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Higher Education
Commission

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des Provinces maritimes

Five Years On:
A Survey of Class of 1999 Maritime University Graduates

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The Council of Maritime Premiers

Le Conseil des premiers ministres des Maritimes

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EXECUTIVE SUMMARY

In an era when students are spending more and more to obtain a university education, an examination of the value of that expenditure is appropriate. *Five Years On: a Survey of Class of 1999 Maritime University Graduates* describes the nature of the transitional experiences of graduates between postsecondary education and the work force, and identifies the primary factors that affect that transition. This report is based on a longitudinal database (graduates in this survey were first interviewed in 2001), and its findings provide rich information on graduate outcomes over a five-year window.

In this study we also draw attention to what might best be described as the "true cost" of education: by considering the debt accumulated to finance the first, and ever more common second (or more) postsecondary credentials, we provide valuable information on the overall financial status of graduates. Finally, we look beyond individual "returns on investment" and examine government returns, which are embodied in a highly skilled workforce. Specifically, we examine graduate mobility patterns and the factors that determine these patterns.

Labour force outcomes

The survey results clearly show that those who have a university education enjoy increased employability, access to better jobs and an earnings premium: in short, a university education is a good investment. Five years after graduation, 73% of graduates had jobs in management and/or requiring a university education, and they earned 25% more than working Canadians. Just how good, though, depends largely on a few key variables.

Program orientation is the most consistent predictor of graduate outcomes and of the nature of the transition experience into the labour market. Graduates of applied arts & sciences / professional programs, which, by definition, are focussed on education and training for a specific job or profession, tend to have a more favourable experience in the labour market (within the five year window since graduation) in comparison to graduates of liberal arts & sciences programs:

- By 2004, among employed graduates, 79% of graduates of applied arts & sciences / professional programs had obtained a professional/managerial job, up 2 percentage points from 2001. By contrast, 60% of liberal arts & sciences / professional graduates had obtained a professional/managerial job by 2004, up 17 percentage points from 2001.
- Between 2001 and 2004, annual earnings of applied arts & sciences / professional graduates increased 31% to $56,384. In 2004, liberal arts & sciences graduates earned $42,847, up 56% from 2001.

The greatest impact of gender and region (i.e., Maritimes or outside Maritimes) of residence is on earnings:

- In 2004, among all graduates employed in 2001 and 2004, men earned $56,824, up 35% from 2001; women earned $48,095, up 38% from 2001. In 2004, women earned 85% of the annual earnings of men.
- In 2004, among all graduates employed in 2001 and 2004, those living in the region earned $48,266, or 84% of the earnings ($57,282) of university graduates living outside the Maritimes.

A graduate's family educational background (parental level of educational attainment), often used as a proxy for family income, had no impact on labour force outcomes.

Financial Situation

Since 72% of first-degree holders returned for further education after 1999, an assessment of graduates' financial situations must take into account their cumulative borrowing. When multiple credentials are considered, 73% of first-degree holders ended up borrowing to finance postsecondary education. In addition, average cumulative debt has surpassed $30,000 for at least one group of graduates (liberal arts & science graduates). Of all borrowers, 24% assumed $40,000 or more in loans.

This report has also recorded a shift in borrowing patterns. When compared to the distribution of loan sources among first-degree holders who borrowed to finance their 1999 degree, post-1999 borrowing saw:

- a decline of 15 percentage points (from 61% to 46%) in the use of government loans as the sole loan source, and
- an increase of 16 percentage points in the proportion who reported borrowing from both government student aid programs and directly from financial institutions (from 17% to 33%).

Notwithstanding substantial borrowing, graduates have been very successful in paying down student debt. Nevertheless, the average debt-to-earnings ratio presents difficulty for a large number of graduates.

- The average debt-to-earnings ratio for all borrowers was 12%, or 4 percentage points above the commonly recognized threshold of 8%, beyond which perceived difficulties with payments increase significantly.
- Liberal arts & sciences graduates had a debt-to-earnings ratio of 14% and applied arts & sciences / professional graduates had a debt-to-earnings ratio of 10%.
- Graduates living outside the region devoted 11% of their income to student debt as compared to the 13% set aside by graduates living in the Maritimes.

On a very positive note, by 2004, 27% of graduates had yet to borrow any money to finance education expenses; furthermore, including those who had fully repaid any debt by 2004, half of all first-degree holders did not carry education-related debt by the five-year-out mark.

Graduate Mobility

Migration statistics are the most telling when it comes to assessing the government/public "return". The report reveals the following about the capacity of individual provinces and the region to retain highly skilled graduates.

- Among graduates originally from the Maritimes, the clear majority remained after graduation: by 2004, 74% of these graduates were still living in the region.
- The influx and retention of graduates originally from outside the region does not equal the number of graduates from this region who leave.
- When we take into account the movements of both groups of graduates, the net retention of graduates by 2004 is 81%, 6 percentage points less than that recorded for the Class of 1996 four years after graduation.
- Findings show that those who left the region did so mainly for employment related reasons,

and that younger (up to 29 at graduation) graduates, men, and graduates of Engineering programs were more likely than average to move.

Conclusions

- A university education continues to be a good investment; however, the economic return on that investment is not uniform for all graduates, and, for a number of graduates, outcomes fall short of expectations.

- Graduates of applied arts & sciences professional programs benefited from an education that provided direct links to the labour market and/or a specific profession. Their transition to the labour market is one of initial and sustained success in the labour market. The high expectations these graduates had on enrolling, for learning job skills and increasing their chance at a good income, had clearly been met for most soon after they entered the labour market.

- Liberal arts & sciences graduates experienced initial difficulty finding their "fit" in the labour market but made substantial gains by five years after graduation. For many, making these gains depended on pursuing further education.

- The program orientation-based differences among Maritime university graduates are greater and longer lasting than the literature would have us believe. Though evidence exists in the census to indicate that liberal arts & sciences graduates close the gap with their peers at some point, it does not happen within 5 years of obtaining the first degree.

- Among first-degree holders, the gender gap in wages continues to exist five years after graduation.

- A graduate's family educational background does not affect labour force outcomes (within the five year window since graduation).

- More and more graduates are finding that one degree is no longer sufficient to open doors to rewarding careers.

- Managing cumulative debt is becoming difficult for many graduates.

- The number of university graduates from outside the region who stay in the region does not equal the number of graduates from this region who leave. The net retention of graduates continues to decline.

- Graduate mobility patterns are influenced driven primarily by opportunities for employment.

1. INTRODUCTION

1.1 Context and Issues

Does a university education still pay? This question is being asked increasingly in recent times[1] in response to ever-increasing student debt, growing numbers of students and graduates with debt, and as students and their families are being expected to take on increasing proportions of the cost of postsecondary education. In this context, the analysis and organization of the survey findings in this report are informed by the overarching concept of investment and return. The intention here is to provide a meaningful analysis that speaks to all stakeholders - students, public, universities, and governments alike, and which answers the question, "does a university education still pay?"

We begin with the "return" side of the equation. The payback on a university education takes many forms, including personal growth, broadened perspectives, ethical development and enhanced civic engagement. However, for the purpose of this report, we limit our focus to the more concrete returns that reflect the employment-related expectations of graduates upon enrollment.

A university education provides access to better jobs and accompanying earnings premiums, which are most often used to quantify the return on investment in a university education.[2] However, returns are not limited to earnings premiums; rather, an accurate "calculation" of returns incorporates the qualitative aspects of employment. These include the extent to which graduates are able to use the skills they learned in their university program on the job, and the degree to which their job is related to their field of study. Are graduates finding work that demands the level of education they have attained, or are there some who are underemployed? Each of these aspects are explored in this report.

What level of investment is required of students today? Enrolment in university and following through to degree completion represent a substantial investment on the part of individuals. Students and their parents invest both time - usually four years or more - and money in an effort to increase their employability and earn higher wages. The money they invest includes not only tuition and fees, but also forgone income (income they would have earned had they not been in school).

Furthermore, the investments required of students keep growing. During the1990s, tuition fees across Canada rose nearly 126%,[3] and now individuals are directly paying a greater proportion of the cost of their education.

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[1] Barrow, L. and Rouse, C. (2005). Does College Still Pay? *The Economist's Voice, 2* Issue 4 Article 3; Strauss, W. and Howe, N. (2005). The High Cost of College: an Increasingly Hard Sell. *The Chronicle of Higher Education*. (October 21, 2005); Baker, M. (2005). Is a degree still worth having? (May 1, 2005). http://news.bbc.co.uk/1/hi/education/3653663.stm

[2] For a discussion of wage premiums trends in Canada see: Emery, H. (2004). *Total and Private Returns to University Education in Canada: 1960 - 2030 and in Comparison to other Post-secondary Training*. Prepared for: Higher Education in Canada, John Deutsch Institute for the Study of Economic Policy, (February 13-14, 2004). http://jdi.econ.queensu.ca/Files/Conferences/PSEconferencepapers/Emeryconferencepaper.pdf

[3] CAUT (2001). University and College Affordability. How and Why Have fees Increased? *CAUT Education Review*.

A look at tuition fees and tuition as a percentage of university operating revenues in the Maritime provinces in 1993 and 2003 illustrate very well the national trend of increasing costs borne directly by students. (Table 1.1)

Table 1.1
Average tuition, undergraduate arts;

Province	1993	2003	percent change
NS	$2,332	$5,284	127%
NB	$2,390	$4,423	85%
PEI	$2,280	$4,110	80%

Source: MPHEC tuition survey

Tuition as a percentage of university operating revenues

Province	1993	2003	percentage point difference
NS	25%	39%	+14
NB	25%	35%	+10
PEI	17%	27%	+10

Source: CAUT Almanac 2005

Student debt has also risen dramatically in recent times. National Graduate Survey findings show that compared to the Class of 1986, Class of 1995 graduates borrowed 111% more by two years after graduation[4]. Results from MPHEC graduate surveys show that, compared to the Class of 1996, Class of 1999 graduates borrowed on average $5,000 more, and had an average debt level of $20,918 for their 1999 degree.[5] The cost of borrowing is substantial. For example, a $25,000 student loan with a fixed interest rate of 4.5% paid monthly over 10 years would have a total interest payable of $13,819, and eventually cost a total of $38,819.[6] At the same time, it should be noted that federal and provincial governments have made changes over the last decade that affect student debt. These changes include increased student loan availability, increased loan amounts, and the introduction of loan remission programs.

Furthermore, for a large number of graduates, borrowing is not limited to one degree: the majority pursue further education, and many take on more loans to do so. For this reason, the examination of graduates' financial situations in this report focusses on *overall* debt: that is, the total amount of money borrowed from government student assistance programs, financial institutions, family and other sources, to finance both the 1999 degree and/or any subsequent education. This focus permits us to present a clear picture (as of five

[4] Canadian Education Statistics Council. (2000). *Education Indicators in Canada.*

[5] MPHEC. (2003). *Survey of 1999 Maritime University Graduates.*

[6] National Student Loans Service Centre Loan Repayment Calculator http://srv650.hrdc-drhc.gc.ca/cslp-pcpe/cl/28/lrc-crp/calculate.do

years after graduation) of the *true* cost of borrowing for graduates, many of whom find they must obtain a second (or multiple) degree(s) to increase their employability.

Governments invest money in universities to support, among other things, research and development, teaching and learning, and service to communities. In the context of this report, returns on investing in university education are maximized by the retention of highly qualified graduates, and the capacity for retention is a crucial issue in economic competitiveness. Previous graduate surveys (Class of 1996 in 1997 and 2000, and Class of 1999 in 2001) have recorded net losses of graduates from the region; these follow the patterns of net outmigration from Maritime provinces among young adults (aged 15 to 29) documented in the 2001 Census.[7] The chapter on graduate mobility examines migration patterns of the Class before enrolling, and at two and five years after graduation. Retention statistics are analysed on a provincial basis, and unique patterns for each province are highlighted. Reasons graduates gave for moving are also explored.

Many variables interact to influence outcomes and returns in the period following graduation. Demographic and socioeconomic factors influence program choice and borrowing; program choice (along with demographic and socioeconomic factors) in turn influences labour force outcomes, financial status and migration patterns. Migration patterns in turn strongly influence labour force outcomes. What is true in financial planning is also true in educational investment: it takes time for returns to accrue, and the size of the return depends on many factors acting at different points in time. This longitudinal survey allows the tracking of outcomes at two and five years following graduation among the same group of graduates; therefore this report pays particular attention to the change in key variables over time.

The intention of this report is not to provide a formula with which to calculate the return for this or that member of the graduating Class of 1999; because we have considered a mix of quantitative and qualitative variables, this would not be feasible. Rather, our intention is to provide a carefully considered analysis for individuals, families, governments and the public, to help them make sense of the variations in outcomes and transitions.

This report has four main analytical sections: (1) labour force outcomes, (2) financial status, (3) mobility patterns and (4) the impact of outcomes on graduates' personal situations and opinions on the value of their university experience.

1.2 Objectives

The Maritime Provinces Higher Education Commission (MPHEC) undertakes surveys of Maritime university graduates in order to provide its stakeholders with timely information and statistics on the experiences of graduates as they make the transition into the labour force. The Commission's survey program now consists of surveys conducted two and five years after graduation of cohorts chosen every four years. The main objective of the survey is to discover the nature of the transition 1999 Maritime university graduates have experienced between postsecondary education and the work force, and back again, taking into consideration their experience prior to enrolling in the program they graduated from in 1999. Main themes investigated include labour force outcomes, pursuit of further education, student debt, and mobility/migration patterns. The

[7] Statistics Canada. (2002). *2001 Census: analysis series. Profile of the Canadian population by mobility status: Canada, a nation on the move*. Catalogue # 96F0030XIE2001006.

purpose of the survey program is to provide information to the Commission's stakeholders to guide policy and decision-making.[8]

In 2004, the MPHEC, in partnership with the governments of New Brunswick, Nova Scotia and Prince Edward Island, commissioned a longitudinal survey of 1999 Maritime university graduates. The Class of 1999 was first surveyed in 2001, two years after graduation. This five-year follow up survey is the fifth in the Commission's survey program. The next cohort is the Class of 2003.[9]

1.3 Methodology

Ekos Research Associates conducted a telephone survey of Class of 1999 graduates from Maritime degree-granting institutions. Between September and November, 2004, a total of 2,306 interviews were completed. All survey respondents were selected from a list of 4,204 graduates who had agreed in the two-year-out (2001) survey to be re-contacted for this five-year-out study. Interviews were conducted in the official language of the graduate's choice.

The survey questionnaire was pre-tested to ensure respondents did not experience problems with any of the questions, and to verify that the questionnaire script worked in the intended manner (i.e., skip patterns).

The original two-year-out survey was designed so that institutions were represented through a proportionately allocated, randomly selected sample of graduates based on a fixed sample size of approximately 30% of all graduates. In three cases, the small size of the graduating class or a specific request resulted in an attempted census for Université Sainte-Anne, Atlantic School of Theology and University of Prince Edward Island. The sample for the 2004 survey was proportionately allocated by institution from the original sample.

The questionnaire response rate for valid contact numbers was 67%. The response rate for the Class of 1999 in 2001 was 61.5%.

Statistical Analysis

The margin of error for findings from this sample of 2,306 is ± 1.5 percentage points, 19 times out of 20. The distribution of the final sample by province and institution is found in Appendix 1.

In all cases, the confidence level determining significance was set at 95%. All statistics presented have been generated from weighted data; data were weighted by institution to adjust to proportional representation in the population. Unless otherwise specified, in cases where percentages do not total 100, the "don't know" and "refused" responses have not been included in findings. Ordinal/Categorical Data: Differences in proportions

[8] In the areas of: post-secondary program design and delivery, recruitment of prospective students, design of student and university services, student aid and debt repayment programmes, employment policies and strategies, facilitating the transition from the learning force to the labour force and back again, labour force planning when recruiting industries to the region/province, regional/provincial graduate/labour force retention policies and remuneration policies. It also helps students and their families make decisions when considering the many choices to be made regarding postsecondary education.

[9] Surveys conducted to date are: Class of 1995 in 1996; Class of 1996 in 1997 and 2000; Class of 1999 in 2001 and 2004; data analysis for the survey of the Class of 2003 in 2005 is underway.

were tested using Chi-Square (SPSS version 12.0). Notable differences were detected using adjusted standardized residuals.

Ratio/Continuous Data: Main effects were tested using one-way ANOVA (SPSS version 12.0). Differences between groups were tested using the Student-Neuman-Keuls test.

1.4 **Reading the Report** (data sources and key variables)

This report describes the outcomes of the graduating Class of 1999 in 2004, and compares these outcomes to three years earlier (2001). Where appropriate, comparisons are provided from the MPHEC's Class of 1996 (surveyed in 1997 and 2000) and Statistics Canada's National Graduate Survey (Class of 2000 in 2002).

The main analytical categories used throughout the report are described below. This information is useful in understanding the outcomes analyses that follow.

Grouping based on prior level of educational attainment and 1999 credential

First-degree Holders
First-degree holders are defined as graduates who completed a bachelor's degree and who enrolled in the program with a high-school diploma as their highest completed level of education. For first-degree holders, the 1999 degree represents their starting point in postsecondary education; analyses based on this group provide a clearer picture of outcomes and transitions of Maritime university graduates from the beginning of the postsecondary education path. Most (92%) of this group was 20 years old or younger when they enrolled in the 1999 degree, and 60% were female. First-degree holders make up roughly half (n=1,186) the total sample (n=2,306) of Class of 1999 graduates.

Other Graduates
By comparison, graduates who are *not* classified as first-degree holders represent a mixture of people at various stages of their educational path, and for whom the 1999 postsecondary credential was not their first. Two-thirds were female and 77% were 22 years old or older when they enrolled.

Parental Educational Attainment

Parental educational attainment comprises three categories:

- High school diploma or less (only 2 respondents were classified as less than a high school diploma)
- PSE below bachelor degree (includes trade, community college or hospital-based certificates or diplomas, and completion of a university certificate or diploma below the bachelor's level, or attendance at university without earning a credential)
- Bachelor's degree or above (includes bachelor's, first professional, master's or PhD degrees, and graduate level certificates/diplomas)

These categories combine both the mother's and father's highest level of education, and the category is assigned based on the highest level of education of the pair. Excluded from analysis are those graduates who did not know or declined to report the highest level of education of either parent. The distribution of graduates by parental educational attainment is illustrated in Table 1.2.

Table 1.2
Distribution of graduates by level of parental educational attainment

	n	High school diploma or less	PSE below bachelor's degree	Bachelor's degree or above
ALL GRADUATES	2,306	31%	29%	40%
First-degree holder	1,186	27%	29%	44%
Other graduates	1,120	34%	30%	36%

Program Orientation

The MPHEC groups academic major fields of study into nine broad categories: General Arts & Sciences, Education, Humanities & Related, Social Sciences & Related, Commerce & Administration, Agricultural & Biological Sciences, Engineering & Applied Sciences, Health Professions, and Mathematics & Physical Sciences. Many studies have shown these groupings to be an important determinant of graduate outcomes.

However, university programs are defined not only by their field of study but also by their orientation: broadly they either provide a focus on practical training such as for a profession, or they focus more on the development of generic skills and providing information of general cultural concern.[10]

The program orientation variable used in this report is dichotomous, and assigns all majors to one of two categories:

- Applied Arts & Sciences / Professional
- Liberal Arts & Sciences

There are some programs that provide a mixed orientation, but they are too few to comprise a separate category for the purposes of this report. The list of majors assigned to each category is found under Appendix 2.

The distribution of graduates by program orientation varies by whether or not they are considered first-degree holders, and within that group, by gender, family educational background and region of residence. (Table 1.3)

[10] Smith, D. (2005). Liberal Arts vs Applied Programming: The Evolution of University Programs in Manitoba. *Canadian Journal of Higher Education XXXV*, No.1.

Table 1.3
Distribution of graduates by program orientation

	n	Liberal arts & sciences	Applied arts & sciences / professions
ALL GRADUATES	2,306	42%	58%
First-degree holders	1,186	61%	39%
Gender			
Male	472	**52%**	**48%**
Female	714	**67%**	**33%**
Parental Educational Attainment			
High school diploma or less	313	**53%**	**47%**
PSE below bachelor's degree	333	57%	43%
Bachelor's degree or above	504	**68%**	**32%**
Province of residence 12 months prior to enrolment			
NB	388	**52%**	**47%**
NS	542	64%	36%
PEI	70	61%	39%
Outside Maritimes	186	**68%**	**32%**
Average age at graduation		23.4	23.9
Other graduates	1,120	23%	77%
Gender			
Male	379	22%	78%
Female	742	23%	77%
Parental Educational Attainment			
High school diploma or less	367	26%	74%
PSE below bachelor's degree	318	25%	76%
Bachelor's degree or above	386	17%	83%
Province of residence 12 months prior to enrolment			
NB	296	19%	81%
NS	528	21%	79%
PEI	44	–	--
Outside Maritimes	253	**29%**	**71%**
Average age at graduation		30.8	32

– cell size too small for reliable analysis (n<50); bold print = statistically significant difference from average.

2. LABOUR FORCE OUTCOMES

Completion of a university education opens up many possibilities in the labour market as graduates qualify for employment that requires high skill levels and pays well. Being qualified for this kind of employment is one thing; obtaining it is another. This section explores labour force outcomes and the influence of various factors on that success.

2.1 Expectations

Survey findings showed that students' willingness to invest in a university education was accompanied by high expectations for their "returns". When asked about their expectations, 92% said that when they enrolled they thought it was important[11] to have a chance at a good income (93% first-degree holders), and 87% of respondents thought it was important to acquire skills for a particular job (84% first-degree holders).

Responses among the Class as a whole also varied significantly by program orientation and gender. Graduates of applied arts & sciences / professional programs were slightly more likely than graduates of liberal arts & sciences programs to say that it was important to have a chance at a good income (93% vs 90%) (this difference is statistically significant), and more likely to say that it was important to acquire skills for a particular job (91% vs 80%) Among first-degree holders, we observed similar patterns (Figure 2.1).[12]

Asked about their current (2004) desire that any job they get be related to their field of study, 88% of applied arts & sciences / professional graduates and 82% of liberal arts & sciences graduates reported that it was important (this difference is statistically significant). There was no statistically significant difference in responses by program orientation among first-degree holders (82% said it was important).

