly in all provinces except Newfoundland and Labrador, Ontario and British Columbia. In manufacturing, the proportion of low-paying jobs dropped in all regions except Ontario and British Columbia.
- Of all private-sector employees, managers saw the greatest improvement in their pay rates since the late 1990s. Their average earnings grew 20% between 1997/1998 and 2006/2007, four times the rate observed for other private-sector employees. In contrast, blue-collar workers in manufacturing, clerical employees, and salespersons in retail trade (three groups that, collectively, accounted for 26% of private-sector employment in 2006/2007) saw virtually no wage growth.
- The sharp growth for managers had a substantial impact on the upper end of the earnings distribution. Between 1997/1998 and 2006/2007, average hourly earnings grew 12% for the top 5% of private-sector employees, compared with 4% for their counterparts in the middle of the distribution. The more rapid increase for managers accounted for at least one-third of this 8 percentage-point difference.

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RRSP investments

Wendy Pyper

Retirement income comes from a mix of sources, commonly referred to as the 'three pillars' (Department of Finance Canada 2003). Government sources—Old Age Security and the Guaranteed Income Supplement—make up the first pillar. These programs provide most people 65 and over with basic income support. The second pillar consists of the Canada Pension Plan and the Quebec Pension Plan, which provide basic earnings-related pensions for all workers. The final pillar includes tax-assisted employer-sponsored pension plans (EPPs) and registered retirement savings plans (RRSPs). The total value of assets held in EPPs amounted to \$1.0 trillion in 2005 (Statistics Canada 2006) and almost \$600 billion was held in registered plans that year.¹ Together, assets in EPPs and registered plans made up almost one-third of total family assets in 2005. Over the period from 1986 to 2003, average contributions to EPPs and RRSPs increased—for example, contributions by young couples increased from \$2,000 in 1986 to \$3,100 in 2003 and for prime-aged couples they increased from \$3,900 in 1986 to \$5,300 in 2003.²

RRSPs and some types of EPPs are the only components for which plan holders have any control over the investment portfolio. Investors can hold a wide variety of assets within their RRSPs, ranging from investments with predictable values such as guaranteed investment certificates to those whose values vary, like stocks of individual companies. Given the wide fluctuations seen in the stock market and the relatively modest changes in interest rates, returns to these investments, and therefore income levels in retirement, can vary dramatically, depending on the mix of investments. For the first time, the 2005 Survey of Financial Security (SFS) collected details on the types of investments held in registered plans. This article examines

the characteristics of families who hold RRSPs and the allocation of assets within the RRSP according to the level of predictability of their return on investment (see *Data source and definitions*).

Majority of families hold RRSPs

In 2005, 6 in 10 families held RRSPs, with a median value of \$25,000 (Table 1). As expected, age was associated with both the prevalence and the amount. Among younger families (major income recipient [MIR] aged 25 to 44), 56% held RRSPs, compared with 68% for those somewhat older (MIR 45 to 54). For those older than the traditional retirement age (MIR 65 to 69), the prevalence dropped to 47%. This is not surprising—for many of these older families, retirement may have already occurred and some may have converted RRSPs to RRIFs.

The SFS measures the stock of RRSP assets accumulated over time as opposed to purchases of RRSPs in a specific year. Since younger families (MIR 25 to 44) have had less time to accumulate funds, they reported only \$15,000 in their RRSPs (median value).³ Those aged 45 to 54 and 55 to 64 have potentially had more years of employment to accumulate funds and, as a result, had saved substantially more (\$40,000 and \$55,000 respectively). After age 65, some families may have begun to draw funds out of their RRSPs as income has traditionally declined after retirement. In addition, some members of these families may have reached the mandatory age to convert RRSPs to RRIFs.⁴ As a result, the median value held by these families was lower (\$37,000).

Looking at retirement savings on a broader level, almost three-quarters of families had either RRSPs or EPPs (or both), with a median value of \$65,800. At each age level, median EPP holdings were substantially higher than RRSPs. For those families approaching retirement age (MIR 55 to 64), 8 in 10 held either RRSPs or EPPs, with a substantially higher median value (\$244,800).

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Table 1 Families with financial assets

	With RRSP		With EPP		With RRSP and/or EPP	
	%	\$ (median) ¹	%	\$ (median) ¹	%	\$ (median) ¹
All families	60	25,000	50*	65,400 *	74*	65,800 *
Age of major income recipient (MIR)						
25 to 44	56(*)	15,000 (*)	44*(*)	18,900 (*)	69*(*)	29,800 *(*)
45 to 54 (ref)	68	40,000	54*	116,500 *	79*	137,800 *
55 to 64	65	55,000	58	227,100 *(*)	81*	244,800 *(*)
65 to 69	47(*)	37,000	58	213,400 *(*)	71*	215,600 E*
Sex of MIR						
Male (ref)	63	30,000	53*	70,000 *	77*	84,900 *
Female	55(*)	20,000 (*)	45*(*)	54,100 *	68*(*)	50,000 *(*)
After-tax family income						
Less than \$36,500	35(*)	10,000 E(*)	25*(*)	28,800 E *(*)	48*(*)	16,300 E (*)
\$36,500 to \$58,999	65(*)	20,000 (*)	59*(*)	52,900 *	83*(*)	54,500 *(*)
\$59,000 to \$84,999 (ref)	81	28,500	70*	64,000 *	94*	75,800 *
\$85,000 and over	89(*)	80,000 (*)	77*(*)	162,400 *(*)	97*(*)	224,100 *(*)
Education of MIR						
Less than high school	33(*)	17,000 E(*)	31 (*)	96,800 E *	50*(*)	F
Graduated high school	58(*)	20,000 (*)	47*(*)	61,500 *	73*(*)	50,000 *(*)
Non-university						
postsecondary certificate	64(*)	25,000	55*	56,800 *	78*	65,000 *
University degree (ref)	73	30,000	59*	79,600 E *	82*	102,800 E*
Net worth quintile						
Bottom	19(*)	F	23 (*)	12,100 E *(*)	35*(*)	4,000 E (*)
Second	46(*)	6,000 E(*)	39*(*)	18,400 E *(*)	61*(*)	12,600 *(*)
Middle (ref)	64	15,000	58*	54,900 *	83*	33,000 *
Fourth	81(*)	35,000 (*)	70*(*)	95,500 *(*)	92*(*)	100,000 *(*)
Top	87(*)	111,100 (*)	59*	190,000 *(*)	92*(*)	250,000 *(*)

* significantly different from 'with RRSP' at the .05 level

(*) significantly different from the reference group (ref)

1. For those with holdings.

Source: Statistics Canada, Survey of Financial Security, 2005.

Families whose major income recipient was a man were more likely to hold RRSPs (63% versus 55% for families whose MIR was a woman). In addition, these families held more in their RRSPs (\$30,000 compared with \$20,000). The same pattern held for employer-sponsored pension plans as well as for the combination of EPPs and RRSPs.

The well-off are well invested

Family income is related to both the propensity to save and the amount saved. Since families purchase RRSPs (and other investments) out of disposable income, those with higher incomes are more likely to be financially able to invest in RRSPs. Indeed, nearly 90% of families with after-tax annual incomes of \$85,000 or

more owned RRSPs, with a median value of \$80,000. This differs sharply from families with lower incomes (less than \$36,500) where only 35% of families held RRSPs, with a median value of just \$10,000.

Since income and education are related, it is not surprising that families whose major income recipient had a high level of education were more likely to have an RRSP, with a higher median value. Just a third of families whose MIR had less than a high school education held RRSPs (median value of \$17,000), compared with almost three-quarters of families with a university degree (\$30,000).

RRSPs are but one component of the total net worth of families. Subtracting total family debts like mortgages and consumer credit from assets such as homes,

Data source and definitions

The **Survey of Financial Security (SFS)**, which covered about 5,300 families, collected information between May and July 2005 on the assets and debts of families and individuals. Residents of the territories, households on Indian reserves, full-time members of the Armed Forces, and residents of institutions were excluded. Information was collected on the value of all major financial and non-financial assets as well as money owed. This study examined families whose **major income recipient** (the person with the highest income before tax) was between 25 and 69 years of age. **Families** refers to family units of all types including unattached individuals, couples with or without children and lone parents.

All differences mentioned in the text have been tested for statistical significance using boot-strapped coefficients of variance.

Registered retirement savings plans (RRSPs) are defined under the *Income Tax Act*. Contribution limits are based on earned income and amounts contributed to employer-sponsored pension plans. Contributions and accumulated investment income are tax-deferred until withdrawal.

