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Early Labour Market Outcomes of Ontario College and University Graduates, 1982-2005

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Executive Summary

During the past twenty years, the educational attainment level of Ontario's population has increased dramatically. The number of individuals residing in Ontario with post-secondary education (PSE) has more than doubled since 1990. With such rapid expansion, there is always the concern that there are now too many PSE graduates in Ontario, leading to higher unemployment rates and/or underemployment rates. On the other hand, it has been argued that Ontario is still lacking PSE graduates with the right skill set to match labour market needs (Miner, 2010). Moreover, it is forecast that 70 per cent of new jobs created in Ontario will require PSE. In order to meet this expected need, the Ontario government seeks to increase the percentage of citizens with PSE attainment from 62 per cent to 70 per cent (Throne speech, 2010).

Is the Ontario labour market able to absorb these PSE graduates? This paper will address this concern through an examination of the early labour market outcomes of graduates in the period between 1982 and 2005. The primary dataset used in this study is from Statistics Canada's National Graduates Survey (NGS) and Follow-up of Graduates Survey (FOG), which surveyed PSE graduates two and five years after graduation, respectively. There are a total of six cohorts available, including those who graduated in 1982, 1986, 1990, 1995, 2000, and 2005. The class of 2005 does not have a FOG because this survey was terminated after the 2007 NGS. Using all six available cohorts of NGS/FOG data, the following research questions are examined1:

1. What is the trend of Ontario PSE graduates' labour market outcomes between the cohorts of 1982 and 2005?
2. How do the labour market outcomes of Ontario PSE graduates compare to the rest of Canada?
3. Do Ontario PSE graduates' labour market outcomes improve between two and five years after graduation?
4. How do labour market outcomes differ among graduates with different levels of credentials?

Among the cohorts examined, the unemployment rate of Ontario PSE graduates ranged between 4 per cent and 9 per cent two years after graduation and between 2 per cent and 7 per cent five years after graduation. PSE graduates' unemployment rate two years after graduation mirrored the overall unemployment rate trend in Ontario and the rest of Canada over the examined period.2 However, Ontario PSE graduates' unemployment rate five years after graduation was generally lower than the rest of Canada except graduates with advanced degrees from cohorts 1990, 1995 and 2000.

Over the cohorts examined, neither bachelor's degree holders nor college graduates saw consistent growth in their real earnings, while the earnings of graduates with advanced degrees increased steadily. Between two and five years after graduation, PSE graduates' earnings increased by between 15 per cent and 35 per cent, depending on credential level and cohort. Graduates with higher credentials were rewarded with higher earnings, and the earnings gap among credentials increased between two and five years after graduation. Compared with their counterparts in the rest of Canada, Ontario PSE graduates earned more, and the earnings gap was greater five years after graduation than it was two years after graduation.

[1] The main method used in this study is descriptive analysis based on the comparison of variable means of all graduates without controlling for any of their characteristics. Thus, the results should not be taken as estimates of the causal effects of PSE.
[2] The unemployment rates in Ontario and the rest of Canada are from CANSIM Table 282-0004, Statistics Canada's Labour Force Survey (LFS).

The proportion of Ontario PSE graduates found to be overqualified for their job is fairly high, which is in-line with a previous national-level study of PSE graduates (Frenette, 2000). Compared with their counterparts in the rest of Canada, Ontario PSE graduates were more likely to feel overqualified although they were not more likely to work in a job requiring education lower than their educational attainment. The proportion of graduates who were overqualified based on the educational requirement of their job at the time of entry has increased since the class of 1990, and it did not improve between two and five years after graduation. By credential, Ontario graduates with advanced degrees were the most likely to be overqualified for their job based on job requirement at entry, yet they were the least likely to feel overqualified. College graduates were most likely to be in a job requiring no completed PSE, with the percentage increasing across cohorts.

The proportion of Ontario PSE graduates in a job closely related to their field of study has increased since the class of 1990. The proportion did not increase between two and five years after graduation. By credential, bachelor's degree holders were the least likely to be in a job closely related to their field of study. Compared with their counterparts in the rest of Canada, Ontario PSE graduates were less likely to work in a closely related job.

The distribution of Ontario PSE graduates by occupation is more concentrated for university graduates than for college graduates. In 2007 (the class of 2005), about one third of university graduates were in occupations in social science, education, government service and religion. Regarding the distribution by industry, the biggest industry group for university graduates is the educational services industry (23 per cent), while health care and social assistance (22 per cent) is the biggest group for college graduates.

To summarize, this paper demonstrates that, since the 1980s, the Ontario labour market absorbed the increased supply of PSE graduates reasonably well. Although their labour market outcomes did not greatly improve over these years, they were by no means at a disadvantage given the dramatic increase in the supply of PSE graduates. Their labour market outcomes generally improve between two and five years after graduation, suggesting that it takes time for new graduates to find suitable employment and that increased labour market experience is beneficial for positive labour market outcomes. Compared with the rest of Canada, Ontario PSE graduates' labour market outcomes were variable, with generally stronger earnings, lower unemployment rates (until recently), and mixed results for overqualification.

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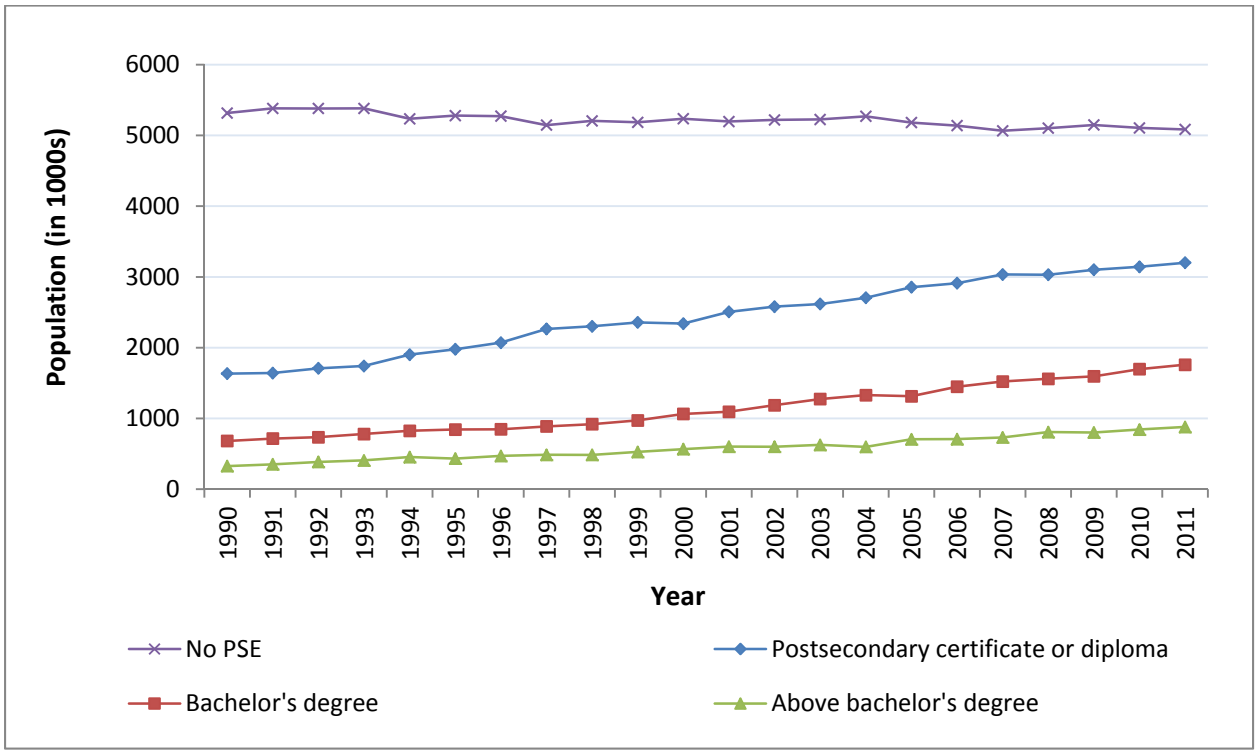
Introduction

During the past twenty years, the educational attainment level of Ontario's population has increased dramatically. As shown in Figure 1, the number of individuals residing in Ontario with post-secondary education (PSE) has more than doubled since 1990. With such rapid expansion, there is always the concern that there are now too many PSE graduates in Ontario, leading to higher unemployment rates and/or underemployment rates. On the other hand, it has been argued that Ontario is still lacking PSE graduates with the right skill set to match labour market needs (Miner, 2010). Moreover, it is forecast that 70 per cent of new jobs created in Ontario will require PSE. In order to meet this expected need, the Ontario government seeks to increase the percentage of citizens with PSE attainment from 62 per cent to 70 per cent (Throne speech, 2010).

Figure 1. Ontario population's educational attainment – aged 15 years and over [3]



Is the Ontario labour market able to absorb these PSE graduates? This paper will address this question through an examination of the early labour market outcomes of graduates between the classes of 1982 and 2005. The primary dataset used in this study is from Statistics Canada's National Graduates Survey (NGS) and Follow-up of Graduates Survey (FOG), which surveyed PSE graduates two and five years after graduation, respectively. Using these data sets, the following research questions are examined:

[3] Source: CANSIM Table 282-0004, Statistics Canada's Labour Force Survey (LFS).

1. What is the trend of Ontario PSE graduates' labour market outcomes between the cohorts of 1982 and 2005?
2. How do the labour market outcomes of Ontario PSE graduates compare to the rest of Canada?
3. Do Ontario PSE graduates' labour market outcomes improve between two and five years after graduation?
4. How do labour market outcomes differ among graduates with different levels of credentials?

Literature Review

In recent decades the expansion of higher education has been significant in Canada. Looking at post-secondary educational attainment over time, increases are found at both the national and provincial levels. The percentage of Canadians who have obtained a post-secondary certificate or diploma (including trades) has increased from 22 per cent in 1990 to 31 per cent in 2011, and in Ontario, the increase was from 21 per cent to 29 per cent.[4] The increase in the percentage of university graduates has been slightly larger, with 11 per cent of Canadians having a university degree in 1990 and 21 per cent in 2011. Ontario has a slightly larger percentage of university graduates, 13 per cent in 1990 and 24 per cent in 2011. While this increase may be something to celebrate, as it indicates that Canada is increasing its knowledge base, for some it has raised concerns over the labour market's ability to absorb these new graduates.

While there is extensive Canadian empirical research examining the labour market outcomes of PSE graduates, the majority has been national in focus. Hansen (2007) shows that PSE graduates generally fare better in the labour market (in employment and wages) than individuals with no schooling beyond high school. Drawing on NGS cohorts 1982 to 1995, Walters (2004) found that college graduates have consistently higher unemployment rates and lower earnings than university graduates. However, other research found that although the earnings gap is consistent over time, the unemployment rate of college graduates was lower than university graduates in some years (Gunderson & Krashinsky, 2010; Drewes, 2010).

Gunderson and Krashinsky (2010) indicates that the employment rate of PSE graduates dropped as a result of the deep recession of the early 1990s, but has gradually improved in the ensuing years. Research results also indicate that the employment rate of graduates improved between two and five years after graduation (Gunderson & Krashinsky, 2010; Finnie, 2000).

In a study of NGS/FOG cohorts 1982, 1986 and 1990, Finnie (2000) concludes that labour market outcomes of graduates did not deteriorate over time. For example, across the cohorts examined, PSE graduates have experienced little change in real earnings, with the decrease in males' earnings offset by an increase in females' earnings. However, working with all cohorts of NGS/FOG, Gunderson and Krashinsky (2010) note that the real earnings of college and university graduates for both males and females showed a substantial downward trend over most of the period.

Underemployment is another important aspect of labour market outcomes. According to Livingstone (1999), the credential gap (referred to as overqualification in this paper) is a substantial and chronic problem of underemployment. Overqualification occurs when employers hire applicants with more education than is required for a position. Using NGS/FOG cohorts 1982, 1986, and 1990, Frenette (2000) concludes that overqualification was a persistent problem for PSE graduates throughout the 1980s and 1990s. By credential, master's graduates were most likely to be overqualified for their job (48-72 per cent) while the percentage for

[4] Calculated for population aged 15 years and over using Statistics Canada's LFS (CANSIM Table 282-0004).

college, bachelor's and PhD graduates was lower, but still considerable (27-48 per cent). The percentages of overqualified graduates decreased between two and five years after graduation for all levels of education, with the exception of college graduates.

The match between one's field of study and one's job is an important aspect of education-job match. A mismatch between the two can be associated with job dissatisfaction, employee turnover, as well as lower wages (Boudarbat & Chernoff, 2010; Grayson, 2004; Krahn & Bowlby, 1999; Wolbers, 2003). Using FOG cohort 2000, Boudarbat and Chernoff (2010) found that just under 65 per cent of university graduates indicated that their job closely matched their education, while 22 per cent said that their education and job were somewhat related, and 13 per cent said that there was no relation at all. This study did not report the degree of job relatedness of college graduates. However, using Ontario's college graduates outcomes survey, the average rates for the years 2002-2007 were 62 per cent, 10 per cent and 28 per cent, respectively, six months after graduation (McCloy and Liu, 2010).

Most of the above literature is national in focus. While it may reflect the pattern in Ontario, the difference in the economic climate among provinces needs to be considered, as it may result in different labour market experiences for PSE graduates. For example, the restructuring of Ontario's economy beginning in the 1980s has coincided with a significant decline in manufacturing, while Alberta has experienced economic prosperity due to its abundance of natural resources (Wolfe & Gertler, 1999). Therefore, to better understand Ontario PSE graduates' labour market experiences, studies focusing on Ontario should be reviewed.

The amount of Ontario based research on the labour market outcomes of PSE graduates is limited. Among them there are two studies funded by Higher Education Quality Council of Ontario (HEQCO): Drewes' (2010) and Walters and Frank's (2010). Using Census and NGS data, Drewes (2010) found "a monotonic increase in the earnings premia to a degree or diploma compared to high school completion only" and so concluded that there is no general oversupply of PSE graduates in Ontario. Although Walters and Frank (2010) did not address the trend over time, they did find, by using the NGS cohort 2005, that field of study remains an important aspect in determining graduates' earnings and employment outcomes. While these studies do provide insight about the labour market outcomes of Ontario PSE graduates, neither made use of FOG data to explore graduates' labour market position five years after graduation.