Women (88% all graduates; 84% first-degree holders) were more likely than men (80% all graduates; 77% first-degree holders) to say in 2004 that it was important that any job they get be related to their field of study; however, men and women did not vary significantly in their responses with respect to their expectations upon enrolling in their program. Among first-degree holders, we observed similar patterns.

Expectations did not differ by parental educational attainment or province of residence 12 months prior to enrolling within the Class as a whole. Among first-degree holders, however, parental educational attainment did influence responses: graduates from the most highly educated backgrounds were significantly less likely than the average to say that it was important to acquire skills for a particular job (80%); this difference is linked to their larger representation among liberal arts & sciences graduates.

In addition, first-degree holders from New Brunswick (89%) and from outside the region (74%) differed significantly from the average percentage (84%) in reporting that it was important to acquire skills for a

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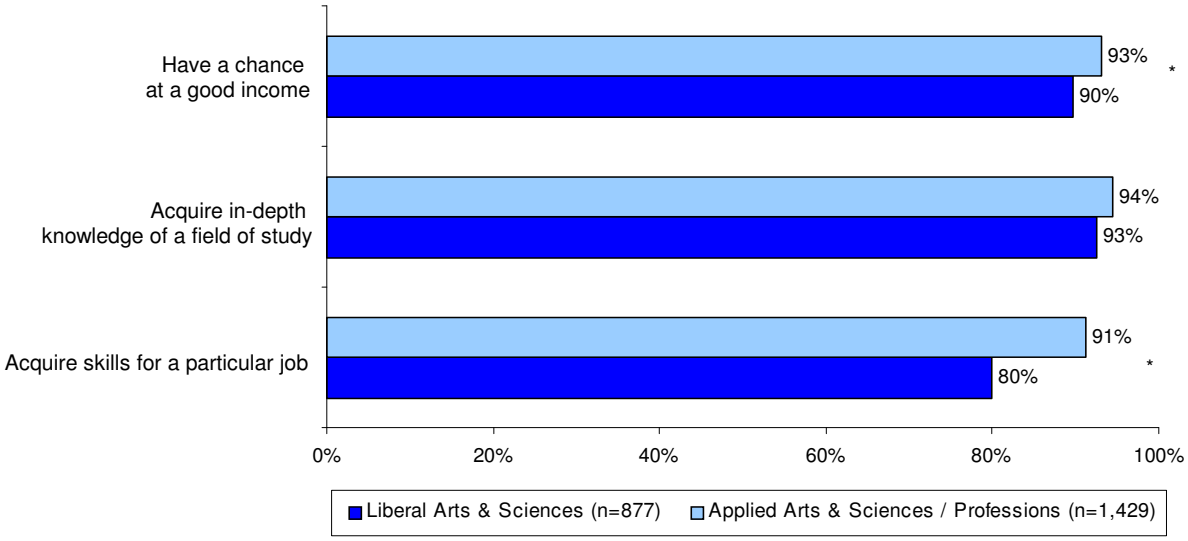
[11] In this section, important = important + very important.

[12] First-degree holders:Important to have a chance at a good income: 97% of applied arts & sciences, and 90% liberal arts & sciences graduates. Important to acquire skills for a particular job: 92% of applied arts & sciences, and 79% liberal arts & sciences graduates.

particular job. First-degree holders from outside the region were also less likely (88%) than average (93%) to say that it was important to have a chance at a good income.

Figure 2.1
Percent of graduates reporting that at the time they enrolled, it was important or very important to...



*denotes significant difference (Chi-square, p<0.01)

2.2 Outcomes

Graduates clearly have high expectations that their university education should prepare them for the labour market and that they will earn a good income. Five years after graduation, were these expectations met, and if so, to what degree? To breakdown this question, we address four specific questions in turn:

2.2.1 Do graduates get jobs?
2.2.2 Do graduates get jobs requiring the skill level of a university graduate?
2.2.3 Do graduates get good quality jobs?
2.2.4 Do graduates earn wages commensurate with their skills?

2.2.1 Do graduates get jobs?

Graduates do indeed get jobs: by five years after graduation the employment rate[13] was 96%, up two percentage points from 2001. In addition, five years after graduation, Maritime graduates were slightly more successful finding work than the Canadian general population for which the unadjusted employment rate in October 2004 was 93.5%.[14]

[13] Employment rate = number employed / number in labour force

[14] Source: Statistics Canada (CANSIM # 282-0087).

Graduate employment rates by province in 2004 were: NS 94.3%, NB 96.4% and PEI 97.4%. In comparison, employment rates for the general population by province were: Nova Scotia, 92.5%; New Brunswick, 91.7%; and Prince Edward Island, 90.7%.[15]

Class of 1999 graduates were also doing better than the previous cohort, the Class of 1996, which posted employment rates of 88.4%, one year after graduation, and 93.5% four years after graduation. These differences probably reflect in part the fact that the two cohorts were surveyed at different points in time (not only in terms of calendar years, but also the Class of 1996 was surveyed one year after graduation) and under different economic conditions.[16]

Furthermore, most groups of graduates were equally successful by 2004, with no statistically significant differences in employment rate by gender, degree level, field of study, program orientation or province of residence.

There is a small but statistically significant difference in the transitions that graduates made in the three years between surveys, based on the orientation of their 1999 program. In 2001, the employment rate for liberal arts & sciences graduates was 90% as compared to 96% for graduates of applied arts & sciences / professional; by 2004, the rate for each group was 95% and 96% respectively. So, between two and five years after graduation, the gap in the employment rate based on program orientation disappeared. This change suggests that a small proportion of liberal arts & sciences graduates needed more time to find suitable employment. A similar transition pattern was also observed in Class of 1996 graduates between one and four years after graduation (note that the Class of 1996 was surveyed at different intervals than was the Class of 1999).

2.2.2 Do graduates get jobs requiring the skill level of a university graduate?

University graduates finish their programs with a set of advanced skills both general and field-specific. The opportunity to apply the skills and knowledge acquired in university constitutes an important characteristic of a rewarding job and is a qualitative aspect of the return on investment.

In this analysis, the National Occupation Classification code structure was used to create a variable "occupational skill level", with two categories:

1) occupations usually requiring university education or classified as management, and
2) occupations which do not require a university education

Further details on the coding structure of this variable are to be found in Appendix 3. For brevity, the first category is alternately referred to as "job requiring advanced skills" or "professional/ managerial".

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[15] Source: Statistics Canada

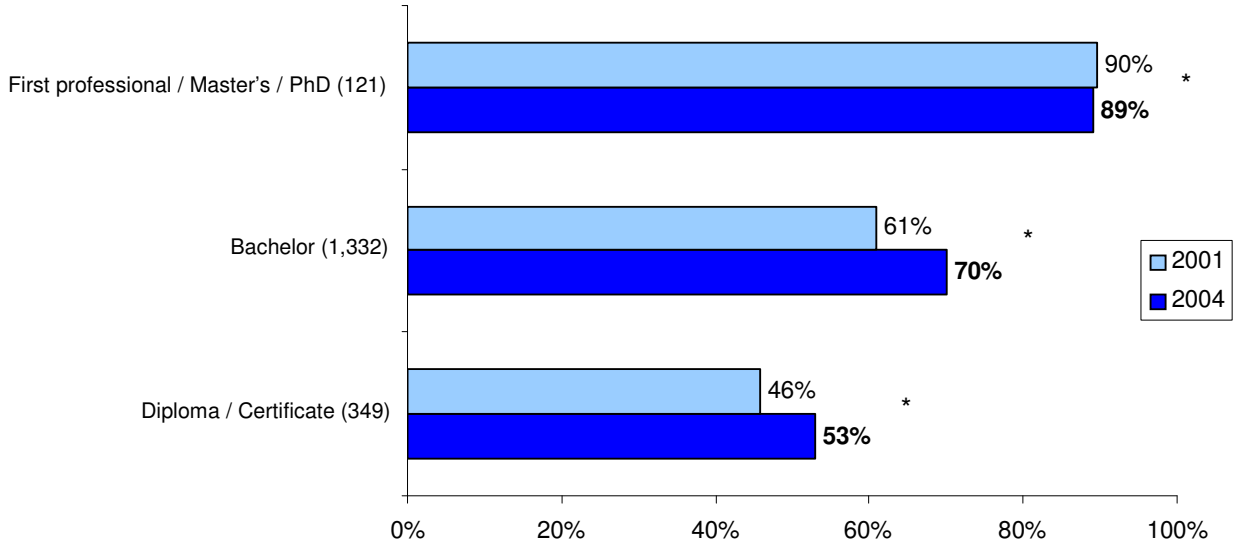
[16] Employment rates by province in 2000 (source: Statistics Canada): NS = 90.4%, NB = 89.8% and PEI = 85.6%.

Of those graduates employed in both 2001 and 2004, 73% had jobs requiring advanced skills in 2004, representing an increase of 7 percentage points from 2001 (First-degree holders - 2001: 54%; 2004: 66%; difference of 12 percentage points). How does this outcome compare to the distribution of occupations in the general population? Census (2001) data show that 26.5% of all paid Canadian workers (aged 15+) were employed in management or occupations requiring at least a university education.[17,18]

Among Class of 1999 graduates, neither gender nor province of residence significantly influences the likelihood of having a job requiring advanced skills. However, a graduate's program of study is strongly linked to job skill level.

As one might expect, respondents with advanced degrees are much more likely to have jobs requiring advanced skills, and to obtain such jobs soon after graduating. (Figure 2.2) By 2004, 89% of those who completed first professional, Master's or PhD studies in 1999 were in jobs classified as management or usually requiring a university education. This percentage had not changed significantly over the three years between surveys.

Figure 2.2
Percent of graduates whose occupation usually requires university education/management by degree level - all graduates employed in both 2001 and 2004



*denotes significant difference (between groups, 2001 and 2004) (Chi-square, p<0.01)

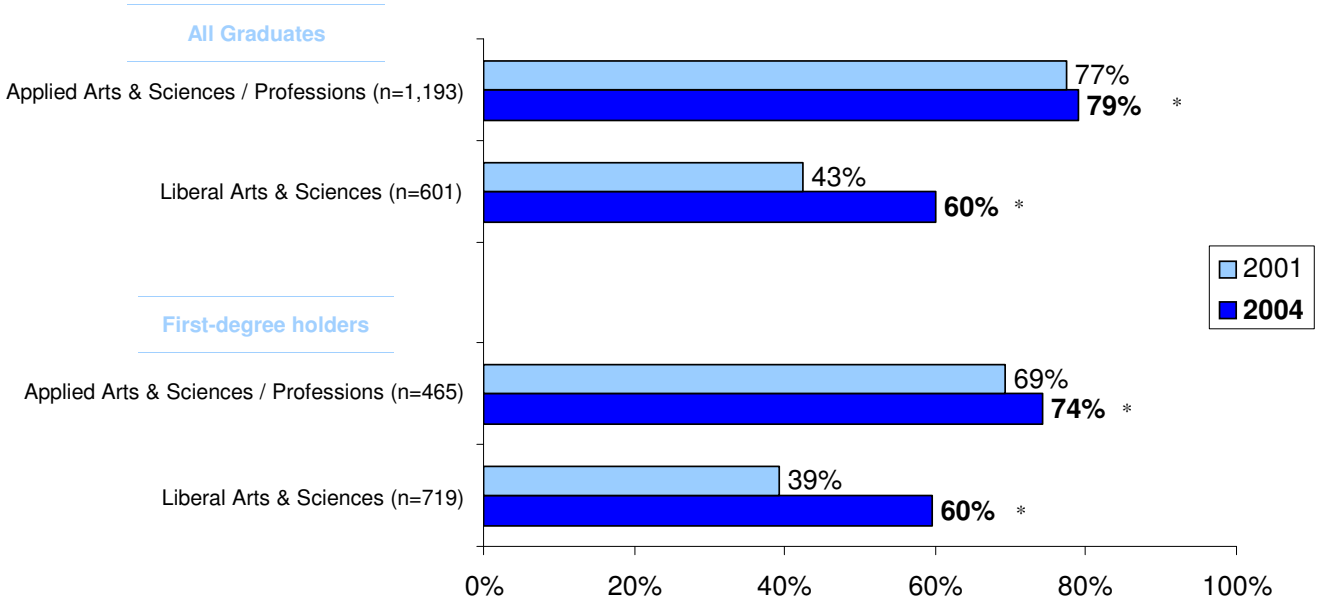
By contrast, in 2001, 61% of Bachelor's graduates had professional/managerial positions; by 2004 this figure had increased 9 percentage points to 70%, reflecting the progression of graduates along their career paths.

[17] Bergeron, L.-P., Dunn, K., Lapointe, M., Roth, W. and Tremblay-Cote. (2004). *Looking Ahead: A 10-Year Outlook for the Canadian Labour Market 2004-2013.* Policy Research and Coordination Directorate, Strategic Policy and Planning. Human Resources Development Canada.

[18] Comparison to United States statistics: According to Brown and Hesketh (2004), "no more than 30 percent of all Americans are in occupations requiring a bachelor's degree." (Source: Brown, P. and Hesketh, A. (2004). *The Mismanagement of Talent. Employability in the Knowledge Economy*. Oxford University Press.

The likelihood of having a job requiring advanced skills is not only influenced by education level, but also by program orientation (Figure 2.3). Among those employed, 79% of graduates of applied arts & sciences / professional programs had jobs requiring advanced skills, compared to 60% of liberal arts & sciences graduates in 2004. While applied arts & sciences / professional graduates had recorded a 2 percentage point increase over the three years between surveys, liberal arts & sciences graduates recorded an increase of 17 percentage points. The gap between the two groups stood at 34 percentage points in 2001 and 19 percentage points in 2004.

Figure 2.3
Percent of employed graduates whose occupation usually requires university education/management, by program orientation



*denotes significant difference (between groups, 2001 and 2004) (Chi-square, p<0.01)

Among first-degree holders, the gap between the two groups is about the same. In fact, two years after graduation, 69% of applied arts & sciences / professional graduates had jobs requiring advanced skills, as compared to 39% of liberal arts & sciences graduates, a gap of 30 percentage points. By 2004, these percentages had climbed to 74% (applied arts & sciences / professions) and 60% (liberal arts & sciences), a gap of 14 percentage points.

For many liberal arts & sciences graduates, making progress in the labour market - finding a job requiring university level skills - comes after acquiring a second or further credential. If we limit the analysis to liberal arts & sciences first-degree holders whose job in 2001 did not require a university education, we find that skill level requirements of the 2004 job depended to a large extent on whether or not respondents had pursued further study. Within this group, 82% of those who had reported returning for further education since 1999 had secured a job requiring advanced skills by 2004, compared to 50% of those who did not return for further education, a difference of 32 percentage points.

A logistic regression model was used to estimate the factors influencing job skill level among first-degree holders who were employed in 2001 and in 2004. Details of the variables used in the analysis, descriptive statistics and logistic regression results are presented under Appendix 4. Results of the analysis indicate that program orientation (1999 degree) and returning to study post-1999 have a statistically significant impact on the likelihood of having a job requiring a university education / management. Specifically, being an applied arts & sciences / professional graduate increases the odds of having an advanced job by 2.5 times. The pursuit of further education after graduating in 1999 increases the odds by the same amount, and finally, being male increases the odds by 1.5 times.

Therefore, although the proportion of applied arts & sciences / professional graduates who have jobs usually requiring a university education and/or classified as management remains significantly greater than their peers five years after graduation, the fact that this gap has halved over the three years between surveys must be highlighted. This finding indicates that the transition to rewarding careers for liberal arts & sciences graduates is less direct, and more often involves varied paths, than that of graduates of applied arts & sciences / professional programs.

What were the most common occupations among graduates? Table 2.1 presents the top 10 occupations of graduates in 2004 by program orientation.

Table 2.1
Top 10 occupations in 2004, among employed first-degree holders, by program orientation[19]

Liberal arts & sciences		Applied arts & sciences / professional	
Occupation 2004	**Percent**	**Occupation 2004**	**Percent**
Teachers and Professors	24.1%	Teachers and Professors	11.9%
Administrative / Clerical	8.9%	Managers	10.7%
Health Professionals other than nurses/nursing assistants	6.9%	Nurses and Registered Nursing Assistants	10.0%
Social Workers and Counsellors	5.4%	Financial / Accounting	10.0%
Occupations in Art, Culture, Recreation and Sport	5.4%	Computer Related (programmers and analysts)	9.1%
Managers	4.3%	Engineers	8.4%
Policy Researchers, Program Officers and Consultants	4.2%	Administrative / Clerical	6.1%
Consultants	4.2%	Policy Researchers, Program Officers and Consultants	3.7%
Technical Occupations in Health	4.0%	Consultants	3.7%
Physical and Life Science Professionals	2.7%	Technical Occupations in Natural and Applied Sciences	3.3%
Technical Occupations in Natural and Applied Sciences	2.4%	Social Workers and Counsellors	3.3%

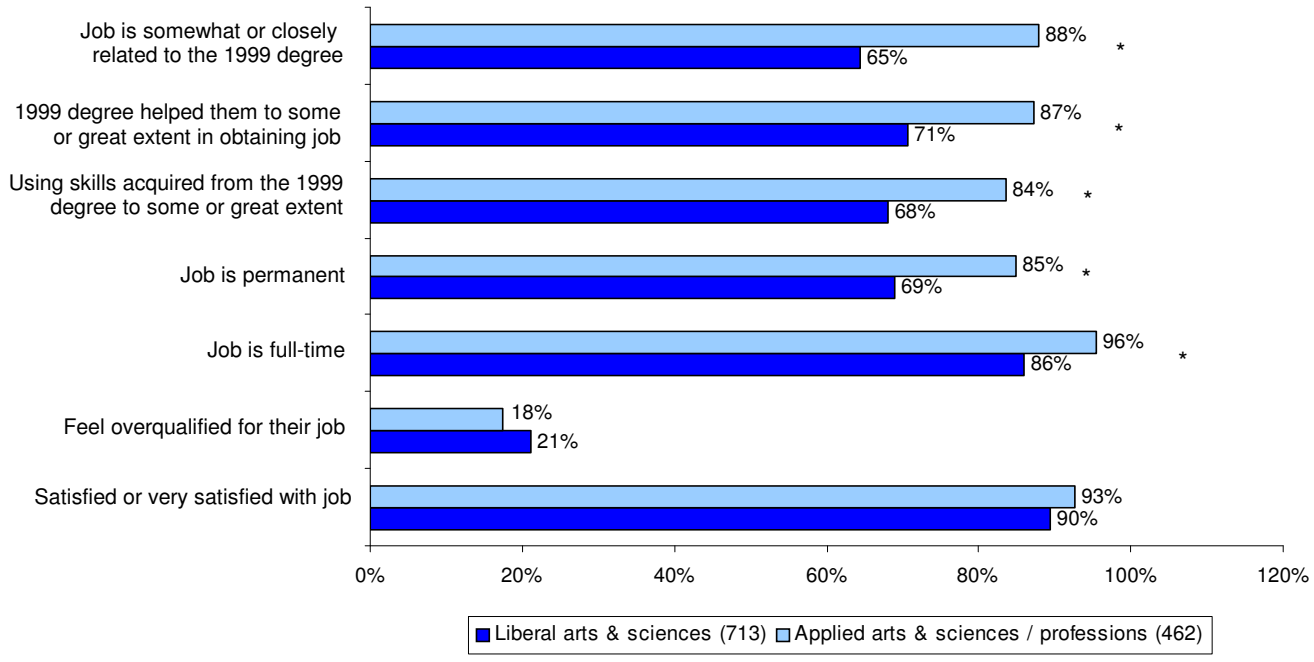
[19] For a list of occupations under each category, see: MPHEC.(2003). *Survey of 1999 Maritime University Graduates in 2001,* Appendix 2.

2.2.3 Do graduates get good jobs?

The preceding discussion was based on descriptions of the skill level required of the occupation, as derived from the national occupation classification code structure; in this section, we explore graduates' perceptions of the qualitative aspects of their jobs, including use of skills.

During the survey, graduates were asked a series of questions designed to characterize further the qualitative aspects of their job, including the extent to which they perceived that they were using skills acquired in their 1999 program, the relatedness of their job to their field of study and their level of job satisfaction. In Figure 2.4, measures of job quality among employed first-degree holders are presented. On all but two measures, applied arts & sciences / professional graduates were significantly more likely to score higher than their liberal arts & sciences counterparts. Statistics for the Class as a whole are not shown, however, the trends noted for the subsample of first-degree holders are very similar.

Figure 2.4
Measures of job quality by program orientation, employed first-degree holders in 2004



*denotes significant difference (Chi-square, p<0.01)

The closer link between applied arts & sciences / professional programs and particular jobs/professions is clearly borne out once graduates enter the labour market. Specifically, 88% of applied arts & sciences / professional graduates reported that their job was somewhat or closely related to their field of study. On the other hand, under two-thirds (65%) of liberal arts & sciences graduates reported their job was related to the same degree.

Agreeing with the statement that their 1999 degree helped them to some or a great extent in obtaining their job were 87% of applied arts & sciences / professional graduates and 71% of liberal arts & sciences graduates, a difference of 16 percentage points. In addition, many more applied arts & sciences / professional graduates reported using skills acquired from the 1999 degree at least to some extent: 84% agreed with that statement, as opposed to 68% of liberal arts & sciences graduates.

These statistics have changed over time, but more so for liberal arts & sciences graduates than applied arts & sciences / professional graduates. For example, in 2001, 53% of liberal arts & sciences and 86% of applied arts & sciences / professional reported that their job was at least somewhat related to their program, and 57% of liberal arts & sciences and 82% of applied arts & sciences / professional reported that they were using their skills at least to some extent. Comparison of these statistics to Figure 2.4 shows that, while little has changed for applied arts & sciences / professional graduates, liberal arts & sciences graduates show gains of around 10 percentage points on most measures. This increase is associated with their increased success in finding jobs requiring advanced skills.

