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- Recent graduates and employer needs
- Employment and earnings of graduates



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Culture, Tourism and the Centre for Education Statistics

Education Quarterly Review

2000, Vol. 7, no. 1

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Symbols

The following standard symbols are used in Statistics Canada publications:

- .. figures not available
- ... figures not appropriate or not applicable
- nil or zero
- amount too small to be expressed
- ^p preliminary figures
- ^e estimate
- ^r revised figures
- x confidential to meet secrecy requirements of the *Statistics Act*

From the

Editor-in-Chief

Mission

Education Quarterly Review analyses and reports on current issues and trends in education using information from a variety of statistical sources. It serves as a focal point for education statistics and provides a forum for communication with stakeholders and the public. Our goal is to present information and analysis that are relevant, authoritative, timely and accessible.

The theme for this issue is postsecondary graduates. Marc Frenette, using data from the National Graduates Survey (NGS), examines the extent to which the education levels of graduates exceed the requirements of their employers: are graduates 'overqualified'? And Ross Finnie, using employment and earnings data from NGS surveys, explores whether early labour market outcomes have deteriorated for postsecondary graduates in Canada.

In addition to these papers, please refer to the **Cumulative Index** at the back of the report, where we list by title all articles that have appeared in *EQR* since 1994. These articles have been grouped in 11 categories, including funding, technology and learning, and accessibility. These categories are based on education policy issues that were identified in the report *Strategic Plan (1997)*, released in November 1997, one year after the creation of the Centre for Education Statistics. The *Strategic Plan* reviews the Centre's statistical program and identifies objectives and priorities required to strengthen the program to better address information needs. *Strategic Plan (1997)* is available free of charge on the Internet at address <http://www.statcan.ca/cgi-bin/downpub/freepub.cgi>.

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Education Quarterly Review as well as other Statistics Canada publications, including the statistical compendium *Education in Canada* (Catalogue no. 81-229-XIB), can be accessed electronically at <http://www.statcan.ca/cgi-bin/downpub/feepub.cgi>.

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Highlights



Recent graduates and employer needs

- Throughout the 1980s and 1990s, anywhere from 27% to 48% of recent college, bachelor's and doctoral graduates were overqualified for their main job. At the master's level, the range was 48% to 72%.
- Although master's graduates are more likely to be overqualified, they are less likely to be overqualified by two or more levels. In other words, their main job often requires a bachelor's degree. College and bachelor's graduates are less likely to be overqualified by two or more levels. At the college level, for example, anywhere from 31% to 43% of graduates required a high school diploma or less to obtain their main job.
- At the college and bachelor's levels, overqualification is associated with a considerable loss in earnings and in use of skills acquired in school. This is not the case for master's and doctoral graduates.
- Overqualification rates vary considerably by field of study at the college and bachelor's levels. Almost one half of bachelor's graduates of Fine Arts and Humanities and other Social Sciences (excluding Economics) require less than a college diploma to obtain their main job. At the master's level, there is very little variation by field of study.

Employment and earnings of graduates

- Have early labour market outcomes deteriorated recently for postsecondary graduates in Canada? The evidence suggests this has not been the case, or at least not to the degree some may have thought.
- The major findings regarding labour market activity rates conclude that graduates at all levels, men and women, experienced unemployment rates that have generally been at low levels relative to non-graduates and have improved significantly between two and five years following graduation.
- The average earnings of men graduates of the more recent cohorts have either held steady or shown small to moderate declines relative to earlier groups, while women's earnings have either remained stable or risen.

FOR

Articles



Overqualified? Recent graduates and the needs of their employers

Introduction

This article answers the question “To what extent, if any, have the education levels of graduates surpassed the needs of employers?” In other words, what is the percentage of recent Canadian graduates who have more postsecondary education than their main employer requires? For the most part, this question remains unexplored. Lavoie and Finnie (1997) touched on the topic, but they did not develop it. It is an important issue, however, since overqualification has been linked to lower earnings (Sicherman 1991; Rumberger 1987) and to lower productivity (Tsang, Rumberger and Levin 1991).

Lavoie and Finnie (1997) conclude that master’s graduates are more likely to be overqualified than bachelor’s graduates, but Finnie (1999) finds that a master’s degree has a large earnings advantage over a bachelor’s degree. Since these findings seem to contradict those of Sicherman and Rumberger mentioned above, this article also attempts to reconcile previous findings.

The term ‘overqualified’ refers to an individual who possesses more education than was required by the main employer (see *Methodology and data*). For several reasons, it should not be interpreted as ‘possessing too much education.’ First, graduates may use the jobs they get right after graduation as stepping-stones to better jobs. Second, employers may not have expected to receive job applications from highly educated applicants but may still benefit from the graduates’ knowledge. Third, even if the ‘extra’ knowledge that a graduate has is not required to do the job, employers may still save time (and therefore money) by screening interviewees according to their level of education. In other words, employers often use education as a proxy for skill acquisition. And fourth, it is reasonable to assume that the higher the level of education in society as a whole, the more benefits the society derives.

This article examines

- the rates of overqualification for/of various graduate characteristics;
- the rates of overqualification by at least two levels of study; and
- the relationship between overqualification and labour market outcomes, such as earnings and skill use.

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Methodology and data

The academic literature refers to the incidence of education above the level required as *overeducation*, *surplus schooling* or *overqualification*. The term ‘overqualification’ seems more appropriate because ‘overeducation’ and ‘surplus schooling’ may imply that possessing more education than was required for the job is too much education. ‘Overqualification,’ however, refers specifically to having more qualifications than were required for the job, not necessarily too much education.

The data used for this study are the National Graduates Surveys (NGS) and Follow-Ups to the National Graduate Surveys (FOG).¹ Three cohorts of Canadian postsecondary graduates were examined: the classes of 1982 (interviewed in 1984 and 1987), 1986 (interviewed in 1988 and 1991) and 1990 (interviewed in 1992 and 1995). The NGS provides researchers with specific field-of-study codes.² Combining the education level with the field of study allowed very specific types of academic programs to be linked to the incidence of overqualification. The study focusses on graduates of college, bachelor’s, master’s and doctoral programs.

The specific job requirement question used in this study was “When you were selected for that job, what level of

education was needed to get the job?” Note that the question refers to the beginning of a *job*, not to the beginning of the respondent’s *employment* with an employer. The overqualification variable, therefore, refers to the level required at the beginning of a job versus the level attained in the reference year. That is, a respondent will not be labelled overqualified simply because the requirements of the first job with an employer were low and the respondent took training in order to get a promotion.

The level of education attained was provided by institutions, while the level of education required was provided by the graduates. In particular, graduates were asked to report the level the employer *actually* required (as opposed to the level that they *felt* was required). A graduate was considered overqualified if his or her level of education was higher than what was required by the employer. Using the graduate’s perception of the requirements could have reduced this research to a skills-based study, whereas using the employer’s actual requirements incorporated both labour market functions of education: skills acquisition and screening (or filtering).

The incidence of overqualification by at least one level

In this section, the percentages of overqualified graduates are analysed across five dimensions: level of education, field of study, co-op studies, geographical region, and industry. All numbers refer to overqualification by at least one education level. The five levels of educational requirements used in the analysis are, in ascending order, below college, college, bachelor’s, master’s and doctorate. The analysis in this section and beyond is limited to graduates who had not received a new diploma since graduating in the reference year, and had not been working part time because of school attendance in the interview year.³ The samples are further restricted to graduates who had not obtained a higher diploma prior to the one obtained in the reference year. This restriction was required because there is no specific information available for such diplomas (for example, the date obtained or the field of study).

Level of education

The percentages of overqualified graduates by level of education appear in tables 1 to 4. The highest rates occur at the master’s level and apply to all cohorts and interviews. About 27% to 48% of college, bachelor’s and doctoral

graduates are overqualified. For master’s graduates the range is 48% to 72%.⁴ The high rates at the master’s level—explored later in the article—confirm the findings of Lavoie and Finnie (1997).

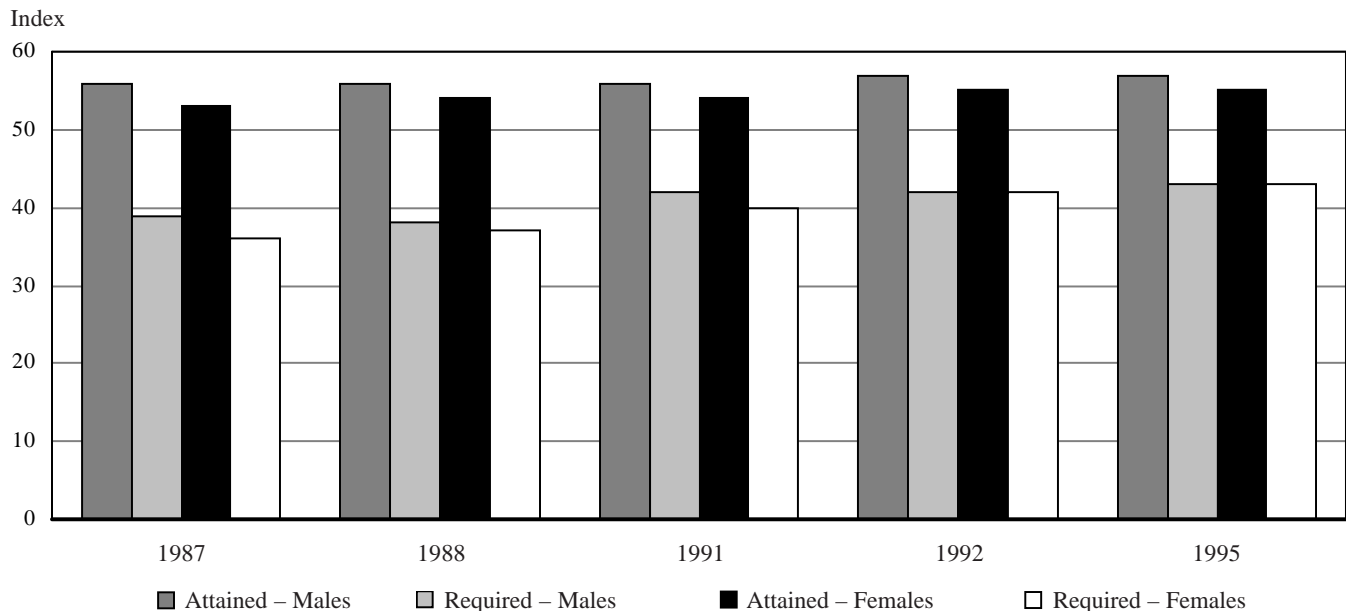
Within cohorts, the percentages of overqualified graduates typically fall from two to five years after graduation for all levels of education except college. In fact, the rate actually *rises* for college graduates in all cases except females in the 1990 cohort.

With respect to long-term trends, it is worth noting that graduates of higher levels of education (master’s and doctorate) have experienced less overqualification since the 1982 cohort.⁵ For lower levels of education, there is a downward shift between the 1986 and 1990 cohorts, but no significant differences occur between the 1982 and 1990 cohorts.

Why have overqualification rates fallen since the mid-1980s? Graph 1 shows values of indices of education attained versus education required over the three cohorts.⁶ The educational requirements for the types of jobs that graduates have been getting (as measured by the education-required index) have been increasing faster than the level of education attained by the graduates (as measured by the education-attained index). Therefore, the labour market seems to be the main reason why overqualification rates



Graph 1
Education attained versus education required for job



Note: These numbers represent indices; numbers were not available for the 1984 NGS (see text).

Source: National Graduates Surveys.

have fallen. It is important to note, however, that these aggregate numbers may not tell the whole story behind the overqualification trends. It is possible that individual employers and recent graduates have increased their ability to 'match' themselves (perhaps through better advertising and search mechanisms).

Overqualification also differs by sex. Male college graduates are more likely to be overqualified than female college graduates. Male bachelor's graduates tend to be slightly less prone to overqualification than their female counterparts. At the master's level, the rates for males are higher than those for females. However, sex does not seem to influence the rates at the doctoral level.

Field of study

The percentages of overqualified graduates by field of study appear in tables 1 to 4. At the college level, graduates of Nursing and Medical Technology have typically not been prone to overqualification. However, high rates have prevailed for graduates of Arts and Humanities, Other Health (numbers available for women only), Natural and Animal Sciences, Protective Services, Secretarial Services (numbers available for women only) and Other Business Services.

At the bachelor's level, there are significant sex differences. While both male and female graduates of Engineering and Computer Science, Law and Medical

Sciences have had low rates of overqualification (as do female graduates of Education), both male and female graduates of Fine Arts and Humanities and Other Social Sciences report high rates, as do male graduates of Economics and Agricultural and Biological Sciences.

Within the master's category, Education graduates tend to have high incidences of overqualification, while the opposite is true for Other Health graduates. Based on available evidence, high rates are apparent among Medical Sciences graduates, who at this level are medical specialists such as podiatrists and dermatologists.

Statistically reliable results are unavailable for several fields of study, especially among women, because of the low number of doctoral graduates in the samples. Nonetheless, Education graduates have high rates of overqualification, while the reverse holds for graduates of Agricultural and Biological Sciences.

Co-op studies

This section focusses on co-op studies (tables 5 to 8). At the college level, co-op graduates are generally just as likely to be overqualified as non-co-op graduates. Graduates of co-op studies at the bachelor's level are typically less prone to overqualification than graduates of non-co-op bachelor's programs, while master's graduates and master's co-op graduates have roughly equal rates. Reliable results for doctoral graduates are not available because of low sample sizes.

Geographical region

The rates of overqualified graduates by region are based on the region's needs for skilled workers, as well as the desire of skilled workers to live in the region. An economically stagnant region may require very few skilled workers, and this would tend to increase the rate of overqualification. However, the region's skilled workers may choose to move to more prosperous regions where their skills may be in greater demand. The result is that the mobility of workers tends to reduce regional disparities in rates of overqualification.

Because recent graduates tend to be more mobile than the general population,⁷ the regional differences for each level of education are small, supporting the argument that the mobility of workers may decrease regional disparities in the rates of overqualified graduates (tables 5 to 8). College graduates, however, are less mobile than university graduates, and have a lower regional dispersion in overqualification rates (Table 5).

Industrial sectors

Considerable differences appear in the rates of overqualification across industrial sectors (tables 5 to 8). Generally, the semi-public sector (that is, Education and Health Services) employs the lowest percentage of overqualified graduates. This holds true for all levels of education except at the master's level, where industry and overqualification do not appear to be linked. For all levels of education, the private and public sectors employ about the same percentage of overqualified graduates.

The incidence of overqualification by two or more levels

Unless otherwise stated, any reference to numbers in this section is to the percentages of graduates overqualified by two or more levels (tables 1 to 4). The six levels of educational requirements are, in ascending order, below trade-vocational, trade-vocational, college, bachelor's, master's and doctorate.

One observation drawn from these figures is that higher-level graduates are less likely to be overqualified by two or more levels than other graduates. This is despite the fact that there are obviously more levels below higher levels than below lower levels. Master's recipients, as previously stated, have the highest rates of overqualification. However, it is now clear that many of these master's graduates hold jobs that require a bachelor's degree. This may lead one to conclude that though employers state that a given job requires a bachelor's degree, they often hire people with master's degrees,

thereby filtering out the bachelor's-degree holders early in the hiring process. The following section discusses this issue in more detail. It is worth noting that this finding may help explain the fact that master's graduates still enjoy larger earnings than bachelor's graduates, despite the fact that they are more often overqualified. This may be partly due to the lower incidence for master's graduates of overqualification by two or more levels.

Overqualification by two or more levels occurs for roughly 31% to 43% of college graduates, 19% to 29% of bachelor's graduates, 8% to 17% of master's graduates, and 9% to 21% of doctoral graduates (tables 1 to 4). For all levels of education, this trend has been less evident in the 1990s than for earlier cohorts, a finding that contradicts the common view that recent graduates have held more 'burger-flipping' jobs than in the past. The dispersion by field of study for college and bachelor's graduates generally reflects the results in the earlier section, *Field of study*. Graduates of Other Health fields at the bachelor's level typically experience much lower rates relative to other fields.

At the master's level, graduates of Engineering and Computer Science, as well as Other Health graduates were very unlikely to be overqualified by two or more levels. The evidence that exists on the dispersion of results for doctoral graduates generally mirrors the results of the section on *Field of study*.

Is overqualification linked to earnings and skill use?

Mean annual earnings (in thousands of 1995 dollars) and a use-of-skills index⁸ for three classes of workers are presented in Table 9. The three classes are (1) not overqualified, (2) overqualified and (3) overqualified by at least two levels. All workers classified in the third category are also in the second category, but the converse is not necessarily true. The important comparisons to make within Table 9 are between the first category and the other two categories.

Two dimensions were examined within the earnings comparisons. The first question asked was "For two people holding jobs requiring the same level of education, does more education matter?" Despite equal levels of requirement, people with more education generally earn more (Table 9).

The next question was "For two people possessing the same level of education, do the educational requirements of the job matter?" For equal levels of educational attainment, higher educational requirements generally lead to higher earnings for college and bachelor's graduates only (Table 9). For graduates of master's or doctoral

programs, the level of education required does not seem to have a significant influence on earnings. These graduates have more options available to them, and can obtain jobs that require lower levels of education without suffering a large decrease in earnings.

As was previously mentioned, employers may use education as a screening device in the interview process. This implies that there is no automatic negative link between overqualification and skill use. Some overqualified graduates may be just as likely as non-overqualified graduates to use the skills learned in school. For college and bachelor's graduates, the relationship between the use of skills and overqualification is quite negative (Table 9). College and bachelor's graduates who are overqualified use their skills to a lesser extent than their classmates who are not overqualified. For holders of graduate degrees, the drop in skill use is relatively small.

In the preceding section, it was mentioned that the high rate of overqualification, coupled with the low rate of overqualification by two or more levels, might indicate that a master's degree is used as a filter in the hiring process; however, it appears that the large number of master's graduates who hold jobs requiring a bachelor's degree still use their skills to a large extent.⁹ In other words, some of the filtering may be justified since overqualified master's graduates still use many of the skills acquired in school.

Even if the typical master's graduate and the typical bachelor's graduate fill jobs with identical educational requirements, the master's graduate will still enjoy an earnings advantage. This may be because the skills of master's graduates are put to use even though the job did not officially require a master's degree.

Summary

This article's findings are useful to prospective post-secondary students choosing a field of study and to recent postsecondary graduates seeking to narrow their job search. Throughout the 1980s and 1990s, anywhere from 27% to 48% of recent college, bachelor's and doctoral graduates were overqualified for their main job. At the master's level, the range was 48% to 72%. Previous studies point to an earnings advantage for a master's degree over a bachelor's degree, while other studies have linked overqualification to lower earnings. This article outlines two facts that may reconcile these findings. First, master's graduates are less likely to be overqualified by two or more levels. And second, overqualification is not linked to a large drop in skill use among master's graduates. For bachelor's graduates, large drops in skill use are linked to overqualification.

Over the time frame of this study, the gap between the average levels of education attained and required has narrowed considerably. This is partly due to the increased

demand from employers for skilled workers, but it could also be linked to an increased ability of employers and graduates to 'match' themselves.

Certain sex differences are also found. Men at the college and master's levels tend to be more prone to overqualification than women, whereas the reverse is true at the bachelor's level. No important differences occur at the doctoral level. Considerable differences appear across fields of study at the lower levels of education (that is, college and bachelor's), and holders of graduate degrees from most fields have roughly equal probabilities of being overqualified. Co-op studies seem to reduce the incidence of overqualification at the bachelor's level only. Recent graduates may be interested to know that very small regional differences appear in the overqualification rates in Canada, owing perhaps to the tendency of recent graduates to expand their job search to a national level. The one exception is college graduates, who are generally less mobile than other graduates. Finally, the data indicate that the semi-public sector (Education and Health Services) has a much lower tendency to employ overqualified graduates than the public and private sectors. This isn't surprising, given that many employees in the semi-public sector are professionals (such as doctors, teachers and nurses). More education leads to higher earnings for a given level of requirement; however, finding a job that requires more education also leads to more earnings (at least for college and bachelor's graduates). It appears that graduates of master's and doctoral programs have more options available to them—whether or not their job requires as much education as they possess does not seem to affect their earnings. The findings also indicate that overqualified college and bachelor's graduates use fewer of their skills than do their non-overqualified colleagues. For holders of graduate degrees, no significant loss in skill use is detected.

