Patterns of Persistence in Postsecondary Education: New Evidence for Ontario

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I. Introduction

Entering a (first) postsecondary education (PSE) program represents a critical transition in a person's life, but it is just the beginning of a whole new set of dynamics that can take many different forms. Some students continue in their programs until graduation, proceeding at faster or slower rates. Others switch to another program at the same institution, at an institution of the same kind (college or university) or at a different level of study. Still others abandon their studies, some to return at a later date.

Those who persist in their initial programs directly through to graduation could be considered cases where the system has successfully helped students realize their PSE aspirations and then move into the labour market, go on to further schooling or pursue other life goals. In short, they could be considered student "success" stories as far as the PSE system is concerned.

Those who obtain a diploma/degree after moving across different programs, institutions or levels of study – perhaps with a break in their studies along the way – may have taken, to some extent, a wasteful diversion on the path to their preferred postsecondary credential. This may result from an initially flawed program choice or a PSE system that has somehow not served these students as well as it could have. However, such pathways could also represent the student's acquisition of necessary learning about different programs and the careers they lead to, or they could reflect developments in the student's personal life apart from his or her schooling, or they may result from an individual's change of plans. In at least some of these cases, the postsecondary system and the postsecondary institutions with which the individual was involved may have performed as well as could be expected despite the time required and the circuitous pathway that the student took to complete the program.

Finally, although individuals who fail to complete their postsecondary studies may be regarded as being part of a system that is not working as it should, such pathways may again represent necessary learning experiences or be related to personal factors that have little to do with the PSE system. In fact, the system may have performed as well as could be expected, including providing an initial opportunity for the individual to pursue or explore their PSE ambitions.

Underlying many of these dynamics are policy issues relating to ways in which these pathways and outcomes could be improved. Could better information provided in more effective ways help students make more informed and appropriate program choices at an earlier point during their studies? In the case of students who struggle in their PSE studies, could certain interventions help these individuals or targeted groups of students overcome those challenges and complete their programs in a more timely fashion? Are there means of reducing the need for some students to take breaks from their studies or are such pauses a necessary part of the PSE experience for at least some individuals?

Answering such questions, and developing the appropriate policy response, could potentially result in more satisfied students, reduced costs for the PSE system and higher graduation rates. Before addressing these issues, however, more information on PSE pathways is needed, including program retention, drop-out and completion rates and student transfers within, between and across programs, institutions and levels of study.

The general objective of this report is to provide new and unique empirical evidence concerning the patterns of "persistence" (or what is sometimes alternatively referred to as "retention," especially when viewed from the perspective of individual institutions), as well as educational pathways more generally, of PSE students in Ontario. We present an analysis of the frequency of various trajectories and graduation rates and use both descriptive statistics and econometric modelling to show how pathways and outcomes vary by students' individual characteristics, family background and educational outcomes at the high

school and PSE levels.[1] Throughout, the focus is on Ontario, but comparisons are made with the rest of Canada.

While we present results for the general population, our work also reflects concerns among policy-makers that certain underrepresented and minority groups may be disadvantaged both in terms of entering PSE and, in the present context, advancing in their studies through to completion. These groups are identified below:
- those from families with no history of attending PSE (i.e., "first generation" students);
- those of Aboriginal ancestry;
- students with disabilities;
- those living in rural areas and others who live far from college or university campuses;
- those from low-income families;
- those from single-parent (or other non-traditional) families;
- first- and second-generation immigrants; and
- those whose mother tongue is French (i.e., francophones).

An earlier report completed for HEQCO has analyzed these groups with respect to their patterns of accessing PSE, which is generally defined as enrolment in a PSE program of some sort at some point in time – and thus successfully entering the system (Finnie, Childs, & Wismer, 2010a). The contribution of the present report is not only to offer a general analysis of pathways, but also to conduct an analysis that focuses on these particular groups in order to see what happens to students after entry into the PSE system, again by employing the remarkably rich Youth in Transition Survey, Cohort-A ("YITS-A").

Previous research has used the companion YITS-B cohort, as well as administrative data, to examine persistence in Canada from a longitudinal perspective. This has allowed the researchers to track students who change institutions and even levels of study, as well as those who drop out and then return to their studies, and to present evidence concerning at least some underrepresented and minority groups (Finnie & Qiu, 2008, 2009a, 2009b). This report is the first of which we are aware that uses similarly rich data (1) to focus on the Ontario record and (2) to treat all underrepresented and minority groups in a single study, including taking into account how those groups cross-cut each other (e.g., those coming from low-income families may also be first generation PSE students or may come from rural areas).[2] This report thus provides a comprehensive perspective that is unique not only for Ontario and Canada, but also within the international literature on persistence in PSE by underrepresented and minority groups.

One important caveat related to the use of the YITS-A dataset is that the PSE dynamics studied here are for a particular population of students: those who started their programs by age 22. Finnie and Qiu (2008, 2009a, 2009b) and others (see Section II.1 below) have shown that persistence rates vary to a significant degree, depending on the age at which individuals begin their studies. In particular, leaving rates are much higher for those who start when older (including those who would normally be referred to as "mature students"), especially at the university level. This pattern must be kept in mind when considering the results reported below, particularly when comparisons are made to the older YITS-B cohort, as well as to other data.

We begin the analysis by outlining rates of persistence and related pathways for all students in Ontario taken together – whether or not they belong to one of the underrepresented or minority groups listed above – and comparing the Ontario record to that of the rest of Canada. This is done in a number of ways. First, we look at annual and cumulative transition rates to see how many students graduate, how many continue in their initial program, how many switch programs and how many leave PSE entirely

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[1] This paper derives from earlier work by Finnie and Qiu (2008, 2009a, 2009b), who use the Youth in Transition Survey, Cohort B (YITS-B) dataset to look at PSE dynamics at the national level for college and university students.
[2] Finnie, Childs and Qiu (2010) have studied persistence in Ontario, but only for college students and without any consideration of at least some of the underrepresented and minority groups considered here.

before graduation, all on a year-by-year basis from the student's point of entry into their first program. We also document the self-reported reasons for switching and leaving PSE for those who do so, and identify how many of those students who leave PSE before completing their first program subsequently return to their studies. This first part of the report thus provides a general overview of the overall Ontario record on PSE transitions and pathways, presented in comparison to the rest of Canada (ROC).

Second, we provide a more detailed set of profiles in the form of cumulative rates for the relevant transitions (graduating, continuing, switching and leaving PSE) at the three-year mark for college students and at the four-year mark for university students (these timelines are determined by the data and reflect the number of years for which we can track sufficient numbers of students, as explained further below). These rates are presented for all Ontario students taken together and are then broken down into underrepresented groups and minority groups of interest.

Third, "overall graduation rates," which combine all possible PSE pathways, are calculated and thus include switchers, as well as those students who return to school and finish a different program than the one they started. Broader "overall persistence rates," which by our definition include those still participating in PSE, are also calculated, and comparisons with the rest of Canada are again provided. Last, we present a set of econometric models that focus on the switching and leaving dynamics, using a multinomial logit regression framework. This allows us to consider the effect of belonging to each of the identified groups simultaneously and thus to identify the "net" differences in persistence rates (switching, leaving) for each of the groups, while also taking membership in the other groups into account (e.g., the differences for those from low-income families, taking into account parental education, rural versus urban location and so on). We then add high school grades, international reading ("PISA") test scores and PSE grades to the models to see how the differences among our groups of interest change as these variables are added and how the "group effects" compare in magnitude to these schooling-related effects. Due to sample size restrictions, these models are estimated at the national level, but the analysis employs a specification that allows us to observe differences in the effects for Ontario.

This report thus fills an important void in the existing literature and allows the following questions to be answered about Ontario in comparison to the rest of Canada in relation to both the overall population and to the underrepresented and minority groups mentioned above:

- How many students continue in their programs after entering PSE, how many change programs and how many leave PSE on a year-by-year basis starting from their time of entry?
- How many students who leave their initial programs subsequently return to continue some form of PSE study?
- What are the graduation rates from the students' initial program and how do these rates change once program switchers and leavers who subsequently return are taken into account? How do persistence rates change further when those still in PSE are factored in?
- What are the risk factors associated with switching or leaving?
- How are these different transition rates related to membership in the underrepresented and minority groups of interest to policy-makers, as well as to other family, high school and early PSE factors?

The report is organized as follows: in Section II, the existing literature on persistence is discussed; Section III describes the methodological approach, data, definitions, and samples; Section IV presents the empirical results; and Section V summarizes the main empirical findings, places them in context and discusses possible directions for further research.

II. The Literature[3]

The persistence literature can be classified into two parts: that which focuses on overall rates of graduation, switching and leaving and that which analyzes these patterns for students with different characteristics. Each of these bodies of literature is discussed in turn.

The General Patterns of Persistence

Much of the interest in participation in PSE is grounded in empirical estimates that suggest that the returns on higher education are substantial (e.g., Ferrer & Riddell, 2001). Turner (2004) has, however, pointed out that it is not enough to look at *access* (typically defined as entering the PSE system at some level at some point in time) when the critical element is postsecondary *attainment*, as defined by the successful *completion* of a PSE diploma or degree. In her words: ". . . many education analysts (including economists) focus on *enrolment* measures, which constitute an indicator of *potential* investment, rather than on degree or credits, which measures [actual] additions to human capital stock" (p. 14).

Furthermore, this critique is offered in a context where persistence in PSE is studied much less extensively than access. The main reason for this is that persistence is essentially a dynamic process and the data requirements for studying it are therefore much more demanding. These requirements include the longitudinal tracking of sufficient numbers of students through to their PSE outcomes (Long, 2005), along with detailed measures of family background, high school and PSE experiences and other factors linked to persistence.

Because of this data challenge, most existing studies – at least until the last couple of years – have focused on persistence at a single institution and have thus ignored switching across institutions and other related dynamics. These studies are representative only of the particular institutions studied and not of the general student population. This is why the recent work carried out by the Measuring the Effectiveness of Student Aid (MESA) project[4] has been so significant: for the first time, a large, representative sample of students has been followed from their entry into PSE through their PSE pathways – including switching, leaving, returning and other ways of moving through the system – toward graduation or lack thereof. Finnie and Qiu (2008, 2009b) have published some of the most notable pieces of work in this area due to the general and comprehensive nature of their analysis and because their work comprises the foundation upon which other MESA studies are built (e.g., work by Martinello, Johnson, and Day found at the MESA website and in Finnie, Mueller, Sweetman, & Usher, 2009).

Who Leaves and Why: Factors That Influence Persistence Decisions

Two well-known and broadly used theoretical models exist in the persistence literature. The first is Tinto's (1975, 1993) model of "student integration," according to which students enter PSE with various pre-entry characteristics such as age, race, gender, family structure, parental educational attainment, high school preparation and their own skills and abilities. These factors contribute to the formation of the students' initial goals and their level of commitment to their studies. Once enrolled, students then begin to have their own specific institution-related PSE experiences, which include their level of academic and social engagement and academic performance. Students' initial goals and commitments are then influenced and modified by these post-entry experiences, and these various factors are then used to determine persistence.

The second well-known model in the literature is Bean and Metzer's (1985) "student attrition model." The main difference between this model and the Tinto model is that it introduces factors external to institutions, such as finances and peer effects. The student integration model also regards academic

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[3] See Finnie and Qiu (2008, 2009a, 2009b) for a more extensive literature review.
[4] See http://mesa-project.org/.

performance as an indicator (or determinant) of academic integration, while the student attrition model treats PSE experiences as an outcome (Cabrera, Castaneda, Nora, & Hengstler, 1992) on the grounds that, for example, lower grades can be a symptom of an individual's detachment from school as they begin the process and can eventually lead to their departure prior to completion of a credential.

In summary, each of these two models posits that persistence decisions are affected by both pre-entry characteristics and post-entry experiences, although they differ in what they include in the latter and in their interpretation of the related effects.

In the empirical literature, however, there is no consensus on who drops out and why. In their review, Grayson and Grayson (2003) state the following:

> . . . it is difficult to tell if different results of various studies reflect real differences in explanations for attrition or are simply artefacts of different methodologies . . . it [therefore] makes more sense to examine findings of individual studies in their own right rather than attempting to fabricate generalizations about attrition.

This statement illustrates the need for empirical work that uses an appropriate methodology with a dataset that is broadly representative and well suited to the relevant estimation issues.

It is into this existing void that the Finnie and Qiu (2008, 2009a) work should be placed. While their research employed the YITS-B dataset, rather than the data from the YITS-A cohort that is employed in this study,[5] they were still able to calculate year-by-year transition rates with respect to graduation, switching programs and leaving PSE. They were also able to calculate a broader set of graduation rates and even more general persistence rates that included the various possible pathways through PSE, including identifying those still in school. Finnie and Qiu then conducted an econometric analysis of the factors associated with switching programs or leaving PSE altogether. They found that different sets of factors matter, depending on the precise specification of the model. For example, high school grades and experiences are important when included on their own or along with other family background factors (e.g., parental education) but generally become insignificant when PSE grades and experiences are included.

Finnie and Qiu (2009b) followed up their YITS study with a similar analysis based on institutional (administrative) data taken from Statistics Canada's Postsecondary Student Information System (PSIS) dataset for Atlantic Canada, where coverage was virtually complete for colleges and universities throughout the four Atlantic provinces during the four-year period between the 2001/02 and 2004/05 academic years. In this study, Finnie and Qiu again calculated the relevant year-by-year transition rates and tracked individuals across programs and through breaks from PSE in order to calculate a broader set of graduation and persistence rates and otherwise analyze pathways more generally than had previously been done. Their findings were generally similar across the two studies and revealed, in particular, high rates of program switching and returning to PSE after leaving initial programs. Their study also found that graduation and persistence rates are much higher when student mobility is taken into account.

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[5] The two datasets are similar in many ways: they were both started in 2000 and tracked individuals based on a series of follow-up interviews carried out at two-year intervals. They differ in that the YITS-A captured a representative sample of high school students born in 1984 (i.e., age 15 as of December 1999) and then followed them through five cycles of subsequent surveys. The YITS-B captured a sample of young Canadians aged 18 to 20, commencing at that same point in time. The datasets also differ in terms of the information they contain: the YITS-A includes more detail on family background and high school experiences, among other things.

III. Methodological Approach, Data, Definitions and Samples[6]

The first part of this section outlines the methodological approach used in the analysis. This is followed by a description of the YITS-A data and constructions of the samples employed. The final part presents the descriptive statistics associated with these samples.

The Methodological Approach

This report essentially uses a survival analysis set-up that focuses on two different processes. For the first process, which occupies most of our attention, we look at those students who start a (first) PSE program and track them through their studies. We look at their possible (first) transitions (namely, graduation), a switch to another program or leaving PSE (at least temporarily) before graduation. The second spell/process is the return to PSE among those who leave their first PSE program before graduation. The timeframe for the analysis is spell time, not calendar time. Individuals enter PSE (and leave) in different calendar years, but we define the starting point for students starting a spell (for each of the two processes considered) as t_0, regardless of the calendar year in which this occurred.[7] We then observe individuals after one year, after two years, etc. (t_1 through a maximum of t_5). The analysis is organized around these event-based one-year intervals, starting from the commencement of each individual spell.

For the first process (i.e., for those who have started a first spell of PSE), after one year, individuals are classified according to the four possible outcomes: "continuer," "graduate," "switcher" and "leaver." For those who make one of the latter three transitions, the first program spell ends at that point (by construction) and we no longer follow them in this regard. For those who have not yet made one of these three transitions (graduate, switcher or leaver) and are thus continuing in their original PSE program, the process continues and the calculations are repeated in subsequent years.[8] A similar set-up characterizes the re-entry process among leavers from the point at which they leave (defined in the first part of the analysis as just described), but the outcomes are simpler: individuals either re-enter PSE or they do not.

For the descriptive analysis, we simply calculate the rates of the different transitions and otherwise work with those outcomes. For the regression analysis, a multinomial logit model is used to capture the effects of the various explanatory variables included in the analysis on the different possible transitions.

The Data, Definitions and Sample Characteristics
The YITS-A Dataset

In Canada, as in most cases elsewhere, previous studies of persistence (and graduation) rates in PSE have been almost entirely restricted to following students at a given institution, and this implies a number of important limitations. First, mobility across institutions is not captured. This not only precludes the analysis of various dynamics that are interesting on their own, but also leads to a general underestimation

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[6] See Finnie and Qiu (2008, 2009a) for further details on the material discussed in this section.

[7] t_0 is thus mapped to different calendar years for different entry cohorts. For example, t_0 is mapped to the year 1997 for those who enter in 1997, to the year 1998 for the 1998 entry cohort and so on.

[8] To simplify the analysis, only individuals who enter school in August or September of a given year are considered. We then assess their status one year later and classify them into one of the indicated categories: continuer, graduate, switcher or leaver. Note that someone who leaves early or spends some time out of school but returns to school by the next September is classified as a switcher, while someone who attends PSE most of the year but then fails to return to school by the second September will be classified as a leaver, even if he or she returns to school soon thereafter. A continuous time hazard modeling approach that will be able to better incorporate such information is currently under development. Preliminary estimation indicates that the results are qualitatively very similar across the two methods.

of persistence (and graduation) rates at the more general system level. Second, although the results of institution-specific analyses can be important for campus planning and management and can otherwise have specific relevance for the particular institution in question, they do not reflect student experiences at the broader (national or provincial) level. Finally, such studies tend not to have the richness of variables available in the YITS that allows us to probe these transitions in detail.

The YITS-A dataset used in this analysis allows us to overcome these shortcomings. The YITS-A is a Canadian longitudinal survey designed to facilitate the study of the patterns and determinants of major transitions in young people's lives, particularly with respect to education. The YITS-A represents a stratified (by province and high school) representative sampling of 29,687 Canadian youth who were 15 years old as of December 31, 1999, who were then followed through the subsequent interview cycles every two years. The sample frame is well suited to tracking young people as they move through high school and on to their first PSE experiences, and its focus on PSE-related information (among other early transitions) allows for the construction of the detailed PSE profiles required for this analysis, with relatively little recall bias (i.e., individuals forgetting what actually happened in the past). The dataset also includes a selection of interesting variables to include as explanatory factors in the analysis.

For the analysis presented here, the YITS-A tracked students across five cycles: the first interview was conducted in April 2000, when information was collected for the year 1999 (when the students were 15 years of age), and retrospectively for earlier years. The first cycle of the survey was conducted in conjunction with the Programme for International Student Assessment (PISA) survey and tests, as well as interviews with the 15-year-olds' parents and schools (typically principals). A second interview was conducted in April 2002, capturing activity during 2000 and 2001 (ages 16-17). The third interview was held in 2004 and monitored activity during 2002 and 2003 (ages 18-19). The fourth interview in 2006 collected information on students' activities during 2004 and 2005 (ages 20-21) and the last interview in 2008 collected information on students' activities during 2006 and 2007 (ages 22-23).

While the companion "YITS-B" dataset, which follows an older cohort consisting of 18- to 20-year-olds over the same period, has been used in earlier work on PSE student persistence (e.g., Finnie & Qiu, 2008, 2009a), the YITS-A has some unique strengths pertinent to the present study. In particular, it allows for the identification of a number of underrepresented and minority groups and includes more background information – mostly notably, family income – and is linked to the student's performance on the standardized PISA tests. Previously, the participants in the YITS-A were too young for their PSE experiences to be followed for a sufficiently long period, but the recent availability of data from the fifth cycle has made this possible (the cohort was 23 years of age at the final reference point, December 2007).