That the qualitative job measures discussed above vary significantly with program orientation is a reflection of the fact that the variable sorts majors based on whether or not they are strongly linked to a particular profession. When asked about their university experiences, graduates in the two groups tended to give very different answers on questions related to their degree of exposure to careers and career information. More than three-quarters (77%) of applied arts & sciences / professional graduates, as opposed to 57% of liberal arts & sciences graduates, reported that they gained knowledge about career opportunities to some or a great extent during their 1999 degree. And, while 39% of applied arts & sciences / professional graduates reported that they had completed work placements as part of their program, just 7% of liberal arts & sciences graduates did.

Differences between the two groups were also recorded in the percentage whose job was permanent and full-time: among applied arts & sciences / professional graduates, 85% reported that their job was permanent, and fully 96% reported that it was full-time. By contrast, among liberal arts & sciences graduates, 69% reported that their job was permanent, and 86% stated that it was full-time.

The level of association between the degree program and employment does not seem to be linked to general job satisfaction or to feeling overqualified. Despite the differences in the qualitative measures described above, with a gap between the two groups of up to 23 percentage points, no statistically significant difference was recorded in the percent of first-degree holders who felt overqualified for their job, or who expressed satisfaction with their job. This is interesting given the initial expectations respondents had for their programs in terms of providing them with skills for a particular job.

How does job satisfaction vary in the general population? Results of the Workplace and Employee Survey 2001[20] indicate a high level of job satisfaction in the general population, with 90% of employees reporting they are satisfied or very satisfied with their jobs. Furthermore, this statistic varied only slightly by educational attainment, with 89% of employees with less than high school education, and 91% of those with a university

[20] 2004. Workplace and Employee Survey Compendium, Statistics Canada, Catalogue no. 71-585-XIE

education, reporting satisfaction with their job. The fact that job satisfaction is very high in the general population suggests that general job satisfaction may not be strongly linked to the qualitative job measures explored here.

The qualitative job measures listed in Figure 2.4 did not vary significantly by province of residence (2004), gender or level of parental educational attainment, with two exceptions in the latter case. Graduates from the most highly educated backgrounds (bachelor's degree or greater) were slightly (but significantly) more likely than the average (74% vs average 70%) to say that their job was somewhat or closely related to their field and that their 1999 degree helped them to obtain their job at least to some extent (77% vs average 73%).

2.2.4 Do graduates earn wages commensurate with their skills?

When wages are calculated on an hourly basis, Class of 1999 Maritime university graduates earned 25% more in 2004 than did the general population. In November 2004, the average earnings of the population 15 years and over was $18.71/h;[21] in the fall of 2004, Class of 1999 Maritime university graduates earned an average of $23.32/h (First-degree holders earned $21.64/h).

More specifically, an examination of earnings of the Canadian population based on education level[22] shows that Maritime university graduates ($36,625) earned on average 44% more than Canadians with a high school graduation certificate and/or some postsecondary education (average annual earnings: $25,477) in 2001. First-degree holders ($31,382) earned on average 23% more.

These statistics suggest that the short answer to the question "Do graduates earn wages commensurate with their skills?" is "yes". The long answer to the question, however, is "that depends." Within the Class as a whole, earnings, and therefore the return on investment, are influenced by gender, program orientation, and region of residence. Parental educational attainment and returning for further study in the post-1999 period were not significant predictors of earnings.

Five years after graduation, Class of 1999 Maritime university graduates reported average annual earnings of $51,313, an increase of 38% over their 2001 earnings of $37,292 (based on 2004 dollars, this represents an increase of 29% from $39,808). From: *Five Years After University Graduation: Status of the Maritime Class of 1999 in 2004 Survey Highlights*. MPHEC November 2005.

In the analysis that follows, the influence of each of the variables is examined in turn; findings are presented for the Class as a whole, and for the first-degree holder group to control for the effects of age and experience. Annual earnings[23] are presented, but the main analysis focusses on earnings calculated on an hourly basis, in order to account for the fact that the number of hours graduates

[21] Source: Statistics Canada CANSIM table # 202-0102

[22] Based on statistics from Census 2001; earnings by education level were unavailable from Statistics Canada for 2004 at the time of writing.

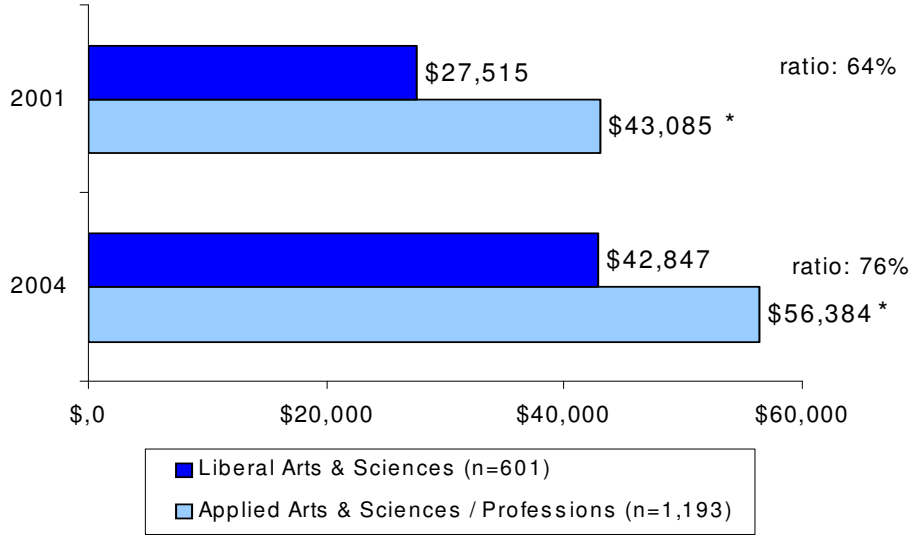
[23] Graduates reported earnings for their job last week on the basis of their choosing (e.g., hourly, weekly, annually) - all responses were converted to annual figures

reported working each week varies significantly by gender, program orientation and region of residence. The section concludes with a regression analysis determining the relative influence of each of these variables.

Program Orientation

Earnings are strongly correlated with program orientation: by five years after graduation, liberal arts & sciences graduates earned on average $42,847 or 76% of the wages of applied arts & sciences / professional graduates who earned $56,384 (Figure 2.5). This represents a gap of 24 percentage points. In fact, by 2004, liberal arts & sciences graduates had only just reached the 2001 earnings level of applied arts & sciences / professional graduates. However, if inflation is taken into account (comparing constant dollars), by 2004 liberal arts & sciences graduates had not yet reached the 2001 earnings level of their applied arts & sciences / professional counterparts (2001 earnings in 2004 constant dollars: applied arts & sciences / professional=$45,954; liberal arts & sciences=$29,348).

Figure 2.5
Annual earnings among graduates employed in both 2001 and 2004, by program orientation



*denotes significant difference (between groups, 2001 and 2004) (ANOVA, p<0.01)

If we explore the program orientation-based wage gap further, it turns out that at least part of it may be explained by a statistically significant difference in the average number of hours worked per week. In 2004, liberal arts & sciences graduates reported working on average 39 hours per week, while applied arts & sciences / professional graduates reported working an average of 41. To control for this difference, we compare hourly wages between the two groups and limit the analysis to those who are working full-time.[24]

In 2004, among all graduates, liberal arts & sciences graduates earned $20.26/h, or 78% of the average wages of applied arts & sciences / professional graduates ($25.95/h). This represents a gap of 22 percentage points (Table 2.2). Three years prior, however, the gap in hourly wages was 30 percentage points. A case-

[24] Working full-time = 30 or more hours per week

by-case[25] analysis of the change in earnings between 2001 and 2004 was conducted to determine whether or not the decrease in the gap was statistically significant. Findings showed that liberal arts & sciences graduates made significantly greater gains (measured in 2004 dollars)[26] in hourly wages (up 55% from 2001) than did applied arts & sciences / professional graduates (up 35% from 2001) over the three years between surveys. We can therefore conclude that the reduction of the earnings gap between 2001 and 2004 was statistically significant.

Table 2.2
Earnings expressed as hourly wages among graduates employed full-time in 2001 and 2004 by program orientation

Program orientation	n	Hourly wage 2001	2001 hourly wages converted to 2004 dollars	Hourly wage 2004	Difference in hourly wage between 2001 and 2004 - 2004 dollars[1]	Percent change hourly wage between 2001 and 2004 - 2004 dollars[1]
ALL GRADUATES						
Liberal arts & sciences	510	**$14.05**	**$14.99**	**$20.26**	$5.34	**55%**
Applied arts & sciences / professions	1003	**$20.22**	**$21.56**	**$25.95**	$4.74	**35%**
Ratio liberal / applied		69%	70%	78%		
First-degree holder						
Liberal arts & sciences	366	**$13.60**	**$14.51**	**$20.15**	$5.63	**61%**
Applied arts & sciences / professions	356	**$18.60**	**$19.84**	**$24.88**	$5.46	**35%**
Ratio liberal / applied		73%	73%	81%		
Other graduates						
Liberal arts & sciences	144	**$15.24**	**$16.26**	**$20.56**	$4.53	37%
Applied arts & sciences / professions	647	**$21.10**	**$22.51**	**$26.52**	$4.36	34%
Ratio liberal / applied		72%	72%	78%		

bold print = statistically significant difference (ANOVA, p<0.01)
[1] calculated on a case-by-case basis

Among first-degree holders, the program orientation-based wage gap was 27 percentage points in 2001 and 19 percentage points in 2004 (Table 2.2). In the three years between surveys, liberal arts & sciences graduates' wages increased 61%, as compared to the 35% increase posted by applied arts & sciences / professional graduates. The difference between these rates was statistically significant, and supports the conclusion that the program orientation-based wage gap was significantly smaller five years after graduation than at the two-year-out mark.

[25] Case-by-case analysis: calculations based on individuals rather than overall averages.

[26] Constant 2004 dollars are used in the analysis of the change in wages over time to eliminate the effect of inflation. 2001 dollars were converted to 2004 dollars using the Bank of Canada's Inflation Calculator at http://www.bankofcanada.ca/en/rates/inflation_calc.html

The substantial narrowing of the program orientation-based gap results from large gains in earnings made by graduates of liberal arts & sciences programs as more became successful in finding their "fit" in the labour market; i.e., obtaining jobs that require advanced skills. Nevertheless, it should be noted that the gap does still exist in 2004, and suggests that liberal arts & sciences graduates will require more than a five-year window to "catch up" to the level of returns realized by their peers.

Among other graduates (non first-degree holders), liberal arts & sciences graduates earned 78% of the wages of their applied arts & sciences / professional counterparts in 2004. By comparison, among first-degree holders this figure was 81%. A case-by-case analysis of the change in earnings showed no statistically significant difference between liberal arts & sciences (37%) and applied arts & sciences / professional (34%) graduates.

That the wage gap is slightly (3 percentage points) greater among other (non first-degree holder) graduates appears to be due in part to differences in prior educational attainment. This group comprises graduates who enrolled in the 1999 program having already attained some level of postsecondary education, including trades, community college, and university. This level of prior educational attainment (before enrolling in the 1999 degree) differed significantly by program orientation: applied arts & sciences graduates (61%) were more likely to have enrolled with a bachelor degree than were graduates of liberal arts & sciences (42%). Liberal arts & sciences graduates, on the other hand, were more likely than their peers to have enrolled with community college education (15%) or some university attendance (22%). Applied arts & sciences graduates reported these levels of prior educational attainment at 6% and 14%, respectively.

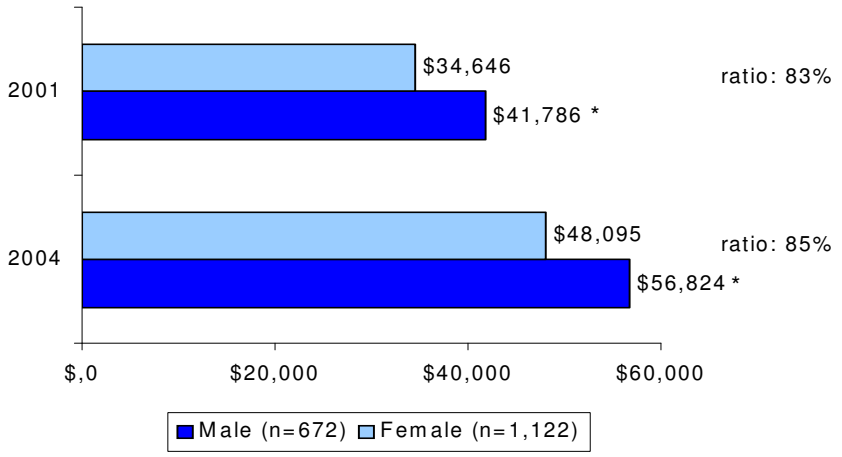
Gender

In 2004, the MPHEC released an in-depth article entitled *The Gender Gap in Employment Outcomes of University Graduates*.[27] That article identified a gender-based gap in earnings that was attributed at least in part to the average number of hours worked per week, field of study, and place of residence; it also reported that a substantial part of the gap remained unexplained. This five-year out survey provides an opportunity to follow the same group of graduates to determine if and how the gender gap has changed over time.

In 2004, among all graduates employed in both 2001 and 2004, women earned an average of $48,095, or 85% of men's annualized earnings of $56,824 (Figure 2.6). As was the case two years after graduation, in 2004, men (43 h) continued to report working more hours per week on average than women (40 h). Because of this difference in the number of hours worked per week, the remaining analysis focusses on wages (among those employed full-time) calculated on an hourly basis.

[27] MPHEC. (2004). The Gender Gap in Employment Outcomes of University Graduates. *Trends in Maritimes Higher Education 3*(1), . Fredericton, NB, March 2004.

Figure 2.6
Annual earnings among graduates employed in both 2001 and 2004, by gender



*denotes significant difference (between groups, 2001 and 2004) (ANOVA, p<0.01)

In 2004, women earned $23.11/h, or 91% of men's average wages of $25.39/h, in other words a gap of 9 percentage points (Table 2.3). Three years prior, the gap in hourly wages was 10 percentage points. A case-by-case analysis of the change in earnings between 2001 and 2004 was conducted to determine whether or not the decrease in the gap was statistically significant. Findings showed that this difference between men and women in the percent change in hourly wages (2004 dollars) over the three years between surveys (men increased 46% and women 38%) was not statistically significant. It would seem, then, that the difference in the earnings gap between 2001 and 2004 is also not statistically significant.

Table 2.3
Earnings expressed as hourly wages among graduates employed full-time in 2001 and 2004 by gender

Gender	n	Hourly wage 2001	2001 hourly wages converted to 2004 dollars	Hourly wage 2004	Difference in hourly wage between 2001 and 2004 - 2004 dollars[1]	Percent change hourly wage between 2001 and 2004 - 2004 dollars[1]
ALL GRADUATES						
Female	901	**$17.40**	**$18.56**	**$23.11**	$4.58	38%
Male	611	**$19.25**	**$20.53**	**$25.39**	$5.51	46%
Ratio female/male		90%	90%	91%		
First-degree holder						
Female	406	**$14.65**	**$15.62**	**$20.61**	$4.93	50%
Male	316	**$17.87**	**$19.05**	**$24.80**	$6.36	47%
Ratio female/male		82%	82%	83%		
Other graduates						
Female	496	$19.65	$20.96	$25.19	$4.29	28%
Male	295	$20.78	$22.16	$26.04	$4.56	46%
Ratio female/male		95%	95%	97%		

bold print = statistically significant difference (ANOVA, p<0.01)
[1] calculated on a case-by-case basis

Among first-degree holders, the gender-based wage gap was 18 percentage points in 2001 and 17 percentage points in 2004 (Table 2.3). In the three years between surveys, men's wages increased 47%, and women's, 50%. The difference between these rates was not statistically significant, and suggests that the wage gap in 2004 was not significantly different than in 2001.

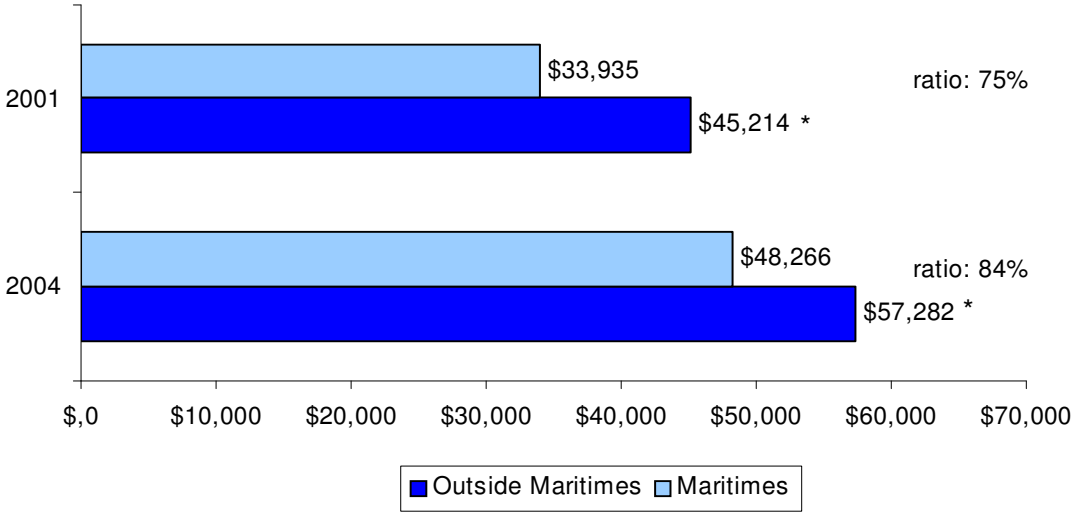
Among other graduates (non first-degree holders), the gender-based gap in earnings was not statistically significant in either 2001 or 2004. In 2004, men earned $26.04 and women $25.19 per hour (a 3 percentage point difference), but the difference was not statistically significant.

Findings show that at least part of the explanation for a larger wage gap among first-degree holders as opposed to other graduates (non first-degree holders) may be that significantly more women (67%) completed liberal arts & sciences programs than men (52%) (Table 2.3); there was no such statistically significant difference among other graduates (non first-degree holder) (23% women; 22% men) (Table 2.3).

Region of Residence

Living outside the Maritime region brings a wage premium. In 2004, graduates living in the Maritimes earned $48,266, or 84% of the average annualized earnings of their counterparts living outside the Maritimes ($57,282) (Figure 2.7). This region-based gap was even greater among first-degree holders: Maritime residents earned $43,256 or 80% of those living outside the region ($53,835). In 2004, average wages among first-degree holders by province were: NS: $48,746; NB: $46,803; PEI: $40,967. Although these statistics show large variation, ANOVA results indicate the differences are not statistically significant.

Figure 2.7
Annual earnings among graduates employed in both 2001 and 2004, by region of residence



*denotes significant difference (between groups, 2001 and 2004) (ANOVA, $p<0.01$)

At least part of the region-based wage gap can be explained by the average number of hours graduates reported working: graduates working outside the region reported working longer hours (43 h per week) than their counterparts working in the region (40 h per week). Still, when full-time wages of the two groups are compared on an hourly basis, we still find a statistically significant gap of 13 percentage points among all graduates employed in both 2001 and 2004 (among first-degree holders, the gap was 17 percentage points). (Table 2.4)

Table 2.4
Earnings expressed as hourly wages among graduates employed full-time in 2001 and 2004 by region of residence

Region of residence[1]	n (2001)	Hourly wage 2001	2001 hourly wages converted to 2004 dollars	n (2004)	Hourly wage 2004
ALL GRADUATES					
Resident of Maritimes	1,055	**$16.83**	**$17.95**	980	**$22.82**
Resident outside Maritimes	458	**$21.07**	**$22.47**	531	**$26.26**
Ratio Maritimes/outside Maritimes		80%	80%		87%
First-degree holder					
Resident of Maritimes	495	**$14.51**	**$15.48**	442	**$20.75**
Resident outside Maritimes	227	**$19.21**	**$20.49**	278	**$25.03**
Ratio Maritimes/outside Maritimes		76%	76%		83%
Other graduates					
Resident of Maritimes	560	**$18.86**	**$20.11**	538	**$24.52**
Resident outside Maritimes	231	**$23.00**	**$24.53**	253	**$27.70**
Ratio Maritimes/outside Maritimes		82%	82%		89%

bold print = statistically significant difference (ANOVA; p<0.01)
[1] calculated on a case-by-case basis

Job Skill Level

An obvious link exists between earnings and the skill level of the job. Among all graduates employed in 2001 and 2004, those employed in occupations that usually require a university education / management earned $25.52/h as compared to the $20.09/h earned by those in occupations not requiring a university education, a gap of 21 percentage points. (Table 2.5)

Among first-degree holders employed in 2001 and 2004, those employed in occupations that usually require a university education / management earned $23.89/h as compared to the $19.58/h earned by those in occupations not requiring a university education, a gap of 18 percentage points.

Table 2.5
Earnings expressed as hourly wages among graduates employed full-time in 2001 and 2004 by occupational skill level

Job skill level	n (2001)	Hourly wage 2001	2001 hourly wages converted to 2004 dollars	n (2004)	Hourly wage 2004
ALL GRADUATES					
Occupation does not require university education	506	**$14.01**	**$14.94**	415	**$20.09**
Occupation usually requires university education / management	1,007	**$20.19**	**$21.54**	1,096	**$25.52**
Ratio: does not require university / requires university		69%	69%		79%
First-degree holder					
Occupation does not require university education	323	**$13.20**	**$14.08**	247	**$19.58**
Occupation usually requires university education / management	399	**$18.32**	**$19.54**	474	**$23.89**
Ratio: does not require university / requires university		72%	72%		82%
Other graduates					
Occupation does not require university education	183	**$15.45**	**$16.47**	168	**$20.85**
Occupation usually requires university education / management	608	**$21.44**	**$22.87**	622	**$26.79**
Ratio: does not require university / requires university		72%	72%		78%

bold print = statistically significant difference (ANOVA, p<0.01)
[1] calculated on a case-by-case basis

Earnings Summary

A regression analysis and analysis of variance procedure (general linear models univariate, SPSS version 12) was used to estimate the relative influence of gender, program orientation, skill level of job (NOC-based) and region of residence on 2004 hourly earnings among first-degree holders who were employed full time in the reference week. The model was statistically significant and explained 15.5% of the variation in wages (adjusted R^2=0.155).

