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Postsecondary Education Latecomers: Profile and Labour Market Outcomes of Ontario PSE Graduates

Shuping Liu
Higher Education Quality Council of Ontario

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1 Yonge Street, Suite 2402
Toronto, ON Canada, M5E 1E5

Phone: (416) 212-3893
Fax: (416) 212-3899
Web: www.heqco.ca
E-mail: info@heqco.ca

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Executive Summary

The traditional pathway into postsecondary education (PSE) is to enter college or university directly after graduating from high school. Not all students follow the traditional pathway into PSE. The Ontario government recently set a goal "to raise the postsecondary [attainment] rate to 70 per cent" (Speech from the Throne, 2010). In 2011, 64 per cent of Ontario residents aged between 25 and 64 held a PSE credential.[1] One way to help reach the target educational attainment rate of 70 per cent is for Ontario colleges and universities to attract and retain learners who follow non-traditional pathways. Therefore, one of the priorities of the Higher Education Quality Council of Ontario (HEQCO) is to evaluate the adequacy and efficiency of non-traditional pathways in obtaining a PSE credential. This study mainly examined one non-traditional pathway, delayed entry into PSE. Graduates who have taken more years than expected to graduate are also included in the discussion. The purpose of this paper is to address the following research questions:

- What is the demographic profile of these non-traditional graduates?
- Are their program choices and pathways through PSE different from those of direct entrants?
- Do their labour market outcomes differ from those of direct entrants?

This study mainly uses data from Statistics Canada's National Graduates Survey (NGS) and Follow-up Survey of Graduates (FOG), complemented by Statistics Canada's Labour Force Survey (LFS). This study examined two major credential groups which are most relevant to the study of delayed entry: college certificates/diplomas and bachelor's degrees.[2] In Ontario, 50 to 60 per cent of bachelor's degree graduates entered university directly from high school, while the percentage for college graduates is lower and has dropped over time (from 40 to 45 % for earlier cohorts of 1982, 1986 and 1990 to under 30 % since cohort 1995). Delayers are no longer a marginal group in Ontario's PSE system and should be of great interest to policy makers. In this study, delayers are divided into short delayers and long delayers. Short delayers refer to graduates who stopped out for a few years after graduating from high school but still managed to complete PSE by an age similar to direct entrants. Long delayers refer to graduates who obtained their first PSE credential at an older age; they comprise approximately half of all delayers.

In Ontario, delayers, especially long delayers, tend to be first-generation or Aboriginal graduates, groups traditionally underrepresented in PSE. First-generation graduates (graduates whose parents have no PSE credential) are disproportionally overrepresented among delayers, especially long delayers. In the class of 2005, 44 per cent of long delayers were first-generation graduates. This percentage is 20 percentage points higher than for direct entrants. The percentage of graduates whose first language is neither English nor French increased from 5-15 per cent for earlier cohorts to 15-25 per cent for the cohorts of 2000 and 2005. There are similar proportions of females in each group of delayers as well as among direct entrants.

Delayers, especially long delayers, make different program choices than direct entrants. Most delayers attend college while most direct entrants attend university. Delayers also differ from direct entrants in their choice of field of study, especially for bachelor's graduates. Compared with direct entrants, delayed-entry bachelor's graduates are more likely to be enrolled in liberal arts programs. In contrast, the choice of field of study of delayed-entry college graduates is more diverse. Short delayers make field of study choices similar to direct entrants, whereas long delayers are more likely to be in health or computer, architecture and engineering programs, and are less likely to be in education or physical and biological science programs.

Delayers and direct entrants went through different pathways to complete their PSE. Compared to direct entrants, delayers, especially long delayers, are more likely to have ever studied on a part-time basis. Compared with direct entrants and short delayers, long delayers are also more likely to have ever taken a

[1] Data source: Statistics Canada's Labour Force Survey (LFS) Table 282-0004.
[2] First professional degree is excluded from bachelor's degree.

leave of absence during their program. As a result, it took long delayers a relatively longer time to complete their PSE, while short delayers and direct entrants took a similar number of years to complete their PSE.

Regardless of these differences, graduates who delayed entry into PSE fared just as well as direct entrants in the labour market. There are no significant differences between delayers and direct entrants in most measures that we estimated including unemployment rate, percentage with a full-time job, percentage with a permanent job, percentage who are overqualified for their job, and percentage in a closely related job. For college graduates, long delayers are more likely to be out of the labour force than direct entrants and short delayers, especially five years after graduation. Compared to direct entrants, short delayers' annual earnings are not significantly different, while long delayers' earnings are greater, especially for females. However, when graduates' personal and program characteristics are controlled for, the earnings differences between direct entrants and delayers become insignificant. Thus these differences could be largely attributed to the differences between delayers and direct entrants' personal and program characteristics.

I. Introduction

The traditional pathway into postsecondary education (PSE) is to enter college or university directly after graduating from high school. Not all students follow the traditional pathway into PSE. The Ontario government recently set a goal "to raise the postsecondary [attainment] rate to 70 per cent" (Speech from the Throne, 2010). In 2011, 64 per cent of Ontario residents aged between 25 and 64 held a PSE credential.[3] One way to help reach the target educational attainment rate of 70 per cent is for Ontario colleges and universities to attract and retain learners who follow non-traditional pathways. Therefore, one of the priorities of the Higher Education Quality Council of Ontario (HEQCO) is to evaluate the adequacy and efficiency of non-traditional pathways in obtaining a PSE credential. This study mainly examined one non-traditional pathway, delayed entry into PSE. Graduates who have taken more years than expected to graduate are also included in the discussion. The purpose of this paper is to address the following research questions:

- What is the demographic profile of these non-traditional graduates?
- Are their program choices and pathways through PSE different from those of direct entrants?
- Do their labour market outcomes differ from those of direct entrants?

II. Literature Review

Recently, delayed entry into PSE has attracted increased attention in the academic literature. Studies at the Canadian national level have shown that the gap time between high school and PSE is longer for males, aboriginal youth, Anglophones, youth from Ontario, and youth whose parents have no PSE credential (first-generation PSE students) (Hango, 2011). Certain characteristics of high school students, such as their grades and the number of hours they spend doing paid work, also have an influence on the length of this gap. The economic climate has also been shown to affect students' decision to delay, as Ferrer and Menendez (2009) found that high unemployment rates at the time of graduation will discourage students from delaying entry into further postsecondary education.

As to the students' characteristics, it is found that the gender composition of the delayer population is not significantly different from that of direct-entry students (Finnie & Johnson, 2012). However, delayers are generally older than direct-entry students and are more likely to be immigrants, to have children earlier, and to be first-generation students (Ferrer & Menendez, 2009). Studies in both Canada and the United States also found that delayers tend to be from families with few socioeconomic resources (Bozick & Deluca, 2005) and to be academically less prepared for PSE than direct entrants (Finnie & Johnson, 2012; Horn & Carroll, 2005).

When looking at educational experience, it has been found that delayers are more likely to have previous PSE experience without obtaining a PSE credential but less likely to complete additional degrees after graduation (Ferrer & Menendez, 2009). In addition, American research has found that delayers tend to take short-term programs or attend colleges rather than universities, and have lower graduation rates than direct entrants (Bozick & Deluca, 2005; Horn & Carroll, 2005).

One of the benefits of higher education is better labour market outcomes relative to those without a PSE credential. However, the amount of Canadian literature directly addressing delayers' labour market outcomes is limited. Within the existing research, the evidence provided is inconclusive and often contradictory. Using NGS/FOG cohort 1995, Dubois (2007) found that delaying entry has no effect on bachelor's graduates' labour market outcomes, including both employment and earnings. On the other hand, Dubois also found that

[3] Data source: Statistics Canada's Labour Force Survey (LFS) Table 282-0004.

college graduates who delayed their entry were more likely to be unemployed and out of the labour force than direct entrants, but with no significant difference in earnings. In contrast, using the same dataset (NGS/FOG cohort 1995), Ferrer and Menendez (2009) found that delayers earned more than direct entrants, and that the premiums reduced by half between two and five years after graduation. The differences in these findings may be a result of different target populations. Dubois's (2007) population only includes college and bachelor's graduates without previous PSE and has no age constraint, while Ferrer and Menendez's (2009) population includes anyone with a PSE credential with or without previous education, and the graduation age is limited to 45 years or younger. Drawing on Statistics Canada's Youth in Transition Survey (YITS) 2004, Hango (2008) indicates that delayers (between the ages of 22 and 24) had a higher employment rate but earned less than direct entrants, and that the difference was especially notable for university graduates.

III. Data

This study mainly uses data from Statistics Canada's National Graduates Survey (NGS) and Follow-up Survey of Graduates (FOG), complemented by Statistics Canada's Labour Force Survey (LFS). Unless specified, the results in this paper are based on NGS/FOG data. The primary objective of the NGS and FOG is to obtain information on PSE graduates' labour market experiences. The target population includes all graduates from Canadian public PSE institutions.[4] Graduates were interviewed two years after graduation (NGS), and those who responded to the NGS were contacted five years after graduation for a follow-up interview (FOG). The longitudinal data allow for the observation of graduates' early career paths.

The NGS/FOG has 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 the survey was terminated after the 2007 NGS. Over time, Statistics Canada has modified the population parametres and the questionnaire somewhat. For example, graduates living in the United States at the time of the survey were only included in cohorts 2000 and 2005, whereas previous cohorts only included those living in Canada at the time of the survey. In addition, Statistics Canada estimated that approximately 10,000 Ontario college graduates and 5000 Alberta college graduates were missing from the 2005 survey population[5] due to the inability to obtain necessary data from several institutions.

While the questionnaires do differ for each cohort of the NGS/FOG, questions measuring demographic characteristics, educational features, and labour market outcomes remained similar. This study relies principally on Statistics Canada's derived variables to conduct the analyses.