Employer-sponsored pension plans (EPPs) are registered with Canada Revenue Agency and also with the appropriate pension regulatory authority.

Registered retirement income funds (RRIFs) are an income stream (generally during retirement) established by transferring monies directly from an RRSP or EPP. All RRSPs must be converted to RRIFs by the end of the year in which the participant turns 69 (amended to 71 in the 2007 budget). A minimum amount (which is taxable) must be withdrawn each year, beginning the year after the RRIF is established.

A **locked-in retirement account (LIRA)** is an RRSP in which the money is locked in until the person reaches a specified age. This money would have been transferred from an employer-sponsor registered pension plan after the individual terminated employment.

Net worth is the difference between the value of total asset holdings and total indebtedness.

Acronyms used

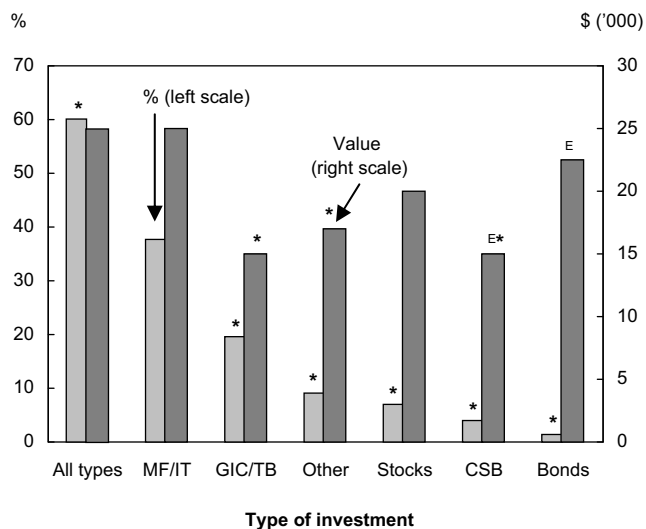
CSB	Canada Savings Bond
GIC	guaranteed investment certificate
IT	income trust
MF	mutual fund
TB	treasury bill

vehicles, EPPs, RRSPs and other financial holdings determines net worth. In the bottom fifth of net worth, less than 20% of families had RRSPs. In the top 20%, however, the proportion reached 87%. Among those holding RRSPs in the top net-worth group, the median value was \$111,100, significantly higher than for other groups.⁵ Similarly, since EPPs are a major component of net worth, it is not surprising that those with the top net worth have by far the largest median holdings of EPPs (\$190,000).⁶

Mutual funds most popular

RRSPs can be composed of a wide variety of investments ranging from guaranteed investment certificates (GICs) to stocks.⁷ Mutual funds were the most common investment for RRSPs. For example, 4 in 10 families held mutual funds in their RRSPs (Chart). This may be due to the broad diversity of funds available, ranging from very predictable to highly variable. Investors may also be lowering their risk through diversification. The second most popular investment vehicle was GICs, with 20% of families holding them. These secure interest-earning assets provide investors

Chart Mutual funds most common investment, have highest median value



* significantly different from the reference group (MF/IT)
Source: Statistics Canada, Survey of Financial Security, 2005.

with a set return for a specific period, so they know ahead of time what their money will earn over the period. Like GICs, Canada Savings Bonds offer security and 4% of RRSP holders held these in their portfolios.

Generally considered less stable because they are more prone to variability and their value is less predictable, stocks can also be held by RRSP investors.⁸ Of those who held RRSPs, only 7% owned stocks. However, of those who owned stocks, the median value approached that of mutual funds (\$20,000 and \$25,000 respectively). This could indicate that these investors may be better versed in financial matters, or perhaps smaller RRSPs do not justify the narrow focus of investing in individual stocks.

Age related to investment choices

Since RRSPs are designed to be used in retirement, and since the various investment vehicles have different levels of stability and predictability, some variation would be expected by age in the types of RRSP investments (Table 2). Indeed, older families (MIR 55 to 64) held the most stable and predictable investment types (26% held GICs and 6% CSBs) compared with younger families whose retirement investment horizon is significantly longer (15% and 3% respectively).

Also as expected, the median amounts for each investment type were higher as families approached the traditional retirement age. For GICs held by families approaching retirement (MIR 55 to 64), the median was \$25,000, significantly higher than for families headed by someone 25 to 44 years of age (\$9,000). Similarly, the median amount held in mutual funds by these older families was \$52,000, significantly higher than for younger families (\$16,000 for those 25 to 44).

Asset allocation tipped toward less predictable vehicles

While looking at RRSP holdings gives some information, it does not shed light on the asset mix held by families. To do this, the asset allocation of families was examined. Based on the stability of their value, investments were categorized as either 'predictable' (GICs, CSBs and treasury bills) or 'variable' (mutual funds, income trusts, stocks and bonds).⁹ Then the asset allocation for each family was determined, and families were categorized based on the proportion of their assets held in each category.

The majority of families (59%) with RRSPs held their entire RRSP portfolios in investments with variable values while only one-quarter held exclusively assets with predictable values (Table 3).

Table 2 RRSP holdings by age of major income recipient

	For those with RRSP holdings, families holding specific type				Amount held ¹			
	25-44	45-54	55-64	65-69	25-44	45-54	55-64	65-69
	%				\$ (median)			
Total	56 *	68	65	47 *	15,000 *	40,000	55,000	37,000 *
Mutual funds/income trusts	35	46 *	40	22 ^{E*}	16,000 *	39,000	52,000	38,000 ^E
Guaranteed investment certificates/treasury bills	15 *	24	26	19 ^E	9,000 *	20,000 ^E	25,000 ^E	F
Other	9	9	11	7 ^E	10,000 ^{E*}	25,000 ^E	34,000 ^E	F
Stocks	6 *	9	9	6 ^E	10,000 ^E	25,000 ^E	F	F
Canada Savings Bonds	3 ^{E*}	4 ^E	6 ^E	F	9,000 ^E	F	F	F
Bonds	1 ^E	F	F	F	F	F	F	F

* significantly different from the reference group (55-64)

1. Those holding the specific type of RRSP.

Source: Statistics Canada, Survey of Financial Security, 2005.

Table 3 Families by asset allocation category

	Predictable ¹	Mixed	Variable ²
Total	25	% 17 *	59*
Age of major income recipient (MIR)			
25 to 44	24	11 *(*)	65*(*)
45 to 54	23	20	57*
55 to 64 (ref)	26	26	48*
65 to 69	39 ^E	13 ^E *(*)	47
Sex of MIR			
Men (ref)	23	18 *	59*
Women	28	14 *	59*
Education of MIR			
Less than high school	40 (*)	10 ^E *(*)	51
Graduated high school	27 (*)	10 ^E *(*)	63*
Non-university postsecondary certificate	28 (*)	19 *	53*(*)
University degree (ref)	17	20	62*
After-tax family income			
Less than \$36,500	35 (*)	9 ^E *(*)	56*
\$36,500 to \$58,999	32 (*)	13 *	55*
\$59,000 to \$84,999 (ref)	20	19	62*
\$85,000 and over	13 ^E	25 *	61*
Net worth quintile			
Bottom	35 ^E	F	59*
Second	35	8 ^E *	58*
Middle (ref)	33	10 ^E *	58*
Fourth	20 (*)	20 (*)	60*
Top	17 (*)	25 *(*)	58*
Any type of EPP			
No members (ref)	27	14 *	58*
One member	25	18 *	57*
Two or more members	20 (*)	18	62*

* significantly different from 'predictable' at the 0.05 level

(*)significantly different from the reference group (ref)

1. GIC, CSB and treasury bills.

2. MF, IT, stocks, bonds.

Source: Statistics Canada, Survey of Financial Security, 2005.

Two-thirds of younger families held all of their RRSPs in investments with variable values, substantially more than older families (close to half for families with an MIR 55 or older). This follows a life-cycle model of investment, where the risk associated with higher but variable returns gradu-

ally gives way to the need to have more stable or predictable income in retirement.

Holding exclusively investments with predictable values was more common among families whose MIR had less education. About 40% of families whose MIR had less than a high school education

held all of their RRSPs in predictable vehicles compared with just 17% for those with a university degree.