Data Issues: Attrition and "Ineligible Programs"

When we link the five cycles of the YITS-A together to track students' PSE trajectories over time, information could be lost for two reasons. First, there is attrition from the YITS-A over the period studied. Among the 29,687 respondents who were interviewed the first time, 26,880 were included again in the second interview, 22,682 respondents participated in the third interview, 18,843 responded to the fourth interview and 14,751 remained in the last interview. Rather than restrict the analysis to individuals who were present in all five cycles and risk introducing the associated sample bias, we kept individuals until they actually attrited from the sample, at which point they were treated as right-censored.[9] Previous checks have indicated that, in part based on the sample weights constructed by Statistics Canada to account for sample bias, sample attrition does not seem to present a problem for our analysis.
The second issue with respect to information being lost over time relates to what the YITS (both A and B cohorts) refers to as "ineligible programs," which basically has to do with inconsistencies in an individual's

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[9] Left-hand censoring is not an issue with this sample, since we capture all individuals from the beginning of their PSE programs if this occurred at any point during the period covered by the sample.

record in terms of reporting on PSE programs across interview cycles. After a detailed analysis of the relevant issues and treating the data in different ways, Finnie and Qiu (2008, 2009b) arrived at a preferred approach (referred to as their Treatment 2), and we employ that approach here. Essentially, this approach retains program data from one cycle even when the respondent does not acknowledge being in this program in the subsequent interview two years later, subject to some caveats.

Samples Employed and General Sample Characteristics

Sample exclusions are minimal, largely due to the relatively complete reporting that tends to characterize the YITS. The final sample includes 2,117 individuals whose first PSE program was at an Ontario PSE institution (934 in college and 1,183 in university), and another sample of 9,960 individuals who started PSE in another province in the rest of Canada (ROC) is included for comparison (4,503 in college and 5,457 in university). These are shown in Table 1 below.

For the sake of completeness, we include Quebec in the ROC sample despite its lack of direct comparability due to its unique CEGEP system. In the Quebec system, high school ends at Grade 11, after which both university-bound students and those who wish to take more traditional "college" (including trade) programs go to CEGEP. After two years, those wishing to go to university would normally graduate and move on to that level. Hence, our college sample includes both groups of individuals at the CEGEP level and very few university students (mostly those from out of province who went to a Quebec university after high school).[10]

The Alberta and British Columbia systems also generate comparability issues related to the university transfer programs situated within their colleges. In our analysis, individuals are classified according to their programs, rather than institutions, but this leaves room for differences depending on the individuals' responses to the relevant questions.[11]

Table 1 shows the general characteristics of the individuals selected for the samples of those entering their first PSE programs (college and university level) that were used in this analysis. These characteristics are shown for both the Ontario and the ROC samples. All results shown here and below were generated using the weights constructed by Statistics Canada for the YITS-A, which are designed so that the samples, and any analysis based on them, would reflect the underlying population chosen – in our case, those aged 15 in 1999 who subsequently started a college- or university-level program.

Among the college students in our dataset, the Ontario sample includes slightly more males than females (52 versus 48 per cent), whereas the ROC sample has a higher proportion of females (54 versus 46 per cent). The university students in our sample are close to 60 per cent female in both Ontario and the ROC.

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[10] Follow-up work could probe these particular elements of the Ontario-ROC comparisons presented below.

[11] Students' level of study is determined using the relevant YITS variable that includes the following categories: Attestation of Vocational Specializations (AVS or ASP); private business school or training institute diploma or certificate; Registered Apprenticeship Program; college or CEGEP program; university transfer program at a college or CEGEP; college post-diploma or graduate level program; university diploma or certificate below bachelor's; bachelor's degree; first professional degree; graduate-level diploma or certificate above bachelor's, below master's; master's degree; PhD degree; diploma, certificate or licence from a professional association as in accounting, banking or insurance. Our college sample includes the categories from "AVS or ASP" through to "college post-diploma or graduate level program." Note that private business schools are included, partly because they are still college students and partly due to concerns that this differentiation may not be reliable in the YITS-A data. The university samples include the remaining categories.

Ontario college students tend to have had fewer 80s (and above) and more 70s and 60s (and below) in high school than their ROC counterparts. The high school grades of Ontario university students are much closer to those of ROC students. A roughly similar pattern of grades holds for students once they are in PSE.

Table 1: Descriptive Statistics				
	Ontario		**Rest of Canada**	
	College	**University**	**College**	**University**
All Observations	**934**	**1,183**	**4,503**	**5,457**
1. Underrepresented Groups	**(%)**	**(%)**	**(%)**	**(%)**
Parental Education				
First Generation PSE	31.2	14.1	27.4	16.4
Non-First Generation PSE	68.8	85.9	72.6	83.6
Aboriginal				
Aboriginal	2.3	0.8	2.0	2.1
Non-Aboriginal	97.7	99.2	98.0	97.9
Disabled				
Disabled	13.8	6.2	10.4	10.2
Non-Disabled	86.2	93.8	89.6	89.8
High School Location - Urban/Rural				
Rural High School	77.7	88.6	71.7	74.5
Non-Rural High School	22.3	11.4	28.3	25.5
Parental Income				
Low-Income Family	27.3	20.9	35.6	27.6
Non-Low-Income Family	72.7	79.1	64.4	72.4
Family Structure				
Single-Parent Family	18.8	14.1	17.0	13.3
Two-Parent Family	81.2	85.9	83.0	86.7
Immigrant Status				
First Generation	9.9	16.5	5.6	9.5
Second Generation	23.2	32.0	14.4	19.3
Non Immigrant	66.9	51.5	80.0	71.1
Linguistic Minority				
English in Quebec[†]	0.3	0.2	6.2	0.2
French outside Quebec	4.8	3.6	1.4	3.2
Others[‡]	94.9	96.2	92.5	96.6

	Ontario		Rest of Canada	
Table 1: Descriptive Statistics (cont.)				
	College	**University**	**College**	**University**
2. Other Variables	**(%)**	**(%)**	**(%)**	**(%)**
Gender				
Male	52.4	39.1	46.2	42.5
Female	47.6	60.9	53.8	57.5
Overall High School Grade (Age 15)				
Below 60%	8.2	•	4.1	1.2
60-69%	18.4	5.2	14.5	6.5
70-79%	41.6	24.7	35.3	24.1
80-89%	22.6	50.5	33.5	46.6
90-100%	1.4	14.6	6.6	17.5
Don't Know	7.7	4.9	6.0	4.2
First Year PSE Grades				
Below 60%	3.6	2.8	4.3	5.1
60-69%	16.1	22.1	12.8	21.9
70-79%	41.1	49.9	38.7	44.5
80-89%	28.3	18.4	28.9	21.4
Above 90%	8.7	2.2	6.8	4.2
Don't Know	2.3	4.5	8.6	2.9
PISA Reading Score				
Below 400 (below 1 s.d.)	9.3	•	4.1	1.3
400 - 500 (below mean, within 1 s.d.)	34.7	10.5	19.3	12.2
500 - 600 (above mean, within 1 s.d.)	46.3	49.4	49.8	43.1
Above 600 (above 1 s.d.)	9.7	39.9	26.8	43.4

Notes:

†The primary language spoken is based on the student's high school. This table reports results by province of PSE program.

‡Others include provincial majority language and languages other than French or English.

• indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act

In this and in the tables that follow, the overall high school grades at age 15 are used. This table shows the distribution in the categories of the original survey. This is converted to a linear measure for the regression models.

The PISA score is normalized to have a mean of 500 and a standard deviation of 100 across all participating countries.

The PISA reading scores are taken from the Programme for International Student Assessment component of the YITS-A, which is meant to capture reading skills at age 15. Ontario college students' scores are lower than those in the ROC sample, particularly in the proportion of students achieving a score above 600 (10 versus 27 per cent). In contrast, the PISA reading scores for students who ended up attending university later are only slightly lower for Ontario than the ROC scores. It should be kept in mind that these scores apply to our samples of those students who actually attend PSE in Ontario and the rest of Canada, respectively, and not to the general population.

The Underrepresented and Minority Groups

Partly in consideration of sample-size issues, the strategy in this report – especially in the case of the smaller groups – is to define membership in the underrepresented groups fairly broadly. That said, we also aimed to keep the groups sufficiently homogeneous and representative of the relevant characteristics.

First generation PSE Students are defined as those students whose parents did not attend any form of PSE. Among college students, this captures roughly 30 per cent of the sample (31.2 per cent in Ontario and 27.4 per cent in the rest of Canada). Ontarians whose parents have low levels of education are slightly less well represented in university than elsewhere in Canada (14.1 per cent versus 16.4 per cent).

In the YITS, ***Aboriginal*** youth are identified by their parents' response within the initial questionnaire (when the youth were 15 years of age) to the question "Is this person [the student] Aboriginal, that is, North American Indian, Métis, or Inuit?" It should be noted that the YITS did not survey youth living on-reserve, and the sample and analysis therefore excludes this group. Aboriginal youth make up a relatively small proportion of our sample – about 2 per cent in three of the four groups of PSE students shown in Table 1. The exception is Ontario university students, where Aboriginals make up less than 1 per cent of the sample.

For the purpose of increasing our sample size and inclusivity, we adopt a fairly broad definition of ***students with a disability***. This definition includes physical, sensory and cognitive disabilities based on information provided in the parental questionnaire when the students were 15 years of age, and it captures individuals whose parents described them as having difficulties in those areas, as well as students whose parents described them as having a condition which, at age 15, reduced the amount or kind of activities they performed at home, at school or elsewhere. Fourteen per cent of Ontario college students are identified as having a disability, as compared to 10 per cent in the rest of Canada. At the university level, students with a disability make up 6 per cent of the sample in Ontario and 10 per cent in the rest of Canada.

Rural students are classified according to the community in which they were living when they attended high school at age 15. Urban high schools fall within the Metropolitan Influence Zone of an urban centre, which is defined by the proportion of households that have an individual who commutes to the urban core. At both levels of study, students from rural backgrounds make up smaller shares of the Ontario samples than they do for the ROC (22.3 versus 28.3 per cent at the college level and 11.4 versus 25.5 per cent among university students).

For the purposes of defining ***students from low-income households,*** we turn to the YITS-A parental survey, which applies to the situation when the student was 15 years old. The interviewed parent was asked to provide a comprehensive total of pre-tax income for both parents (or guardians) of the student. We define low-income households as those with a total household income (parents only) of less than $50,000.[12] This represents an arbitrary cut-off, but low-income households represent about one-quarter of students at Ontario colleges (27.3 per cent) and at Ontario universities (20.9 per cent).[13] Students from low-income households represent a higher proportion of the population elsewhere in Canada (35.6 and 27.6 per cent, respectively).[14]

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[12] The small number of students with parental incomes below $5,000 has been dropped from this analysis due to suspicion of respondent error. Most of these cases report zero dollars for all income categories (which include government transfers directed at low-income families), while the behaviour of these youth with respect to access to PSE is not at all like that of other low-income families. This group represented about 1.3 per cent of the sample.

[13] Other cut-offs were experimented with and generated results that were qualitatively similar to those reported below.

[14] In order to keep the measure simple and easy to interpret, incomes are not adjusted either for family size or for the cost of living. Adjusting for these factors could change the results, but probably not greatly.

What we refer to as students from **single-parent families** includes all those who, at age 15, came from anything but a two-parent family (though actual single-parent families constitute the great majority of this group). We include step-parents and other guardians as parents when determining the number of parents in the household. The proportion of students from single-parent families is consistent between Ontario and the rest of Canada, ranging from 13 to 19 per cent (though the proportion is higher at the college level).

To determine **first and second generation immigrants**, parents were asked to identify the country in which they and the student were born (which would not necessarily be the same). We consider any student born outside of Canada to be a **first generation immigrant** and any student born within Canada but with at least one parent born outside Canada to be a **second generation immigrant**. Because all first generation immigrants must have been enrolled in a Canadian high school at age 15 in order to be included in the YITS, our first generation immigrant group represents what some have called the "1.5 generation" (see, for example, Aydemir & Sweetman, 2008). These students immigrated along with their parents at an early enough age that they completed high school in Canada. Ontario has a higher proportion of immigrants, with 33.1 per cent at the college level and 48.5 per cent at the university level. In the rest of Canada, 20.0 per cent of college students and 28.8 per cent of university students are immigrants.

To identify the respondents who are members of an **official linguistic minority** (**francophones** in the case of our focus region of Ontario), we again turn to the parental questionnaire in YITS-A.[15] Individuals living outside of Quebec who learned French as their first language and still understand it are considered to be members of one group, while anglophones in Quebec comprise the other. The French minority group represents 4.8 per cent of the Ontario college sample and 3.6 per cent at the university level. In the rest of Canada, minority francophones account for 1.4 per cent of the college sample and 3.2 per cent of university students. The anglophone minority who did high school in Quebec is seen mostly at the college level in the ROC (i.e., captured as they entered the Quebec college system). The very small "English in Quebec" category seen for Ontario represents anglophones who went to high school in Quebec who then did their PSE in Ontario.

IV. Empirical Findings

We turn now to the results of our empirical analysis based on the YITS-A data. We will first present a descriptive analysis of the various transitions from students' first PSE program; second, we will present overall graduation and persistence rates, which will take into account students' different pathways through PSE. In addition, we will examine the reasons students give for leaving and switching, as well as the rates of returning to PSE for those who leave their first program. To conclude the section, we will use a modelling approach to determine how switching and leaving PSE varies across underrepresented and minority groups and to examine other factors that affect these transitions.

Descriptive Analysis
Overall Annual and Cumulative Transition Rates: Persistence in PSE

Tables 2a and 2b show the annual hazard – or transition – rates for college and university students, respectively. These are shown for Ontario (the top panel in each table) and for the ROC (the bottom

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[15] This study includes an analysis only of linguistic minorities who speak one of Canada's official languages (i.e., francophones in Ontario and other predominantly English provinces, angolophones in Quebec) because francophone Ontarians are one of the groups of interest in this report and many of those in our data whose first language is *not* one of the official languages are first or second generation immigrants. Treating such languages along with immigrant status would confound the two influences.

panel). These represent the proportion of students who made each of the indicated transitions during each year of their (first) program for those who have made it to the indicated year: graduation, switching to a new program or leaving PSE, as well as those who continue in the original program in the first year, in the second year for those who have made it that far, and so on. Switchers are further differentiated by the type of switch and their destination: a different program in the same institution (same or different level of study) or a different institution (again, the same or different level of study).

Conforming to standard conventions for this kind of analysis, these rates were calculated for each year following the individual's entry into their first PSE program for students who had not yet made one of these transitions by that point in time. The calculations thus represent the rates for students who were observed to have continued "up to that point in time." Once a transition was made, individuals were removed from this part of the analysis, because they were no longer in their first program.[16] "Cumulative rates" (explained further below) are given after the hazard rates in each panel of the table.

One general finding is that switching and leaving rates are considerably higher in the first year than in subsequent years, which suggests that "drop-out" rates (from students' first PSE programs) decline substantially over the course of a program. This finding has implications for initiatives and interventions aimed at reducing student attrition in PSE.

While the YITS-A survey design allows us, in principle, to calculate transition rates for more than five years from the start of a student's first program, sample-size considerations allow us to provide rates for only the first three years for Ontario college students (four years for the ROC) and the first four years for Ontario university students (five years for the ROC). This is for a number of reasons:

- First, the underlying sample sizes (by province) in the YITS-A put limits on any province-specific analysis, especially for those variables that apply to only a sub-sample of the province's population. This is the case when studying those who attend PSE, with the samples being further split due to the differentiation between college and university students.
- Second, the YITS-A only includes respondents up to age 23 for the cohort it covers, meaning that relatively few individuals would have a chance to start PSE and continue for more than these lengths of time.
- Third, the Ontario sample represents the last year before the elimination of that province's extra year of high school (known as "Grade 13" or, more recently, "OAC"). This means that most of the individuals in the university sample, in particular, started PSE no sooner than age 19.
- Finally, a relatively limited number of students go beyond three years in their first college program or beyond four years of university (although a fifth year or more is becoming increasingly common). Results going beyond these points are included in the YITS-B results (i.e., the older YITS cohort) reported in the appendix tables.

College Students
The college hazard results – or annual transition rates for those who have made it as far as indicated in their programs, as described above (Table 2a) – show that the first-year "drop-out rate" (i.e., leaving PSE entirely) is 14.9 per cent in Ontario, which is slightly higher than the rate of 13.3 per cent in the ROC. During the next two years of the students' first program, for those who make it that far, the Ontario drop-out rate falls to 9.7 and 10.5 per cent, respectively, which is again higher than the ROC rate (7.7 and 5.9 per cent).

Overall switching rates represent an additional 9.8 per cent of Ontario college "movers" in Year 1 and 5 per cent in year 2 (they cannot be shown after that due to Statistics Canada confidentiality rules). A

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[16] As discussed above, previous persistence work by the authors used three different "treatments" of ineligible PSE programs. In this study, however, we focused on the second treatment, which we think is best. Full details are available in Finnie & Qui (2008). The rest of our discussions are confined to this treatment, but the results for the other two treatments are available from the authors.

substantial proportion of switchers move to a different program at the same institution, especially in the first year, while the majority go to a different institution at the same level (i.e., another college). The Ontario rates for switching are slightly lower than for the rest of Canada.

Ontario college graduation rates are naturally quite low in the first year (12.6 per cent), given that the length of most college programs is two years of study, but the rates rise in subsequent years, such that higher proportions of students still in school graduate each year (49.2 and 67.9 per cent in Years 2 and 3, respectively). These are similar to the ROC in Year 1, but are higher in Ontario than elsewhere in Canada after that.

The cumulative transition rates for college by year (continuing with Table 2a) are calculated by applying the hazard rate for each year to the proportion of students who have not made their first transition by that point and by adding this number to the total that made the appropriate transition in previous years. These results thus show the proportion of the cohort that has made each of the relevant transitions by the point in time indicated (after one, two or three years), as opposed to the point-in-time transition rates represented by the hazards.

First-year rates are, by definition, the same as the hazard transition rates seen above, but second-year cumulative transition rates are higher, as the transition rates from the two years are added together. The pattern continues in later years of college. Again, starting with leavers, these numbers show the total number (percentage) of students who leave their programs and abandon PSE entirely (at least temporarily) and how they do so on a year-by-year basis. (Recall that "leaving PSE" refers here to those students who either drop out during the first academic year or complete their first year but do not return for study at the beginning of Year 2.)

While the majority of students who drop out do so in their first year, the cumulative rates do rise over time, from 14.9 to 21 to 23 percent in Years 1 through 3 for Ontario college students. In short, just under a quarter of all those who start a college program in Ontario leave that program without graduating or switching (directly) to another program in the first three years. These figures also show that the leaving rates for Ontario college students are consistently slightly greater than in the ROC, where the three-year rate is 20.7 per cent. Switching rates are even "flatter" over time, rising from 9.8 (the cumulative total) to 12.9 from the first year to the second. Once again, most switching occurs in the early years. These rates, overall, are very similar to, but slightly lower than, those in the ROC.

Finally, what of the all-important graduation rates? These total 12.6 per cent of all Ontario college starters in the first year, shoot up to 43.4 per cent in the second year and continue rising to 58.8 per cent in Year 3. Interestingly, these rates are generally higher in Ontario than elsewhere in Canada; the three-year rate is 4.2 percentage points higher than elsewhere (54.6 per cent in the ROC).

We shall see below how these graduation rates change once we take into account those who switch programs and graduate from their subsequent program, as well as those who leave PSE and then start another program elsewhere and go on to graduate there. We will also show how employing a broader definition of "persisting," which includes those who are still in school in other programs, changes our view still further.