Each variable tested had a statistically significant influence on wages (p<0.001). The model showed that program orientation (4.2%) and region of residence in 2004 (4.1%) explained more of the total variation[28] than did gender (1.7%) or skill level of the job (1.5%). There is also a significant interaction between gender and region of residence that warrants further analysis. More information on the model and analysis is found in Appendix 5.

[28] Proportional influence calculated by dividing each variable's type III SS by the corrected total SS.

It is clear that although the variables tested were significantly correlated with earnings, much of the variation in earnings was not explained. Other occupation-related variables not investigated here, such as type of industry, and whether it is in the private vs. public sector, would also probably influence earnings. This fact should be kept in mind when interpreting these earnings statistics.

2.3 Other Employment Measures

2.3.1 Job Turnover

In the three years between surveys, job turnover slowed down. Findings show that by 2001, Maritime university graduates reported having an average of 2 jobs since graduating; by 2004, this number had increased to 3, or an average of one more job over three years. This figure did not vary significantly by gender, field of study, program orientation or province of university. These variables also did not significantly influence the time it took to find the first job after graduation, which was an average of 4.8 months for the Class as a whole (5.4 months for first-degree holders).

2.3.2 Joblessness

Graduates reporting the smallest number of jobless periods graduated from post-baccalaureate programs (average 1.4 periods); their counterparts who graduated from certificate/diploma programs reported an average of 1.7 , and from Bachelor's programs, 1.6 jobless periods.

The number of periods of joblessness varied with both program orientation and field of study. Among first-degree holders, graduates of liberal arts & sciences (79% by 2004) were more likely than their applied arts & sciences / professional counterparts (65%) to have reported at least one period of joblessness (whether graduates included being in school as a period of joblessness is unknown, but if they did, it could partly explain this difference). Among the different fields of study, the least likely to experience joblessness were graduates of health professions.

Among those who experienced at least one period of joblessness, there was a statistically significant difference in the number of separate times without a job since graduating: 55% of liberal arts & sciences graduates reported having two or more separate periods without a job, in comparison to 45% of applied arts & sciences / professional graduates. It is Interesting, however, that there was no statistically significant difference by program orientation in the total duration of jobless periods, which was an average of 10 months.

No statistically significant differences were detected in the number of periods of joblessness or duration by gender, or province of university.

2.3.3 Job Continuity

The 2004 questionnaire asked respondents who were employed in both 2001 and 2004 whether or not they were working for the same employer, and whether or not they were working in the same occupation, as three years earlier. Within the Class as a whole, 44% reported that they were working for the same employer and in the same occupation. This statistic did not vary significantly by gender or province of university. It did, however, vary significantly by the program related variables: degree level, field of study and program orientation.

Five years after graduation, nearly half (49%) of applied arts & sciences / professional graduates reported working for the same employer and in the same occupation as in 2001. This is 14 percentage points more than their liberal arts & sciences counterparts: 35% reported working for the same employer and in the same occupation as in 2001.

The fields of study which departed significantly from the Class average on this measure of job continuity were Education (64%), Health (65%) and Commerce (below average at 32%). Graduates of advanced (First professional and graduate) degrees (56%) were more likely than Bachelor's graduates (40%) to report working for the same employer and in the same occupation.

2.4 Looking Back

In the survey, all respondents were asked whether or not they would choose the same field of study if they were to do it over again. Among first-degree holders, the response depended to a large extent on program orientation: 32% of liberal arts & sciences and 22% of applied arts & sciences / professional graduates said they would not choose the same field over again.

When asked for the reason for their response, 42% of liberal arts & sciences graduates said that it was because they could not find work in their field and a further 11% said that their degree was too common/was not enough to get employment. In comparison, 19% of applied arts & sciences / professional graduates said that they could not find work in their field, while 5% said their degree was too common/was not enough to get employment. Applied arts & sciences / professional graduates who said that they would not choose the same field were more inclined to say that they had a change of interest (37%) than were liberal arts & sciences graduates (21%).

These statistics have not changed substantially from those recorded in 2001, when 27% of liberal arts & sciences and 16% of applied arts & sciences / professional graduates said that they would not choose the same field over again. These findings suggest that for at least some graduates, outcomes are falling short of expectations.

Responses on whether they would choose the same field of study again did not vary significantly by gender, family educational attainment or province of residence (2004).

2.5 Chapter Summary

Althrough graduates chose programs with very different orientations, the findings are that the expectations (past and current) of graduates in the two groups are not all that different. Even most graduates of programs with no direct links to practical training or professions said that it was important to acquire skills for a particular job, and that any job they get be related to their field of study. The vast majority of both groups also thought that when they enrolled, it was important to have a chance at a good income.

Graduates' expectations for higher incomes have been met, with the average earnings of the Class exceeding that of employees in the general population whose highest level of education is a high school diploma. They have also gained access to better jobs, with 73% of all graduates, and 66% of first-degree holders, employed in positions in 2004 that usually require a university education / management.

If we look more closely, however, we find that both the transition experiences between postsecondary education and the work force and the rate of return (both quantitative and qualitative) for individual graduates are variable, and that they depend on at least a few key factors.

The most influential factor affecting labour force outcomes, and therefore the return on a university educational investment, is program orientation. Program orientation affected the nature of the transition experience over the five-year window covered by the survey; it is also the strongest determinant of earnings, and of the likelihood of having a good quality job (i.e., one that makes use of skills learned in the university program).

For a large number of liberal arts & sciences graduates the transition experience between graduation and the five years following is probably best characterized by initial (within the first two years) challenge in finding the right fit between their skills and a rewarding occupation, but later on (by the five year out mark) in achieving greater success on these fronts. For many liberal arts & sciences graduates, returning to study seemed to be the key to these successes, and thus initial difficulties may exist because they returned to study and were less focussed on finding quality employment.

However, even though liberal arts & sciences graduates made greater gains than applied arts & sciences graduates on most fronts, in many instances these gains were not enough to close the gap with their peers by five years after graduation. Given the strength of these gains (between 2001 and 2004) however, we may find that liberal arts & sciences graduates may catch up with their peers over time. Nevertheless, even if/when the gap does close, there remains the matter of several years of income shortfall.

These differences based on program orientation, particularly that labour market rewards are greater for graduates of applied arts & sciences / professional programs, are not new in the literature. At least one study clearly outlined the differential success of graduates on this basis using National Graduate Survey data.[29] We also drew attention to this in our report on the two-year out survey of the Class of 1999.[30]

In addition to program orientation, gender and region of residence also have an impact, but their greatest influence is on earnings. Parental educational attainment, as we have reported before, has little or no impact on labour force outcomes.[31]

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[29] Lin, Z., Sweet, R., Anisef, P. and Schuetze, H.(2000). Consequences and Policy Implications for University Students Who Have Chosen Liberal or Vocational Education: Labour Market Outcomes and Employability Skills. R-00-2-3E. Applied Research Branch, Strategic Policy, Human Resources Development Canada.

[30] MPHEC. (2001). *Survey of Class of 1999 Maritime University Graduates in 2001*.

[31] Parental educational attainment does have an impact in other areas, such as access to university and debt load - see MPHEC. (2004). *A Lasting Legacy: The Impact of Family Educational Background on Graduate Outcomes.* Fredericton, NB

3. FINANCING EDUCATION - THE 1999 DEGREE AND BEYOND

A substantial proportion of an individual's investment in their education comes in the form of student loans and the cost of borrowing over time (interest). Assessing the debt accumulated in financing a university education must take into account the fact that many graduates pursue more than one degree, and that graduates may borrow from one or more sources. For this reason, this analysis focusses on overall (cumulative) student debt, combining all sources used to finance the 1999 degree as well as any post-1999 education.[32] In order to present the most complete picture of overall debt, the analysis will include only first-degree holders. Graduates other than first-degree holders are excluded because they comprise a group of graduates for whom the 1999 program was not their first in postsecondary education, and for whom we have no information about borrowing for prior degrees/education. In addition, they represent a mixed group with regard to age and work experience.

In order to characterize the overall debt situation, we will consider three aspects:

3.1 Who returns to study and why? And who borrowed to do so?
3.2 What characterizes graduates' overall debt status, and how has it changed over time? and
3.3 How well are graduates managing financially?

3.1 Who returns to study and why? And who borrowed to do so?

Before analysing overall debt status, it is necessary first to describe the trends in pursuing further education post-1999 and associated borrowing.

3.1.1 Returning for further study

Nearly three-quarters (72%) of all first-degree holders returned for further study within five years of completing their 1999 degree (Figure 3.1). Men and women returned to study in equal numbers. Level of parental educational attainment and program orientation of the 1999 degree, on the other hand, had a statistically significant impact.

In an earlier publication entitled *A Lasting Legacy: the impact of family educational background on graduate outcomes,*[33] we showed that a key determinant of returning for further study was having parents who had attained a bachelor's degree or above. In 2004, that trend persisted: 82% of these graduates returned for further study, as compared to 67% of graduates whose parents had attained postsecondary education below a bachelor's degree and to 61% whose parents had attained a high school diploma or less.

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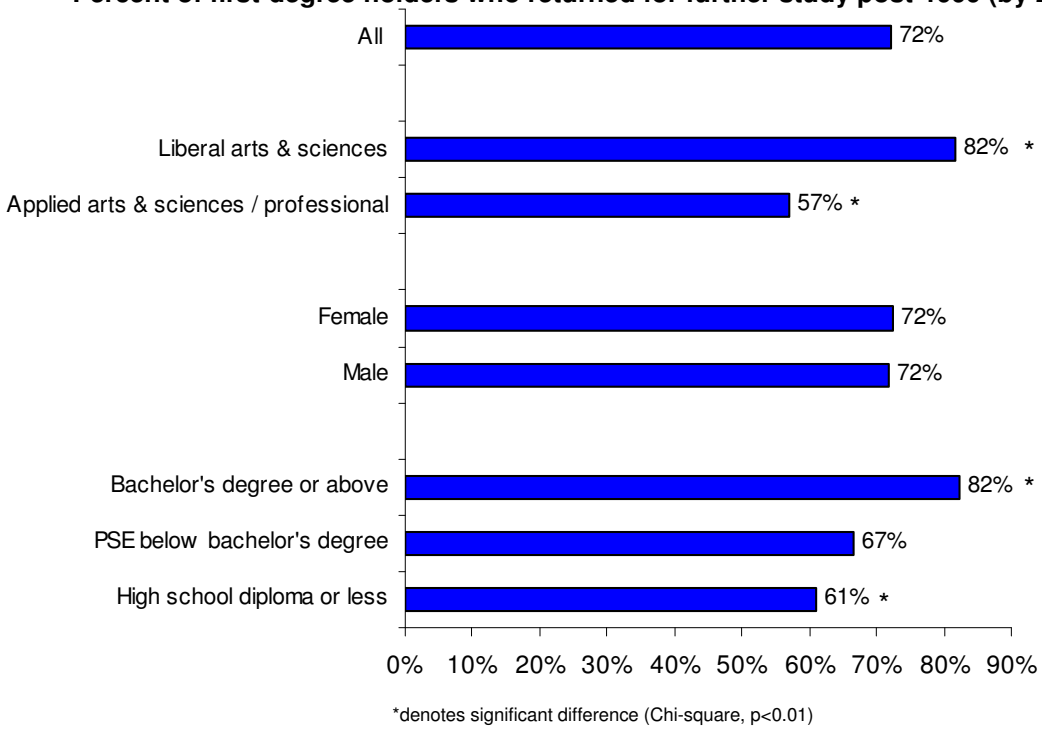
[32] NOTE - Comparisons of overall debt statistics with Class of 1996 in 2000 cannot be done, as questions in that survey asked graduates to report on only one source of debt. Nor can statistics be compared to the National Graduate Survey, because that questionnaire does not distinguish borrowing by time period, and does not distinguish borrowing from financial institutions from family or other sources.

[33] MPHEC.(2004). *A lasting legacy: the impact of family educational background on graduate outcomes*. Fredericton, NB

Figure 3.1
Percent of first-degree holders who returned for further study post-1999 (by 2004)



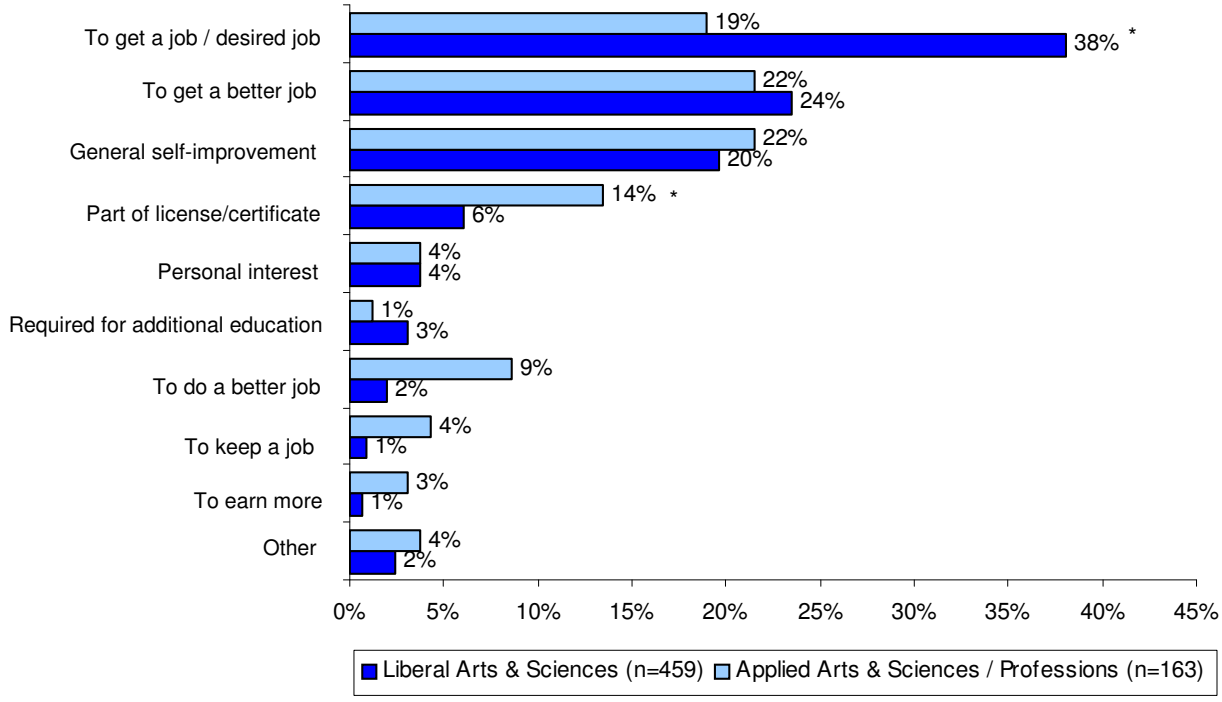
*denotes significant difference (Chi-square, p<0.01)

Program orientation also had a strong influence on returning for further study: within five years after graduation, 82% of liberal arts & sciences graduates had returned, a figure 25 percentage points higher than that of their counterparts who completed programs in applied arts & sciences / professions (57%). Two years after graduation, 68% of liberal arts & sciences graduates and 41% of applied arts & sciences / professional graduates had returned for further study. This gap is consistent with results from other surveys: the National Graduate Survey (Class of 2000 in 2002, first-degree holders who graduated from Maritime universities) showed that 58% of liberal arts & sciences and 36% of applied arts & sciences / professional had returned for further study. Similarly, findings from the Class of 1996 in 2000 (MPHEC survey) revealed that 67% of liberal arts & sciences and 39% of applied arts & sciences / professional had returned for further study.

3.1.2 Reasons for returning for further study

The reasons graduates gave for returning to study varied with program orientation, but not parental educational attainment. The most common reason (38%) reported by liberal arts & sciences graduates was “to get a job/get desired job”. In contrast, just 19% of applied arts & sciences / professional graduates gave this reason (Figure 3.2). While equal proportions reported that they went back to get a better job (24% liberal arts & sciences; 22% applied arts & sciences / professional), or for general self-improvement (20% liberal arts & sciences; 22% applied arts & sciences / professional); greater numbers of applied arts & sciences / professional graduates said that they went back as part of licensing requirements (14% vs. 6% liberal arts & sciences).

Figure 3.2
Main reason given by first-degree holders for returning for further study (between 1999 and 2001)



*denotes significant difference (Chi-square, p<0.01)

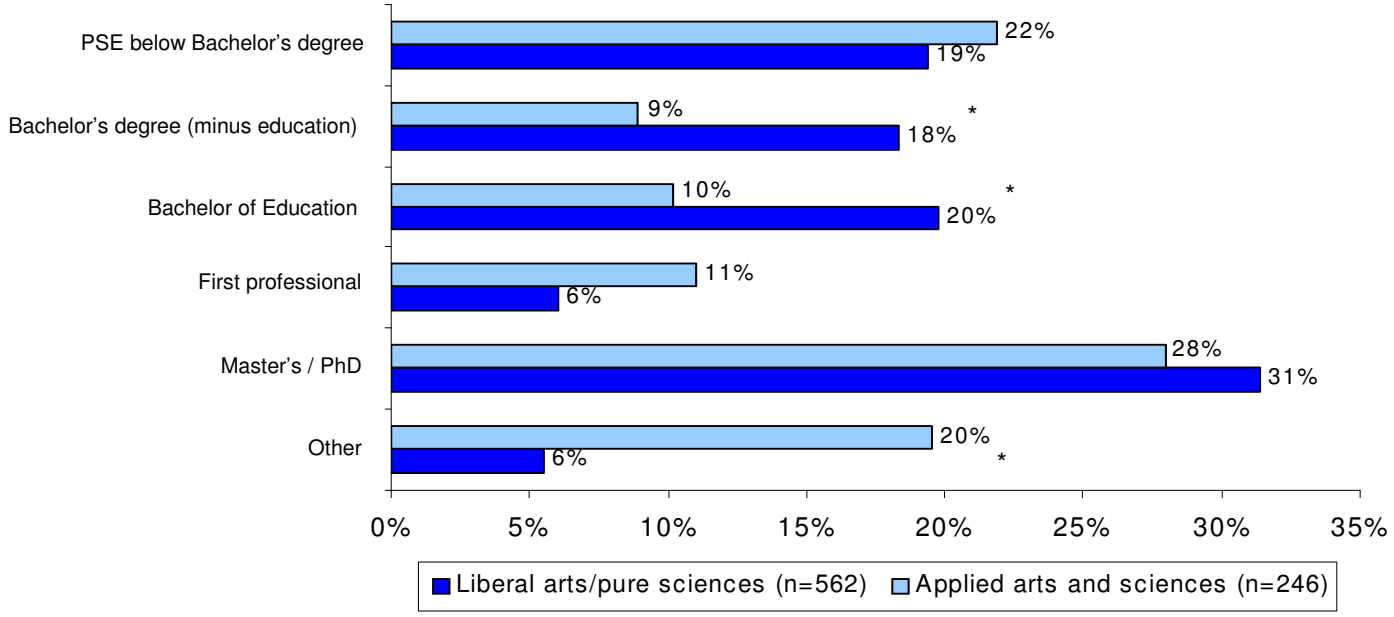
3.1.3 Post-1999 programs of study

Program orientation (1999 degree) also had a statistically significant impact upon the highest level of education attempted/completed in the post-1999 period. (Figure 3.3) The most common type of program attempted/completed by graduates of both groups in the post-1999 period was at the graduate level, chosen by 28% of applied arts & sciences / professional and 31% of liberal arts & sciences graduates. And while similar percentages of applied arts & sciences / professional (22%) and liberal arts & sciences (19%) returned for further postsecondary education below the bachelor's level, there were statistically significant differences between the two groups in the percentage returning for a second bachelor's degree. Among liberal arts & sciences graduates, 20% returned for a Bachelor of Education, and 18% for a bachelor's degree in another field. By comparison, applied arts & sciences / professional graduates chose these programs at rates of 10% and 9%, respectively.

Many more applied arts & sciences / professional graduates (20%) returned to study for "other" credentials (includes licensing, etc) than did liberal arts & sciences graduates (6%). There was no statistically significant difference between the groups in the percentage who returned for a first professional degree.

The highest level of post-1999 education attempted/completed by graduates did not vary significantly by province of university or by level of parental educational attainment. However, it did vary with gender: women (22%) were more likely than men (9%) to have pursued a Bachelor of Education. This is linked to the greater representation of women among liberal arts & sciences graduates.