EOR

Notes

1. Henceforth, we will refer to all of these surveys as the NGS.
2. The NGS has five-digit University Student Information System (USIS) and Community College Student Information System (CCSIS) field-of-study codes.
3. Those who received a new diploma since the reference year had less time to search for a suitable job, whereas those who worked part-time hours because of school were too occupied with school to work full-time hours.
4. Unless specific years are mentioned, all results in this study refer to the entire time frame of the data.

5. One factor that could explain the long-term downward trend in overqualification rates for graduate degree holders is a possible 'brain drain' to other countries. However, little evidence is available to support this hypothesis.
6. The index is calculated as the mean of the education attained (or required), where a doctorate obtains a score of 100, a master's 80, a bachelor's 60, a college diploma 40, a trade-vocational diploma 20, and anything lower 0. Results for 1984 are unavailable since it's impossible to distinguish between jobs requiring a trade-vocational diploma and jobs requiring less training.
7. Tabulations performed by the author using the NGS support this statement. Recent graduates may be unattached or simply more willing to move to other provinces in order to start their career. See Burbidge and Finnie (2000) for a detailed description of the mobility of recent baccalaureate graduates. Their results show that recent graduates are considerably more mobile than the general population. See Finnie (1999) for a description of the mobility patterns of the general population.
8. For the 1982 and 1986 cohorts, this was based on the question "Are you using the skills acquired through your educational program in your job?" Positive responses were given a score of 100 and negative responses a score of 0. For the 1990 cohort, this was based on the question "To what extent do you use the skills acquired through the educational program in your job?" This index can range from 0 to 100 (100 for the greatest use, 66.7 for the next greatest use, 33.3 for the third greatest use, and 0 for the lowest use of skills).
9. This statement addresses a finding by Lavoie and Finnie (1997) who found a high rate of overqualification among master's graduates. The authors claimed that "...these results may well call into question the use to which these graduates' skills have been put and the relevance of doing a master's degree..."

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Table 1
Overqualification of college graduates for main job, by sex and field of study

	1982 Cohort				1986 Cohort				1990 Cohort			
	1984		1987		1988		1991		1992		1995	
	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels
	% overqualified											
Men												
Total	43	..	48	43	46	41	47	39	41	36	45	37
Arts and Humanities	61	..	66	62	54	51	66	57	56	55	56	55
Nursing	17	..	24	24	13	11	20	20	7	6	7	7
Medical Technology	20	..	26	19	18	9	13	7	17	11	14	6
Other Health	--	..	--	--	--	--	--	--	--	--	--	--
Electronic Technology	27	..	32	26	37	32	39	29	44	30	43	31
Math and Computer Science	21	..	30	26	29	25	28	21	27	24	32	26
General Engineering	39	..	52	46	37	29	42	27	34	24	42	26
Other Engineering	44	..	53	48	50	44	51	40	46	38	46	34
Natural and Animal Sciences	65	..	69	61	64	62	59	56	56	54	61	53
Primary Industries	40	..	55	47	56	50	57	48	37	31	49	42
Protective Services	54	..	47	46	67	62	64	61	57	56	66	62
Social Services and Recreation	40	..	49	47	48	48	49	47	42	35	38	32
Other Social Sciences	34	..	--	--	54	54	--	--	--	--	--	--
Secretarial Services	--	..	--	--	--	--	--	--	--	--	--	--
Other Business Services	58	..	56	52	55	52	54	50	49	47	52	48
Women												
Total	33	..	41	38	37	34	39	35	34	31	34	31
Arts and Humanities	53	..	61	57	63	60	53	47	55	51	53	49
Nursing	4	..	10	8	8	7	9	9	6	6	7	6
Medical Technology	10	..	20	16	18	11	18	10	22	18	25	22
Other Health	41	..	65	65	47	43	47	39	53	49	--	--
Electronic Technology	--	..	--	--	--	--	--	--	56	49	--	--
Math and Computer Science	34	..	42	39	32	29	32	30	32	24	37	29
General Engineering	44	..	--	--	37	29	40	31	46	40	47	42
Other Engineering	34	..	41	38	36	31	48	35	45	43	39	35
Natural and Animal Sciences	47	..	56	54	47	45	51	43	39	27	32	23
Primary Industries	46	..	49	49	40	39	37	37	48	41	62	57
Protective Services	65	..	63	62	57	55	68	66	51	50	51	49
Social Services and Recreation	33	..	41	36	38	37	45	44	37	36	34	33
Other Social Sciences	23	..	25	24	29	27	32	32	26	25	24	23
Secretarial Services	49	..	61	56	54	50	54	46	47	41	48	42
Other Business Services	54	..	59	55	56	52	58	53	48	45	47	43

Notes:

-- Sample size too small to report (fewer than 30 subjects).

.. The numbers were not available for 1982 college grads since the questionnaire did not have a separate category for trade-vocational job requirements.

Source: National Graduates Surveys.



Table 2
Overqualification of bachelor's graduates for main job, by sex and field of study

	1982 Cohort				1986 Cohort				1990 Cohort			
	1984		1987		1988		1991		1992		1995	
	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels
	% overqualified											
Men												
Total	32	26	29	25	34	28	28	21	29	23	27	21
Education	26	19	28	24	25	19	19	15	20	17	19	15
Fine Arts and Humanities	54	47	44	42	54	51	41	33	55	49	53	43
Commerce	31	24	30	26	40	31	36	29	27	20	26	20
Economics	46	41	47	47	48	46	38	34	36	30	35	32
Other Social Sciences	54	45	50	40	62	55	48	39	52	44	46	38
Agricultural and Biological Sciences	41	35	46	46	43	40	35	25	40	34	36	30
Engineering and Computer Science	18	11	15	12	19	12	16	8	12	7	13	9
Other Health	13	9	--	--	32	17	21	18	15	6	19	2
Math and Physical Science	27	21	21	14	32	26	18	14	32	28	27	23
Law	6	6	3	0	18	18	17	17	13	6	21	18
Medical Sciences	12	10	12	10	7	7	1	1	6	5	9	9
Women												
Total	35	24	30	25	42	29	34	23	30	21	27	19
Education	23	15	19	16	28	22	25	19	10	7	13	9
Fine Arts and Humanities	55	43	48	44	61	51	41	34	46	40	42	38
Commerce	29	23	27	23	42	30	42	26	32	22	27	19
Economics	39	37	--	--	47	38	33	28	50	45	--	--
Other Social Sciences	54	41	45	39	54	40	39	30	43	33	37	27
Agricultural and Biological Sciences	32	22	32	24	37	35	23	15	38	28	35	23
Engineering and Computer Science	17	11	9	7	23	13	19	14	15	9	19	9
Other Health	24	1	22	9	50	11	46	13	32	4	28	6
Math and Physical Science	26	16	26	23	28	22	36	28	25	20	13	9
Law	20	16	7	7	11	11	5	5	11	10	14	14
Medical Sciences	5	4	2	2	7	6	5	4	5	5	10	9

Note:

-- Sample size too small to report (fewer than 30 subjects).

Source: National Graduates Surveys.



Table 3
Overqualification of master's graduates for main job, by sex and field of study

	1982 Cohort				1986 Cohort				1990 Cohort			
	1984		1987		1988		1991		1992		1995	
	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels
	% overqualified											
Men												
Total	72	14	64	17	64	13	58	13	60	8	58	8
Education	87	17	77	21	75	14	67	9	70	7	64	7
Fine Arts and Humanities	69	23	66	23	62	21	55	18	56	17	52	15
Commerce	75	18	65	19	62	15	63	14	65	8	65	8
Economics	50	5	45	36	41	13	39	4	44	5	30	5
Other Social Sciences	65	14	56	13	61	16	51	12	53	13	50	12
Agricultural and Biological Sciences	56	4	57	15	63	18	42	3	52	6	54	10
Engineering and Computer Science	66	5	63	8	64	5	59	8	59	4	60	5
Other Health	42	3	37	2	53	7	46	0	40	4	39	3
Math and Physical Science	68	9	59	14	55	7	38	12	49	6	49	9
Law	--	--	--	--	--	--	--	--	--	--	--	--
Medical Sciences	--	--	--	--	77	25	--	--	68	0	46	4
Women												
Total	64	15	55	15	62	17	56	16	50	8	48	8
Education	80	14	70	18	78	17	74	14	61	4	59	4
Fine Arts and Humanities	50	17	46	14	54	21	46	17	51	11	45	13
Commerce	74	22	63	26	61	21	60	21	53	8	57	11
Economics	--	--	--	--	--	--	--	--	30	11	--	--
Other Social Sciences	51	14	46	11	54	16	43	17	41	9	37	11
Agricultural and Biological Sciences	61	18	54	14	52	17	58	14	47	6	38	7
Engineering and Computer Science	59	4	55	5	59	12	60	5	51	4	68	10
Other Health	33	2	30	8	38	10	29	4	29	5	24	4
Math and Physical Science	--	--	--	--	57	15	58	4	40	6	50	4
Law	--	--	--	--	--	--	--	--	--	--	--	--
Medical Sciences	85	30	--	--	80	13	81	33	61	27	--	--

Note:

-- Sample size too small to report (fewer than 30 subjects).

Source: National Graduates Surveys.



Table 4
Overqualification of doctoral graduates for main job, by sex and field of study

	1982 Cohort				1986 Cohort				1990 Cohort			
	1984		1987		1988		1991		1992		1995	
	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels	1(+) levels	2(+) levels
	% overqualified											
Men												
Total	41	19	39	21	34	14	34	17	29	11	29	12
Education	72	30	71	27	65	23	65	10	50	22	46	13
Fine Arts and Humanities	52	34	44	39	40	23	35	17	31	9	29	12
Commerce	--	--	--	--	--	--	--	--	--	--	--	--
Economics	--	--	--	--	--	--	--	--	--	--	--	--
Other Social Sciences	43	12	40	17	41	10	30	8	35	13	29	10
Agricultural and Biological Sciences	16	10	22	18	16	8	18	14	20	5	22	4
Engineering and Computer Science	42	21	42	17	27	9	35	20	30	11	26	12
Other Health	--	--	--	--	--	--	--	--	21	18	--	--
Math and Physical Science	36	21	32	19	30	11	34	16	27	8	36	18
Law	--	--	--	--	--	--	--	--	--	--	--	--
Medical Sciences	--	--	--	--	--	--	--	--	--	--	--	--
Women												
Total	39	13	38	19	36	12	35	15	30	9	29	9
Education	56	17	49	22	59	12	50	8	45	12	44	14
Fine Arts and Humanities	--	--	--	--	36	10	29	4	32	12	34	10
Commerce	--	--	--	--	--	--	--	--	--	--	--	--
Economics	--	--	--	--	--	--	--	--	--	--	--	--
Other Social Sciences	37	7	45	17	37	13	36	17	34	4	31	8
Agricultural and Biological Sciences	--	--	--	--	--	--	--	--	14	12	6	3
Engineering and Computer Science	--	--	--	--	--	--	--	--	--	--	--	--
Other Health	--	--	--	--	--	--	--	--	35	19	--	--
Math and Physical Science	--	--	--	--	--	--	--	--	19	6	19	3
Law	--	--	--	--	--	--	--	--	--	--	--	--
Medical Sciences	--	--	--	--	--	--	--	--	--	--	--	--

Note:

-- Sample size too small to report (fewer than 30 subjects).

Source: National Graduates Surveys.



Table 5
Overqualified college graduates, by sex, co-op status, geographical region and industrial sector

	1982 Cohort		1986 Cohort		1990 Cohort	
	1984	1987	1988	1991	1992	1995
	% overqualified					
Men						
Co-op						
No	44	49	46	47	43	45
Yes	41	44	37	46	36	42
Region						
Atlantic	36	51	49	53	37	44
Quebec	35	39	37	27	39	37
Ontario	49	52	47	51	42	44
Prairies	39	45	47	56	49	57
British Columbia and Territories	49	59	55	62	45	54
Industry						
Public	33	42	49	50	39	44
Semi-public	25	29	26	23	19	21
Private	47	51	48	50	47	50
Women						
Co-op						
No	35	42	37	38	34	34
Yes	29	38	29	60	35	34
Region						
Atlantic	15	31	29	33	26	30
Quebec	32	41	37	31	40	36
Ontario	36	44	38	42	32	32
Prairies	18	23	28	33	31	29
British Columbia and Territories	36	44	39	43	30	37
Industry						
Public	49	57	47	51	57	58
Semi-public	12	20	16	20	18	18
Private	52	59	57	57	51	50

Source: National Graduates Surveys.



Table 6
Overqualified bachelor's graduates, by sex, co-op status, geographical region and industrial sector

	1982 Cohort		1986 Cohort		1990 Cohort	
	1984	1987	1988	1991	1992	1995
	% overqualified					
Men						
Co-op						
No	33	30	35	29	31	29
Yes	20	18	15	11	14	14
Region						
Atlantic	31	29	37	27	31	26
Quebec	29	25	36	29	28	23
Ontario	35	34	32	27	30	29
Prairies	34	28	36	32	34	33
British Columbia and Territories	34	32	43	30	33	34
Industry						
Public	39	37	51	38	39	37
Semi-public	24	17	25	19	20	19
Private	33	31	35	29	31	28
Women						
Co-op						
No	36	31	43	35	30	27
Yes	21	15	18	23	14	14
Region						
Atlantic	32	29	40	34	33	30
Quebec	32	28	47	41	31	28
Ontario	40	33	40	31	28	27
Prairies	33	26	39	32	31	30
British Columbia and Territories	40	37	49	35	30	24
Industry						
Public	40	32	45	35	36	37
Semi-public	26	24	37	31	21	17
Private	46	37	48	40	40	38

Source: National Graduates Surveys.



Table 7

Overqualified master's graduates, by sex, co-op status, geographical region and industrial sector

	1982 Cohort		1986 Cohort		1990 Cohort	
	1984	1987	1988	1991	1992	1995
% overqualified						
Men						
Co-op						
No	72	65	65	58	60	58
Yes	67	53	--	--	51	55
Region						
Atlantic	68	64	65	61	60	50
Quebec	79	72	68	62	64	62
Ontario	70	61	62	56	60	59
Prairies	70	65	60	55	62	57
British Columbia and Territories	67	63	59	48	49	51
Industry						
Public	72	68	67	61	65	66
Semi-public	72	63	59	50	56	51
Private	72	64	66	63	62	60
Women						
Co-op						
No	63	55	63	57	51	48
Yes	64	60	--	--	44	43
Region						
Atlantic	55	46	62	53	50	48
Quebec	71	63	67	67	57	55
Ontario	61	51	60	54	46	42
Prairies	67	62	59	44	58	61
British Columbia and Territories	54	53	60	49	44	38
Industry						
Public	63	60	60	56	49	54
Semi-public	62	54	61	54	47	43
Private	69	59	68	65	60	59

Note:

-- Sample size too small to report (fewer than 30 subjects).

Source: National Graduates Surveys.



Table 8

Overqualified doctoral graduates, by sex, co-op status, geographical region and industrial sector

	1982 Cohort		1986 Cohort		1990 Cohort	
	1984	1987	1988	1991	1992	1995
% overqualified						
Men						
Co-op						
No	40	37	34	33	29	29
Yes	--	--	--	--	--	--
Region						
Atlantic	--	--	34	25	21	20
Quebec	44	43	35	37	24	26
Ontario	37	34	35	33	34	35
Prairies	--	--	33	35	36	27
British Columbia and Territories	--	--	34	34	30	29
Industry						
Public	57	61	49	47	40	43
Semi-public	32	29	28	26	20	19
Private	58	52	44	51	45	44
Women						
Co-op						
No	39	38	37	35	30	30
Yes	--	--	--	--	--	--
Region						
Atlantic	--	--	--	--	--	--
Quebec	--	--	45	39	31	29
Ontario	36	42	31	29	31	30
Prairies	--	--	--	--	--	--
British Columbia and Territories	--	--	--	--	23	30
Industry						
Public	--	--	52	--	29	36
Semi-public	33	33	32	30	27	26
Private	--	--	--	--	47	43

Note:

-- Sample size too small to report (fewer than 30 subjects).

Source: National Graduates Surveys.



Table 9
Mean earnings and use of skills by graduates, by sex, education and overqualification

	1982 Cohort						1986 Cohort						1990 Cohort					
	1984			1987			1988			1991			1992			1995		
	Not OQ	OQ by OQ	OQ by 2(+)	Not OQ	OQ by OQ	OQ by 2(+)	Not OQ	OQ by OQ	OQ by 2(+)	Not OQ	OQ by OQ	OQ by 2(+)	Not OQ	OQ by OQ	OQ by 2(+)	Not OQ	OQ by OQ	OQ by 2(+)
Men																		
\$ thousands (1995)																		
Mean earnings – education required																		
College	30.6	36.9	52.0	34.8	38.5	--	30.0	35.7	41.1	35.1	36.7	--	30.7	32.0	--	36.3	34.5	--
Bachelor's	37.3	51.6	50.9	43.8	54.7	--	36.9	51.0	48.5	42.4	52.2	51.9	36.1	50.1	49.2	43.6	56.1	54.0
Master's	45.7	55.9	..	51.6	61.3	..	43.8	52.5	..	46.9	49.2	..	45.6	51.9	..	53.5	56.8	..
Mean earnings – education attained																		
College	30.6	26.0	..	36.7	33.9	32.9	30.1	28.3	27.8	35.7	35.2	34.2	30.7	26.2	25.6	36.6	32.2	31.3
Bachelor's	37.4	31.2	30.3	45.6	38.8	34.9	36.9	33.4	32.9	43.7	38.8	37.1	36.4	27.2	26.2	44.0	35.3	35.8
Master's	48.4	50.8	47.3	55.1	55.0	52.1	47.1	49.6	44.1	51.6	53.9	51.5	47.8	48.4	36.7	54.7	55.1	49.0
Doctorate	45.9	53.1	50.0	51.3	58.6	57.7	45.2	51.3	49.5	52.2	54.9	51.9	45.6	50.4	47.8	52.9	56.2	55.4
index																		
Skills index																		
College	94	56	..	95	70	69	95	69	67	94	77	75	83	54	50	79	56	53
Bachelor's	93	58	52	94	69	64	93	66	61	92	70	69	79	46	41	76	52	47
Master's	96	87	81	96	91	77	98	87	73	98	90	84	87	72	53	86	72	59
Doctorate	99	92	87	100	96	90	98	92	86	98	95	90	94	80	74	94	84	75
Women																		
\$ thousands (1995)																		
Mean earnings – education required																		
College	25.9	34.9	41.4	27.9	31.3	--	27.1	34.2	42.8	28.8	31.2	--	27.6	31.5	34.2	29.7	32.8	39.5
Bachelor's	32.9	45.3	--	36.1	44.6	--	33.4	44.6	--	37.3	45.2	--	33.8	45.1	58.1	37.9	49.2	59.3
Master's	39.0	51.4	..	41.2	--	..	39.6	50.3	..	41.6	--	..	40.8	49.0	..	46.7	53.4	..
Mean earnings – education attained																		
College	26.1	19.8	..	28.9	23.6	23.1	27.1	22.3	22.3	29.7	25.0	24.8	27.6	21.8	21.6	29.9	24.7	24.7
Bachelor's	33.0	27.3	24.1	37.9	31.7	27.5	33.4	29.8	28.0	38.2	32.8	28.4	33.8	26.4	24.4	38.3	29.4	29.4
Master's	41.6	43.2	36.6	45.4	46.1	40.7	43.1	43.4	39.9	45.5	45.6	37.5	43.9	42.7	30.0	48.0	46.9	46.9
Doctorate	42.3	50.8	49.6	46.6	50.7	--	42.5	47.6	42.5	48.6	49.4	--	45.1	50.2	53.0	50.5	55.1	55.1
index																		
Skills index																		
College	96	65	..	97	76	75	96	74	71	95	76	74	88	58	56	85	59	57
Bachelor's	93	63	53	93	72	67	94	71	66	92	74	68	80	51	42	77	55	50
Master's	97	87	78	98	90	77	97	90	80	98	91	76	88	74	55	87	74	63
Doctorate	97	87	66	99	98	--	96	92	88	99	95	--	95	81	74	95	82	75

Notes:

-- Sample size too small to report (fewer than 30 subjects).

.. Figures not available.

Source: National Graduates Surveys.



Holding their own: Employment and earnings of postsecondary graduates^{1,2}

Introduction

Generation faces grim job outlook

—*The Globe and Mail*, Sept. 6, 1993

Headlines such as this have become commonplace, describing the bleak situation faced by younger workers entering the labour market. Of particular interest is that the article cited above focusses on the plight of university graduates: although they have traditionally fared well, the story suggests, they are now having almost as much difficulty finding work as are their contemporaries who have less education.