Table 2a: Transition Rates by Year - College

Ontario

	Obs.	Cont.	Grad.	Switch	Same Inst. Same Level	Same Inst. Diff. Lvl.	Diff. Inst. Same Level	Diff. Inst. Diff. Lvl.	Don't Know	Leave
Hazard Rates										
Year 1	934	62.7	12.6	9.8	4.3	•	4.4	•	0.5	14.9
Year 2	529	36.1	49.2	5.0	2.8	0	1.1	•	•	9.7
Year 3	162	20.5	67.9	•	•	0	0	0	0	10.5
Cumulative Rates										
Year 1	934	62.7	12.6	9.8	4.3	•	4.4	•	0.5	14.9
Year 2	934	22.6	43.4	12.9	6.0	•	5.1	•	•	21.0
Year 3	934	4.6	58.8	•	•	•	•	•	•	23.4

Rest of Canada

	Obs.	Cont.	Grad.	Switch	Same Inst. Same Level	Same Inst. Diff. Lvl.	Diff. Inst. Same Level	Diff. Inst. Diff. Lvl.	Don't Know	Leave
Hazard Rates										
Year 1	4,503	62.9	12.7	11.1	5.3	0.5	3.0	1.1	1.2	13.3
Year 2	2,382	45.8	39.7	6.9	2.5	0.2	1.9	1.4	0.8	7.7
Year 3	820	30.1	58.7	5.2	2.1	•	1.4	0.9	0.6	5.9
Year 4	196	25.6	56.7	8.0	•	•	•	2.9	•	9.8
Cumulative Rates										
Year 1	4,503	62.9	12.7	11.1	5.3	0.5	3.0	1.1	1.2	13.3
Year 2	4,503	28.8	37.7	15.4	6.9	0.6	4.2	2.0	1.7	18.1
Year 3	4,503	8.7	54.6	16.9	7.5	•	4.6	2.2	1.9	19.8
Year 4	4,503	2.2	59.5	17.6	•	•	•	2.5	•	20.7

Notes:

Cumulative transition rates shown in the second panel are calculated from the annual (hazard) transition rates shown in the first panel.

• indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act.

A zero with no decimal point indicates that there are no observations in this cell.

University Students

Turning to the university results (Table 2b), we find quite a different story in some ways than was found for college students. To begin with, the first-year leaving rate for Ontario university students is still the highest of the four (program) years presented, again (as with college students) showing that much of the "leaving action" tends to be in the first year. But probably more interesting is the fact that the leaving rates for Ontario are much lower than for the rest of Canada. For example, the first-year rate in Ontario is just 3.0 per cent, whereas it is 9.7 per cent in the ROC. These are remarkable and potentially important differences.

These differences are in the same direction as those found with the more extended YITS-B data (as reported separately in Appendix Table 2b). The differences are greater here, with the YITS-A data, but this could be for several reasons. First, changes may, in fact, have occurred over time – perhaps related to the strong economy that caused more students to leave their studies in order to take the lucrative jobs available in the booming resource sectors in the Western Provinces. This may have driven an increase in the later YITS-A results for Western Canada and perhaps other regions as well.[17] Another factor may be that we are capturing only relatively "early starters" with the YITS-A. More Ontario students have always tended to take a "gap year" or otherwise start university later (even before the elimination of OAC), but the YITS-A, being a younger sample, captures fewer of these late Ontario starters than does the (older) YITS-B, so leaving rates will appear to be higher in Ontario than elsewhere (Finnie & Qiu, 2008, 2009a).[18]

Switching rates are also lower for Ontario university students; moreover, they change dramatically from the first to the second year, with almost 11 per cent of Ontario students switching during the first year and only 5.6 per cent of those who make it to second year switching during that year. This pattern is not repeated in the rest of Canada, where switching remains consistent at just over 12 per cent for the first two years, then drops to only about 6 per cent in the third year. Some of this pattern may reflect the effects of the articulated university-college transfer system in place in Alberta and British Columbia in particular, but further study would be required to verify this.

Perhaps more important from a purely Ontario perspective is that overall switching rates are much higher than actual PSE leaving rates. This means that rates based on institution-specific data that do not track switchers (including those who go to other institutions) likely overstate leaving rates to a substantial degree. Clearly, the importance of having comprehensive data – either survey data like the YITS or institutional data gathered across institutions – is crucial to obtaining a proper perspective of the patterns of persistence among university students in Ontario, as it is in other provinces.[19] In Ontario, over half of all switchers for all three years move to a different program within the same institution. In the rest of Canada, there is much more switching to different institutions.

For the first three years of a university program, graduation rates are, naturally, low (under 5 per cent in any given year) for both Ontario and the ROC. This makes sense, given that the majority of university programs are now four years in length. In the fourth year, 52.2 per cent of the still-enrolled Ontario university students graduate, a rate that is substantially higher than the 42.1 per cent rate in the rest of Canada. In the fifth year, 61.5 per cent of the students who make it that far graduate in the rest of Canada, but that number is not available for Ontario due to sample-size restrictions. The YITS-B data,

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[17] Neill (2010) shows how the booming economy in the Western provinces appears to have had a significant (negative) effect on PSE participation rates in that region.

[18] Given these substantial differences, it is important to first note that the data manipulation and calculations that underlie these numbers are exactly the same for all provinces. In programming parlance, nothing more than a simple "by" statement was employed to sort out the rates for Ontario versus the ROC. Therefore, there is nothing obvious in the programming that could generate an arbitrary difference.

[19] See Finnie and Qiu (2009b) for an analysis of the patterns of persistence in Atlantic Canada based on institutional data that allow individuals to be tracked across programs within given institutions, and across different institutions, including those at different levels (college and university). These data also show the importance of having such data.

however (as shown in Appendix Table 2b), suggest that fifth-year graduation rates are above 60 per cent in both Ontario and the ROC.

Table 2b: Transition Rates by Year - University									
Ontario									
					Program Switched To					
	Obs.	**Cont.**	**Grad.**	**Switch**	**Same Inst.**		**Diff. Inst.**		**Don't Know**	**Leave**
					Same Level	**Diff. Lvl.**	**Same Level**	**Diff. Lvl.**		
Hazard Rates										
Year 1	1,183	85.1	0.9	10.9	5.0	0.8	2.7	2.3	0.2	3.0
Year 2	942	91.7	0.4	5.6	3.5	•	1.4	0.4	•	2.2
Year 3	731	90.3	4.1	3.7	2.2	•	•	•	•	1.8
Year 4	600	45.5	52.2	0.8	•	0	•	•	0	1.5
Cumulative Rates										
Year 1	1,183	85.1	0.9	10.9	5.0	0.8	2.7	2.3	0.2	3.0
Year 2	1,183	78.0	1.3	15.7	8.0	•	3.8	2.6	•	4.9
Year 3	1,183	70.5	4.5	18.6	9.6	•	•	•	•	6.3
Year 4	1,183	32.1	41.4	19.1	•	•	•	•	•	7.4
Rest of Canada										
					Program Switched To					
	Obs.	**Cont.**	**Grad.**	**Switch**	**Same Inst.**		**Diff. Inst.**		**Don't Know**	**Leave**
					Same Level	**Diff. Lvl.**	**Same Level**	**Diff. Lvl.**		
Hazard Rates										
Year 1	5,457	76.5	1.5	12.3	3.8	0.3	5.0	2.0	1.1	9.7
Year 2	3,773	77.3	3.8	12.2	5.3	0.5	3.6	2.0	0.8	6.7
Year 3	2,798	86.1	4.6	5.8	2.8	0.4	1.5	0.7	0.4	3.5
Year 4	2,004	50.4	42.1	4.4	2.3	•	1.4	0.2	0.3	3.1
Year 5	738	36.0	61.5	0.5	0.3	•	•	•	0	2.0
Cumulative Rates										
Year 1	5,457	76.5	1.5	12.3	3.8	0.3	5.0	2.0	1.1	9.7
Year 2	5,457	59.1	4.5	21.6	7.9	0.7	7.8	3.5	1.7	14.8
Year 3	5,457	50.9	7.2	25.0	9.5	0.9	8.7	3.9	1.9	16.9
Year 4	5,457	25.7	28.6	27.2	10.7	•	9.4	4.0	2.1	18.4
Year 5	5,457	9.2	44.4	27.4	10.8	•	•	•	•	19.0

Notes:

Cumulative transition rates shown in the second panel are calculated from the annual (hazard) transition rates shown in the first panel.

• indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act.

A zero with no decimal point indicates that there are no observations in this cell.

Turning again to the cumulative transition rates calculated from these hazard rates, we can appreciate once more the sizable difference in leaving rates between Ontario and the rest of Canada. By the fourth year, only 7.4 per cent of Ontario university students have left their first university program and dropped out of PSE entirely (and some of these do return; see below). The comparable rate for the rest of Canada is substantially higher, at 18.4 per cent.

Switching rates for university students in most years are higher than leaving rates, and they are lower in Ontario than in the rest of Canada. By the end of the fourth year, the cumulative (overall) switching rate is 19.1 per cent in Ontario, approximately half of whom have switched to a different institution. This is lower than the 27.2 per cent of students switching by the end of fourth year in the ROC, 13.4 percent of whom have switched to a different university, or sometimes a college.

The fourth-year university graduation rate for Ontario is much higher than for the rest of Canada (41.4 per cent versus 28.6 per cent). The rest of Canada does appear to catch up somewhat, to 44.4 per cent, when the fifth year is added, although adding fifth year graduates to the Ontario numbers would obviously boost that rate as well. (The YITS-B data from Appendix Table 2b suggest that including fifth-year graduates adds at least 12 percentage points to the fourth-year Ontario rates reported here.)

Reasons for Switching or Leaving

Table 3 shows the reasons why individuals leave PSE without graduating or switching programs. Switchers and leavers have been presented together here largely due to sample-size restrictions and because earlier work has shown that the reasons given for the different kinds of movements are of roughly the same magnitude. These results are reported for the entire population of leavers and switchers identified in the preceding part of the analysis (regardless of the year in which they switched or left). "Didn't like it/not for me" is by far the single most common reason for both Ontario college (48.5 per cent) and university (35.7 per cent) students leaving their original program of PSE study. This is higher than the comparable rates for the rest of Canada (42.7 and 30.3 per cent, respectively). "To change schools or programs" is of roughly the same magnitude of importance for university students, at 35.2 per cent for Ontario and 33.7 per cent for ROC students. For college students, 10.3 per cent of leavers in Ontario and 17.9 per cent in the ROC cite this reason for their decision.

Table 3: Reason for Leaving					
	College			University	
	Ontario	Rest of Canada		Ontario	Rest of Canada
Not enough money	8.2	4.8		3.1	6.7
Wanted to work	6.7	5.9		3.1	5.0
Marks too low	6.2	6.9		5.6	3.9
Didn't like it/Not for me	48.5	42.7		35.7	30.3
To change schools or programs	10.3	17.9		35.2	33.7
Health, personal or other reason	20.1	21.9		17.3	20.5

Note:
This table represents the responses of all students who left their first PSE program without graduating, including those who switched to another program.

Interestingly, "Not enough money" is cited by only 8.2 per cent of Ontario college students and by just 4.8 per cent of college students in the rest of Canada. At the university level, even fewer students identify money as the issue: 3.1 per cent in Ontario versus 6.7 per cent in the ROC. Given the overall leaving rates (i.e., including both switchers and PSE leavers) of about 26.5 per cent among university attendees (Table 2b), this means that less than 1 per cent of students who start an Ontario university program leave their programs and cite money as being the deciding factor for doing so (.265 times .031), while the rate is just under 2 per cent at the college level (.234 times .082). Financial problems do not, therefore, appear

to be a very important factor in terms of persistence/retention issues in Ontario (nor in the ROC). This means that policy initiatives should probably be focused elsewhere for the most part, although eliminating the issue of affordability barriers entirely would obviously be a laudable policy goal. Furthermore, our results do not show how many students have to adjust the *way* in which they go to school (e.g., part-time rather than full-time) or how many have to work more hours than they would like to at an outside job due to financial problems. Therefore, the financing and related issues should probably still be kept under consideration.

Other specific reasons cited include "wanted to work" (6.7 per cent for Ontario college and 3.1 per cent for Ontario university students) and "marks too low" (6.2 per cent for Ontario college and 5.6 per cent for Ontario university students). "Health, personal or other reason" represents a more common category of reasons for leaving, at 20.1 per cent for Ontario college leavers and 17.3 per cent for the ROC, and 21.9 per cent and 20.5 per cent, respectively, for university students in Ontario and the ROC.

Of course, these reasons must be considered in light of the fact that they are self-reported variables. The true "objective" reasons for leaving and switching may differ from the ones students report when asked in a telephone survey.

Persistence in PSE of Underrepresented and Minority Groups

Tables 4a and 4b present the cumulative transition rates for the underrepresented and minority groups treated in this paper. To simplify, we present one year only (Year 3 for college and Year 4 for university) to highlight the differences between the rates for these groups of interest.

These rates are calculated in the same manner as the figures shown in Tables 2a and 2b, but we do not show the annual hazard rates that were used to make the calculations (these are available from the authors upon request).

College Students

Table 4a presents the Year 3 cumulative transition rates for college students in Ontario and the ROC. The first row of the table ("All observations") corresponds to the Year 3 cumulative rates shown in Table 2a. In the rest of the table, we examine each of the underrepresented and minority groups, and in each case, we present the comparison group that includes all observations of those who are *not* members of the group in question.

Starting with the rates for ***first generation PSE students***, interestingly, the first program graduation rate is higher for first generation Ontario college students than for those with a family history of PSE (62.4 per cent versus 56.8 per cent). This is not the case for the rest of Canada, where the college graduation rate is slightly lower for first generation students than for non–first generation students (52.5 per cent versus 55.6 per cent). First generation PSE students are also less likely to switch college programs either in Ontario or across Canada, this difference being considerably greater in Ontario than in the ROC. The rates for leaving PSE (entirely) are almost exactly the same for the two groups in Ontario, at just over 23 per cent (they are both slightly higher than in the ROC).

Overall, then, first generation college students in Ontario do not appear to be an underperforming (or disadvantaged) group: they graduate at higher rates, they are less likely to switch programs and their rates of leaving PSE are about the same as for students with no history of PSE. With most current programs targeted at first generation PSE students, an adjustment to those policies would appear to be appropriate.[20] There is no doubt that such individuals may still face significant problems *accessing* PSE

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[20] One reason sometimes cited for this emphasis is that the U.S. literature shows that first generation PSE students are in fact disadvantaged there. These data (and other related findings) would appear to indicate that those U.S. findings do not readily generalize to Canada.

(see Finnie, Childs, & Wismer, 2010a, for the Ontario record), but it would appear that once enrolled, they do at least as well as their non–first generation counterparts, at least at the college level.

Aboriginal college students have the highest leaving rates of any group considered in this analysis, both in Ontario and in the ROC (32.0 per cent and 33.1 per cent, respectively). Aboriginal graduation rates are also lower than those of other college students in Ontario (52.7 per cent versus 59.1 per cent), and they are even lower in the ROC (43.8 percent versus 54.9 percent). Although these differences are not enormous, they may be important from a policy perspective, and we will see how this picture changes in the multinomial analysis presented in Section IV.2 below. (Switching and continuing rates cannot be shown for Ontario due to Statistics Canada confidentiality rules related to the small number of individuals involved.)

In comparing the rates of ***college students with a disability*** to those of other students, we find that those with a disability have higher rates of both leaving and switching and lower graduation rates both in Ontario and in the ROC, at least where these can be shown. (Graduation and switching rates cannot be shown for students with a disability in Ontario due to Statistics Canada's residual disclosure rules in a context where the cell size for at least one of these outcomes is too small to report.) In particular, the difference in the leaving rates between students with a disability and others is considerably greater in Ontario (a 5.3 percentage point difference) than in the rest of Canada (2 percentage points).

*C**ollege students from rural areas*** are actually *less* likely to leave or switch and *more* likely to graduate than students from urban areas everywhere in Canada. The gap in leaving rates (6.4 percentage points) is substantially greater in Ontario than the rest of Canada (where the difference is just 1 percentage point). The rural advantage in graduation rates in Ontario (14.1 percentage points) is also considerably greater than in the ROC (6 percentage points), while the switching rate gap between rural and non-rural students is about the same in Ontario and the ROC.

A finding that is perhaps surprising appears in relation to ***college students from low-income families***. Although they are less likely to graduate within three years of starting their college program in both Ontario and the ROC, the differences are relatively small, especially in Ontario, where the gap is less than 1 percentage point (as opposed to 3.8 percentage points in the ROC). However, rates of leaving PSE without graduating are higher for low-income students by almost 5 percentage points in Ontario and by about 4 percentage points in the ROC. Switching rates are, interestingly, lower for low-income students than for others in Ontario, and by a considerable margin (8.2 versus 14.7 per cent), while switching rates are substantially higher for both low-income students and others, with a smaller gap between the two elsewhere in Canada (15.6 versus 17.8 per cent). Low-income individuals are also still continuing in their original programs at higher rates than others (6.6 versus 4.1 per cent in Ontario and 9.9 versus 8.0 per cent in the ROC).

Overall, then, low-income college students in Ontario tend to graduate from their first programs at slightly lower rates than other students, they leave PSE entirely at higher rates and they switch programs less often. In addition, they simply take more time in their first programs (the "continuing" category). It would be useful to try to better understand this set of differences when considering possible policy interventions, but, as in the case of first generation PSE students, the relative performance of low-income students is perhaps better than expected.

College students from single-parent families are also more likely to leave their first PSE program than are students from two-parent families, with the difference in rates being slightly smaller in Ontario (4.8 percentage points) than in the ROC (6 percentage points). Graduation rates are more or less commensurately lower, with a gap of 3.6 percentage points in Ontario and 3.8 percentage points in the ROC.

Table 4a: Year 3 Cumulative Transition Rates – College

	Ontario				Rest of Canada			
	Cont.	Grad.	Switch	Leave	Cont.	Grad.	Switch	Leave
All Observations	4.6	58.8	13.1	23.4	8.7	54.6	16.9	19.8
1. Underrepresented Groups								
Parental Education								
First Generation PSE	4.6	62.4	9.8	23.1	10.6	52.5	15.3	21.6
Non-First Generation PSE	4.8	56.8	15.1	23.3	7.9	55.6	17.6	18.9
Aboriginal								
Aboriginal	•	52.7	•	32.0	•	43.8	18.1	33.1
Non-Aboriginal	4.6	59.1	13.2	23.1	8.8	54.9	16.8	19.6
Disabled								
Disabled	•	55.3	16.5	28.1	8.8	49.7	19.9	21.6
Non-Disabled	5.2	59.5	12.6	22.8	8.7	55.2	16.6	19.6
High School Location - Urban/Rural								
Rural High School	5.5	55.6	14.0	24.9	8.7	53.2	17.8	20.4
Non-Rural High School	1.8	69.7	10.0	18.5	7.7	59.2	13.7	19.4
Parental Income								
Low-Income Family	6.6	58.5	8.2	26.8	9.9	52.2	15.6	22.4
Non-Low-Income Family	4.1	59.2	14.7	22.0	8.0	56.0	17.8	18.2
Family Structure								
Single-Parent Family	•	55.9	12.0	27.2	9.9	49.5	15.8	24.8
Two-Parent Family	4.6	59.5	13.4	22.4	8.4	55.7	17.1	18.8
Immigrant Status								
First Generation	•	49.1	21.5	24.3	10.0	47.4	20.4	22.1
Second Generation	7.3	58.7	13.3	20.7	7.3	58.6	16.1	18.1
Non-Immigrant	3.9	59.9	12.0	24.3	8.8	54.4	16.8	20.0
Language Minority								
French outside Quebec	2.8	60.2	17.5	19.5	2.0	76.7	7.8	13.5
English inside Quebec	3.7	59.6	12.6	24.1	4.4	61.9	11.6	22.1
Other	4.7	58.7	12.9	23.6	9.0	53.8	17.4	19.8
2. Gender								
Male	5.5	55.8	12.6	26.0	10.2	48.8	17.7	23.2
Female	3.7	62.2	13.6	20.5	7.3	59.5	16.2	16.9

Notes:
Cumulative Transition rates are calculated from the (annual) hazard transition rates (not shown) in the same manner as in Table 2.
• indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act.
A zero with no decimal point indicates that there are no observations in this cell.

Turning to *first and second generation immigrant college students*, we find that in Ontario, first generation immigrants have the same leaving rate as non-immigrants (24.3 per cent for both groups), while second generation immigrants are less likely to leave (20.7 per cent). Curiously, first generation immigrant college students in Ontario have much higher switching rates than others (21.5 per cent versus 12.0 per cent for non-immigrants and 13.3 per cent for second generation immigrants). This may indicate that college is more commonly a stepping stone to university for first generation immigrants. However, the numbers are too small to categorize the switchers into their different destinations (i.e., another program at the same institution or a new program at a different college or university). First generation immigrants also have a lower Year 3 graduation rate than other students (49.1 per cent compared to 58.7 per cent for second generation immigrants and 59.9 per cent for non-immigrants).