This study focuses on graduates of Ontario public PSE institutions between 1982 and 2005. The results pertain to Ontario graduates who lived either in Ontario or in any other Canadian province at the time of the survey. For the 1995, 2000 and 2005 cohorts, the outcomes also pertain to graduates who lived in the United States at the time of the survey. Averaging across all available cohorts, the percentage of graduates who lived in Ontario two years after graduation is 96 per cent for college graduates, 93 per cent for bachelor's graduates, and 87 per cent for graduates with advanced degrees. The rate five years after graduation is 95 per cent, 90 per cent and 83 per cent, respectively.

[4,5] National Graduates Survey (NGS), 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 between May and July in the survey year. The response rate for the class of 2000 is 66 per cent for NGS and 68 per cent for FOG.

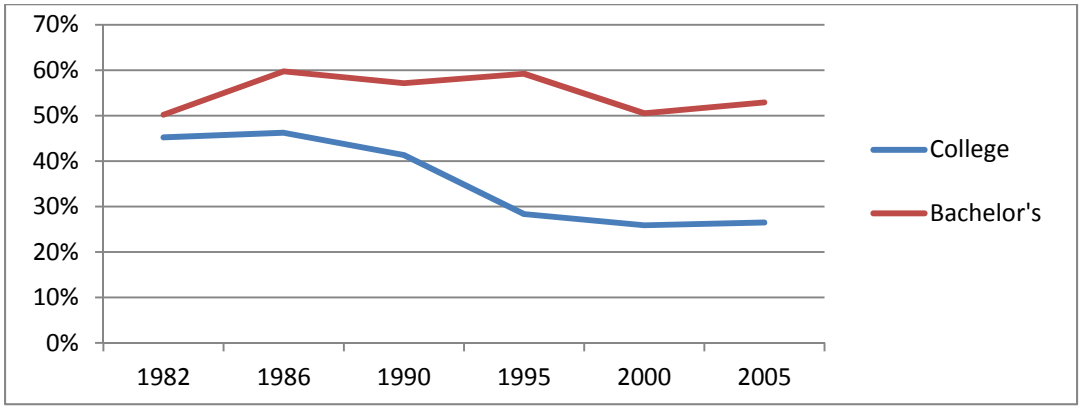
Unless specified, the PSE credential discussed in this paper refers to a respondent's credential obtained at graduation in the reference year. This study examined two major credential groups which are most relevant to the study of delayed entry: college certificates/diplomas and bachelor's degrees.[6]

The traditional pathway into PSE is to enter college or university directly after graduating from high school. The NGS does not ask graduates to report whether they entered PSE directly after high school or not. Based on the variables available in the NGS, direct entrants in this study are defined as graduates who meet the following criteria:

- highest previous educational credential is high school
- major activity during the 12 months before enrolment is going to school
- graduated at the age of 23 years or younger for college graduates or 25 years or younger for bachelor's graduates[7]

Figure 1 shows that in Ontario, 50 to 60 per cent of bachelor's graduates entered university directly from high school, while the percentage for college graduates is lower and has dropped over time.[8] For the class of 1982, 45 per cent of college graduates were direct entrants, while this percentage was significantly lower for the class of 2005 at 26 per cent. It should be kept in mind that the number of direct entrants has not decreased over these years. In fact, the number of direct-entry graduates has increased by almost 50 per cent between the class of 1982 and the class of 2005. However, the number of non-traditional graduates has increased more quickly than direct entrants, which results in the decrease in the percentage of direct entrants.

Figure 1. Percentage of Direct-Entry PSE Graduates in Ontario



Non-traditional PSE graduates could have taken a variety of different non-traditional pathways into PSE. For example, some graduates could have previously earned a PSE credential or have previous PSE experience. This study examined only those who have no PSE experience between high school graduation and enrolment into the referenced PSE.[9] These graduates are called "delayers" in this paper.

[6] First professional degree was excluded from bachelor's degree.
[7] The cut-off age is based on MTCU's calculation of graduation rate. It is assumed that students graduate from high school at the age of 18. The graduation rate for undergraduate programs is calculated as the percentage of students who graduated from their university within seven years of entering. The graduation rate for college is calculated as the percentage of students who graduated from their college within twice the standard program duration. Most college graduates are from two- or three-year diploma programs (McCloy & Liu, 2010). Therefore, those entering college directly from high school are expected to graduate before the age of 23, and those entering university directly from high school are expected to graduate before the age of 25.
[8] These percentages could be different from the percentages for registered applicants reported by Ontario's application centers. The percentages in this report are calculated using those who both graduated and responded to the survey. Direct entrants and non-traditional graduates could have different graduation rates and response rates. Moreover, the direct entrants in this paper include only those who graduated within the expected years.
[9] The sample excludes graduates whose previous highest credential is below high school, some PSE, or PSE credentials.

In this study, delayers are divided into short delayers and long delayers. Short delayers refer to graduates who stopped out for a period of time after graduating from high school but still managed to complete PSE by an age similar to direct entrants. Long delayers refer to graduates who obtained their first PSE credential at an older age. Table 1 summarizes the classification of graduates for the purpose of this study.

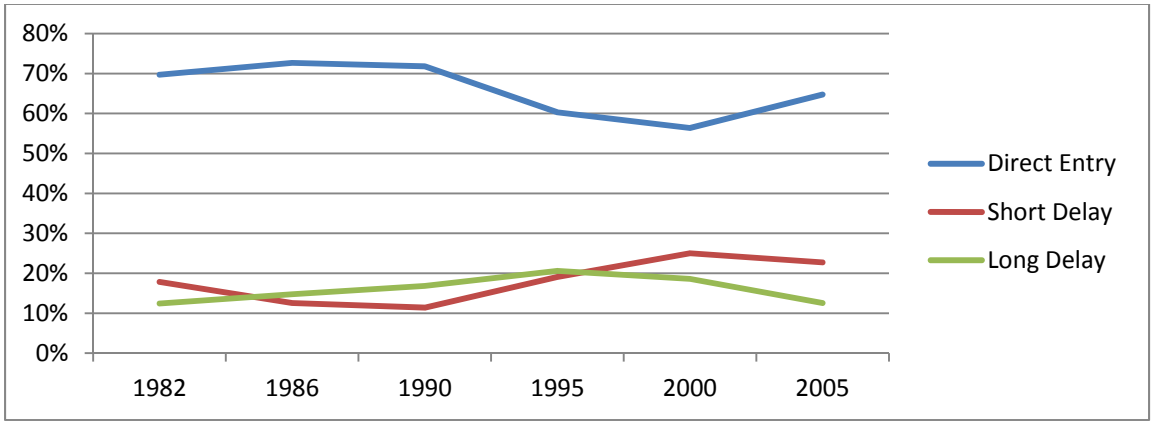
Table 1. Definition of the Target Population Groups

	Direct Entry	Short Delay	Long Delay
Highest credential before enrolment is high school?	Yes	Yes	Yes
Major activity during the 12 months prior to enrolment is attending school?	Yes	No[10]	Yes /No
Graduated at the expected age (23 or younger for college graduates; 25 or younger for bachelor's graduates)?	Yes	Yes	No

As shown in Table 1, long delayers' previous major activity could be "attending school" or not. In Ontario, more than one-quarter of long delayers list "going to school" as their major activity before enrolment into PSE.[11] They could have gone back to school to earn credits necessary for entering PSE. They also include a small group of "long stayers", those who entered PSE at the age of 18. This group could have entered PSE straight after high school, but have taken longer than expected years to complete the program and graduated at an older age. We acknowledge that they are technically not delayed entrants. However, we included them with long delayers because their characteristics and outcomes are more similar to long delayers than to direct entrants.

These selection procedures resulted in the final sample containing 330,548 Ontario graduates who obtained a college certificate/diploma or a bachelor's degree in the reference year and whose highest previous education is high school graduation, the target population of this study. Within the working sample, depending on the cohort, between 55 per cent and 75 per cent are direct entrants, while short delayers and long delayers each account for 10 to 25 per cent (Figure 2).

Figure 2. The Distribution of the Target Population by Cohort



[10] The major activity "working and going to school" is included in "not attending school."
[11] They were mostly included in "direct entrants" in other studies.

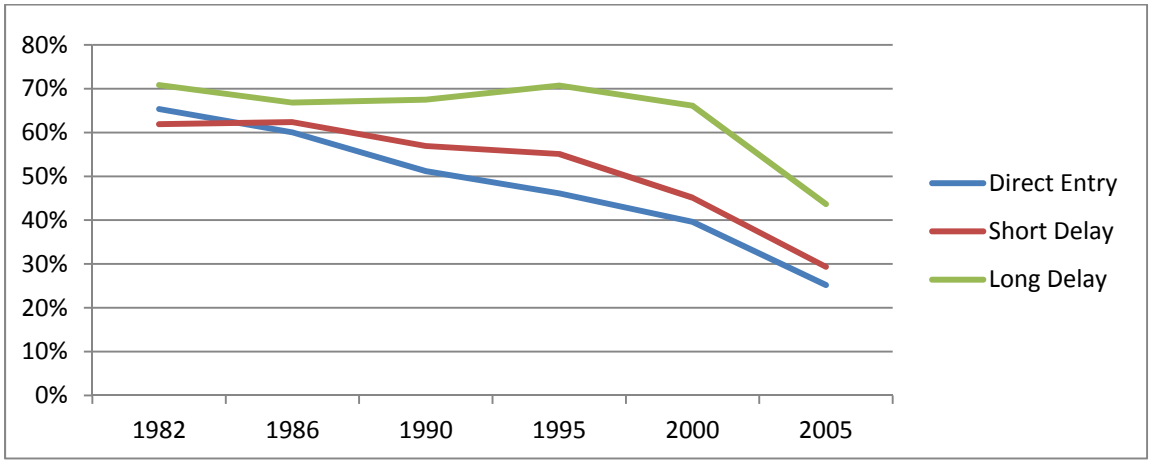
IV. The Demographic Profile and Major Activity before Enrolment

Table 2. The Composition of the Target Population: Class of 2005

	Direct Entry	Short Delay	Long Delay
Female	60%	57%	58%
First-generation	25%	29%	44%
Francophone	5%	3%	5%
Second Language	22%	19%	24%
Visible Minority	28%	25%	31%
Aboriginal	1%	2%	4%
Landed Immigrant	17%	15%	26%
Disability	5%	9%	10%

Table 2 shows the demographic profile of the 2005 cohort. The most noteworthy fact is that first-generation graduates (graduates whose parents have no PSE credential) are disproportionally overrepresented in delayers, especially long delayers. In the class of 2005, 44 per cent of long delayers are first-generation graduates. This number is 20 percentage points higher than for direct entrants. Overall, the percentage of first-generation graduates decreased significantly between cohort 1982 (60-70 %) and 2005 (25-45 %) (Figure 3). This may reflect the increase in the educational attainments of the Ontario population over this period of time.

