

TRENDS

IN MARITIME HIGHER EDUCATION

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WHO STAYS AND WHO LEAVES: MOBILITY PATTERNS OF MARITIME UNIVERSITY GRADUATES, CLASS OF 1996 IN 1997 AND 2000

Highlights

Moving to go to school

- 12 percent of Maritime residents left their home province to enroll in university.
- PEI residents were the most likely to leave their home province to attend university.
- A graduate is about 11 percent more likely to have moved for school if his or her parents had a high level of education.
- Men and women were equally likely to move out of their home province to go to school.

Moving after graduation

- In the year following graduation, another 10 percent left their home province for the first time to live elsewhere; in the three years following the first interview, graduates left their home province at the rate of 4 percent per year.
- Engineering & Applied Science, Math & Physical Sciences, and Information Technology graduates were the top three fields represented among the early leavers (living outside the Maritimes within one year following graduation).
- Generally, men are more likely to leave their home province than women after graduation.
- Male graduates originally from PEI were most likely to have left their home province within one year following graduation.
- While both men and women said they left "to find a job" in equal numbers, women were more likely to say they moved "to follow or join a spouse" whereas men were more likely to have moved for a specific job-related reason.

Early employment experiences

- Relatively lower earnings, job dissatisfaction, holding a non-permanent position, and joblessness as reported in 1997 increased the likelihood that a graduate would be living outside the region by 2000.

Introduction

"Graduate Exodus Continues" - a recent headline in the Telegraph Journal (June 14, 2001) - highlighted some of the findings of the MPHEC's *2000 Follow-up Survey with the Class of 1996 Maritime University Graduates*. This article focussed on graduates leaving the region to find work, and echoes a common concern in the region that its best highly qualified personnel pool is being depleted. It is important to accurately characterize the geographical mobility of Maritime university graduates, both from the perspective of governments who have invested in the development of highly qualified personnel crucial to the rising knowledge-based economy, and the students themselves, who have spent time and money to earn their credential.

For policy makers to address this issue effectively, the answers to many questions are needed. For example, what factors predispose a graduate to leaving? Are there characteristics more common among those who leave as compared to those who stay? How do mobility patterns change on graduation and in the years following?

The findings presented here will show that there are very different factors

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involved in the migration patterns of graduates at three points in time: as students (i.e., moving to go to school), one, and four years post graduation.

Residents of PEI represent just 6% (weighted sample) of survey respondents (n=145). As a result of the small number of PEI residents in the sample, the reader will see throughout this paper that in certain instances, the number of PEI residents in a subgroup are too low for accurate comparisons within that subgroup.

Moving to go to school

Students may move from their home province in order to attend a particular programme, or for other reasons such as simply having the experience of moving away from home and gaining independence. Governments in the region wishing to ensure accessibility for their residents to the widest possible range of programmes anticipate that this kind of migration will occur and have set up programmes accordingly. For example, provincial student aid is portable, and the Regional Transfer Arrangement¹, administered by the MPHEC, reimburses host provinces for the cost of educating out-of-province students in designated Regional Programmes. These programmes are generally defined as those that are unavailable to the student in his or her home province.

Overall, about one-in-eight Maritime residents² left their home province to go to school. Prince Edward Island residents were the most likely to leave, with nearly half (45%) choosing to go to a university elsewhere in the region. By comparison, just one-in-seven New Brunswickers and one-in-fifteen Nova Scotians left their home province to go to university (Table 1). These findings are similar to the results of the National Graduate Survey (Burbidge and Finnie, 1999).

Table 1
Location of graduates prior to enrolling and province of study
(location of institution, 1996)

Province of residence prior to enrolling	n	Province of Study (1996)		
		PEI %	NS %	NB %
PEI	145	55	30	15
NS	1111	1	94	6
NB	769	1	14	86
Other ¹	355	2	73	25

¹Graduates living outside the Maritime region.