“There is no car, no spacious apartment, no expensive vacations, no career,” the article points out. One woman describes her own personal set of stunted expectations: “I can’t imagine ever getting married, ever owning my own home, ever owning a car or ever having children. I’m just never going to have that.” The article offers anecdotal evidence of the difficulties of finding—and keeping—a job and of the underemployment and low wages that characterize the ‘burger-flipping’ jobs that are found. The alleged confusion and despair is neatly summed up by a recent law graduate: “I think we’re all a little lost. People just don’t know what to do next.”

Indeed, it seems to have become an accepted fact that Generation X, as a whole, has been facing tough times and has consequently sunk into a multifaceted collective malaise: cultural, moral and political, as well as economic. But is the situation really as bad as this popular wisdom suggests? Or have the experiences of today’s youth been exaggerated by a combination of the media’s search for a hot topic, a particular capacity for collective angst within the generation in question, and perhaps the preceding generation’s sense of guilt for things done and/or not done? It is important to know what the real situation is because only then can we know which policies, if any, should be brought to bear to assist this new ‘lost generation.’

On the surface, the evidence seems incontrovertible, with various researchers—including this one—reporting a decline in the fortunes of younger Canadian workers, accompanied by explanations of how this has come to be.³ However, these studies have mostly been restricted

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to the Survey of Consumer Finances (SCF) databases, and several problems can arise from this concentration of the empirical evidence. One problem is that there has perhaps been less cross-verification of the patterns than would be desirable—although the consistency of the SCF results with those based on other existing data sources is obviously significant in this regard.⁴ In addition, because the SCF is a general-purpose labour market survey, the potential for applying analysis to the subgroup level—such as separating out different cohorts of recent postsecondary graduates, and breaking the outcomes down by sex and specific level of education—is limited, as the associated sample sizes are small. Another problem, again owing to the omnibus nature of the SCF databases, is that the variables available reflect no preference for younger workers in general, or for those going through the school-to-work transition in particular, thus limiting the scope of any analysis of this stage of the life cycle. As well, the cross-sectional nature of the SCF data precludes any sort of explicitly dynamic analysis, such as how employment status or earnings levels evolve over the early years in the labour market for given individuals.⁵ Finally, the SCF data pose problems for comparisons over time based on the specific level of education because of changes in the definition of the educational categories used in the survey in 1989.⁶

In reporting the results of a longitudinal analysis across cohorts, this paper offers new empirical evidence from the National Graduates Surveys (NGS) databases⁷ regarding the early labour market outcomes of Canadian postsecondary graduates.

The NGS databases (see the Appendix for details on the databases in general and on the specific samples and variables used in this analysis) comprise large, representative samples of Canadian postsecondary students who successfully completed their college and university programs in 1982, 1986 and 1990. The databases include detailed information on individuals' educational experiences and early labour market outcomes, based on interviews conducted two and five years after graduation for each group. The NGS data thus facilitate a tightly focussed and detailed dynamic analysis of the school-to-work transition of Canadian postsecondary graduates from the early 1980s into the mid-1990s, a period generally thought to be one of significant change in labour market outcomes—especially for younger workers. This analysis is broken down by sex and level of education—college, bachelor's, master's or doctoral.

The primary focus of this analysis is to determine whether early labour market outcomes have deteriorated recently for postsecondary graduates in Canada. The evidence suggests that this has not in fact been the case—or at least not to the degree that some may have thought.

More specifically, the most recent class of male graduates (1990) generally had similar employment rates and in some cases moderately lower earnings than the first group (1982 graduates). The middle group (1986 graduates) fared better than both of these, having come onto the labour market during the boom years of the mid-1980s. While employment rates for female graduates were also effectively unchanged, earnings levels were generally higher for the most recent group—but more so two years than five years after graduation. There was also a fairly significant narrowing of the earnings gap among graduates by sex, but interestingly this narrowing was greater immediately following graduation than at the interview times.

The factors underlying these earnings patterns are treated in a detailed econometric framework elsewhere (Finnie 1998b). However, those findings indicate that the overall effects of changed 'characteristics'—including field of study, employment status, and industry of employment—are small, while the moderate declines in earnings for certain groups of male graduates appear to be largely due to a generalized downward shift and attenuated growth in earnings over the early years in the labour market. That is, male postsecondary graduates' age-earnings profiles appear to have become somewhat lower and flatter over the last decade.

A profile of graduates' activity rates and earnings levels

The analysis begins with some general trends in employment and earnings. The trends were based on standard Labour Force Survey (LFS) data for all workers, not just for recent postsecondary graduates, in order to provide the context for the focus on the latter adopted in this paper. In the remainder of the section, we turn to the record of recent postsecondary graduates as revealed by the NGS data in terms of activity rates and earnings patterns. The focus is on three aspects: employment and earnings patterns by level of education and sex; the evolution of these patterns from two to five years after graduation; and shifts in these patterns across the three cohorts—1982, 1986 and 1990 graduates—covered by the data.

The context: General trends in unemployment rates and earnings levels

Unemployment rates

Trends in unemployment rates based on standard LFS data for 1982 to 1995—the same period covered by the NGS data used here—are shown in Graph A1. The first point of note is that unemployment rates have been generally higher for younger workers than for older ones. In 1995, for

example, men aged 20 to 24 had an unemployment rate of 15.0%, while men aged 25 to 34 had a rate of 10.2% and men of all ages taken together had a rate of 9.9%. The latter figure implies considerably lower rates for those aged 35 and older.⁸ In most cases women's unemployment rates were lower than men's for all age groups, but followed a similar pattern by age, with rates of 12.1%, 9.3% and 9.2%, respectively, for each of the three age groups.

The trends over time included the following:

- general increases in 1983 (after even sharper rises from 1981 to 1982);
- recovery through the rest of the 1980s;
- new increases during the early-1990s recession, with rates peaking in 1992; and
- subsequent improvements through 1995.

Around these cyclical patterns—and perhaps contrary to popularly held views—there is little evidence of a general upward trend in unemployment rates over time. For example, comparing 1983 and 1992, the years in which rates peaked, unemployment was lower in 1992 for men and women of all age groups, with the exception of men aged 25 to 34 for whom rates were slightly higher. Similarly, while younger workers generally had higher unemployment rates than older ones (as noted above), there was no significant general deterioration in their situation relative to older workers over the same period. The unemployment rates of younger workers thus held more or less stable relative to the rates of workers of all ages taken together throughout the entire period 1982 to 1995.

The following comparisons across specific years provide the context for the cross-cohort comparisons made with the NGS data:

1. For the comparisons based on the first interview, conducted two years after graduation for each cohort,
 - unemployment rates for younger as well as older men were slightly higher for the third cohort (interviewed in 1992) than for the first (interviewed in 1984), and distinctly lower for the middle cohort (interviewed in 1988); and
 - women's unemployment rates showed a broad similarity across cohorts, but the third cohort's rates were slightly lower than those of the first cohort, while the middle cohort again faced more favourable economic conditions than the others did.
2. For the comparisons based on the second interview, conducted five years after graduation for each cohort,
 - men's unemployment rates were uniformly lowest for the first cohort (interviewed in 1987), next lowest for the third cohort (interviewed in 1995), and most elevated for the middle cohort (interviewed in 1991);

- women's unemployment rates were generally quite similar across the three cohorts; and
- it is noteworthy as well that the unemployment situation improved between the two interviews for the first and third cohorts, but worsened for the second cohort.

Earnings levels

The mean earnings of workers of various age groups, again based on standard LFS data, are shown in Graph A2. To enable us to abstract from labour supply issues and to dovetail with the NGS results reported below, the figures are restricted to full-time workers. The patterns are in some ways very consistent with the unemployment rates just seen, but are in other ways quite different.

It is not surprising that men's mean earnings were generally higher for older workers than for younger ones, reflecting the well-known life-cycle pattern. Of greater interest, however, is that the time paths show much less cyclical variation than was the case for unemployment rates, while there was a moderate trend towards lower earnings for both the younger groups of men (aged 20 to 24 and 25 to 34) over the period 1982 to 1995—both in real terms and relative to older men's earnings, which exhibited no such general decline.

Younger women also showed much less cyclical variation in earnings than was seen for unemployment rates, while the general trends over time were towards moderate gains in real earnings levels, rather than the declines experienced by young men. The mean earnings of full-time female workers of all ages rose as well.

For the cross-cohort comparisons, the following points are most salient:

1. For the first interview data (obtained two years after graduation for each cohort), the second and third cohorts of male graduates found themselves in labour markets where the earnings of young men aged 20 to 24 and 25 to 34 were in each case slightly to moderately lower than those of the preceding wave, with more pronounced changes from the second cohort to the third. For women, the trends were in the opposite direction, showing increases rather than declines.
2. For the second interview, conducted five years after graduation for each cohort, younger men's earnings were again lower over time, although the timing and extent of the changes varied with the specific age group. For young women, earnings trends were relatively flat for those aged 20 to 24 and moderately upward for those aged 25 to 34.

Activity rates of postsecondary graduates

Broad activity rates⁹

Table 1 provides a broad overview of what postsecondary students were doing in the years following graduation. It shows the percentages of graduates who were employed (full and part time), unemployed, and out of the labour force (enrolled or not), by sex and level of education; and it presents this breakdown for each of the two interview dates for the three cohorts. Although graduates are classified by their original degree, the rates shown in

Table 1 are based on samples that include graduates who had obtained another degree by the relevant interview date—this is the only time in this analysis where this is the case. The percents unemployed shown in Table 1 are not conventional ones, since they represent the proportion of all graduates—including those who are out of the labour force—who were unemployed. Rates based only on labour market participants (the more standard definition) are reported in Table 2.

In every case, by far the greatest proportion of postsecondary graduates was employed full time, with these rates generally rising between two and five years after graduation. Full-time employment rates tended to be higher

 Table 1
Labour force activities of graduates

	First cohort (1982 graduates)									
	1984					1987				
	Employed			Not in labour force		Employed			Not in labour force	
	Full time	Part time	Unemployed	Enrolled	Not enrolled	Full time	Part time	Unemployed	Enrolled	Not enrolled
	%									
College										
Men	81	5	12	2	1	83	4	7	4	2
Women	75	12	9	1	3	72	15	5	3	6
Bachelor's										
Men	76	6	9	6	2	85	5	4	4	2
Women	70	11	9	5	5	74	12	4	3	7
Master's										
Men	79	4	6	10	1	88	6	2	3	2
Women	71	10	8	7	4	74	13	3	3	6
PhD										
Men	86	4	7	2	1	89	4	3	2	1
Women	80	6	8	1	5	82	9	2	3	4
	Second cohort (1986 graduates)									
	1988					1991				
College										
Men	82	4	11	2	1	83	3	10	3	1
Women	77	11	8	1	3	75	11	6	2	5
Bachelor's										
Men	76	6	11	6	1	85	4	6	4	0
Women	70	12	9	5	3	75	12	5	3	4
Master's										
Men	76	6	6	10	1	86	5	4	4	1
Women	72	11	7	7	3	76	14	4	3	4
PhD										
Men	89	4	4	1	1	95	2	2	0	1
Women	80	10	7	1	2	85	10	3	0	2
	Third cohort (1990 graduates)									
	1992					1995				
College										
Men	81	5	11	1	1	87	4	7	1	1
Women	73	12	10	2	3	74	14	7	1	5
Bachelor's										
Men	76	6	10	6	1	85	4	6	4	1
Women	70	12	10	4	4	75	12	6	2	4
Master's										
Men	75	6	6	11	1	83	5	6	4	1
Women	73	10	7	6	3	75	11	5	3	4
PhD										
Men	89	3	5	1	1	93	3	3	0	0
Women	83	6	7	1	2	82	8	6	0	4

Source: National Graduates Surveys.

for men than for women, while women held down more part-time jobs than men did.

Looking at things by level of education, full-time work was more common for PhD graduates than for those at other levels, reflecting the fact that in most cases such graduates have fully completed their schooling, are committed to being in the labour force, and have relatively abundant opportunities for employment. The higher full-time employment rates at the doctoral level thus reflect a number of demand-and-supply influences.

Beyond this, the rates do not generally vary by level of education—college, bachelor’s or master’s—because of various crosscutting influences. For example,

- higher percentages of master’s and bachelor’s graduates are out of the labour force but still in school;
- enrolment has the further effect of increasing part-time employment at the expense of full-time employment; and
- college graduates typically have higher unemployment rates than those at the bachelor’s and master’s levels.

Employment and unemployment rates

Table 2 presents more conventionally defined labour force activity rates—that is, the percentage of graduates employed full time, employed part time and unemployed—while Graph A1 shows the unemployment rates. Here, as

		First cohort (1982 graduates)					
		1984			1987		
		Employed		Unemployed	Employed		Unemployed
		Full time	Part time		Full time	Part time	
		%					
College							
Men		84	5	11	89	4	7
Women		79	12	9	79	16	5
Bachelor’s							
Men		85	6	9	92	4	4
Women		79	12	9	81	14	5
Master’s							
Men		89	4	6	92	6	2
Women		80	11	8	81	15	4
PhD							
Men		89	4	6	93	4	3
Women		87	6	7	89	9	2
		Second cohort (1986 graduates)					
		1988			1991		
College							
Men		85	4	11	86	4	10
Women		80	12	8	81	13	7
Bachelor’s							
Men		84	5	10	90	4	7
Women		78	13	9	81	14	6
Master’s							
Men		87	6	7	90	6	4
Women		80	12	7	81	15	4
PhD							
Men		91	4	4	96	2	2
Women		82	10	8	86	11	3
		Third cohort (1990 graduates)					
		1992			1995		
College							
Men		84	5	11	90	4	7
Women		77	13	10	79	14	7
Bachelor’s							
Men		84	6	10	92	3	5
Women		78	13	10	82	13	5
Master’s							
Men		86	7	7	89	5	6
Women		81	12	7	82	13	5
PhD							
Men		92	3	5	94	3	4
Women		87	7	7	85	9	6

1. Samples exclude graduates who had completed a new diploma by the relevant interview.
 Source: National Graduates Surveys.

before, all graduates who had obtained an additional diploma by the relevant interview were date excluded from the calculations. However, continuing students who had not yet obtained a new diploma and who were in the labour force were included.

The first important point to note is that unemployment rates were quite low for graduates of all levels (college through doctoral)—mostly in the 4% to 10% range, but sometimes as low as 2% and nowhere greater than 11%. Furthermore, these rates are considerably below those of all labour force participants taken together (that is, postsecondary graduates plus all others). The rates for workers of comparable ages in the general population ranged from 10% to 20%, thus implying rates considerably higher than these for non-postsecondary graduates taken alone. The graduates' rates also compare rather favourably with those of men and women of all ages taken together, thus further distancing college and university graduates from the 'youth unemployment problem.'

A second point is that the unemployment rates show only a very slight upward trend across cohorts, with rates generally stable or rising only one percentage point or so from the first to last set of graduates, and some of the later groups actually showing declines at either the two- or five-year interviews. Thus, in addition to enjoying unemployment rates that have generally been much lower than those of the general population, postsecondary graduates also appear to have experienced no significant general deterioration in employment opportunities from the early 1980s into the middle 1990s. This is an important finding—at least partly because it is likely to surprise many readers who have come to accept the Generation X idea in a wholesale fashion.

Also of considerable interest is the extent to which unemployment rates have declined from two to five years following graduation, sometimes halving or dropping even further over this three-year interval (albeit with some variation in these general tendencies by cohort, level of education, and sex). Thus, with respect to finding a job, the school-to-work transition appears to be very much a process rather than a date-specific event; this process evidently extends beyond the first couple of years following graduation and implies that any assessment of how graduates are doing that lacks the requisite longer-term perspective risks being quite misleading.¹⁰

For the later two cohorts, there are certain patterns by sex in the unemployment rates—such as women tending to have lower unemployment rates than men at the college level, but higher rates at the doctoral level. However, the patterns are neither particularly flagrant nor perfectly uniform, and there are no obvious general differences at the bachelor's or master's levels at all.

As for part-time work, the most obvious pattern is that, as noted above, this job status is much more common among women than men—at all levels of education and at all points in time. Furthermore, the proportion of women with part-time jobs has tended to rise over the postgraduation years, primarily reflecting labour supply decisions related to having and raising children, whereas the rise in men's rates of part-time work (in only one case did they fall) from two to five years after graduation presumably reflects different life-cycle forces as well the availability of full-time work. By education level, there has been a tendency for PhD graduates, especially women, to have lower rates of part-time work than others, but there are no clear patterns across the other groups.

The most remarkable finding regarding part-time work may be the absence of any clear cross-cohort patterns. At a time when it is often taken for granted that there have been significant increases in the rates of 'non-standard work' in general and part-time work in particular—and where these are typically assumed to represent the absence of full-time job opportunities—the data provide no empirical evidence of this phenomenon among postsecondary graduates. Indeed, comparing the first and last set of graduates, there were more declines than increases in the percentage of part-time workers among the various groups defined by sex and level of education from the first cohort to the most recent one.

Earnings patterns

Mean earnings by education level

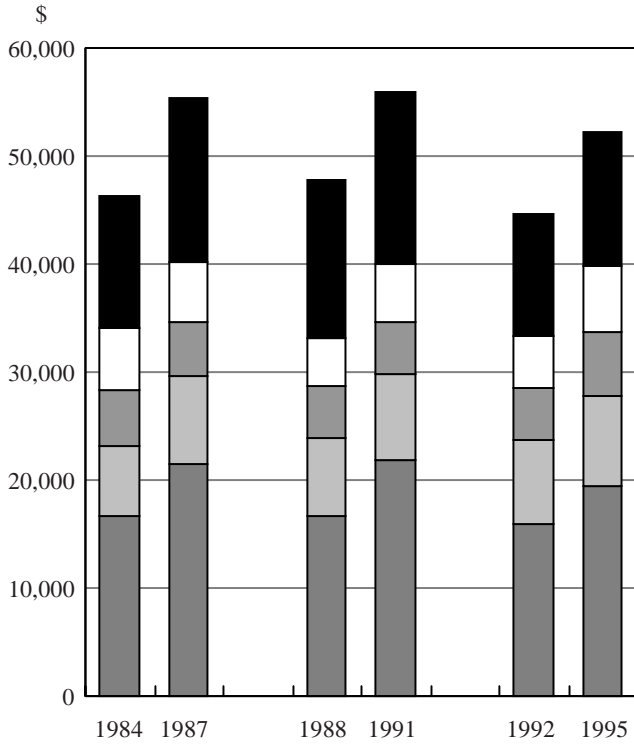
Graph 1 presents the mean real earnings of graduates (in constant 1995 dollars) who were working full time as of the relevant interview dates.¹¹ The first observation is the rather unsurprising one that mean earnings are generally higher at each level of education, from college through the bachelor's degree to the master's. Perhaps more interesting is the precise magnitude of these differences, however, as the NGS data allow us to observe the patterns for each education/sex group at two specific points in time (two and five years after graduation) for the three different cohorts of graduates; none of this would be possible with databases such as the SCF. For all years studied, the difference in annual earnings between college and bachelor's graduates ranges from \$6,000 to \$10,200, averaging approximately \$8,300 for men and \$8,700 for women. The differences between bachelor's and master's graduates were generally greater: they ranged from \$10,000 to \$14,000 and averaged \$12,700 for men and \$11,300 for women.