College *francophones* in Ontario are also less likely to leave PSE than the anglophone majority, and they are much more likely to graduate by their third year than others. The first of these differences is a bit smaller in Ontario than in the ROC for leaving (4.1 percentage points versus 6.3 percentage points) but much greater for graduating (22.9 versus 1.6 percentage points).

Finally, we also report *differences by gender*, even though these do not fall into the category of underrepresented and minority students. They are included here, however, because males are increasingly underrepresented in PSE relative to females, especially at the university level. As found in previous work by the authors, female college students have a lower leaving rate, a similar switching rate and a higher graduation rate than their male counterparts. This is consistent in both the Ontario and the ROC samples. The differences are substantial (e.g., a 6.4 percentage point higher graduation rate for females in Ontario colleges and a 5.5 percentage point lower leaving rate), and they reinforce the emerging evidence that males appear to be increasingly "disadvantaged" in accessing and completing PSE.

University Students
Table 4b presents the Year 4 cumulative transition rates for university students for both the Ontario and the ROC samples. (See above for the reasons we are focusing on Year 4 rates.)

As seen in Table 2b, Ontario university students generally have a much lower leaving rate and a much higher graduation rate than university students in the rest of Canada. These differences are reflected in the rates for all underrepresented and minority groups discussed below.

Among university students, *first generation* PSE students have higher leaving rates and lower graduation rates in both Ontario and the ROC (switching rates are similar). The difference in leaving rates is smaller in Ontario than the ROC (3.4 percentage points versus 5.8 percentage points), while the Ontario gap in graduation rates is greater than elsewhere (7.0 versus 3.2 percentage points). These patterns are in contrast to the college leaving rates among first generation students, where no such gaps exist.

Aboriginal university students have the highest switching rate of any group in the Ontario sample (28.5 per cent); the gap between Aboriginal and non-Aboriginal students is also great, at 9.4 percentage points (the rate is 19.1 per cent for non-Aboriginals). This gap is similar in the ROC, but at lower levels: 17.8 versus 27.4 per cent, respectively. Interestingly, Aboriginal and non-Aboriginal students in Ontario have approximately the same Year 4 graduation rate (just over 41 per cent in each case), whereas Aboriginal students are almost 10 percentage points behind in the ROC. This may suggest that many of those who switch go on to complete the programs they move to, or a third program. The limited sample sizes involved, however, prevent us from reporting leaving or continuing rates and also preclude our making other more definitive statements regarding switchers.

University students with disabilities in Ontario have a higher leaving rate than other Ontario university students (13.0 per cent versus 7.0 per cent), and their Year 4 cumulative graduation rate is slightly lower (39.6 versus 41.5 per cent).

Rural university students in Ontario, like their college counterparts, are not more likely to leave their first PSE program than others (which is not the case in the ROC, where they leave at substantially higher rates), and they are actually more likely to graduate – by 6.8 percentage points. (In the rest of Canada, they graduate at a rate only 1.7 percentage points higher than non-rural students – 29.8 versus 28.1 per cent.) Ontario students from rural areas also switch less frequently than do those from non-rural areas, and fewer are still continuing in their (first) programs at the four-year mark, differences which largely offset their higher graduation rates.

Table 4b: Year 4 Cumulative Transition Rates - University								
	Ontario				Rest of Canada			
	Cont.	Grad.	Switch	Leave	Cont.	Grad.	Switch	Leave
All Observations	32.1	41.4	19.1	7.4	25.7	28.6	27.2	18.4
1. Underrepresented Groups								
Parental Education								
First Generation PSE	34.6	35.4	19.6	10.4	25.8	26.0	24.9	23.3
Non-First Generation PSE	31.7	42.4	19.0	7.0	25.7	29.2	27.6	17.5
Aboriginal								
Aboriginal	•	41.7	28.5	•	15.7	19.2	17.8	47.3
Non-Aboriginal	32.1	41.4	19.1	7.3	26.0	28.7	27.4	17.9
Disabled								
Disabled	31.6	39.6	15.8	13.0	22.4	24.4	30.7	22.5
Non-Disabled	32.1	41.5	19.4	7.0	26.1	29.1	26.8	18.0
High School Location - Urban/Rural								
Rural High School	32.7	40.2	19.6	7.5	26.9	28.1	27.2	17.8
Non-Rural High School	28.7	47.0	17.0	7.4	22.1	29.8	27.6	20.5
Parental Income								
Low-Income Family	36.5	37.6	14.1	11.8	27.9	26.4	25.9	19.7
Non-Low-Income Family	31.3	42.8	19.9	6.1	24.8	29.5	27.9	17.8
Family Structure								
Single-Parent Family	37.9	38.7	15.2	8.2	25.6	23.9	24.3	26.2
Two-Parent Family	31.3	41.7	19.7	7.2	25.7	29.3	27.7	17.2
Immigrant Status								
First Generation	35.6	29.7	25.8	9.0	42.0	23.3	21.8	13.0
Second Generation	32.5	44.1	15.4	7.9	29.4	24.8	30.2	15.6
Non-Immigrant	30.6	43.6	19.3	6.5	22.5	30.3	27.2	19.9
Language Minority								
French outside Quebec	33.0	36.9	23.5	6.6	17.4	35.9	34.9	11.9
English inside Quebec	30.7	43.2	18.2	7.8	24.9	28.7	26.9	19.5
Other	32.1	41.5	19.0	7.4	26.0	28.4	27.0	18.7
2. Gender								
Male	37.9	33.1	19.9	9.1	29.9	23.6	24.5	22.0
Female	28.1	47.0	18.6	6.3	22.5	32.4	29.3	15.8

Notes:

Cumulative Transition rates are calculated from the (annual) hazard transition rates (not shown) in the same manner as in Table 2.

• indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act

A zero with no decimal point indicates that there are no observations in this cell.

Students from low-income families at the university level in Ontario are less likely than those from higher-income families to have graduated or to have switched programs within four years of starting their (first) programs, and they are more likely to have left PSE entirely or to still be in their programs, with each of these gaps being in the 5-percentage-point range.

The gaps all run in these same directions (i.e., lower graduation and switching rates, higher continuation and leaving rates) for **university students from single-parent (and other "non-traditional") families** relative to those from two-parent families. However, the gaps tend to be a bit smaller than was the case for the income groups. Family type differences run in the same direction for the ROC, but the most important graduation and leaving gaps are wider.

In Ontario, **first generation immigrants** have higher (9 per cent) leaving rates than non-immigrants (6.5 per cent), higher switching rates (25.8 versus 19.3 per cent), higher continuing rates (35.6 versus 30.6 per cent), and much lower graduation rates (29.7 per cent versus 43.6 per cent). These differences paint a picture of very different profiles of PSE experiences for these groups. This pattern, interestingly, is all taking place within a context where first generation immigrants access PSE, especially university, at considerably higher rates than non-immigrants: they thus enter at higher rates but do not persist in their studies to the same degree as others. This is a pattern worthy of further study.

Second generation immigrants are much more similar to the non-immigrant population, and the patterns related to this group are more mixed: they have only slightly higher leaving rates (7.9 per cent), lower switching rates (15.4 per cent), slightly higher continuation rates (32.5 per cent) and very similar graduation rates (44.1 per cent) to the non-immigrant population. This second generation pattern could reflect a convergence of behaviour as immigrant families get settled (and thus second generation children behave more like non-immigrants than do first generation immigrants), changes in source countries over time (which would be reflected in the behaviour of our first and second generation groups) or other factors. Further analysis would be required to separate these effects.

Ontario university francophones are slightly less likely to leave PSE (6.6 versus 7.4 percent) and less likely to graduate (36.9 versus 41.5 percent) and, conversely, more likely to switch (23.5 percent versus 19.0 percent) and slightly more likely to still be continuing in their studies (33.0 versus 32.1 percent). Quite different patterns hold in the ROC.

As with the college results, **male university students** from both Ontario and the rest of Canada are much less likely to graduate from their first program (the gap in Ontario is almost 10 percentage points: 37.9 for females versus 28.1 percent for males), and more likely to leave PSE without graduating (9.1 per cent as opposed to 6.3 per cent for females). In Ontario, males' switching rates are slightly higher than females', whereas the difference runs in the opposite direction in the ROC. Males are also more likely to be continuing in their first program, having neither graduated, switched nor left their studies entirely.

How Many Return to PSE after Leaving?

Tables 5a and 5b show rates of returning to PSE among students who left their first program and who did not immediately switch to another program. To analyze this dynamic, we took those identified as "leavers" in the first part of the analysis and tracked them to see how many enrolled in another PSE program in subsequent years. The first section of the top panel of each table shows the hazard, or annual returning, rates for Ontario, and the second section shows the cumulative returning rates (calculated from the hazard rates shown in the first section). This is repeated for the ROC in the bottom part of each table.

Table 5a: Rates of Return by Year - College

Ontario

| | | Obs. | Rate of Return | Program Returned To | | | | Don't Know |
| | | | | Same Inst. | | Diff. Inst. | | |
				Same Level	Diff. Lvl.	Same Level	Diff. Lvl.	
Hazard Rates								
Year 1	Percentage Distribution	168	25.7 / 100.0	11.3 / 44.0	0	11.3 / 43.7	2.2 / 8.5	•
Year 2	Percentage Distribution	130	22.0 / 100.0	•	0	10.8 / 48.8	8.6 / 39.1	0
Year 3	Percentage Distribution	94	27.0 / 100.0	•	0	•	•	•
Cumulative Rates								
Year 1	Percentage Distribution	168	25.7 / 100.0	11.3 / 44.0	0	11.3 / 43.7	2.2 / 8.5	1.0 / 3.8
Year 2	Percentage Distribution	168	42.1 / 100.0	13.3 / 31.6	0	19.2 / 45.7	8.6 / 20.4	1.0 / 2.3
Year 3	Percentage Distribution	168	57.7 / 100.0	16.0 / 27.8	0	22.8 / 39.5	13.4 / 23.3	5.4 / 9.4

Rest of Canada

| | | Obs | Rate of Return | Program Returned To | | | | Don't Know |
| | | | | Same Inst. | | Diff. Inst. | | |
				Same Level	Diff. Lvl.	Same Level	Diff. Lvl.	
Hazard Rates								
Year 1	Percentage Distribution	708	24.7 / 100.0	4.9 / 20.0	1.6 / 6.4	9.8 / 39.6	6.1 / 24.7	2.3 / 9.3
Year 2	Percentage Distribution	577	16.0 / 100.0	2.7 / 16.8	•	5.6 / 35.2	4.5 / 27.8	1.6 / 10.2
Year 3	Percentage Distribution	451	8.9 / 100.0	•	0	5.7 / 64.0	2.7 / 30.4	•
Year 4	Percentage Distribution	249	9.3 / 100.0	2.7 / 28.9	•	•	2.5 / 27.2	•
Cumulative Rates								
Year 1	Percentage Distribution	708	24.7 / 100.0	4.9 / 20.0	1.6 / 6.4	9.8 / 39.6	6.1 / 24.7	2.3 / 9.3
Year 2	Percentage Distribution	708	36.8 / 100.0	7.0 / 18.9	2.8 / 7.6	14.0 / 38.2	9.5 / 25.7	3.5 / 9.6
Year 3	Percentage Distribution	708	42.5 / 100.0	7.1 / 16.8	2.8 / 6.6	17.7 / 41.6	11.2 / 26.3	3.7 / 8.7
Year 4	Percentage Distribution	708	47.8 / 100.0	8.7 / 18.2	3.6 / 7.6	19.1 / 40.0	12.6 / 26.4	3.7 / 7.8

Notes:

Cumulative transition rates shown in the second panel are calculated from the annual (hazard) transition rates shown in the first panel.
Rates of return are shown for each year after the respondent left their first PSE program.
• indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act.
A zero with no decimal point indicates that there are no observations in this cell.

College Leavers and Returners
We find that within one year of leaving their original PSE program of study, 25.7 per cent of the college leavers in Ontario had returned to PSE, with a similar proportion (24.7 per cent) of the ROC college leavers returning. In the rest of Canada, the return rates fall off significantly after this, but the hazard rate of return remains fairly constant across the three years for Ontario college students. The cumulative rates show the totals at each point in time and reveal that by three years after leaving (the furthest we can measure with sufficient precision in these data), the returns stand at 57.7 per cent for Ontario. These are substantial numbers and are, in fact, higher than for the ROC, where the three-year rate is 42.5 per cent.

Again we see that the greatest number of students (like the switchers above) return to another college program (the 38.8 per cent who return to a program at the "same level" at either the same institution as their first program or a different), or 67 per cent of the 57.7 per cent who return in relative terms. 13.4 per cent are identified as leaving their college program and returning to a university program ("different level"). This is a slightly lower rate of return than the rest of Canada, where 14.0 per cent of college leavers come back to a program at a "different level". One feature that is present in the rest of Canada but not in Ontario is those who return to the same institution but at a different level of program. This group comprises 2.8 per cent of those who leave their first college program. This could again reflect the fact that more articulated college-university and credit transfer systems are in place in Western Canada.

University Leavers and Returners
Unlike college students throughout Canada and unlike university students in the ROC sample (Table 5b, bottom panel), Ontario university students (Table 5b, top panel) appear to have a higher (hazard) rate of return in the second year after leaving than in the first (66 per cent versus 42 per cent). However, the cumulative rates indicate that this represents about the same percentage of original leavers, since cumulative return rates are 41.6 per cent after one year and a remarkable 80.3 per cent after two years. Furthermore, rates of return for Ontario university students are significantly higher than for their counterparts in the ROC. The three-year cumulative rate is 83 per cent for Ontario versus 62 per cent for the ROC.

Although the limited sample sizes involved dictate that we regard these breakdowns as only possibly indicative, in Ontario, 58.0 per cent of those who leave their first university program return to another university-level program ("same level" in either the same institution or a different institution – 37.7 plus 20.3 percent). This represents almost 70 per cent of the 83.2 per cent who return to PSE, a much higher rate than the 28 per cent (or 45 per cent of all returners) in the ROC sample.

Table 5b: Rates of Return by Year - University								
Ontario								
				Program Returned To				
				Same Inst.		Diff. Inst.		
		Obs.	Rate of Return	Same Level	Diff. Lvl.	Same Level	Diff. Lvl.	Don't Know
Hazard Rates								
Year 1	Percentage	69	41.6	17.6	0	7.3	16.6	0
	Distribution		100.0	42.4		17.5	40.0	
Year 2	Percentage	39	66.3	•	0	•	•	0
	Distribution		100.0					
Year 3	Percentage	31	•	•	0	0	•	0
	Distribution		100.0					
Cumulative Rates								
Year 1	Percentage	69	41.6	17.6	0	7.3	16.6	0
	Distribution		100.0	42.4		17.5	40.0	
Year 2	Percentage	69	80.3	35.9	0	20.3	24.1	0
	Distribution		100.0	44.7		25.3	30.0	
Year 3	Percentage	69	83.2	37.7	0	20.3	25.2	0
	Distribution		100.0	45.3		24.4	30.2	

cont…

| | | Obs. | Rate of Return | Program Returned To | | | | Don't Know |
| | | | | Same Inst. | | Diff. Inst. | | |
				Same Level	Diff Lvl.	Same Level	Diff Lvl.	
Hazard Rates								
Year 1	Percentage	793	37.7	10.2	0.9	9.5	15.6	1.5
	Distribution		100.0	26.9	2.5	25.3	41.4	4.0
Year 2	Percentage	626	28.8	5.0	2.0	4.3	16.7	•
	Distribution		100.0	17.4	7.0	14.8	57.9	
Year 3	Percentage	493	15.0	•	0	3.7	8.6	•
	Distribution		100.0			25.0	57.7	
Year 4	Percentage	200	14.1	•	0	0	10.4	0
	Distribution		100.0				73.4	
Cumulative Rates								
Year 1	Percentage	793	37.7	10.2	0.9	9.5	15.6	1.5
	Distribution		100.0	26.9	2.5	25.3	41.4	4.0
Year 2	Percentage	793	55.6	13.3	2.2	12.2	26.0	2.0
	Distribution		100.0	23.9	3.9	21.9	46.7	3.6
Year 3	Percentage	793	62.3	14.2	2.2	13.8	29.8	2.2
	Distribution		100.0	22.8	3.5	22.2	47.9	3.6
Year 4	Percentage	793	67.6	15.6	2.2	13.8	33.7	2.2
	Distribution		100.0	23.1	3.2	20.5	49.9	3.3

Notes:
Cumulative transition rates shown in the second panel are calculated from the annual (hazard) transition rates shown in the first panel.
Rates of return are shown for each year after the respondent left their first PSE program.
• indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act.
A zero with no decimal point indicates that there are no observations in this cell.

Total Graduation and Overall Persistence Rates for the Underrepresented and Minority Groups

The overall PSE graduation rates shown in Tables 6a and 6b extend the graduates category to include those who graduate not just from their first program, as seen previously, but also those switchers and leavers who go on to graduate from another program that they start either immediately (i.e., switchers) or after first being out of PSE (i.e., leavers who then return).

Taking these other graduates into account raises the three-year graduation rate of Ontario college students from 58.2 per cent to 65.8 per cent (Table 6a). Similarly, the four-year graduation rate of Ontario university students rises from 41.9 per cent to 52.7 per cent when subsequent/other programs are taken into account (Table 6b).[21] The persistence problem, as defined with respect to graduation rates, is thus seen to be significantly diminished when individuals are tracked across programs and institutions, rather than when we look only at the records of students within a given institution or even within a given program in a given institution. Seen differently, 88.4 per cent of all Ontario college graduates and 79.5 per cent of all Ontario university graduates receive their diplomas from their first program at their first institution, while the rest graduate from a different program or institution. From this perspective, Ontario's overall graduation rates are similar to those in the ROC.

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[21] The graduation rates from the first program shown here are very close to, but not exactly the same as, those shown in Table 2a and 2b. This is due to a slight shift in the means of making the relevant calculations when estimating the two different sets of persistence rates.