Figure 3. Percentage of Graduates who are First-generation PSE Graduates

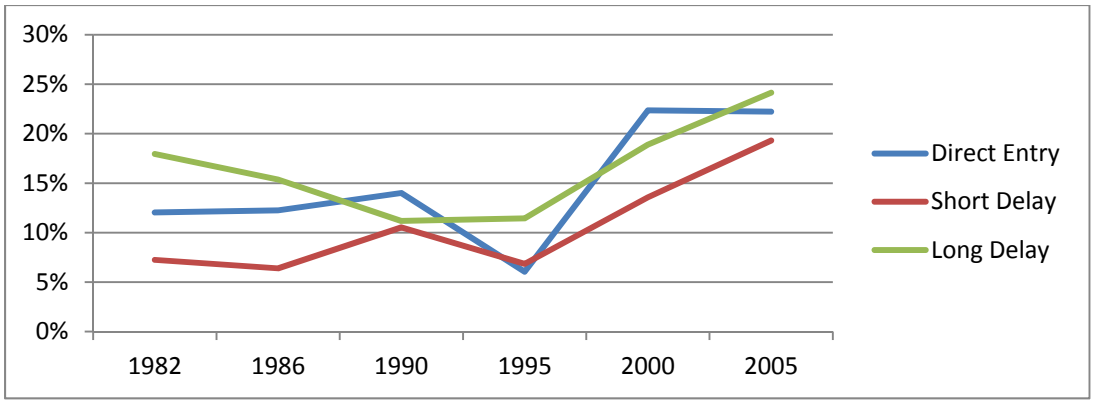


Across the cohorts, the proportion of graduates who are members of visible minorities has increased for both direct entrants and delayers, while the short delayers group has the fewest number of visible minority graduates. Between the class of 1986 (the earliest available cohort with this variable) and 2005 (the latest cohort), the percentage of graduates who are members of visible minorities increased from 8 per cent to 28 per cent for direct entrants, from 7 per cent to 24 per cent for short delayers, and from 15 per cent to 31 per

cent for long delayers. In the NGS, graduates also reported whether they self-identified as Aboriginal. Aboriginal graduates are found to be overrepresented among delayers, especially long delayers.

As shown in Figure 4, the percentage of graduates whose first language is neither English nor French ranges between 5 and 25 per cent. Relative to direct entrants and long delayers, short delayers have lower percentage of graduates whose first language is neither English nor French. Direct entrants and delayers also have similar percentages of Francophones (5 per cent), and the percentage has been fairly stable over the cohorts examined, except for the class of 1995 (20 per cent).

Figure 4. Percentage of Graduates whose First Language is neither English nor French



In the 2000 and 2005 NGS, graduates were asked to report whether they were a landed immigrant when they first registered in the program. Landed immigrants were found to be overrepresented in long delayers and underrepresented in short delayers.

There are similar proportions of females in each group of delayers as well as in the direct entrants group. The percentage of females in each group increased slightly between the class of 1982 and 2005: from 56 per cent to 60 per cent for direct entrants, from 50 per cent to 57 per cent for short delayers, and from 48 per cent to 58 per cent for long delayers.

In Ontario, more than one-quarter of long delayers were attending school within 12 months before enrolling in PSE (20 % for college graduates, 40 % for bachelor's). They could have gone back to school to earn credits necessary for entering PSE. They could also have taken longer than expected years to complete the program and graduated at an older age. In addition, more than half of long delayers were working or working and studying before enrolling in PSE. In contrast, 90 per cent of short delayers were working or working and studying before enrolling in PSE.

Looking at respondents' median age at graduation, Table 3 shows that short delayers and direct entrants graduated at similar ages: 21 years for college graduates and 23 years for bachelor's graduates. As would be expected, long delayers graduated at a relatively older age.

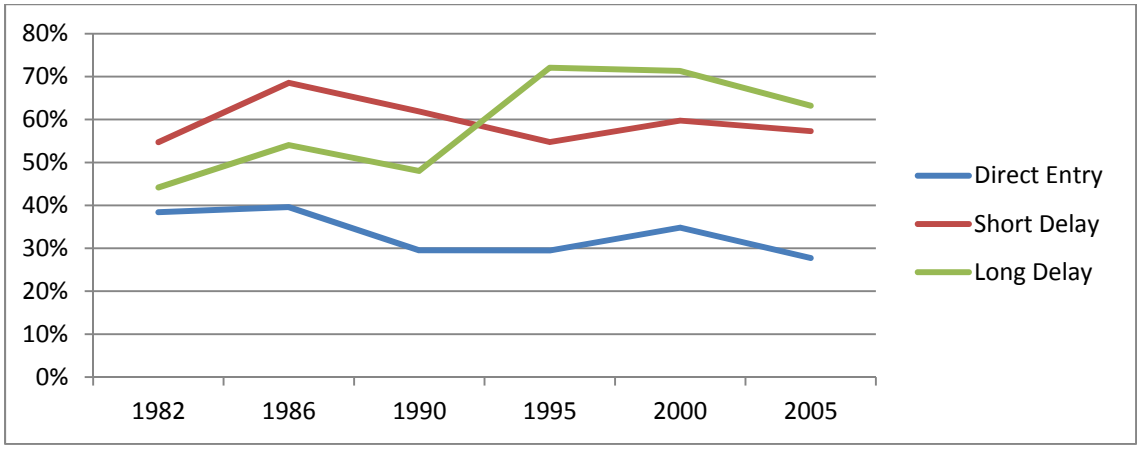
Table 3. Median Age at Graduation

	College			Bachelor's		
	Direct Entry	Short Delay	Long Delay	Direct Entry	Short Delay	Long Delay
1982	21	22	26	23	23	30
1986	21	21	27	22	24	29
1990	21	21	27	23	23	32
1995	21	21	32	23	23	31
2000	21	21	29	23	23	31
2005	20	21	27	23	23	30

V. Program and Pathways through PSE

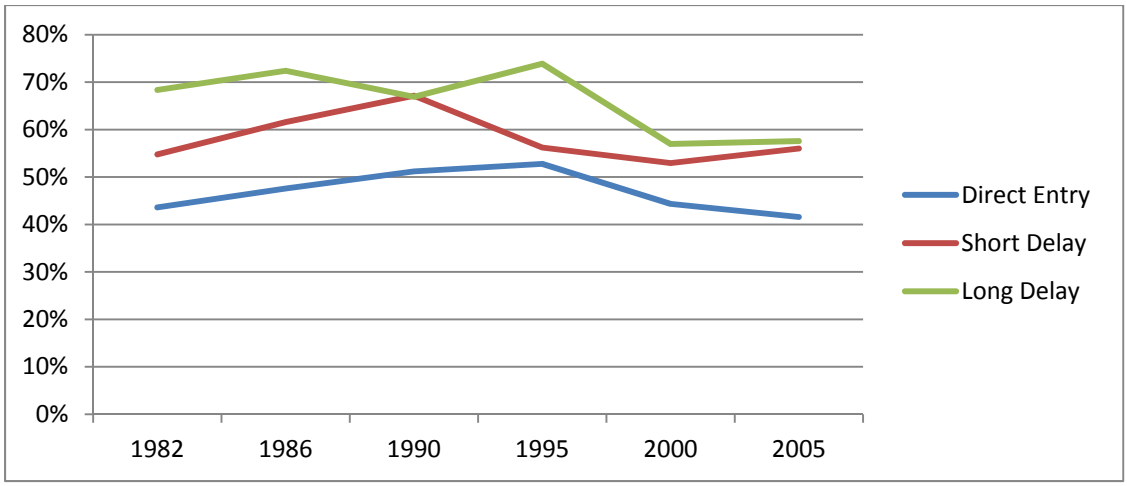
Studies in the U.S. found that delayers were more likely to take short-term programs or to attend college rather than university (Bozick & Deluca, 2005; Horn & Carroll, 2005). This finding is also observed in Ontario. Most delayers attend college, while most direct entrants attend university (Figure 5). College graduates used to comprise approximately half of the long delayers for the classes of 1982, 1986 and 1990, but the percentage increased to more than 70 per cent for the classes of 1995 and 2000, and fell slightly to 63 per cent for the class of 2005. About 60 per cent of short delayers graduated from college programs, and the percentage is fairly stable across the cohorts examined. In the early cohorts of 1982 and 1986, 40 per cent of direct entrants attended college, but the percentage has since dropped to around 30 per cent. While attending college may represent delayers' personal preference, it may also be the case that they do not have the credits necessary for admission to university. The NGS does not investigate reasons for which students attend college rather than university, but this could be an interesting topic for future research.

Figure 5. Percentage of Graduates from College vs. University



Delayers also differ from direct entrants in their choices of field of study,[12] especially for bachelor's graduates. Compared with direct entrants, delayed-entry bachelor's graduates are more likely to be enrolled in liberal arts programs (Figure 6). In the classes of the 1980s and the 1990s, 67 to 74 per cent of long delayers took liberal arts programs. The percentage has since dropped but is still just below 60 per cent. The percentage of short delayers taking liberal arts programs is slightly lower, ranging between 53 per cent and 67 per cent, depending on the cohort. Although liberal arts is also the largest group for direct-entry bachelor's graduates, the percentage taking liberal arts programs is consistently lower than for delayers, ranging between 42 per cent and 53 per cent, which is 13 to 25 percentage points lower than for long delayers.