That the proportion of Prince Edward Island residents who moved out of province to pursue their studies is the highest of the three provinces is not surprising, considering that there is only one primarily undergraduate university within its borders. It is expected that some students will leave because they cannot get the programme they are looking for. The number of those who left PEI to attend university in another Maritime province is too small to accurately determine distribution by field of study. However, we do see greater proportions of leavers who graduated in the Social Sciences, Engineering, Education and Health fields (particularly Nursing). It is noteworthy that the Bachelor of Nursing degree is a relatively new programme in Prince Edward Island with the first class graduated in May 1996; it may be expected that the number who leave to take nursing programmes will have decreased since then.

In the case of Engineering, students can complete three years (Diploma in Engineering) on the Island, but the remaining two years of the degree must be completed outside the province. In addition, it is important to note that Social Sciences was the most popular field of study - 23 percent of all respondents had graduated with this major.

Looking at the distribution by field of study of all Maritime residents, the top three fields of study of those who moved out of their home province to go to school were Health Sciences, Social Sciences and Engineering. For those who stayed in their home province, the top three fields were Social Sciences, Commerce and Administration and Agricultural/Biological Sciences.

The top fields of study pursued by graduates who had come from outside the region³ to study were Social Sciences, Education and Humanities. Law was a popular major in this group of graduates.

While the opportunity to pursue a programme of choice in another province may be a motivator for some, this is probably not the case for all. Going away to school also depends to some extent on the ability to afford such a move, and therefore, to some degree on parental income. The graduate follow-up survey did not record the incomes of parents, however, we can use parental educational attainment as a crude proxy for income, where increasing levels of education are assumed to be related to increasing levels of income.

While we do find interprovincial migration regardless of parental income, a graduate is significantly⁴ more likely to

have moved for school if his or her parents had a high level of education. One-in-three graduates whose parents' combined level of education was at least at the Bachelor's level left their home province to study, as compared to about one-in-five (22%) graduates whose parents' combined level of education was below the Bachelor's level. This trend is true among Maritime residents.

Younger graduates were also more likely to have moved out of their home province to go to school: the mean age of those who moved was 25 years in 1996, as compared to 27 years for those who did not.

It is interesting to note that at this stage, there is no significant difference in migration patterns between men and women; as we will see, this is quite different from movements following graduation.

Moving After Graduation

New graduates are faced with many challenges and choices, such as those involved in finding rewarding work, and paying off student loans. Whether they choose to move out of the region after graduation depends to a great degree on the field of study they had pursued, their home province and gender. In addition, having moved to go to school influences whether a graduate will move after graduation.

In this survey, respondents were asked to report the number of times they moved to another city or town since graduating in 1996. This question helps to capture moves made between interviews, and while the responses do not measure interprovincial migration patterns *per se*, they are nevertheless a good indication of overall mobility. Looking only at Maritime residents, graduates who had moved to another

province to attend university were significantly more likely (70%) than graduates who had not (54%) to report moving at least once after graduation.

Furthermore, nearly one-in-seven Maritime residents who moved out of their home province to attend university also moved out of the region in the year following graduation, as compared to one-in-ten of those who did not move for school.

The tendency to move out of one's home province within one year following graduation was greatest among men originally from Prince Edward Island. Nearly four-in-ten (36%) left Prince Edward Island, with most (26%) of them moving out of the region, and only one-in-ten moving to another Maritime province (Table 2). By comparison, significantly fewer (22%) female Island residents had moved out of province by

1997, with the majority (14%) of these women choosing to move to another Maritime province. By 2000, the gender gap among Prince Edward Island residents had shrunk slightly, from 14 to 13 percentage points but remained significant: just under half (49%) of male residents and 36 percent of female residents had left.