Table 6a: Year 3 Overall Graduation Rates - College

Ontario

	Total	Same Pgrm	Program Graduated From				Don't Know
			Same Inst.		Different Inst.		
			Same Level	Diff. Level	Same Level	Diff. Level	
All Observations	65.8	58.2	2.4	0	4.1	•	0.9
1. Underrepresented Groups							
Parental Education							
First Generation PSE	66.2	62.0	2.7	0	•	0	•
Non-First Generation PSE	65.4	56.0	2.4	0	5.8	•	1.0
Aboriginal							
Aboriginal	55.7	54.1	0	0	0	0	•
Non-Aboriginal	66.3	58.5	2.5	0	4.2	•	0.9
Disabled							
Disabled	67.4	53.6	7.7	0	•	0	•
Non-Disabled	65.5	58.9	1.7	0	4.0	•	0.8
High School Location - Urban/Rural							
Rural High School	62.9	54.9	3.1	0	3.6	•	1.1
Non-Rural High School	75.1	69.4	•	0	•	0	•
Parental Income							
Low-Income Family	62.1	57.9	1.7	0	•	0	•
Non-Low-Income Family	66.8	58.5	2.6	0	4.8	•	0.6
Family Structure							
Single-Parent Family	61.5	56.6	•	0	•	0	•
Two-Parent Family	66.9	58.6	3.1	0	4.4	•	0.6
Immigrant Status							
First Generation	59.0	47.4	•	0	•	0	•
Second Generation	66.9	56.8	5.1	0	•	0	•
Non-Immigrant	66.3	60.1	1.4	0	3.8	•	0.8
Language Minority							
French outside Quebec	78.3	60.5	12.2	0	•	0	•
English inside Quebec	65.6	59.2	1.4	0	4.1	•	0.8
Other	65.2	58.1	1.9	0.0	4.1	*	0.9
2. Gender							
Male	62.5	55.0	2.0	0	4.6	•	•
Female	69.6	62.0	2.9	0	3.5	0	1.1

cont…

	Total	Same Pgrm	Same Institution		Different Institution		Don't Know
			Same Level	Diff. Level	Same Level	Diff. Level	
All Observations	59.5	54.3	2.0	0.2	2.0	0.3	0.6
1. Underrepresented Groups							
Parental Education							
First Generation PSE	55.5	52.5	0.7	•	1.0	•	0.8
Non-First Generation PSE	61.2	55.2	2.5	0.3	2.3	0.3	0.6
Aboriginal							
Aboriginal	49.3	45.0	•	0	0	0	•
Non-Aboriginal	59.8	54.6	2.0	0.3	2.1	0.3	0.6
Disabled							
Disabled	54.7	50.1	1.9	•	•	•	•
Non-Disabled	60.0	54.8	2.0	0.3	2.0	0.3	0.7
High School Location - Urban/Rural							
Rural High School	58.8	52.8	2.4	0.4	2.3	0.4	0.6
Non-Rural High School	62.4	59.3	1.3	0	1.3	•	0.5
Parental Income							
Low-Income Family	56.0	52.0	1.3	•	1.7	•	0.8
Non-Low-Income Family	61.4	55.6	2.4	0.3	2.2	0.3	0.5
Family Structure							
Single-Parent Family	54.0	49.5	1.9	0.0	1.9	•	•
Two-Parent Family	60.6	55.3	2.0	0.3	2.0	0.2	0.7
Immigrant Status							
First Generation	52.1	46.3	•	•	•	0	•
Second Generation	64.3	58.7	2.9	•	1.9	0	•
Non-Immigrant	59.2	54.1	1.9	•	2.0	0.3	0.7
Language Minority							
French outside Quebec	83.8	78.2	3.8	0	•	•	•
English inside Quebec	65.2	61.3	1.2	•	1.3	0.4	0.8
Other	58.8	53.5	2.0	0.2	2.0	0.3	0.6
2. Gender							
Male	53.0	48.6	1.8	•	1.5	0.3	0.6
Female	65.0	59.2	2.2	•	2.5	0.2	0.6

Notes:

The overall graduation rate represented graduation from either the first or any subsequent PSE program by three years after the start of the respondent's first program.

Cumulative Transition rates are calculated from the (annual) hazard transition rates (not shown) in the same manner as in Table 2a.

The proportion of graduates who graduate from the same program (column 2) differs slightly to the cumulative transition rate given in Table 4a due to differences in how ineligible programs are dealt with.

• indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act.

A zero with no decimal point indicates that there are no observations in this cell.

Table 6b: Year 4 Overall Graduation Rates - University

Ontario

	Total	Same Pgrm	Program Graduated From				Don't Know
			Same Inst.		Different Inst.		
			Same Level	Diff. Level	Same Level	Diff. Level	
All Observations	52.7	41.9	5.9	•	1.3	2.8	0.6
1. Underrepresented Groups							
Parental Education							
First Generation PSE	47.7	36.0	7.2	•	•	•	1.3
Non-First Generation PSE	53.4	42.9	5.8	•	1.3	2.8	•
Aboriginal							
Aboriginal	66.0	40.4	0	0	0	•	0.0
Non-Aboriginal	52.7	42.0	6.0	•	1.3	2.6	0.6
Disabled							
Disabled	47.2	40.1	•	•	•	•	0.0
Non-Disabled	53.0	42.0	6.1	•	1.4	2.8	0.7
High School Location - Urban/Rural							
Rural High School	51.1	40.6	5.7	•	1.2	2.7	0.7
Non-Rural High School	62.4	47.8	8.6	0	•	•	•
Parental Income							
Low-Income Family	48.6	39.6	5.6	•	•	•	•
Non-Low-Income Family	53.7	43.0	5.9	•	1.4	2.8	0.4
Family Structure							
Single-Parent Family	51.6	38.0	6.0	•	0	•	•
Two-Parent Family	52.8	42.5	5.9	•	1.5	2.5	0.4
Immigrant Status							
First Generation	40.1	29.5	6.9	0	0	•	0
Second Generation	53.6	44.9	5.4	0	•	•	•
Non-Immigrant	56.5	44.3	5.9	•	1.8	3.7	0.4
Language Minority							
French outside Quebec	43.7	38.8	•	•	•	•	•
English inside Quebec	55.6	43.5	6.0	•	1.6	3.4	0.8
Other	53.0	42.0	5.9	*	1.3	2.8	0.6
2. Gender							
Male	44.0	34.9	4.6	0	1.3	2.5	0.8
Female	58.2	46.4	6.7	•	1.3	3.0	•

cont…

Rest of Canada

	Total	Same Pgrm	Program Graduated From				Don't Know
			Same Institution		Different Institution		
			Same Level	Diff. Level	Same Level	Diff. Level	
All Observations	40.7	28.8	2.7	0.4	2.7	4.0	2.1
1. Underrepresented Groups							
Parental Education							
First Generation PSE	37.9	26.2	1.9	•	2.9	3.3	2.9
Non-First Generation PSE	41.4	29.4	2.8	0.3	2.6	4.2	2.0
Aboriginal							
Aboriginal	31.6	19.3	•	•	•	•	•
Non-Aboriginal	40.8	28.9	2.6	0.4	2.8	4.1	2.1
Disabled							
Disabled	37.4	25.6	2.9	•	3.5	1.6	2.0
Non-Disabled	41.1	29.2	2.6	•	2.6	4.3	2.2
High School Location - Urban/Rural							
Rural High School	39.7	28.2	2.8	0.4	2.5	3.7	2.0
Non-Rural High School	43.5	30.1	2.5	•	2.9	5.1	2.5
Parental Income							
Low-Income Family	37.5	26.4	1.9	•	2.1	4.6	2.4
Non-Low-Income Family	41.9	29.7	3.0	0.5	2.9	3.9	2.1
Family Structure							
Single-Parent Family	35.0	23.7	1.6	•	3.4	5.1	1.1
Two-Parent Family	41.6	29.6	2.8	0.4	2.6	3.9	2.3
Immigrant Status							
First Generation	33.0	23.0	4.3	0	•	3.9	•
Second Generation	38.5	25.4	3.5	•	3.0	4.2	2.0
Non-Immigrant	42.4	30.5	2.2	0.4	2.9	4.0	2.3
Language Minority							
French outside Quebec	49.5	36.5	4.4	0	2.1	5.0	1.5
English inside Quebec	40.7	28.8	2.5	0.3	2.8	4.1	2.2
Other	40.5	28.5	2.6	0.4	2.7	4.0	2.2
2. Gender							
Male	34.6	24.0	2.6	•	1.3	5.4	1.0
Female	45.3	32.4	2.7	0.4	3.8	3.0	3.0

Notes:

The overall graduation rate represented graduation from either the first or any subsequent PSE program by four years after the start of the respondent's first program.

Cumulative Transition rates are calculated from the (annual) hazard transition rates (not shown) in the same manner as in Table 2b.

The proportion of graduates who graduate from the same program (column 2) differs slightly to the cumulative transition rate given in Table 4b due to differences in how ineligible programs are dealt with.

• indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act.

A zero with no decimal point indicates that there are no observations in this cell.

It should also be kept in mind that these results underestimate overall graduation rates, since they are calculated at the three-year mark for college students and after just four years at the university level. Some students continuing in their original programs will obviously go on to complete their studies, and these limited timeframes (determined by the data) also provide only a narrow opportunity to observe students who switch programs or who leave PSE and then return to their studies to eventually graduate. In these calculations, they would still have to graduate within the specified three or four years from the beginning of their first program to be included as successful finishers. (See Appendix Table 5 in the separate YITS-B analysis for a slightly longer timeframe, which is also a generally older sample, as discussed earlier.)

We also show differences in overall graduation rates between underrepresented and minority groups and other populations, but we leave these to the reader to inspect. As in the case of data presented earlier in this report, we show these patterns for both underrepresented and minority groups (in Tables 7a and 7b), but we again leave these for the reader to examine further.

The numbers presented in these tables extend the "persistence" analysis still further by revealing the status of students at the end of each year after they first enter PSE. In each year, students are categorized into three mutually exclusive groups: having earned a degree (from the first program or another), not having graduated but currently enrolled in PSE (regardless of where they are enrolled or the movements made up to that point across programs/the system) and not having graduated and not being in PSE. Essentially, Tables 7a and 7b add those still in PSE to the graduates reported in Tables 6a and 6b, as well as indicating where exactly the ongoing students are enrolled (same institution, different institution, same level, different level, etc.).

After three years, in addition to the 65.8 per cent of those who started PSE in an Ontario college program and who have graduated, we now add another 16.6 per cent who are currently in PSE, for a total of 82.4 per cent, versus 17.6 per cent who are not currently in PSE and who have also not graduated with a diploma/degree. For Ontario university students (see Table 7b), 52.7 per cent have graduated after four years, while 43.3 per cent are still in PSE, for a total of 96 per cent; that is, only 4 per cent are not currently still in a PSE program and also have not graduated. These totals are perhaps the single most meaningful numbers in terms of measuring "persistence" in PSE. This broader perspective obviously shows substantially more students who have either received a diploma/degree *somewhere* at *some time* or are still somewhere in the system pursuing a PSE credential than are revealed by the narrower measures presented above.

In the rest of Canada (see bottom panel of Table 7a), 82.7 per cent of students who started a college program have either graduated (59.5 per cent) or are still in some PSE program (23.2 per cent) three years after the start of their first PSE program. Similarly, as shown in the bottom panel of Table 7b, 89.1 per cent of university students in the rest of Canada have either graduated (40.7 per cent) or remain in PSE (48.4 per cent) in their fourth year after beginning their first program.

As in the case of data presented earlier in this report, we show these patterns for both underrepresented and minority groups (in Tables 7a and 7b), but we leave these for the reader to inspect.

Table 7a: Year 3 Overall Persistence Rates - College

Ontario

| | Grad. | Still in PSE | Program and Institution | | | | | Don't Know | Not in PSE |
| | | | Same Pgrm | Same Inst. | | Different Inst. | | | |
				Same Level	Diff. Level	Same Level	Diff. Level		
All Observations	65.8	16.6	4.5	4.5	•	4.4	2.2	•	17.6
1. Underrepresented Groups									
Parental Education									
First Generation PSE	66.2	14.2	4.5	4.7	•	•	•	0	19.5
Non-First Generation PSE	65.4	18.2	4.7	4.5	0	5.4	2.6	•	16.4
Aboriginal									
Aboriginal	55.7	22.1	•	•	0	•	0	0	22.2
Non-Aboriginal	66.3	16.2	4.4	3.9	•	4.5	2.3	•	17.5
Disabled									
Disabled	67.4	5.9	•	•	0	0	•	•	26.7
Non-Disabled	65.5	18.0	5.1	4.5	•	5.0	2.5	•	16.5
High School Location - Urban/Rural									
Rural High School	62.9	19.1	5.4	5.5	•	4.7	2.7	•	18.0
Non-Rural High School	75.1	8.9	1.7	•	•	3.5	•	•	15.9
Parental Income									
Low-Income Family	62.1	15.9	6.4	3.9	0	3.9	•	0	22.0
Non-Low-Income Family	66.8	17.1	3.9	4.8	•	4.6	2.4	•	16.1
Family Structure									
Single-Parent Family	61.5	17.3	•	•	0	5.3	•	•	21.2
Two-Parent Family	66.9	16.4	4.3	4.6	•	4.1	2.5	•	16.7
Immigrant Status									
First Generation	59.0	28.0	•	•	0	•	•	0	13.0
Second Generation	66.9	16.6	6.9	•	•	•	•	0	16.5
Non-Immigrant	66.3	15.2	3.7	4.2	•	4.3	1.8	•	18.5
Language Minority									
French outside Quebec	78.3	6.5	2.9	•	0	•	•	0	15.2
English inside Quebec	65.6	15.7	3.5	4.4	•	4.5	2.2	•	18.7
Other	65.2	17.1	4.6	4,5	*	4.4	2.2	*	17.8
2. Gender									
Male	62.5	16.4	5.2	4.0	•	3.4	2.4	•	21.1
Female	69.6	16.7	3.7	4.9	0	5.4	2.0	•	13.7

cont…

Table 7a: Year 3 Overall Persistence Rates - College (cont.)

Rest of Canada

| | Grad. | Still in PSE | Program and Institution | | | | | | Not in PSE |
| | | | Same Pgrm | Same Inst. | | Different Inst. | | Don't Know | |
				Same Level	Diff. Level	Same Level	Diff. Level		
All Observations	59.5	23.2	8.6	4.1	0.6	4.3	3.5	2.1	17.3
1. Underrepresented Groups									
Parental Education									
First Generation PSE	55.5	24.3	10.6	4.8	•	4.1	2.3	1.9	20.3
Non-First Generation PSE	61.2	22.6	7.8	3.9	0.6	4.3	3.9	2.2	16.2
Aboriginal									
Aboriginal	49.3	26.7	•	•	0	•	•	7.1	24.1
Non-Aboriginal	59.8	23.0	8.7	4.1	0.6	4.3	3.5	1.9	17.2
Disabled									
Disabled	54.7	27.4	8.9	6.7	•	6.4	2.5	2.3	18.0
Non-Disabled	60.0	22.7	8.5	3.8	0.6	4.0	3.6	2.1	17.3
High School Location - Urban/Rural									
Rural High School	58.8	23.7	8.5	4.3	0.6	4.4	3.8	2.0	17.5
Non-Rural High School	62.4	20.7	7.9	3.6	0.6	3.7	3.0	1.9	16.8
Parental Income									
Low-Income Family	56.0	23.2	9.8	3.7	0.7	4.4	2.7	1.9	20.7
Non-Low-Income Family	61.4	23.1	7.9	4.4	0.5	4.0	3.9	2.3	15.5
Family Structure									
Single-Parent Family	54.0	23.0	10.0	2.6	0	2.7	4.9	2.7	23.0
Two-Parent Family	60.6	23.2	8.3	4.4	0.7	4.5	3.2	2.0	16.2
Immigrant Status									
First Generation	52.1	30.9	9.4	7.5	•	6.5	4.1	•	17.0
Second Generation	64.3	24.6	7.3	4.1	1.6	3.7	6.3	•	11.2
Non-Immigrant	59.2	22.4	8.7	3.9	0.4	4.2	3.0	2.2	18.4
Language Minority									
French outside Quebec	83.8	8.0	•	3.3	•	•	•	•	8.2
English inside Quebec	65.2	18.9	4.2	2.3	1.3	2.0	5.8	3.4	15.9
Other	58.8	23.7	8.6	4.3	0.6	4.3	3.5	2.1	17.6
2. Gender									
Male	53.0	25.8	10.2	5.5	0.8	4.2	3.3	2.0	21.2
Female	65.0	20.9	7.2	3.0	0.4	4.3	3.6	2.3	14.1

Notes:

At the end of each year, students are categorized in a sequential manner into three groups: Graduates from a PSE program, students still in PSE, and those no longer in PSE. Students who are still in PSE are further categorized into the six groups shown.

Column 1 graduation rates are taken from Table 6a.

Table 7b: Year 4 Overall Persistence Rates - University

Ontario

	Grad.	Still in PSE	Program and Institution						Not in PSE
			Same Pgrm	Same Inst.		Different Inst.		Don't Know	
				Same Level	Diff. Level	Same Level	Diff. Level		
All Observations	52.7	43.3	32.6	3.8	0.8	3.4	1.8	0.8	4.0
1. Underrepresented Groups									
Parental Education									
First Generation PSE	47.7	43.8	35.1	•	•	2.8	•	0	8.5
Non-First Generation PSE	53.4	43.3	32.1	4.5	•	3.6	1.4	0.9	3.3
Aboriginal									
Aboriginal	66.0	32.0	•	•	0	0	•	0	•
Non-Aboriginal	52.7	43.3	32.6	3.8	0.8	3.5	1.7	0.8	4.1
Disabled									
Disabled	47.2	52.8	32.2	•	•	•	•	0	0
Non-Disabled	53.0	42.6	32.6	3.5	•	3.2	1.7	0.9	4.3
High School Location - Urban/Rural									
Rural High School	51.1	44.5	33.1	4.0	•	3.7	2.0	•	4.4
Non-Rural High School	62.4	36.3	29.2	3.0	•	1.6	0.7	•	1.3
Parental Income									
Low-Income Family	48.6	44.5	38.5	•	0	2.2	•	•	6.9
Non-Low-Income Family	53.7	43.2	31.5	4.4	1.1	3.8	1.5	1.0	3.1
Family Structure									
Single-Parent Family	51.6	43.7	37.3	•	0	•	•	•	4.7
Two-Parent Family	52.8	43.2	31.9	4.3	0.9	3.7	1.7	0.7	3.9
Immigrant Status									
First Generation	40.1	49.9	35.4	8.4	•	•	0	•	10.0
Second Generation	53.6	43.8	33.2	2.7	•	3.9	2.7	•	2.6
Non-Immigrant	56.5	40.7	31.2	2.9	•	3.7	1.9	0.9	2.9
Language Minority									
French outside Quebec	43.7	52.0	34.7	4.1	0	•	12.7	0	4.3
English inside Quebec	55.6	40.9	30.9	3.2	•	3.8	1.8	0.8	3.5
Other	53.0	43.0	32.5	3.8	*	3.4	1.4	0.8	4.0
2. Gender									
Male	44.0	51.4	40.2	3.0	•	4.7	2.0	•	4.5
Female	58.2	38.1	27.7	4.4	•	2.6	1.7	•	3.7

cont…

Rest of Canada

| | Grad. | Still in PSE | Program and Institution | | | | | | Not in PSE |
| | | | Same Pgrm | Same Inst. | | Different Inst. | | Don't Know | |
				Same Level	Diff. Level	Same Level	Diff. Level		
All Observations	40.7	48.4	25.9	8.3	0.8	8.3	3.6	1.6	10.8
1. Underrepresented Groups									
Parental Education									
First Generation PSE	37.9	47.7	26.0	8.7	0	7.0	3.9	2.1	14.3
Non-First Generation PSE	41.4	48.6	25.9	8.2	0.8	8.6	3.6	1.5	10.0
Aboriginal									
Aboriginal	31.6	41.1	15.4	8.5	0	10.6	•	•	27.3
Non-Aboriginal	40.8	48.7	26.2	8.3	0.8	8.2	3.5	1.6	10.5
Disabled									
Disabled	37.4	48.0	23.9	7.2	•	8.3	4.6	2.0	14.5
Non-Disabled	41.1	48.5	26.1	8.4	0.6	8.3	3.5	1.6	10.4
High School Location - Urban/Rural									
Rural High School	39.7	50.4	27.2	8.5	0.9	8.8	3.5	1.5	9.9
Non-Rural High School	43.5	42.9	22.4	7.2	•	6.9	3.9	1.9	13.7
Parental Income									
Low-Income Family	37.5	49.0	28.0	8.3	•	7.0	4.2	0.9	13.5
Non-Low-Income Family	41.9	48.2	25.0	8.4	0.8	8.8	3.4	1.9	9.8
Family Structure									
Single-Parent Family	35.0	53.4	25.3	10.6	•	11.8	4.6	0.9	11.6
Two-Parent Family	41.6	47.7	26.0	8.0	0.9	7.7	3.4	1.7	10.7
Immigrant Status									
First Generation	33.0	63.1	41.4	7.4	•	4.8	5.9	2.6	3.9
Second Generation	38.5	53.6	30.3	7.8	2.5	9.3	1.6	2.1	7.9
Non-Immigrant	42.4	45.1	22.7	8.5	0.3	8.5	3.8	1.3	12.5
Language Minority									
French outside Quebec	49.5	43.2	17.8	13.2	•	7.4	2.6	2.0	7.3
English inside Quebec	40.7	47.3	25.1	8.0	0.8	8.3	3.5	1.6	12.0
Other	40.5	48.6	26.2	8.1	0.8	8.3	3.6	1.6	10.9
2. Gender									
Male	34.6	52.4	30.6	7.8	1.0	6.7	4.8	1.6	13.0
Female	45.3	45.5	22.5	8.7	0.6	9.4	2.7	1.6	9.2

Notes:

At the end of each year, students are categorized in a sequential manner into three groups: Graduates from a PSE program, students still in PSE, and those no longer in PSE. Students who are still in PSE are further categorized into the six groups shown.
Column 1 graduation rates are taken from Table 6b.