The school-to-work transition is an extended process. Thus, it is expected that the labour market position of graduates will change over time. This paper will analyze all cohorts of NGS/FOG data to explore the labour market experiences of Ontario PSE graduates both two and five years after graduation. This study will also examine how Ontario PSE graduates fare compared to graduates in the rest of Canada. Some important aspects of labour market outcomes will also be examined, such as the percentage of PSE graduates in permanent jobs.

This paper is intended to be a starting point for the examination of the labour market outcomes of Ontario PSE graduates. It provides an overview of the labour market outcomes of Ontario PSE graduates without controlling for any personal or program characteristics of graduates. Noting that PSE expansion has been coupled with a diversification of the demographic composition of PSE students and graduates (Gunderson & Krashinsky, 2010), a forthcoming HEQCO paper will further discuss the characteristics of Ontario PSE graduates and the association with their labour market outcomes.

Data and Methodology

Unless specified, the results in this paper are based on NGS/FOG data. The primary objective of the NGS and the FOG is to obtain information on PSE graduates' labour market experiences. The target population of the NGS and the FOG is graduates from Canadian public post-secondary education institutions 5. Graduates are interviewed two years after graduation (NGS), and those who respond to the NGS are contacted five years after graduation for their follow-up interview (FOG). Longitudinal data, such as the data provided by the NGS and the FOG, allow the observation of graduates' early career path.

There are a total of six cohorts available, including those who graduated in 1982, 1986, 1990, 1995, 2000, and 2005. The class of 2005 does not have a FOG because this survey was terminated after the 2007 NGS. Over time, Statistics Canada has changed the population group and the questionnaire6. However, the questions about labour market outcomes that are examined in this study are similar among cohorts.

This study is interested in the first half of a typical career life. Thus, it focuses on those who graduated between the ages of 20 and 45 years, representing between 92 per cent and 95 per cent of all graduates, depending on the cohort. Unless specified, the PSE credential discussed in this paper refers to a respondent's current credential, which was obtained at graduation in the reference year. For example, a cohort 2000 graduate with a bachelor's degree refers to a graduate who obtained a bachelor's degree in 2000. This study examined three major credential groups: college or CEGEP diploma or certificate, bachelor's degree7 and master's or doctoral degree. For this paper, graduates with these credentials were referred to as college graduates, bachelors and graduates with advanced degrees, respectively. Graduates with other credentials such as trade/vocational diplomas or certificates, university diplomas or certificates were excluded from the study. Graduates with trade/vocational diplomas or certificates were excluded because the data for this group are incomplete. For instance, for the cohort of 2000, the FOG did not follow up with trade/vocational graduates who responded to the NGS. Graduates with university diplomas or certificates below or above a bachelor's degree were excluded because their sample sizes are too small to be independent groups (together they account for less than 4 per cent of all PSE graduates), and it is inappropriate to include them in any of the three groups of interest. To rule out the effect of further education, those who obtained any PSE credential between graduation and the survey were also excluded from the study.

Finally, this study focuses on Ontario PSE graduates and compares them with the graduates from the rest of Canada. Ontario PSE graduates refer to those who graduated from Ontario public PSE institutions, whether or not they lived in Ontario at the time of the survey. For the cohorts 1995, 2000 and 2005, the outcomes also pertain to Canadian graduates who lived in the United States at the time of the survey. Averaging over all available cohorts, the percentage of graduates who lived in Ontario two years after graduation is 96 per cent, 93 per cent, and 87 per cent for college graduates, bachelor's degree holders and graduates with advanced

[5] "National Graduates Survey (NGS)" by Statistics Canada
http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=5012&lang=en&db=IMDB&dbg=f&adm=8&dis=2
The data were normally collected from May to July in the survey year. The response rate varies among cohorts, but is generally reasonably high. For example, the response rate for class of 2000 is 66% for NGS and 68% for FOG.

[6] For example, graduates living in the United States at the time of the survey were included only in cohorts 2000 and 2005. In previous cohorts, only those living in Canada at the time of the survey were interviewed. In addition, for the class of 2005, Statistics Canada estimates that approximately 10,000 Ontario college graduates and 5,000 Alberta college graduates are missing from the survey population[6] due to an inability to obtain necessary data from several institutions.

[7] Following Statistics Canada's grouping, first professional degree is included in bachelor's degree.

degrees, respectively. The rate five years after graduation is 95 per cent, 90 per cent, and 83 per cent, respectively.

The final sample contains 340,400 Ontario graduates and 469,741 graduates from the rest of Canada who:

- Graduated between the ages of 20 and 45years (157,997 graduates excluded);
- Obtained a college certificate/diploma or a university degree in the reference year (275,271 graduates excluded);
- Have not obtained any PSE credential between graduation and the survey (454,314 graduates excluded[8]).

The labour market outcomes discussed in this paper are based mainly on respondents' report of their main jobs in the reference week, which is the week before the survey interview. This paper will examine the quantity and quality of graduates' employment outcomes, which are reflected in the following measures:

1. Unemployment rate
2. Proportion with a full-time vs. a part-time job
3. Proportion with a permanent vs. a temporary/seasonal job
4. Overqualification
5. Proportion in a closely related job
6. Annual earnings
7. Distribution by occupation and industry

The primary objective of this paper is to provide an overview of Ontario PSE graduates' early labour market outcomes. The main method will be descriptive analysis based on the comparison of variable means. The results in this paper should not be taken as estimates of causal effects of PSE because the outcomes could be related to graduates' characteristics. In fact, the demographic composition of PSE students and graduates has changed considerably since the 1980s (Gunderson & Krashinsky, 2010). For example, in Ontario, the percentage of female university graduates increased steadily between the 1982 and the 2005 cohorts: from 54 per cent to 63 per cent for bachelor's graduates, and from 40 per cent to 53 per cent for graduates with advanced degrees. Thus, the discussion of earnings and the discussion of the proportion of graduates working on a part-time and a full-time basis need to be considered in the context of the changing gender composition of PSE graduates. A forthcoming HEQCO paper will discuss the personal and program characteristics of graduates in relation to labour market outcomes.

Results

Unemployment Rate

Figure 2 shows the unemployment rate[9] of Ontario PSE graduates by credential[10]. For most cohorts examined, the unemployment rate of graduates with a bachelor's degree ranged between 6 per cent and 9

[8] The excluded observations include those with missing value. In addition, the three kinds of exclusion could overlap. For example, an individual who graduated with a trade certificate at the age of 19 is counted in both first and second exclusion.

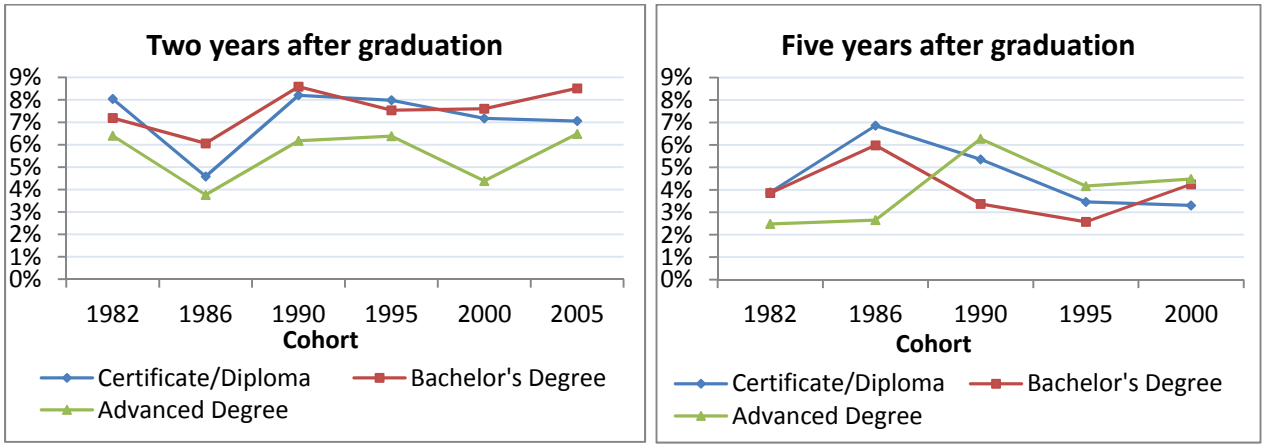
[9] Unemployment rate is the number of unemployed graduates expressed as a percentage of total graduates in the labour force. According to Statistics Canada's classification, those who were self-employed and those who were not absent from a job due to a temporary layoff were both considered to be employed, while respondents who had a job starting in the future were considered to be unemployed. Unless employed, full-time students who were looking for a full-time job were classified as not being in the labour force. Unless specified, this is the definition of employed, unemployed and not in the labour force used in this paper.

[10] Note that the year shown on the horizontal axis is the graduation year of the cohort whereas the unemployment rate is actually of the cohort's NGS and FOG survey year. For example, cohort 1986's unemployment rate in the "two years after graduation" chart is the

per cent two years after graduation and decreased to between 3 per cent and 6 per cent five years after graduation. The unemployment rate of college graduates was not dramatically different from graduates with a bachelor's degree, but in general, it was slightly lower two years after graduation and slightly higher five years after graduation.

Between two and five years after graduation, the unemployment rate decreased by at least three percentage points for all cohorts of college graduates and graduates with a bachelor's degree, except for the class of 1986. The relatively high unemployment rate of cohort 1986 in 1991 (five years after graduation) was likely due to the early 1990s recession (Gunderson & Krashinsky, 2010).

Figure 2. Unemployment rate of Ontario PSE graduates



The unemployment rate of graduates with advanced degrees ranged between 4 per cent and 7 per cent two years after graduation, which is lower than other graduates across all cohorts. Their unemployment rate decreased to below 3 per cent five years after graduation for the class of 1982 and 1986. However, the unemployment rate rose significantly for the class of 1990 (6 per cent), reaching levels higher than all other PSE graduates. It has since fallen, but has remained higher than all other PSE graduates. For the classes of 1990 and 2000, the unemployment rate five years after graduation was even higher than it was two years after graduation.

It is also observed that Ontario PSE graduates' unemployment rate generally followed the trend of Ontario's unemployment over time (Figures 2 and 6). PSE graduates' employment rate is expected to be affected by the employment environment of the province. For example, the increase in graduates' unemployment rate between the late 1980s and the early 1990s[11] reflects the increase in the unemployment rate of Ontario's overall labour force during the same period.

unemployment rate in the 1988 survey (NGS survey year). Similarly, the unemployment rate of cohort 1986 in "five years after graduation" is the unemployment rate in the 1991 survey (FOG survey year). Unless specified, this definition applies to all of the charts appearing in this paper. Moreover, the same scale was used in the charts for two years and five years after graduation.

[11] The late 1980s refers to 1988 (two years after the graduation of the class of 1986) and 1987 (five years after the graduation of the class of 1982). The early 1990s refers to 1992 (two years after the graduation of the class of 1990) and 1991 (five years after the graduation of the class of 1986).

Figures 3a, 3b and 3c show Canadian PSE graduates' unemployment rate by region. For most cohorts examined, the unemployment rates of Ontario college graduates and graduates with a bachelor's degree were among the lowest. For Ontario graduates with advanced degrees, unemployment was among the lowest during the 1980s, but has since risen to be among the highest during the 1990s and 2000s.