Figure 6. Percentage of Bachelor's Graduates from Liberal Arts Programs



Among bachelor's graduates, the second largest field of study for long delayers is computer, architecture and engineering, accounting for 9 to 17 per cent of graduates. This is still lower than direct entrants for most cohorts. The percentage of short delayers entering business, management and public administration programs is similar to direct entrants (13 per cent), and is fairly stable across the cohorts. Computer, architecture, and engineering graduates account for 8 to 18 per cent of short delayers, which is lower than the percentage of long delayers and direct entrants for most cohorts. There are also some short delayers from the physical and biological sciences (5 to 9 per cent).

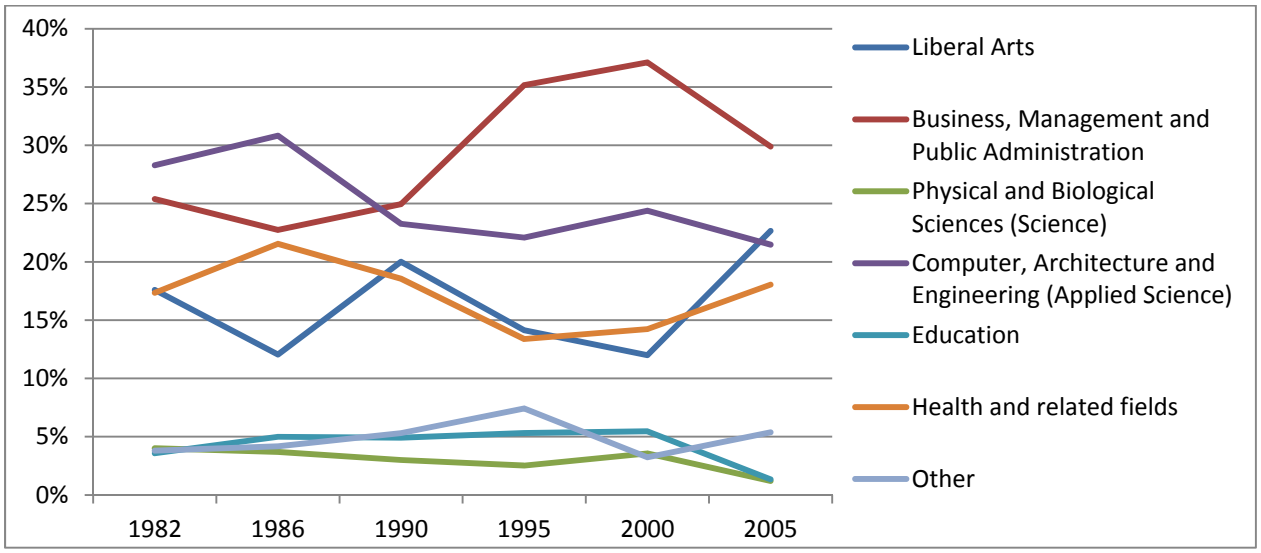
Compared with bachelor's graduates, the field of study choices of delayers attending college is more diversified. Business, management and public administration and computer, architecture and engineering are the two largest field groups among all college graduates except for the class of 2005. Depending on the cohort and the target group, these two fields of study account for 25 to 35 per cent and 15 to 30 per cent of college graduates, respectively. Between the class of 2000 and the class of 2005, the percentage of college graduates who took liberal arts jumped by approximately 10 percentage points, and liberal arts became the largest field group for direct entrants and short delayers for the class of 2005. This finding is interesting since it comes at a time when the public is worrying about the future of liberal arts programs.

For the college graduates examined, short delayers and direct entrants generally have similar field of study choice. Nevertheless, for most cohorts, short delayers are slightly less likely than direct entrants to be in business, management and public administration or health programs, and slightly more likely to be in education, and physical and biological science programs. Compared with direct entrants and short delayers, long delayers are more likely to be in health or computer, architecture, and engineering programs, and less

[12] The NGS uses CIP coding for both university and college field of study. Please see Appendix A for the aggregation of fields of study. The aggregation is based on Statistics Canada's aggregation and Walters and Frank (2010), with slight adjustments.

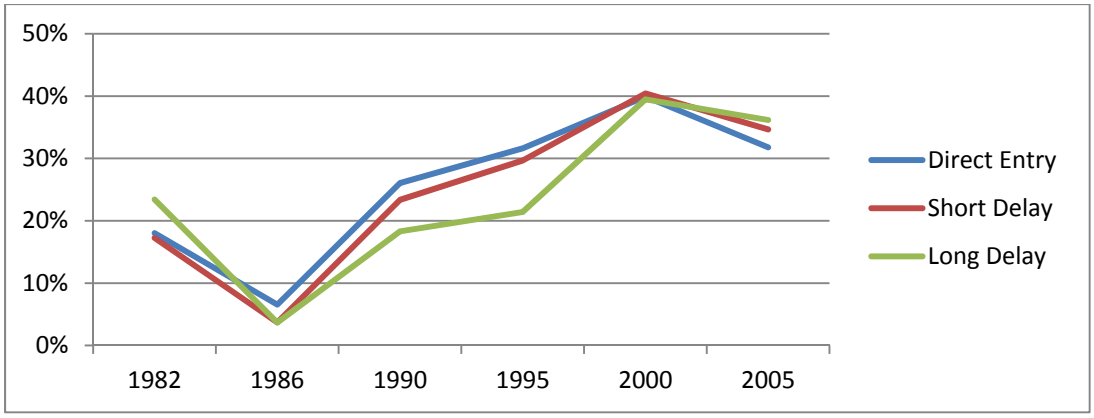
likely to be in education or physical and biological science programs. Among the three target groups, long delayers used to be the least likely to be in business, management and public administration for the earlier cohorts (1982, 1986 and 1990), but became the most likely to be in these fields for the later cohorts (1995, 2000 and 2005). For these later cohorts, long delayers are the least likely to be in liberal arts.

Figure 7. Field Distribution of Long Delayers: College Graduates



Delayers and direct entrants have similar rates of graduation from co-op programs. For college graduates, the percentage was 17 to 23 per cent for the class of 1982, dropped to 4 to 7 per cent for the class of 1986, but has since increased to 40 per cent for the class of 2000. It then decreased slightly to 32 to 36 per cent for the class of 2005. The percentage of bachelor's graduates from co-op programs ranges between 7 per cent and 15 per cent for direct entrants and between 2 per cent and 14 per cent for short delayers, depending on the cohort. The percentage for long delayers is relatively lower at 3 to 6 per cent.

Figure 8. Percentage of Graduates from Co-op Programs: College Graduates



Pathways to complete PSE varied between delayers and direct entrants. For college graduates, 4 to 6 per cent of short delayers indicated that they have at some point taken their program on a part-time basis, while slightly fewer direct entrants made the same claim (3 to 5 per cent). Long delayers are much more likely to take their program on a part-time basis, with the percentage ranging between 13 per cent and 24 per cent.

Compared with college graduates, bachelor's graduates are more likely to have ever taken their program on a part-time basis. This may be a result of the normally longer completion time associated with undergraduate programs relative to college programs. Similar to college graduates, delayed-entry bachelor's graduates are more likely to have ever taken their program on a part-time basis relative to direct entrants, with the percentage being much larger for long delayers. The percentage of bachelor's graduates who have ever taken their program on a part-time basis is 6 to16 per cent for direct entrants, 7 to 26 per cent for short delayers, and 52 to 66 per cent for long delayers.

Table 4. Percentage of Graduates who have Ever Studied on a Part-time Basis

	College Graduates			Bachelor's Graduates		
	Direct Entry	Short Delay	Long Delay	Direct Entry	Short Delay	Long Delay
1982	3%	5%	16%	16%	25%	64%
1986	5%	6%	19%	14%	26%	52%
1990	4%	5%	13%	12%	26%	62%
1995	3%	4%	18%	12%	21%	56%
2000	3%	6%	24%	6%	7%	55%
2005	4%	5%	17%	12%	16%	66%

For college graduates, less than 5 per cent of direct entrants and short delayers have ever taken a leave of absence during their program. The percentage of long delayers is much higher, ranging from 7 per cent to 13 per cent, depending on the cohort. Compared with college graduates, proportionally more bachelor's graduates have ever taken a leave during their program. Long delayers are much more likely than direct entrants and short delayers to have ever taken a leave during the program. The percentage of bachelor's graduates who have ever taken a leave of absence from their studies is 5 to 9 per cent for direct entrants, 4 to 17 per cent for short delayers, and 34 to 48 per cent for long delayers.

Delayers and direct entrants went through different pathways to complete their PSE. Therefore, the years that they have taken to complete PSE are expected to be different. However, the median years to completion are found to be similar for all cohorts examined: two years for all entry types of college graduates, and four years for bachelor's graduates, except long delayers. The median for long delayed-entry bachelor's graduates ranged between five and seven years, depending on the cohort.

The distributions of years to completion for direct entrants, short delayers and long delayers were also examined. The distribution curve of short delayers almost coincides with direct entrants, for both college and bachelor's graduates. In contrast, the distribution curve of long delayers is more dispersed, with a thicker right tail than that of direct entrants and short delayers. The dispersion is more prominent for bachelor's graduates than for college graduates. Furthermore, the distribution curve of long delayer bachelor's graduates is more skewed to the right relative to direct entrants and short delayers. Based on the above observation, short delayers and direct entrants took a similar number of years to complete their PSE, while it took long delayers a relatively longer time to complete their PSE.