Also, families with lower after-tax incomes were more likely to hold only investments with predictable values (35% for families with lower incomes compared with 13% for families with after-tax incomes of \$85,000 or more). Similarly, families in the bottom net-worth quintile invested exclusively in predictable investments more often than families in the top quintile. Several factors may be influencing these decisions. Families with lower incomes or net worth may not feel that they can afford to lose money should their investments not be profitable. Perhaps families are not planning these investments for use in the long-term—indeed they may need to access this money earlier, should the need arise (Giles and Maser 2004).¹⁰ Interestingly, proportions of those holding only risky investments varied very slightly (if at all), depending on income or net worth—instead, differences across income and net worth categories were mixed, with families having a combination of investments.

Relation to other types of retirement savings

Employer-sponsored pension plans (EPPs) provide employees with regular incomes at retirement, but not all workers are part of such plans. These plans are additional savings, which will become available at retirement. As such, they may influence whether and where a family saves additional funds in an RRSP. Families without an EPP were more likely to invest their RRSPs entirely in predictable retirement investment vehicles (27% with no EPP members in the fam-

ily versus 20% with two or more members). Part of this difference is likely attributable to the relationship between EPP plan availability and income—lower-paying jobs are less likely to provide EPPs (Marshall 2003).

Summary

Canada's retirement income system is based on three pillars: the Old Age Security program providing basic income support, the Canada Pension Plan and Quebec Pension Plan offering earnings-related pensions, and tax-assisted plans allowing for private savings for retirement. Private savings for retirement constituted almost one-third of total family assets in 2005.

In 2005, 6 in 10 families held RRSPs, with a median value of \$25,000. A smaller proportion of younger families (MIR aged 25 to 44) than those in the years before retirement (MIR 45 to 54) held RRSPs (56% and 68% respectively).

Nearly 90% of families with higher levels of after-tax income (\$85,000 or more) held RRSPs, substantially more than families with lower levels of income (35% for families with an income under \$36,500). For those owning RRSPs, the median amount held varied similarly by income.

Investors can hold a variety of investments in their RRSPs. The most common holding was mutual funds (38%), likely due to the broad range of products available. Guaranteed investment certificates, with their predictability, were the second most popular, with 20% of families holding them. At the other end of the RRSP investment spectrum, only 7% of families held stocks.

Perhaps more important than the type of investment is the asset mix held by families. The majority (59%) of families held their entire RRSP portfolios in variable-value assets (mutual funds, stocks or bonds). Only one-quarter held assets with predictable values (guaranteed investment certificates, Canada Savings Bonds or treasury bills) exclusively. Two-thirds of younger families held assets with variable values exclusively, substantially higher than rates for families of the age traditionally thought of as retirement age (less than 50% for families with MIR 55 to 69). Families with lower levels of income were more likely to hold only assets with predictable values.

Notes

1. RRSPs, LIRAs, RRIFs or deferred profit-sharing plans, annuities and other miscellaneous pension assets.
2. See Morissette and Ostrovsky 2006 for a complete discussion of retirement savings of Canadians, 1986 to 2003.
3. When comparing differences between age groups, some of the difference may be an age effect and some may be a cohort effect.
4. At the time of the SFS, the mandatory age for conversion was 69. Under proposed legislation, this limit was changed to 71 in 2007 (Canada Revenue Agency 2007).
5. Obviously, some of this is due to RRSP holdings being part of the value of net worth.
6. Based on median values for those holding EPPs, they are the top financial asset held and only real estate holdings exceed their value (Statistics Canada 2006).
7. See Canada Revenue Agency 2002 for details on which investments qualify.
8. While stocks are often held indirectly by investors as part of mutual funds, in this study 'stocks' refers specifically to those purchased directly by the investor.
9. While variable investments run from 'risky' to 'relatively risk-free,' their values are neither predictable nor guaranteed, unlike GICs, CSBs and TBs.
10. Approximately one-quarter of tax filers aged 20 to 59 as of the end of 1992 made at least one withdrawal from an RRSP between 1993 and 2001. Life events were one explanation—loss of a spouse, involuntary job loss and starting a new business were all associated with withdrawals of substantial sums (\$10,000 or more).

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Earnings in the last decade

René Morissette

The last decade has seen many changes that may have affected earnings of Canadian workers. The proliferation of information and communication technologies and the fast-growing supply of relatively skilled workers in low-wage countries have allowed Canadian firms to contract out highly skilled jobs in services such as engineering and informatics, increasing international trade in relatively sophisticated commercial services. Likewise, trade in goods produced by non-OECD countries has been growing sharply. As a result, Canadian workers have faced growing international competition, not only from relatively skilled workers in service industries but also from less skilled ones in goods-producing industries. This expansion of international trade with non-OECD countries has opened new markets for Canadian firms, potentially stimulating employment and earnings growth in some sectors of the economy.

Along with these changes in trade patterns and technology use, demographic trends also influenced labour market conditions and earnings, as retirements increased even as the participation rate of older workers started rising in the late 1990s. More recently, the appreciation of the Canadian dollar and the job losses in manufacturing may have tended to pull earnings down in this industry. In contrast, Alberta's economic boom and the downward trend in unemployment in several other provinces may have created upward pressures.

Recent years have also witnessed sharp growth at the top of the Canadian earnings distribution (Saez and Veall 2005), a phenomenon also observed in the United States. While the factors underlying this trend are still largely unknown (Lemieux 2007), it has been argued that the strong earnings increases for highly paid

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Data source and definitions

The Labour Force Survey (LFS), since 1997, has collected information on the usual wage or salary of employees at their main jobs. Respondents are asked to report their earnings, including tips and commissions, before taxes and other deductions. Average weekly and hourly earnings are calculated based on usual paid hours per week. Average earnings based on distributions can then be cross-tabulated by earnings and characteristics such as age, sex, education, occupation, and union status.

The LFS sample is representative of the civilian, non-institutionalized population 15 years of age or older. Excluded from the survey's coverage are persons living on reserves and other Aboriginal settlements in the provinces, full-time members of the Canadian Armed Forces and the institutionalized population. These groups together represent approximately 2% of the population aged 15 and over.

Unless otherwise specified, the sample used consists of individuals aged 15 to 64 who are employees in their main jobs (i.e. the one involving the most usual hours per week) and who live in one of the ten provinces. Full-time students are excluded. An alternative sample consisting only of private-sector employees aged 15 to 64 is also used in some instances. Unless otherwise noted, January to November averages are used.

The public sector covers employees in public administration at all levels, Crown corporations, liquor control boards and other government institutions such as schools (including universities), hospitals and public libraries. The private sector comprises all other employees and self-employed owners of businesses (including unpaid family workers in those businesses), and self-employed persons without businesses.

Hourly earnings are in 2002 dollars using province-specific consumer price indexes (all items).

workers might have been implemented to dissuade highly talented executives and professionals from moving to the United States.

The article uses the Labour Force Survey to examine the evolution of earnings in Canada from 1997 to 2007 (see *Data source and definitions*). Did earnings grow at the same pace in all provinces? Did they fall in manu-

facturing and rise among highly skilled workers? Did the percentage of low-paid jobs fall? Did highly paid jobs become more prevalent?

Overall trends

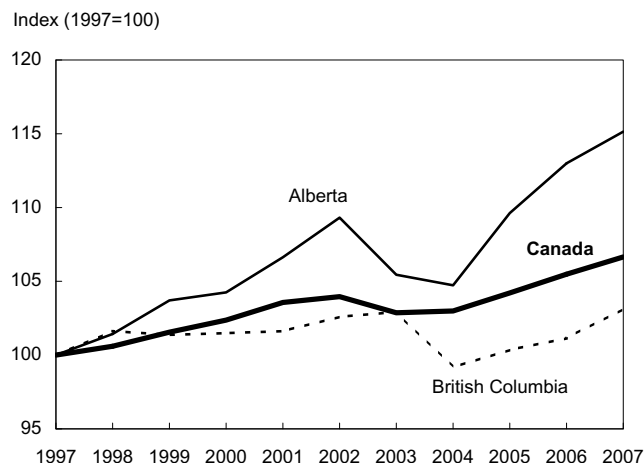
Average hourly earnings rose 6% in real terms over the last decade, from \$17.68 (2002 \$) in 1997 to \$18.80 in 2007 (Table 1). In the private sector, they grew by roughly 7%. They trended upwards between 1997 and 2001, remained virtually constant between 2001 and 2004 and then rose again (Chart A).

Growth rates in the private sector differed markedly by province. While Alberta enjoyed by far the strongest growth (15%), Newfoundland and Labrador, Nova Scotia and Saskatchewan had rates hovering around 11%. In contrast, average earnings grew only 3% in British Columbia. In many provinces, much of the growth occurred between 2004 and 2007. Similar patterns are observed when all industries are considered.