Figure 3.3
Post-1999 highest level of study attempted/completed by 2004 among first-degree holders

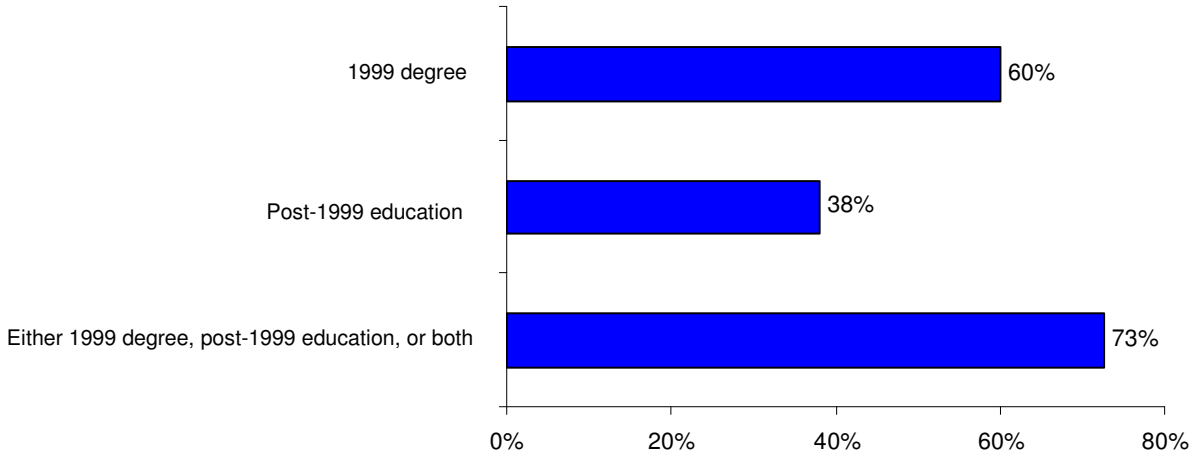


*denotes significant difference (Chi-square, p<0.01)

3.1.4 Who borrowed to finance post-1999 education?

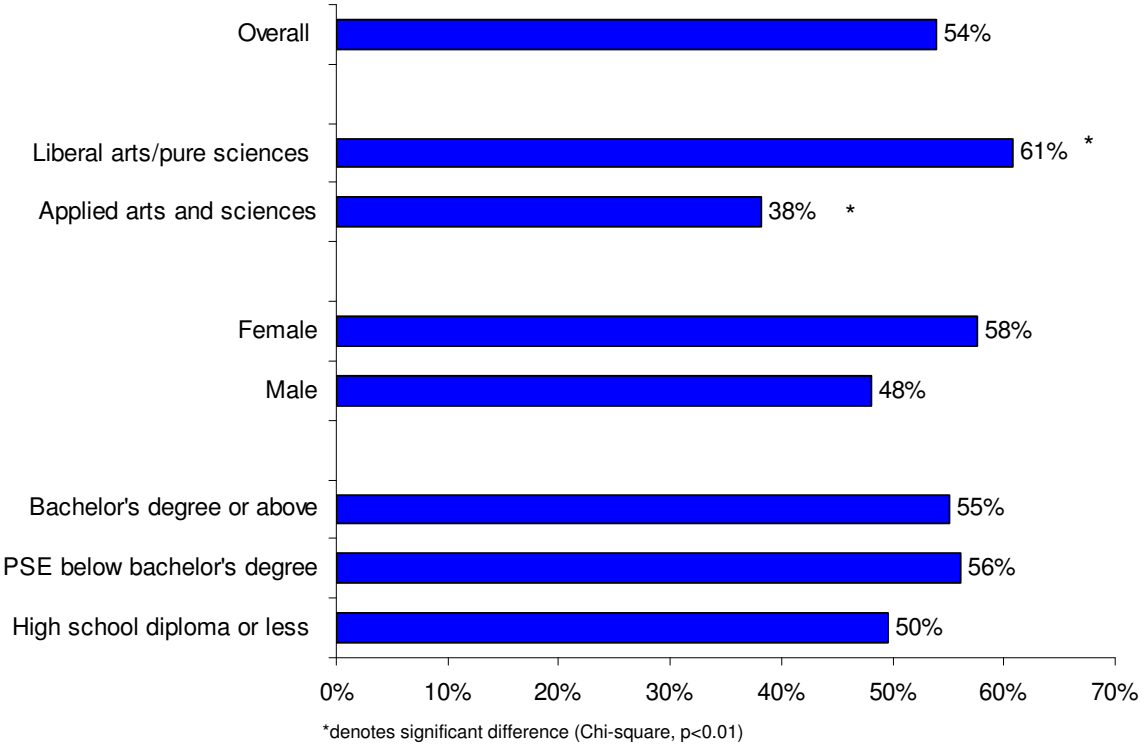
Figure 3.4 presents an overview of borrowing patterns for all first-degree holders. By five years after graduation, nearly three-quarters (73%) of first-degree holders had borrowed money to finance their 1999 degree, post-1999 education, or both; this is 13 percentage points higher than the percentage who borrowed for their 1999 degree.

Figure 3.4
Percent of first-degree holders who borrowed for... (by 2004)



We turn next to the trends in financing post-1999 education of the first-degree holders who had returned to pursue further study, 54% reported that they borrowed money to do so. While the likelihood of borrowing for post-1999 study did not vary significantly by gender, level of parental educational attainment or province of university, it did vary significantly with program orientation (Figure 3.5).

Figure 3.5
Percent of first-degree holders who borrowed to finance post-1999 education, among those who returned for further study



*denotes significant difference (Chi-square, p<0.01)

Graduates of liberal arts & sciences programs (61%) were significantly more likely to borrow to finance post-1999 studies than their applied arts & sciences / professional counterparts (38%). At least one factor that helps to explain the difference is the percentage who reported studying full time during their post-1999 educational program. Liberal arts & sciences graduates were more likely to study on a full-time basis (92% for programs between 1999-2001; 69% for programs between 2001-2004) than were applied arts & sciences / professional graduates (64% for programs between 1999-2001; 39% for programs between 2001-2004). It is possible that these full-time programs were more costly. If we recall that applied arts & sciences / professional graduates were more likely to have taken programs in the post-1999 period that were classified as “other”, and often work/license related, it is also possible that their costs were more likely to be covered by an employer.

It should also be noted here that the choice to borrow is also influenced by socioeconomic factors, for example, the balance between debt tolerance and debt aversion.

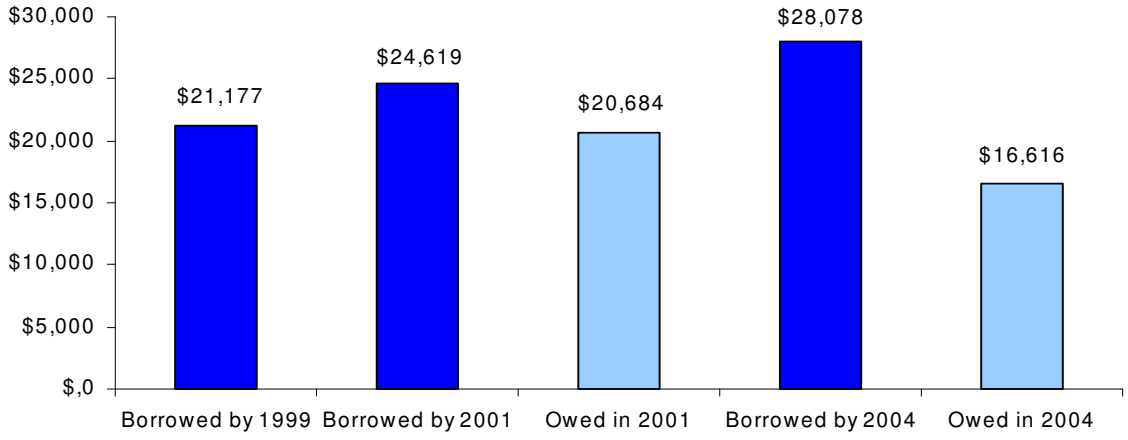
3.2 What characterizes graduates' overall debt status in 2004, and how has it changed over time?

3.2.1 Overall Debt Status

Figure 3.6 provides a snapshot of overall debt status (all loan sources combined) of first-degree holders, including total accumulated debt and amounts left outstanding, at three points in time, 1999, 2001 and 2004. Among first-degree holders, the average amount of student debt accumulated by all borrowers had reached $28,078 by 2004; of this amount, an average of $11,462 had been repaid, leaving a balance of $16,616. Calculated on a case-by-case basis, the average amount repaid was $11,783, or a 53% reduction in overall debt.

By 2004, the average amount of debt accumulated by all borrowers had reached $25,832; of this amount, an average of $11,216 had been repaid, leaving a balance of $14,616 - *Five Years After University Graduation: Status of the Maritime Class of 1999 in 2004 Survey Highlights.* MPHEC November 2005..

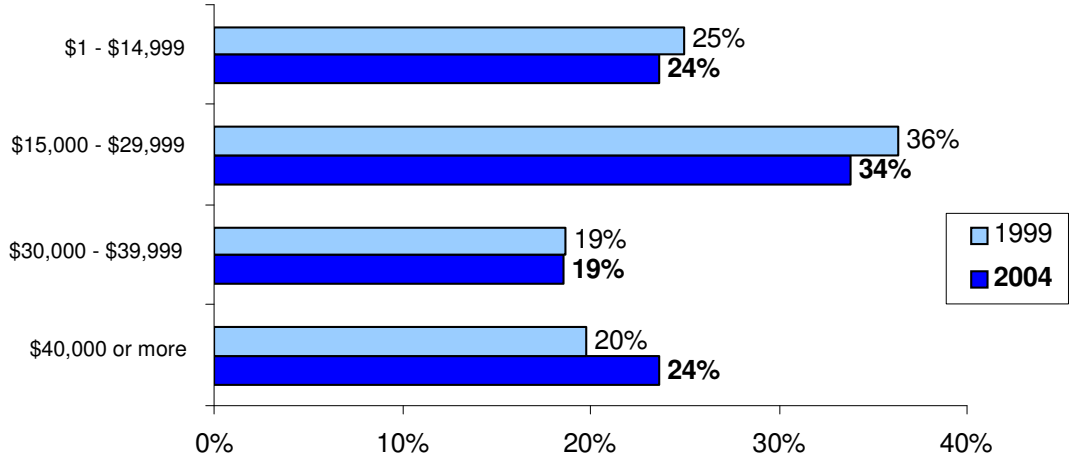
Figure 3.6
Student loan (all sources combined) status among first-degree holders who had borrowed to finance their 1999 degree, post-1999 education, or both



Note: Total debt for 1999 includes only those who borrowed for that period.

These figures represent the average borrower, however, within this group are graduates who accumulated loans of $40,000 or more. And, since 1999, high rates of returning to study have placed more graduates in this range. Upon graduation in 1999, 20% had borrowed $40,000 or more; by 2004 this group had grown by 4 percentage points to 24% of all first-degree holders (Figure 3.7).

Figure 3.7
Range of total borrowed, all sources, to finance education among first-degree holders who borrowed for the 1999 degree, post-1999 education, or both



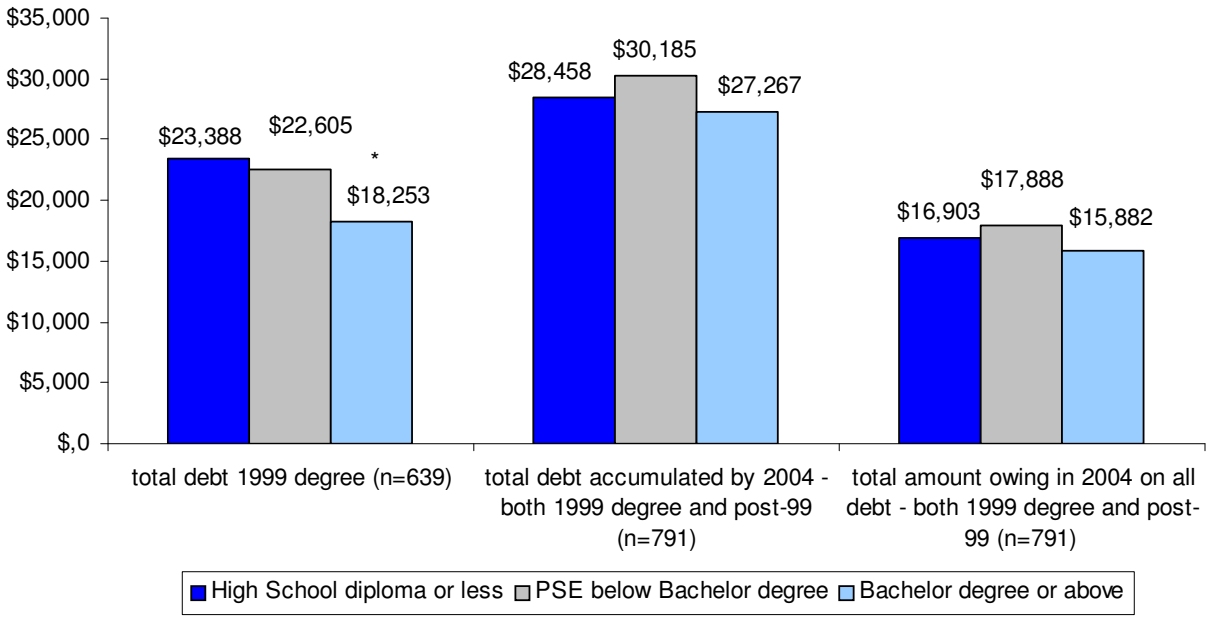
A graduate's overall debt status did not vary significantly by gender or by the province where they obtained their 1999 degree. However, debt status did vary by parental educational attainment and program orientation.

In the "Lasting Legacy"[34] article we explored in some detail the relationship between parental educational attainment and student debt. The key finding was that graduates of lower socioeconomic status (for which family educational background is a proxy) were more likely to borrow, and borrow more, to finance their 1999 degree than were their counterparts from more highly educated families. We also noted in that paper that government student loan programs are set up to enable access to higher education for those who would otherwise not be able to afford it. Our current findings suggest that these programs are achieving their purpose.

In Figure 3.8, overall debt status is presented at three points in time, namely, at graduation, total loans accumulated by 2004, and total amount outstanding on all loans by 2004; the statistics are presented by parental educational attainment among first-degree holders. The findings show that the initial statistically significant difference recorded at graduation by level of parental educational attainment is not present in the amount outstanding five years after graduation. It would appear that the greater rate of graduates returning to study among those from the most highly educated family backgrounds, and the additional debt accumulated, results in an average mean overall debt status (both total amount accumulated and outstanding in 2004) that does not differ significantly among the three groups. In addition, it should be noted that in the post-1999 period, graduates would now be considered independent according to student loan eligibility rules, and thus the role of family income on borrowing would be reduced.

[34] MPHEC.(2004). *A lasting legacy: the impact of family educational background on graduate outcomes.* Fredericton, NB.

Figure 3.8
Overall debt status at graduation and in 2004 by parental educational attainment, among first-degree holders who borrowed for the 1999 degree, post-1999 education or both



Note: Total debt for 1999 degree includes only those who borrowed for that period
*denotes significant difference (ANOVA, p<0.01)

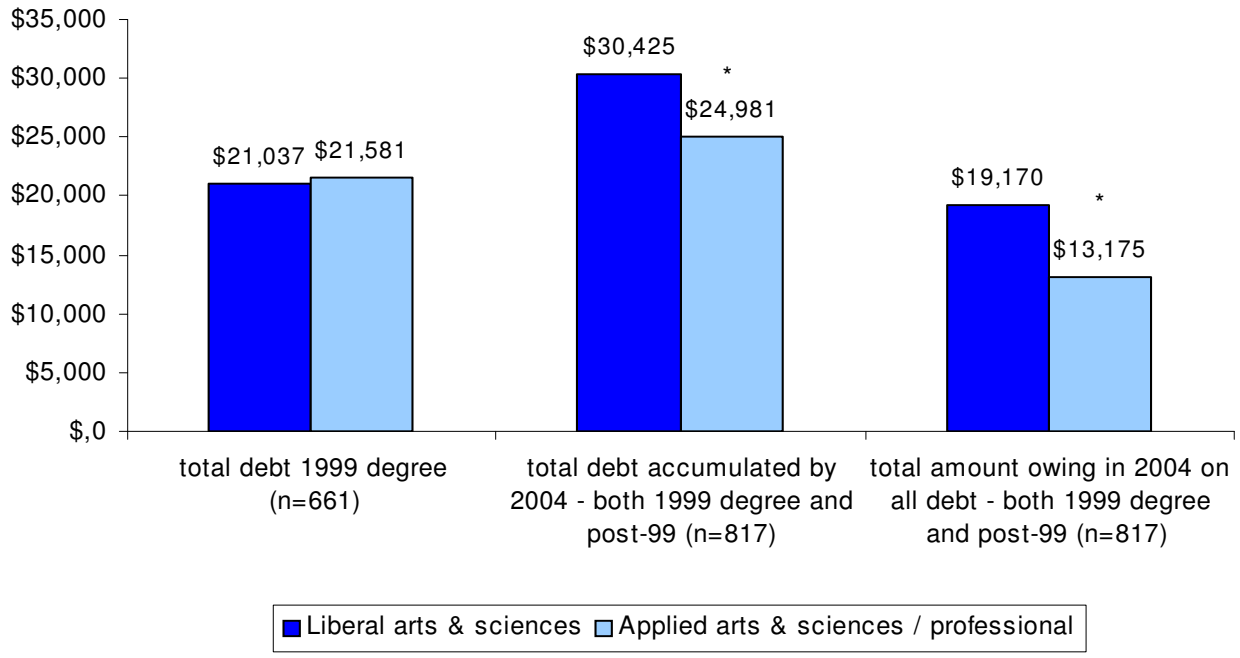
By contrast, graduates of liberal arts & sciences started on an equal-footing, in terms of the level of student debt accumulated, with their counterparts who graduated from applied arts & sciences / professional programs. By five years after graduation, however, they had accumulated more debt, and owed significantly more (Figure 3.9). Specifically, by 2004, liberal arts & sciences graduates had accumulated an average of $30,425, or 22% more than their applied arts & sciences / professional counterparts ($24,981). Of the total amount borrowed, liberal arts & sciences graduates owed on average $19,170, while applied arts & sciences / professional graduates owed $13,175. When borrowing was caldulated on a case-by-case basis, liberal arts & sciences graduates had reduced their loans by 49%, while applied arts & sciences / professional graduates had repaid 59%. These differences are a direct result of relatively more liberal arts & sciences graduates pursuing further education, and among those who did go back, of a greater likelihood of their borrowing to do so. Earnings differences also have an impact on a graduate's capacity to repay, and the amount repaid.

To characterize the differences in debt status further, we find that the percentage of liberal arts & sciences graduates (28%) who owed $40,000 or more in 2004 was 10 percentage points more than applied arts & sciences / professional graduates (18%).

Among the major field of study groups, graduates of Agricultural & Biological Sciences programs were the most likely (37%) to owe $30,000 or more; graduates of the remaining fields of study did not differ significantly from the first-degree holder average on this statistic.

Thus, in terms of investments, liberal arts and sciences graduates had, on average, invested more time and money in university education than those who graduated from applied arts & sciences programs in 1999.

Figure 3.9
Overall debt status at graduation and in 2004 by program orientation, among first-degree holders who borrowed for the 1999 degree, post-1999 education or both



Note: Total debt for 1999 degree includes only those who borrowed for that period
*denotes significant difference (ANOVA, p<0.01)

3.2.2 Shift in Loan Source

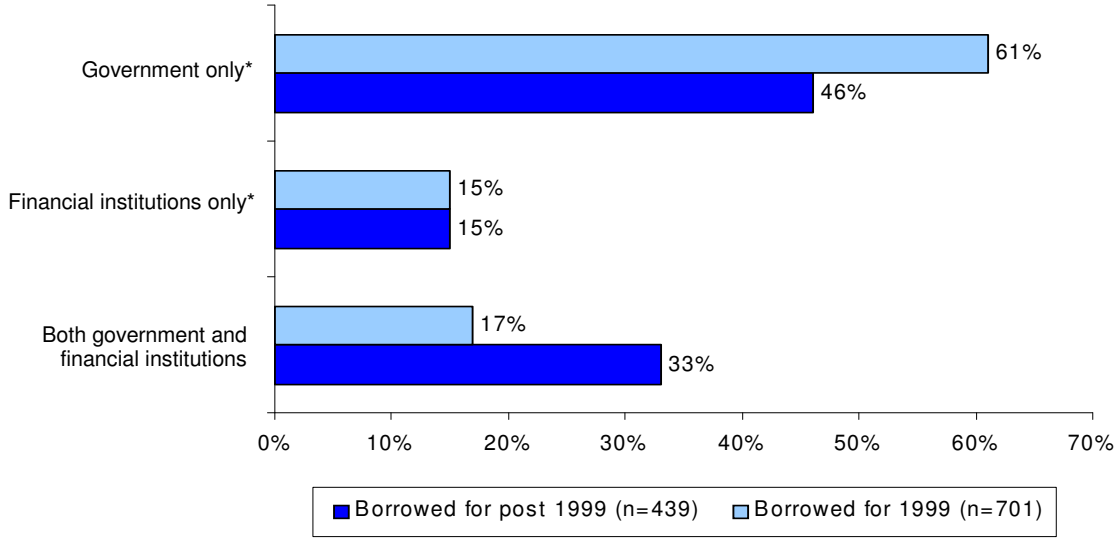
Compared to the distribution of loan sources among first-degree holders who borrowed to finance their 1999 degree, post-1999 borrowing saw a decline of 15 percentage points (from 61% to 46%) in the use of government loans as the sole loan source,[35] and a rise (up 16 percentage points) in the proportion who reported borrowing from both government student aid programs and directly from financial institutions (from 17% to 33%) (Figure 3.10).

The fact that the proportion who borrowed from financial institutions alone remained unchanged, this invites the question of whether graduates have had to top up their government loans with loans from financial institutions.

The shift to greater usage of loans from financial institutions was uniform across gender, province of residence, and parental educational attainment categories. However, graduates of liberal arts & sciences programs were more likely than applied arts & sciences / professional graduates to have borrowed from both government and financial institutions.

[35] Note: family and other sources of borrowing were excluded from the analysis.

Figure 3.10
Use of loans from government student aid programs and financial institutions/banks by first-degree holders, 1999 degree and post-1999 education



*borrowing from family and other sources not considered

3.3 How well are graduates managing financially?

As we have shown above, most graduates have borrowed money at one point or another to finance education costs. Whether the borrowing is for the 1999 degree, post-1999 education, or both, this amounts to 73% of all first-degree holders. And, as we have seen, although average borrowing surpassed $28,000, with large numbers borrowing in the range of $30,000 or more, reductions in the total amount owing were nevertheless significant.

In this section we investigate how graduates are managing in the financial sense. We focus our analysis on first-degree holders who were actively repaying their loans at the time of the 2004 survey. Here we use the debt-to-earnings ratio, which is calculated by dividing the sum of monthly loan payments (for all loans in all borrowing periods covered by the surveys) by monthly employment income.