Finally, at the doctoral level, men's mean earnings dipped slightly when compared with master's graduates

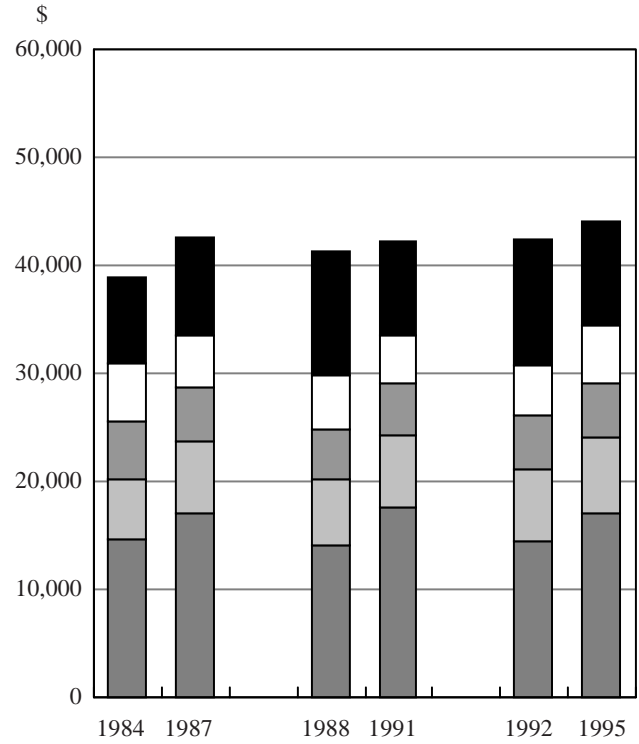


Graph 1
Mean earnings¹ of graduates,² by sex, level of education and quintile³

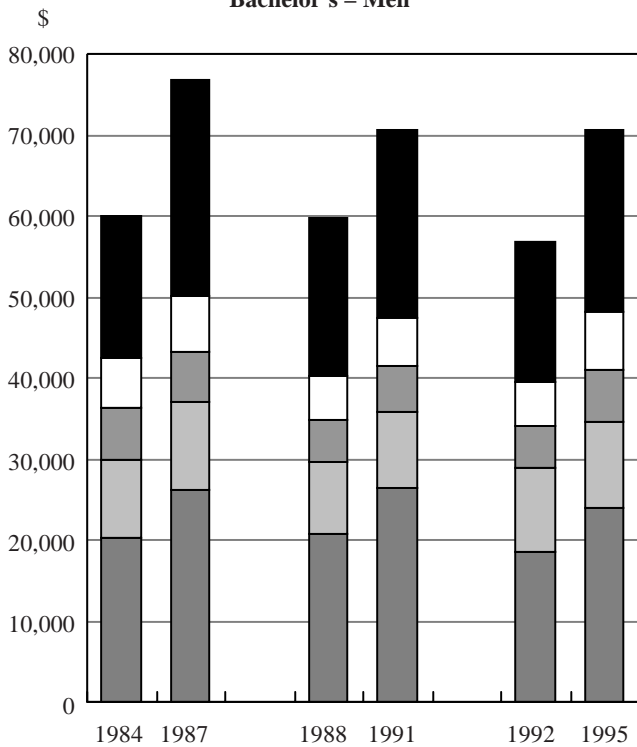
College – Men



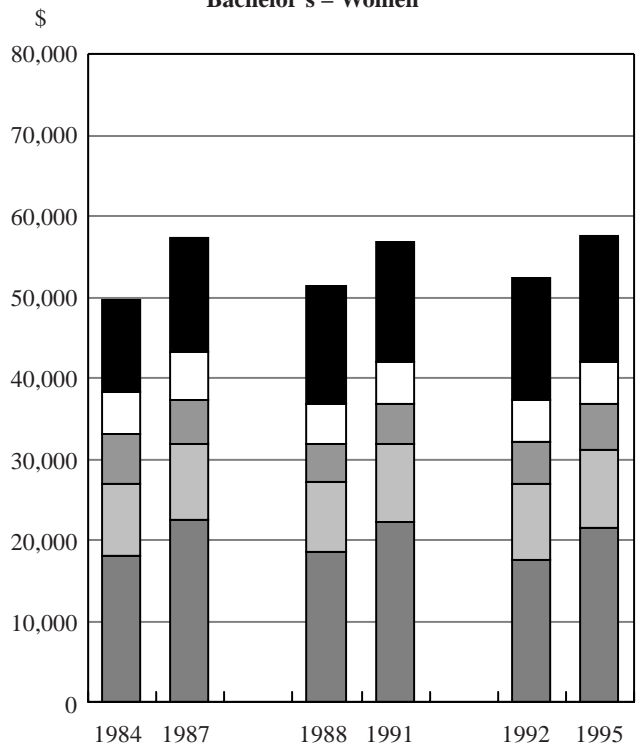
College – Women



Bachelor's – Men



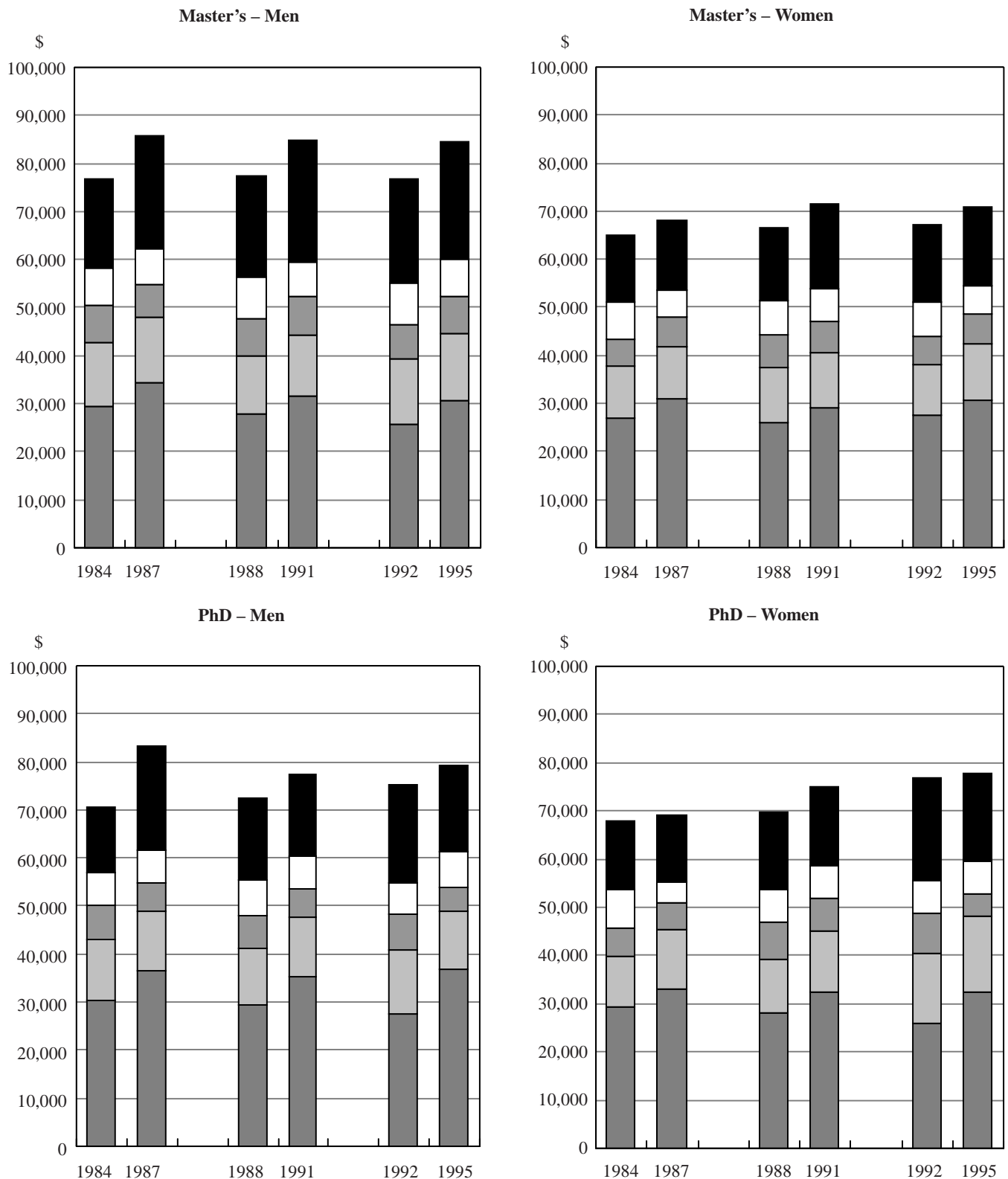
Bachelor's – Women



See notes at end of graph.



Graph 1
Mean earnings¹ of graduates,² by sex, level of education and quintile³ (concluded)



1. In 1995 constant dollars.
 2. Samples exclude graduates who had completed another diploma by the relevant interview.
 3. A given population is divided into five equal segments, each representing 20% of that population.
Source: National Graduates Surveys.

mean earnings, except in 1995, when earnings were basically equal. In contrast, women's mean earnings rose at the doctoral level compared with the master's level.

Taking into account the overall lower earnings levels of women, these absolute dollar patterns indicate greater rates of return from obtaining a bachelor's degree (relative to a college diploma) or a doctoral degree (relative to a master's degree) for women than for men, and comparable rates of return from going on to a master's degree (relative to a bachelor's degree).

Earnings growth in the postgraduation years

A second important general finding—that mean earnings rose substantially over the early years in the labour market—is seen here in the changes that took place between the two interviews, held at two and five years after graduation. The percentage increases (see the column labelled 'Change' in Table 3) vary from a minimum of 7% for 1986 female master's graduates to as much as 26% for 1982 male bachelor's graduates.

Interestingly, growth in earnings was uniformly greater in percentage terms for college and bachelor's graduates than for those at the master's and doctoral levels, which were characterized by higher, but flatter, postgraduation earnings profiles. This is not necessarily what would have been predicted.

Sex patterns in earnings

In every case, a third set of findings pertains to differences between men's and women's earnings. Mean earnings were higher for male graduates than for female graduates, with women's mean earnings varying from 77% to 100% of the level of men's for a given education group in a given year (see the 'Women/men' proportions in Table 3). The differences tend to vary inversely with education level, with women's earnings being closest to men's among PhD graduates, next nearest at the bachelor's and master's levels, and furthest behind at the college level.

On the other hand, women's earnings as a proportion of men's as of two and five years after graduation were all higher in each succeeding cohort when compared for education group and interview date. Indeed, in most cases the earnings gap between the sexes narrowed significantly over this period, declining by 30% to 55% from the first cohort to the third among college, bachelor's and master's graduates. For example, for college graduates at the first interview, women's earnings were 84%, 85% and 91% of men's, respectively, and the earnings gap narrowed by 44%, from 16 to 9 percentage points. Further, the earnings gap between the sexes was completely eliminated among PhD graduates for the last cohort at the two-year interview.

Along the other time dimension, however, the NGS data permit us to see quite precisely that men's mean earnings rose more than women's from two to five years

 Table 3
Mean earnings of graduates in 1995 constant dollars^{1,2,3}

	First cohort (1982 graduates)			Second cohort (1986 graduates)			Third cohort (1990 graduates)		
	1984	1987	Change	1988	1991	Change	1992	1995	Change
	\$		%	\$		%	\$		%
College									
Men	29,700	36,600	23	29,400	35,500	21	29,700	35,300	19
Women	24,900	28,200	13	25,100	28,700	14	27,000	29,700	10
Women/men	84%	77%		85%	81%		91%	84%	
Bachelor's									
Men	37,400	47,000	26	37,600	44,700	19	35,700	43,800	23
Women	32,700	38,400	17	33,500	38,900	16	33,600	38,500	15
Women/men	87%	82%		89%	87%		94%	88%	
Master's									
Men	51,400	57,500	12	50,600	55,700	10	50,500	56,500	12
Women	44,400	48,400	9	45,500	48,900	7	46,000	50,400	10
Women/men	86%	84%		90%	88%		91%	89%	
PhD									
Men	49,700	56,300	13	49,100	54,400	11	49,300	55,900	13
Women	46,700	50,700	9	47,300	52,400	11	49,400	53,800	9
Women/men	94%	90%		96%	96%		100%	96%	

1. Samples exclude graduates who had completed another diploma by the relevant interview.

2. The calculations of the mean earnings omit individuals with reported earnings below \$5,000.

3. Earnings have been truncated to \$143,035.

Source: National Graduates Surveys.

following graduation for all but PhD graduates of the middle cohort. Furthermore, in most cases the differences between the sexes in earnings growth were substantial (see tables 3 and 4), meaning that these differences grew significantly in the years following graduation in both relative (proportions) and absolute dollar terms. This was especially true among college and bachelor's graduates where the differences in mean earnings between men and women were not only generally greater but also increased more sharply over the early years in the labour market than was the case for master's and PhD graduates.

Finally, while the differences in mean earnings between the sexes were generally smaller in the later cohorts, as noted above, the differential growth rates did not change in a similar manner. This implies that the earnings gaps seen between the sexes in the later cohorts may continue to widen in the postgraduation years more or less as much as they did with the earlier sets of graduates. That is, we have the interesting and important finding that while the earnings gaps between the sexes narrowed among postsecondary graduates across cohorts, it would appear that these were 'ratchet-like' cohort effects related to the earnings levels of each group of graduates. At the same time, the gaps have continued to increase from new (lower) levels in the postgraduation years about as much for the most recent set of graduates as for the earliest one.

In short, while female graduates' earnings profiles appear to be shifting up towards men's with each succeeding cohort in terms of the starting levels, the relative slopes of those profiles do not appear to have changed commensurately. Whether this is due to the specific types of human capital investments (such as field of education and postgraduation labour market experience), labour supply factors, direct labour market discrimination, or other factors cannot be answered by these data. This result does, however, place recent affirmative action policies in an interesting light: perhaps such policy initiatives have narrowed starting salary differences, but not subsequent earnings growth, thus attenuating their effects in the longer run.¹²

Cross-cohort earnings patterns

Most important to the major themes of this paper, however, are the patterns across cohorts for given education/sex groups. For the first and last cohorts of graduates, whose relevant two-year (1984 and 1992) and five-year (1987 and 1995) interview dates were at roughly comparable points in the business cycle, men's mean earnings were stable to moderately lower for the later graduates, varying with the specific educational level and interview year. As of two and five years after graduation, respectively, male graduates experienced the following declines:

- 0% and 3.6% at the college level;

- 4.5% and 6.8% at the bachelor's level—the sharpest drops;
- 1.8% and 1.7% at the master's level—more moderate reductions; and
- 0.8% and 0.7% at the doctoral level—almost negligible decreases.

For women, on the other hand, mean earnings were uniformly higher among graduates of the later cohorts than of the earlier ones, in some cases quite substantially so. Furthermore, the increases came steadily over time, with earnings rising from the first cohort to the second and then from the second to the third (the only exception being the 1% decline in the mean earnings of bachelor's graduates from 1991 to 1995). Female graduates experienced the following increases between the first and the third cohorts at two and five years after graduation, respectively:

- 8.4% and 5.3% at the college level;
- 2.8% and 0.3% at the bachelor's level—the smallest increases;
- 3.6% and 4.1% at the master's level; and
- 5.8% and 6.1% at the doctoral level.

We can now see that it was as a result of these cross-cohort declines in the mean real earnings of men and increases registered by women that women's earnings as a proportion of men's rose from the first cohort to the second, and again to the third. This was true for all education groups at two and five years after graduation, when the interviews were held.

Median earnings and related distribution patterns

The median earnings patterns (Table 4) are generally similar to the means. But there are also some interesting differences, which imply something about the shape of the underlying earnings distributions of each education/sex group as well as the changes in earnings over time across the different ranges of these distributions.¹³

Average earnings as measured by the median, as are those measured by the means, rise with the level of education, except from master's to doctoral for male graduates. Also, median earnings are generally higher for men than for women; however, the earnings gap between the sexes is smallest among PhD graduates, next narrowest at the master's and bachelor's levels, and greatest among college graduates. In addition, women did some significant 'catching up' from the first cohort to the second, and again from the second to the third, with women's median earnings actually surpassing men's at the doctoral level in 1992 (but no longer in 1995).

Median earnings also rose substantially between two and five years after graduation. More interesting, perhaps, is that while the increases in median earnings for female graduates were in every case greater than or equal to the



Table 4
Median earnings of graduates in 1995 constant dollars^{1,2,3}

	First cohort (1982 graduates)			Second cohort (1986 graduates)			Third cohort (1990 graduates)		
	1984	1987	Change	1988	1991	Change	1992	1995	Change
	\$		%	\$		%	\$		%
College									
Men	28,900	34,500	19	28,300	33,800	19	29,200	35,000	20
Women	23,100	26,900	16	23,400	28,600	22	26,100	29,000	11
Women/men	80%	78%		83%	85%		89%	83%	
Bachelor's									
Men	36,100	43,500	20	34,400	42,300	23	34,400	40,000	16
Women	31,800	37,100	17	32,000	37,000	16	32,300	38,000	18
Women/men	88%	85%		93%	87%		94%	95%	
Master's									
Men	50,600	55,000	9	49,200	52,900	8	46,900	54,000	15
Women	43,300	47,300	9	44,300	47,600	7	43,800	50,000	14
Women/men	86%	86%		90%	90%		93%	93%	
PhD									
Men	50,600	53,700	6	49,200	52,900	8	46,900	54,000	15
Women	44,800	51,100	14	46,700	51,800	11	47,900	52,600	10
Women/men	89%	95%		95%	98%		102%	97%	

1. Samples exclude graduates who had completed another diploma by the relevant interview.

2. The calculations of the mean earnings omit individuals with reported earnings below \$5,000.

3. Earnings have been truncated to \$143,035.

Source: National Graduates Surveys.

increases in their means (see 'Change' columns in tables 3 and 4), this was not the case for men, for whom the median increases were in many cases smaller than those of their means, especially in the first two cohorts. As a result, the increases in female graduates' median earnings between interviews were closer to the men's increases than was the case with mean earnings, with the exception of bachelor's graduates of the middle cohort and PhD graduates of the third cohort. For 1982 and 1986 PhD graduates, 1986 college graduates, and 1990 bachelor's graduates, the women's growth rates surpassed the men's.

Thus, whereas the earnings gap between men and women based on mean earnings widened between two and five years after graduation in almost every case (excepting only PhD graduates of the middle cohort), according to the median measures the gap widened more slowly, or even became smaller, in all cases except the two noted above. It should be emphasized, however, that according to the median measures, men's earnings remain greater than women's for all groups—except, again, the most recent cohort of PhD graduates as of the first interview.

These mean-versus-median results thus provide an interesting alternative perspective of the evolution of the earnings gap between the sexes over the graduates' early years in the labour market. At a more fundamental level,

they suggest that the changes in earnings following graduation were in most cases relatively more concentrated in the middle and lower earnings ranges for women than for men. That is, there appears to have been greater equality with respect to the increases in earnings among women than among men. It appears that more of the higher-earning male graduates have been characterized by higher-than-average earnings increases relative to their fellow graduates than have women—'fast tracking' has generally been more of a male than a female phenomenon. On the other hand, the relatively unrobust nature of the median measures as applied to the NGS data suggest that further investigation of this issue is required before more categorical statements can be made along these lines.¹⁴

Conclusion

This paper has provided an analysis of the employment and earnings patterns of recent postsecondary graduates based on three waves of the relatively underexploited National Graduates Surveys. The major findings regarding labour force activity rates conclude that unemployment rates of male and female graduates at all levels have been lower than those of non-graduates, have improved significantly between two and five years following graduation, and have not deteriorated for later cohorts relative to earlier ones.

Amidst relatively predictable patterns by sex and level of education, neither have rates of part-time work shifted noticeably over time.

With respect to earnings, we saw again the general pattern of significant improvements in the years following graduation. But perhaps the most important set of findings is that the average earnings of male graduates of the more recent cohorts either held steady or showed small to moderate declines relative to earlier groups, while women's earnings have either remained stable or risen; these combined effects have resulted in steady decreases in the various earnings gaps between the sexes (by level of education and year) over the last decade or so.

Thus, with respect to Generation X, the maximum decline in mean earnings of just under 7% found for male graduates at the bachelor's level is perhaps not as great as many might have expected, given that it represents the worst case among all sets of results for all groups of graduates. Furthermore, the stability and improvements experienced by female graduates would presumably be received as good news in a context where discussions are often predicated on the fact that there have been significant declines. The fact that these earnings findings are supported by relatively stable employment rates suggests certain robustness to the results.

Related work currently underway includes a regression-based analysis of the structure of earnings across cohorts, a much broader analysis of the various elements of the school-to-work transition of postsecondary graduates, a more detailed probing of the sex patterns, and other projects that exploit the unique and valuable elements of the National Graduates Surveys. Together, they should provide a useful profile of postsecondary graduates and the patterns of their fortunes over the last decade or so, with new data to come online as they collected and prepared for analysis. This accumulation of empirical evidence should help us better understand the situation and, therefore, assess policy in a much more informed context.