While average earnings of private-sector employees increased by about 7% nationwide, their median earnings rose roughly 5%. The median changed very little in Ontario and British Columbia, but increased by 10% or more in Nova Scotia, Saskatchewan and Alberta.

The strong increases observed in Alberta over the last decade had a clear impact on the province's earnings distribution. The proportion of jobs paying less than

Chart A Average earnings in Alberta's private sector grew sharply after 2004



Source: Statistics Canada, Labour Force Survey, March and September.

\$10 per hour (in 2002 \$) fell by fully 10 percentage points, dropping to 12% in 2007 (Table 2). Conversely, high-paying jobs became more prevalent, as the proportion of jobs paying at least \$25 per hour rose by 7 points.

This upward shift in the wage distribution was evident in most provinces—Newfoundland and Labrador, Ontario and British Columbia being the exceptions. While these provinces increased their share of jobs paying at least \$25 on an hourly basis, they did not markedly reduce the incidence of low-paid employment (proxied by the proportion of jobs paying less than \$10 per hour). For instance, close to one-third of jobs in Newfoundland and Labrador paid less than \$10 per hour in both 1997 and 2007, even though the relative importance of high-paying jobs increased by 7 percentage points.¹ In Ontario, 17% of jobs paid less than \$10 per hour in 2007, compared with 16% in 1997.

Table 1 Average hourly earnings by province

	All industries			Private sector		
	1997	2007	Change	1997	2007	Change
	2002 \$		%	2002 \$		%
Canada	17.68	18.80	6.3	16.34	17.43	6.7
Newfoundland and Labrador	14.51	16.00	10.3	12.53	14.02	11.9
Prince Edward Island	13.30	14.45	8.7	11.15	12.21	9.4
Nova Scotia	14.53	15.98	10.0	12.97	14.36	10.8
New Brunswick	14.51	15.43	6.4	12.96	13.74	6.0
Quebec	17.23	18.00	4.5	15.63	16.48	5.5
Ontario	18.71	19.77	5.6	17.40	18.34	5.4
Manitoba	15.69	17.00	8.3	14.09	15.28	8.4
Saskatchewan	15.63	17.30	10.7	13.98	15.53	11.1
Alberta	17.23	19.54	13.4	16.34	18.71	14.5
British Columbia	18.58	19.11	2.9	17.19	17.74	3.2

Source: Statistics Canada, Labour Force Survey, January to November.

Table 2 Hourly earnings distribution by province (2002 \$)

	Jobs paying				
	Less than \$10.00	\$10.00 to \$14.99	\$15.00 to \$19.99	\$20.00 to \$24.99	\$25.00 or more
Canada			%		
1997	20.1	24.7	21.8	15.6	17.9
2007	18.0	23.8	22.2	13.7	22.2
Newfoundland and Labrador					
1997	32.7	28.1	16.8	12.7	9.6
2007	32.3	22.8	17.3	10.6	16.9
Prince Edward Island					
1997	38.5	30.4	16.7	9.1	5.3
2007	33.6	29.7	18.1	8.8	9.9
Nova Scotia					
1997	31.0	29.8	17.8	12.4	9.1
2007	27.8	26.4	20.1	11.5	14.3
New Brunswick					
1997	33.5	27.9	17.3	12.2	9.2
2007	27.5	32.2	16.8	10.3	13.2
Quebec					
1997	21.8	25.4	22.3	14.0	16.5
2007	18.6	25.6	23.7	13.3	18.8
Ontario					
1997	15.9	24.2	22.4	16.4	21.2
2007	17.4	21.4	21.9	13.5	25.9
Manitoba					
1997	27.5	26.3	21.1	13.2	11.8
2007	21.4	28.1	21.0	12.8	16.6
Saskatchewan					
1997	27.1	27.5	19.8	14.0	11.6
2007	21.2	24.6	23.0	13.6	17.6
Alberta					
1997	21.8	26.4	20.3	14.4	17.0
2007	11.8	27.8	21.6	14.3	24.4
British Columbia					
1997	17.1	20.0	23.5	19.8	19.6
2007	16.3	21.1	23.6	16.6	22.4

Source: Statistics Canada, Labour Force Survey, January to November.

Average earnings grew at a different pace not only provincially, but also by position in the overall distribution. In the private sector as well as in the whole economy, earnings rose by 1% to 6% in the lower half of the earnings distribution, compared with close to 12% in the top 5% of the distribution (Chart B). Within the upper halves of their distributions, earnings of men and women also grew at increasing rates in the upper

reaches, suggesting that inequality grew within the upper half of each distribution.²

Yet, the degree to which average earnings grew at the top and the bottom of the distribution differed markedly across provinces. In Ontario, earnings rose roughly 10% in the top tenth but fell up to 5% in the bottom tenth (Chart C). In contrast, pay rates in Alberta increased 12% to 15% in the top tenth but even more (up to 17%) in the bot-

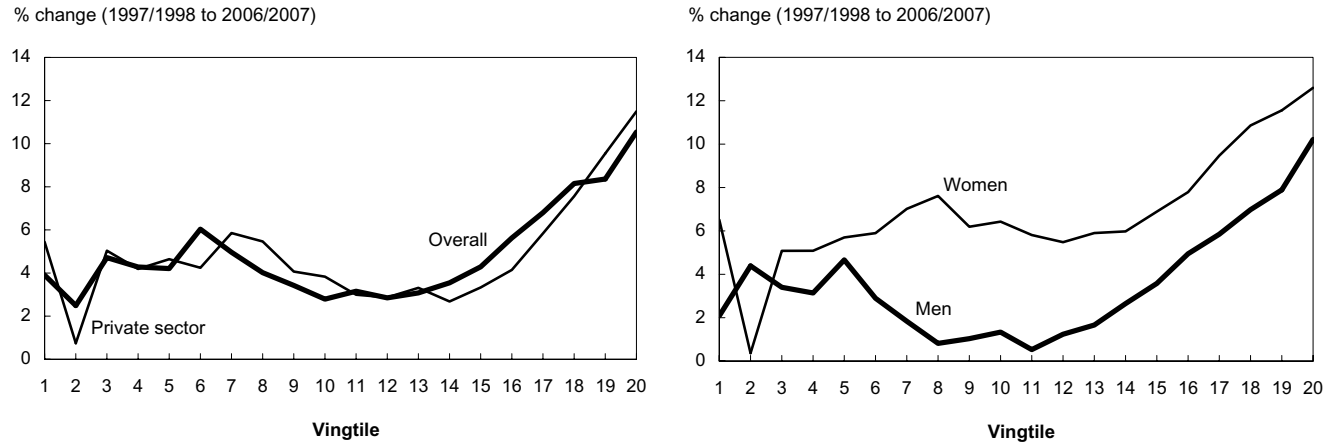
tom. In fact, growth across the earnings distribution displayed a U-shape everywhere except Ontario. At the very least, this suggests that earnings inequality did not evolve in a uniform manner in all provinces over the last decade. Nevertheless, within the upper half of each region-specific distribution, earnings generally tended to grow faster as one moved upward on the pay scale, suggesting a growing dispersion in this portion of the distribution.

Industry-specific trends

The relatively strong increases in the upper reaches of the top half of the earnings distribution were observed in most industries.³ Earnings in the top 5% grew between 9 and 12 percentage points faster than in the middle in primary industries and construction, manufacturing, low-skilled services and highly skilled services (Chart D). Whatever the underlying factors, this pattern suggests that in several sectors of the economy pay rates rose substantially for some highly skilled workers over the last decade.⁴

While growth differed substantially along the distribution within a given industry, it varied moderately between industries. Average earnings grew between 8% and 10% in primary industries and construction, highly skilled services, and wholesale trade and other services (Table 3). This is about twice the rate in manufacturing, low-skilled services and public services.