When one interprets debt-to-earnings ratio statistics, it is important to keep in mind that the following groups of graduates cannot by definition be included in the analysis: those who are not working (with no earnings, the ratio is undefined) and those who have not yet begun to repay their loans. Also excluded are those who reported their loan payment included payments for other debts (such as personal and car loans). In addition, the reader should note that information on debts other than student loans is not collected in the surveys, therefore the total personal debt status is not known.

Table 3.1 presents the debt-to-earnings ratio among first-degree holders. The average debt-to-earnings ratio overall in 2004 was 0.12, or, on average, 12% of graduates' monthly earnings went toward paying student debt. This statistic varied only slightly in the three years between surveys, and did not vary significantly by gender, or parental educational attainment. It did, however, vary significantly by program orientation and region of residence (i.e., Maritimes vs rest of Canada) in 2004.

Table 3.1
Debt-to-earning ratio for all debt accumulated 1999 degree,
(post-1999 education or both) to finance education, among employed first-degree holders

	Average debt-to-earnings ratio 2001 (%)	Average debt-to-earnings ratio 2004 (%)
Overall	13	12
Program orientation		
Applied arts and sciences	**11**	**10**
Liberal arts/pure sciences	**15**	**14**
Gender		
Male	12	13
Female	13	12
Parental Educational Attainment		
High school diploma or less	12	11
PSE below bachelor's degree	13	13
Bachelor's degree or above	14	12
Region of residence		
Prince Edward Island	**	**
Nova Scotia	15	13
New Brunswick	12	13
Outside Maritimes	12	**11**

** cell size to small for reliable analysis; bold print = statistically significant difference between groups (ANOVA, p<0.01)

While 10% of applied arts & sciences / professional graduates' earnings went towards student debt payments, liberal arts & sciences graduates spent on average 14% each month. This four percentage point difference was a result of differences both in loan payments and earnings. For each group, average debt dropped approximately one percentage point since 2001.

Findings show a somewhat smaller but still statistically significant gap in the debt-to-earnings ratio based on residence in 2004. Graduates living in the Maritimes spent 13% of their earnings on student debt payments, while graduates living beyond its borders spent on average 11%. Again, both the size of the loan payment and earnings accounted for the difference.

Student debt payments exceeding 8% of income are considered to be unmanageable[36] or at least to cause difficulty.[37] In this survey, graduates were asked, for each type of loan or money borrowed (government, financial, family members and other sources), and in each time period, whether or not they had experienced difficulty in making payments. To determine the level of difficulty in making payments experienced by graduates in different ranges of debt-to-earnings ratios, we used the question from the section on government loans for the 1999 degree to serve as the best proxy since it was the most common loan among borrowers.

Our findings support the 8% threshold debt-to-earnings ratio: while 14% of graduates who had a debt burden of up to 7.9% of their income had said that they experienced difficulty in making payments on their government loan, 35% of graduates with a debt-to-earnings ratio between 8% and 14.9 % said they experienced difficulty. Graduates with higher debt-to-earnings ratios did not vary significantly from this figure. In 2004, the average debt-to-earnings ratio of first-degree holders from the Class of 1999 exceeded the threshold by four percentage points; the average debt-to-earnings ratio of liberal arts & sciences graduates exceeded this percentage by 6 points.

Its exact meaning to individual graduates is not certain, but obviously for those with relatively lower earnings meeting loan payments is made all the more difficult. For some graduates, it may mean forgoing and/or delaying large purchases. With regard to home ownership, the findings indicated no statistically significant correlations between the magnitude of the debt burden and the likelihood of owning a home among first-degree holders. As we will see in the following section, however, whether one has debt or not does matter.

3.4 Who is Debt Free?

We have explored statistics on borrowing, overall debt status and the debt-to-earnings ratio; to complete the financial picture of Maritime university graduates, we now turn to those who either borrowed nothing at all, or who by 2004 had entirely repaid all education-related debt accumulated to finance the 1999 degree and/or any subsequent education.

An analysis of those graduates who had yet to borrow by 2004 (27%) revealed no statistically significant differences in distribution by gender, province of university, program orientation or level of parental educational attainment.

When we add in those who had repaid all their education-related debts, half of first-degree holders were free of education-related debt by 2004. Looking at the distribution of graduates by key factors among all those who were debt free, findings showed that this statistic did not vary significantly with program orientation, gender, province of university or province of residence in 2001 or 2004. It did vary, however, with major field of study, with graduates of Agricultural & Biological Sciences (39%) significantly less likely than average to be free of student debt by 2004. No other fields of study diverged significantly from the average.

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[36] King, T. and Bannon, E. (2002). *The Burden of Borrowing: A Report on the Rising Rates of Student Debt.* The State Public Interest Research Groups' Higher Education Project.

[37] Baum, S. and O'Malley, M. (2003). *College on Credit: How Borrowers Perceive their Education Debt. Results of the 2002 National Student Loan Survey*. Nellie Mae Corporation.

Although it was noted earlier that there was no statistically significant correlation between the size of a graduate's debt-to-earnings ratio and the likelihood of owning a house, whether or not a first-degree holder has any student debt or not is a statistically significant determinant. Half (50%) of first-degree holders who were free of student debt by 2004 reported that they owned their home, significantly more than those who still carried some amount of student debt (either from the 1999 degree and/or subsequent education), of which 38% reported that they owned their home in 2004. Whether or not a first-degree holder carried student debt in 2004 was not, however, correlated with being married/common law, or having children.

3.5 Chapter Summary

These findings present the true cost of attaining a university/postsecondary education, a cost that, for most, does not stop with one degree. Nearly three-quarters (72%) of graduates ended up returning for further study within five years of completing their first-degree. When we take into account financing for all education and all sources of borrowing, 73% of all first-degree holders reported that they borrowed money, and of these, 24% borrowed in the range of $40,000 or more. In comparison, 60% reported borrowing money to finance their 1999 degree.

Because graduates of liberal arts & sciences were more likely to have returned for further study, they were also more likely than their counterparts to have accumulated larger overall debt. Larger overall debt and smaller salaries combined to place a greater debt burden on liberal arts & sciences graduates, who set aside 14% of monthly income to cover student debt payments, as compared to the 10% paid by applied arts & sciences / professional graduates. Both groups exceeded the "threshold" debt-to-earnings ratio of 8%. Taken together, the findings indicate that liberal arts & sciences graduates end up "investing more" time and money than their counterparts.

Other results indicated that in addition to greater debts, there is evidence that there is increased use of loans from banks and other financial institutions in the post-1999 period, which suggests that many graduates are having to "top up" their government loans.

4. MOBILITY

Just as return on investment in a university education is an important consideration for individuals, it is also an important consideration for Maritime provincial governments who have invested public funds in universities. One of the most obvious measures of return, from government's perspective, is whether or not a sufficient proportion of the highly skilled people graduating from their institutions year after year remain, or if they do not, whether their numbers are at least being replenished by equally qualified graduates who originally came from outside the region but remained after graduation.

The retention of graduates is an explicit concern in the Maritime provinces. New Brunswick launched a program called JOB Start Strategy launched in February 2003, a $10 M strategy designed to address postsecondary recruitment, retention and repatriation issues in New Brunswick.[38] The Nova Scotia government introduced a Career Starts program in its public service that specifically targets new postsecondary graduates[39]; in addition, it provides an employment bonus award under its debt reduction program whereby demonstrating 50 weeks of employment in Nova Scotia earns an additional 25% of the amount of debt reduction received at graduation.[40] Prince Edward Island has in place a Nursing Recruitment and Retention Strategy that provides financial assistance for students in return for their commitment to stay and work in the province upon graduation.[41]

Exploring the patterns of migration in and out of the region based on residence 12 months prior to enrolling helps to shed light on the relative ability of the region to retain its highly skilled graduates.

Because the survey focusses on Maritime universities, the proportion of Maritimers who study outside the region and their fate following graduation is unknown; to bridge this information gap, the National Graduate Survey[42] is used to estimate the size of this segment.

This section also characterizes those who moved, and the reasons for doing so.

4.1 Regional Mobility Pattern

The education industry in the Maritimes is highly successful at attracting students from other jurisdictions: 19% of Class of 1999 graduates lived outside the Maritimes prior to enrolling. Although the majority leave following graduation, 26% of those originally from outside the region remained five years after graduation; 71% of these graduates studied in Nova Scotia.

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[38] http://www.gnb.ca/cnb/news/ted/2005e1225te.htm

[39] http://www.gov.ns.ca/psc/default.asp?mn=1.164.188.189

[40] http://www.studentloans.ednet.ns.ca/student_debt_reduction.shtml

[41] http://www.gov.pe.ca/news/getrelease.php3?number=1588

[42] Statistics Canada

The remaining 81% of graduates were originally (12 months prior to enrolling) from the region, and by five years after graduation, nearly three-quarters (74%) of them remained in the Maritimes.

The influx and retention of graduates from outside the region does not equal the number of graduates who are from this region and who leave. In the *Survey of Class of 1999 Maritime University Graduates in 2001* report, we noted that there was a potential for continuing net loss of graduates from the region. This was based on trends recorded for the Class of 1996, and on the fact that, two years after graduating, 42% of respondents expressed a willingness to move to another part of Canada if they were "offered a better job." And in fact, findings showed that some of these graduates did move between 2001 and 2004: when we combine the migration patterns of the two groups of graduates (based on region of origin), the net retention was 81%,[43] a decline of 6 percentage points since 2001.[44]

What is behind the change in net retention? A detailed analysis shows that in relation to the Class of 1996 in 2000, while 8% more graduates originally from outside the region stayed, 20% more Maritimers left.

A comparison to other surveys shows that the net migration of Maritime university graduates to other regions has been growing, and continues to do so. In 2000, the region had posted a net retention of 86% of Class of 1996 Maritime university graduates. This net retention rate was recorded four years following graduation, not five as with the Class of 1999; however, the two year out net retention for the Class of 1999 was 87%, just one percentage point short of the *four-year-out* figure for the Class of 1996. Data from the National Graduate Survey (Class of 2000 in 2002) enable the calculation of a complete net migration figure, that is, one that takes into account the migration patterns of Maritimers who completed their 2000 degree outside the region. Findings from that survey recorded a net retention of 82% just two years after graduation. Thus, although this figure cannot be directly compared to that calculated for the Class of 1999, it is complete, and suggests that outmigration has indeed continued to rise.

How net migration will change over the coming years is uncertain, but current levels of loss are unlikely to change. The reason for this is that demographic trends show that the typical university-aged population (18-24) is declining in this region.[45] With university participation rates of Maritimers already the highest in Canada,[46] enrolment shortfalls will probably be met mostly by attracting students from beyond the region. And, as survey data routinely show, the majority of graduates from outside the region do not stay.

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[43] Net retention was calculated as follows: (116 from outside the region living in the Maritimes + 1385 original maritime residents living in the region) / 1,868 original maritime residents

[44] Of those graduates originally from the region and who were living outside the Maritimes in 2001 (n=383), 20% had returned to the region by 2004.

[45] MPHEC. (2003). Profile of Maritime University Students: Enrolment, Participation, and Degree Completion. *Trends in Higher Education 2*(1).

[46] *Ibid.*

How should governments wishing to recoup their investments and retain adequate numbers of graduates approach this issue? Any strategies reviewed or developed would probably be more successful if the migration patterns unique to each province, and to particular groups of graduates, as shown in the findings, are taken into account.

4.2 Provincial Mobility Patterns

At first glance (Table 4.1), it would appear there is little difference between the three provinces in their retention of graduates at the two- and five-year out mark. In 2004, NB retained 58%, NS 57%, and PEI 60% (all within margin of error for sample size) of their graduates. However, graduate origin (province of residence 12 months prior to enrollment) plays a crucial role in mobility patterns. A closer look at the statistics shows that, within the larger trend of net loss, the migration pattern of each province is unique (Table 4.2).

Table 4.1
Distribution of graduates by province of graduation (all graduates)

	Province of graduation		
	PEI n=99	NS n=1,411	NB n=796
Province of residence 2001			
PEI	63%	2%	1%
NS	8%	62%	10%
NB	7%	5%	62%
Outside Maritimes	22%	32%	27%
Province of residence 2004			
PEI	60%	1%	1%
NS	7%	57%	7%
NB	7%	5%	58%
Outside Maritimes	25%	37%	33%

Table 4.2
Distribution of graduates by province of residence one year prior to enrolling

	Province of residence one year prior to enrolling (all graduates)				
	PEI n=113	NS n=1,071	NB n=684	Outside Maritimes n=439	Overall distribution n=2,306
Province of graduation					
PEI	66%	1%	1%	3%	4%
NS	19%	92%	14%	71%	61%
NB	15%	7%	86%	27%	35%
Province of residence 2001					
PEI	65%	1%	1%	1%	4%
NS	14%	76%	6%	21%	42%
NB	3%	3%	73%	8%	25%
Outside Maritimes	18%	21%	20%	69%	30%
Province of residence 2004					
PEI	62%	1%	1%	1%	4%
NS	13%	70%	5%	18%	38%
NB	5%	3%	68%	8%	23%
Outside Maritimes	21%	26%	26%	74%	35%

Table 4.3 presents migration patterns among first-degree holders.

4.2.1 Nova Scotia

22% of Nova Scotia university graduates were originally from outside the region. The majority of this group comes from Ontario. The proportion of students who graduated from their home province was greatest for Nova Scotia, at 92% (Table 4.2). This is probably related to the fact that the province has 11 universities/degree granting institutions within its borders.

Two years after graduation, Nova Scotia retained just over three-quarters (76%) of its resident graduates, and while a very small proportion moved elsewhere in the region, 21% left the region altogether. By 2004, 70% of Nova Scotians remained in their home province, and the proportion who moved outside the region climbed to 26%. Five years after graduation also saw 18% of graduates who originally came from outside the region still living in Nova Scotia.

In comparison, findings from the survey of Class of 1996 graduates showed that NS retained 76% of its residents by four years after graduation.

Table 4.3
Distribution of first-degree holders by province of residence one year prior to enrolling

	Province of residence one year prior to enrolling (first-degree holders)				
	PEI n=70	NS n=542	NB n=387	Outside Maritimes n=186	Overall distribution n=1,185
Province of graduation					
PEI	67%	0%	1%	2%	5%
NS	14%	90%	10%	63%	55%
NB	18%	10%	88%	35%	40%
Province of residence 2001					
PEI	60%	1%	1%	1%	4%
NS	15%	72%	7%	18%	39%
NB	4%	3%	70%	7%	26%
Outside Maritimes	22%	24%	22%	74%	31%
Province of residence 2004					
PEI	54%	0%	1%	1%	4%
NS	12%	64%	5%	15%	34%
NB	6%	4%	63%	7%	24%
Outside Maritimes	28%	32%	31%	77%	38%

When we count together graduates moving in and out of the province and their origins, by 2004, Nova Scotia had a net retention of 82%.

4.2.2 New Brunswick

New Brunswick attracted the second greatest proportion of students from outside the region. 15% of New Brunswick graduates were originally from outside the Maritimes.

86% of New Brunswick graduates lived in that province prior to enrolling in their 1999 degree (Table 4.2).

After graduation, New Brunswick retained its graduates at about the same rate as Nova Scotia: two years after graduation, 73% of those originally from New Brunswick still remained. By 2004, this figure had decreased by five percentage points to 68%.

In 2004, 8% of graduates originally from outside the region lived in New Brunswick.

Among New Brunswickers, francophones (82%) were significantly more likely than Anglophones (63%) to be still living in New Brunswick in 2004.

Findings from the survey of Class of 1996 graduates showed that New Brunswick retained 77% of its residents by four years after graduation.

When we count together graduates moving in and out of the province and their origins, by 2004, New Brunswick had a net retention of 79%.

4.2.3 Prince Edward Island

Two thirds (66%) of graduates originally from Prince Edward Island studied in their home province, the smallest percentage among the three provinces (Table 4.2).

By 2001, the number of Islanders living in their home province had dropped just one percentage point to 65%. Five years after graduation, 62% remained, the smallest (by 6 percentage points) retention rate in the home province among the three provinces. The retention of residents for university education within the province, however, had increased 10 percentage points over the statistic measured for the Class of 1996 (possibly due in part to the introduction of new programs such as Nursing).

Compared to post-graduation migration patterns observed in the Class of 1996 at one and four years after graduation, PEI changed the least. Findings from the survey of Class of 1996 graduates showed that PEI retained 61% of its residents by four years after graduation.

When we count together graduates moving in and out of the province and their origins, by 2004, Prince Edward Island had a net retention of 76%.

For all provinces, patterns of migration among first-degree holders are similar (Table 4.3), with the exception that five-year-out losses are somewhat larger.

4.3 Who is most likely to leave, and why?

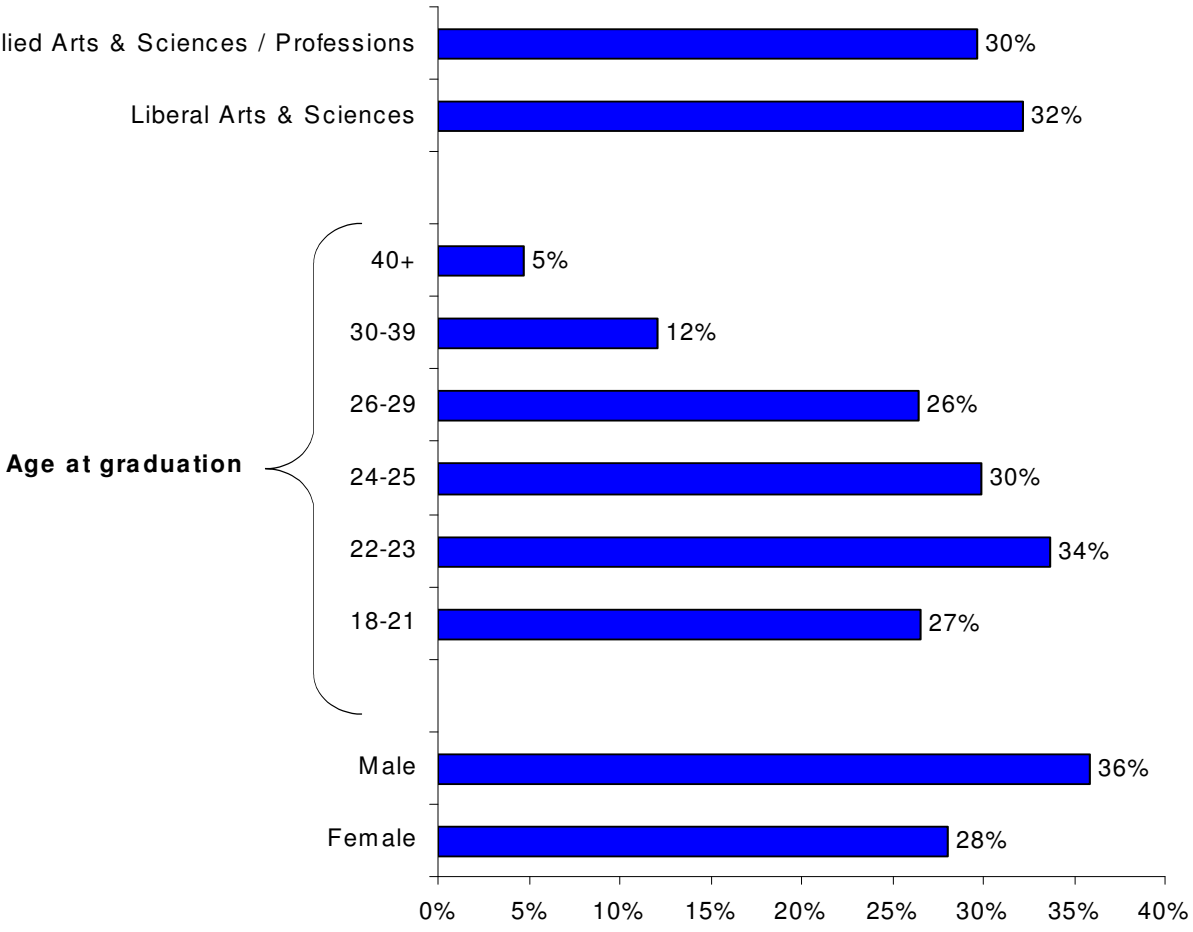
In this section, the analysis focusses on graduates who were living in the Maritimes 12 months prior to enrolling in the 1999 degree.

Survey results show that certain groups of graduates are more likely to leave the region than others (Figure 4.1a). Differences in migration patterns depend on gender, age, and field of study, and the profile of leavers has not changed substantially over time (i.e., Class of 1996 compared to Class of 1999). In addition, the reasons given for moving vary.

Gender

In 2001, we recorded a statistically significant difference in graduate mobility based on gender, and this effect persisted into 2004. Among first-degree holders originally from the Maritimes, 20% of women, and 29% of men, left the region within two years after graduation, a difference of 8 percentage points. By 2004, 28% of women and 36% of men had left.