Figure 3a. Unemployment rate by region: College graduates

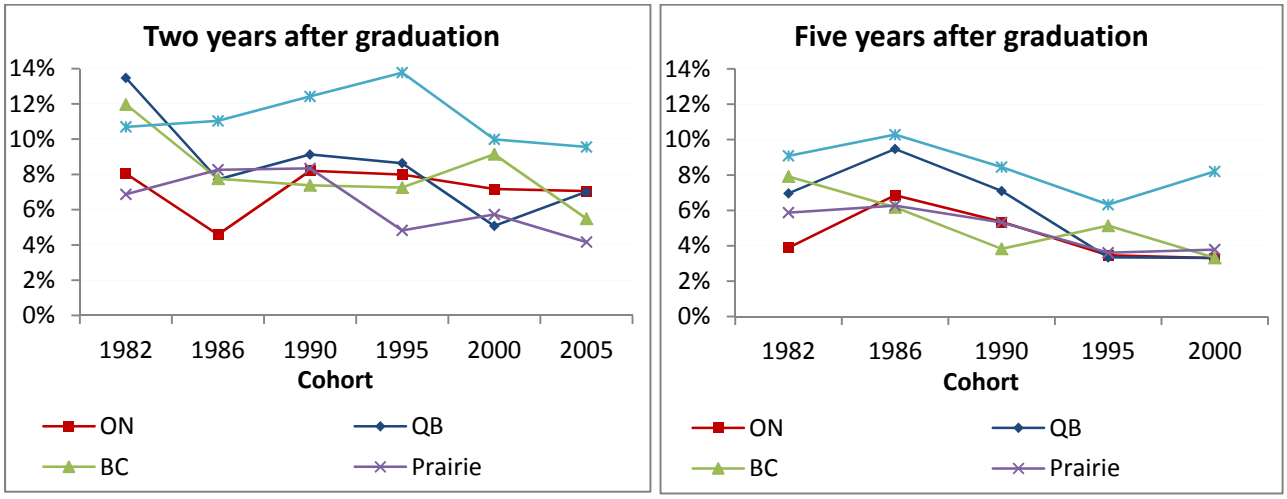


Figure 3b. Unemployment rate by region: Graduates with a bachelor's degree

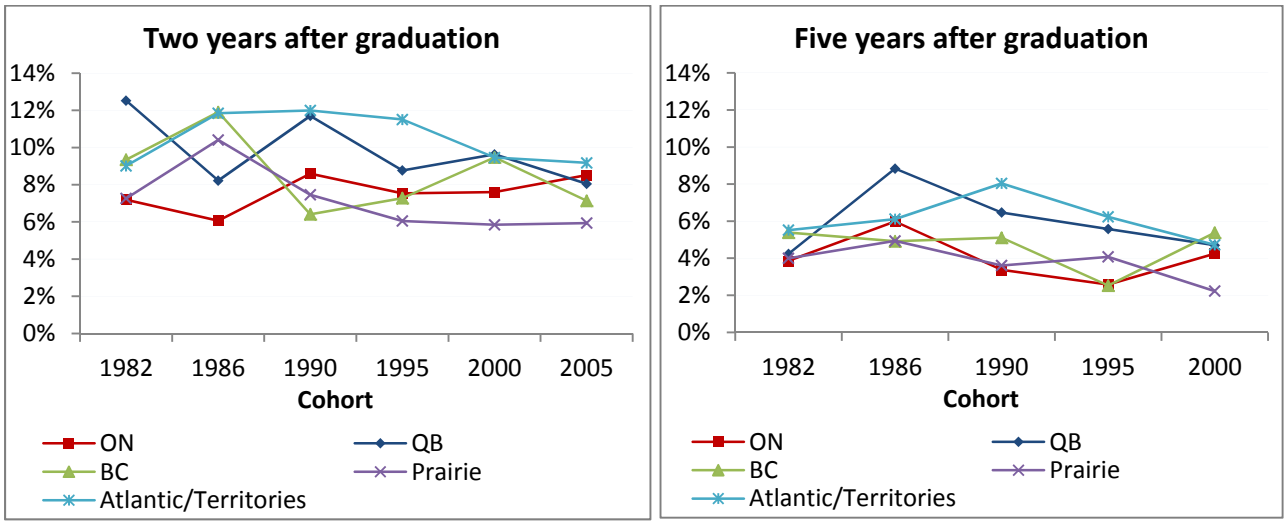


Figure 3c. Unemployment rate by region: Graduates with advanced degrees

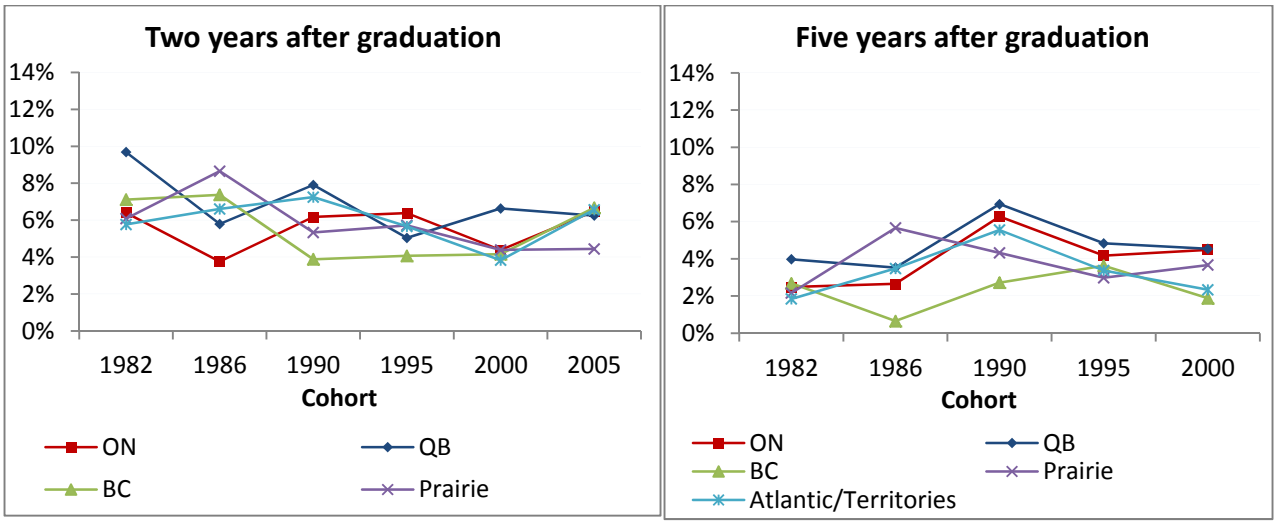


Figure 4 shows the unemployment rate gap between Ontario PSE graduates and the rest of Canada (ROC). Compared with the rest of Canada, Ontario PSE graduates' unemployment rate two years after graduation was more than three percentage points lower during 1980s, but the advantage has since decreased, becoming negative for the class of 2005. This follows the same pattern found between the overall labour force of Ontario and the rest of Canada (Figure 5). The unemployment rate of Ontario PSE graduates five years after graduation was generally lower than the rest of Canada, with the exception of graduates with advanced degrees (cohorts 1990, 1995 and 2000).

Figure 4. PSE graduates' unemployment rate gap between Ontario and ROC (ON minus ROC)

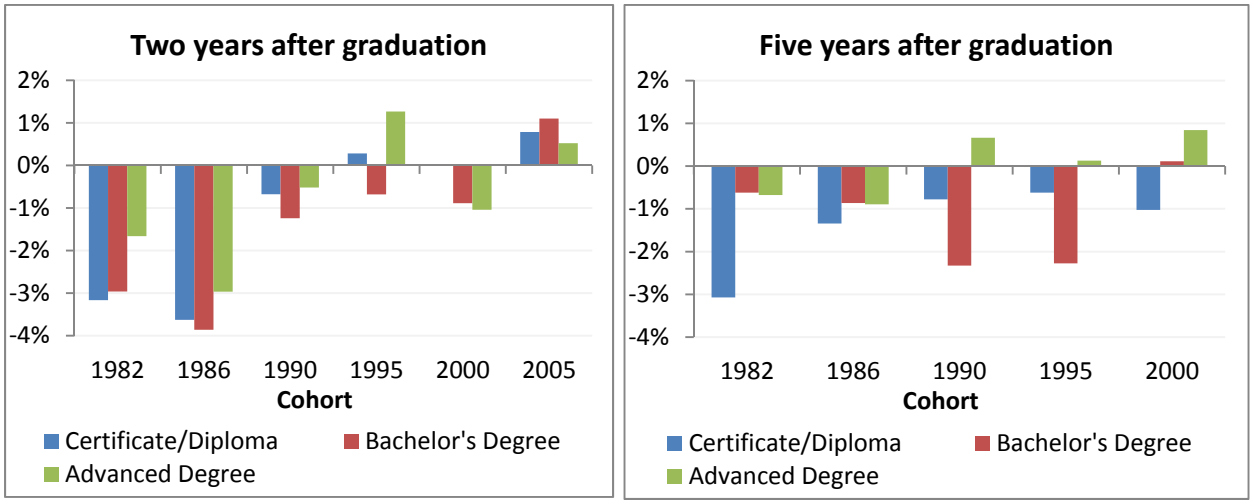
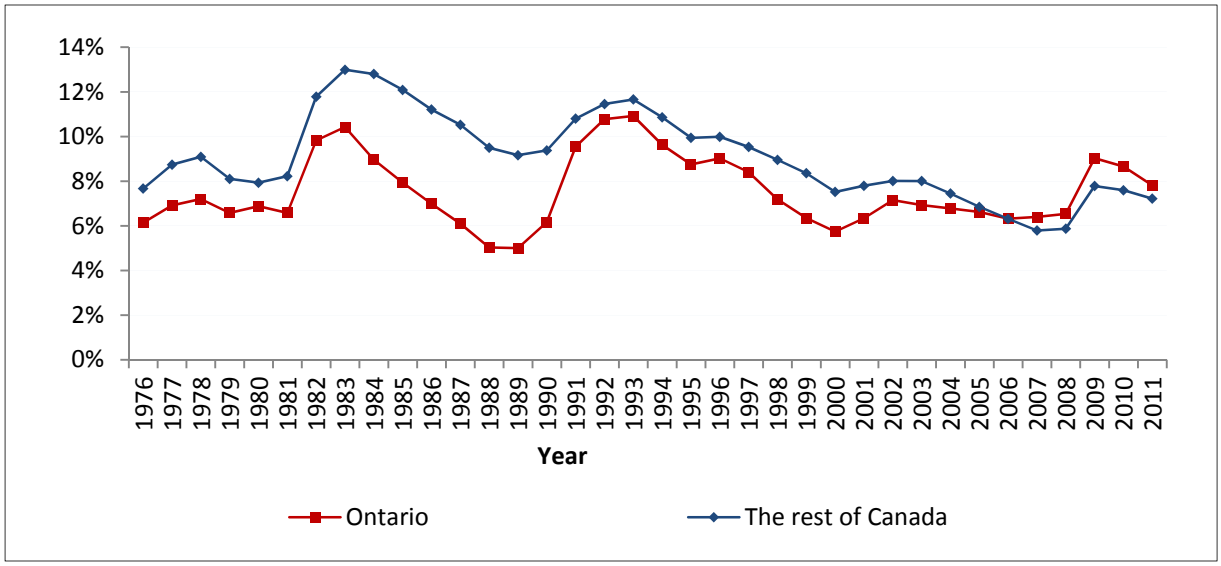


Figure 5. Unemployment rate of overall labour force aged 15 years and over[12]



The above discussion on unemployment rate is based on individuals in the labour force who have a job or are actively looking for employment. In Ontario, PSE graduates' labour force participation rate was above 90 per cent two years after graduation, and the percentage rose to above 92 per cent five years after graduation.

Respondents who were not looking for a job were asked to indicate why. Going to school[13] and personal or family responsibilities were the two most common reasons, having been reported by 50-96 per cent of the graduates depending on credential and cohort. Going to school was the most common reason for not looking for a job reported by university graduates two years after graduation. Five years after graduation, only graduates with a master's degree consistently cite going to school as the most common reason. Between two and five years after graduation, proportionally fewer graduates reported going to school as their reason for not looking for work, while more graduates reported 'personal or family responsibilities'. For college graduates, 'personal or family responsibilities' was the most common reason both two and five years after graduation. This was not true for college graduates from the rest of Canada who were most likely to report going to school as the reason they were not looking for work two years after graduation.

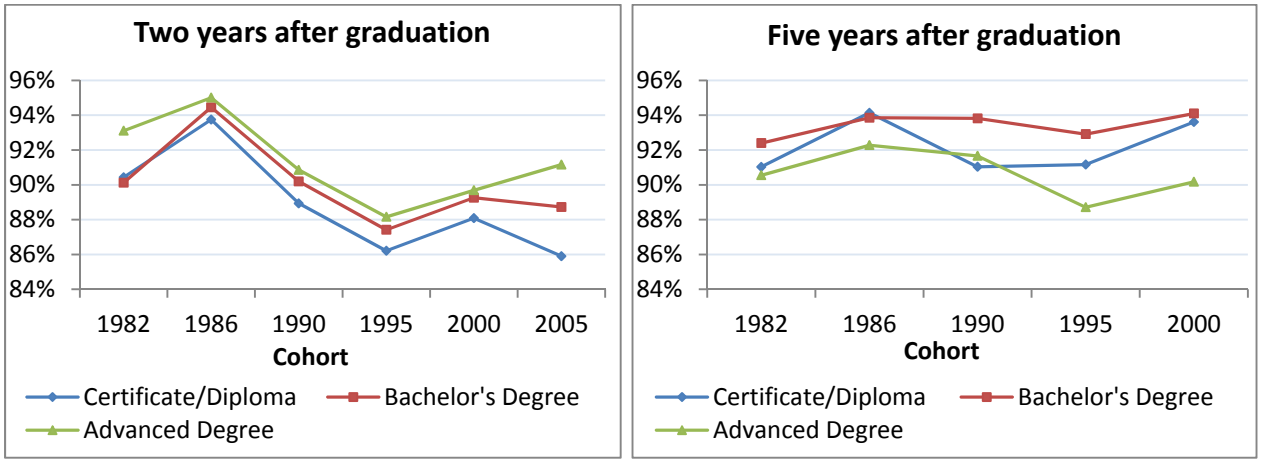
By contrast, two years after graduation, fewer than 3 per cent of graduates who were not looking for a job reported either they could not find a job they wanted or they were discouraged from looking for a job. The exception to this finding was college graduates of cohort 2005 (7 per cent). The percentage five years after graduation was slightly higher but still lower than 4 per cent, except for bachelor's degree holders of cohort 1990 (6 per cent). The percentage of graduates who reported 'no longer interested in finding a job' as the reason was less than 4 per cent two years after graduation. Five years after graduation, the percentage rose slightly but was still lower than 5 per cent for the majority of cohorts.

[12] Calculated using Statistics Canada's CANSIM Table 282-0002 (LFS).
[13] Graduates who reported "going to school" as the main reason for being out of the labour force were students who have not obtained additional credentials at the time of the survey, because graduates who have obtained additional PSE credentials between graduation and the survey have already been excluded from the working sample.

Proportion with a full-time vs. a part-time job

Figure 6 shows the percentage of Ontario PSE graduates who worked full-time (30 hours or more per week) during the reference week. Among those employed two years after graduation, the percentage with a full-time job dropped between cohort 1982 and cohort 2005: from 90 per cent to 86 per cent for college graduates; from 90 per cent to 89 per cent for graduates with a bachelor's degree; and from 93 per cent to 91 per cent for graduates with advanced degrees. The largest decrease occurred between the cohorts 1986 and 1995 (seven percentage points). By contrast, five years after graduation, the percentage with a full-time job was fairly stable over time, ranging between 91 per cent and 94 per cent for college graduates and graduates with a bachelor's degree, and between 88 per cent and 92 per cent for graduates with advanced degrees.

Figure 6. Percentage of Ontario PSE graduates with a full-time job

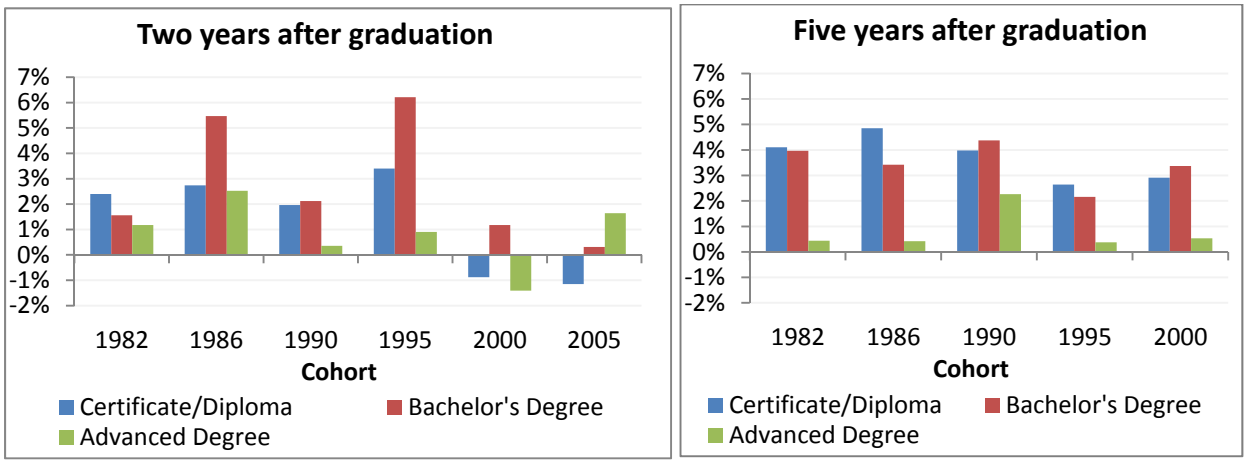


From Figure 6 it is also observed that proportionally more graduates have a full-time job five years after graduation than two years after graduation, except for graduates with advanced degrees of earlier cohorts (1982 and 1986).