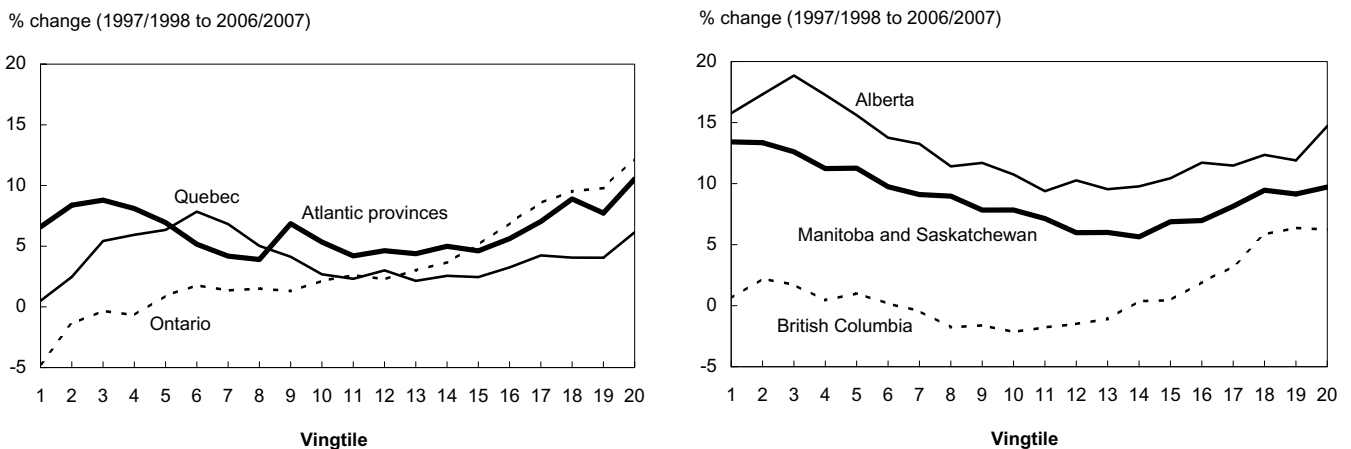
Somewhat greater variations were observed in manufacturing. Manufacturing employees in Alberta saw their average earnings increase by 9% between 1997/1998 and 2006/2007 (Table 4). In contrast, their counterparts in British Colum-

Chart B Earnings growth was strongest at the top of the wage distribution

Source: Statistics Canada, Labour Force Survey, January to November.

bia experienced a drop of 3%.⁵ Growth was moderate for manufacturing workers in the rest of Canada; most regions experienced either mild growth in average manufacturing wages or relatively little change in median manufacturing wages.

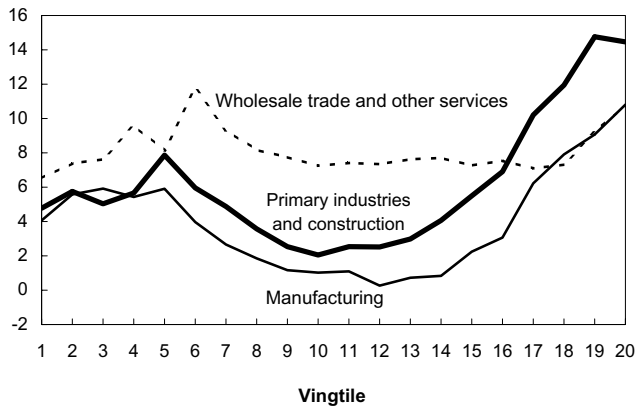
These relatively small changes (average and median) are noteworthy in light of the substantial job losses in manufacturing since 2004. In both Quebec and Ontario, manufacturing employment fell by at least 14% between 2004 and 2007 (Chart E), yet earnings varied very little. This suggests that, in these two

Chart C Earnings growth by vingtile differed markedly across regions

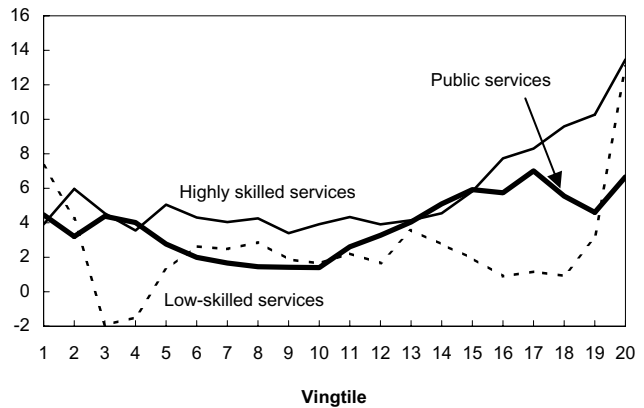
Source: Statistics Canada, Labour Force Survey, January to November.

Chart D Earnings growth at the top was strong in most industries

% change (1997/1998 to 2006/2007)



% change (1997/1998 to 2006/2007)



Source: Statistics Canada, Labour Force Survey, January to November.

Table 3 Hourly earnings by industry (2002 \$)

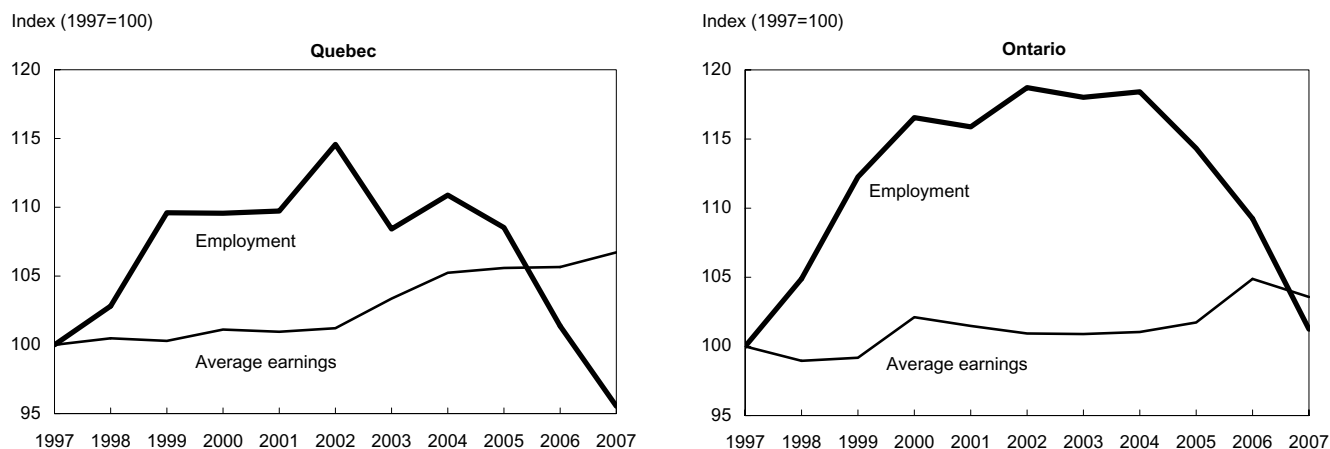
	Earnings		Jobs paying				
	Mean	Median	Less than \$10.00	\$10.00 to \$14.99	\$15.00 to \$19.99	\$20.00 to \$24.99	\$25.00 or more
Industry	\$		%				
Primary industries and construction							
1997	20.20	19.82	15.5	17.2	18.4	21.3	27.6
2007	22.01	20.46	13.2	16.2	19.1	17.8	33.7
Manufacturing							
1997	18.17	16.70	14.6	25.7	23.6	19.2	16.9
2007	18.99	17.02	12.7	26.4	24.7	15.1	21.1
Highly skilled services							
1997	18.41	16.66	14.5	27.2	23.8	15.9	18.5
2007	19.94	17.51	12.5	25.1	23.7	14.8	23.9
Low-skilled services							
1997	11.97	9.91	50.9	27.0	11.8	6.3	4.0
2007	12.43	10.21	48.8	28.4	12.6	5.0	5.2
Wholesale trade and other services							
1997	17.24	15.78	19.4	26.9	22.3	15.0	16.5
2007	18.91	17.18	14.6	24.7	23.1	15.6	22.1
Public services							
1997	20.66	19.19	7.9	19.6	26.4	18.6	27.5
2007	21.56	19.63	7.5	18.4	26.1	16.2	31.8
Computer and telecommunications sector							
1997	21.70	20.11	7.8	19.0	22.1	20.1	31.0
2007	24.37	22.46	5.6	16.4	18.8	17.2	41.9

Source: Statistics Canada, Labour Force Survey, January to November.