Regression Analysis

The descriptive statistics presented thus far provide an overall view of PSE transitions. We now turn to a regression analysis in order to identify the different relationships, while holding other influences constant, on two of the key underlying dynamic processes: switching and leaving PSE.[22]

Because of sample-size constraints, we were unable to estimate these models with sufficient precision using observations from Ontario only. Instead, we used a national sample and through the use of a set of interaction terms, allowed our estimates of the differences associated with effects of the key underrepresented and minority group indicator variables to differ for Ontario and the ROC.

The model is estimated with different sets of explanatory variables included. It first contains just the set of indicator variables for each of the underrepresented and minority groups (first generation PSE, Aboriginal, etc.) which can be relatively safely assumed as exogenous to PSE persistence. Two other basic control variables are included as well: years in the program to date and a series of regional indicators for the ROC. These models capture the differences in switching and leaving rates among the members of these groups as compared to others. Results are then presented for other models that add regressors, which capture some of the student's past schooling-related outcomes but which may, in turn, potentially be endogenous or related to other omitted factors.

More specifically, several sets of models are estimated. The initial models (Tables 8a and 8b for college and university students, respectively) include the most basic (and most clearly exogenous) background factors: membership in the underrepresented and minority groups of interest, along with gender, number of elapsed years in the program for the specific person-spell-year observation and a dummy variable that allows overall rates to differ for Ontario and the ROC.

Within these, we first ran a set of eight models, each of which included just one of the indicator variables representing the different underrepresented and minority groups (one model included both the first and second generation immigrant variables), along with the other control variables (gender, year, the Ontario indicator variable). These models capture the overall differences in switching and leaving rates among these groups *without* taking into account the interaction between group memberships, since the other groups are not controlled for in each of these group-specific regressions.

Using this model, we first estimate only a single set of national-level effects and then allow the effects to differ for Ontario and the ROC. We then include all the underrepresented and minority group indicators in the model together (again along with the other control variables), thus allowing us to sort out the differences associated with belonging to each of the indicated groups while taking membership in other groups into account. (For example, first generation PSE students may also tend to come from low-income families, and both variables – and associated effects – are taken into account.) In this (single) model, we again complete one version where only a single national-level effect is estimated and then add interactions of each of the group indicators with the Ontario indicator in order to allow the effects to differ for Ontario and the ROC.

Tables 9a and 9b then present additional specifications that add measures of school-related performance to the models, starting with the individual's high school grade average and PISA reading score, followed by PSE grades and then all the high school and PSE variables added together.

To estimate this model, we stack the data across all spell years, meaning that for each year we observe, an individual "at risk" of leaving PSE is entered as a separate observation (there can therefore be multiple observations for a given individual as they move through their program). We estimate the models using a multinomial regression approach, which allows for the different outcomes (switching and leaving).

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[22] See Finnie and Qiu (2008) for further discussion of the choice of model, including the focus on the switching and leaving outcomes, as well as all other aspects of the analysis presented in this section.

The Basic Models

The results of the first set of models are presented in Table 8a for college students and Table 8b for university students. The tables report the average marginal effects associated with each regressor, and the standard errors and statistical significance associated with these estimates. The average marginal effects essentially represent the estimated effects of the variables in question on the probability of switching or leaving, respectively, in any given year. The magnitudes of the estimated effects can be interpreted in the context of the hazard transition rates seen above: switching rates that are generally between about 3 per cent and 12 per cent and leaving rates between 2 per cent and 15 per cent in any given year (see Tables 2a and 2b), depending on the population (Ontario versus the ROC) and level (college or university). We focus our comments on the leaving models, but the switching rates are also shown (as they are estimated along with the leaving rates in the multinomial logit set-up employed).

College Students

For college students, three groups have significantly higher leaving rates than other students when considered on their own and with a single national effect (i.e., the first model, indicated as "Separate Models, No ON Interactions"): students with a disability, students from low-income families and students from single-parent families. In each case, annual leaving rates are in the 3 to 4 per cent range higher than for others.

When the effects are allowed to vary by province ("Separate Models, With ON Interactions"), the significance of the disability marginal effect disappears, presumably because we are now separating the national and Ontario effects, which are both positive (thus adding a parameter to be estimated with the same data). However, the significance of other variables – students from both low-income and single-parent families – remains. In addition, the Aboriginal effect becomes much stronger, and statistically significant, thus indicating a strong ROC effect but a much weaker one in Ontario (as evidenced by the estimated negative interaction term). However, the difference is not statistically significant. In addition, the "general" first-generation college effect (representing the effect for the ROC, since the Ontario effect is separated out with the inclusion of the relevant interaction term) becomes marginally significant when an apparently offsetting Ontario effect is separated out (see the estimated negative effect of the interaction term).

However, the data do not allow us to identify any statistically significant differences in the college leaving rates between Ontario and the ROC for any of the designated groups, as none of the interaction terms is significant. This is likely due to the relatively small number of observations in some of the estimates. However, when the joint models (which include all the underrepresented and minority group variables together) are estimated, the effects – as expected – are weaker. The only remaining statistically significant differences under "No ON Interactions" (i.e., only a single national level effect is allowed for) are for the college students identified as having some type of disability (an estimated effect of 3.8 per cent higher in terms of leaving rates). In the "Joint Models, With ON Interactions," the Aboriginal effect again comes through, though it is seen to be much weaker for Ontario than in the ROC. First-generation college students are (again) observed to have higher leaving rates than others, at least in the ROC, with the Ontario effect estimated as being much smaller.

It is worth noting that the gender variable is significant throughout: females are less likely to leave college than are males.

University Students

There are, interestingly, more statistically significant results for the university models (Table 8b). In the models where the indicators are each entered individually and where there are no Ontario interactions, students in the categories of first generation PSE, Aboriginal, having a disability, having gone to a rural high school, low-income family and single-parent family are all more likely to drop out, although the effects are generally small in absolute terms (with differences in the 1 to 2 per cent range), and the rural effect in particular is only marginally significant. The exception here is Aboriginal students, for whom the gap is 6.8 per cent. Immigrants and francophones, meanwhile, have rates that are no different than those for others. It should be understood that these rates are estimated *in a given year*.

	Separate Models				Joint Models			
Table 8a: Basic Persistence Model - College								
	No ON Interactions		With ON Interactions		No ON Interactions		With ON Interactions	
	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver
1. Gender (Male)								
Female	†	†	†	†	0.006	-0.043***	0.005	-0.042***
					(0.011)	(0.012)	(0.011)	(0.012)
2. Underrepresented Groups								
First Generation PSE	-0.031**	0.017	-0.022*	0.027*	-0.023*	0.018	-0.022	0.026*
	(0.014)	(0.014)	(0.013)	(0.015)	(0.013)	(0.014)	(0.013)	(0.015)
Ontario First Generation PSE			-0.028	-0.025			-0.007	-0.018
			(0.032)	(0.031)			(0.032)	(0.032)
Aboriginal	-0.016	0.070	0.019	0.111**	-0.005	0.070	0.030	0.114**
	(0.038)	(0.046)	(0.037)	(0.053)	(0.037)	(0.044)	(0.037)	(0.049)
Ontario Aboriginal			-0.114	-0.074			-0.100	-0.086
			(0.123)	(0.090)			(0.114)	(0.088)
Disabled	0.039**	0.042**	0.033*	0.035	0.036*	0.038*	0.035*	0.029
	(0.019)	(0.021)	(0.019)	(0.022)	(0.019)	(0.020)	(0.018)	(0.021)
Ontario Disabled			0.016	0.015			0.003	0.017
			(0.042)	(0.043)			(0.041)	(0.041)
Rural High School	-0.022*	-0.001	-0.022*	0.012	-0.017	-0.013	-0.022	-0.001
	(0.013)	(0.014)	(0.013)	(0.015)	(0.014)	(0.014)	(0.013)	(0.015)
Ontario Rural High School			-0.002	-0.039			0.018	-0.041
			(0.036)	(0.034)			(0.037)	(0.036)
Low-Income Family	-0.030**	0.032**	-0.017	0.038***	-0.026**	0.019	-0.010	0.017
	(0.012)	(0.014)	(0.012)	(0.015)	(0.013)	(0.015)	(0.012)	(0.015)
Ontario Low-Income Family			-0.057	-0.013			-0.064	0.008
			(0.037)	(0.032)			(0.041)	(0.034)
Single-Parent Family	-0.018	0.033*	-0.016	0.037*	-0.019	0.021	-0.018	0.022
	(0.014)	(0.020)	(0.014)	(0.021)	(0.015)	(0.019)	(0.015)	(0.020)
Ontario Single-Parent Family			-0.006	-0.008			0.004	-0.004
			(0.038)	(0.037)			(0.042)	(0.039)
Immigrants								
First Generation	0.043	-0.002	0.021	0.001	0.052*	-0.008	0.016	0.010
	(0.028)	(0.031)	(0.026)	(0.030)	(0.030)	(0.029)	(0.025)	(0.030)
Second Generation	0.002	-0.019	0.001	-0.014	-0.009	-0.016	-0.009	-0.007
	(0.015)	(0.017)	(0.015)	(0.019)	(0.014)	(0.017)	(0.013)	(0.019)
Ontario First Generation			0.051	-0.007			0.100	-0.040
			(0.061)	(0.061)			(0.075)	(0.050)
Ontario Second Generation			0.005	-0.011			0.002	-0.022
			(0.037)	(0.036)			(0.036)	(0.034)
Linguistic Minority								
English in Quebec	0.013	-0.018	0.013	-0.018	0.017	-0.016	0.014	-0.015
	(0.017)	(0.020)	(0.017)	(0.020)	(0.017)	(0.020)	(0.017)	(0.020)
French Outside Quebec	0.032	-0.001	-0.029	0.021	0.044	-0.005	-0.021	0.011
	(0.050)	(0.029)	(0.023)	(0.039)	(0.049)	(0.027)	(0.025)	(0.035)
Ontario French Outside Quebec			0.109	-0.031			0.118	-0.026
			(0.097)	(0.045)			(0.095)	(0.044)

cont…

Table 8a: Basic Persistence Model – College (cont.)								
	Separate Models				Joint Models			
	No ON Interactions		With ON Interactions		No ON Interactions		With ON Interactions	
	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver
Year Since Program Start (Year 1)								
Year 2	†	†	†	†	-0.011	-0.017	-0.010	-0.017
					(0.011)	(0.013)	(0.011)	(0.013)
Year 3	†	†	†	†	-0.018	0.037	-0.016	0.037
					(0.017)	(0.029)	(0.017)	(0.029)
Year 4	†	†	†	†	0.032	0.040	0.034	0.042
					(0.040)	(0.052)	(0.041)	(0.052)
Year 5	†	†	†	†	0.020	-0.027	0.021	-0.027
					(0.125)	(0.092)	(0.126)	(0.092)
PSE Region (ROC)								
Ontario	†	†	†	†	-0.027**	0.033*	-0.007	0.014
					(0.013)	(0.017)	(0.037)	(0.036)
Observations	†		†		6,095		6,095	

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

This table reports the average marginal effects calculated from a multinomial logit model where the base outcome is continuing in the initial program of PSE in any particular year.

These models consider only transitions from the students' first program for each year up to five years beyond the initial starting date. Students who continue beyond the first year are included for each year until they make their first transition. Observations are clustered by individual.

†The columns labelled "Separate Models" represent a different model for each of the underrepresented groups. This symbol indicates a variable present in each of the models.

The joint models are each one regression model that includes the indicator variables for all the underrepresented groups.

Aside from the low-income family effect, which becomes statistically insignificant, these national-level effects hold mostly when the Ontario interaction terms are added to the model (thus rendering the former as "ROC effects"). Meanwhile, immigrant students are now observed to drop out at lower rates than others. None of the Ontario interactions is statistically significant, but some go in the same direction as the national/ROC effects and thus suggest even stronger effects for Ontario (e.g., students with a disability). Still others go in the opposite direction, suggesting in some cases possibly weaker effects for Ontario (Aboriginals) and in other cases, such as immigrants or francophones, effects that may actually be qualitatively different (i.e., negative effects for Ontario when the ROC effects are positive or vice versa). However, the non-significant estimates indicate that identifying such ROC-Ontario differences are beyond the power of these data (and the present sample sizes).

Many of these same tendencies hold when the joint models are estimated: in the models where the Ontario interactions are included, first generation PSE students, Aboriginal students, students with a disability and those from single-parent families all drop out at higher rates than others in the ROC, while immigrant and students who are part of a French-speaking minority (but no longer rural students) are less likely to drop out. It is noted that none of the Ontario interactions is statistically significant.

It is also worth noting that females drop out less often, as do those students who have been in their programs longer. The Ontario indicator variable (ROC is the comparison group) shows how much less frequently Ontario students generally drop out than those from the ROC, the estimated difference amounting to 5.1 per cent in any given year. This corresponds to the overall rates seen in the descriptive tables above.

| | Separate Models | | | | Joint Models | | | |
| | No ON Interactions | | With ON Interactions | | No ON Interactions | | With ON Interactions | |
	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver
Table 8b: Basic Persistence Model - University								
1. Gender (Male)								
Female	†	†	†	†	0.006	-0.016***	0.006	-0.016***
					(0.006)	(0.004)	(0.006)	(0.004)
2. Underrepresented Groups								
First Generation PSE	-0.001	0.018***	-0.003	0.017***	0.001	0.013**	-0.003	0.016***
	(0.008)	(0.007)	(0.007)	(0.006)	(0.008)	(0.007)	(0.007)	(0.006)
Ontario First Generation PSE			0.005	0.003			0.013	-0.010
			(0.018)	(0.017)			(0.018)	(0.021)
Aboriginal	0.001	0.068***	-0.013	0.070***	0.003	0.059***	-0.015	0.059***
	(0.021)	(0.015)	(0.016)	(0.015)	(0.021)	(0.015)	(0.016)	(0.014)
Ontario Aboriginal			0.057	-0.015			0.062	-0.006
			(0.064)	(0.039)			(0.068)	(0.040)
Disabled	0.005	0.016**	0.013	0.013**	0.006	0.015**	0.013	0.011*
	(0.009)	(0.007)	(0.008)	(0.006)	(0.009)	(0.007)	(0.008)	(0.006)
Ontario Disabled			-0.025	0.014			-0.022	0.016
			(0.021)	(0.027)			(0.022)	(0.027)
Rural High School	0.001	0.008*	0.006	0.010**	0.001	0.004	0.003	0.005
	(0.006)	(0.004)	(0.005)	(0.004)	(0.006)	(0.005)	(0.006)	(0.004)
Ontario Rural High School			-0.017	-0.011			-0.011	-0.002
			(0.018)	(0.019)			(0.018)	(0.018)
Low-Income Family	-0.011	0.012**	-0.003	0.006	-0.007	0.008	0.001	-0.001
	(0.007)	(0.006)	(0.006)	(0.004)	(0.007)	(0.006)	(0.006)	(0.005)
Ontario Low-Income Family			-0.023	0.024			-0.026	0.029
			(0.019)	(0.016)			(0.020)	(0.019)
Single-Parent Family	-0.012	0.018**	-0.009	0.023***	-0.014*	0.009	-0.005	0.017**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.008)
Ontario Single-Parent Family			-0.008	-0.012			-0.019	-0.015
			(0.020)	(0.015)			(0.017)	(0.015)
Immigrants								
First Generation	0.001	-0.011	-0.022***	-0.024***	0.003	-0.010	-0.021**	-0.024***
	(0.011)	(0.009)	(0.008)	(0.007)	(0.011)	(0.009)	(0.008)	(0.007)
Second Generation	-0.006	-0.008	0.005	-0.015***	-0.006	-0.007	0.006	-0.012**
	(0.007)	(0.005)	(0.007)	(0.005)	(0.006)	(0.006)	(0.008)	(0.005)
Ontario First Generation			0.050	0.057			0.055*	0.045
			(0.032)	(0.044)			(0.033)	(0.041)
Ontario Second Generation			-0.020*	0.030			-0.022**	0.019
			(0.011)	(0.023)			(0.011)	(0.020)
Linguistic Minority								
English in Quebec	-0.050***	0.106*	-0.050***	0.106*	-0.049**	0.077	-0.050***	0.074
	(0.019)	(0.064)	(0.019)	(0.064)	(0.019)	(0.055)	(0.019)	(0.055)
French Outside Quebec	0.022	-0.009	0.026**	-0.012**	0.024*	-0.014**	0.025**	-0.017***
	(0.015)	(0.008)	(0.012)	(0.005)	(0.015)	(0.007)	(0.011)	(0.005)
Ontario French Outside Quebec			-0.007	0.010			-0.005	0.018
			(0.023)	(0.031)			(0.024)	(0.031)

cont…

	Separate Models				Joint Models			
Table 8b: Basic Persistence Model – University (cont.)								
	No ON Interactions		With ON Interactions		No ON Interactions		With ON Interactions	
	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver
Year Since Program Start (Year 1)								
Year 2	†	†	†	†	-0.022***	-0.018***	-0.021**	-0.018***
					(0.008)	(0.005)	(0.008)	(0.005)
Year 3	†	†	†	†	-0.065***	-0.036***	-0.065***	-0.036***
					(0.008)	(0.006)	(0.008)	(0.006)
Year 4	†	†	†	†	-0.068***	-0.024***	-0.068***	-0.024***
					(0.008)	(0.008)	(0.008)	(0.008)
Year 5	†	†	†	†	-0.107***	-0.032***	-0.107***	-0.031***
					(0.007)	(0.010)	(0.006)	(0.010)
PSE Region (ROC)								
Ontario	†	†	†	†	-0.033***	-0.037***	-0.035***	-0.051***
					(0.005)	(0.004)	(0.013)	(0.009)
Observations	†		†		15,673		15,673	

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

This table reports the average marginal effects calculated from a multinomial logit model where the base outcome is continuing in the initial program of PSE in any particular year.

These models consider only transitions from the students' first program for each year up to five years beyond the initial starting date. Students who continue beyond the first year are included for each year until they make their first transition. Observations are clustered by individual.

†The columns labelled "Separate Models" represent a different model for each of the underrepresented groups. This symbol indicates a variable present in each of the models.

The joint models are each one regression model that includes the indicator variables for all the underrepresented groups.

The Extended Models

The extended models add all of the variables together (including the ones in the models discussed immediately preceding, as well as PISA reading scores, high school grades and PSE grades). The changes we see from the earlier models to these new specifications essentially show the extent to which the differences seen in the former models are associated with these school-related variables. At the same time, the differences show the importance of the added variables to the switching and leaving outcomes or – alternatively – they indicate how well they can help predict who is likely to make a change of this type.

College Students

The final specification, where both sets of school-related variables are included (the final columns in Table 9a), indicates that none of the group indicators is statistically significant for college students once the extra variables are added. The only exception is students from single-parent families, who now appear more likely to leave PSE than others (the estimate is only marginally significant in a statistical sense). This was not the case in the final baseline model. Meanwhile, second generation immigrants may be less likely to leave (again, the statistical significance is only marginal). This is perhaps not surprising, since we are trying to squeeze a good number of parameters out of the data and because many of the variables are correlated to a significant degree and sample sizes are not huge.