While male residents do tend to leave at greater rates than female residents from Nova Scotia and New Brunswick, the gap is not statistically significant in either province one year after graduation. By 1997, 16 percent of men and 14 percent of women had left Nova Scotia, while 17 percent of men and 13 percent of women had left New Brunswick. By 2000, the proportion of graduates originally from New Brunswick and Nova Scotia who had moved out of their home province had increased. The gender gap in these two provinces in-

Table 2
Gender and Graduates Mobility
(universe: original Maritime residents only¹)

Province of residence 12 months prior to enrolling		n	Residence 1997		
			Home Province ² %	Maritime Province ³ %	Other ⁴ %
PEI	male	42	64	10	26
	female	105	78	14	8
NS	male	375	84	4	12
	female	736	86	4	10
NB	male	260	83	5	12
	female	508	87	5	8

Province of residence 12 months prior to enrolling		n	Residence 2000		
			Home Province ² %	Maritime Province ³ %	Other ⁴ %
PEI	male	41	51	12	37
	female	104	64	16	20
NS	male	374	73	4	24
	female	736	77	5	18
NB	male	260	71	7	22
	female	508	79	7	14

¹original Maritime residents defined as those who were living in a Maritime province 12 months prior to enrolling in studies leading to 1996 degree

² graduates living in the same province as 12 months prior to enrolling in studies

³ graduates living in a Maritime province that is not the home province

⁴ graduates living outside the Maritime region

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creased somewhat, and for New Brunswick it became significant. By 2000, 28 percent of men and 23 percent of women had left Nova Scotia, while 29 percent of men and 21 percent of women had left New Brunswick.

When graduates leave the region, where do they go? The top three destinations in Canada, among Maritime residents leaving the region within the first year following graduation, were Ontario, which attracted nearly half (46%), British Columbia (19%), and Alberta (10%). By 2000, this distribution had changed somewhat, with 41 percent in Ontario, 13 percent in British Columbia and 12 percent in Alberta. Migration to the United States increased between one and four years after graduation. Of all Maritime residents who left the region, nearly 10 percent had moved there by 1997, and 12 percent by 2000.

When asked in 2000 about the number of times they moved to a new city or town since graduating, nearly half (46.8%) of female Maritime residents said that they had never moved, whereas nearly four-in-ten male residents had reported never moving.

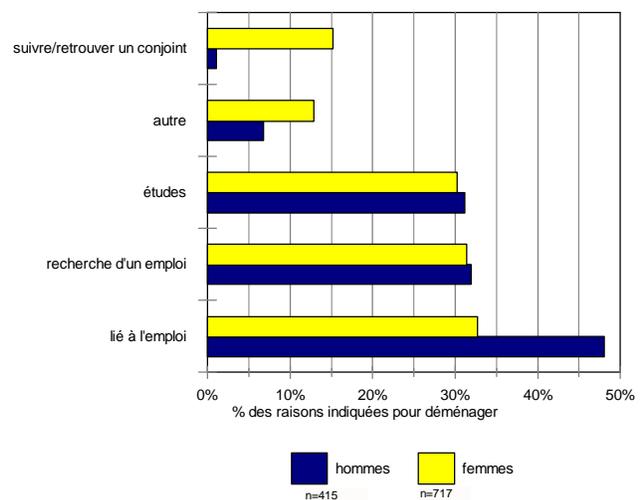
What might explain the differences in mobility patterns of men and women? First of all, when asked in 2000 whether they would be willing to move if offered a better job tomorrow, male Maritime residents (55%) were significantly more likely than their female counterparts (43%) to say they were very willing or willing to move elsewhere in Canada. This gender gap among Maritime residents remains significant in Nova Scotia and New Brunswick.

In addition to differences in their willingness to move, there are striking gender differences among Maritime residents in the reasons given for moving since graduation (Figure 1). Although

men and women who had moved at least once since graduating were equally likely to say they did it "to find a job", men were more likely to give specific job-related reasons, while women (15%) were significantly more likely than men (1%) to have given the reason "followed/joined spouse". Both men and women were also equally likely to report they moved to go to school.

there is a difference between university-educated women and women in the general population with regard to the economic motivation for moving. Given that a majority of women (71%) of the class of 1996 said that acquiring the skills needed for a particular job was very or somewhat important at the time they enrolled in their 1996 studies, and the likelihood that these highly skilled, university-educated women might feel more demand for their skills than the

Figure 1
What is the main reason you moved since graduating in 1996? (More than one reason may be given)