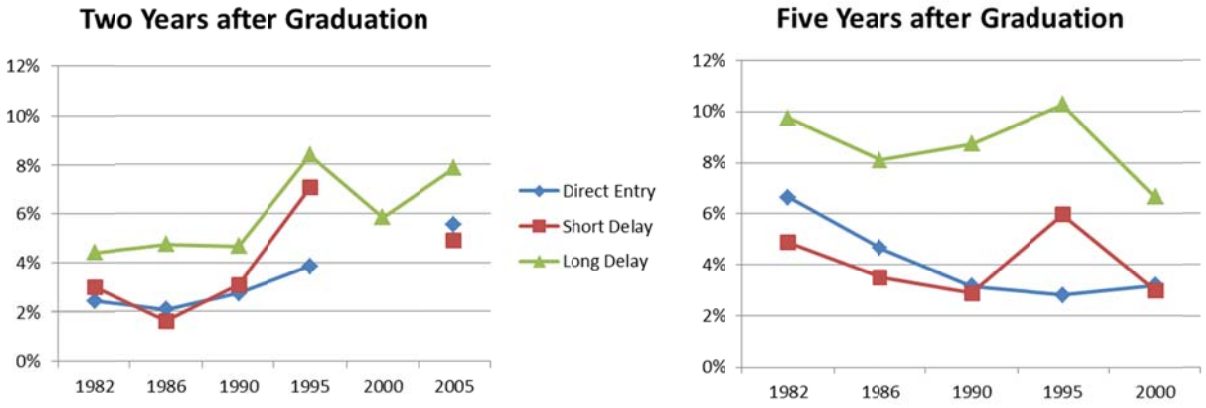
VI. Labour Market Outcomes

The labour market outcomes discussed in this paper are based mainly on the respondents' report of their main jobs during the reference week, which is the week before the survey interview. To rule out the effect of

further education, those who obtained any PSE credential between graduation and the time of the survey were excluded from the study.[13]

Figure 9 shows the percentage of college graduates who are out of the labour force, i.e., who are not actively looking for work. For college graduates, long delayers are more likely to be out of the labour force than direct entrants and short delayers, especially five years after graduation. The percentage of college graduates who are out of the labour force is below 8 per cent two years after graduation and below 10 per cent five years after graduation. The difference in the percentages for long delayers and direct entrants is as high as 3 to 7 percentage points five years after graduation. In contrast, the percentage of short delayers who are out of the labour force is similar to that of direct entrants. The labour force participation rate of bachelor's graduates cannot be compared by cohort because the small cell size of delayers makes the estimation unreliable.

Figure 9. Percentage of Graduates who are Out of the Labour Force: College Graduates[14]



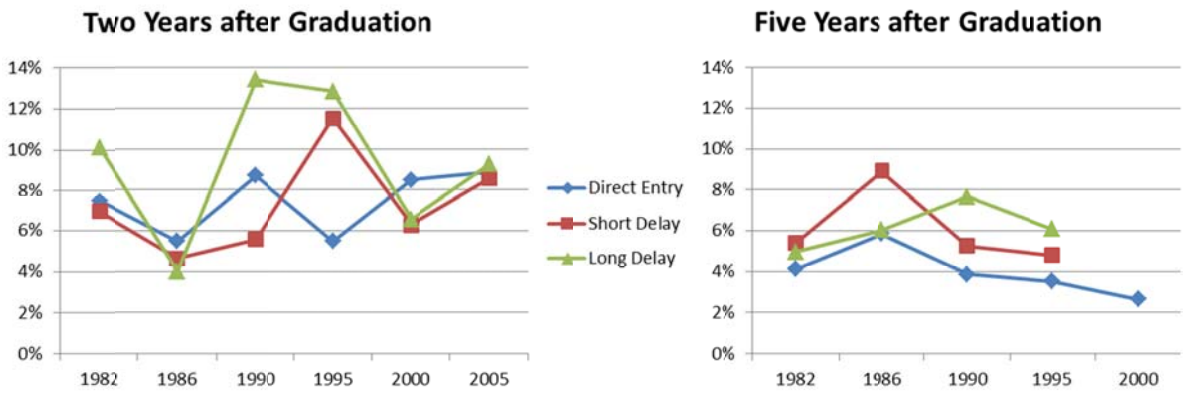
For college graduates, the unemployment rate[15] of short delayers two years after graduation is slightly lower than that of direct entrants for most cohorts except the class of 1995, while long delayers have the highest unemployment rate in most cohorts except the class of 1986 and 2000. Five years after graduation, the unemployment rate of direct entrants is slightly lower than that of delayers for the cohorts with a reliable estimation (the classes of 1982, 1986, 1990, and 1995). The unemployment rate of bachelor's graduates cannot be compared by cohort because the small cell size of delayers makes the estimation unreliable.

[13] The percentage of graduates who obtained additional PSE credentials within two years of graduation has decreased across the cohorts examined: from 15 to 25 per cent to 10 to 15 per cent for college graduates, and from 25 to 35 per cent to 10 to 25 per cent for bachelor's graduates. Direct-entry bachelor's graduates are most likely to obtain additional PSE credentials.

[14] In the "two years after graduation" chart, the percentages for short delayers and direct entrants of cohort 2000 are not shown. The reason is that the sample size is not big enough to be vetted out from Statistics Canada. This reason applies to all the charts in this paper with missing points.

[15] The 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, these definitions of employed, unemployed and not in the labour force are used all through this paper.

Figure 10. College Graduates' Unemployment Rate[16, 17]



To control for the effects of other factors on unemployment rate, a logit model was set up with dependent variable ER, a dummy variable indicating whether the respondent is employed (1) or not (0). All six cohorts were combined to make the sample size large enough for reliable estimation. To make the sample more homogeneous and more meaningful, the regressions are limited to those who graduated between the ages of 18 and 45 years, and who were in the labour force at the time of the survey.

ER = f (SD, LD, CH, DEM, SCH, WRK)

The independent variables of interest are short delay (SD) and long delay (LD), which are compared against the reference direct entry. CH is a vector of dummy variables representing the respondent's graduation year or class. DEM is a vector of variables representing graduates' demographic and socioeconomic characteristics, including gender, age at graduation, whether English/French is the first language, and parental education. DEM also includes graduates' demographic characteristics at the time of the survey such as marital status, whether the respondent has any dependent children, and whether the respondent has any health problems that have lasted or are expected to last six months or more. SCH is a vector of variables representing the respondent's program and pathway through PSE including field of study (FOS), whether the program is a co-op program, whether he or she has ever taken the program part-time, whether he or she has ever taken a leave of absence during the program, and the years taken to complete the program. WRK is a dummy variable indicating whether the respondent has worked full-time for six consecutive months before graduation.

The logit regressions[18] were performed for both two years and five years after graduation, and for college and bachelor's graduates separately. The regression results are listed in Appendix B. Neither short delay nor long delay is found to be significant in any of the regressions. Thus, delaying entry does not have significant effects on graduates' probability of being employed, either two years or five years after graduation.

[16] Note that the year shown on the horizontal axis is the graduation year of the cohort, whereas the unemployment rate listed is actually that 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 unemployment rate at the time of the 1988 survey (NGS survey year). Similarly, the unemployment rate for cohort 1986 in the "five years after graduation" chart is the unemployment rate at the time of the 1991 survey (FOG survey year). Unless specified, this definition applies to all the charts in this paper. Moreover, throughout the paper, the same scale was used in the charts for two years and five years after graduation.

[17] In the "five years after graduation" chart, the percentages for short delayers and long delayers of cohort 2000 are not shown. The reason is that the sample size is not big enough to be vetted out from Statistics Canada. This reason applies to all the charts in this paper with missing points.

[18] The controlling variables in different regressions could be different due to variable availability. For example, years to completion is available only for cohorts 1990, 1995, 2000 and 2005, so regressions were performed both with the variable years to completion for combined cohorts of 1990, 1995, 2000 and 2005 and without the variable for all cohorts pooled.

Table 5 lists the controlling variables that are significant in the regressions for graduates' probability of being employed. For college graduates, those whose first language is English or French are more likely to be employed two years after graduation (relative to those whose first language is neither English nor French). Graduates with six consecutive months of full-time work experience before graduation are more likely to be employed two years after graduation than those who do not have this work experience. Relative to graduates from business, management and public administration fields, those from computer, architecture, and engineering fields are more likely to be employed five years after graduation. Relative to first-generation graduates, respondents with parents whose education is higher than a bachelor's degree are more likely to be employed five years after graduation.

Table 5. Variables Significant in the Regressions for Graduates' Probability of being Employed

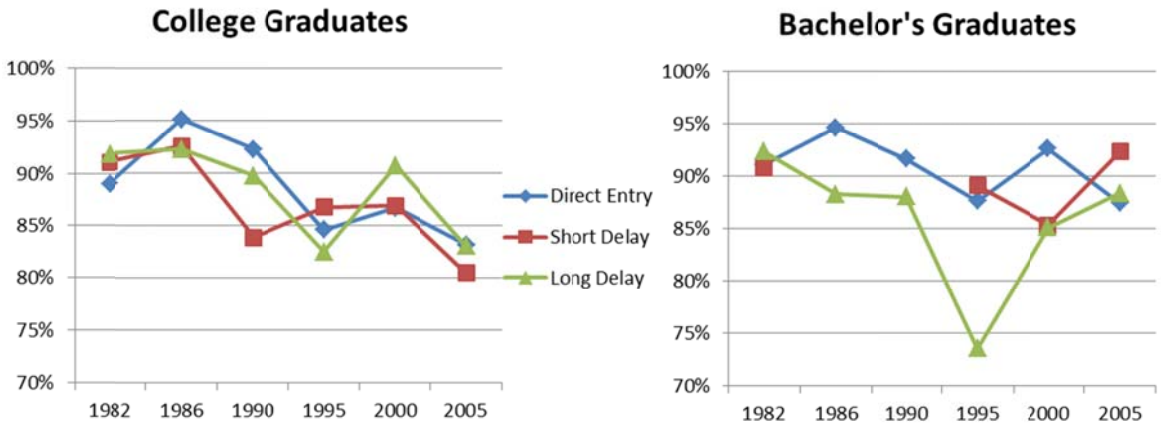
	Two Years after Graduation		Five Years after Graduation	
	College Graduates	Bachelor's Graduates	College Graduates	Bachelor's Graduates
Liberal Arts		-**		-*
Science		-**		-*
Applied Science			+**	
Year to Completion				-*
First Language	+**			
Parental Education: Higher than Bachelor's			+**	
Previous Work Experience	+**			+**
Disability			-**	
Single				-**
With Children				-*

* significant at 5 per cent; ** significant at 1 per cent

For bachelor's graduates, relative to graduates from business, management and public administration fields, graduates from liberal arts and from physical and biological science are less likely to be employed both two and five years after graduation. Graduates who have taken longer to complete PSE are less likely to be employed five years after graduation. Relative to graduates who do not have six consecutive months of full-time work experience before graduation, those with such work experience are more likely to be employed five years after graduation. Five years after graduation, graduates who are single are less likely to be employed than married graduates, and graduates with dependent children are less likely to be employed than those with no children.