Table 9a: Additional Variables Persistence Model - College								
	Baseline		High School		PSE		Both	
	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver
1. Gender (Male)								
Female	0.005	-0.042***	0.005	-0.035***	0.016	-0.037***	0.015	-0.036***
	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.011)	(0.010)	(0.011)
2. Underrepresented Groups								
First Generation PSE	-0.022	0.026*	-0.022*	0.012	-0.018	0.020	-0.018	0.012
	(0.013)	(0.015)	(0.013)	(0.014)	(0.012)	(0.014)	(0.012)	(0.013)
Ontario First Generation PSE	-0.007	-0.018	0.006	0.008	-0.012	-0.017	0.001	0.008
	(0.032)	(0.032)	(0.030)	(0.030)	(0.028)	(0.030)	(0.027)	(0.029)
Aboriginal	0.030	0.114**	0.027	0.077*	0.008	0.087*	-0.001	0.052
	(0.037)	(0.049)	(0.036)	(0.042)	(0.033)	(0.051)	(0.033)	(0.047)
Ontario Aboriginal	-0.100	-0.086	-0.120	-0.046	-0.107	-0.157	-0.141	-0.087
	(0.114)	(0.088)	(0.122)	(0.075)	(0.105)	(0.126)	(0.119)	(0.093)
Disabled	0.035*	0.029	0.043**	0.007	0.028*	0.034*	0.040**	0.020
	(0.018)	(0.021)	(0.018)	(0.020)	(0.017)	(0.019)	(0.016)	(0.018)
Ontario Disabled	0.003	0.017	0.008	0.029	0.004	0.012	0.005	0.020
	(0.041)	(0.041)	(0.039)	(0.041)	(0.035)	(0.038)	(0.033)	(0.039)
Rural High School	-0.022	-0.001	-0.020	-0.001	-0.018	0.002	-0.015	0.003
	(0.013)	(0.015)	(0.013)	(0.014)	(0.012)	(0.014)	(0.011)	(0.013)
Ontario Rural High School	0.018	-0.041	0.021	-0.027	0.009	-0.036	0.011	-0.025
	(0.037)	(0.036)	(0.036)	(0.034)	(0.033)	(0.034)	(0.032)	(0.032)
Low-Income Family	-0.010	0.017	-0.016	0.008	-0.005	0.011	-0.009	0.007
	(0.012)	(0.015)	(0.012)	(0.014)	(0.011)	(0.013)	(0.011)	(0.013)
Ontario Low-Income Family	-0.064	0.008	-0.063	0.011	-0.081**	-0.007	-0.081**	-0.007
	(0.041)	(0.034)	(0.040)	(0.032)	(0.038)	(0.033)	(0.037)	(0.031)
Single-Parent Family	-0.018	0.022	-0.012	0.029	-0.019	0.026	-0.015	0.031*
	(0.015)	(0.020)	(0.015)	(0.019)	(0.013)	(0.019)	(0.013)	(0.018)
Ontario Single-Parent Family	0.004	-0.004	0.010	-0.029	0.014	-0.016	0.023	-0.042
	(0.042)	(0.039)	(0.041)	(0.033)	(0.039)	(0.037)	(0.038)	(0.030)
Immigrants								
First Generation	0.016	0.010	0.013	-0.021	0.015	-0.005	0.018	-0.025
	(0.025)	(0.030)	(0.025)	(0.026)	(0.023)	(0.026)	(0.024)	(0.024)
Second Generation	-0.009	-0.007	-0.009	-0.020	-0.009	-0.019	-0.007	-0.029*
	(0.013)	(0.019)	(0.013)	(0.018)	(0.012)	(0.017)	(0.012)	(0.016)
Ontario First Generation	0.100	-0.040	0.087	-0.007	0.091	-0.016	0.069	0.016
	(0.075)	(0.050)	(0.072)	(0.058)	(0.064)	(0.050)	(0.059)	(0.058)
Ontario Second Generation	0.002	-0.022	0.002	-0.035	0.006	0.004	0.009	-0.009
	(0.036)	(0.034)	(0.035)	(0.031)	(0.033)	(0.034)	(0.032)	(0.031)
Linguistic Minority								
English in Quebec	0.014	-0.015	0.015	-0.017	0.010	-0.019	0.012	-0.020
	(0.017)	(0.020)	(0.016)	(0.020)	(0.015)	(0.018)	(0.015)	(0.018)
French Outside Quebec	-0.021	0.011	-0.026	-0.030	-0.017	0.023	-0.011	-0.005
	(0.025)	(0.035)	(0.024)	(0.027)	(0.024)	(0.035)	(0.026)	(0.030)
Ontario French Outside Quebec	0.118	-0.026	0.115	-0.011	0.104	-0.045	0.089	-0.042
	(0.095)	(0.044)	(0.097)	(0.044)	(0.077)	(0.038)	(0.076)	(0.037)

cont…

Table 9a: Additional Variables Persistence Model – College (cont.)								
	Baseline		High School		PSE		Both	
	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver
Year Since Program Start (Year 1)								
Year 2	-0.010	-0.017	-0.012	-0.018	-0.011	-0.011	-0.012	-0.012
	(0.011)	(0.013)	(0.011)	(0.012)	(0.010)	(0.012)	(0.010)	(0.012)
Year 3	-0.016	0.037	-0.024	0.030	-0.019	0.031	-0.025*	0.031
	(0.017)	(0.029)	(0.016)	(0.027)	(0.016)	(0.026)	(0.015)	(0.025)
Year 4	0.034	0.042	0.040	0.037	0.014	0.028	0.021	0.029
	(0.041)	(0.052)	(0.040)	(0.049)	(0.033)	(0.046)	(0.033)	(0.044)
Year 5	0.021	-0.027	0.024	-0.016	0.014	-0.028	0.016	-0.015
	(0.126)	(0.092)	(0.120)	(0.093)	(0.108)	(0.083)	(0.103)	(0.084)
PSE Region (ROC)								
Ontario	-0.007	0.014	-0.009	-0.008	-0.005	0.022	-0.001	0.007
	(0.037)	(0.036)	(0.035)	(0.031)	(0.032)	(0.032)	(0.031)	(0.030)
High School Variables								
Overall High School Grades /10			-0.006	-0.057***			0.006	-0.046***
			(0.006)	(0.009)			(0.006)	(0.008)
PISA Reading Score /100			0.002	-0.019*			0.008	-0.008
			(0.008)	(0.010)			(0.007)	(0.009)
PSE Variables								
Overall First Year Grades /10					-0.034***	-0.056***	-0.037***	-0.050***
					(0.001)	(0.001)	(0.001)	(0.001)
Number of observations	6,095		5,680		5,743		5,344	

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

This table reports the average marginal effects calculated from a multinomial logit model where the base outcome is continuing in the initial program of PSE in any particular year.

These models consider only transitions from the students' first program for each year up to five years beyond the initial starting date. Students who continue beyond the first year are included for each year until they make their first transition. Observations are clustered by individual.

The baseline column is the last column from Table 8a and includes all the Ontario interactions.

High school and PSE grades are a percentage score divided by 10. The marginal effects shown here represent a 10 percentage point change (from 70 per cent to 80 per cent, for example) in grades.

The PISA score is divided by 100, which means the marginal effects shown above represent a 1 standard deviation (across all participating countries) change in the reading score.

That said, these restrictions do not stop the high school and PSE grade variables from being strongly significant in themselves. Having a high grade point average (GPA) during high school is associated with, on average, a 4.6 per cent lower probability of dropping out in any given year of college. Even when first year PSE grades are also included in the model, the effects of those PSE grades result in a similar 5.0 percentage point difference in addition to the high school grades effect.

The message we may take from these results is that there are few identifiable, statistically significant differences in persistence patterns among the designated groups focused on in this study once other observable factors are taken into account. However, there are important differences depending on a few key and simple indicators of past (and current) academic performance. There was also an identifiably lower leaving rate for females compared to males. All of these findings may have important implications for the future creation and targeting of interventions aimed at increasing student retention in Ontario colleges.

University Students
A similar story holds for university students (Table 9b). The clearest results are that individuals are more likely to leave PSE if they had lower grades when in high school, had lower first-year PSE grades, are male or are in the first year of their programs. Policy-makers would, therefore, perhaps do best to target any interventions accordingly.

Table 9b: Additional Variables Persistence Model - University								
	Baseline		High School		PSE		Both	
	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver
1. Gender (Male)								
Female	0.006	-0.016***	0.005	-0.012***	0.007	-0.013***	0.005	-0.011***
	(0.006)	(0.004)	(0.006)	(0.004)	(0.006)	(0.004)	(0.006)	(0.004)
2. Underrepresented Groups								
First Generation PSE	-0.003	0.016***	-0.007	0.013**	-0.004	0.010*	-0.007	0.009*
	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.005)	(0.007)	(0.005)
Ontario First Generation PSE	0.013	-0.010	0.011	-0.009	0.021	-0.012	0.018	-0.013
	(0.018)	(0.021)	(0.018)	(0.021)	(0.018)	(0.020)	(0.018)	(0.021)
Aboriginal	-0.015	0.059***	-0.021	0.052***	-0.017	0.056***	-0.021	0.053***
	(0.016)	(0.014)	(0.016)	(0.014)	(0.016)	(0.013)	(0.016)	(0.013)
Ontario Aboriginal	0.062	-0.006	0.072	-0.018	-0.024	0.004	-0.013	-0.007
	(0.068)	(0.040)	(0.067)	(0.044)	(0.048)	(0.034)	(0.043)	(0.036)
Disabled	0.013	0.011*	0.013*	0.006	0.012	0.008	0.013*	0.003
	(0.008)	(0.006)	(0.008)	(0.006)	(0.008)	(0.006)	(0.008)	(0.006)
Ontario Disabled	-0.022	0.016	-0.017	-0.002	-0.019	0.020	-0.016	0.004
	(0.022)	(0.027)	(0.022)	(0.023)	(0.021)	(0.028)	(0.021)	(0.024)
Rural High School	0.003	0.005	0.005	0.009**	0.003	0.003	0.005	0.006
	(0.006)	(0.004)	(0.005)	(0.004)	(0.006)	(0.004)	(0.005)	(0.004)
Ontario Rural High School	-0.011	-0.002	-0.018	-0.005	-0.006	0.001	-0.014	-0.003
	(0.018)	(0.018)	(0.018)	(0.018)	(0.017)	(0.017)	(0.017)	(0.017)
Low-Income Family	0.001	-0.001	-0.000	-0.004	-0.002	-0.004	-0.002	-0.006
	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)
Ontario Low-Income Family	-0.026	0.029	-0.024	0.031	-0.030	0.029	-0.027	0.029
	(0.020)	(0.019)	(0.021)	(0.021)	(0.020)	(0.018)	(0.021)	(0.019)
Single-Parent Family	-0.005	0.017**	-0.006	0.016*	-0.005	0.016**	-0.006	0.013*
	(0.009)	(0.008)	(0.008)	(0.009)	(0.009)	(0.008)	(0.008)	(0.008)
Ontario Single-Parent Family	-0.019	-0.015	-0.025	-0.015	-0.028*	-0.011	-0.035***	-0.007
	(0.017)	(0.015)	(0.016)	(0.014)	(0.015)	(0.017)	(0.013)	(0.016)
Immigrants								
First Generation	-0.021**	-0.024***	-0.020**	-0.026***	-0.019**	-0.019***	-0.017**	-0.021***
	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)
Second Generation	0.006	-0.012**	0.003	-0.011**	0.005	-0.010*	0.001	-0.009
	(0.008)	(0.005)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)
Ontario First Generation	0.055*	0.045	0.046	0.048	0.067**	0.004	0.060*	0.004
	(0.033)	(0.041)	(0.030)	(0.039)	(0.034)	(0.026)	(0.031)	(0.024)
Ontario Second Generation	-0.022**	0.019	-0.019*	0.015	-0.018	0.015	-0.015	0.011
	(0.011)	(0.020)	(0.011)	(0.019)	(0.012)	(0.018)	(0.012)	(0.017)
Linguistic Minority								
French in ROC	0.025**	-0.017***	0.027**	-0.018***	0.029***	-0.017***	0.034***	-0.019***
	(0.011)	(0.005)	(0.011)	(0.005)	(0.011)	(0.005)	(0.011)	(0.005)
English in Quebec	-0.050***	0.074	-0.049***	0.057	-0.049***	0.079	-0.048***	0.067
	(0.019)	(0.055)	(0.018)	(0.049)	(0.019)	(0.056)	(0.018)	(0.051)
Ontario French in ROC	-0.005	0.018	-0.022	0.020	-0.004	0.013	-0.021	0.017
	(0.024)	(0.031)	(0.016)	(0.031)	(0.023)	(0.025)	(0.016)	(0.026)

cont…

	Baseline		High School		PSE		Both	
Table 9b: Additional Variables Persistence Model – University (cont.)								
	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver	Switcher	Leaver
Year Since Program Start (Year 1)								
Year 2	-0.021**	-0.018***	-0.017**	-0.020***	-0.017**	-0.011**	-0.014*	-0.014***
	(0.008)	(0.005)	(0.008)	(0.005)	(0.008)	(0.006)	(0.008)	(0.005)
Year 3	-0.065***	-0.036***	-0.068***	-0.032***	-0.060***	-0.033***	-0.064***	-0.031***
	(0.008)	(0.006)	(0.008)	(0.007)	(0.008)	(0.006)	(0.008)	(0.006)
Year 4	-0.068***	-0.024***	-0.069***	-0.019**	-0.064***	-0.023***	-0.066***	-0.019**
	(0.008)	(0.008)	(0.009)	(0.009)	(0.008)	(0.008)	(0.008)	(0.008)
Year 5	-0.107***	-0.031***	-0.105***	-0.025**	-0.104***	-0.030***	-0.103***	-0.024**
	(0.006)	(0.010)	(0.008)	(0.011)	(0.008)	(0.009)	(0.009)	(0.010)
PSE Region (ROC)								
Ontario	-0.035***	-0.051***	-0.042***	-0.052***	-0.036***	-0.045***	-0.042***	-0.047***
	(0.013)	(0.009)	(0.012)	(0.009)	(0.012)	(0.009)	(0.012)	(0.009)
High School Variables								
Overall High School Grade /10			-0.005	-0.024***			-0.002	-0.018***
			(0.003)	(0.003)			(0.004)	(0.003)
PISA Reading Score /100			-0.000	-0.004			0.004	-0.001
			(0.004)	(0.003)			(0.004)	(0.003)
PSE Variables								
Overall First Year Grades /10					-0.015***	-0.025***	-0.013***	-0.023***
					(0.000)	(0.000)	(0.000)	(0.000)
Number of observations	15,673		14,954		15,358		14,651	

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

This table reports the average marginal effects calculated from a multinomial logit model where the base outcome is continuing in the initial program of PSE in any particular year.

These models consider only transitions from the students' first program for each year up to five years beyond the initial starting date. Students who continue beyond the first year are included for each year until they make their first transition. Observations are clustered by individual.

The baseline column is the last column from Table 8b and includes all the Ontario interactions.

High school and PSE grades are a percentage score divided by 10. The marginal effects shown here represent a 10 percentage point change (from 70 per cent to 80 per cent, for example) in grades.

The PISA score is divided by 100, which means the marginal effects shown above represent a 1 standard deviation (across all participating countries) change in the reading score.

In addition, Aboriginal students have significantly higher rates of leaving university without earning a credential. First generation PSE and single-parent students also have marginally higher drop-out rates, while first generation immigrants and francophones have significantly lower drop-out rates. In the latter two cases, groups sometimes thought to need extra assistance appear, in fact, to be doing better than others. The value of having a solid empirical foundation for policy analysis is clearly demonstrated in these findings.

Conclusion

This report has used the YITS-A dataset to investigate the overall levels and patterns of persistence of PSE college and university students, with comparisons made to their counterparts in the rest of Canada. The results are too numerous to summarize easily, so instead we conclude with a short discussion of what we regard as the most important general findings of the report from a policy perspective.

The first general finding is that overall persistence rates are much higher than is indicated when institution-specific data are the basis of analysis, precisely because the YITS data used here allow us to track students as they move from one institution to another, rather than losing them when they move. Thus, overall drop-out rates are shown to be lower, graduation rates are higher and we are able to

identify switching rates. In this way, the work reported here continues in the line of discovery that has been possible with the YITS datasets, as indicated in previous reports by Finnie and Qiu.

Secondly, at least at the national level (including Ontario), certain identifiable groups do, in fact, appear to have significantly higher leaving rates than others when considered on their own. Based on our regression analysis (which also takes switching into account), the high leaver groups at the college level include students with disabilities, those from low-income families and those from single-parent families. At the university level, the groups with higher leaving rates include first generation PSE students, Aboriginal students (the greatest differences of all), those with disabilities, students from rural backgrounds and those from low-income or single-parent families.

Most of these patterns also show up in the simple descriptive analysis and appear to characterize the situation for Ontario on its own to a greater or lesser degree. The one exception is that in Ontario, rural students seem to perform at about the same level as others at the university level, whereas at the national level, they do worse.

Certain other groups that policy-makers have expressed concerns about, however, actually have leaving rates that are similar to, or even lower than, those of others. These groups include first and second generation immigrants and francophones outside Quebec.

However, while such differences in leaving rates can be identified in the various sets of simple two-way comparisons that treat these categories one at a time, the second most important general finding is that very few of these groups have leaving rates that are identifiably different from those of other students once other factors are taken into account. (These other factors include membership in other groups and, most importantly, high school and PSE grades.) While leaving rates are not the entire persistence story and are not perfectly (negatively) related to graduation rates (due to switchers and leavers who subsequently return to school), these results are important to achieve a better understanding of PSE persistence and should help inform policy discussions targeted at increasing student retention.

The findings suggest, in particular, that targeting identifiable groups for interventions aimed at increasing PSE retention may not be as effective as other potential strategies for identifying those students who are at greatest risk of dropping out and not completing their studies. In particular, favouring one or two particular types of students (e.g., first generation PSE students) would appear to amount to a relatively blunt policy tool, since such a strategy will, in most cases, be targeted at students with persistence rates that are only marginally different from others (if at all) and miss others who are at risk. A better strategy would likely be to look at other factors at the same time, including membership in other groups or, more simply and probably more effectively, to target interventions at students according to their academic records, going back to high school and within PSE, and surveying students regarding their attitudes to their studies and how they feel about being in school and taking other such direct measures of how they are doing.[23]

Such a strategy may not only be more effective in identifying students at risk of not completing their PSE studies, but may also be more attractive from a meritocratic perspective by treating students as individuals rather than as members of groups. Using such an approach, students would not be treated differently with respect to their family backgrounds, but would instead have assistance provided depending on their past and current academic records and related profiles. This type of assistance would be group-neutral in structure, even if the members of some groups ultimately benefited more than others due to their schooling records.

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[23] Finnie, Childs and Wismer (2010b, c) show how such questions can help identify students at risk of leaving PSE, in contrast to, for example, using the "first generation PSE" marker that has come to be used among policy-makers. (Youth with no history of PSE in their family are, in contrast, definitely at risk of not making it into PSE, though access and persistence are two very different processes, and they are related to different factors.)

We hope this report provides some empirical understanding of the underlying issues and in this way contributes to the relevant policy discussions. We believe further research is of critical importance to advancing this foundation further, including additional work that focuses on how persistence patterns vary according to students' academic records (grades and so on), as well as investigating attitudes they may express with respect to their PSE programs and school in general. Other research studies carried out by the authors suggest that these factors could also be effective for identifying students at risk of dropping out.

The use of the institutional data held by colleges and universities could be particularly helpful in this regard, especially as the most effective interventions could be targeted based on such information. The effects of any such intervention would also best be evaluated at the same level. Persistence essentially "happens" at given institutions, and so it makes sense that institutions should be the focus of further research, policy experiments and assessments of what works.