Universe = Maritime residents, prior to enrolling in programme leading to 1996 degree
 other = "disliked where living", "travel/experience", "family moved", "moved home", "personal reasons", "other"
 specific job-related = "for a job" (move was condition of accepting job), "company moved me", "long-term career development opportunity", "moved for a better paying job", "moved to work in a particular field"

In the general population, the reasons given by men for moving are more likely to be economically motivated (Finnie, 1998), whereas the reasons given by women are more likely to be related to family responsibilities (Lin, 1995). We find, then, that this sample of Maritime university graduates reflects the pattern found in the overall population, with a very important exception: female graduates were as likely as men to say they moved after graduation to find a job. This suggests that

general population, it follows that they might recognize greater potential (both in earnings and increased availability of jobs) for work in locations other than their home province.

In addition to their gender, a graduate's field of study plays a significant role in the decision to move. The tendency of Maritime residents to move out of the region was greatest among graduates of professionally-oriented or pure science fields of study. Nearly 28 percent of

Engineering and Applied Science graduates originally from the Maritimes had left the region within one year following graduation. This figure increased to one-in-three by 2000 (Figure 2).

Within one year after graduation, 20 percent of Math and Physical Sciences (includes Chemistry), and just over 15 percent of Information Technology graduates had left the region. Although to a lesser degree, Health Professions (13.4%) and Fine and Applied Arts (12.1%) graduates were also among the early leavers (moving out of the region within one year of graduation) (Figure 2). This group of graduates may be more likely to move soon after graduation because their fields of study are more directly tied to the labour markets and their skills more in demand. And, in fact, we find among these graduates the greatest likelihood that their employment in 2000 is directly related to their field of study (Figure 3).

It is interesting to note that graduates of Engineering and Applied Sciences, and Math and Physical Sciences, were on average the youngest, with a mean age in 1996 of 24 and 25 years, respectively. As widely reported in the literature, the rate of geographical mobility in the population aged 20 to 54 and among Canadian baccalaureate graduates increases with decreasing age (Finnie, 1998). To find the youngest graduates to be the most likely to move reflects general and well-known patterns.

Just as there are certain fields of study which increase the likelihood that a graduate will be an early leaver, there are certain fields that decrease that likelihood. For example, just under one-in-thirteen (7.4%) graduates of Agricultural/Biological programmes had left the region by 1997. Four years after graduation, however, this proportion had grown to 22 percent.

Figure 2
Graduates (originally Maritime residents) living outside the Maritimes in 1997 and 2000, by field of study

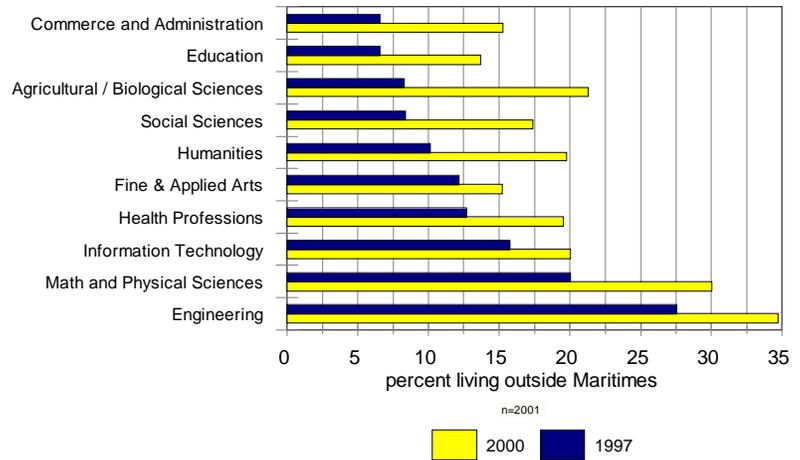
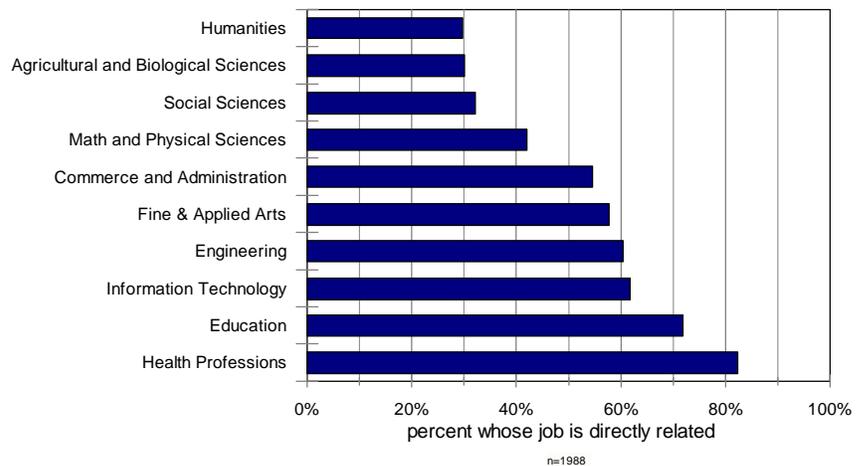