Table 4 Hourly earnings in manufacturing by region (2002 \$)

	Earnings		Jobs paying				
	Mean	Median	Less than \$10.00	\$10.00 to \$14.99	\$15.00 to \$19.99	\$20.00 to \$24.99	\$25.00 or more
Canada		\$			%		
1997/1998	18.18	16.70	15.1	25.2	23.7	18.7	17.3
2006/2007	19.01	17.02	12.3	27.0	24.3	15.7	20.7
Atlantic provinces							
1997/1998	15.13	13.32	27.7	30.2	19.0	13.5	9.6
2006/2007	15.60	13.61	23.0	34.5	20.3	11.0	11.1
Quebec							
1997/1998	16.63	15.14	21.4	28.0	22.7	15.4	12.5
2006/2007	17.61	15.64	15.0	30.3	25.6	13.2	15.9
Ontario							
1997/1998	19.31	17.94	10.3	23.5	25.9	19.8	20.5
2006/2007	20.24	17.97	10.1	23.8	24.9	16.1	25.1
Manitoba and Saskatchewan							
1997/1998	15.33	14.33	26.5	26.8	25.3	12.7	8.6
2006/2007	15.96	14.57	16.6	36.3	25.0	13.2	9.0
Alberta							
1997/1998	18.15	16.29	14.9	29.7	20.2	16.5	18.6
2006/2007	19.83	17.81	6.6	29.1	23.5	18.8	22.1
British Columbia							
1997/1998	20.20	20.59	8.4	19.2	19.4	29.7	23.3
2006/2007	19.62	18.50	12.0	23.2	19.3	22.8	22.7

Source: Statistics Canada, Labour Force Survey, January to November.

Chart E Despite recent decreases in employment, average earnings held steady in Quebec and Ontario manufacturing

Source: Statistics Canada, Labour Force Survey, March and September.

provinces, manufacturing firms that suffered a decline in demand for their product adjusted mainly through layoffs rather than wage changes.

A similar story emerges in the computer and telecommunications (CT) sector.⁶ As employment in this sector rose a solid 39% between 1997 and 2001, average earnings rose 10%. Employment then fell 15% between 2001 and 2005 before increasing again. Meanwhile, earnings changed very little. As a result, they ended up growing 12% between 1997 and 2007, almost twice the rate in the private sector.⁷

This meant that in 2007, employees in the CT sector earned \$24.37 per hour, on average, for their labour services. This is about twice the rate of their counterparts employed in low-skilled services and about \$7 more than the average in the private sector.

Low pay in manufacturing and low-skilled services

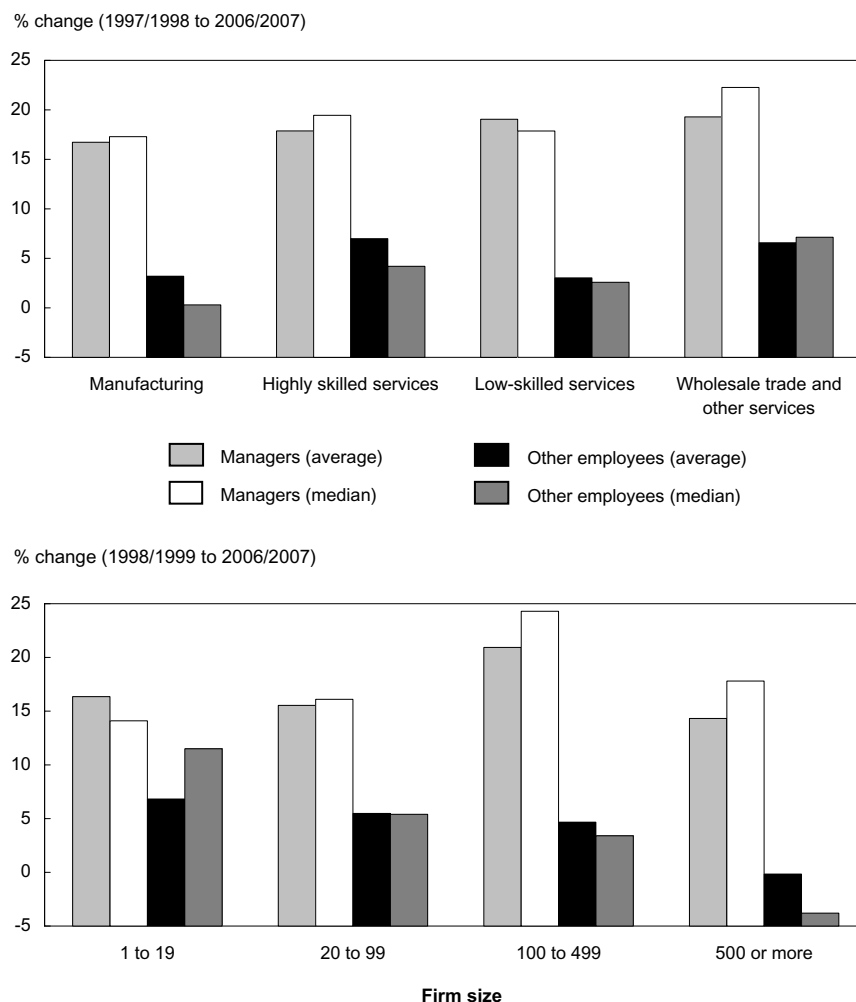
The proportion of manufacturing jobs paying less than \$10 per hour fell by about 3 percentage points between 1997/1998 and 2006/2007. However, the different earnings trends by region had a clear impact on the evolution of low-paid employment in this

Table 5 Hourly earnings in selected occupations in the private sector

Occupation	Mean			Median			Jobs in private sector in 2006/2007
	1997/1998	2006/2007	Change	1997/1998	2006/2007	Change	
	2002 \$		%	2002 \$		%	%
Specialist managers	25.09	30.89	23.1	23.02	29.03	26.1	2.8
Other managers	21.74	25.59	17.7	19.11	22.81	19.3	5.3
Professional occupations in business and finance	21.88	25.74	17.6	19.87	23.14	16.5	3.0
Computer and information systems professionals	24.32	27.78	14.3	23.23	26.95	16.0	2.2
Engineers	27.63	30.09	8.9	26.43	28.52	7.9	1.5
Technical related to natural and applied sciences	20.17	21.42	6.2	19.00	19.52	2.7	3.6
Clerical	14.27	14.22	-0.3	13.25	13.48	1.7	10.6
Assemblers and machine operators in manufacturing and labourers in processing, manufacturing and utilities	15.06	15.15	0.6	13.92	13.79	-1.0	8.3
Supervisors in manufacturing	20.94	20.66	-1.3	20.35	19.81	-2.6	1.0
Construction trades	18.05	18.45	2.2	17.03	17.50	2.8	2.6
Cashiers, retail salespersons and sales clerks	10.67	10.34	-3.0	8.83	8.74	-1.0	6.5
Food and beverage service	9.88	10.69	8.2	8.81	9.20	4.4	2.1
Other sales and service	12.39	12.82	3.5	10.43	10.83	3.8	17.0
Other	17.27	17.88	3.6	16.11	16.42	1.9	33.7
All private-sector jobs	16.40	17.34	5.7	14.48	15.05	3.9	100.0
Managers	22.79	27.41	20.3	20.59	25.05	21.7	8.1
Other employees	15.74	16.46	4.6	14.04	14.52	3.4	91.9

Source: Statistics Canada, Labour Force Survey, January to November.

Chart F Earnings in the private sector increased more for managers than other employees in all industries and firm sizes



Source: Statistics Canada, Labour Force Survey, January to November.

sector. Specifically, the share of manufacturing jobs paying less than \$10 per hour fell by 5 percentage points or more in all provinces except Ontario and British Columbia. In these two, at least 10% of manufacturing jobs paid less than \$10 per hour in 2006/2007, similar to the 1997/1998 period.

The incidence of low-paid employment changed little in low-skilled services. At the national level, the proportion of jobs paying less than \$10 per hour amounted to 49% in 2006/2007, a slight decline from the 51% observed in 1997/1998. While most regions did not witness substantial changes in the incidence

of low-paid employment in this sector of the economy, Alberta reduced its proportion by fully 12 percentage points.

In sum, whether trends are analyzed for all industries or for some specific sectors such as manufacturing and low-skilled services, the degree to which low-paid employment fell over the last decade differed markedly by province.

Earnings of managers up sharply over the last decade

The greater earnings increase among highly paid employees than among those in the middle of the earnings distribution suggests that managers and professionals might have enjoyed stronger pay growth than other occupations (Table 5). In addition, the relatively strong performance of the CT sector (in terms of earnings) indicates that computer and information systems professionals might have fared better than other highly skilled workers such as engineers.

Between 1997/1998 and 2006/2007, average earnings of managers grew a solid 20%, four times the rate for other employees. Pay for specialist managers rose 23%, while other managers and professionals in business and finance saw an 18% increase in their paycheques.⁸ Average earnings of computer and information systems professionals increased by 14%, compared with 9% for engineers. Median earnings of specialist managers, other managers, professionals in business and finance, and computer and information systems professionals—accounting for 13% of private-sector of employment grew between 16% and 26%.⁹

In contrast, earnings stagnated for about 26% of private-sector employment in 2006/2007. Clerical workers and manufacturing employees involved in blue-collar work or supervision tasks saw virtually no growth. Cashiers, retail salespersons and sales clerks also did not see their paycheques increase.