Figure 4.1a
Percent living outside the region in 2004, among first-degree holders originally from the Maritimes (12 months prior to enrolling in the 1999 degree)



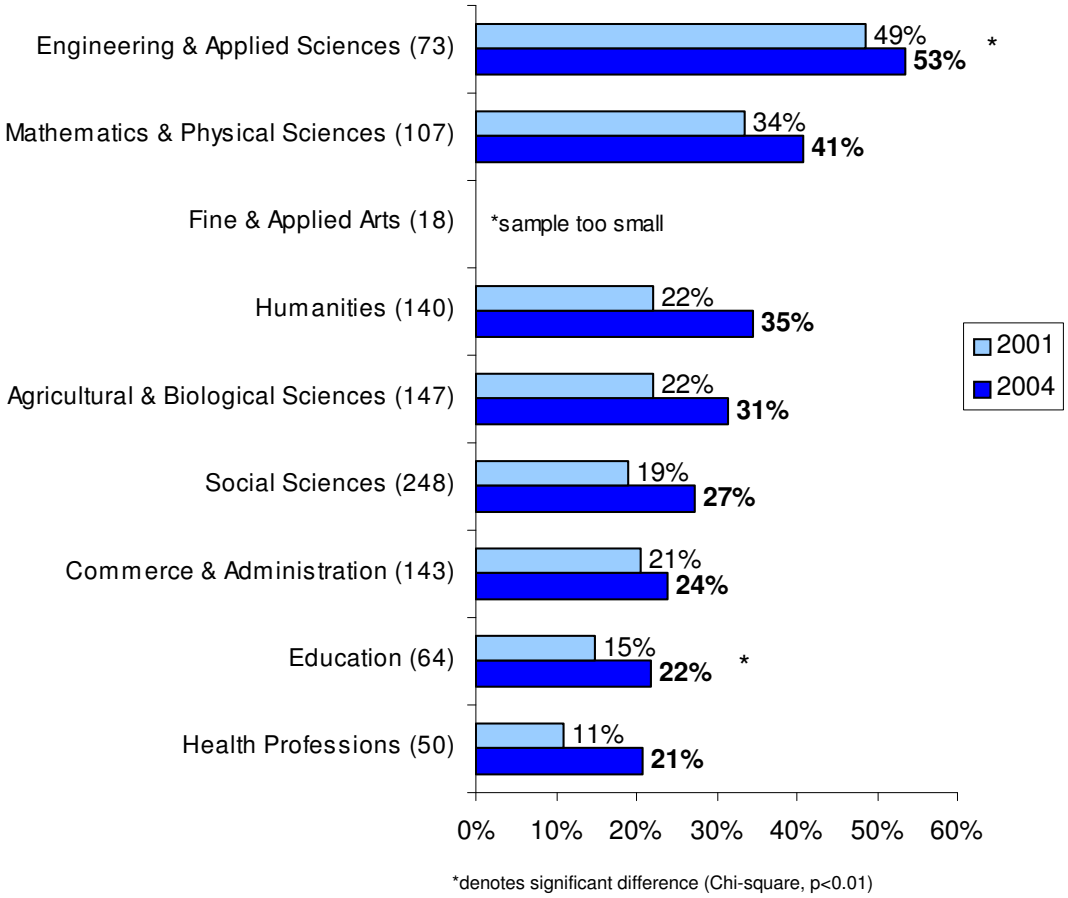
Age

Younger graduates leave in greater numbers than older graduates. The mean age of those who left was 24 years; among those who stayed, it was 28 years.

Field of Study

Of the nine field of study groupings, only Engineering & Applied Sciences and Education graduates (first-degree holders) differed significantly from the group average (Figure 4.1b). Among Engineering graduates, 49% had left the region by 2001, and by five years after graduation, this figure had climbed four percentage points to 53%. At the other end of the scale, graduates of Education programs were among the least likely to leave: 15% had moved by 2001, and 22% by 2004. This general pattern holds true among the Class as a whole.

Figure 4.1b
Percent of original Maritime residents (first-degree holders only) who left the region by field of study



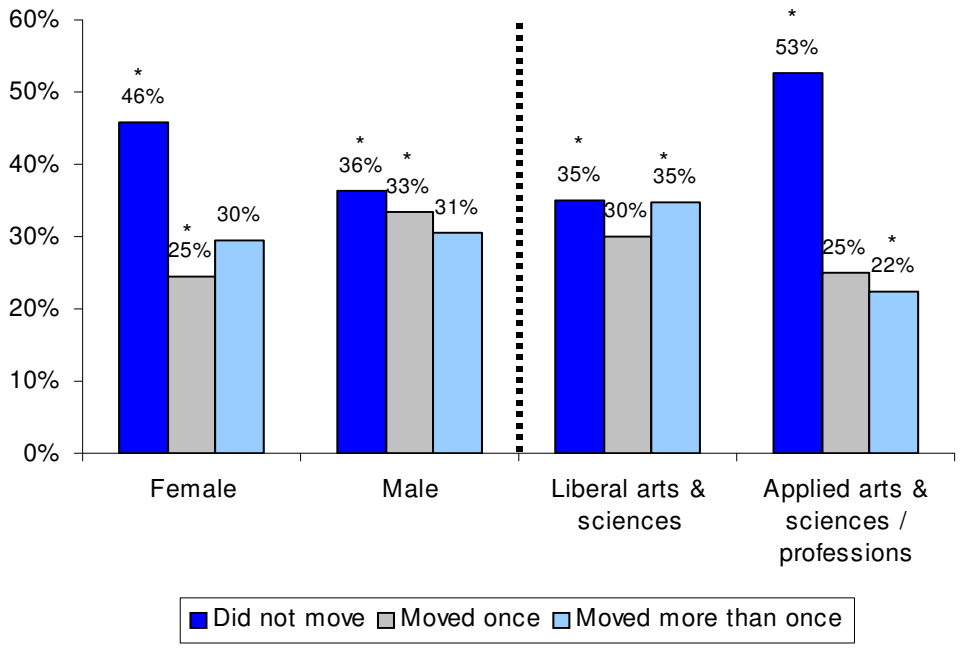
That these two extremes are both fields classified as applied arts & sciences / professional explains why no statistically significant difference emerges in the migration patterns of liberal arts & sciences and applied arts & sciences / professional graduates.

Program orientation does, however, influence the number of moves[47] graduates reported making since graduation (Figure 4.2a). A significantly greater percentage of liberal arts & sciences graduates (35%) reported moving more than once, as compared to applied arts & sciences / professional graduates (22%). In addition, proportionately more applied arts & sciences / professional graduates (53% vs 35% of liberal arts & sciences graduates) reported they did not move at all.

The number of times a respondent reported moving was also linked to gender and level of parental educational attainment. The main difference by gender was in the percentage who did not move at all. Women (46%) were more likely than men (36%) to have never moved in the five years since graduating.

[47] Move = from one province/state to another

Figure 4.2a
Number of moves since graduating in 1999 among first-degree holders by gender and parental educational attainment



*denotes significant difference (Chi-square, p<0.01)

A graduate's level of parental educational attainment influenced the number of times they moved, but only among those from the most (Bachelor's degree or above) and least (High school diploma or less) highly educated backgrounds (Figure 4.2b). Graduates whose parents had attained a high school diploma or less (53%) were significantly more likely, and those whose parents had attained a bachelor's degree or greater (35%) less likely, to have reported never moving.

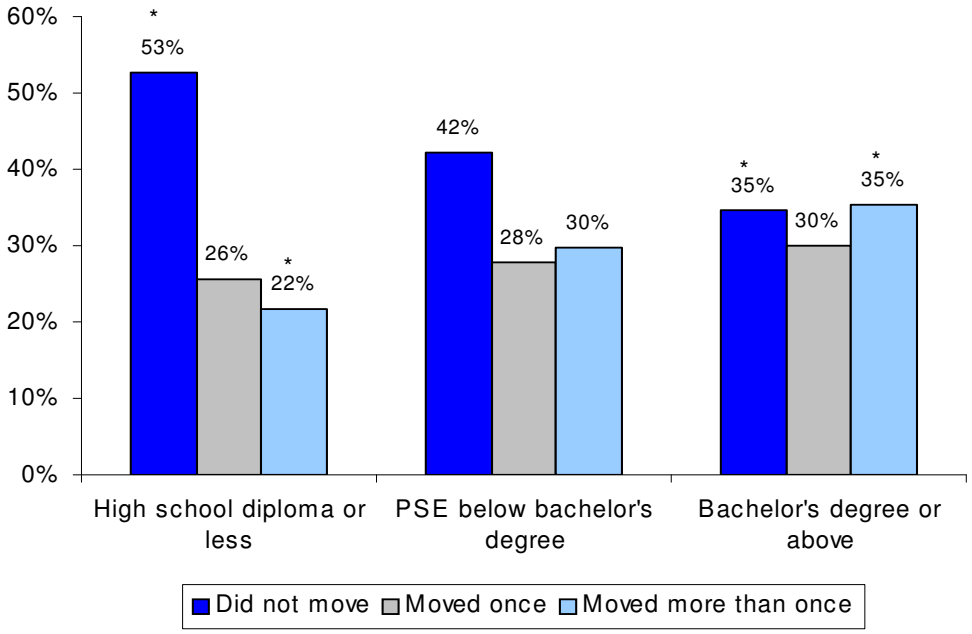
4.4 Reasons given for moving

In this section, the analysis is limited to first-degree holders who were originally from the Maritimes and were living outside the region after graduation. When they were asked for their reasons for moving, respondents' replies varied significantly according to the orientation of their 1999 program, and their gender. Reasons did not vary significantly with parental educational attainment or province of origin (province of residence 12 months prior to enrolling).

In 2004, nearly half (49%) of applied arts & sciences / professional graduates who moved cited a reason related to existing employment: that is, they had accepted a definite job, accepted a better paying job, accepted work in a particular field, or were transferred by their company (Figure 4.3a). In 2001, this figure was 45%.

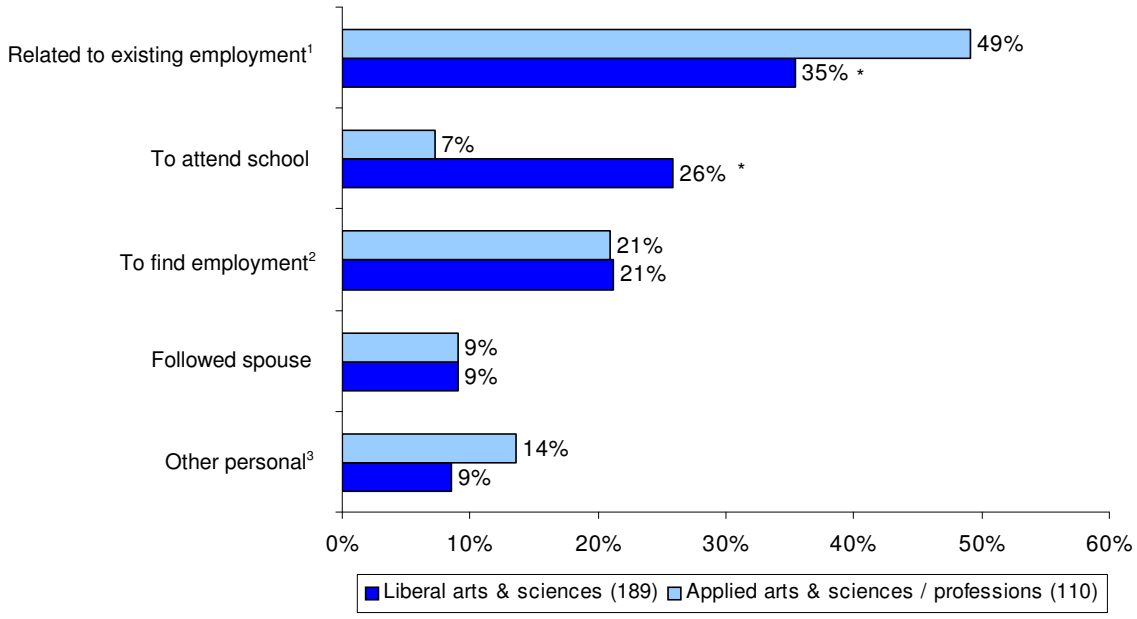
By comparison, significantly fewer liberal arts & sciences graduates (35%) had cited a reason related to existing employment, and three years earlier (2001), only 18% had given this type of reason.

Figure 4.2b
Number of moves since graduating in 1999 among first-degree holders by parental educational attainment



*denotes significant difference (Chi-square, p<0.01)

Figure 4.3a
Main reason given for most recent move, among original Maritime residents (first-degree holders) living outside the region in 2004 by program orientation



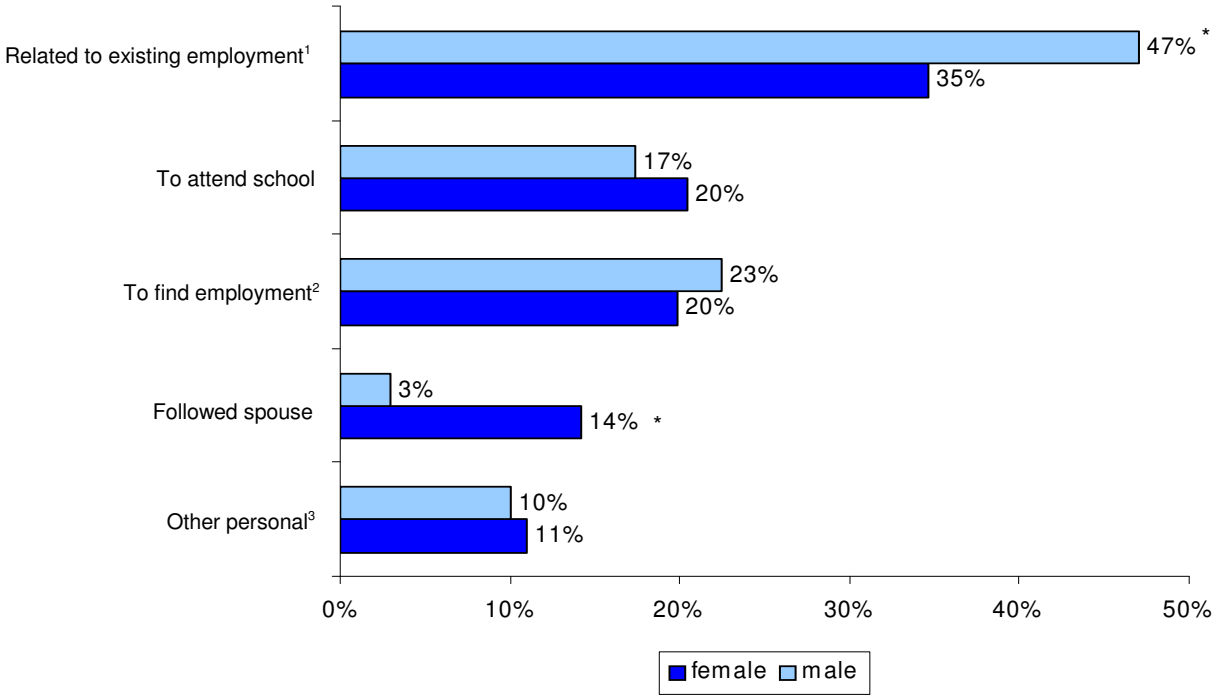
*denotes significant difference (Chi-square, p<0.01)
[1] Related to existing employment = accepted a definite employment position/job; accepted a better paying job; company transfer/move; accepted work in a particular field.
[2] To find employment = to find a job; long term career development opportunities; to find work in a particular field; to find a better paying job.
[3] Other personal = family moved; disliked where I was living; personal reasons.

Many more liberal arts & sciences graduates (26%) than applied arts & sciences / professional graduates (7%) said that they had moved in order to attend school. This gap was even greater three years earlier, when 46% of liberal arts & sciences and 14% of applied arts & sciences / professional graduates cited this reason.

Among the remaining reasons for moving, there were no differences by program orientation.

The main differences in the reasons given for moving by gender were in the proportion saying that they had moved for a reason related to existing employment, or they had moved to follow a spouse (Figure 4.3b).

Figure 4.3b
Main reason given for most recent move, among original Maritime residents (first-degree holders) living outside the region in 2004 by gender



*denotes significant difference (Chi-square, p<0.01)
[1] Related to existing employment = accepted a definite employment position/job; accepted a better paying job; company transfer/move; accepted work in a particular field.
[2] To find employment = to find a job; long term career development opportunities; to find work in a particular field; to find a better paying job.
[3] Other personal = family moved; disliked where I was living; personal reasons.

Men (47%) were more likely than women (35%) to say that they had moved for a reason related to existing employment. There was an 11 percentage point difference in the proportion of women (14%) and men (3%) who said that their most recent move was made to follow a spouse. This trend is the same as that reported in 2001.

4.5 Under what circumstances would graduates move?

Among those graduates originally from the Maritimes, and who remained there in 2004, the top circumstance reported under which graduates could see themselves leaving the region was the offer of a better job and/or something in their field (38%). Interestingly, 27% said that they would not move under any circumstances.

"What would be the one thing that would be most likely to make you move back to the Maritime region?" This question was asked of all graduates who were living outside the region in 2004. The responses given were overwhelmingly employment related: 34% said that they would return if offered a better paying job or better employment opportunities, and a further 24% said that they would return if they found a comparable job or if their company transferred them. In addition, 30% said that they would return for family or personal reasons. Only 4% said that they would never move back.

It appears, then, that governments in the region have a tremendous potential resource (about 58% of graduate Maritimers living outside the region) to tap if they are interested in repatriating graduates.

4.6 Chapter Summary

Maritime universities are successful in attracting students from outside the region, and by five years after graduation, about one-quarter of them remain. In addition, about three-quarters of Maritimers remained in the region in 2004. When we count together graduates moving in and out of the region and their origins, the net retention of Class of 1999 graduates is 81%.

Each province has a unique pattern of graduate migration. All three Maritime provinces recognize the importance of retaining highly skilled graduates, and have introduced programs that, while they have different specific strategies, are meant to retain, and in some cases repatriate, graduates.

Mobility patterns are driven primarily by opportunities for employment: graduates are leaving in search of better employment opportunities, or to accept actual job offers. Different groups of graduates have different migration patterns. For example, among those most likely to leave, and leave soon after graduation, are Engineering & Applied Sciences graduates, men, and younger graduates. Among those least likely to leave are women, and graduates of health professions and Education. This may indicate the relative ability of the Maritime economy to absorb graduates from these fields.

Just as the reasons for leaving the Maritimes are related to employment and employment opportunities, so are the reasons given by residents living outside the region when asked under what circumstances they might return. Only 4% of Maritimers living outside the region said they would not return under any circumstances.

5. GRADUATES' PERSONAL SITUATIONS

As this report demonstrates, labour force outcomes, financial status, and migration patterns vary widely among different groups of graduates. As might be expected, these variations are accompanied by differences in graduates' personal situations and evaluation of their university experience. To control for variations based on age and prior education / work experience, the analysis below is limited to first-degree holders.

Getting married/living common law and/or starting a family are two important milestones that may be attained or delayed for many reasons. Career and life stability ("settling down") and financial status are two factors influencing these decisions. Among the graduate groups that we have explored, program orientation has emerged as arguably the most important factor influencing labour force outcomes and financial status. Perhaps because of this strong link, program orientation is also a statistically significant predictor of a graduate's personal situation: for example, liberal arts & sciences graduates were less likely than their counterparts to own their home (36% liberal arts & sciences graduates vs. 57% applied arts & sciences / professional graduates). In addition, while 49% of liberal arts & sciences graduates were married (or living common law), over half (59%) of applied arts & sciences / professional graduates reported having a partner/spouse. And while 20% liberal arts & sciences graduates reported having one or more children, 28% of applied arts & sciences / professional graduates reported the same. These differences might also be due to more fundamental differences between the two groups, ones which affect both educational program choice and lifestyle choices. There is no difference in age between these two groups.

Graduates who came from the most highly educated families were significantly less likely (48%) than their peers (High school diploma or less: 57%; PSE below bachelor's degree: 58%) to have reported being married/ living common law at the time of the survey, but did not vary significantly in the likelihood of having one or more children. These graduates were significantly less likely (37%) than PSE below bachelors degree (46%) and High School diploma or less (57%) to own their home (perhaps because they went back to school at greater rates).

Living outside the region significantly decreased the likelihood that a graduate reported owning a home (34% vs 51% living in Maritimes), but did not change the likelihood of being married/common law or having children. The likelihood of being married/living common law, having children or owning a home did not vary significantly by gender.

Evaluation of University Experience

During the survey, graduates were asked a number of questions related to the value of their 1999 degree. When asked whether they would choose to go to university again, 87% of first-degree holders said they would choose to go again (rated 4 or 5 on a five point scale, where 5 = definitely choose to go to university). Although this statistic remained high across all groups of graduates, there was statistically significant variation by parental educational attainment and region of residence in 2004. While 82% of graduates from the least

educated (High school diploma or less) homes said that they would choose to go again, their counterparts from the most highly educated households (bachelor's degree or above) were more enthusiastic, with 91% saying that they would choose to go to university again. There was also variation based on region of residence in 2004: 83% of graduates living in the Maritimes, and 92% of graduates living outside the region said that they would choose to go to university if they could do it over again. Responses did not vary significantly by gender or program orientation.

Graduates were also asked two questions about the value of their education: "To what extent was your university experience worth the financial investment required?" and "To what extent was your university experience worth the personal investment of time required for classes and studies?" The overwhelming majority of first-degree holders (86%) said that their experience had been worth the time invested; furthermore, this statistic did not change significantly with gender, program orientation, family educational background or region of residence. This suggests that perhaps the less tangible returns realized from a university education are universal, with most graduates, regardless of background, demographic characteristics and educational choices seeing their university program as "time well spent."

When asked to think about the financial value, however, graduates tended to vary in their response according to program orientation, family educational attainment and region of residence in 2001. More likely to agree that it was worth the financial investment were applied arts & sciences / professional graduates (83%), those living outside the region (83%), and graduates from the most highly educated backgrounds (Bachelor's degree or above - 82%). Fewer liberal arts & sciences graduates (74%), those living in the Maritimes (74%) and graduates from less educated families (high school diploma or less - 73%) agreed with the statement.

The findings suggest a link between program orientation and personal situations, and raises the question about whether greater initial successes and sustained stability in the labour market for applied arts & sciences / professional graduates, led to "settling down" sooner than their peers. The differences noted, however, may be due to more fundamental cultural differences, and/or differences in long term plans and expectations that are also essentially linked to program choices.

6. CONCLUSION

The findings in this report point to a number of conclusions about the value of a university education in general, and about the transition experience for different groups of graduates.

6.1 A university education continues to be a good investment

The survey results clearly show that those who have a university education enjoy increased employability, access to better jobs and an earnings premium. In the Canadian labour market, management positions and jobs requiring a university education make up about 26% of paid employment. Class of 1999 graduates were very successful in securing these jobs: 73% of all graduates, and 66% of first-degree holders (graduates who entered their 1999 degree program with a high school diploma) have found work that demands a university education and/or management skills. In addition, compared to working Canadians with a high school diploma, Maritime graduates earned 44% more, and first-degree holders, 23% more, by five years after graduation.