Appendix

The data¹⁵

The National Graduates Surveys

The National Graduates Surveys and Follow-up (NGS) databases, developed by Statistics Canada in conjunction with Human Resources Development Canada, are well suited to this analysis for a number of reasons. First, the NGS files are representative of the underlying national population of college and university graduates: with over 30,000 individuals in each survey, the postgraduation

experience can be analysed meaningfully at a detailed level.^{16,17}

Secondly, the availability of data for three separate cohorts of graduates—who completed their studies in 1982, in 1986 and in 1990—permits the comparison of outcomes over a period characterized by important changes in labour market outcomes, especially for younger workers. It also updates the record as much as possible.¹⁸

Thirdly, the NGS files are longitudinal, based on information gathered during interviews carried out two and five years after graduation for each succeeding cohort (1984 and 1987, 1988 and 1991, and 1992 and 1995, respectively). This allows for a dynamic and relatively extended analysis of the school-to-work transition at two specific points in time relative to graduation.

Finally, the databases include a wide, interesting and, in some cases, rather unique array of variables covering the educational experiences, general labour market outcomes, specific job characteristics, and basic demographic characteristics of graduates. This richness of information, however, only sets the broader context for the present paper, which concentrates on key labour market outcomes (activity rates and earnings levels) and thus leaves the other elements of the file to be explored.

In summary, the NGS data uniquely provide for a focussed, detailed and dynamic analysis, from the early 1980s into the mid-1990s, of Canadian postsecondary graduates in the critical early years following graduation.

Construction of the working samples

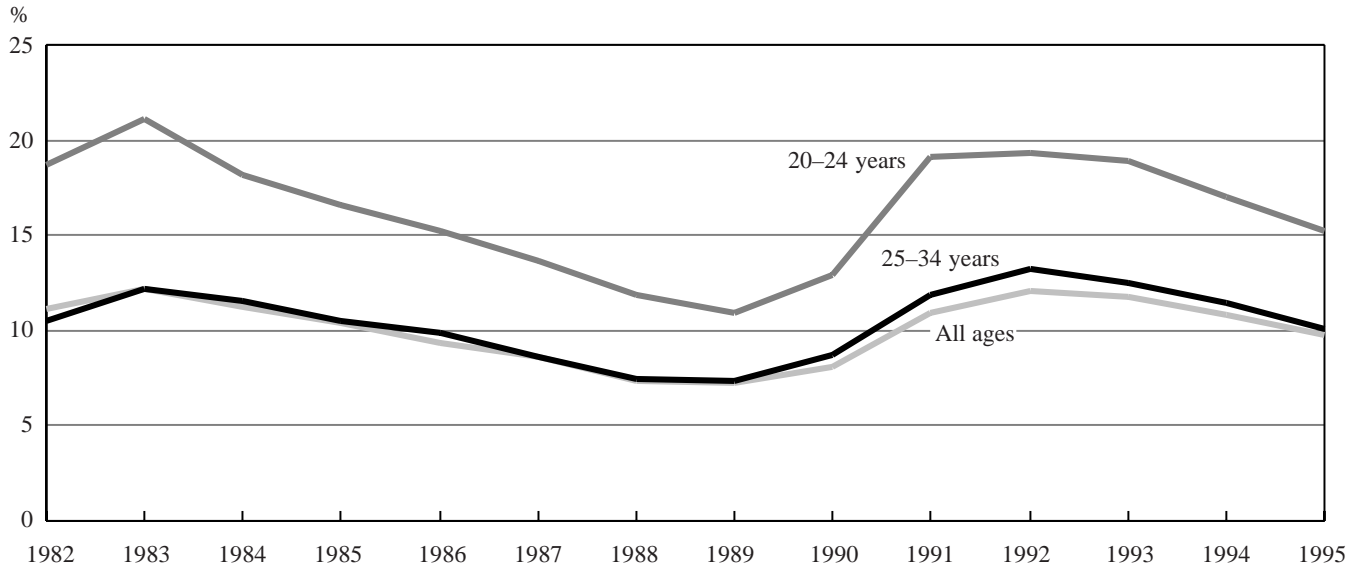
Except for an initial analysis of postgraduation activity rates, data on graduates who indicated at one of the two interviews that they had obtained an additional degree were deleted from the analysis. This was done on the grounds that such graduates no longer belonged to the original education group—for example, in going on to become a master's graduate, a bachelor's graduate might have chosen a different major field of study—and had in any event been mixing school and work in a way likely to affect the labour market outcomes upon which this analysis is focussed. Including later graduates would also throw off the postgraduation time frame of two and five years after graduation, which corresponded to the two interview dates and which held for the non-continuing group.

In the principal earnings analysis, the samples were further restricted to full-time workers, thus focussing the exercise on those with significant labour market attachment and allowing the analysis to abstract from labour supply decisions that could affect earnings patterns. In particular, most full-time continuing students were eliminated from the samples by this condition, for reasons similar to those given for the deletion of graduates with additional diplomas.

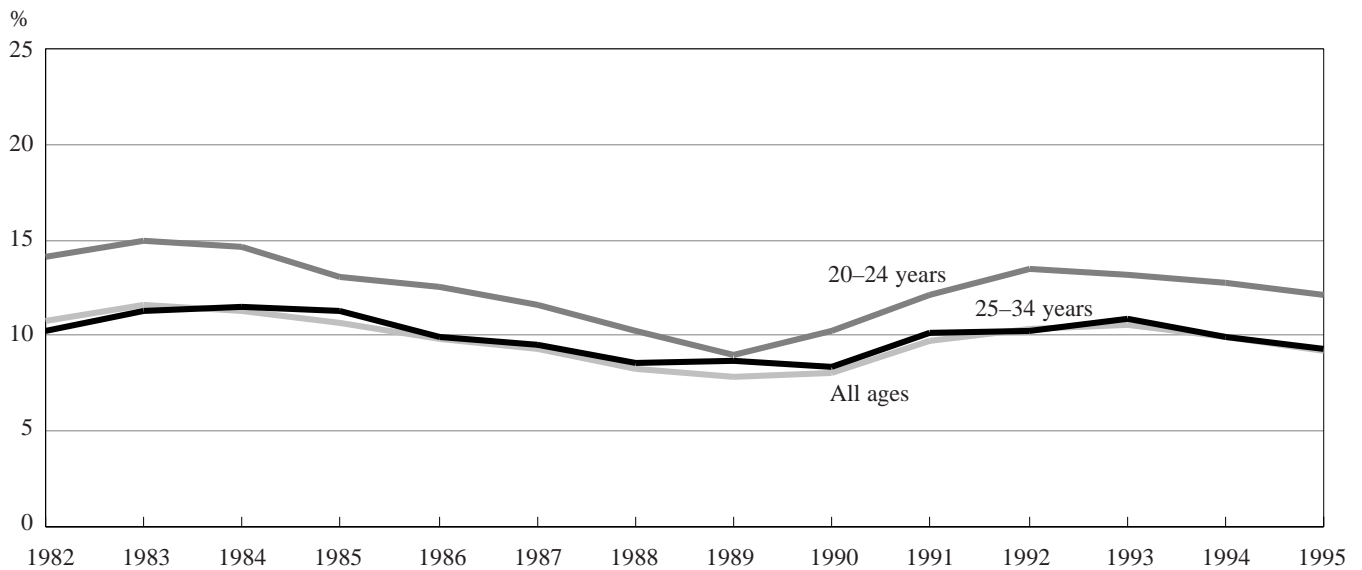


Graph A1
Unemployment rates¹ in general population, 1982–1995

Men

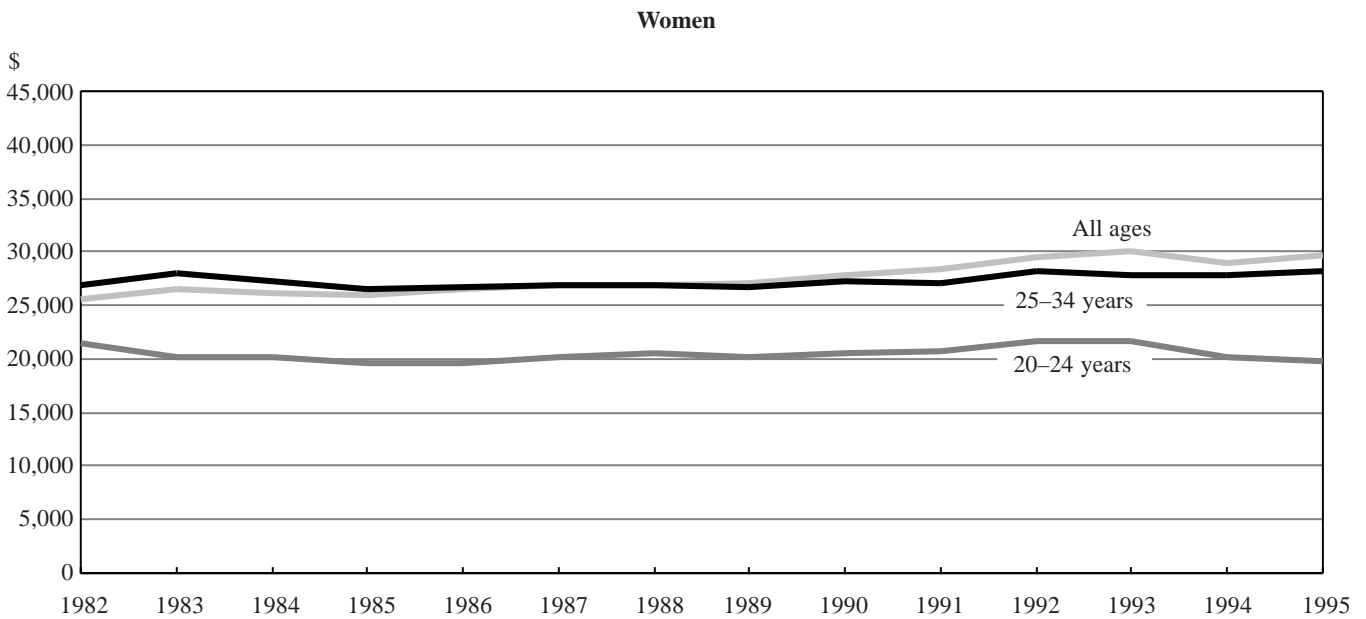
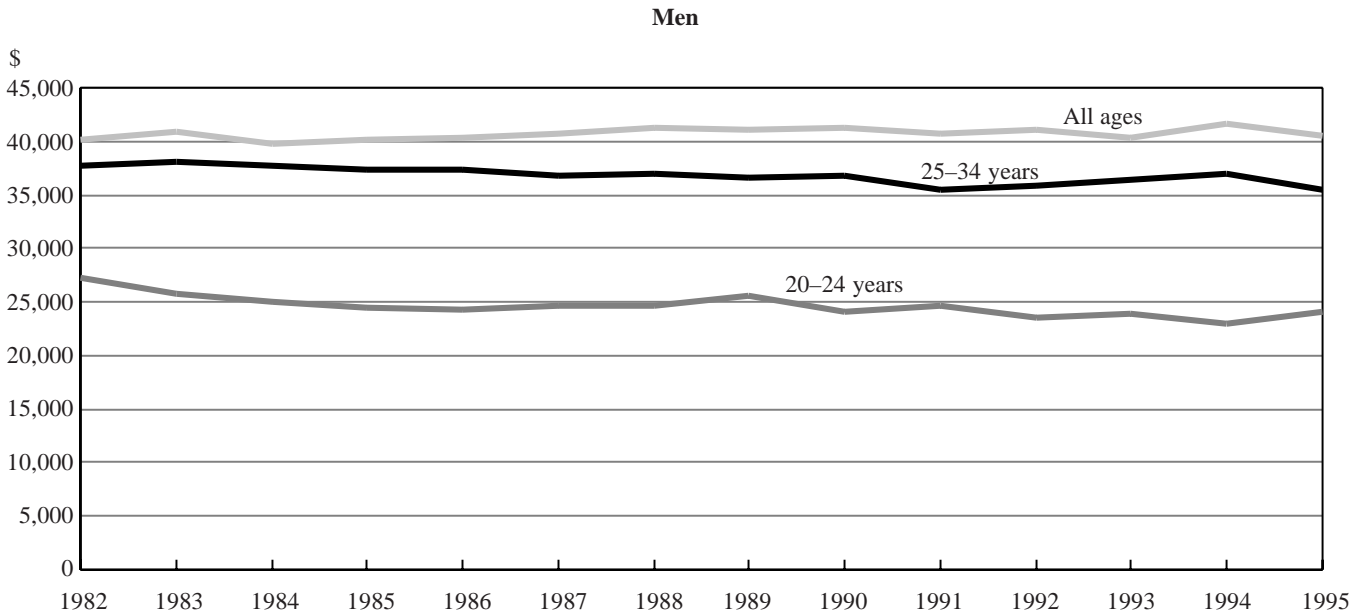


Women



1. The unemployment rate is calculated for a given group by expressing the number of unemployed persons as a percentage of the labour force.
Source: Statistics Canada, Labour Force Historical Review. Catalogue no. 71F0004XCB.

Graph A2
Mean earnings¹ of full-time workers in the general population, 1982–1995



1. In 1995 constant dollars. The 1983 data by age group are based on estimates calculated by the Income and Housing Surveys Section, Household Surveys Division, Statistics Canada.
 Source: Statistics Canada, 1981–1982 and 1984–1995, Earnings of Men and Women (annual). Catalogue nos. 13-217, 13-217S and 13-577S.

Finally, observations were deleted where the required information was missing, took extreme values (in the case of earnings), or was otherwise deemed unusable.

The labour force status and earnings variables

The employment and unemployment rates are standard measures that follow the usual Statistics Canada conventions (with the exceptions noted). The earnings variable reflects what individuals would earn on an annual basis were the job to last the full year, regardless of the actual job status.

In automatically adjusting for irregular work patterns over the course of the year, this measure represents the rate of pay, which is perhaps analytically more interesting than the amount earned.

All earnings values are expressed in constant 1995 dollars, rounded to the nearest thousand, and capped at the \$99,000 upper limit that characterizes the 1984 data (the lowest bound in the six databases), or \$143,035 in constant 1995 dollars. EOR

Notes

1. This research was made possible by financial support from the Human Capital and Education Studies Division of the Applied Research Branch of Human Resources Development Canada, while a Social Sciences and Humanities Research Council grant provided assistance for earlier phases of the work. Helpful comments were received from Marc Frenette, Doug Giddings, Philip Jennings, Garnett Picot and Ted Wannell. Excellent research assistance was provided by Marc Frenette and Michel Villeneuve.
2. This article was adapted from Finnie (1998a).
3. Beaudry and Green (1997), Beach and Slotsve (1996), Finnie (1997a), Morissette and Bérubé (1996), Morissette, Myles and Picot (1995), Picot (1997), Riddell (1995) and Zybblock (1996) all report that the earnings levels of younger workers have declined in relative and/or absolute terms. Beaudry and Green (1997), Morissette and Bérubé (1996), and Finnie (1997b, 1997c and 1997d) indicate that younger workers' movements up the earnings ladder over the early years in the labour market have also slowed. In short, the age-earnings profiles of recent cohorts of younger workers appear to have both shifted downward and become flatter, thus indicating a decline in 'lifetime' earnings. See OECD (1996) for an international perspective of the earnings of younger workers.
4. Finnie (1997a) and Morissette and Bérubé (1996) use databases constructed from individuals' tax files.
5. Beaudry and Green (1997) attempt to push the capacity of the SCF data beyond its inherently static nature by constructing synthetic earnings profiles from the various cross-sections. But while such constructions can be quite useful for many purposes, they can never be as good as true longitudinal data, which follow given individuals over time.
6. Beaudry and Green (1997) also develop useful means for dealing with the 1989 changes in the education categories to create classifications that are as consistent as possible over time, but are still left with an irresolvable margin of error in this regard (owing largely to non-conventional educational pathways).
7. Related work by the author includes Finnie (1998b, 1998c, 1998d and 1998e).
8. Unemployment rates of even younger men were highest of all (results not shown).
9. The activity rates presented here depart slightly from standard definitions because of the treatment of ongoing students in the NGS: students looking for work are classified as unemployed rather than out of the labour force even if they are enrolled full-time, whereas such individuals are usually counted as out of the labour force. (Classification of students with jobs as 'working' is consistent with the standard treatment.) As for the residual category of being non-labour force participants (the last two columns in each year's data), current student status was imputed based on the reason given for being out of the labour force.
10. The 'transition' notion is the central theme in Finnie (1998c). See Betts, Ferrall and Finnie (1998) for an analysis of the specific issue of time to first job.
11. The analysis focusses on full-time workers in order to abstract from labour supply decisions as much as possible. See Finnie (1998a) for further discussion of the merits of this approach.
12. See Finnie and Wannell (1999) for further analysis of these issues.

13. These median results need to be interpreted with some caution, however, because rounding earnings to the nearest thousand means that certain small differences in the underlying distribution of earnings (across groups or over time) could lead to exaggerated differences in the medians. In other cases, differences in the distribution of earnings might be underrepresented by the medians. Such effects could be especially strong when looking at changes over time. See Finnie (1998a) for further discussion of the pertinent issues.

It should be noted that while earnings figures were in fact rounded in the raw NGS data in every year except 1995, an analysis of 1995 data indicated that most individuals gave earnings figures rounded to the nearest thousand themselves. Mean earnings levels are unlikely to be greatly affected by the rounding imposed in the other survey years (imposing a similar rule on the 1995 data left the means virtually unchanged). Medians appear to be slightly more sensitive to that rounding (imposing the rounding rule generated greater differences). But the greatest problem with respect to median calculations is likely due to individuals' own rounding of the earnings figures they provided rather than the rounding exercise carried out during the collection of the data.

14. This part of the analysis is principally based on the simple rule of thumb that a greater increase in the median than in the mean generally indicates a greater increase in earnings among those in the lower parts of the distribution than among those with higher earnings to begin with. On the other hand, the median really only tells us about the very middle of the distribution, and we have noted above that the median calculations using the rounded earnings figures available in the NGS data might lack robustness. Hence the caution regarding the interpretation of the findings—which are, nevertheless, both interesting and of some validity because they hold for most groups in most cohorts.
15. See Finnie (1998a) for further discussion of some of the data issues discussed here.
16. A stratified sample scheme (by province, level of education and field of study) was employed. All results reported here reflect the appropriate sample weights. The databases also include trade and vocational school graduates, but these individuals are not included in the present analysis.

17. Response rates were on the order of 80% for each of the first interviews, and about 90% of these respondents were successfully interviewed a second time for each of the cohorts, resulting in 30,000 to 35,000 observations across the various years of data.
18. The first survey of 1995 graduates has been carried out, but those data were not ready for analysis at the time of this writing. Second interview data are being collected in 2000.

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announcements

Data releases

For tables or general inquiries, contact Sharon-Anne Borde (sharon-anne.borde@statcan.ca) at (613) 951-1503 or 1 800 307-3382, Centre for Education Statistics.

For more information, or to enquire about the concepts, methods or data quality of this release, contact Peter Elliott (peter.elliott@statcan.ca) at (613) 951-4551, Centre for Education Statistics.

University finances, 1998–1999

- University revenue rose for the second straight year in 1998–1999—the cumulative effect of higher revenue from student fees and the first increase in government grants and contracts in six years.
- From 1993–1994 to 1998–1999, revenue from student fees rose 40.8%, mostly as a result of tuition fee increases, which offset decreases in government grants and contracts. Over the same period, full-time equivalent student enrolment at the undergraduate level remained virtually unchanged.
- Universities collected \$12.6 billion in total revenue for the 1998–1999 fiscal year, up 3.8% from the previous year (in constant dollars). This was due mainly to increases in revenue from student fees, federal grants and contracts, bequests, donations and non-government grants and contracts, as well as provincial government grants and contracts. The only major reduction in revenue from the 1997–1998 academic year was a 16.2% decline in investment revenue, reflecting the market conditions during this fiscal year period.
- Combined federal, provincial and municipal government grants and contracts to all universities increased for the first time since 1992–1993. They totalled nearly \$7.0 billion, a 3.6% increase over 1997–1998. As a result, government grants and contracts accounted for 55.2% of total revenue in 1998–1999, a share virtually unchanged from the previous year, following several years of declines.

Note: Information is also available at the provincial and institutional level, and by type of funds.