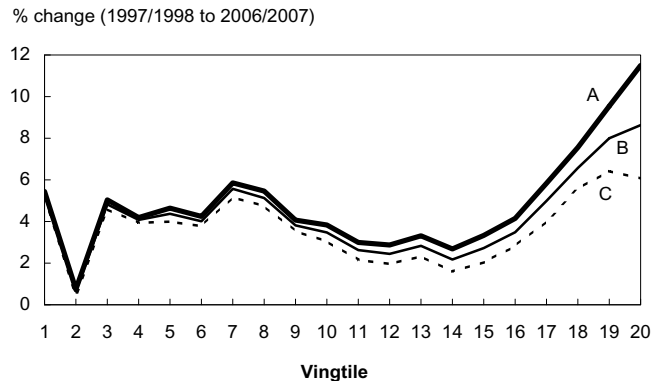
The strong growth in pay for managers was not driven simply by the economic boom observed in Alberta. Average earnings of managers grew 18% in the Atlantic provinces, 19% in Quebec and Ontario, 21% in Manitoba and Saskatchewan, 27% in Alberta and 15% in British Columbia. In contrast, other employees saw increases of 5% in the Atlantic provinces and Quebec, 3% in Ontario, 9% in Saskatchewan and Manitoba, 12% in Alberta and virtually zero in British Columbia. The faster wage growth of managers was also seen in all industries and for firms of all sizes (Chart F).¹⁰

Since the proportion of workers with a university degree increased more among managers (from 29% in 1997/1998 to 38% in 2006/2007) than among other employees (12% to 17%), the strong earnings growth of managers might have been driven mainly by differential increases in educational attainment. Multivariate analyses do not support this view. After controlling for age, education and seniority within the company, 80% of the difference persists.¹¹ Furthermore, 75% of the difference in growth rates remains after adding controls for industry (at the 4-digit level) and region. Taken together, these results indicate that the sharp earnings growth experienced by managers over the last decade was widespread and was not driven mainly by compositional effects.¹²

The strong earnings growth of managers had a substantial impact on the upper end of the earnings distribution. Between 1997/1998 and 2006/2007, hourly earnings among the top 5% of private-sector employees increased by 11.5%, compared with 3.6% for their counterparts in the middle of the distribution (vingtiles 9 to 11).

If average earnings of managers had increased by 12.5% (i.e. half way between the observed 20.3% and the 4.6% for other employees), earnings among the top 5% of private-sector employees would have increased by 8.6% only (Chart G), while earnings in the middle of the distribution would have barely changed, increasing by 3.3%. The difference in growth rates between the top 5% and those in the middle would then have decreased from 7.9 percentage points to 5.3 (i.e. about one-third could be explained).

Chart G At least one-third of the earnings growth among the top 5% in the private sector can be accounted for by the strong growth for managers



A: Observed changes in average earnings.
 B: Changes in average earnings, if the average for managers had increased by 12.5% rather than 20.3%.
 C: Changes in average earnings, if the average for managers had increased by 4.6% rather than 20.3%
 Source: Statistics Canada, Labour Force Survey, January to November.

Furthermore, had average earnings of managers increased by the 4.6% rate of other private-sector employees, hourly earnings among the top 5% would have increased by only 6.1%, while those in the middle would have seen 2.9%. The difference between the top 5% and the middle would have decreased to 3.2 points, with about 60% being accounted for by the more rapid earnings growth of managers. In other words, managers' rapid earnings growth accounted for between 33% and 60% of the difference in growth rates between the top 5% and those in the middle of the distribution.

Earnings growth not that different by education

Since earnings rose substantially in managerial and professional occupations in business and finance but stagnated in blue-collar manufacturing and clerical occupations, it might be assumed that they increased more among highly educated workers than among the less educated. However, for both men and women, under 35 years of age or aged 35 to 64, earnings growth did not differ much by education (Table 6).

Table 6 Hourly earnings by education

	Mean			Median		
	1997/1998	2006/2007	Change	1997/1998	2006/2007	Change
Men under 35		2002 \$	%		2002 \$	%
Less than high school	12.19	12.29	0.8	10.97	10.78	-1.7
High school graduate	14.10	14.47	2.7	12.92	13.33	3.1
Trades certificate or diploma	16.84	17.93	6.5	16.11	16.68	3.5
Post-secondary education	15.93	16.54	3.8	14.66	15.12	3.2
Bachelor degree	20.55	21.58	5.0	19.49	20.22	3.8
Graduate degree	24.09	24.55	1.9	23.04	23.36	1.4
Men 35 to 64						
Less than high school	17.23	17.13	-0.6	16.56	16.10	-2.8
High school graduate	20.08	19.67	-2.0	19.30	18.38	-4.7
Trades certificate or diploma	21.26	21.15	-0.5	21.23	20.35	-4.1
Post-secondary education	22.87	22.75	-0.5	22.08	21.27	-3.6
Bachelor degree	27.75	27.95	0.7	27.17	26.78	-1.5
Graduate degree	31.46	30.78	-2.2	31.18	30.05	-3.6
Women under 35						
Less than high school	9.59	9.60	0.1	8.33	8.17	-2.0
High school graduate	11.67	11.63	-0.4	10.33	10.11	-2.1
Trades certificate or diploma	12.65	13.46	6.4	11.35	12.49	10.0
Post-secondary education	13.95	14.44	3.5	12.86	13.48	4.8
Bachelor degree	18.39	19.26	4.8	17.70	18.35	3.6
Graduate degree	21.51	22.44	4.3	20.88	21.82	4.5
Women 35 to 64						
Less than high school	11.91	12.10	1.7	11.04	10.79	-2.2
High school graduate	15.05	15.29	1.6	14.35	14.14	-1.5
Trades certificate or diploma	14.89	15.51	4.2	14.12	14.32	1.5
Post-secondary education	18.05	18.58	2.9	17.06	17.11	0.3
Bachelor degree	23.41	23.78	1.6	23.28	22.75	-2.3
Graduate degree	27.15	27.45	1.1	27.21	27.33	0.4

Source: Statistics Canada, Labour Force Survey, January to November.

Men under 35 with a high school diploma or less saw their earnings increase by at most 3% (average or median), whereas those with a bachelor's or higher degree experienced pay increases that varied between 1% and 5%. Among men aged 35 to 64, average earnings remained virtually unchanged at all education levels while median wages fell between 2% and 5%.

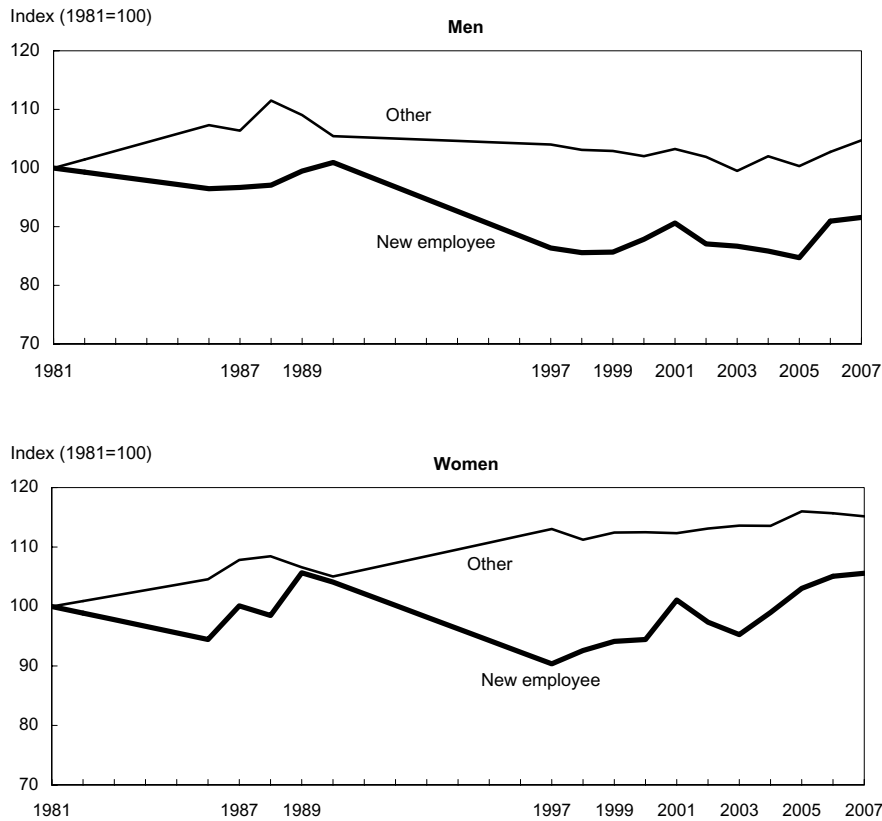
Very similar patterns were seen for women. Those under 35 with a high school diploma or less saw average earnings stagnate or median earnings drop slightly. In contrast, those with a bachelor's degree had a slight increase of 4% to 5%. In this age group, women with a trades certificate did well, as their earnings grew between 6% and 10%. As for men aged 35 to 64, earnings growth varied very little by education among

women of that age. Hence, the relatively strong growth in many industries in the upper ranges of the earnings distribution appears to have affected mainly the inter-occupational pay structure, rather than the returns to education.