6.2 The individual benefits of a university education, in terms of earnings premiums and obtaining better quality jobs, are variable

Even though a university education continues to be a good investment, the return on that investment is not uniform for all graduates.

Previous work experience and/or education level play important roles in determining labour force outcomes; given the mix of graduates in the sample who are at various stages in their postsecondary education and career paths, it is not surprising to find variability in outcomes (greater achievements among those with graduate degrees for example).

However, among first-degree holders, the variation we find is not due to differences in prior work experience or education; they are a much more homogenous group, and in 1999 most stood at the beginning of their career paths. For this group in particular, and for the Class as a whole, what emerges from the analysis is that program orientation is the most consistent predictor of graduate outcomes and the nature of the transition experience into the labour market. Specifically, higher returns go to graduates of applied arts & sciences programs. Although the gap in earnings and in success in finding rewarding jobs (i.e., require a university education) that exists between this group and those who completed liberal arts & sciences programs was smaller five years after graduation than at the two-year-out mark, it does still exist.

In addition, higher earnings (among first-degree holders) went to men and graduates who left the region.

6.3 Applied arts & sciences / professions graduates experienced initial and sustained success in the labour market

Graduates of applied arts & sciences programs benefited from an education that provided direct links to the labour market and/or a specific profession: within two years after graduation, 77% (69% of first-degree holders) obtained a professional/managerial job. Over the next three years, this percentage increased slightly to 79% (74% of first-degree holders). Between 2001 and 2004, their annual earnings increased 31% to reach $56,384. The high expectations these graduates had on enrolling, for learning job skills and increasing their chance at a good income, had clearly been met for most soon after they entered the labour market.

6.4 Liberal arts & sciences graduates experienced initial challenges finding their "fit" in the labour market but made substantial gains by five years after graduation

Graduates of liberal arts & sciences programs, who received a generalist education without direct links to the labour market, nevertheless had high expectations for acquiring skills for a particular job and gaining a chance at earning a good income, when they enrolled in their program. The majority also thought that any job they got should be related to their field of study. Two years after graduation, however, 43% of liberal arts graduates (39% of first-degree holders) had found management positions or jobs requiring their level of education, and they earned 8% more than Canadians with a high school diploma. These initial difficulties in finding their "fit" in the labour force were followed by substantial gains: by 2004, these graduates had recorded an average earnings increase of 55% since 2001, and the percentage employed in professional/managerial positions increased 17 percentage points (first-degree holders: 21 percentage points).

By 2004, the majority (82%) of liberal arts & sciences graduates had chosen to return for further study, with most giving reasons for doing so that relate to enhancing their employability, although about one-quarter went back for reasons of general self-improvement .

One assumption about the relatively (compared to applied arts & sciences graduates) poorer average performance of liberal arts & sciences graduates in the labour market, particularly at the two-year out mark, is that it is due to weak linkages between the curriculum and the labour market. Because they have not received training for specific professions or career paths, liberal arts & sciences graduates have greater difficulty identifying those professional/ managerial positions for which they are qualified. Evidence suggests that, unable to find the right fit in the labour market, many return for further study to increase their employability. If the goal of institutions is to strive to meet their employment-related expectations, then the provision of more co-op and voluntary work placement opportunities, career counselling (e.g., identify transferable skills) and career fairs targeted to liberal arts & sciences graduates would be helpful.

There is a second "stream" of liberal arts & sciences graduates, however, who had always planned to obtain a second/advanced credential (such as master's, Ph.D., Bachelor of Education, law or medicine). For this group, labour market conditions upon graduation may not have been the primary motivating factor in the choice to pursue further study.

6.5 Program orientation-based gap: Implications

That a labour force outcomes differential exists between graduates based on program orientation is not a new finding, and may seem inconsequential to some. That is, students going into a program of study should know that their choices have consequences in the labour market. However, the expectations of the two groups in terms of learning job-related skills, at having a chance at a good income, and the desire that any job they get be related to their program of study, are not all that different. What we have uncovered is a disconnect in issues related to choices and lifestyle expectations.

In addition, we have found that the program orientation-based differences among Maritime university graduates are greater and longer lasting than the literature would have us believe. Though evidence exists in the census to indicate that liberal arts & sciences graduates close the gap with their peers at some point, it clearly does not happen within 5 years of obtaining the first-degree. What is more, even if/when the gap does close, there remains the matter of several years of income shortfall.

Finally, liberal arts & sciences graduates' relatively "unsettled" lives (i.e., initial lag in labour market performance, and greater likelihood of pursuing further study) may be linked to their decreased likelihood (compared to applied arts & sciences graduates) of starting a family and/or getting married/living common law within five years of graduating. On the other hand, these differences may point to more fundamental differences in the two groups, ones that affect both educational program choice and personal choices.

Some previous studies have indicated that in the longer term, liberal arts & sciences graduates do not merely catch up with graduates of applied arts & sciences, but overtake them in terms of labour force outcomes. A ten-year-out survey of graduates is warranted, in order to provide more information on the evolution of the program orientation-based gap.

6.6 Investment (time and costs) in a university education usually encompasses more than one credential

More and more graduates are finding that one degree is no longer sufficient to open doors to rewarding careers. This is particularly true for those who completed programs in liberal arts & sciences. However, even the majority (57%) of applied arts& sciences / professional graduates pursued further education, and often for reasons relating to employment and employability.

However, more education requires more investment. By 2004, 73% of Class of 1999 first-degree holders had borrowed money to finance education, up thirteen percentage points from 1999. Comparing the amount borrowed to finance the 1999 degree, and cumulative borrowing for both the 1999 degree and post-1999 education, the percentage of first-degree holders who borrowed $40,000 or more increased by 4 percentage points to 24% by 2004.

This level of borrowing has an impact on graduates' financial situations: average debt-to-earnings-ratios exceeded the 8% threshold (beyond which difficulties in making payments increase substantially) by 4

percentage points. Liberal arts & sciences graduates had even greater debt-to-earnings ratios (14%). The debt-to-earnings ratio of applied arts & sciences / professional graduates was closer to the threshold, at 10%. By all accounts, liberal arts & sciences graduates are investing more (more likely to return to school, more likely to borrow, and to borrow more), on average, than their peers.

There is obviously a substantial number of graduates managing debt repayment obligations; however, we also found that as of 2004, half of all first-degree holders were free of student debt, and that program orientation was not a determining factor in this status.

6.7 Graduate mobility patterns are driven primarily by opportunities for employment

The universities in the Maritimes are highly successful at attracting students from other jurisdictions: 19% of Class of 1999 graduates lived outside the Maritimes prior to enrolling. Although the majority leave following graduation, one-quarter of those originally from outside the region remained five years after graduation.

The influx and retention of these graduates from outside the region do not equal the number of graduates who are from this region and who leave. When we take into account the movements of both graduates, the net retention of graduates at the five-year-out mark was 81%, representing a decline of 6 percentage points compared to the rate recorded for the Class of 1996 four years after graduation. A comparison of the two Classes indicates that the change in net retention was due to greater percentages of Maritimers leaving, not fewer outsiders remaining. Finally, more recent statistics from the National Graduate Survey suggest a continued slide in graduate retention: at the two-year-out mark, the net retention was 82%.

Those who left the region did so mainly for employment-related reasons, and younger (up to 29 at graduation) graduates, men, and graduates of Engineering programs were more likely than average to move. The economic pull of points west (most graduates who move go to Ontario) is strong: the wage premium gained by Class of 1999 graduates is 16 percentage points five years after graduation. That mobility is primarily economically motivated is clear: over half of respondents living outside the Maritimes would return under better economic conditions (offered a better paying job or better employment opportunities, etc).

Net losses and migration patterns vary by province: for example, Prince Edward Island's greatest loss occurs before university enrolment; while the greatest losses for New Brunswick and Nova Scotia occurred after graduation. Finally, among NB graduates, anglophones were more likely to move than francophones.

The obvious but important point to note is that, in the absence of the region's universities, there would be an even greater exodus of young adults from the Maritimes, and none would be attracted to the region to pursue university studies.

6.8 What do these findings mean for today's students?

The key finding of this report is that, despite rising costs (and therefore increased investments of time and money required of students), the demand of the labour market for university-educated personnel and advanced credentials means that a university education (more often than not, this means 2 or more degrees)

continues to be worthwhile. And, more and more graduates are finding that one degree is no longer sufficient to open doors to rewarding careers. This is especially true for liberal arts & sciences graduates, of whom 82% returned for further study, but also for applied arts & sciences / professional graduates who had more direct links to the labour market: more than half of these graduates returned to pursue further study.

Because of the increased investments required of students, and their employment-related expectations for their university education, the need to be aware of the impact program choices will have on their future performance in the labour market becomes even more important. Those who elect a generalist liberal arts & sciences education would be wise to seek out coop and voluntary work placements and to take part in career counselling in order to identify their transferable skills.

Those graduates who seek advanced credentials / further education need to be aware that average overall borrowing costs (for first and subsequent degrees) have now surpassed $30,000, that there is evidence that students increasingly need to top-up their government loans, and that managing student debt payments may pose difficulties. That said, returning to pursue further studies pays dividends, particularly for those who graduated from liberal arts & sciences programs.

Given that borrowing will only continue to rise over the coming years (barring major changes in government student aid programs and/or individual costs of attending university) and assuming a continuing demand in the labour market for advanced / beyond baccalaureate credentials, governments will need to monitor the situation closely.

Finally, students must not forget that a university education delivers much more than increased employability. Graduates gain broadened perspectives, enhanced civic engagement, critical thinking skills, and the list of intangibles goes on. Jobs may come and go, but a university education is the proverbial “gift that keeps on giving”.

6.9 What do these findings mean for governments?

Governments invest money in universities to support, among other things, research and development, the teaching function, and service to communities. In the context of this report, returns on investing in university education are maximized by the retention of highly qualified graduates. Although net losses are recorded here, with indications that they continue to grow, there is a substantial number of Maritime graduates living outside the region who have expressed their willingness to return under the right (employment related) conditions.

APPENDIX 1 DISTRIBUTION OF RESPONDENTS BY PROVINCE AND INSTITUTION

Class of 1999: Distribution of original population and 2004 sample

	Population		2004 Sample			
			Unweighted		Weighted	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Province of graduation						
New Brunswick	4,182	35%	817	35%	796	35%
Nova Scotia	7,399	61%	1,307	57%	1,411	61%
Prince Edward Island	526	4%	182	8%	99	4%
Total	12,107	100%	2,306	100%	2,306	100%
Institution						
Acadia University	589	5%	111	5%	113	5%
Atlantic School of Theology	21	<1%	4	<1%	5	<1%
Dalhousie University	2,909	24%	429	19%	551	24%
Mount Allison University	468	4%	84	4%	90	4%
Mount Saint Vincent University	848	7%	178	8%	161	7%
Nova Scotia Agricultural College	216	2%	47	2%	42	2%
Nova Scotia College of Art & Design	154	1%	24	1%	30	1%
Saint Mary's University	818	7%	159	7%	157	7%
St. Francis Xavier University	868	7%	167	7%	166	7%
St. Thomas University	430	4%	84	4%	83	4%
Université Sainte-Anne	43	<1%	14	1%	9	<1%
University of Cape Breton	741	6%	126	6%	141	6%
University of King's College	192	2%	48	2%	37	2%
University of New Brunswick	2,158	18%	430	19%	408	18%
University of Prince Edward Island	526	4%	182	8%	99	4%
Université de Moncton	1,126	9%	219	10%	214	9%
Total	12,107	100%	2,306	100%	2,306	100%

APPENDIX 2 PROGRAM ORIENTATION - LIST OF MAJORS

The program orientation variable is a dichotomy based on major field of study (ESIS codes): Applied Arts & Sciences / Professional and Liberal Arts & Sciences.

Applied Arts & Science/Professional

11800 Elementary-Secondary Teacher Training
11801 Art Education
11804 Special Education
11805 Home Economics Education
11806 Industrial Arts - Teaching
11807 Music Education
11809 IT Education
11812 Adult, Continuing Extension Education
11813 Reading
11816 Elementary Education
11818 Elementary Education -French
11819 Elementary Education -Social Studies
11820 Secondary Education -General
11821 Secondary Education -English
11822 Secondary Education -French
11823 Secondary Education -History
11824 Secondary Education -Mathematics and Science
11837 Teaching French as a Second Language
11899 Other Elementary-Secondary Teacher Training
13600 Kindergarten, Pre-School Teacher Training
13700 Education -General
13701 Bachelor of Arts, Bachelor of Education
13702 Bachelor of Science-Bachelor of Education
13801 School librarianship
13802 Educational Administration
13803 Educational Psychology
13805 Guidance and Counselling
13806 Curriculum Specialization
13808 Education Foundations
13811 Educational Media
13813 Individual and Family Studies
13816 Elementary Ed
13900 Physical Education
14000 Kinesiology, human kinetics and kinanthropology
14100 Recreation
14102 Recreation Management
31099 Journalism -Languages and-or Literatures, Other
31200 Library Sciences
31701 Public Relations Management
32599 Theological Studies
41202 Accounting
41204 Finance
41206 Industrial Relations and Personnel Management
41207 Entrepreneurship
41208 Technology Management and Entrepreneurship
41210 Marketing-Retailing
41216 Management
41218 Information Management
41222 International Business
41230 Human Resources Management
41240 Business Administration - Law
41246 Electronic Commerce
41255 Financial Services
41299 Commerce, Management, Business Administration, Administrative
41300 Criminology
41401 Public Administration
41402 Health Administration
41406 Hospitality-Tourism
41416 Marine Management
43300 Law and Jurisprudence
44700 Secretarial Science
44703 Information Technologies-Computer Studies
44999 Social work and social welfare - Other
45900 Gerontology
52100 Veterinary Medicine
60300 Architecture
60304 Interior Design
60600 Chemical Engineering
60700 Civil Engineering
60900 Electrical Engineering
60902 Computer Engineering
61000 Industrial Engineering
61100 Mining Engineering
61200 Mechanical Engineering
61300 Metallurgical Engineering
61401 Biomedical Engineering
61406 Geological Engineering
61414 Agricultural-Biological Engineering
61416 Surveying Engineering
61600 Engineering General
62020 Forest Engineering
62099 Forestry - Other
62440 Environmental Technology
62450 Environmental Health Technology
62470 Landscape Horticulture
70300 Dentistry
70500 Medicine
70626 Pharmacology
70628 Physiology
70630 Physiology and Biophysics
70699 Basic Medical Sciences
71001 Laboratory Medicine - Microbiology
71020 Pathology
71522 Nursing -Post RN
71599 Nursing - Other
72100 Pharmacy
72400 Epidemiology and Public Health
72703 Human Communication Disorders
72704 Occupational Therapy
72706 Physiotherapy
73800 Dental Hygiene
79900 Other health professions and occupations
80606 Computer Science- Applied
80610 Computer Science & Bus.Admin
80631 Multimedia
80640 Information Management
80642 Computer System Development
80643 Geographical Information Systems

80650 Information Technology
80699 Computer Science
80770 Software Development

Liberal Arts & Sciences

00010 Science and Business Administration
20399 Other Fine Arts
20504 Composition
20506 Organ
20507 Piano
20509 Singing, Opera Singing
20511 Jazz Studies
20512 Music Performance
20599 Other Music
20802 Drama, Theatre
20803 Costume Studies
21403 Drawing and Design
21404 Graphic arts
21406 Photography
21408 Printing
21409 Ceramics
21413 Painting
21414 Sculpture
21416 Studio
21418 Communication Design
21499 Other Applied Visual Arts
00025 Interdisciplinary
00003 Arts-General or undeclared major
30304 Classics
30599 Other English Language and-or Literature
30600 French Language and-or Literature
30999 History-Other
31105 German
31106 Spanish
31107 Russian
31400 Linguistics
31799 Other Mass Communications Studies
32199 Philosophy- Other
32400 Religious Studies
32501 Pastoral Theology
40300 Anthropology
40600 Archaeology
40801 Native Canadian Studies
40899 Canadian Studies - Other
40920 Asian Studies
40950 Celtic Studies
40977 Contemporary Studies
40981 International Development Studies
42701 Agricultural Economics
42799 Economics - Other
43000 Geography
44012 Environmental Design Studies
44030 Environmental studies and Law
44099 Man-Environment Studies - Other
44300 Political Science
44400 Child Study
44608 Neuroscience
44610 Biology-Psychology
44699 Psychology - Other
45200 Sociology
45202 Sociology and Anthropology
46100 Womens Studies
46900 Community Studies
46930 Intergrative Science
47100 Cooperative Systems
50310 Animal Science
50322 Plant Science
50324 Agribiology: Environmental
50326 Soil Science
50332 Food Science
50333 Agricultural Mechanization
50340 Aquaculture
50350 Agricultural Business
50699 Biochemistry
50912 Microbiology
50913 Biology-Chemistry
50920 Environmental Biology
50930 Environmental Science
50999 Other biology
51500 Botany
51808 Food & Nutrition
51810 Dietetics
51825 Family Studies
51899 Other household sciences and related
52200 Veterinary Sciences
52401 Fisheries
52407 Marine Biology
81212 Mathematical Science
81299 Other Mathematics
81501 Analytical Chemistry
81599 Chemistry - Other
81820 Environmental Geochemistry
81899 Geology - Other
82799 Other Oceanography and water studies
83001 Astrophysics and Astronomy
83099 Other physics
00009 Science-General or undeclared major

APPENDIX 3 JOB SKILL LEVEL - NATIONAL OCCUPATION CLASSIFICATION CODES

The job skill level variable is created from the National Occupation Classification code structure[48] which classifies occupations according to their combination of skill level and skill type. Skill type reflects the field of training or experience usually required and the type of work performed; there are 10 skill types. The skill types are:

0 - Management Occupations (*note - management occupations are not assigned to a skill level category)
1 - Business, Finance and Administrative Occupations
2 - Natural and Applied Sciences and Related Occupations
3 - Health Occupations
4 - Occupations in Social Science, Education, Government Service and Religion
5 - Occupations in Art., Culture, Recreation and Sport
6 - Sales and Service Occupations
7 - Trades, Transport, and Equipment Operators and Related Occupations
8 - Occupations Unique to Primary Industry
9 - Occupations Unique to Processing, Manufacturing and Utilities.

Skill level corresponds to the type and/or amount of training or education typically required. The skill levels are:

A - University education
B - College level education including trade apprenticeships
C - Secondary school plus a period of job-specific training
D - Short work demonstration (no formal education required).

Job Skill Level Categories:

Usually requires university education / management = skill type 0 + skill level A

Occupation does not require university education = skill level B, C and D

[48] Source: Social Development Canada. www.sdc.gc.ca/en/hip/hrp/noc/noc_index.shtml

APPENDIX 4 LOGISTIC REGRESSION MODEL - JOB SKILL LEVEL

Logistic regression model: effect of program orientation, post-1999 education and gender on skill level of job in 2004.

Variable	Variable description
VocLibF	Program orientation of 1999 degree 0 = Liberal arts & sciences; 1 = Applied arts & sciences
Posted04	Post-1999 education 0 = no post-1999 education; 1 = Returned to study post-1999
Gender	0 = female; 1 = male

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	959.873	0.072	0.1

Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Omnibus tests of model coefficients

		Chi-square	df	Sig.
Step 1	Step	59.565	3	0.000
	Block	59.565	3	0.000
	Model	59.565	3	0.000

Variables in the equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	VocLibF	0.931	0.168	30.585	1	0.000	2.538
	Posted04	0.913	0.168	29.444	1	0.000	2.491
	Gender	0.437	0.162	7.250	1	0.007	1.548
	Constant	-0.457	0.171	7.184	1	0.007	0.633

Variable(s) entered on step 1: VocLibF, Posted04, Gender

APPENDIX 5 GENERAL LINEAR MODELS - EARNINGS

General Linear Models: Effect of gender, program orientation and region of residence on hourly wages (among first-degree holders employed full-time in 2004 and who were also employed in 2001).

Tests of between-subjects effects

Hourly wage 2004					
Source	Type III sum of squares	df	Mean square	F	Sig.
Corrected model	11299.827	15	753.322	9.832	0.000
Intercept	249651.061	1	249651.061	3258.26	0.000
gender	1127.909	1	1127.909	14.721	0.000
regres04	2658.504	1	2658.504	34.697	0.000
VocLibF	2726.322	1	2726.322	35.582	0.000
jobskil4	957.921	1	957.921	12.502	0.000
gender * regres 04	520.981	1	520.981	6.799	0.009
gender * VocLiF	228.512	1	228.512	2.982	0.085
regres04 * VocLibF	65.62	1	65.62	0.856	0.355
gender * regres04 * VocLibF	212.219	1	212.219	2.77	0.097
gender * jobskil4	11.601	1	11.601	0.151	0.697
regres04 * jobskil4	6.713	1	6.713	0.088	0.767
gender * regres04 * jobskil4	162.843	1	162.843	2.125	0.145
VocLibF * jobskil4	108.056	1	108.056	1.41	0.235
gender * VocLibF * jobskil4	377.732	1	377.732	4.93	0.027
regres04 * VocLibF * jobskil4	136.415	1	136.415	1.78	0.183
gender * regres04 * VocLibF * jobskil4	348.807	1	348.807	4.552	0.033
Error	54247.657	708	76.621		
Total	416189.912	724			
Corrected Total	65547.484	723			

R squared = .172 (adjusted R squared = .155)

FEEDBACK

We welcome comments and suggestions on this report and how to make future reports more useful and informative. Please complete this feedback sheet or email ideas to mphec@mphec.ca, or fill out the form online at www.mphec.ca.

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Five Years On: A Survey of Class of 1999 Maritime University Graduates
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d. Use of figures	❑ excellent	❑ good	❑ fair	❑ poor
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Usefulness of the Report

4. The overall goal of the report is to provide up-to-date information on the nature of the transitions Maritime graduates have experienced between their studies and the labour force, and back again to school since their graduation in 1999. How successful is the report in achieving that goal?

   ❑ Very successful
   ❑ Fairly successful
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