Among all employed graduates, more than 80 per cent worked full time (30 hours or more a week) or had a full-time job during the reference week. For college graduates, there is no significant difference between delayers and direct entrants. For bachelor's graduates, long delayers are less likely to have a full-time job compared with direct entrants. The percentage of graduates with a full-time job five years after graduation cannot be compared by cohort because the small cell size of delayers makes the estimation unreliable.

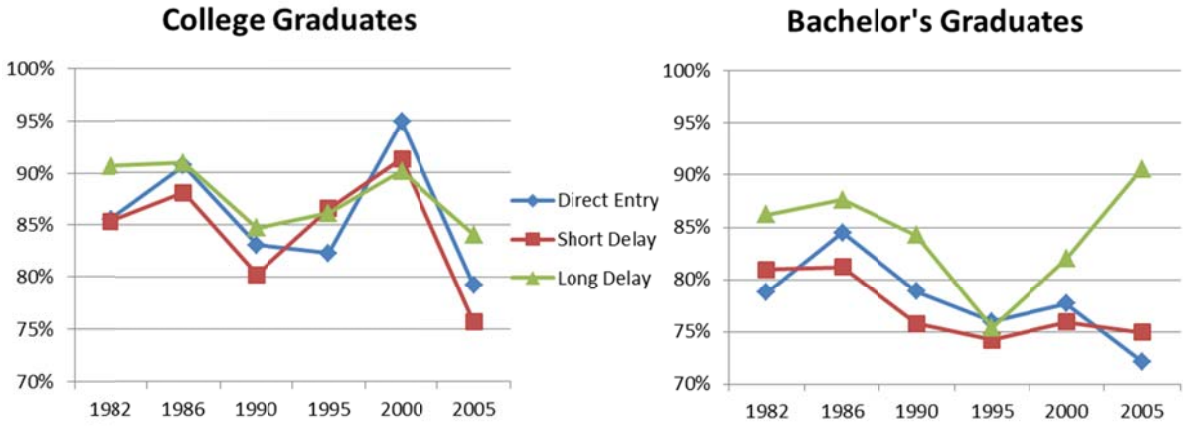
Figure 11. Percentage of Graduates with a Full-time Job: Two Years after Graduation[19]



In the NGS/FOG, employed respondents were asked whether they were a paid worker, self-employed, or an unpaid family worker at the time of the survey. Among employed graduates, more than 90 per cent were paid employees. There is no significant difference between delayers and direct entrants.

Respondents who were paid workers were asked whether their job was permanent, temporary, or seasonal. More than 70 per cent of paid employees had a permanent job two years after graduation. Compared with direct entrants, long delayers were slightly more likely to have a permanent job, while short delayers were slightly less likely to have a permanent job, especially for bachelor's graduates. The percentage five years after graduation cannot be compared by cohort because the small cell size of delayers makes the estimation unreliable.

Figure 12. Percentage of Paid Employees with a Permanent Job: Two Years after Graduation



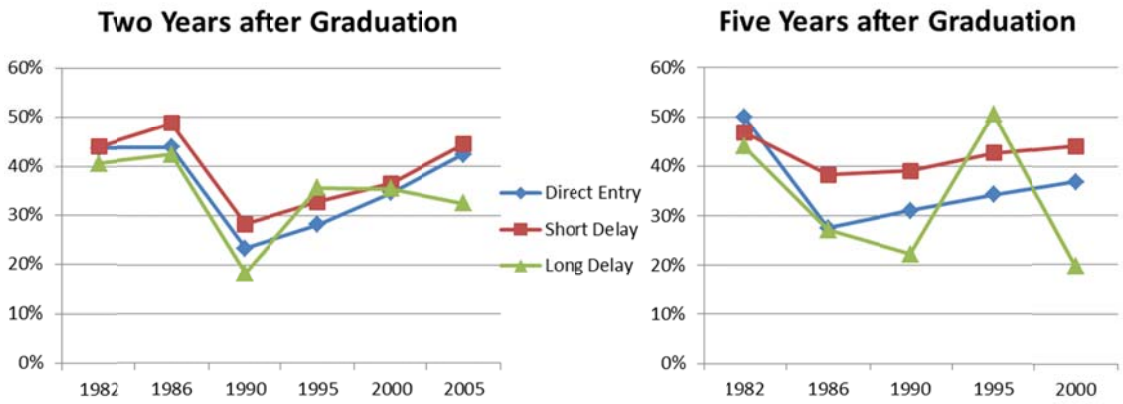
Respondents who were paid workers at the time of the survey were asked to report the level of education required for their job. This educational requirement was compared with the graduate's highest level of

[19] In the "bachelor's graduates" chart, the percentages for short delayers of cohorts1986 and 1990 are not shown. The reason is that the sample size is not big enough to be vetted out from Statistics Canada.

education at the time of the survey to determine whether the graduate was overqualified for their job.[20] Since the working sample is limited to graduates who have not obtained any PSE credential other than the discussed credential, a graduate's highest credential at the time of the survey is the credential obtained upon graduation in the reference year.

For college graduates, 20 to 50 per cent reported being overqualified for their job, and no improvement was found between two and five years after graduation (Figure 13). Relative to direct entrants, short delayers were slightly more likely to work in a job for which they are overqualified, while long delayers were slightly less likely to be overqualified for their job for most cohorts except the class of 1995. The differences between delayers and direct entrants were more prominent five years after graduation than two years after graduation.

Figure 13. Percentage of Graduates who are Overqualified for their Job: College Graduates

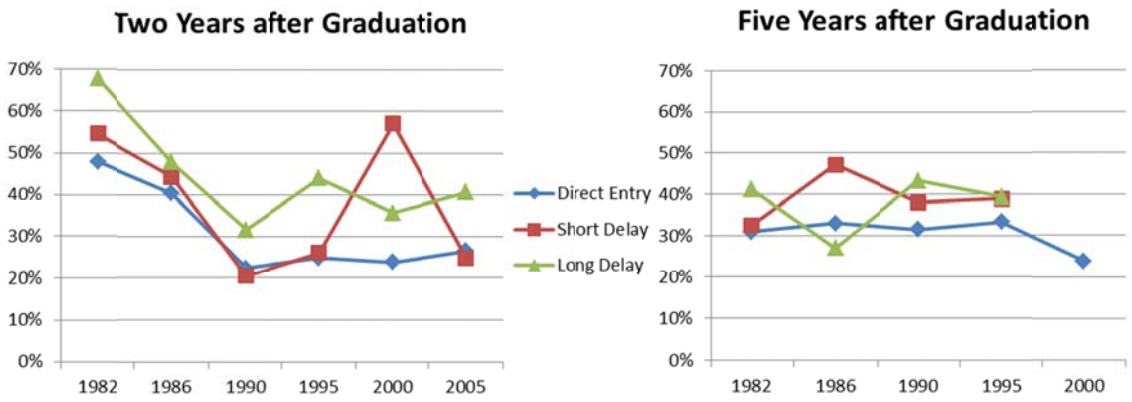


The percentage of college graduates who are overqualified for their job decreased dramatically between the late 1980s and the early 1990s,[21] and has since increased steadily, especially for short delayers and direct entrants. The trend between the late 1980s and the early 1990s is also observed for bachelor's graduates two years after graduation (Figure 14). This trend is puzzling because the unemployment rate has been increasing during this period for all levels of education (LFS, and also Figure 9).

Although the percentage of bachelor's graduates who are overqualified for their job used to be as high as 40 to 60 per cent in the 1980s, the percentage has been stable since the early 1990s, ranging mainly between 20 per cent and 40 per cent. For bachelor's graduates, delayers, especially long delayers, are more likely than direct entrants to work in a job for which they are overqualified.

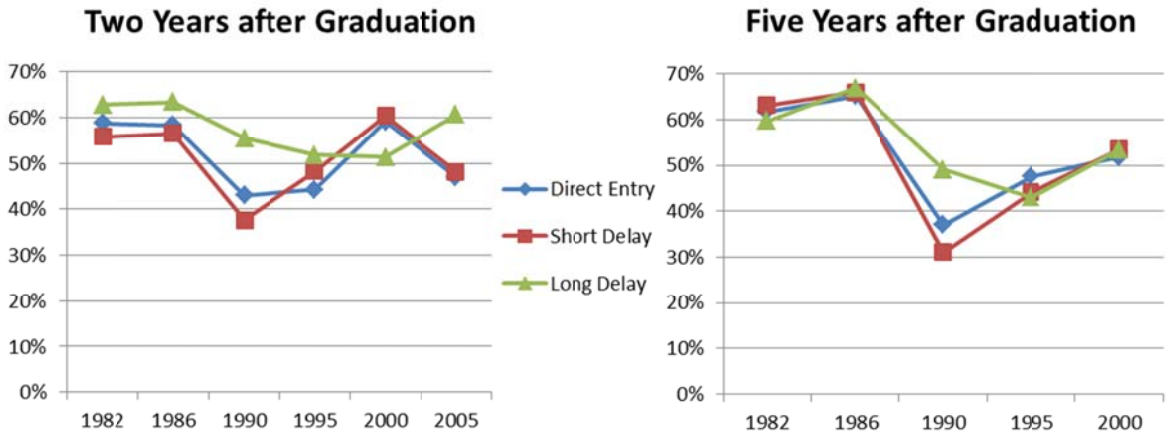
[20] Variable derived by Statistics Canada.
[21] The late 1980s refers to 1988 (two years after the graduation of the class of 1986) and 1987 (five years after the graduation of the class of 1982). The early 1990s refers to 1992 (two years after the graduation of the class of 1990) and 1991 (five years after the graduation of the class of 1986).