Earnings growth by age and seniority

Canada's unemployment rate fell from 9.1% in 1997 to under 6% in the last quarter of 2007—below 4% in Alberta. In this context, new entrants to the labour market might have enjoyed stronger earnings growth than other employees, as labour shortages could develop in some sectors. If so, earnings of young employees should have risen faster than those of their older counterparts.

Chart H The earnings gap between newly hired employees and others widened during the 1990s for the 35-to-44-year-olds.



Sources: Statistics Canada, Survey of Work History, 1981; Labour Market Activity Survey, 1986 to 1990; Labour Force Survey, March and September, 1997 to 2007.

And indeed, this is what happened. Between 1997/1998 and 2006/2007, earnings (average or median) of men under 35 grew at least 7% while those of their counterparts 35 to 54 either fell or rose by at most 4%. Median earnings of women under 35 also grew more than those of their counterparts aged 35 to 54. Higher earnings growth among men under 35 was seen not only in Alberta, but also in most other regions. The only exceptions were Ontario and British Columbia,

where growth in average earnings did not differ much between the two age groups. For women, age differences within regions were generally less pronounced.

The strong labour market conditions in recent years also benefited some newly hired employees. Among workers aged 35 to 44, earnings of employees with two years of seniority or less grew at least 5 percentage points faster than those of their counterparts with

greater seniority (Chart H). Nevertheless, earnings of newly hired employees ended up growing more slowly than those of other employees since the early 1980s.¹³

While the reasons underlying this pattern are unclear, one explanation is that, since the 1980s, Canadian employers may have responded to technological changes and more intense competition within industries and from abroad by cutting pay for newly hired workers while maintaining it for workers with greater seniority. They might have done so in order to maintain morale and productivity among their core workers.

Summary

Numerous changes to the economy have helped alter the pay structure in Canada over the last decade. As expected, pay rates have risen in Alberta, especially since 2004. In Ontario and Quebec, earnings in manufacturing did not fall substantially, despite sharp decreases in employment in recent years. Average earnings in the CT sector ended up rising 12% in real terms, after the turbulence of the 2001 to 2004 period.

In virtually all industries and regions, pay rates in the upper half of the distribution grew increasingly larger toward the top of the scale. This suggests that earnings dispersion likely increased in the upper half of the distribution over the last decade.

Not all provinces have been equally able to reduce the incidence of low-paid employment. Between 1997 and 2007, the proportion of jobs paying less than \$10 per hour fell markedly in all provinces except Newfoundland and Labrador,

Ontario and British Columbia. In manufacturing, the proportion of low-paid jobs dropped everywhere except Ontario and British Columbia.

Of all workers, managers saw the greatest improvement in their pay rates since the late 1990s. Their earnings grew sharply in most industrial groups and in firms of all sizes. In contrast, blue-collar workers in manufacturing, clerical employees and salespersons in retail trade experienced virtually no earnings growth.

Surprisingly, the strong earnings growth for managers and some professionals in business and finance occupations did not translate into sharp increases among highly educated workers. For both men and women, returns to education did not change much over the last decade.

However, young workers and some newly hired employees did fairly well over the past ten years. In most regions, earnings growth for men under 35 surpassed that of their counterparts aged 35 to 54. Yet, within age groups, earnings of newly hired employees ended up growing more slowly than those other employees over the 1981 to 2007 period.

Perspectives

■ Notes

1. Throughout the study, hourly earnings are expressed in 2002 dollars using province-specific consumer price indexes (CPI). Since the CPI is a measure of price change from one time period to another, rather than a measure of price levels, it cannot be used to indicate differences in price levels between provinces. For this reason, interprovincial differences in real earnings (or in the share of jobs paying, say, less than \$10 per hour) in a given year do not necessarily fully measure interprovincial differences in the purchasing power provided by one dollar of earnings in that year.
2. The pattern for men is consistent with Figure 4 of Lemieux (2007), which shows that changes in male real earnings by percentile displayed a U-shape between 1989 and 2004 in the United States. Note that the proportion of private-sector employees who are union members or covered by a collective agreement fell from 22% in 1997 to 19% in 2007 in Canada. For the whole economy, the corresponding numbers are 35% and 33%, respectively.
3. The six major industry groups are primary industries and construction, manufacturing, highly skilled services, low-skilled services, wholesale trade and other services, and public services. Highly skilled services [based on the North American Industry Classification System (NAICS) of 2002] comprise transportation and warehousing; information and cultural industries; finance and insurance; real estate and rental and leasing; professional, scientific and technical services; management of companies and enterprises; and administrative and support, waste management and remediation services. Low-skilled services comprise retail trade and accommodation and food services. In 2007, employment was distributed as follows: primary industries and construction (4%); manufacturing (15%); highly skilled services (24%); low-skilled services (17%); wholesale trade and other services (17%); and public services (24%).
4. Whether this sharp wage growth is observed for highly educated workers or for those employed in managerial and professional occupations is examined later in the article.
5. Growth in median manufacturing earnings differed even more, as Alberta enjoyed a 9% increase while British Columbia suffered a 10% decrease.
6. The CT sector comprises the following NAICS industries: commercial and service industry machinery; computer and peripheral equipment; communications equipment; audio and video equipment; semiconductor and other electronic components; navigational, measuring, medical and control instruments; computer and communications equipment and supplies wholesaler-distributors; software publishers; wired telecommunications carriers; wireless telecommunications carriers (except satellite); telecommunications resellers; satellite telecommunications; cable and other program distribution; other telecommunications; Internet service providers; web search portals; data processing, hosting, and related services; computer systems design and related services; and electronic and precision equipment repair and maintenance. It amounted to 4% of total employment in 2007.
7. More than half of the earnings growth in the CT sector seems to be related to changes in the characteristics of the workforce. After controlling for age, seniority (through quadratic terms in age and seniority) and education and interacting these variables with sex, regressions of log earnings on these regressors and a year effect (a binary indicator set to 1 in 2007, 0 in 1997) suggest that average earnings rose 5% between 1997 and 2007.
8. Specialist managers comprise administrative services managers; managers in engineering, architecture, science and information systems; sales, marketing and advertising managers; and facility operation and maintenance managers. Professional occupations in business and finance comprise auditors, accountants and investment professionals, and human resources and business service professionals.

9. Similar results are obtained using weekly earnings.
10. Average earnings of other employees rose 6% in primary industries and construction and 1% in public services. The corresponding numbers for managers in these two sectors were 26% and 12%, respectively. Since firm size was not available from the LFS in 1997, Chart F shows growth by firm size from 1998/1999.
11. Adding controls for age, seniority (through quadratic terms in age and seniority) and education (and interacting these variables with sex) to regressions that initially include a binary indicator for managerial occupations, a period effect (a binary indicator of 1 in 2006/2007, 0 in 1997/1998) and an interaction term between the two reduces the value of this interaction term from 0.143 to 0.116.
12. Between 1998/1999 and 2006/2007, log earnings of managers grew 11 points faster than those of other employees. Three-quarters of that difference remains after controlling for firm size (4 categories), industry (4-digit level), region, age, education and seniority.
13. Since the surveys used in Chart H differ somewhat in terms of their content and the procedures used to impute earnings and to detect outliers, it is difficult to make definitive statements regarding the magnitude of real

wage growth since 1981. Nevertheless, comparisons of the evolution of relative earnings between groups (e.g. between newly hired employees and other employees) remain meaningful. As Morissette and Johnson (2005) showed, within age groups, earnings of newly hired male and female employees fell substantially relative to those of others during the 1990s.

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