Available on CANSIM: T00590206

- Student fees rose 7.9% to more than \$2.5 billion, after rising 9.5% in the previous academic year. Student fees accounted for just over 20% of total university revenue in 1998–1999, the highest level observed since the survey began in 1972–1973. In 1993–1994, fees accounted for 15.0% of revenue. (Data on tuition fees for university students for the academic year 2000–2001 were released in August 2000.)
- Fees accounted for 28.5% of revenue in Nova Scotia, the highest proportion among the provinces, followed by 25.3% in Ontario. Universities in these two provinces have depended less on revenue from government grants and contracts than have those in other provinces. In 1998–1999, government funding represented slightly under half of total university revenue in both provinces.
- In contrast, Quebec universities received the highest proportion of revenue from government grants and contracts (67.7%), with student fees representing just 13.1% of total university revenue, the lowest among the provinces.
- Universities spent \$12.4 billion in 1998–1999, up 3.9% from 1997–1998. Salaries and benefits represented the largest share, 62.1%, down slightly from 65.0% in 1993–1994.
- Since 1993–1994, universities have increased their spending on scholarships and bursaries, while cutting back on building expenditures. In 1998–1999, the value of scholarships and bursaries reached \$370.5 million, up 16.9% from the previous year and 68.4% from 1993–1994. This represented 3.0% of total spending, compared with 1.8% in 1993–1994.
- During the same time period, the proportion spent on buildings declined from 4.3% to 2.9%. Universities allocated \$365.9 million to buildings in 1998–1999, up 8.9%, the first increase in several years. However, this spending was still 30.6% less than the level five years earlier.
- Universities in Manitoba, Quebec, Nova Scotia and Alberta spent proportionately more than average (over 5%) on buildings. Those in Newfoundland, Ontario, Alberta and Nova Scotia universities directed a slightly higher than average share (over 3%) of their expenditures to scholarships and bursaries. EQR



Table 1
University revenue sources, 1998–1999

	Government grants and contracts	Student fees ¹	Bequests, donations and non-government grants and contracts	Sale of services and products	Investment revenue ²	Miscellaneous ³
	% of total revenue					
Canada	55.2	20.3	9.7	8.4	3.5	2.9
Newfoundland	63.0	21.6	3.7	5.0	2.5	4.2
Prince Edward Island	62.7	21.9	3.8	7.9	2.3	1.4
Nova Scotia	46.6	28.5	5.6	12.0	3.5	3.8
New Brunswick	52.6	22.6	6.4	10.5	4.8	3.1
Quebec	67.7	13.1	9.8	3.5	2.6	3.4
Ontario	47.2	25.3	12.2	10.4	2.9	1.9
Manitoba	61.4	18.2	9.9	6.7	3.4	0.5
Saskatchewan	56.9	16.8	7.5	8.2	3.7	7.0
Alberta	55.5	19.7	9.2	7.9	7.4	0.4
British Columbia	56.1	17.1	6.2	10.9	3.5	6.2

1. Include fees for both credit and non-credit courses as well as miscellaneous student fees.

2. Includes revenue from dividends, bonds, mortgages, short-term notes, bank interest, etc.

3. Includes rental of facilities, library fines, etc.



Table 2
University revenue and expenditures¹

	1993–1994	1997–1998	1998–1999	1993–1994 to 1998–1999	1997–1998 to 1998–1999
	\$'000			% change	
Total revenue	12,103,484	12,165,132	12,628,741	4.3	3.8
Federal government grants and contracts	1,158,529	918,475	1,049,870	-9.4	14.3
Provincial government grants and contracts	6,498,724	5,725,502	5,832,947	-10.2	1.9
Municipal and other government grants and contracts	49,455	84,322	89,794	81.6	6.5
Student fees ²	1,820,283	2,375,701	2,562,749	40.8	7.9
Bequests, donations, and non-government grants and contracts	909,831	1,099,363	1,229,488	35.1	11.8
Sales of services and products	1,032,938	1,071,540	1,056,451	2.3	-1.4
Investment revenue ³	363,137	521,733	436,987	20.3	-16.2
Miscellaneous ⁴	270,587	368,496	370,455	36.9	0.5
Total expenditures	12,151,837	11,941,651	12,411,929	2.1	3.9
Salaries and benefits	7,898,996	7,501,302	7,707,055	-2.4	2.7
Scholarships and bursaries	220,075	317,135	370,584	68.4	16.9
Buildings	527,292	335,998	365,899	-30.6	8.9
Other ⁵	3,505,474	3,787,216	3,968,391	13.2	4.8

1. In constant 1999 dollars.

2. Includes fees for both credit and non-credit courses, as well as miscellaneous student fees (such as transcripts and late registrations).

3. Includes revenue from dividends, bonds, mortgages, short-term notes and bank interest.

4. Includes rental of facilities and library fines.

5. Includes operational supplies and expenses, furniture and equipment (purchase and rental), externally contracted services, travel, utilities, library acquisitions, renovations and alterations, and other expenditures.

For requests and extractions from CANSIM, contact Sharon-Anne Borde (sharon-anne.borde@statcan.ca) at (613) 951-1503 or 1 800 307-3382, Centre for Education Statistics.

For more information, or to enquire about the concepts, methods, or data quality of this release, contact Claudio Pagliarello (claudio.pagliarello@statcan.ca) at (613) 951-1508, Centre for Education Statistics.

School board revenues and expenditures, 1997

- School board expenditures edged up 0.3% in 1997 (actual dollars). This follows a 0.1% decline in school board expenditures in 1996, the first recorded decline. In comparison, the Consumer Price Index (CPI) rose 1.6% in 1997.
- The \$31.1 billion spent by school boards in 1997 represented 3.6% of the gross domestic product (GDP). This continued a downward trend that started after 1992, when spending by school boards had reached a peak of 4.3% of GDP.
- From 1993 to 1997, expenditures per full-time equivalent student have remained relatively stable at more than \$6,800. In 1997, expenditures per student increased or were little changed in most provinces and territories, with the following exceptions: Quebec, where a slight decline in enrolment combined with a relatively larger decrease in expenditures, contributed to a 5% drop in expenditures per student; the Northwest Territories, where expenditures per student have been decreasing since 1995 as enrolment has been steadily rising; and Newfoundland, where expenditures have been falling since 1994 but the school-aged population has been dropping even faster, pushing up expenditures per student over this period.
- Expenditures by school boards account for about 85% of total elementary and secondary education expenditures. Other categories of elementary and secondary expenditures include private schools, federal schools, special education schools and departmental expenditures by the ministries of education. About 96% of school board revenues come from provincial or territorial governments and local taxation.
- Expenditures include both operating and capital spending. Operating expenditures are salaries, fringe benefits, supplies and services, fees and contractual services, and other operating costs. These expenses can be further broken down by function (e.g., instruction, administration, transportation and school facilities). EOR

Note: School board revenues and expenditures are reported on a calendar-year basis. Data from 1900 to 1997 are now available for school board revenues and expenditures.

Available on CANSIM: T00590301, T00590302 and T00590303



Table 1
School board revenues, Canada, provinces and territories, 1993 to 1997

	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	\$'000												
Local taxation													
1993	-	-	136,476	-	722,860	7,858,429	497,494	481,088	1,130,653	1,109,199	-	8,982	11,945,181
1994	2	-	137,737	-	746,833	8,035,216	512,281	491,468	1,268,221	1,151,514	-	9,179	12,352,451
1995	3	-	138,123	-	764,765	8,184,393	527,275	510,382	1,436,839	1,176,521	-	9,880	12,748,181
1996	-	-	138,240	-	811,656	8,363,136	544,024	522,005	1,331,341	1,191,705	-	10,505	12,912,612
1997	-	-	139,299	-	924,244	8,668,540	559,439	552,848	1,347,664	1,226,063	-	10,568	13,428,665
Provincial governments													
1993	544,442	121,659	612,883	588,503	5,698,143	4,975,177	591,658	423,293	1,637,603	2,148,721	59,244	134,449	17,535,775
1994	522,281	119,365	594,520	590,133	5,676,773	5,088,285	576,079	403,156	1,472,625	2,224,881	57,918	142,315	17,468,331
1995	521,058	111,984	574,551	579,080	5,659,901	4,883,523	571,127	399,157	1,218,198	2,317,342	60,715	149,931	17,046,567
1996	510,460	107,878	560,435	568,635	5,517,854	4,509,909	572,277	398,940	1,324,830	2,489,305	59,195	147,538	16,767,256
1997	493,281	114,404	572,802	573,102	5,258,444	4,219,778	569,897	414,315	1,313,981	2,467,915	59,969	145,345	16,203,233
Federal government													
1993	2,320	-	10,699	-	8,431	77,158	14,626	18,330	52,199	12,794	1,085	1,736	199,378
1994	3,767	-	9,559	-	8,525	79,745	16,184	18,443	50,895	12,847	1,171	1,631	202,767
1995	4,710	-	9,807	-	8,870	95,610	16,012	16,269	48,567	13,776	1,131	1,695	216,447
1996	2,561	-	9,215	-	10,387	76,776	14,399	16,265	46,293	9,408	970	1,663	187,937
1997	1,388	-	8,758	-	12,688	74,163	13,806	17,373	46,268	11,528	986	1,674	188,632
Fees													
1993	-	-	2,354	105	6,057	35,358	21,970	2,799	17,711	17,762	-	10	104,126
1994	-	-	2,349	70	10,602	28,860	20,388	2,645	17,080	19,760	-	-	101,754
1995	-	-	2,306	32	10,132	28,148	21,401	1,938	19,816	20,453	-	-	104,226
1996	-	-	2,043	37	9,301	31,621	25,121	3,016	24,421	20,914	-	-	116,474
1997	-	-	1,692	39	7,941	32,117	28,256	2,801	23,480	20,694	-	-	117,020
Other													
1993	9,907	619	10,701	1,654	294,537	196,282	17,063	16,799	61,644	106,549	481	3,161	719,397
1994	9,842	815	10,834	1,473	301,449	227,700	17,734	17,224	65,834	102,884	664	3,163	759,616
1995	9,373	845	10,295	1,456	317,902	315,080	15,996	18,778	100,298	127,276	2,170	3,252	922,721
1996	13,365	809	7,147	1,487	342,524	295,894	13,835	15,571	201,231	144,824	1,799	3,378	1,041,864
1997	12,289	568	7,363	3,789	363,389	249,274	11,620	12,824	289,421	175,242	2,664	3,588	1,132,031
Total revenues													
1993	556,669	122,278	773,113	590,262	6,730,028	13,142,404	1,142,811	942,309	2,899,810	3,395,025	60,810	148,338	30,503,857
1994	535,892	120,180	754,999	591,676	6,744,182	13,459,806	1,142,666	932,936	2,874,655	3,511,886	59,753	156,288	30,884,919
1995	535,144	112,829	735,082	580,568	6,761,570	13,506,754	1,151,811	946,524	2,823,718	3,655,368	64,016	164,758	31,038,142
1996	526,386	108,687	717,080	570,159	6,691,722	13,277,336	1,169,656	955,797	2,928,116	3,856,156	61,964	163,084	31,026,143
1997	506,958	114,972	729,914	576,930	6,566,706	13,243,872	1,183,018	1,000,161	3,020,814	3,901,442	63,619	161,175	31,069,581



Table 2
School board expenditures, Canada, provinces and territories, 1993 to 1997

	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	\$'000												
Operating expenditures													
Teachers' salaries ¹													
1993	391,808	78,184	541,256	391,007	3,896,045	8,595,156	676,682	556,945	1,779,299	1,990,482	36,658	84,989	19,018,511
1994	377,235	75,907	542,088	396,693	3,899,688	8,583,206	687,908	570,344	1,709,005	2,053,055	36,415	92,536	19,024,080
1995	378,096	73,575	525,269	402,802	3,913,156	8,597,541	692,904	571,990	1,596,158	2,078,183	37,189	95,685	18,962,548
1996	377,341	75,005	514,808	390,947	3,889,595	8,550,545	694,591	577,449	1,645,318	2,143,977	38,879	95,353	18,993,808
1997	368,042	77,136	527,102	397,288	3,801,311	8,636,605	702,927	591,180	1,700,048	2,214,120	39,555	95,861	19,151,175
Instructional supplies													
1993	10,742	949	9,821	8,263	119,896	288,239	48,458	31,071	78,752	82,205	1,285	2,775	682,456
1994	11,144	920	13,907	7,464	120,959	290,696	49,617	31,745	76,317	87,817	1,324	3,571	695,481
1995	11,566	941	15,650	8,286	125,107	301,194	50,588	35,401	82,769	88,726	1,301	4,131	725,660
1996	11,372	1,013	15,766	10,553	129,052	322,331	52,965	36,981	117,158	96,558	1,595	4,370	799,714
1997	9,466	1,032	17,165	9,824	132,338	309,197	54,375	38,034	143,858	101,607	1,290	4,552	822,738
Administration													
1993	34,964	8,456	42,063	37,767	468,144	1,060,033	95,062	46,523	157,382	180,678	4,052	19,249	2,154,373
1994	34,566	8,481	41,383	37,695	469,921	1,038,438	94,262	47,131	204,458	229,018	3,855	20,902	2,230,110
1995	34,921	8,369	40,194	37,743	470,796	1,007,758	94,864	48,830	272,154	231,729	3,836	20,480	2,271,674
1996	33,636	8,974	39,332	38,454	441,257	1,016,079	94,391	50,825	271,355	315,139	3,856	18,286	2,331,584
1997	31,399	10,265	41,224	33,961	425,825	1,141,827	95,033	54,112	256,778	319,802	4,706	17,627	2,432,559
Conveyance													
1993	28,172	8,877	39,209	40,102	429,865	630,017	45,628	65,875	137,256	70,721	2,516	96	1,498,334
1994	28,022	8,752	38,167	39,954	437,971	612,746	44,791	65,466	131,109	73,484	2,509	74	1,483,045
1995	28,007	8,442	37,792	39,227	437,766	607,934	45,033	65,677	125,793	74,810	2,574	31	1,473,086
1996	27,678	8,467	38,085	42,666	441,968	585,716	45,536	66,117	134,013	79,007	647	241	1,470,141
1997	26,689	8,366	38,833	42,158	436,712	555,196	45,682	68,743	142,163	81,629	-	621	1,446,792
Plant operation													
1993	50,096	11,884	75,119	73,578	526,032	1,406,957	128,083	98,661	289,120	400,845	5,994	13,570	3,079,939
1994	50,782	11,427	72,747	72,792	523,659	1,404,920	130,525	100,326	286,238	415,780	6,176	12,762	3,088,134
1995	49,557	11,131	70,869	70,889	511,774	1,414,347	130,493	102,029	285,526	420,420	6,417	10,816	3,084,268
1996	48,542	11,265	72,332	77,508	502,910	1,393,122	131,428	105,104	291,940	438,012	3,456	11,383	3,087,002
1997	48,698	11,514	75,329	78,055	497,956	1,386,561	133,099	110,385	291,505	439,048	2,513	12,696	3,087,359
Other													
1993	9,543	562	32,228	37,224	903,584	430,515	79,755	59,705	87,336	291,519	3,102	22,173	1,957,246
1994	11,036	561	30,672	33,792	913,985	442,329	82,963	56,821	78,016	307,356	3,205	24,032	1,984,768
1995	8,818	745	26,425	19,449	918,727	480,928	82,829	56,434	89,226	378,360	3,274	24,784	2,089,999
1996	7,934	905	27,515	11,291	916,847	476,093	81,868	55,605	158,855	336,079	2,957	23,687	2,099,636
1997	7,796	865	29,038	12,859	920,387	157,396	81,140	60,354	187,049	344,120	3,210	23,729	1,827,943
Total operating expenditures													
1993	525,325	108,912	739,696	587,941	6,343,566	12,410,917	1,073,668	858,780	2,529,145	3,016,450	53,607	142,852	28,390,859
1994	512,785	106,048	738,964	588,390	6,366,183	12,372,335	1,090,066	871,833	2,485,143	3,166,510	53,484	153,877	28,505,618
1995	510,965	103,203	716,199	578,396	6,377,326	12,409,702	1,096,711	880,361	2,451,626	3,272,228	54,591	155,927	28,607,235
1996	506,503	105,629	707,838	571,419	6,321,629	12,343,886	1,100,779	892,081	2,618,639	3,408,772	51,390	153,320	28,781,885
1997	492,090	109,178	728,691	574,145	6,214,529	12,186,782	1,112,256	922,808	2,721,401	3,500,326	51,274	155,086	28,768,566
Capital expenditures													
Capital outlay													
1993	24,457	2,335	16,308	1,946	27,274	533,445	31,769	6,889	83,058	75,809	7,202	5,267	815,759
1994	16,954	1,809	16,243	1,827	23,626	842,821	38,222	5,330	81,008	77,778	6,269	5,585	1,117,472
1995	14,821	1,790	17,283	2,195	17,202	791,134	38,055	5,418	61,513	93,715	9,425	7,980	1,060,531
1996	12,958	3,324	15,479	510	18,013	643,242	33,116	6,367	-	92,399	10,573	6,438	842,419
1997	11,665	6,013	13,863	3,563	20,906	746,270	37,582	13,359	-	70,310	12,343	4,463	940,337
Debt charges													
1993	13,053	11,806	14,781	-	357,441	198,042	56,756	60,558	272,620	268,330	1	219	1,253,607
1994	7,624	12,609	1,249	-	360,413	244,650	56,337	52,767	282,731	317,230	-	178	1,335,788
1995	7,524	7,850	1,014	-	363,680	305,918	58,183	51,722	269,295	329,319	-	1,019	1,395,524
1996	10,112	30	904	1,282	360,201	290,208	59,526	48,509	254,176	365,916	1	1,504	1,392,369
1997	8,643	29	1,109	-	360,031	310,820	59,191	39,879	260,683	351,553	2	275	1,392,215
Total capital expenditures													
1993	37,510	14,141	31,089	1,946 ²	384,715	731,487	88,525	67,447	355,678	344,139	7,203	5,486	2,069,366
1994	24,578	14,418	17,492	1,827 ²	384,039	1,087,471	94,559	58,097	363,739	395,008	6,269	5,763	2,453,260
1995	22,345	9,640	18,297	2,195 ²	380,882	1,097,052	96,238	57,140	330,808	423,034	9,425	8,999	2,456,055
1996	23,070	3,354	16,383	1,792 ²	378,214	933,450	92,642	54,876	254,176	458,315	10,574	7,942	2,234,788
1997	20,308	6,042	14,972	3,563 ²	380,937	1,057,090	96,773	53,238	260,683	421,863	12,345	4,738	2,332,552
Total expenditures													
1993	562,835	123,053	770,785	589,887	6,728,281	13,142,404	1,162,193	926,227	2,884,823	3,360,589	60,810	148,338	30,460,225
1994	537,363	120,466	756,456	590,217	6,750,222	13,459,806	1,184,625	929,930	2,848,882	3,561,518	59,753	159,640	30,958,878
1995	533,310	112,843	734,496	580,591	6,758,208	13,506,754	1,192,949	937,501	2,782,434	3,695,262	64,016	164,926	31,063,290
1996	529,573	108,983	724,221	573,211	6,699,843	13,277,336	1,193,421	946,957	2,872,815	3,867,087	61,964	161,262	31,016,673
1997	512,398	115,220	743,663	577,708	6,595,466	13,243,872	1,209,029	976,046	2,982,084	3,922,189	63,619	159,824	31,101,118

1. Includes principals and vice-principals.

2. Most of these expenditures are assumed by the provincial government.



Table 3
Expenditures¹ per full-time equivalent student, Canada, provinces and territories, 1993 to 1997

	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	\$'000												
1993	5,102	5,181	5,260	5,668	7,164	7,306	6,481	5,490	6,158	6,650	10,961	12,291	6,815
1994	5,221	5,090	5,283	5,780	7,268	7,280	6,638	5,570	5,981	6,847	10,842	13,804	6,853
1995	5,272	4,824	5,180	5,773	7,370	7,213	6,764	5,670	5,836	6,941	11,587	13,746	6,853
1996	5,323	4,610	5,134	5,786	7,372	7,098	6,786	5,740	5,987	7,092	11,913	12,390	6,844
1997	5,337	4,843	5,133	5,902	7,000	7,236	6,923	5,871	6,157	7,054	12,365	11,784	6,852

1. Includes school board expenditures in Table 2, less adult education expenses, plus spending by the departments of education on contributions to teachers' pension plans and services to school boards.

To obtain tables or make general data inquiries, contact Sharon-Anne Borde (sharon-anne.borde@statcan.ca) at (613) 951-1503 or 1 800 307-3382, Centre for Education Statistics.