By credential, graduates with a bachelor's degree were slightly more likely to be employed full-time than college graduates both two years and five years after graduation, while those with advanced degrees were most likely to have a full-time job two years after graduation, but least likely five years after graduation.

Figure 7 shows the differences in the percentage of PSE graduates with a full-time job between Ontario and the rest of Canada. Compared with the rest of Canada, Ontario PSE graduates were more likely to have a full-time job, with the exception of cohort 2000 and 2005, two years after graduation. For these two cohorts, bachelor's degree holders were still more likely to have a full-time job but with a smaller advantage, while college graduates were less likely to have a full-time job two years after graduation.

Figure 7. Differences in percentage with a full-time job: ON minus ROC



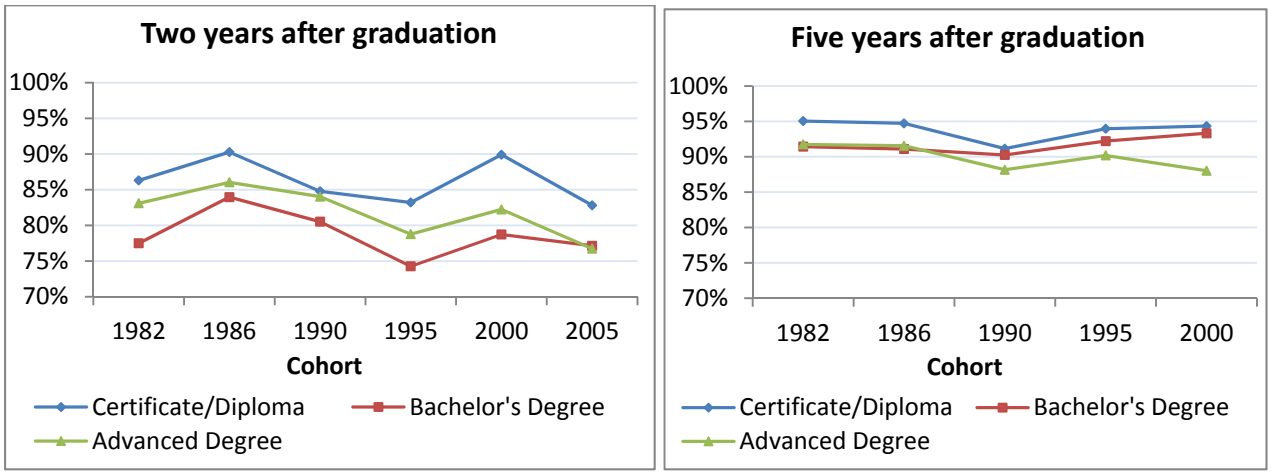
When graduates with a part-time job were asked why they had a part-time job two years after graduation, the most common reason for all but cohort 2005 is that they could not find a full-time job (45-65 per cent for college graduates, 30-50 per cent for bachelor's graduates, and 25-25 per cent for graduates with advanced degrees). Schooling is the second reason for university graduates (15-25 per cent for bachelor's graduates, and 25 per cent for graduates with advanced degrees). Only 7 per cent of college graduates listed schooling as their reason during the 1980s and 1990s, while the percentage jumped to above 20 per cent for the cohort 2000 and 2005. Family responsibility is not a frequently mentioned reason for college graduates and bachelor's graduates (less than 10 per cent), and these figures do not vary by gender. However, 10-20 per cent of part-time working graduates with advanced degrees listed family responsibility as their reason, and the percentages for females are even higher. Five years after graduation, proportionally more graduates listed family responsibility as their reason, which could be attributed to their relatively older age. Not being able to find a full-time job remains the most cited reason given by college graduates five years after graduation, but the percentage who report this is lower than two years after graduation. Interestingly, schooling becomes the most reported reason for graduates with advanced degrees (30 per cent) five years after graduation.

Proportion with a permanent vs. a temporary/seasonal job

The discussion of permanent jobs and overqualification that follow are both based on paid workers. In the NGS/FOG, respondents who were employed at the time of the survey were asked whether they were a paid worker, self-employed, or an unpaid family worker. Across the cohorts examined, the percentage working as a paid employee remained stable, ranging between 94 per cent and 96 per cent two years after graduation and between 90 per cent and 94 per cent five years after graduation, with the exception of the class of 1995, whose percentages were two to six percentage points lower than other cohorts.

Respondents who were paid workers were asked whether their job was permanent, temporary or seasonal. Figure 8 shows those with a permanent job as a percentage of paid employees for Ontario PSE graduates.

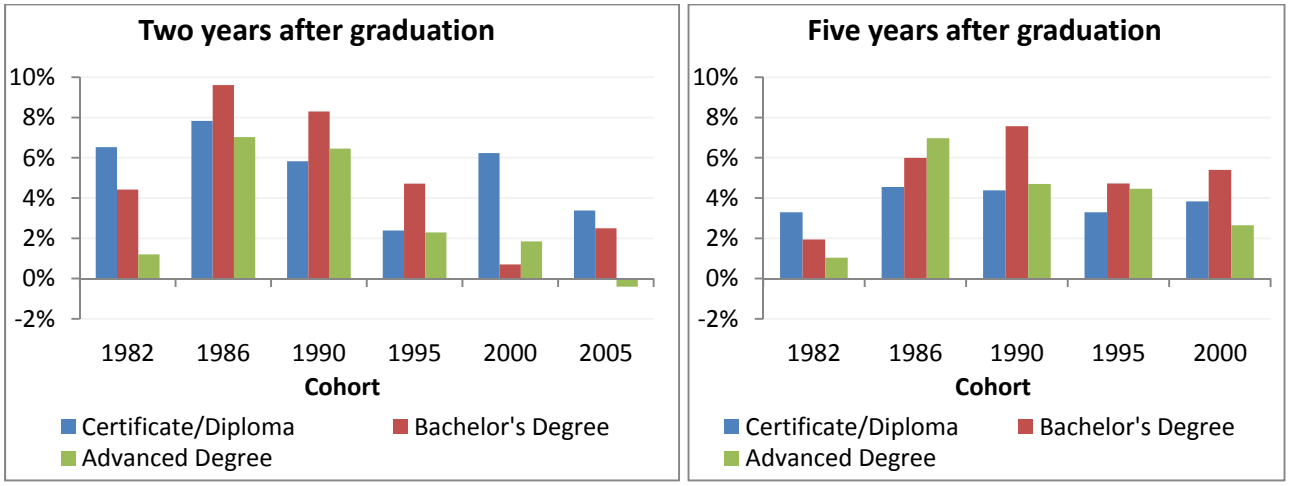
Figure 8. Percentage of Ontario PSE graduates with a permanent job



The percentage of paid employees two years after graduation with a permanent job ranged between 83 per cent and 90 per cent for college graduates and between 75 per cent and 85 per cent for those with a bachelor's degree as well as those with advanced degrees. Five years after graduation, the rate rose to 91 to 95 per cent for college graduates, 90 to 94 per cent for bachelor's graduates, and 88 to 92 per cent for those with advanced degrees. Among the three levels of PSE graduates, college graduates were most likely to have a permanent job. Two years after graduation, the percentage of college graduates with a permanent job was five to ten percentage points higher than bachelor's graduates, who were the least likely to have a permanent job at that time. Five years after graduation, the percentage of college graduates with a permanent job was four percentage points higher than those with advanced degrees, who were the least likely to have a permanent job five years after graduation. Between two and five years after graduation, graduates with a bachelor's degree had the largest increase in the proportion working in a permanent job.

Figure 9 shows the differences in the proportion of PSE graduates with a permanent job between Ontario and the rest of Canada. Across all cohorts examined, Ontario PSE graduates were significantly more likely to have a permanent job than PSE graduates in the rest of Canada.

Figure 9. Differences in percentage with a permanent job: ON minus ROC



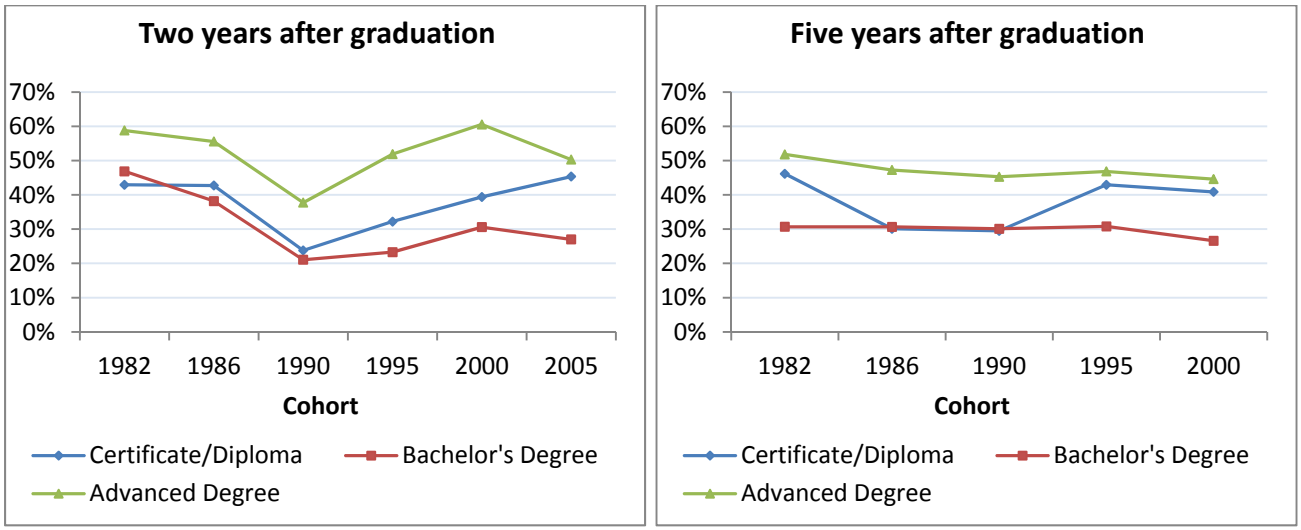
Overqualification

People who are overqualified for their job are perceived to be underemployed. Underemployment in this context can be considered an inefficient use of the labour force. In the NGS/FOG, respondents[14] were asked to report the level of education required for their job. This educational requirement was compared with the graduate's highest level of education at the time of the survey to determine whether the graduate was overqualified for their job[15].

Figure 10 shows the percentage of Ontario PSE graduates who were overqualified for their job at the time of the survey. Graduates with a bachelor's degree who were employed two years after graduation and were working in a job requiring less than a bachelor's degree dropped from 47 per cent for the class of 1982 to 27 per cent for the class of 2005. The drop mainly occurred during the 1980s, and the percentage has been relatively stable, ranging between 20 per cent and 30 per cent since that time. The same trend is not seen in college graduates. Two years after graduation, the percentage of overqualified college graduates fell dramatically between the 1986 and 1990 cohorts, from 43 per cent to 24 per cent, but has since increased, reaching 45 per cent for the class of 2005. Similarly, the percentage of advanced degree graduates who were overqualified dropped during the 1980s, reaching the lowest point (38 per cent) for the class of 1990, but has since increased until the early 2000s. Further study is needed to determine whether the increase in the percentage of PSE graduates who were overqualified for their job after cohort 1990 is related to the dramatic increase in the supply of PSE graduates during the 1990s and 2000s (Figure 1).

[14] Questions related to overqualification were only asked to respondents who were paid workers at the time of the survey.
[15] Statistics Canada derived variable.

Figure 10. Percentage of Ontario PSE graduates overqualified for their job[16]



The fluctuation across cohorts in the proportion who are overqualified two years after graduation was not observed five years after graduation. Five years after graduation, the percentage of overqualified workers was approximately 30 per cent for graduates with a bachelor's degree, 30-45 per cent for college graduates and 40-50 per cent for graduates with advanced degrees. If the increase in the supply of new PSE graduates did have an influence on graduates' employment, the influence seems to be less for those who have been in labour market for five years than graduates who have been in labour market for two years. This difference is likely attributable to graduates with more work experience looking for more senior positions than individuals with less work experience.

By credential, graduates with advanced degrees were more likely to be overqualified than college graduates and graduates with a bachelor's degree across all cohorts. For both two years and five years after graduation, the percentage of advanced degree graduates who were overqualified for their job was around 20 percentage points higher than graduates with a bachelor's degree – the least likely to be overqualified. The overqualification of graduates with advanced degrees did improve with increased time in the labour market, as the percentage of overqualified workers decreased from 50-60 per cent two years after graduation to 40-50 per cent five years after graduation.

As shown in Figure 10, the percentage of Ontario PSE graduates who are overqualified is fairly high, although it is consistent with Frenette's (2000) calculation of overqualification at the national level. Among other factors, there are two points that should be kept in mind regarding the definition of overqualification used in the NGS and FOG. The educational requirement is the level of education that was needed to get the job, rather than the requirement of their current job duties. The duties could have changed since the graduates started and the educational requirement for their current duties may be higher. For instance, for the class of 2000 in Ontario, 41 per cent of employed graduates got a promotion within two years of graduating. The survey did not ask for the educational requirement for their new position. It is not unreasonable to imagine that some of

[16] It is the number of graduates who were overqualified for their job expressed as a percentage of the number of graduates who were paid workers at the time of the survey.

these graduates started in an entry-level position for which they were overqualified, but were subsequently promoted to a more senior position requiring higher educational credentials. In addition, the educational requirement could be a minimum requirement for their job and may be accompanied with other requirements such as work experience.

Figure 11 depicts the percentage of PSE graduates who are in a job requiring no completed PSE credential[17]. Two years after graduation, the percentage for college graduates falling into this group increased from 21 per cent in cohort 1982 to 37 per cent in cohort 2005. The percentage is stable at around 15 per cent for bachelor's degree holders and at around 4 per cent for graduates with advanced degrees, except for the 1982 cohort. Similar trends were found for graduates from the rest of Canada.

Between two and five years after graduation, the proportion of Ontario PSE graduates who are in a job requiring no completed PSE credential decreased slightly for the class of 1982, but increased slightly for the more current classes of 1995 and 2000. Moreover, Ontario graduates were generally more likely to be in a job requiring no PSE than their counterparts in the rest of Canada five years after graduation. This is not the case two years after graduation.