Figure 3
Percent of graduates (originally Maritime residents) whose job in 2000 is directly related to their 1996 studies



One possible explanation could be that these graduates attempt to find related employment in their home province or elsewhere within the region after graduation, but that negative early job experiences, such as low pay (these graduates earned among the lowest salaries of all fields of study in 1997), prompt them to leave the region after graduation.

Looking at major field of study at the provincial level, we find some differences in migration patterns. Among those originally from Nova Scotia, 66 and 58 percent of Engineering graduates remained in their home province one and four years after graduation, respectively. For New Brunswick residents, these figures were greater: 84 percent in 1997, and 68 percent in 2000.

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The proportion of Information Technology graduates remaining in their home province differed by 10 percentage points between Nova Scotia and New Brunswick: one year after graduation, three-in-four remained in Nova Scotia and six-in-seven remained in New Brunswick. By 2000, however, this gap had closed. Both Nova Scotia and New Brunswick retained three-in-four of these graduates.

A similar trend was observed among Math and Physical Sciences graduates, where Nova Scotia saw 71 percent of its residents remaining in 1997, and 63 percent in 2000. New Brunswick, on the other hand, showed no change in home province retention between one and four years post graduation, with 77 percent retained at each point in time.

The numbers of Prince Edward Island residents who studied Engineering, Information Technology and Math and Physical Sciences are too low for accurate comparisons.

Early Employment Experiences

When graduates were first interviewed, one year after graduation, they were asked a number of questions about their current employment situation, including job status, satisfaction, relatedness to their 1996 degree and earnings. Their responses help to form a detailed picture of early employment experiences. By the time of the second interview, the influence of these early experiences on the mobility patterns (whether they ended up staying in the region, or moving away) of Maritime residents living in the region in 1997 begins to emerge.

It is perhaps not surprising to find that joblessness influences mobility: people who find themselves unemployed may leave the region, attracted by larger labour markets elsewhere. The survey

findings show that a graduate who reported being without a job at least once in the four years since graduation was also more likely to have moved. Among respondents who were originally residents of a Maritime province, 69 percent of those who lived in the region in 1997 but who had moved away by 2000 reported being without a job at least once since graduation, as compared to 47.5 percent of those who were still in the region by 2000, a difference of 21.5 percent. Joblessness was lowest among those who lived out of the region in both 1997 and 2000.

Graduates who reported being dissatisfied, or very dissatisfied with the job they held at the time of the 1997 interview were somewhat more likely (17%) than those who reported being satisfied or very satisfied (10%), to have moved out of the region by 2000.

While having a full-or part-time job in 1997 does not seem to have any relationship to whether a graduate moved away or remained in the region by 2000, having permanent employment does. While just one-in-fourteen of those who had a permanent position in 1997 had moved away by 2000, nearly one-in-six of those in non-permanent positions did. This difference is significant.