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Full-time university faculty, 1998–1999

- In 1998–1999, universities had 33,665 full-time faculty, down 9.7% from the record of 37,266 in the 1992–1993 academic year.
- The number of faculty grew relatively slowly and consistently through the 1970s and 1980s, as student enrolments increased significantly. However, from 1992–1993 to 1998–1999 the number of full-time faculty steadily declined in a climate of budget constraints, growing reliance on part-time teaching staff, and slightly decreasing student enrolment. While full-time faculty shrank 9.7% from 1992–1993 to 1998–1999, the number of students decreased 1.4% on a full-time equivalent basis.
- Among the provinces, only Prince Edward Island did not see a decline in full-time faculty from 1992–1993 to 1998–1999. The largest declines occurred in Newfoundland (-18.6%), Manitoba (-15.9%) and Ontario (-11.7%).
- The decline in the number of full-time faculty was not distributed evenly among either ranks or sexes.
- The number of full professors fell 6.2% and the number of associate professors was down 5.3% from 1992–1993 to 1998–1999. At the same time, the number of assistant professors and lower ranks fell 20.5%. The declines among full-time faculty were concentrated among males, although full-time men continued to make up a majority of faculty at all levels. In 1998–1999, there were 24,861 men teaching in universities, down 15.2% from six years earlier. During the same period, the number of women increased by 10.8% to 8,804. Women made up 13.7% of full professors in 1998–1999, up from 9.5% in 1992–1993. Similarly, the proportion of women in the ranks of associate professors increased from 21.9% to 29.1% over the same period.
- In constant 1998 dollars, the average salary declined by 2.2% between 1992–1993 and 1998–1999 to \$76,284, compared with a 4.8% increase in the average earnings of all full-time workers in the labour force. A factor in the decline of the salaries of full-time university teachers appears to be the replacement of retiring faculty

at the top of their salary scales with newly hired or promoted faculty at or near the bottom of their salary scales. The small 1.0% increase for female faculty reflects their increased representation in the higher ranks.

- Despite gains through promotion, the continuing higher concentration of women in the lower ranks is reflected in their lower overall average salaries. In 1998–1999,

the average salary of women faculty was 85.7% of that of men (\$67,870, compared with \$79,238 for men). Within each rank, however, this gap was smaller; women’s salaries varied from 93.9% to 95.6% that of men. Part of this difference may be explained by the overrepresentation of female faculty among new hirings and new promotions. Men on average have spent 60% more time than women at their current rank. EOR

Table 1 Full-time university faculty					1992–1993 to 1998–1999
	1992–1993	1997–1998	1998–1999		1998–1999
	number				% change
Canada	37,266	33,702	33,665		-9.7
Newfoundland	1,049	865	854		-18.6
Prince Edward Island	178	180	179		0.6
Nova Scotia	2,062	1,910	1,914		-7.2
New Brunswick	1,208	1,146	1,145		-5.2
Quebec	8,924	8,144	8,046		-9.8
Ontario	14,050	12,346	12,411		-11.7
Manitoba	1,784	1,506	1,501		-15.9
Saskatchewan	1,509	1,372	1,390		-7.9
Alberta	3,233	2,940	3,008		-7.0
British Columbia	3,269	3,293	3,217		-1.6



Table 2
University faculty and average salary

		1992-1993	1997-1998	1998-1999	1992-1993 to 1998-1999
		Number of faculty			% change
All faculty	No.	37,266	33,702	33,665	-9.7
Men		29,323	25,137	24,861	-15.2
Women		7,943	8,565	8,804	10.8
Proportion of women in faculty	%	21.3	25.4	26.2	...
Full professor	No.	14,788	13,910	13,871	-6.2
Men		13,387	12,110	11,972	-10.6
Women		1,401	1,800	1,899	35.5
Proportion of women in faculty	%	9.5	12.9	13.7	...
Associate professor	No.	12,683	12,095	12,008	-5.3
Men		9,901	8,694	8,517	-14.0
Women		2,782	3,401	3,491	25.5
Proportion of women in faculty	%	21.9	28.1	29.1	...
Other ranks	No.	9,795	7,697	7,786	-20.5
Men		6,035	4,333	4,372	-27.6
Women		3,760	3,364	3,414	-9.2
Proportion of women in faculty	%	38.4	43.7	43.8	...
		Salary ¹			
All faculty	\$ (constant 1998)	77,991	75,075	76,284	-2.2
Men		80,880	78,014	79,238	-2.0
Women		67,217	66,393	67,870	1.0
Women's salary as a proportion of men's	%	83.1	85.1	85.7	...
Full professor	\$ (constant 1998)	93,595	89,226	90,464	-3.3
Men		94,174	89,917	91,219	-3.1
Women		88,003	84,545	85,672	-2.6
Women's salary as a proportion of men's	%	93.4	94.0	93.9	...
Associate professor	\$ (constant 1998)	75,461	70,576	71,943	-4.7
Men		76,343	71,577	72,895	-4.5
Women		72,305	68,008	69,606	-3.7
Women's salary as a proportion of men's	%	94.7	95.0	95.5	...
Other ranks	\$ (constant 1998)	57,451	56,308	57,523	0.1
Men		58,574	57,363	58,642	0.1
Women		55,638	54,945	56,077	0.8
Women's salary as a proportion of men's	%	95.0	95.8	95.6	...

1. Average salary is based on the number of faculty who provided salary figures.

... Not applicable.



Note: Information is also available on additional compulsory fees and the cost of accommodation on campus.

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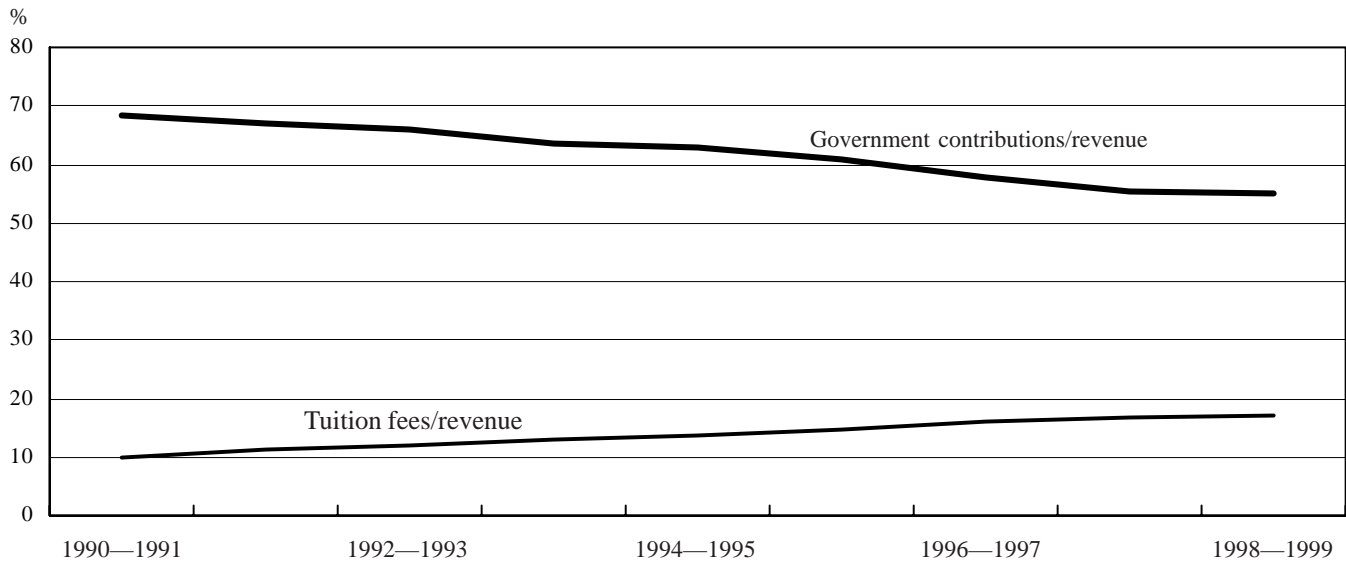
University tuition fees, 2000–2001

- Undergraduate arts students will pay an average of 3.0% more in university fees for the 2000–2001 academic year. This increase is smaller than those of previous years, as more provinces have frozen tuition.
- This fall, undergraduate arts students will pay on average \$3,380 in tuition, up 3.0% from \$3,281 in 1999–2000. The 2000–2001 level is more than double the average tuition of about \$1,500 at the beginning of the 1990s. The 2000–2001 rate of growth represents a significant slowing of the average annual increase, which has been nearly 9% during the last five years.
- Tuition fees will be frozen this fall at universities in several provinces, including Newfoundland, Prince Edward Island, Quebec (for residents only) and British Columbia (at public institutions only) for the sixth consecutive year. Manitoba students are receiving a 10% rebate from the provincial government for 2000–2001.
- Average increases in tuition for 2000–2001 across Canada range between 3% and 7%, compared with annual average increases of between 7% and 12% during the past five years.
- Fees at universities in Quebec will be frozen for the fourth year at \$1,668 for Quebec residents. However, students from other provinces attending Quebec universities face a 7.8% increase in tuition this fall.
- Tuition fees will increase at universities in five provinces: Saskatchewan, Nova Scotia, Ontario, Alberta and New Brunswick. The highest average increase, 7.7%, will be in Saskatchewan. However, average undergraduate arts fees in Nova Scotia, at \$4,408, will be the highest in Canada.
- The average undergraduate arts tuition at Ontario universities, \$3,971, remains the nation's second highest. While the average 2.7% fee increase at Ontario universities this fall is only slightly below the national average, it falls well below Ontario's average annual growth rate of 11.5% during the previous five years.



Graph 1

Tuition fees and government contributions as percentages of universities' revenue



Reduced government funding partly offset by higher tuition fees

- Tuition fees increased during the 1990s, as universities attempted to make up for reductions in government funding. Undergraduate arts fees since 1990–1991 have more than doubled in all provinces except Prince Edward Island, New Brunswick and British Columbia. The largest increase occurred in Alberta, where average tuition fees for undergraduate arts students have more than tripled, from \$1,244 to \$3,841.
- The lowest undergraduate fees in Canada will be for university students who are residents of Quebec; they will continue to pay less than half the tuition fees of those in other provinces in virtually all fields of study.
- British Columbia had the lowest overall arts tuition fee increases during the previous decade—less than 50% from \$1,727 to \$2,520. British Columbia now has the second-lowest average arts fees after Quebec.
- According to the most recent data on university finances, government funding to universities increased in 1998–1999 for the first time since 1992–1993. As a result, government grants and contracts accounted for 55% of total university revenue in 1998–1999, unchanged from the previous year, following nearly two decades of steady decline. In 1981–1982, government contributions made up 74% of university revenue.

- In 1998–1999, tuition fees for credit courses made up 17% of university revenue, more than double the proportion of 8.3% in 1981–1982.

Law and music programs see largest fee increases

- The two faculties with the largest fee increases for 2000–2001 will be law (18.2%) and music (11.3%).
- Dentistry and medicine remain the most expensive programs in terms of average tuition. Students in dentistry will pay \$7,678 on average this fall, up 6% from 1999–2000. Those in medicine will pay \$5,975 on average, a 5.8% increase.
- Average dentistry fees will be highest in Saskatchewan and Ontario. Tuition fees for medicine will be highest in Newfoundland and Ontario.

Graduate fees rise more rapidly

- For the fourth consecutive year, graduate students face higher average fee increases than their undergraduate counterparts. In 2000–2001, they are paying \$3,961 in tuition, up 12.5% from the previous year. Since 1996–1997, graduate students have seen tuition fees rise about 13% per year, compared with 8% per year for undergraduates. Graduates' fee increases are largest in Nova Scotia, Ontario and Alberta.



Table 1
Average tuition fees¹

	1999–2000	2000–2001	1999–2000 to 2000–2001
	\$		% change
Agriculture	3,205	3,208	0.1
Architecture	3,347	3,318	-0.9
Arts	3,281	3,380	3.0
Commerce	3,125	3,264	4.4
Dentistry	7,244	7,678	6.0
Education	3,024	2,838	-6.2
Engineering	3,465	3,622	4.5
Household sciences	3,182	3,164	-0.6
Law	3,475	4,106	18.2
Medicine	5,646	5,975	5.8
Music	3,314	3,688	11.3
Science	3,252	3,360	3.3
Undergraduate	3,293	3,405	3.4
Graduate	3,522	3,961	12.5

1. Using the most current enrolment data available, average tuition fees have been weighted by the number of students.

- Many public universities have frozen tuition for foreign students at the undergraduate and/or graduate level for the current school year. The exceptions are Nova Scotia, New Brunswick, Ontario and Alberta, where fees for foreign students increased from 3% to 20%, depending on the institution and field of study. EOR



Table 2
Average undergraduate arts tuition¹

	1990–1991	1999–2000	2000–2001	1990–1991 to 2000–2001	1999–2000 to 2000–2001
		\$			% change
Canada	1,496	3,281	3,380	125.9	3.0
Newfoundland	1,344	3,300	3,300	145.5	0.0
Prince Edward Island	1,840	3,480	3,480	89.1	0.0
Nova Scotia	1,943	4,101	4,408	126.9	7.5
New Brunswick	1,898	3,329	3,519	85.4	5.7
Quebec ²	902	1,868	1,898	110.4	1.6
Ontario	1,653	3,865	3,971	140.2	2.7
Manitoba	1,415	3,018	2,873	103.0	-4.8
Saskatchewan	1,526	3,164	3,409	123.4	7.7
Alberta	1,244	3,658	3,841	208.8	5.0
British Columbia ³	1,727	2,470	2,520	45.9	2.0

1. Using the most current enrolment data available, average tuition fees have been weighted by the number of students.
2. Fees for both local and out-of-province students are included in the weighted average calculation. Note that the weighting methodology was revised to reflect more accurately the impact of Quebec's differential fee policy. Hence, average tuition fees by program, at all Quebec university and subsequently at the Canada level, have been revised for the years 1997–1998 through 2000–2001.
3. Fees at both public and private institutions are included in the weighted average calculation.

For more information, or to enquire about the concepts, methods or data quality of this release, contact Teresa Omiecinski at (613) 951-5093, Mongi Mouelhi (mongi.mouelhi@statcan.ca) at (613) 951-1537, or Jim Donnelly (jim.donnelly@statcan.ca) at (613) 951-1528, Centre for Education Statistics.

Part-time university faculty, 1992–1993 to 1997–1998 (preliminary)

- Universities are relying more on part-time faculty to deliver their educational programs.
- While the number of full-time faculty decreased 9.6% from 1992–1993 to 1997–1998, the number of part-time faculty increased 6.0%. Enrolment was down 2.3% during the same five-year period.
- Regional variations from the national trend are significant. In Atlantic Canada, the number of part-time faculty increased 13.8%. Part-time faculty also worked longer hours, resulting in an increase of 20.9% when measured in full-time teaching equivalents. During the five-year period, full-time faculty decreased 8.8% and enrolment also declined.
- In Quebec, no data are available for 1992–1993 to produce a percentage change in the number of part-time faculty for the period of analysis. Nevertheless, in more recent years this number has increased, while full-time faculty declined 8.7%. Enrolment decreased 5.9%.
- In Ontario, the picture was different. Part-time faculty declined 6.0% and full-time teaching equivalents declined 4.3%, indicating a reduction in average teaching load over the five-year period. Full-time faculty declined 12.1%, while enrolment was down 4.8%.
- In Western Canada, the number of part-time faculty rose 13.5% and a significant 43.7% in full-time teaching equivalents. Full-time faculty declined 7.0%, while enrolment increased 5.8%. EQR





Table 1
Faculty and students in Canadian universities

	1992-1993	1997-1998	1998-1999	1992-1993 to 1998-1999
	number			% change
Part-time teachers				
Atlantic Canada	2,509	3,022	2,856	13.8
Quebec	..	9,986	10,410	..
Ontario	9,209	8,351	8,655	-6.0
Western Canada	5,339	5,777	6,062	13.5
Canada	..	27,136	27,983	..
Full-time teaching equivalent of part-time teachers				
Atlantic Canada	999	1,289	1,208	20.9
Quebec	..	..	..	..
Ontario	3,842	3,288	3,678	-4.3
Western Canada	1,835	2,522	2,636	43.7
Canada	..	..	..	..
Full-time faculty				
Atlantic Canada	4,497	4,294	4,101	-8.8
Quebec	8,924	8,705	8,144	-8.7
Ontario	14,050	12,539	12,346	-12.1
Western Canada	9,795	9,229	9,111	-7.0
Canada	37,266	34,767	33,702	-9.6
Full-time equivalent students				
Atlantic Canada	70,109	68,629	68,248	-2.7
Quebec	170,006	161,665	159,937	-5.9
Ontario	261,564	249,808	248,940	-4.8
Western Canada	158,135	166,714	167,309	5.8
Canada	659,813	646,816	644,434	-2.3

Note:

.. Figures not available.

To obtain tables or make general inquiries, contact Sharon-Anne Borde (sharon-anne.borde@statcan.ca) at (613) 951-1503 or 1 800 307-3382, Centre for Education Statistics.

For more information, or to enquire about the concepts, methods or data quality of this release, contact Bernard Bourgoin (bernard.bourgoin@statcan.ca) at (613) 951-1506, Centre for Education Statistics.

Educational staff of community colleges and vocational schools, 1997–1998

- For fiscal 1997–1998, community colleges and public vocational schools in Canada employed 64,600 educational staff, down slightly from 65,100 in 1996–1997.
- The percentage of educational staff aged 50 and over in community colleges and public vocational schools was lower in 1997–1998 (28%) than in 1996–1997 (33%).
- Among full-time teaching personnel, the proportion of educational staff aged 50 and over was 43% for males and 31% for females. Those proportions were lower than a year earlier, when the comparable figures were 47% for males and 35% for females. Nova Scotia had the lowest proportion of male full-time staff aged 50 and over (10%). The highest proportion occurred in Ontario (54%) where, as a result, attrition through retirement may be higher over the next few years.
- Full-time staff as a proportion of total educational staff ranged from a low of 35% in both the Yukon and Saskatchewan to a high of 95% and 90% in New Brunswick and Manitoba, respectively. EOR

Note: Educational staff comprises academic administrators (deans, directors, chairpersons, co-ordinators, department heads and supervisors) engaged in some teaching in addition to administrative duties; teaching staff (teachers, instructors and lecturers); academic advisors and career counsellors, who help guide students into the different educational programs; and employment counsellors, who help students make decisions about academic programs.

Data are available for 1997–1998 and 1996–1997. The latter was the first year of full coverage from this survey.



Current data

Data series	Most recent data	
	Final ¹	Preliminary or estimate ²
A. Elementary/secondary		
Enrolment in public schools	1997–1998	1998–1999 ^e 1999–2000 ^e
Enrolment in private schools	1997–1998	1998–1999 ^e 1999–2000 ^e
Enrolment in minority and second language education programs	1997–1998	
Secondary school graduation	1996–1997	
Educators in public schools	1997–1998	1998–1999 ^e 1999–2000 ^e
Educators in private schools	1997–1998	1998–1999 ^e 1999–2000 ^e
Elementary/secondary school characteristics	1997–1998	1998–1999 ^e 1999–2000 ^e
Financial statistics of school boards	1997	
Financial statistics of private academic schools	1995–1996	1996–1997 ^P
Federal government expenditures on elementary/secondary education	1996–1997	1997–1998 ^e
Consolidated expenditures on elementary/secondary education	1996–1997	1997–1998 ^e 1998–1999 ^e
Education Price Index	1998	
B. Postsecondary		
University enrolments	1998–1999	discontinued
University degrees granted	1998	discontinued
University continuing education enrolment	1996–1997	discontinued
Educators in universities	1998–1999	1999–2000 ^e
Salaries and salary scales of full-time teaching staff at Canadian universities	1999–2000	
Tuition and living accommodation costs at Canadian universities	2000–2001	
University finance	1997–1998	1998–1999 ^P 1999–2000 ^e
College finance	1997–1998	1998–1999 ^P 1999–2000 ^e
Federal government expenditures on postsecondary education	1996–1997	1997–1998 ^e 1998–1999 ^e
Consolidated expenditures on postsecondary education	1996–1997	1997–1998 ^e 1998–1999 ^e 1999–2000 ^e

¹ See notes at end of this table.