Figure 11. Percentage of PSE graduates in a job requiring no completed PSE credential

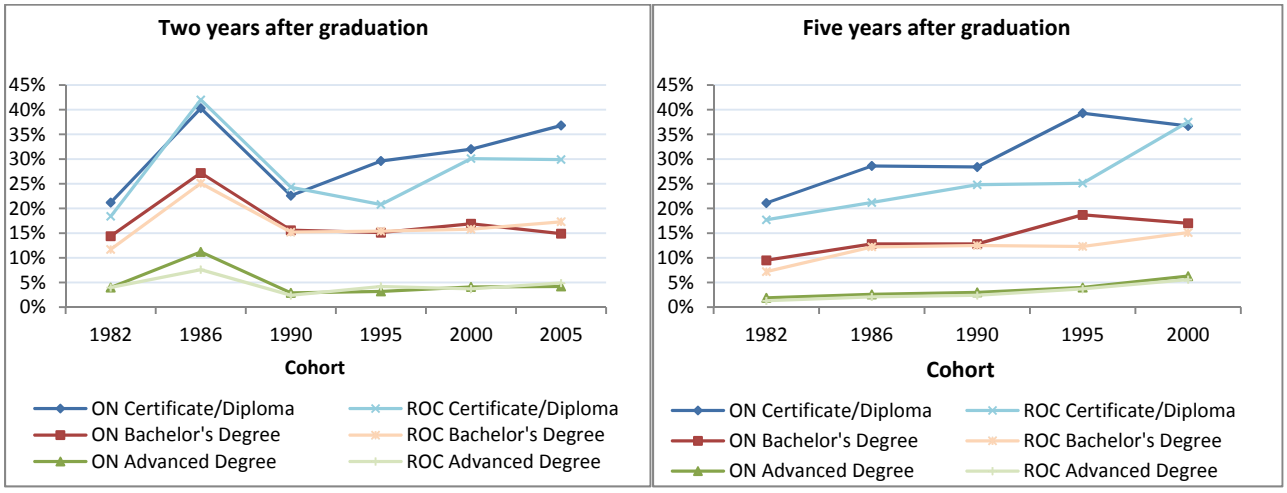
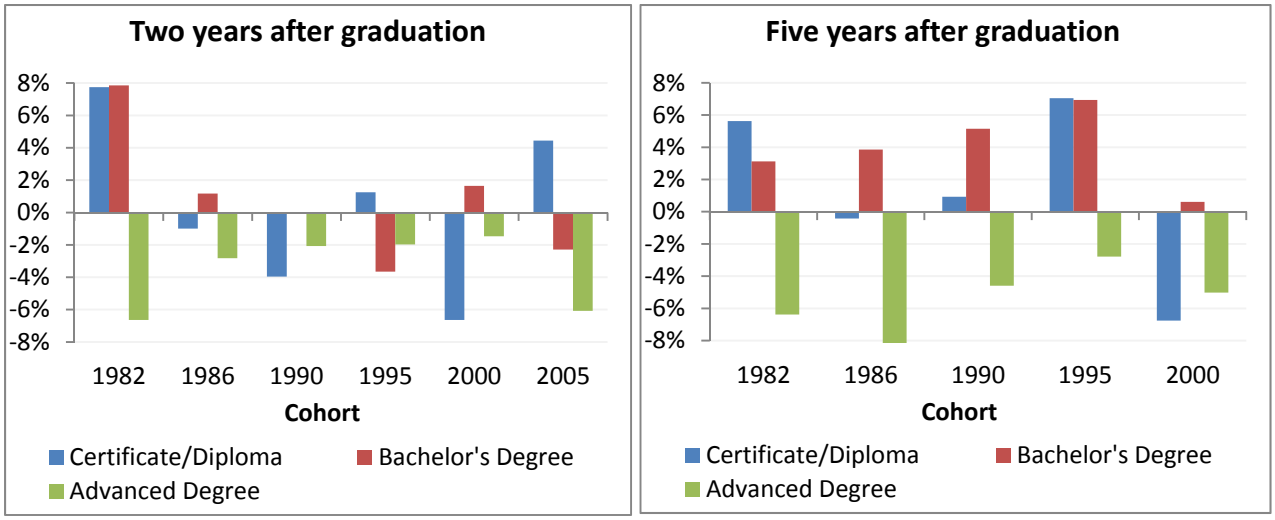


Figure 12 shows the comparison of overqualification between Ontario and the rest of Canada. Despite their negative position compared with other Ontario PSE graduates, Ontario graduates with advanced degrees fared better with respect to overqualification than their Canadian counterparts. Across all cohorts examined, they were consistently less likely to be overqualified than other Canadians, with the amount of time since graduation being insignificant. On the other hand, for most cohorts, Ontario college graduates and graduates with a bachelor's degree were more likely to be overqualified for their job when compared to the rest of Canada five years after graduation but not two years after graduation.

[17] As shown in Figure 11, the percentage two years after graduation increased dramatically for the 1986 cohort but returned to the general trend afterwards. We are not able to explain this spike in the data.

Figure 12. Differences in percentage who are overqualified: ON minus ROC



The measure of overqualification discussed above is derived from the comparison between a graduate's current highest credential and the education required to get their current job. It should be acknowledged that the educational requirement is self-reported and therefore may not be an objective measure.

Since the class of 1995, a second measure of overqualification was included in the NGS/FOG. Graduates were asked to report whether they *felt* overqualified for their job. For those with advanced degrees, the percentage who felt they were overqualified was more than 20 percentage points lower than the percentage who reported that their job requirement was below the level of an advanced degree. In other words, more than 40 per cent of graduates with advanced degrees whose job required education below an advanced degree did not feel overqualified. Interestingly, they were less likely to feel overqualified than other PSE graduates, although they were more likely to work in jobs requiring education lower than their attainment level.

Two years after graduation the percentage of college graduates and graduates with a bachelor's degree who felt overqualified for their job exceeds the proportion who were in jobs requiring education lower than their attainment level. This trend is reversed five years after graduation and may reflect being given additional job duties over time, or a greater amount of time spent in the labour market resulting in more realistic expectations about job prospects. Compared to college graduates, graduates with a bachelor's degree were more likely to feel overqualified when they were not in a job requiring education lower than their attainment level.

Figure 13. Percentage of Ontario PSE graduates who felt overqualified for their job

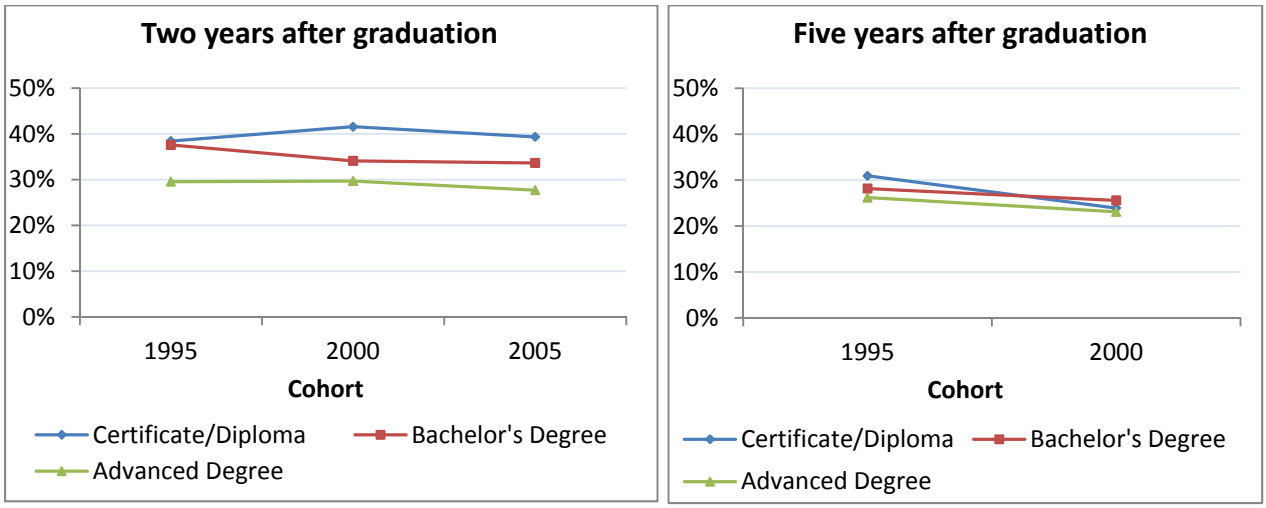
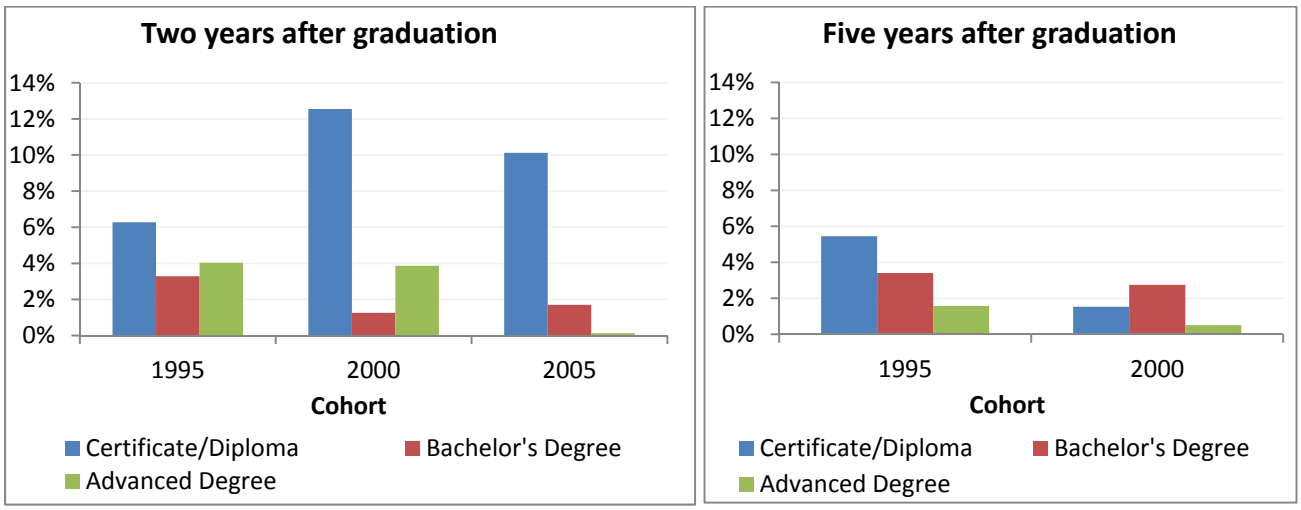


Figure 14 shows the differences between Ontario and the rest of Canada in the proportion of PSE graduates who felt overqualified for their job. Although the proportion of Ontario PSE graduates working in jobs requiring education lower than their attainment level was not consistently higher than the rest of Canada, they were consistently more likely to feel overqualified. This trend is consistent for all three credential levels, across all three available cohorts, and for both two and five years after graduation.

Figure 14. Differences in percentage who felt overqualified: ON minus ROC



Proportion working in a closely related job

In NGS/FOG, respondents were asked to report whether their job is closely or somewhat or not related to their education. As shown in Figure 15, two years after graduation, the percentage of Ontario college graduates who worked in a job closely related to their field of study ranged between 50 per cent and 60 per cent. Across the cohorts examined, this rate rose from 41 per cent to 55 per cent for bachelor's degree holders and from 52 per cent to 69 per cent for graduates with advanced degrees. This could be related to the increased proportion of university graduates in fields of study that have a strong occupational link. For bachelor's degrees granted in Ontario, the percentage in Business, Management and Public Administration increased from 10 per cent to 14 per cent between 1992 and 2007, while the percentage in Social and Behavioural Sciences decreased from 31 per cent to 26 per cent (Drewes, 2010).

In general, the percentage of Ontario PSE graduates in a job closely related to their field of study did not increase much between two and five years after graduation. There may be several reasons for the lack of change in occupations. For example, a person working in an industry/occupation for several years may be unwilling to move to another industry despite the lack of relation between their education and current position. This may be because work experience helps increase one's possibility for promotion and higher earnings. Changing careers may result in a hierarchical demotion, decreased earnings, and/or a decrease in or abolition of work networks.

Figure 15. Percentage of Ontario PSE graduates in a job closely related to their field of study

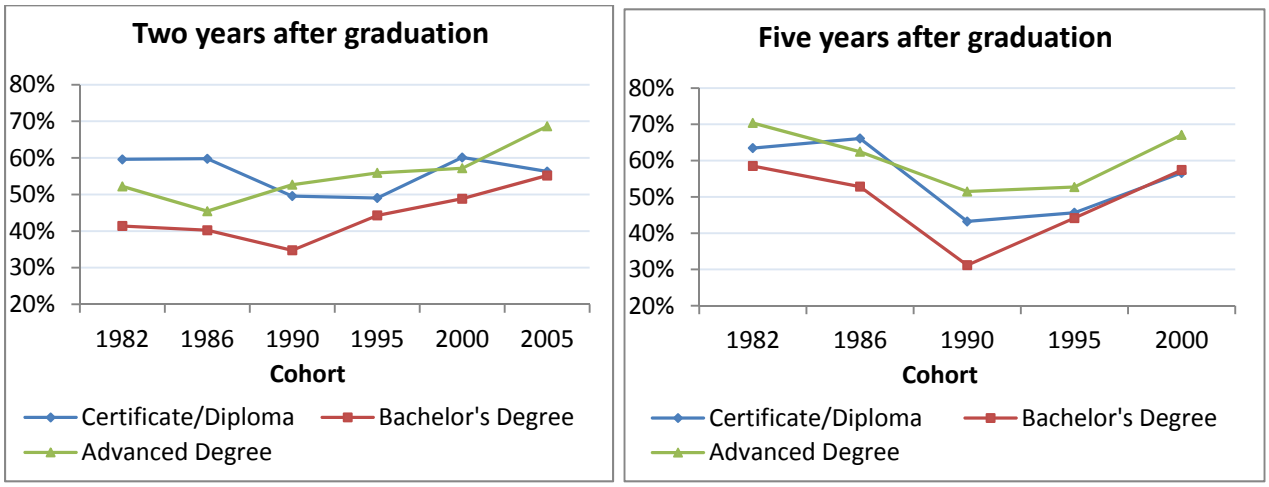
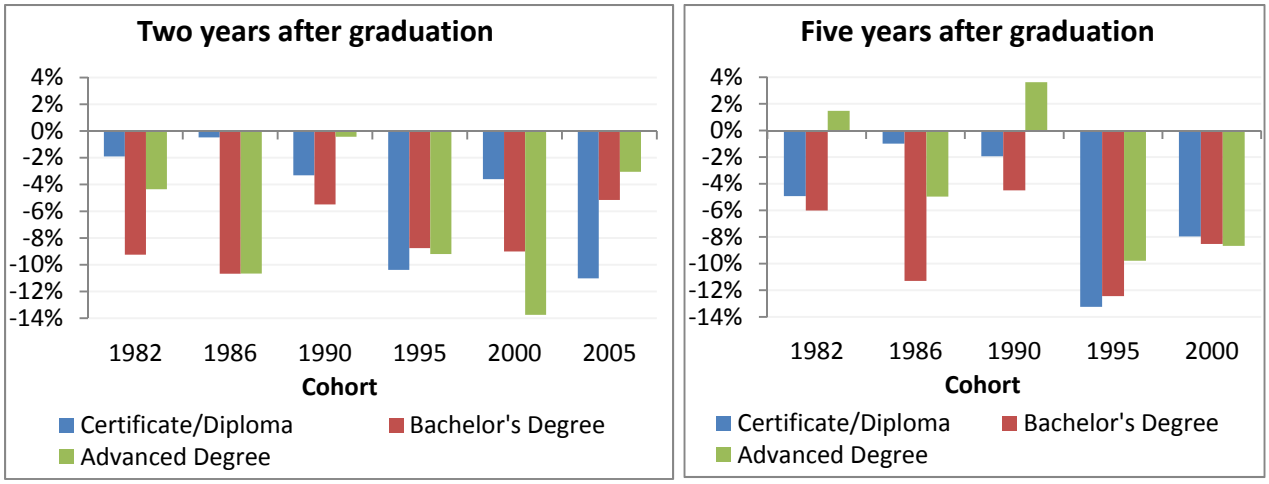