Figure 14. Percentage of Graduates who are Overqualified for their Job: Bachelor's Graduates[22]



For college graduates, the percentage of short delayers in a job closely related to their field of study is similar to the percentage for direct entrants, which is 40 to 60 per cent two years after graduation and 30 to 70 per cent five years after graduation, depending on the cohort (Figure 15). The percentage for long delayers is slightly higher two years after graduation.

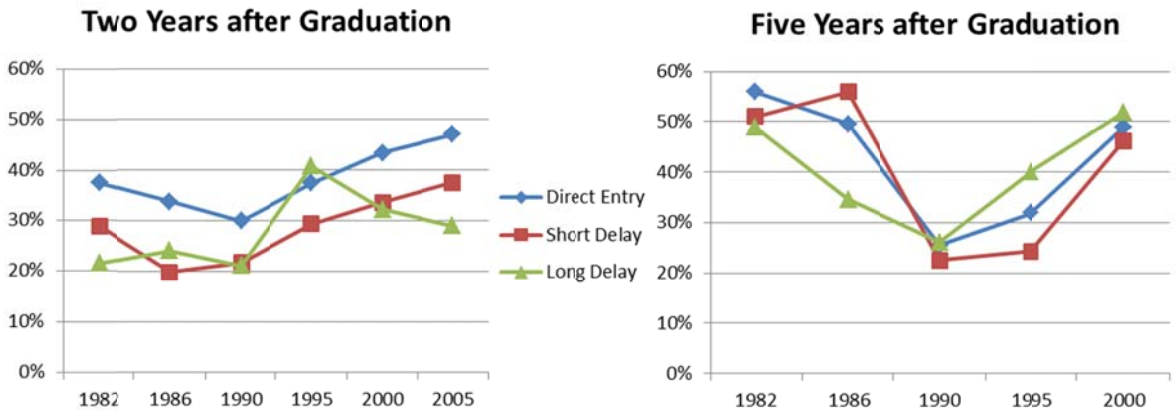
Figure 15. Percentage of Graduates in a Job Closely Related to their Field of Study: College Graduates



For bachelor's graduates, delayers were less likely than direct entrants to work in a job closely related to their field two years after graduation (Figure 16). The difference ranges between 8 and 18 percentage points depending on the cohort. This could be related to the fact that delayers are more concentrated in liberal arts fields. For most cohorts, short delayers are more likely than direct entrants and long delayers to be in a job not related to their field of study. Across the cohorts, the percentage of graduates working in a job closely related to their field of study decreased until the class of 1990 (20 to 30 %), and has since increased to 30 to 50 per cent in the 2000s.

[22] In the "five years after graduation" chart, the percentages for short delayers and long delayers of cohort 2000 are not shown. The reason is that the sample size is not big enough to be vetted out from Statistics Canada.

Figure 16. Percentage of Graduates in a Job Closely Related to their Field of Study: Bachelor's Graduates



In the NGS and FOG, graduates were asked to report the number of months they usually worked in a year, the number of weeks they usually worked in a month, the number of paid hours worked in a week, and their wage or salary. Statistics Canada derived graduates' expected earnings based on the above information. The annual earnings discussed in this paper are based on the expected earnings calculated by Statistics Canada and were converted to constant 2002 Canadian dollars.

For this paper, only full-time paid employees with annual earnings between $5000 and $1,000,000 were included in the discussion of earnings. Self-employed workers were excluded because this study is primarily interested in labour incomes and it is difficult to separate their labour incomes from capital 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 the same hourly rate. As a result, it is 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 $5000 or higher than $1,000,000 were excluded because the inclusion of those outliers would have skewed the means.

For college graduates, the distribution curves of short delayers' annual earnings almost coincide with direct entrants, with only a slight skew to the left. The mean annual earnings of short delayers are also similar to those of direct entrants, ranging between $27,000 and $34,000 two years after graduation and between $32,000 and $38,000 five years after graduation. In contrast, long delayers' distribution curves of annual earnings are more dispersed with a lower peak and fall to the right of the curves of direct entrants. The mean annual earnings of long delayers are greater than direct entrants, ranging between $32,000 and $37,000 two years after graduation and between $38,000 and $41,000 five years after graduation.

For bachelor's graduates, short delayers' distribution curves of annual earnings are similar to direct entrants, but are slightly skewed to the left. The mean annual earnings of short delayers are also similar to those of direct entrants, ranging between $33,000 and $40,000 two years after graduation and between $41,000 and $52,000 five years after graduation. In contrast, long delayers' distribution curves of annual earnings are more dispersed with a lower peak and a thicker right tail, and fall to the right of the curves of direct entrants. The mean annual earnings of long delayers are greater than direct entrants, ranging between $42,000 and $47,000 two years after graduation and between $46,000 and $53,000 five years after graduation.

Figure 17a, 17b, 17c, and 17d show graduates' median earnings by gender. Long delayers earned more than short delayers and direct entrants for most cohorts examined, except for males five years after graduation. Males earned more than females, with the exception of long delayer bachelor's graduates. The earnings gap

between males and females is more prominent for direct entrants and short delayers than for long delayers, except for recent cohorts (2000, 2005) of college graduates two years after graduation. The earnings gap between males and females is also more prominent for college graduates than for bachelor's graduates. No monotonic trend across the cohorts examined is observed for the earnings gap between males and females.

Figure 17a. Median Annual Earnings: College Graduates, Two Years after Graduation

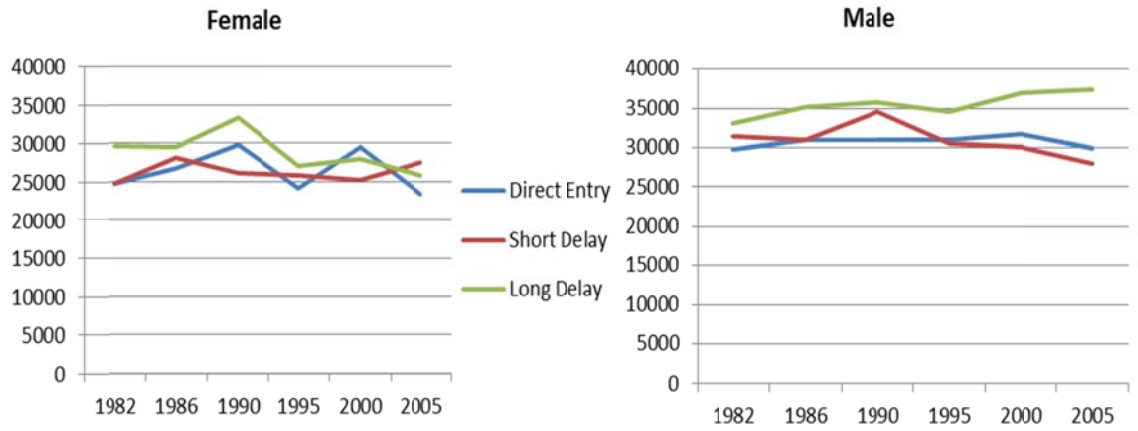


Figure 17b. Median Annual Earnings: Bachelor's Graduates, Two Years after Graduation

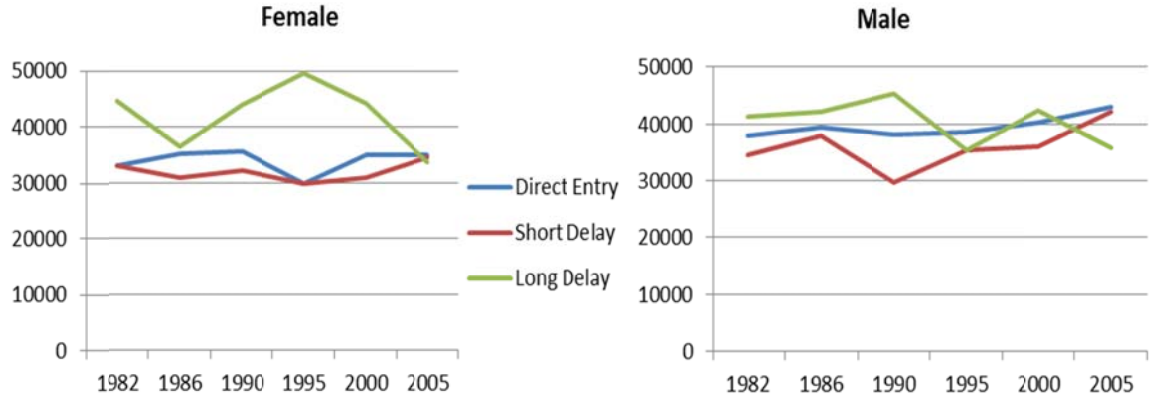


Figure 17c. Median Annual Earnings: College Graduates, Five Years after Graduation

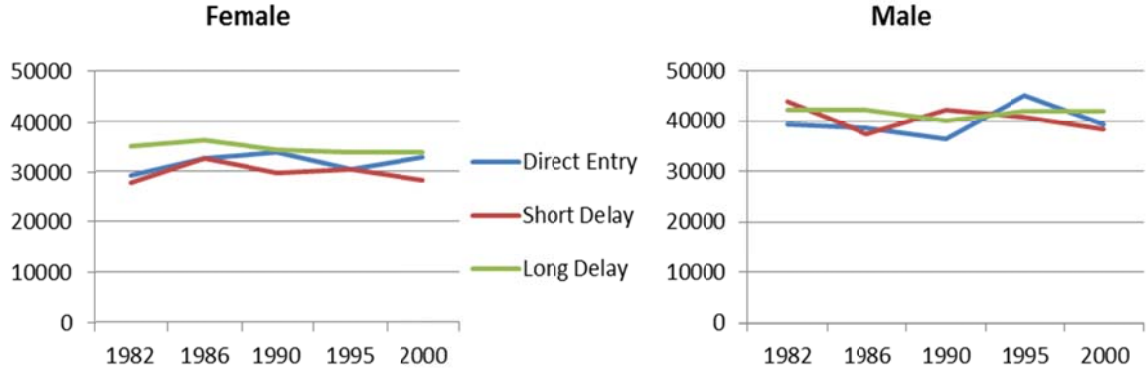
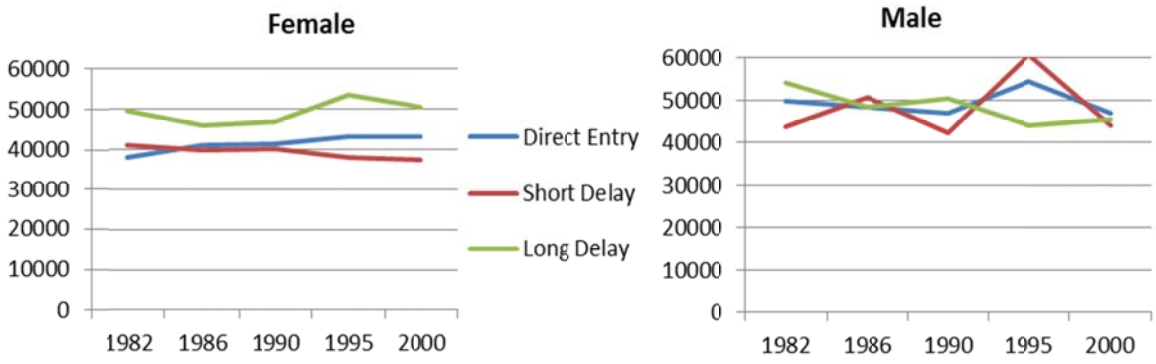