Current data (concluded)

Data series	Most recent data	
	Final ¹	Preliminary or estimate ²
Community colleges and related institutions: enrolment and graduates	1998–1999	1999–2000 ^P
Trade/vocational enrolment	1996–1997	1997–1998 ^e
College/trade teaching staff	1997–1998	1998–1999 ^e
International student participation in Canadian universities	1998–1999	

C. Publications³

Education in Canada (1999)

South of the Border: Graduates from the class of '95 who moved to the United States (1999)

Leaving school (1993)

After High School, the First Years (1996)

Adult education and training survey (1995)

International student participation in Canadian education (1993–1995)

Education Price Index – methodological report

Handbook of education terminology: elementary and secondary level (1994)

Guide to data on elementary secondary education in Canada (1995)

A Guide to Statistics Canada Information and Data Sources on Adult Education and Training (1996)

A Statistical Portrait of Elementary and Secondary Education in Canada – Third edition (1996)

A Statistical Portrait of Education at the University Level in Canada – First edition (1996)

The Class of '90: A compendium of findings (1996)

The Class of '90 Revisited (1997)

The Class of '95: Report of the 1997 National Survey of 1995 Graduates (1999)

Education indicators in Canada: Report of the Pan-Canadian Indicators Program (1999)

Education at a Glance: OECD Indicators (2000)

Literacy, Economy and Society (1995)

Literacy Skills for the Knowledge Society (1997)

Literacy in the Information Age (2000)


International Adult Literacy Survey Monograph Series

Growing Up in Canada: National Longitudinal Survey of Children and Youth (1996)

1. Indicates the most recent calendar year (e.g., 1993) or academic/fiscal year (e.g., 1993–1994) for which final data are available for all provinces and territories.
2. Indicates the most recent calendar year (e.g., 1995) or academic/fiscal year (e.g., 1996–1997) for which any data are available. The data may be preliminary (e.g., 1995^P), estimated (e.g., 1995^e) or partial (e.g., data not available for all provinces and territories).
3. The year indicated in parentheses denotes the year of publication. Some of these publications are prepared in co-operation with other departments or organizations. For information on acquiring copies of these reports, please contact the Analysis and Dissemination Section of the Centre for Education Statistics at Statistics Canada. Telephone: (613) 951-1503, Fax: (613) 951-9040 or E-mail: sharon-anne.borde@statcan.ca.

Education at a glance

This section provides a series of social, economic and education indicators for Canada, the provinces/territories and the G-7 countries. Included are key statistics on the characteristics of the student and staff populations, educational attainment, public expenditures on education, labour force employed in education, and educational outcomes.

 Table 1 Education indicators, Canada, 1981 to 1999											
Indicator ¹	1981	1986	1991	1992	1993	1994	1995	1996	1997	1998	1999
	thousands										
Social context											
Population aged 0–3	1,448.7	1,475.0	1,573.4	1,601.7	1,610.6	1,596.1	1,595.1	1,578.6	1,560.7	1,550.7	1,453.9
Population aged 4–17	5,480.3	5,204.7	5,395.4	5,437.7	5,484.7	5,536.4	5,620.7	5,691.4	5,754.0	5,795.7	5,725.6
Population aged 18–24	3,493.1	3,286.3	2,886.1	2,869.2	2,869.6	2,852.0	2,823.4	2,816.8	2,833.0	2,865.4	2,895.9
Total population	24,900.0	26,203.8	28,120.1	28,542.2	28,940.6	29,248.1	29,562.5	29,963.7	30,358.5	30,747.0	30,553.8
Youth immigration ^f	42.8	25.9	61.2	61.2	73.1	68.3	65.9	66.3	70.4	61.2	..
	%										
Lone-parent families	16.6	18.8	15.3	14.4	14.8	14.9	15.1	14.8	14.9	..	..
Economic context											
GDP: Real annual percentage change	4.0	3.1	-1.8	-0.6	2.2	4.1	2.3	1.5	..	..	..
CPI: Annual percentage change	12.4	4.2	5.6	1.5	1.8	0.2	2.2	1.7	1.7	1.0	1.9
Employment rate	60.0	59.6	59.7	58.4	58.0	58.4	58.8	58.5	59.0	59.7	60.6
Unemployment rate	7.6	9.7	10.3	11.2	11.4	10.4	9.4	9.7	9.1	8.3	7.6
Student employment rate	..	34.4	38.0	35.1	34.0	34.2	33.3	34.8	32.5 ²	..	..
Mothers' participation rate	54.7	63.8	70.4	69.8	70.1	70.2	70.7	71.6	..	..	..
Families below low income cut-offs:											
Two-parent families	10.2	10.9	10.8	10.6	12.2	11.5	12.8	11.8	12.0	..	..
Lone-parent families	48.4	52.5	55.4	52.3	55.0	53.0	53.0	56.8	51.1	..	..
Enrolments	thousands										
Elementary/secondary schools	5,024.2	4,938.0	5,218.2	5,284.1	5,327.8	5,362.8	5,441.4	5,414.6	5,386.3	5,483.9 ^e	5,524.9 ^e
	%										
Percentage in private schools	4.3	4.6	4.7	4.9	5.0	5.1	5.1	5.2	5.3	5.3 ^e	..

See notes at end of this table.



Table 1
Education indicators, Canada, 1981 to 1999 (concluded)

Indicator ¹	1981	1986	1991	1992	1993	1994	1995	1996	1997	1998	1999
	thousands										
Public college/trade/vocational, full-time ³	..	238.1	275.9	266.7	306.5	298.5	269.1	266.4 ^e	264.5 ^e	..	..
College/postsecondary, full-time	273.4	321.5	349.1	364.6	369.2 ^r	380.0 ^r	391.3 ^r	397.3 ^r	398.6	403.5 ^r	409.4 ^e
College/postsecondary, part-time ⁴	..	96.4 ^e	125.7 ^e	106.6 ^e	98.4	90.8	87.7	87.1	91.6	91.4	..
Full-time university	401.9	475.4	554.0	569.5	574.3	575.7	573.2	573.6	573.1 ^r	580.4	..
Part-time university	251.9	287.5	313.3	316.2	300.3	283.3	273.2	256.1	249.7	246.0	..
Adult education and training	..	..	5,504	..	5,842	..	..	..	6,069	..	..
	%										
Participation rate	..	..	27	..	28	..	..	..	26	..	..
Graduates	thousands										
Secondary schools ⁵	..	..	260.7	272.9	281.4	280.4	295.3	300.2 ^r	296.4 ^r	300.8 ^e	..
Public college/trade/vocational ⁶	..	145.0	159.7	158.8	163.9	151.1	144.2	141.5 ^e	138.7 ^e	..	..
College/postsecondary	71.8	82.4	85.9	92.5	95.2	97.2	100.9	105.0	105.9 ^e	..	..
University/Bachelor's	84.9	101.7	114.8	120.7	123.2	126.5	127.3	128.0	125.8	124.9	..
University/Master's	12.9	15.9	18.0	19.4	20.8	21.3	21.4	21.6	21.3	22.0	..
University/Doctorate	1.8	2.2	2.9	3.1	3.4 ^e	3.6	3.7	3.9	4.0	4.0	..
Full-time educators	ratio										
Elementary/secondary schools	274.6	269.9	302.6	301.8	295.4	295.7 ^e	298.7 ^e	294.4 ^e	296.8 ^e	295.9 ^e	295.9 ^e
College/postsecondary/trade/vocational	26.8 ⁷	30.6 ⁷	31.7 ⁷	31.8 ⁷	32.2 ⁷	31.0 ⁷	30.9 ^r	31.5 ^r	31.0 ^r	32.1 ^e	..
University	33.6	35.4	36.8	37.3	36.9	36.4	36.0	34.6	33.7	33.7 ^e	..
	ratio										
Elementary/secondary pupil-educator ratio	17.0	16.5	15.5	15.7 ^e	16.1 ^e	16.1 ^e	16.1 ^e	16.3 ^e	16.3 ^e	16.5 ^e	16.6 ^e
Education expenditures	\$ millions										
Elementary/secondary	16,703.2	22,968.0	33,444.9	34,774.5	35,582.3	35,936.0	36,424.7	36,744.7	36,973.1 ^P	37,453.8 ^e	37,498.9 ^e
Vocational	1,601.2	3,275.1	4,573.8	5,380.9	5,631.2	6,559.0	6,185.2	5,301.8	5,896.9 ^P	5,903.4 ^e	6,229.6 ^e
College	2,088.1	2,999.0	3,870.7	4,075.3	4,105.9	4,207.1	4,531.8	4,477.9	4,642.0 ^P	4,808.9 ^e	5,261.7 ^e
University	4,980.7	7,368.7	11,254.8	11,569.8	11,736.8	11,857.9	11,802.0	11,600.7	12,255.4 ^P	12,660.5	12,874.9 ^e
Total education expenditures	25,373.2	36,610.8	53,144.2	55,800.5	57,056.2	58,560.0	58,943.7	58,125.1	59,767.4 ^P	60,826.6	61,865.1
	%										
As a percentage of GDP	7.1	7.3	7.9	8.1	8.0	7.8	7.6	7.1	6.9	6.8	..

1. See 'Definitions' following Table 3.

2. The figure is for April 1997.

3. The enrolments have all been reported as full-time based on a 'full-day' program, even though the duration of the programs varies from 1 to 48 weeks.

4. Excludes enrolments in continuing education courses, which had previously been included.

5. Source: Canadian Education Statistics Council. (Excludes adults for Quebec, Ontario and Alberta equivalencies.)

6. The majority of trade and vocational programs, unlike graduate diploma programs which are generally two or three years' duration, are short programs or single courses that may require only several weeks. A person successfully completing these short-duration programs or courses is considered a completer, not a graduate. These completers do not include persons in part-time programs.

7. Figures have been revised to include a complete count of staff in trade programs.



Table 2
Education indicators, provinces and territories

Indicator ¹	Canada	Newfound- land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	%						
Social and economic context							
Educational attainment, ² 1999:							
Less than secondary	26.8	38.4	35.7	30.8	32.9	33.0	24.1
Graduated from high school	19.3	14.1	15.1	14.0	19.9	15.8	21.0
Some postsecondary	6.9	4.8	5.5	5.6	4.5	5.4	7.2
Postsecondary certificate, diploma or university degree	47.0	42.6	43.8	49.5	42.8	45.7	47.6
Labour force participation rates by educational attainment, 1999:							
Total	66.0	58.5	65.7	60.8	60.8	63.4	66.9
Less than secondary	40.0	34.5	47.0	36.2	36.2	37.5	40.2
Graduated from high school	69.6	64.4	73.7	66.8	69.1	70.1	68.8
Some postsecondary	71.8	63.0	71.4	70.0	67.9	70.3	72.1
Postsecondary certificate, diploma or university degree	78.5	77.8	77.0	73.4	75.1	79.0	78.9
Unemployment rate, 1999	6.3	15.1	13.4	7.8	8.9	8.1	5.0
Costs and school processes							
Public and private expenditures on education as a percentage of GDP, 1994–1995							
	7.0	9.9	7.6	7.6	7.4	7.6	6.8
Public expenditures on education as a percentage of total public expenditures, 1994–1995							
	13.6	16.9	10.8	9.7	11.2	13.8	14.2
Elementary/secondary pupil–educator ratio, 1997–1998							
	16.4 ^r	14.6	17.2	17.5	17.6	14.6 ^r	16.7 ^r
Educational outcomes							
Secondary school graduation rates, 1996–1997							
	73.4	80.2	85.6	80.7	86.0	75.9 ^{3,4}	72.0
University graduation rate, 1997–1998							
	35.1	32.5	22.1	53.8	33.8	41.7	36.7
Unemployment rate by level of educational attainment, 1999							
Less than secondary	10.4	25.4	23.6	13.0	15.7	12.7	7.7
Graduated from high school	6.3	16.7	15.3	6.6	8.9	8.4	5.1
Some postsecondary	7.1	9.2	5.7	5.8	5.9	9.8	6.6
Postsecondary certificate, diploma or university degree	5.0	10.7	8.1	6.6	6.5	6.2	4.1

See notes at end of this table.



Table 2
Education indicators, provinces and territories (concluded)

Indicator ¹	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon	Northwest Territories
	%					
Social and economic context						
Educational attainment, ² 1999:						
Less than secondary	30.9	31.4	21.6	20.5	..	..
Graduated from high school	18.3	18.8	19.9	22.6	..	..
Some postsecondary	6.8	7.9	8.2	8.8	..	..
Postsecondary certificate, diploma or university degree	44.0	41.9	50.3	48.1	..	..
Labour force participation rates by educational attainment, 1999:						
Total	66.8	67.5	73.1	65.8	..	..
Less than secondary	44.5	44.6	50.4	39.8	..	..
Graduated from high school	72.1	77.5	75.4	66.5	..	..
Some postsecondary	75.9	73.5	77.5	69.0	..	..
Postsecondary certificate, diploma or university degree	78.9	79.1	81.2	76.0	..	..
Unemployment rate, 1999	4.6	4.8	4.4	7.2	..	..
Costs and school processes						
Public and private expenditures on education as a percentage of GDP, 1994–1995	7.8	7.4	5.4	6.5	11.3	16.6
Public expenditures on education as a percentage of total public expenditures, 1994–1995	12.9	13.8	13.2	12.2	10.4	12.0
Elementary/secondary pupil–educator ratio, 1997–1998	16.3	17.3	17.8 [†]	17.5	13.2	13.1
Educational outcomes						
Secondary school graduation rates, 1996–1997	78.1	78.8	64.7	70.5	37.3	24.6
University graduation rate, 1997–1998	31.5	33.2	25.0	24.4	..	..
Unemployment rate by level of educational attainment, 1999						
Less than secondary	6.8	7.9	5.6	12.8	..	..
Graduated from high school	4.2	3.9	3.9	8.1	..	..
Some postsecondary	4.7	5.6	5.2	7.3	..	..
Postsecondary certificate, diploma or university degree	3.8	3.7	3.9	5.6	..	..

1. See 'Definitions' following Table 3.

2. Parts may not add up to 100% due to rounding.

3. Starting in 1995, Quebec graduate data for regular day programs include individuals over the age of 20 that graduated from regular day programs.

4. Excludes "Formation professionnelle."

..



Table 3
Education indicators, G-7 countries, 1998

Indicator ¹	Canada	United States	France	United Kingdom	Germany	Italy	Japan
	%						
Social and economic context							
Educational attainment:							
Lower secondary or less	20	14	39	19	16	56	20
Tertiary	39	35	21	24	23	9	18
Labour force participation by educational attainment:							
Upper secondary education							
Men	78	86	64	70	89	43	80
Women	79	87	58	50	79	40	80
Costs and school processes							
Public expenditure on education as a percentage of total public expenditures	11.6	15.3	10.6	11.0	9.2	8.9	10.1
Public expenditure on education as a percentage of GDP	5.4	5.2	5.8	4.6	4.5	4.6	3.6
Participation rate in formal education	82	74	88	70	88	70	..
Educational outcomes							
Ratio of upper secondary graduates to population	72	74	87	..	93	..	96
Unemployment rate by level of educational attainment:							
All levels							
Men	8	4	9	6	9	7	3
Women	8	4	13	4	11	13	3
Upper secondary education							
Men	12	8	14	14	18	8	5
Women	12	9	17	7	15	16	3

1. See 'Definitions' following Table 3.

Source: Education at a Glance: OECD Indicators, OECD, Paris, 2000.

Definitions

Education indicators, Canada

Table 1.

Year references are as follows: (1) *population* refers to July of the given year; (2) *enrolment* and *staff* refer to the academic year beginning in September of the given year; (3) *graduates* refers to number of persons graduating in the spring or summer of the given year; (4) *expenditures* refers to the fiscal year beginning in April of the given year.

1. **Youth immigration**
The number of persons aged 0 to 19 who are, or have been, landed immigrants in Canada. A landed immigrant is a person who is not a Canadian citizen by birth, but who has been granted the right to live in Canada permanently by Canadian immigration authorities.
2. **Lone-parent families**
The number of lone-parent families expressed as a percentage of the total number of families with children. A lone parent refers to a mother or a father, with no spouse or common-law partner present, living in a dwelling with one or more never-married sons and/or daughters. Sources: Statistics Canada, 1971 to 1986: *Lone-parent families in Canada*, Catalogue no. 89-522-XPE; 1991 to present: Small Area and Administrative Data Division.
3. **Gross domestic product**
The unduplicated value of production originating within the boundaries of Canada, regardless of the ownership of the factors of production. GDP can be calculated three ways: as total incomes earned in current production; as total final sales of current production; or as total net values added in current production. It can be valued either at factor cost or at market prices. Source: Statistics Canada, Industry, Measures and Analysis Division.
4. **Consumer Price Index**
The Consumer Price Index (CPI) is an indicator of changes in consumer prices. It is defined as a measure of price change obtained by comparing, over time, the cost of a specific basket of commodities. Figures are annual averages.
5. **Employment rate**
The number of persons employed expressed as a percentage of the population 15 years of age and over, excluding institutional residents. Figures are annual averages.
6. **Unemployment rate**
The number of unemployed persons expressed as a percentage of the labour force.
7. **Student employment rate**
The number of persons aged 15 to 24 attending school on a full-time basis who were employed during the calendar year (excluding May through August), expressed as a percentage of the total number of full-time students 15 to 24 years of age.
8. **Mothers' participation rate**
The number of mothers who were in the labour force during the reference period and who live in a dwelling with one or more never-married sons and/or daughters, expressed as a percentage of the total number of mothers living in dwellings with one or more never-married sons and/or daughters. Source: Statistics Canada, 1992, *Women in the Workplace*, Catalogue no. 71-534-XPE.
9. **Families below low income cut-offs**
Low income cut-offs are a relative measure of the income adequacy of families. A family that earns less than one-half of the median adjusted family unit income is considered to be in difficult circumstances. The set of low income cut-offs is adjusted for the size of the area of residence and for family size. Source: Statistics Canada, *Low Income Persons, 1980 to 1995*, December 1996, Catalogue no. 13-569-XPB/XIB.
10. **Adult education participation rate**
The number of persons 17 years of age or over participating in adult education or training activities, expressed as a percentage of the total population 17 years of age or over. Excludes regular full-time students who are completing their initial schooling.
11. **Elementary/secondary pupil-educator ratio**
Full-time equivalent enrolment (enrolment in grades 1 to 12 [including Ontario Academic Credits] and ungraded programs, pre-elementary enrolment in provinces where attendance is full time, and half of the pre-elementary enrolment in other provinces) divided by the full-time equivalent number of educators.

12. Education expenditures

Includes expenditures of governments and of all institutions providing elementary/secondary and postsecondary education, and vocational training programs offered by public and private trade/vocational schools and community colleges.

Education indicators, provinces and territories

Table 2.

The methodologies used to derive the indicators in Table 2 may differ from those used in other statistical tables of this section.

13. Educational attainment and labour force participation rates

Refers to the population aged 25 and over. Source: Statistics Canada, Labour Statistics Division.

14. Secondary school graduation rate

Source: Statistics Canada, 1999, Centre for Education Statistics, *Education in Canada*, Catalogue no. 81-229-XPB.

15. University graduation rate

Number of degrees awarded at the undergraduate level, as a percentage of the population aged 22.

16. Unemployment rate by level of educational attainment

The number unemployed with a given level of education expressed as a percentage of the labour force with the same education for the population aged 25 and over. Upper secondary includes the final grade of secondary school.

17. University/secondary school earnings ratio

The average annual earnings of those with university education are expressed as a percentage of the average annual earnings of those with upper secondary education for the population aged 45 to 64.

Education indicators, G-7 countries

Table 3.

18. Educational attainment

Percentage of the adult population aged 25 to 64 that has completed a certain level of education.

19. Participation rate in formal education

The total number of students aged 15 to 19 enrolled in formal education expressed as a percentage of the population aged 15 to 19. EOR



In upcoming
ISSUES

The following articles are scheduled to appear in upcoming issues of *Education Quarterly Review*:

Postsecondary graduates' earnings and the education—job skills match

An examination of the following relationships: (1) the transition from school to the labour market and earnings of graduates, and (2) the education—job skills match and earnings.

Factors influencing bachelor's graduates pursuing further postsecondary education

An analysis, using data from the National Graduates Surveys, of the patterns associated with the pursuit of further education.

Making the transition: The impact of moving from elementary to secondary school on adolescents' academic achievement and psychological adjustment

This paper compares the academic, behavioural and emotional outcomes of children who continued their education in an elementary school versus those who transferred during early adolescence to middle and high schools.

Indicators of success for effective schools

An examination of how new initiatives from Statistics Canada's Centre for Education Statistics can be utilized to explore the ability of elementary and secondary schools to attain their intended goals. EQR

This index lists all analytical articles published in *Education Quarterly Review*. Included are descriptions of education and education-related surveys conducted by Statistics Canada, provincial governments and institutions. The categories under which the articles appear are based on policy issues identified in the report *Strategic Plan (1997)*, released by the Centre for Education Statistics in November 1997 and available on the Internet at address <http://www.statcan.ca/cgi-bin/downpub/freepub.cgi>.

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