Figure 15 also shows the comparison among different credentials. Across all cohorts, bachelor's degree holders were the least likely to work in a closely related job, but more likely to work in a job somewhat related to their field, relative to college graduates. This could be a result of the different mandates and program structures in colleges and universities. Regarding graduates with advanced degrees, they were generally the most likely to work in a closely related job five years after graduation but not two years after graduation.

Figure 16 shows the differences between Ontario and the rest of Canada in the percentage of PSE graduates who were in a job that is closely related to their education. Across all cohorts examined, Ontario PSE graduates were consistently less likely to work in a closely related job than graduates from the rest of Canada, whether it was two or five years after graduation.

Figure 16. Differences in percentage in a closely related job: ON minus ROC



Annual earnings

The annual earnings discussed here are based on earnings calculated by Statistics Canada and were converted to constant 2002 Canadian dollars[18]. For this paper, only full-time paid employees with annual earnings between $5,000 and $1,000,000 were included in the discussion of earnings.[19]

Figure 17 shows the annual earnings of Ontario PSE graduates. Bachelor's degree holders' annual earnings were around $40,000 two years after graduation, and rose to approximately $50,000 five years after graduation. For college graduates, their annual earnings ranged between $30,000 and $35,000 two years after graduation, and rose to almost $40,000 five years after graduation.

Neither bachelor's degree holders, nor college graduates saw consistent growth in their earnings across the cohorts examined. By contrast, graduates with advanced degrees experienced an almost steady increase in their earnings two years after graduation from approximately $50,000 for the 1982 cohort to $60,000 for the 2005 cohort. Their earnings five years after graduation also steadily increased from $60,000 for the 1982 cohort to $75,000 for the 2000 cohort.

[18] In the NGS and FOG, graduates were asked to report their wage/salary and working status. Statistics Canada converted the reported wage or salary to annual earnings based on number of months graduates usually worked in a year, number of weeks they usually worked in a month and the number of paid hours worked per week.

[19] Self-employed workers were excluded because it is difficult to separate their labour incomes from capital incomes, while this study is primarily interested in labour incomes. As the annual earnings were calculated based on expected working hours, part-time workers will have lower annual earnings than full-time workers with same hourly rate. It will be misleading to average annual earnings including both part-time and full-time workers. Because the data of working hours are incomplete, part-time workers were excluded from the comparison of annual earnings. Those with annual earnings lower than $5,000 or higher than $1,000,000 were excluded because including those outliers will mislead the calculation of the means.

Figure 17. Annual earnings of Ontario PSE graduates by credential

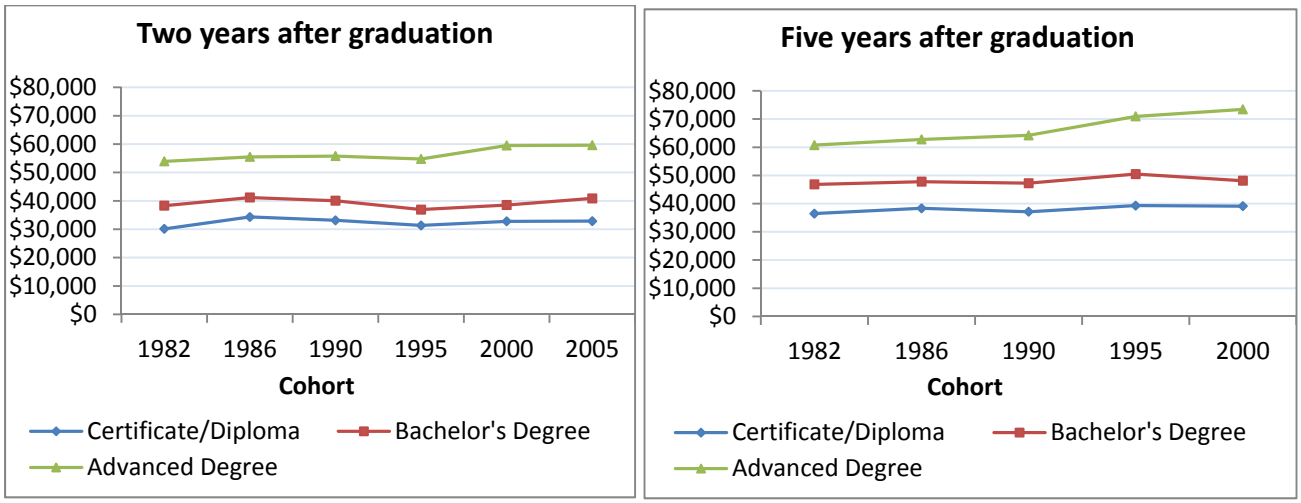
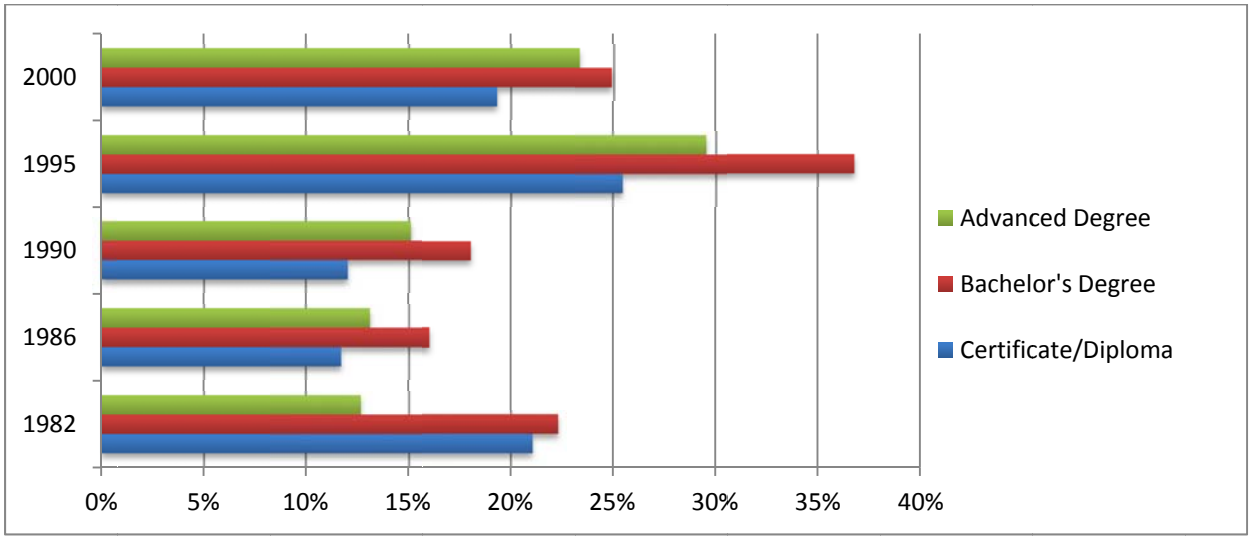


Figure 17 also showed that the earnings gap between different PSE credentials is consistent across all the cohorts examined. Graduates with an advanced degree and those with a bachelor's degree have a greater gap than the gap between graduates with a bachelor's degree and college graduates, regardless of the amount of time since graduation. This earnings gap among credentials increased between two and five years after graduation, especially between graduates with a bachelor's degree and college graduates. Bachelor's degree holders earned approximately 20 per cent more than college graduates two years after graduation, with the gap increasing to 25 per cent five years after graduation.

The earnings gap is also observed at the national level in previous literature (Gunderson & Kranshinsky, 2010; Walters, 2004). Both Ontario and Canadian data show that higher credentials tend to be rewarded with higher earnings. However, higher credentials are also associated with a greater investment of time, money, effort and opportunity costs as well. It should be kept in mind that the discussion of earnings in this paper does not take into account the cost of getting a higher credential. Vaillancourt and Bourdeau-Primeau's (2002) work offers a discussion on the return of getting a higher credential.

Figure 18 shows the increase of graduates' annual earnings between two and five years after graduation. For most cohorts examined, the earnings increase associated with a bachelor's degree was the highest (15-35 per cent) and the increase for college graduates was the lowest (10-25 per cent). The earnings increase was higher for later classes (1995 and 2000) than for earlier classes.

Figure 18. Increase of annual earnings between two and five years after graduation (%).



Figures 19a, 19b and 19c show Canadian PSE graduates' annual earnings by region. Compared with other provinces/regions, Ontario PSE graduates' annual earnings were among the highest, both two and five years after graduation. For college graduates, British Columbia graduates had the highest average earnings while Quebec graduates had the lowest average earnings, both two and five years after graduation. For bachelor's degree holders, the earnings of British Columbia graduates were still among the highest, whereas graduates in Atlantic Provinces and those in the territories earned the lowest among all provinces/regions. Thus, the earnings gap between bachelor's degree holders and college graduates was the largest for Quebec (20-40 per cent) and modest for British Columbia (5-25 per cent). For those with advanced degrees, Ontario graduates earned the most five years after graduation, but not two years after graduation.

Figure 19a. Annual earnings of PSE graduates by region: College graduates

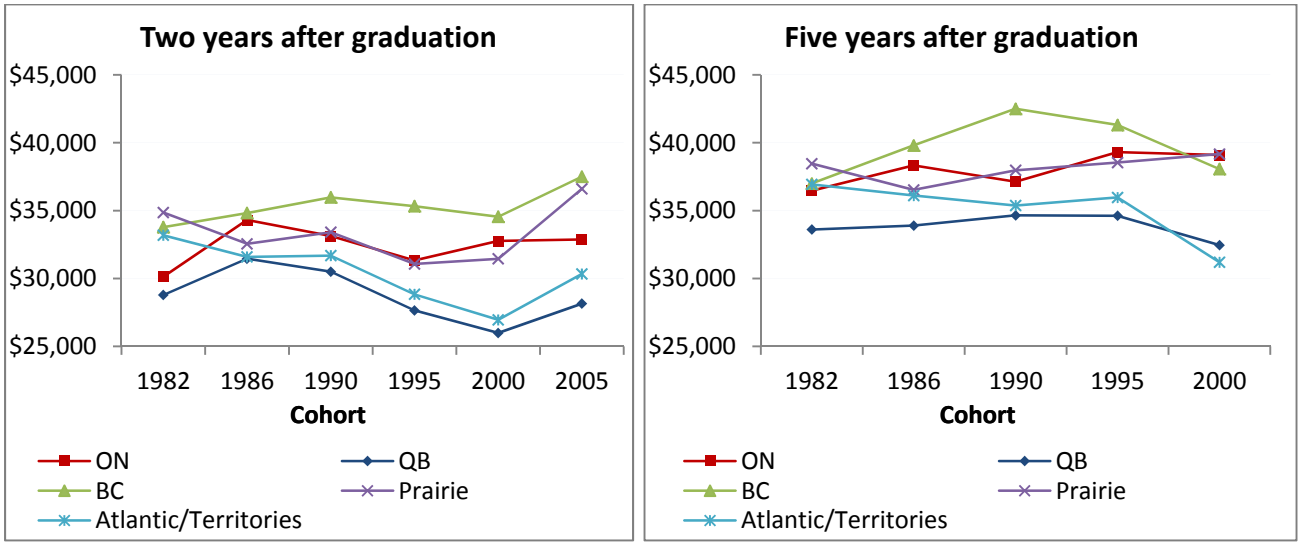


Figure 19b. Annual earnings of PSE graduates by region: Bachelor's degree

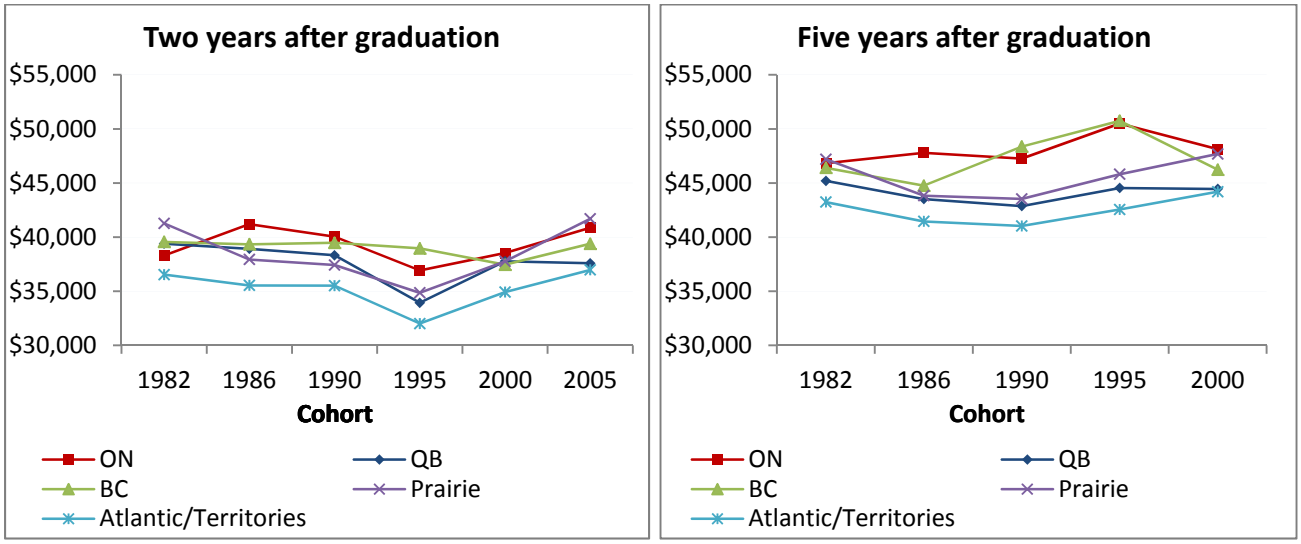


Figure 19c. Annual earnings of PSE graduates by region: Graduates with advanced degrees