Looking only at Maritime residents who were living in the region in 1997 and who reported having a full-time job (both in 1997 and 2000), the most striking difference between those still living there three years later, and those who had moved away, can be seen in their mean earnings. Those working and living in the Maritimes in 1997 realized significantly greater increases in earnings if they moved out of the region by 2000. Mean annualized earnings increased for these graduates by \$18,484, from \$23,816 to \$42,300, a

78 percent difference. Those who remained in the region saw their earnings increase by \$7,996, from \$30,680 to \$38,676, an increase of 26 percent. Those who ended up moving away earned \$6,864 less in 1997 than did those who ended up staying in the region. This suggests that a level of dissatisfaction with earnings may have played a role in the decision to move.

Other job-related variables, such as relatedness to the graduate's field of study, and whether the graduate had the experience specified by the employer, did not show a significant correlation with this particular mobility pattern, that is, Maritime residents staying in the region until 1997 and their movements afterward.

Due to the relatively small number of Maritime residents who were living in the region in 1997 but had moved away by 2000 (211), as compared to those who remained in 2000 (1575), and the large number of different job categories, we cannot accurately compare these two populations with respect to the type of job held in 2000.

Conclusion

As we have seen, there is a distinct difference in patterns of mobility of Maritimers as students (moving to go to school) and as recent graduates. The choice to move to another province to attend university is influenced in part by the availability of certain programmes in one's home province, and with the ever-increasing cost of education and living expenses, by the ability to afford such a move. Those most likely to leave their home province to attend university are from PEI, are young, and have parents with a combined level of education of Bachelor's or above.

The greatest loss of graduates from their home province occurred first to go to school in another Maritime province, and second, within the first year after graduation. Post-graduation migration patterns depend on gender, age, field of study.

The early leavers are easily identified. They are for the most part younger, and more likely to be men. This follows the pattern of the general population. Among the three provinces, Prince Edward Island suffers the greatest loss of new graduates.

Perhaps more alarmingly, graduates from the Engineering and Applied Science, Mathematics and Physical Sciences, and Information Technology fields are more likely than graduates of other fields to leave, and to leave early.

Migration between one and four years after graduation also depends to some extent on early employment experiences. Relatively lower earnings, job dissatisfaction, holding a non-permanent position, and joblessness as reported in 1997 increased the likelihood that a graduate would be living outside the region by 2000. Thus, the choice, or opportunity, to change jobs also opens up the opportunity to move.

The wage gap is acknowledged by many to be helping to fuel a certain level of migration from the Atlantic region to other parts of the country. For whatever reason, many firms "are either unwilling or unable to provide competitive compensation to otherwise willing and skilled job candidates" (Skills Development in the Knowledge-Based Economy Conference Summary Report, 1999). A main problem also seems to be that there is a relative lack of jobs requiring the specialized skills of certain graduates.

It would seem, then, that there is a narrow, but well-defined window of opportunity for any government intervention intended to retain university graduates. Given that graduates who leave are more likely to do so within the first year following graduation, policies would have to be aimed at the target group soon after, or probably in the months just prior to, graduation in order to be effective. Because there is an identifiable group of early leavers - graduates of Engineering and Applied Science, Mathematics and Physical Sciences, Information Technology such policies could be focussed on these fields.

Endnotes

¹Under the Regional Transfer Arrangement (RTA) administered by the Commission, each of the three Maritime provinces provides funding in respect of any of its university students enrolled in programmes in either of the other two provinces that are not offered in the home province. The transfer of funds in any given fiscal year is based on the enrolments of Maritime residents in these regional programmes two years earlier, the latest year for which complete enrolment data are available at the time budgets are prepared.

²Throughout this paper, the term Maritime resident, or resident (in reference to a province) designates the location of residence 12 months prior to enrolling in studies leading to the 1996 credential, as reported in the 1997 interview.

³15% of the survey respondents had come from outside the region to study. The number of these students may be expected to increase over the next decade, as Ontario's "double cohort" graduates (effect to peak in 2004-2005) and as the population of 18-24 year-olds increases in certain parts of the country. The effect of these expected increases and their impact upon institutions in the Maritime region warrant further investigation.

⁴Throughout this paper, the confidence level determining significance was set at 95%.

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