Figure 17d. Median Annual Earnings: Bachelor's Graduates, Five Years after Graduation



To control for the effects of other factors, log linear models were set up for graduates' annual earnings. To make the sample more homogeneous and more meaningful, the regressions are limited to those who graduated between the ages of 18 and 45 years and whose annual earnings were less than $100,000[23] during the survey year.

lnW = g (SD, LD, CH, DEM, SCH, WRK, JOB)

Dependent variable lnW is equal to ln(annual earnings). Function g is a linear function (OLS). The independent variables of interest are short delay (SD) and long delay (LD). The control variables in the regressions for employment rate (ER) are all included in this model. In addition, these models also include some job quality variables (JOB), such as whether the job is permanent, whether the respondent is overqualified for the job, and whether the job is closely related to the respondent's field.

To correct for the possible endogeneity of the delaying decision, 2SLS models were also set up for graduates' annual earnings.

Stage 1: DR = h1 (DEM0, UR0)
Stage 2: lnW = h2 (DR^, CH, DEM, SCH, WRK, JOB)

The dependent variable DR in stage 1 is a dummy variable indicating direct entry (compared against delayed entry, including both short delay and long delay). DEM0 represents the respondent's demographic characteristics when the decision to delay was made. The demographic characteristics include gender, whether the first language is either English or French, and parental education. UR0 is the unemployment rate of the respondent's province of residence when at age 18.[24] DR^ is the predicted DR from the estimation in stage 1. Functions h1 and h2 are both linear functions.

The estimation for both models was performed for each cohort as well as for all cohorts combined. The estimation was also conducted for both two years and five years after graduation, for college and bachelor's graduates, and for males and females separately. The OLS results are listed in Appendix C, and the 2SLS results are available on request.

[23] Graduates with annual earnings $100,000 or more account for less than 1 per cent of total graduates.
[24] Respondents are assumed to graduate from high school at the age of 18, so the delaying decision is assumed to be made at this age. Unemployment rates at that time provide the macroeconomic environment when respondents made the delaying decision. Ferrer and Menendez (2009) found that high unemployment rates induce less delay. In our study, the respondents' last province of principal residence before enrolment is used to proxy respondents' residence province at the age of 18.

From 2SLS estimation, direct entry is not significant in any regressions conducted. From OLS estimation, short delay and long delay are not significant in most regressions. One exception is that for male college graduates, long delay has a significantly negative effect on earnings. The other exception is that for female college graduates, short delay has a significantly negative effect on earnings five years after graduation. Neither short delay nor long delay is found to have a statistically significant positive association with annual earnings in any of the regressions. Thus, the higher mean and median earnings of long delayers observed in the descriptive analysis should be explained by their demographic and schooling characteristics rather than their long delaying entry into PSE. Table 6 shows the variables that are significant at 5 per cent in most regressions for annual earnings.

Table 6. Variables Significant in the Regressions for Graduates' Annual Earnings: OLS

	Two Years after Graduation		Five Years after Graduation	
	College Graduates	Bachelor's Graduates	College Graduates	Bachelor's Graduates
Male	+	+	+	+
FOS: Liberal Arts	-	-	NS	-
FOS: Science	NS	-	NS	-
FOS: Applied Science	+	+	+	NS
FOS: Health	+	+	+	NS
Co-op Program	NS	+	NS	+
Years to Completion	+	NS	+	NS
LF: Permanent	+	+	+	+
LF: Overqualified	-	-	-	-
LF: Unrelated	-	-	-	NS

For both college and bachelor's graduates, males earned significantly more than their female counterparts, whether it was two or five years after graduation. The magnitude of coefficient on gender indicates that the earnings gap between males and females is greater for college graduates than for bachelor's graduates. In addition, age has a significant positive association with male college graduates' earnings.

Participation in a co-op program has a significant positive effect on bachelor's graduates' earnings, but it has no significant effect on college graduates' earnings. For college graduates, the number of years to completion has a significantly positive effect on annual earnings. Longer years to completion could be associated with a longer college program[25], which tends to be associated with more advanced college credentials. Advanced college credentials will tend to be associated with higher annual earnings (McCloy & Liu, 2010). In contrast, the number of years to completion is not significant in most regressions for bachelor's graduates.

Bachelor's graduates from Liberal Arts and Physical and Biological Science earned less than graduates from Business, Management and Public Administration, whether it was two or five years after graduation. Two years after graduation, graduates from Health and Computer, Architecture and Engineering earned more than graduates from Business, Management and Public Administration.

Graduates' job characteristics were found to have significant effects on their annual earnings. Graduates with a permanent job earned more than those with a seasonal or temporary job. Graduates who were overqualified

[25] The NGS does not ask about college credential type.

for their job earned less than those who were not overqualified. Graduates with a job unrelated to their field earned less than those with a job closely related to their field.

VII. Conclusion and Policy Implications

In Ontario, 50 to 60 per cent of bachelor's graduates entered university directly from high school, while the percentage for college graduates is lower and has dropped over time (from 40 to 45 % for earlier cohorts of 1982, 1986 and 1990 to under 30 % since cohort 1995). Delayers are no longer a marginal group in Ontario's PSE system and should be of great interest to policy makers. To understand delayers' behaviors, this study examined delayers' demographic profile, their program choices and pathways through PSE, and their labour market outcomes.

In Ontario, delayers, especially long delayers, tend to be first-generation or Aboriginal graduates, groups traditionally underrepresented in PSE. First-generation graduates (graduates whose parents have no PSE credential) are disproportionally overrepresented among delayers, especially long delayers. In the class of 2005, 44 per cent of long delayers were first-generation graduates. This percentage is 20 percentage points higher than for direct entrants. The percentage of graduates whose first language is neither English nor French increased from 5-15 per cent for earlier cohorts to 15-25 per cent for the cohorts of 2000 and 2005. There are similar proportions of females in each group of delayers as well as among direct entrants.

Delayers, especially long delayers, make different program choices than direct entrants. Most delayers attend college while most direct entrants attend university. Delayers also differ from direct entrants in their choice of field of study, especially for bachelor's graduates. Compared with direct entrants, delayed-entry bachelor's graduates are more likely to be enroled in liberal arts programs. In contrast, the choice of field of study of delayed-entry college graduates is more diverse. Short delayers make field of study choices similar to direct entrants, whereas long delayers are more likely to be in health or computer, architecture and engineering programs, and are less likely to be in education or physical and biological science programs.

Delayers and direct entrants went through different pathways to complete their PSE. Compared with direct entrants, delayers, especially long delayers, are more likely to have ever studied on a part-time basis. Compared with direct entrants and short delayers, long delayers are also more likely to have ever taken a leave of absence during their program. As a result, it took long delayers a relatively longer time to complete their PSE, while short delayers and direct entrants took a similar number of years to complete their PSE.

Regardless of these differences, graduates who delayed entry into PSE fared just as well as direct entrants in the labour market. There are no significant differences between delayers and direct entrants in most measures that we estimated including unemployment rate, percentage with a full-time job, percentage with a permanent job, percentage who are overqualified for their job, and percentage in a closely related job. For college graduates, long delayers are more likely to be out of the labour force than direct entrants and short delayers, especially five years after graduation. Compared with direct entrants, short delayers' annual earnings are not significantly different, while long delayers' earnings are greater, especially for females. However, when graduates' personal and program characteristics are controlled for, the earnings differences between direct entrants and delayers become insignificant. Thus these differences could be largely attributed to the differences between delayers and direct entrants' personal and program characteristics.

The results of this study suggest that PSE can help underrepresented groups succeed in the labour market and raise their socioeconomic status to the same level as traditional PSE graduates. Therefore, non-traditional students should be encouraged to attend PSE through any pathways available to them. Policies should be introduced to facilitate their transition to PSE. Given that those who leave PSE without a credential are unlikely to enjoy the benefits association with PSE, graduation is pertinent. Although comparisons in

graduation rate could not be performed using the NGS, previous research has shown that delayers have lower graduation rates than direct entrants (Bozick & Deluca, 2005; Horn & Carroll, 2005). Therefore, policies should also focus on helping non-traditional students graduate.

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Appendix A. Aggregated Classification of Instructional Programs (CIP)

1. Liberal Arts
    - Visual and performing arts, and communication technologies
    - Humanities
    - Social and behavioral sciences, and law
2. Business, Management and Public Administration
3. Physical and Biological Sciences (Science)
    - Physical and life sciences and technologies
    - Agriculture, natural resources and conservation
4. Computer, Architecture and Engineering (Applied Science)
    - Mathematics, computer and information sciences
    - Architecture, engineering and related technologies
5. Education
6. Health and related fields
    - Health professions and related clinical sciences
    - Dental, medical and veterinary residency programs
7. Other
    - Personal, protective and transportation services
    - Parks, recreation, leisure and fitness studies
    - Personal improvement and leisure programs
    - Other

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