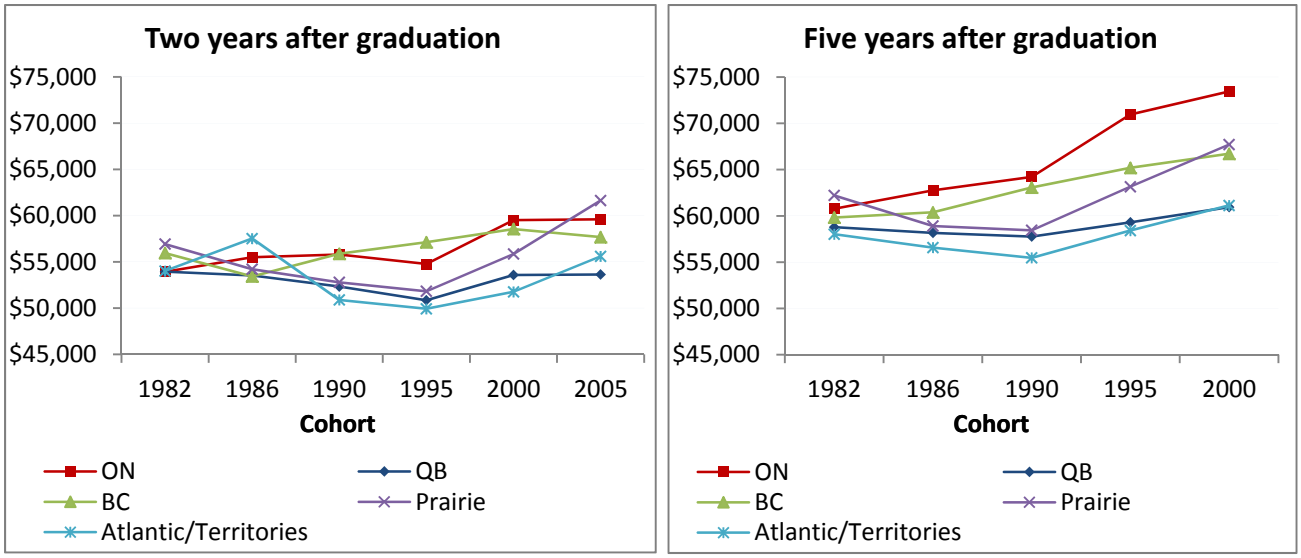
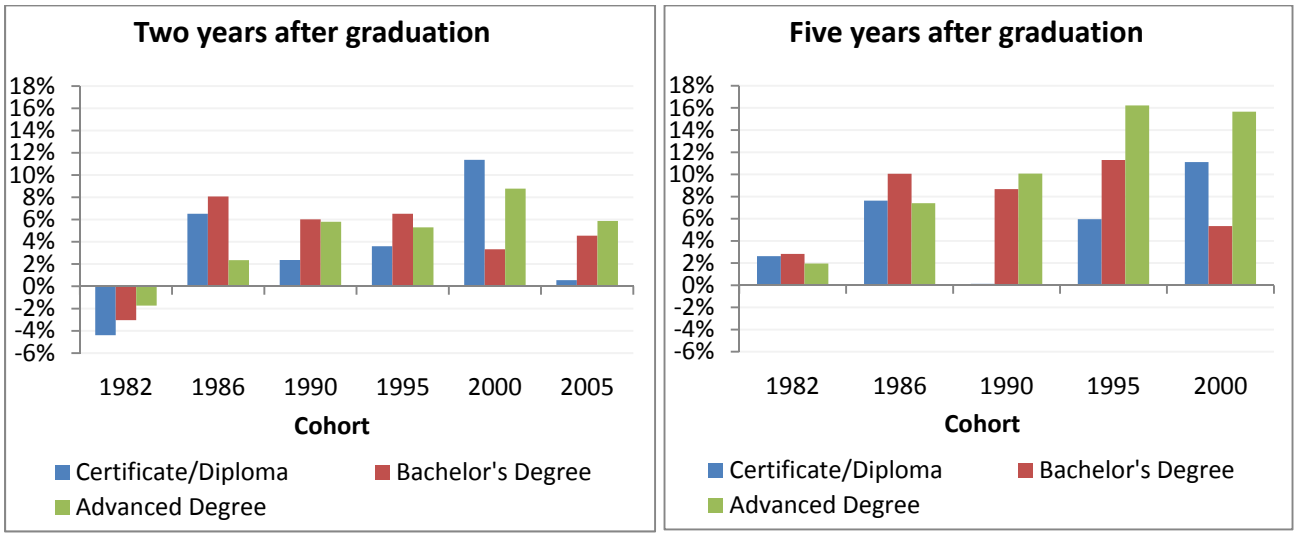


Figure 20 shows the comparison of PSE graduates' annual earnings between Ontario and the rest of Canada. Ontario PSE graduates' earnings were generally higher than the rest of Canada. For example, bachelor's degree graduates from the class of 2005 made 5 per cent more than their counterparts from the rest of Canada in 2007.The earnings gap between Ontario and the rest of Canada was generally larger five years after graduation than two years after graduation. For graduates with advanced degrees, the earnings gap between Ontario and the rest of Canada was more pronounced in recent cohorts, holding true both two and five years after graduation.

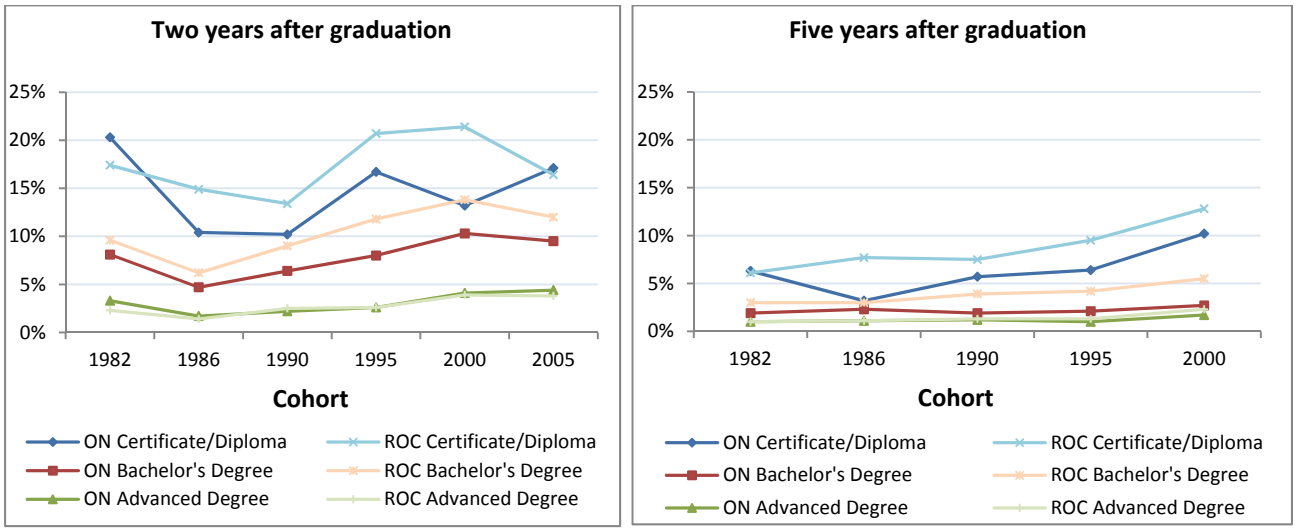
Figure 20. Percentage difference in annual earnings: ON vs. ROC



The above discussion was based on the comparison of the means of graduates' annual earnings. In order to get a sense of the occurrence of low income earners, Figure 21 depicts the proportion of full-time paid employees who have annual earnings less than $20,000. College graduates were most likely to earn less than $20,000, while advanced degree graduates were least likely to be low earners. The percentage of college graduates who earn less than $20,000 two years after graduation fluctuates across the cohorts, ranging between 10 per cent and 20 per cent. The percentage for bachelor's degree graduates decreased from the 1982 cohort (8 per cent) to the 1986 cohort (5 per cent), but has since increased to 10 per cent for the 2005 cohort. Since the means of their annual earnings do not decrease across the cohorts, the increase in the proportion of lower earners indicates an increase in the earnings difference among bachelor's degree graduates. The percentage for master's degree graduates was relatively stable, ranging between 2 per cent and 4 per cent.

The percentage of lower earners decreased prominently between two and five years after graduation, contributing to the increase in graduates' mean earnings between two and five years after graduation. The percentage of low earning college graduates five years after graduation decreased between the 1982 cohort (6 per cent) and the 1986 cohort (3 per cent), but has since increased to 10 per cent for the 2000 cohort. The percentages for university graduates are under 3 per cent for all cohorts examined.
Similar trends were observed for graduates from the rest of Canada, both two and five years after graduation. In general, Ontario PSE graduates were less likely to earn less than $20,000 than their counterparts in the rest of Canada.

Figure 21. Percentage of PSE graduates with annual earnings less than $



Distribution by industry and occupation

In the NGS and FOG, respondents were also asked to report the industry and occupation in which they worked. Since the industry classification system and occupation classification system have changed over the past twenty years, this paper only discusses the most current class of 2005 two years after graduation (Figures 22 and 23).

As shown in Figure 22[20], about one third of bachelor's degree holders (30 per cent) and graduates with advanced degrees (40 per cent) were in occupations in social science, education, government service and religion, which is the largest occupational group for both of these credential levels. The second and third largest groups are business, finance and administrative occupations and occupations in natural and applied sciences. Together, these three occupation groups account for about 70 per cent of employed bachelor's degree holders and graduates with advanced degrees. Moreover, 11 per cent of graduates with advanced degrees were in management occupations two years after graduation. The percentage is almost twice that of the percentage for bachelor's degree holders (7 per cent) and college graduates (6 per cent).

The occupational distribution of college graduates is not as concentrated as the distribution of university graduates. The top five occupation groups are business, finance and administrative occupations (20 per cent), sales and service occupations (19 per cent), health occupations (13 per cent), natural and applied sciences and related occupations (12 per cent) and occupations in social science, education, government service and religion (10 per cent).

Figure 22. Ontario PSE graduates' distribution by occupation (NOC): class of 2005, two years after graduation

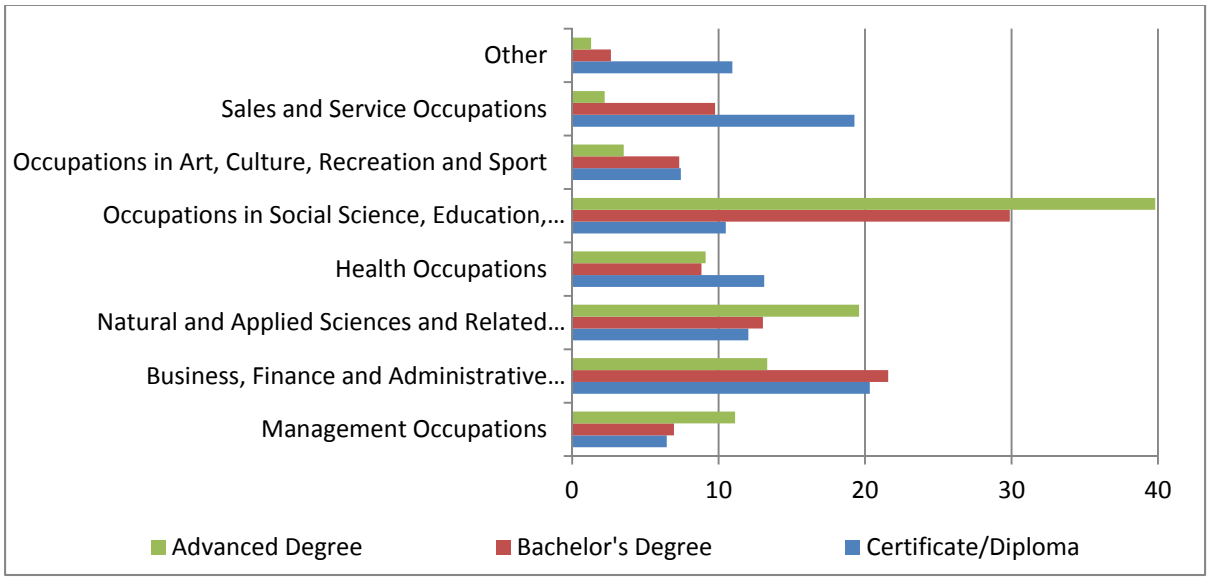


Figure 23[21] shows the distribution of Ontario PSE graduates by industry for the class of 2005 two years after graduation. The industry group that employed the largest percentage of bachelor's degree holders and graduates with advanced degrees is educational services, which accounts for approximately 23 per cent of all

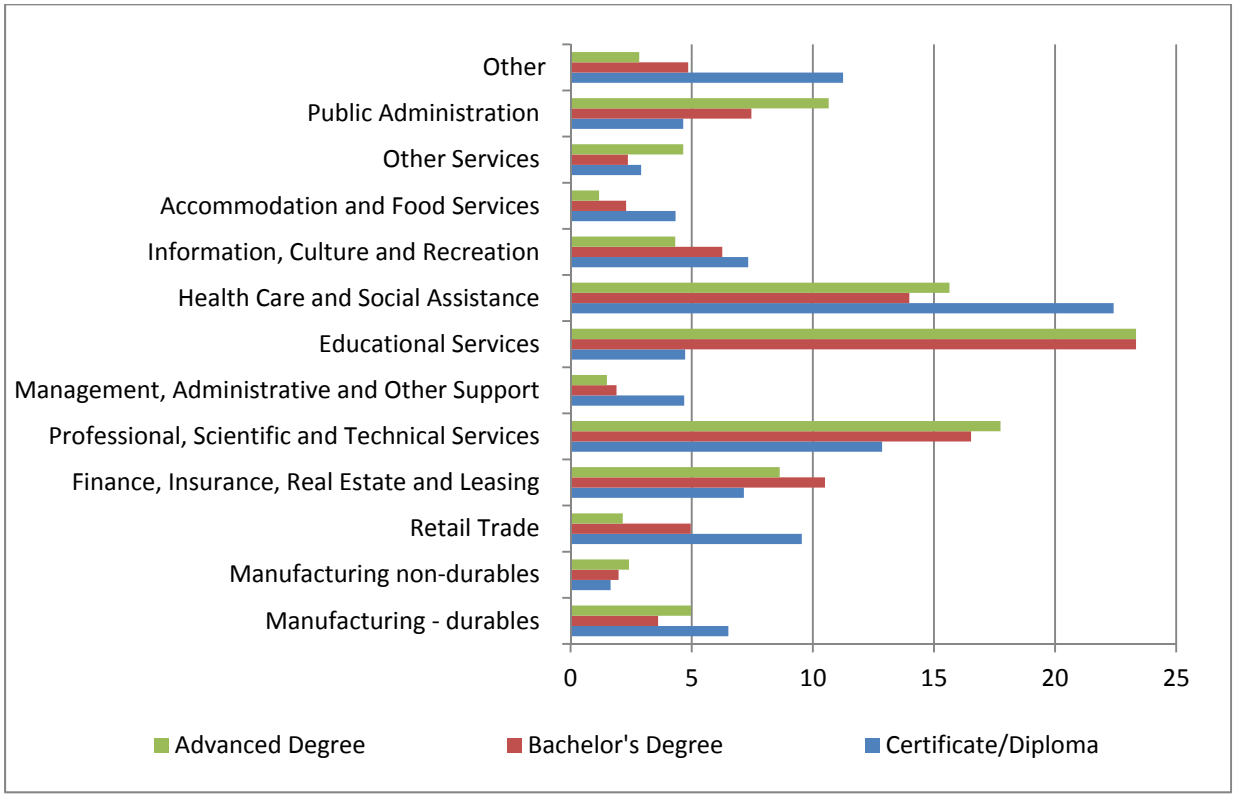
[20] NGS/FOG for the class of 2005 used National Occupational Classification for Statistics (NOC-s) 2001 for the occupation coding. Figure 24 takes the 10 broad occupational categories with three small groups aggregated to "other". The group "other" includes Trades, Transport and Equipment Operators and Related Occupations, Occupations Unique to Primary Industry and Occupations Unique to Processing, Manufacturing and Utilities.

[21] NGS/FOG for the class of 2005 used North American Industry Classification System (NAICS) 1997 for the industry coding. Figure 25 takes the 18 broad industry grouping with six small groups aggregated to "other". The group "other" includes Agriculture; Forestry, Fishing, Mining, Oil and Gas; Utilities; Construction; Transportation and Warehousing and Wholesale Trade.

university graduates. The next four biggest industry groups are professional, scientific and technical services, healthcare and social assistance, public administration and finance, insurance, real estate and leasing. These top five industry groups account for more than 70 per cent of bachelor's degree holders and graduates with advanced degrees.

The industry distribution of college graduates is different from university graduates, with 22 per cent of college graduates in health care and social assistance, followed by professional, scientific and technical services (13 per cent), retail trade (10 per cent), information, culture and recreation (7 per cent) and finance, insurance, real estate and leasing (7 per cent). These top five industry groups account for around 59 per cent of those employed college graduates.

Figure 23. Ontario PSE graduates' distribution by industry (NAICS): class of 2005, two years after graduation



Conclusion

In order to provide a brief summary of the early labour market outcomes of Ontario PSE graduates, the outcomes of the first and the last cohort are shown in Tables 1 and 2.

Table 1. Ontario PSE graduates' early labour market outcomes: two years after graduation (variable means)

	Certificate/Diploma		Bachelor's Degree		Advanced Degree	
	1982	2005	1982	2005	1982	2005
# unemployed / # in the LF	8%	7%	7%	9%	6%	6%
# in the LF / # graduates	97%	94%	92%	90%	87%	90%
# with a full time job / # employed	90%	86%	90%	89%	93%	91%
# with a permanent job / # paid employees	86%	83%	77%	77%	83%	77%
# who are overqualified / # paid employees	43%	45%	47%	27%	59%	50%
# who feel overqualified / # paid employees	-	39%	-	34%	-	28%
# in a closely related job / # employed	60%	56%	41%	55%	52%	69%
Annual earnings (2002 $)	30128	32871	38301	40879	53936	59613

Table 2. Ontario PSE graduates' early labour market outcomes: five years after graduation (variable means)

	Certificate/Diploma		Bachelor's Degree		Advanced Degree	
	1982	2000	1982	2000	1982	2000
# unemployed / # in the LF	4%	3%	4%	4%	2%	4%
# in the LF / # graduates	93%	96%	92%	96%	92%	95%
# with a full time job / # employed	91%	94%	92%	94%	91%	90%
# with a permanent job / # paid employees	95%	94%	91%	93%	92%	88%
# who are overqualified / # paid employees	46%	41%	31%	27%	52%	45%
# who feel overqualified / # paid employees	-	24%	-	26%	-	23%
# in a closely related job / # employed	63%	57%	59%	57%	70%	67%
Annual earnings (2002 $)	36468	39100	46836	48125	60763	73439

Over the cohorts examined, the unemployment rate of Ontario PSE graduates essentially followed Ontario's employment trend. Compared with their counterparts in the rest of Canada, two years after graduation, the unemployment rate of Ontario PSE graduates was lower in the 1980s, with the gap narrowing in the 1990s. The unemployment rate of Ontario PSE graduates subsequently surpassed that for the rest of Canada for the class of 2005. This finding reflects the employment gap between the overall labour force of Ontario and the rest of Canada over these years. However, Ontario PSE graduates' unemployment rate five years after graduation was generally lower than the rest of Canada except graduates with advanced degrees from cohorts 1990, 1995 and 2000.

Over the cohorts examined, neither bachelor's degree holders nor college graduates saw consistent growth in their real earnings, while the earnings of graduates with advanced degrees increased steadily. Between two and five years after graduation, graduates' earnings increased by between 15 per cent and 35 per cent, depending on credential level and cohort. Graduates with higher credentials were rewarded with higher earnings, and the earnings gap among credentials increased between two and five years after graduation. Compared with their counterparts in the rest of Canada, Ontario PSE graduates earned more and the earnings gap was greater five years after graduation than it was two years after graduation.

The proportion of Ontario PSE graduates who are overqualified for their job is fairly high, complying with a previous national level study (Frenette, 2000). Compared with their counterparts in the rest of Canada, Ontario PSE graduates were more likely to feel overqualified although they were not more likely to work in a job requiring education lower than their educational attainment. The proportion of graduates who were overqualified based on job requirement at entry has increased since the class of 1990 and the situation did

not improve between two and five years after graduation. By credential, Ontario graduates with advanced degrees were the most likely to be overqualified for their job based on job requirement at entry, but the least likely to feel overqualified. College graduates were most likely to be in a job requiring no completed PSE, with the percentage increasing across the cohorts.

The proportion of Ontario PSE graduates in a job closely related to their field of study has increased since the class of 1990. The proportion of close job relatedness did not increase between two and five years after graduation. By credential, bachelor's degree holders were the least likely to be in a job closely related to their field of study. Compared with their counterparts in the rest of Canada, Ontario PSE graduates were less likely to work in a closely related job. Depending on the field of study and credential level, the degree of relatedness may be considered positive or negative. If graduates are in a professional or occupation focused field, obtaining a job that is not related is generally not considered positively. However, in the humanities for example, graduates' ability to work in diverse occupations may be a sign of having obtained transferable skills.

The distribution of Ontario PSE graduates by occupation is more concentrated for university graduates than for college graduates. In 2007 (the class of 2005), about one third of university graduates were in occupations in social science, education, government service and religion. Regarding the distribution by industry, the biggest industry group is the educational services industry (23 per cent) for university graduates and health care and social assistance (22 per cent) for college graduates.

To summarize, this paper demonstrates that, since the 1980s, the Ontario labour market absorbed the increased supply of PSE graduates reasonably well. Although their labour market outcomes did not greatly improve over these years, they were by no means at a disadvantage given the dramatic increase in the supply of PSE graduates. Their labour market outcomes generally improve between two and five years after graduation, suggesting that it takes time for new graduates to find suitable employment and that increased labour market experience is beneficial for positive labour market outcomes. Compared with the rest of Canada, Ontario PSE graduates' labour market outcomes were variable, with generally stronger earnings, lower unemployment rates (until recently), and mixed results for overqualification.

As indicated in the beginning of the paper, the main method used in this study is descriptive analysis based on the comparison of variable means of all graduates, without controlling for any of their characteristics. Thus, the results should not be taken as estimates of the causal effects of PSE. A forthcoming HEQCO paper will further examine Ontario PSE graduates' personal characteristics, program characteristics, and the relevance to their labour market outcomes.

References

Allen, R. (1998). *The employability of university graduates in the humanities, social sciences, and education: Recent statistical evidence*. Ottawa: Social Science and Humanities Research Council of Canada.

Bialik, C. (2011). *College Does Pay Off, but It's No Free Ride.* Retrieved on November 20, 2011 from http://online.wsj.com/article/SB10001424052970203611404577046071107794292.html

Boudarbat, B. and Chernoff, C. (2010). *The Determinants of Education-Job Match among Canadian University Graduates*. Montreal: Centre Interuniversitaire de Recherche en Analyse des Organisations.

Cote, J. and Allahar, A. (2007). *Ivory tower blues: a university system in crisis* Toronto: University of Toronto Press.

Drewes, T. (2010). *Postsecondary Education and the Labour Market in Ontario.* Toronto: Higher Education Quality Council of Ontario.

Finnie, R. (2000). From School to Work: The Evolution of Early Labour Market Outcomes of Canadian Postsecondary Graduates. *Canadian Public Policy*. *26*(2), 197-224.

Frenette, M. (2000). Overqualified? Recent graduates and the needs of their employers. *Education Quarterly Review. 7*(1), 6-20.

Frenette, M. (2004). The Overqualified Canadian Graduate: The Role of the Academic

Program in the Incidence, Persistence, and Economic Returns to Overqualification.

Economics of Education Review. 23(1), 29-45.

Grayson, P. (2004). Social Dynamics, University Experiences, and Graduates' Job Outcome. *British Journal of Sociology of Education*. *25*(5), 609-627.

Gunderson, M. and Krashinsky, H. (2010). *Canadian Post-Secondary Education Graduates Over the Last 20 Years*. Ottawa: Human Resources and Skills Development.

Hansen, J. (2007). *Education and Early Labour Market Outcomes in Canada*. Ottawa: Human Resources and Social Development Canada.

Krahn, H. and Bowlby, J. (1999). *Education job-skills match: An analysis of the 1900 and 1995 National Graduates Surveys*. Ottawa: Human Resources Development Canada in collaboration with the Centre for Education Statistics.

Li, C., Gervais, G., and Duval, A. (2006). *The Dynamics of Overqualification: Canada'sUnderemployed University Graduates*. Ottawa: Statistics Canada, No. 11-621-MIE2006039.

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. Ottawa: Human Resources Development Canada and Statistics Canada. Research Paper R-00-2-3E.

Livingstone, D. (1999). *The Education-Jobs Gap: Underemployment or Economic Democracy*. Toronto: Garamond Press.

McCloy, U., and Liu, S. (2010). *What are the Influencers of Graduate Satisfaction and Labour Market Outcomes of Ontario College Graduates? An Analysis of Ontario's College Graduate Satisfaction Survey Results*. Toronto: Higher Education Quality Council of Ontario.

Miner, R. (2010). *People without jobs, jobs without people – Ontario's labour market future.* Retrieved on November 20, 2011 from http://www.workforcecoalition.ca/downloads/people-witout-jobs-jobs-without-people-final.pdf.

Speech From The Throne - Open Ontario Plan. Retrieved on November 20, 2011 from http://news.ontario.ca/opo/en/2010/03/speech-from-the-throne---open-ontario-plan.html

Statistics Canada (2006). *Earnings and Incomes of Canadians Over the Past Quarter Century, 2006 Census: Findings*. Statistics Canada 97-563-XIE2006001. Retrieved on September 20, 2011 from http://www12.statcan.ca/census-recensement/2006/as-sa/97-563/index-eng.cfm?CFID=61111&CFTOKEN=60942405

Sudmant, W. and Hawkey, C. (2000). *The Flow of Post-Secondary Graduates into the Knowledge Economy: Evidence from the National Graduate Survey.* Retrieved on September 15, 2011 from http://www.pair.ubc.ca/reports/knowledgeeconomy.htm

The Conference Board of Canada (2009). *Gender Income Gap*. Retrieved on November 20, 2011 from http://www.conferenceboard.ca/hcp/details/society/gender-income-gap.aspx

Vaillancourt, F. and Bourdeau-Primeau, S. (2002). The Returns to University Education in Canada, 1990 and 1995. In Laidler, D (Ed.), *Renovating the Ivory Tower* (215-240). Toronto: C.D Howe Institute.

Walters, D. (2004). A Comparison of the Labour Market Outcomes of Postsecondary Graduates of Various Levels and Fields over a Four-Cohort Period. *The Canadian Journal of Sociology, 29*(1), 1-27.

Walters, D. and Frank, K. (2010). *Exploring the Alignment between Postsecondary Education Programs and Labour Market Outcomes in Ontario*. Toronto: Higher Education Quality Council of Ontario.

Wolbers, M. (2003). Job Mismatches and their Labour-Market Effects among School-Leavers in Europe. *European Sociological Review*. *19*(3), 249-266.

Wolfe, D. and Gertler, M. (2001) Globalization and Economic Restructuring in Ontario: From Industrial Heartland to Learning Region? *European Planning Studies.* 9(5), 575-592.

Zeman, K., McMullen, K., and de Broucker, P. (2010). *The High Education / Low Income Paradox: College and University Graduates with Low Earnings, Ontario, 2006.* Ottawa: Statistics Canada, Catalogue no. 81-595-M — No. 081.

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