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Appendix Table 1
Sample Characteristics – YITS-B

Appendix Table 1: Sample Characteristics – YITS-B				
	Ontario		**Rest of Canada**	
	College	**University**	**College**	**University**
	(%)	**(%)**	**(%)**	**(%)**
All Observations	1,848	1,671	4,910	3,168
Gender				
Male	48.1	44.9	47.4	43.1
Female	51.9	55.1	52.6	56.9
Immigrant Status				
Immigrant	11.7	15.6	5.7	10.3
Non-Immigrant	87.8	84.1	94.0	89.6
Don't Know	0.5	0.2	0.3	0.1
Visible Minority Status				
Visible Minority	14.6	22.6	8.8	16.8
Others	84.6	77.2	90.7	82.9
Don't Know	0.8	0.2	0.5	0.3
Age at Enrolment				
17 and Younger	1.0	0.4	36.8	3.4
18	19.5	9.1	33.6	61.0
19	45.9	74.4	13.9	24.6
20	20.1	12.4	7.0	5.5
21 and Older	13.5	3.7	8.7	5.5
PSE Region				
Atlantic			8.8	26.4
Quebec			64.2	4.6
Prairies			15.1	41.0
BC			11.9	28.0
Family Type				
Two-Parent Family	81.2	86.8	79.5	86.1
Single-Parent Family	16.9	11.8	18.8	11.8
Others	1.4	1.0	1.5	1.9
Don't Know	0.6	0.5	0.3	0.2
Parental Education				
Below HS	9.7	4.0	9.4	4.4
HS Completed	26.8	15.5	24.6	19.5
Coll. Completed	37.3	26.7	30.2	24.4
Univ. Completed	21.7	49.8	31.7	48.7
Don't Know	4.5	4.0	4.1	3.1
Average Grade in HS				
Below 60%	1.7	---	1.2	0.4
60%-69%	17.7	2.4	13.0	6.3
70%-79%	54.9	30.7	42.1	29.7
80% or Above	24.5	66.2	42.3	62.9
Don't Know	1.1	---	1.3	0.7

cont…

	Ontario		Rest of Canada	
Appendix Table 1: Sample Characteristics – YITS-B (cont.)				
	College	University	College	University
	(%)	(%)	(%)	(%)
Average Grade in PSE				
Below 60%	6.8	4.4	4.5	6.1
60%-69%	16.9	21.8	12.0	22.8
70%-79%	38.4	49.4	38.6	43.8
80% or Above	34.3	22.0	37.6	24.2
Don't Know	3.6	2.4	7.3	3.1
Scholarship				
Yes	13.0	48.4	18.2	52.5
No	85.5	51.0	81.0	47.1
Don't Know	1.5	0.6	0.8	0.4
Grant				
Yes	14.6	21.8	8.6	23.9
No	83.9	77.6	90.5	75.6
Don't Know	1.5	0.6	0.9	0.5
Student Loan				
Yes	31.3	29.3	31.6	28.8
No	67.0	70.1	67.5	70.6
Don't Know	1.7	0.6	0.9	0.6
Instructors Have Strong Teaching Ability				
None	13.1	13.4	8.4	14.0
Sometime	19.1	28.0	17.5	27.2
Most of the Time	58.0	55.9	65.4	52.9
Don't Know	9.8	2.7	8.8	6.0
Student Has Trouble Keeping Up With the Workload				
Never	51.1	38.6	50.9	31.8
Sometime	28.6	43.9	28.6	44.5
Most of the Time	10.6	14.9	12.4	18.5
Don't Know	9.6	2.6	8.1	5.3
There Are People at School to Talk to				
Disagree	21.6	16.2	16.5	21.9
Agree	75.9	83.0	80.1	76.3
Don't Know	2.5	0.8	3.4	1.8
The First Year Helped Student Obtain Skills				
Disagree	17.7	37.7	27.7	43.2
Agree	80.0	61.1	68.5	55.0
Don't Know	2.3	1.3	3.7	1.7

Note:

1. --- indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act.

Appendix Table 2a
Transition Rates by Year – College – YITS-B

Appendix Table 2a: Transition Rates by Year – College – YITS-B									

Ontario

	Obs.	Continuers	Graduates	Switchers					Don't Know	Leavers
				Total	Same Inst.		Diff. Inst.			
					Same Level	Diff. Level	Same Level	Diff. Level		
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Hazard Rates										
Year 1	1,848	61.6	11.5	10.1	5.7	0.4	2.1	0.8	1.1	16.8
Year 2	971	51.8	34.2	4.5	3.4	---	---	0.3	0.4	9.5
Year 3	399	34.6	51.0	3.1	0.5	---	---	---	---	11.2
Year 4	113	33.0	59.6	---	---	---	---	---	---	---
Year 5	24	26.8	64.7	---	---	---	---	---	---	---
Cumulative Rates										
Year 1	1,848	61.6	11.5	10.1	5.7	0.4	2.1	0.8	1.1	16.8
Year 2	1,848	31.9	32.5	12.9	7.8	0.4	2.3	1.0	1.4	22.7
Year 3	1,848	11.1	48.8	13.9	8.0	0.4	2.9	1.1	1.5	26.3
Year 4	1,848	3.6	55.4	14.1	8.0	0.6	2.9	1.1	1.5	26.8
Year 5	1,848	1.0	57.8	14.3	8.2	0.6	2.9	1.1	1.5	26.9

Rest of Canada

	Obs.	Continuers	Graduates	Switchers					Don't Know	Leavers
				Total	Same Inst.		Diff. Inst.			
					Same level	Diff. Level	Same level	Diff. Level		
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Hazard Rates										
Year 1	4,910	62.9	11.8	14.6	6.0	0.3	4.4	1.1	2.8	10.6
Year 2	2,636	46.4	37.9	9.0	3.7	0.4	1.8	0.9	2.2	6.7
Year 3	977	30.8	54.3	9.2	2.1	---	4.2	---	1.4	5.6
Year 4	258	39.8	45.8	5.7	2.6	---	---	---	---	8.7
Year 5	75	29.7	47.9	18.2	---	---	---	---	---	4.2
Cumulative Rates										
Year 1	4,910	62.9	11.8	14.6	6.0	0.3	4.4	1.1	2.8	10.6
Year 2	4,910	29.2	35.7	20.3	8.3	0.6	5.6	1.7	4.2	14.8
Year 3	4,910	9.0	51.6	23.0	8.9	0.6	6.8	2.1	4.6	16.5
Year 4	4,910	3.6	55.7	23.5	9.1	0.6	7.0	2.1	4.6	17.3
Year 5	4,910	1.1	57.4	24.1	9.2	0.7	7.0	2.1	5.2	17.4

Note:
1. --- indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act.

Appendix Table 2b
Transition Rates by Year – University – YITS-B

Appendix Table 2b: Transition Rates by Year – University – YITS-B									
Ontario									
				Switchers					
					Same Inst.		**Diff. Inst.**		
	Obs.	**Continuers**	**Graduates**	**Total**	**Same Level**	**Diff. Level**	**Same Level**	**Diff. Level**	**Don't Know**	**Leavers**
		(%)	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**
Hazard Rates										
Year 1	1,671	83.8	0.4	9.6	2.7	1.1	3.6	1.9	0.3	6.2
Year 2	1,270	89.2	1.7	6.5	2.8	0.7	1.2	1.3	0.5	2.6
Year 3	996	85.9	8.4	4.4	3.2	---	---	0.5	---	1.4
Year 4	727	41.1	56.5	1.2	0.8	---	---	---	---	1.2
Year 5	232	27.7	68.5	---	---	---	---	---	---	---
Cumulative Rates										
Year 1	1,671	83.8	0.4	9.6	2.7	1.1	3.6	1.9	0.3	6.2
Year 2	1,671	74.8	1.8	15.0	5.0	1.7	4.6	3.0	0.7	8.4
Year 3	1,671	64.2	8.0	18.3	7.4	1.9	4.8	3.3	0.9	9.4
Year 4	1,671	26.4	44.3	19.1	7.9	2.0	4.8	3.5	0.9	10.2
Year 5	1,671	7.3	62.4	19.2	8.0	2.0	4.8	3.5	0.9	11.2

				Rest of Canada						
				Switchers					
					Same Inst.		**Diff. Inst.**		
	Obs.	**Continuers**	**Graduates**	**Total**	**Same level**	**Diff. Level**	**Same level**	**Diff. Level**	**Don't Know**	**Leavers**
		(%)	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**
Hazard Rates										
Year 1	3,168	78.1	1.7	10.6	3.2	0.6	3.3	2.0	1.4	9.5
Year 2	2,166	83.2	2.3	9.3	4.1	0.2	2.5	1.2	1.2	5.2
Year 3	1,566	80.7	7.0	6.9	3.8	---	0.9	---	1.6	5.4
Year 4	1,159	56.0	38.8	3.3	2.3	---	0.2	---	0.5	1.9
Year 5	500	35.2	57.7	5.7	3.3	---	---	---	---	1.4
Cumulative Rates										
Year 1	3,168	78.1	1.7	10.6	3.2	0.6	3.3	2.0	1.4	9.5
Year 2	3,168	65.0	3.5	17.9	6.5	0.8	5.2	3.0	2.4	13.6
Year 3	3,168	52.4	8.1	22.4	9.0	0.8	5.8	3.3	3.5	17.1
Year 4	3,168	29.4	28.4	24.1	10.2	0.9	5.9	3.4	3.7	18.1
Year 5	3,168	10.3	45.4	25.8	11.2	1.2	6.2	3.4	3.8	18.5

Note:

1. --- indicates that results are suppressed to meet the confidentiality requirements of the Statistics Act.

Appendix Table3
Main Reason for Leaving – All Years Results – YITS-B

Appendix Table 3: Main Reason for Leaving – All Years Results – YITS-B				
	Ontario		**Rest of Canada**	
	College	**University**	**College**	**University**
	(%)	**(%)**	**(%)**	**(%)**
All Observations	513	371	1,458	1,026
Not enough money	8.6	7.5	5.0	8.9
Wanted to work	7.4	4.3	5.6	4.7
Marks too low	7.8	6.2	5.7	4.3
Didn't like it/Not for me	42.7	27.5	39.7	29.7
To change schools or programs	12.1	32.9	19.8	28.2
Health, personal or other reason	21.4	21.6	24.3	24.3

Note:

1. --- indicates results are suppressed to meet the confidentiality requirements of the Statistics Act.

Appendix Table4a
Hazard and Cumulative Rates of Return to PSE Among Leavers – College – YITS-B

Appendix Table 4a: Hazard and Cumulative Rates of Return to PSE Among Leavers – College – YITS-B								

Ontario

Obs.			Total	Same Inst.		Diff. Inst.		Don't Know
				Same Level	Diff. Level	Same Level	Diff. Level	
			(%)	(%)	(%)	(%)	(%)	(%)
Hazard Rates								
Year 1	384	Percentage	23.5	8.3	1.3	6.2	3.0	4.8
		Distribution	100.0	35.3	5.4	26.4	12.6	20.3
Year 2	237	Percentage	14.7	1.7	---	5.3	---	6.6
		Distribution	100.0	11.2	---	36.0	---	44.6
Year 3	166	Percentage	9.8	5.6	---	2.6	---	---
		Distribution	100.0	57.0	---	26.7	---	---
Cumulative Rates								
Year 1	384	Percentage	23.5	8.3	1.3	6.2	3.0	4.8
		Distribution	100.0	35.3	5.4	26.4	12.6	20.3
Year 2	384	Percentage	34.8	9.6	1.3	10.3	3.9	9.8
		Distribution	100.0	27.5	3.6	29.5	11.2	28.2
Year 3	384	Percentage	41.1	13.2	1.3	11.9	3.9	10.8
		Distribution	100.0	32.1	3.1	29.1	9.4	26.4

Rest of Canada

Obs.			Total	Same Inst.		Diff. Inst.		Don't Know
				Same Level	Diff. Level	Same Level	Diff. Level	
			(%)	(%)	(%)	(%)	(%)	(%)
Hazard Rates								
Year 1	784	Percentage	21.5	3.9	1.0	6.8	4.2	5.6
		Distribution	100.0	18.0	4.7	31.7	19.8	25.9
Year 2	479	Percentage	13.7	4.8	---	---	3.2	2.2
		Distribution	100.0	34.8	---	---	23.7	15.8
Year 3	343	Percentage	11.2	---	---	2.3	---	5.0
		Distribution	100.0	---	---	20.3	---	44.4
Cumulative Rates								
Year 1	0	Percentage	21.5	3.9	1.0	6.8	4.2	5.6
		Distribution	100.0	18.0	4.7	31.7	19.8	25.9
Year 2	784	Percentage	32.2	7.6	1.1	9.4	6.8	7.3
		Distribution	100.0	23.6	3.6	29.3	21.1	22.5
Year 3	784	Percentage	39.8	8.0	1.4	11.0	8.8	10.6
		Distribution	100.0	20.0	3.6	27.6	22.2	26.7

Note:

1. Cumulative transition rates shown in the second panel are calculated from the annual (hazard) transition rates shown in the first panel.

2. --- indicates results are suppressed to meet the confidentiality requirements of the *Statistics Act*.

3. Results for year 4 and year 5 are omitted due to small sample sizes.

Appendix Table 4b
Hazard and Cumulative Rates of Return to PSE Among Leavers – University – YITS-B

Appendix Table 4b: Hazard and Cumulative Rates of Return to PSE Among Leavers – University – YITS-B							

Ontario

Obs.			Total	Same Inst.		Diff. Inst.		Don't Know
				Same Level	Diff. Level	Same Level	Diff. Level	
			(%)	(%)	(%)	(%)	(%)	(%)
Hazard Rates								
Year 1	91	Percentage	42.2	14.2	---	6.8	8.5	---
		Distribution	100.0	33.6	---	16.2	20.1	---
Year 2	36	Percentage	25.2	---	---	10.3	11.4	---
		Distribution	100.0	---	---	40.7	45.1	---
Year 3	18	Percentage	16.9	---	---	---	---	---
		Distribution	100.0	---	---	---	---	---
Cumulative Rates								
Year 1	91	Percentage	42.2	14.2	---	6.8	8.5	---
		Distribution	100.0	33.6	---	16.2	20.1	---
Year 2	91	Percentage	56.7	14.7	---	12.7	15.1	---
		Distribution	100.0	25.9	---	22.5	26.6	---
Year 3	91	Percentage	64.0	16.0	---	13.0	20.4	---
		Distribution	100.0	25.0	---	20.3	31.9	---

Rest of Canada

Obs.			Total	Same Inst.		Diff. Inst.		Don't Know
				Same Level	Diff. Level	Same Level	Diff. Level	
			(%)	(%)	(%)	(%)	(%)	(%)
Hazard Rates								
Year 1	784	Percentage	21.5	3.9	1.0	6.8	4.2	5.6
		Distribution	100.0	18.0	4.7	31.7	19.8	25.9
Year 2	479	Percentage	13.7	4.8	---	---	3.2	2.2
		Distribution	100.0	34.8	---	---	23.7	15.8
Year 3	343	Percentage	11.2	---	---	2.3	---	5.0
		Distribution	100.0	---	---	20.3	---	44.4
Cumulative Rates								
Year 1	91	Percentage	21.5	3.9	1.0	6.8	4.2	5.6
		Distribution	100.0	18.0	4.7	31.7	19.8	25.9
Year 2	784	Percentage	32.2	7.6	1.1	9.4	6.8	7.3
		Distribution	100.0	23.6	3.6	29.3	21.1	22.5
Year 3	784	Percentage	39.8	8.0	1.4	11.0	8.8	10.6
		Distribution	100.0	20.0	3.6	27.6	22.2	26.7

Note:

1. Cumulative transition rates shown in the second panel are calculated from the annual (hazard) transition rates shown in the first panel.

2. --- indicates results are suppressed to meet the confidentiality requirements of the *Statistics Act*.

3. Results for year 4 and year 5 are omitted due to small sample sizes.

Appendix Table 5
Cumulative Total Graduation Rates – YITS-B

Appendix Table 5: Cumulative Total Graduation Rates – YITS-B								

Ontario

Obs.			Total	Same Prog.	Same Inst.		Diff. Inst.		Don't Know
					Same Level	Diff. Level	Same Level	Diff. Level	
			(%)	(%)	(%)	(%)	(%)	(%)	(%)
College									
Year 1	1,848	Percentage	11.5	11.5	---	---	---	---	---
		Distribution	100.0	99.6	---	---	---	---	---
Year 2	1,848	Percentage	34.8	32.2	1.0	---	0.3	---	0.9
		Distribution	100.0	92.7	2.9	---	1.0	---	2.5
Year3	1,848	Percentage	54.5	49.0	2.1	---	0.8	---	2.2
		Distribution	100.0	89.8	3.8	---	1.4	---	4.0
Year 4	1,848	Percentage	64.7	55.4	3.6	0.4	2.0	0.4	2.9
		Distribution	100.0	85.7	5.6	0.6	3.1	0.6	4.4
Year 5	1,848	Percentage	70.6	58.1	4.9	0.4	2.7	1.3	3.2
		Distribution	100.0	82.2	7.0	0.6	3.9	1.8	4.5
University									
Year 1	1,671	Percentage	0.4	0.4	---	---	---	---	---
		Distribution	100.0	100.0	---	---	---	---	---
Year 2	1,671	Percentage	2.2	1.8	---	---	---	---	---
		Distribution	100.0	80.9	---	---	---	---	---
Year3	1,671	Percentage	10.6	8.1	0.2	---	---	1.0	---
		Distribution	100.0	75.8	1.8	---	---	9.1	---
Year 4	1,671	Percentage	51.6	43.2	2.5	---	1.1	2.5	---
		Distribution	100.0	83.7	4.8	---	2.2	4.9	---
Year 5	1,671	Percentage	77.1	60.5	4.2	1.8	3.9	5.2	1.4
		Distribution	100.0	78.5	5.4	2.4	5.1	6.7	1.9

Rest of Canada

Obs.			Total	Same Prog.	Same Inst.		Diff. Inst.		Don't Know
					Same Level	Diff. Level	Same Level	Diff. Level	
			(%)	(%)	(%)	(%)	(%)	(%)	(%)
College									
Year 1	4,910	Percentage	12.2	11.8	---	---	---	---	0.3
		Distribution	100.0	97.1	---	---	---	---	2.5
Year 2	4,910	Percentage	37.9	35.4	1.0	---	0.3	---	1.0
		Distribution	100.0	93.4	2.6	---	0.8	---	2.7
Year3	4,910	Percentage	58.1	50.7	2.8	---	2.2	---	2.2
		Distribution	100.0	87.2	4.8	---	3.8	---	3.8
Year 4	4,910	Percentage	66.9	54.3	4.1	0.2	4.2	0.4	3.7
		Distribution	100.0	81.2	6.1	0.3	6.3	0.6	5.5
Year 5	4,910	Percentage	74.2	55.9	5.0	0.3	6.3	1.9	4.9
		Distribution	100.0	75.3	6.7	0.4	8.5	2.5	6.5
University									
Year 1	3,168	Percentage	1.9	1.7	---	---	---	---	---
		Distribution	100.0	92.9	---	---	---	---	---
Year 2	3,168	Percentage	5.0	3.5	---	---	---	0.6	0.7
		Distribution	100.0	69.3	---	---	---	12.1	13.6
Year3	3,168	Percentage	11.7	8.0	0.3	---	---	1.5	1.5
		Distribution	100.00	68.42	2.47	---	---	13.19	12.47
Year 4	3,168	Percentage	38.4	27.9	2.2	---	---	3.7	2.5
		Distribution	100.0	72.5	5.6	---	---	9.7	6.6
Year 5	3,168	Percentage	62.0	44.0	5.6	0.3	4.3	4.7	3.1
		Distribution	100.0	70.9	9.0	0.5	7.0	7.6	5.0

Note:
1. --- indicates results are suppressed to meet the confidentiality requirements of the Statistics Act.

Appendix Table 6
Overall Persistence Rates – YITS-B

Appendix Table 6: Overall Persistence Rates – YITS-B										

Ontario										
					Still In PSE					**Not In PSE**
	Obs.		**Graduate**	**Total**	**Same Prog.**	**Same Inst.**		**Diff. Inst.**		**Don't Know**	
						Same Level	**Diff. Level**	**Same Level**	**Diff. Level**		
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
College											
Year 1	1,848	Percentage	11.5	71.0	61.6	5.3	0.2	1.9	0.9	1.0	17.5
		Distribution	100.0	100.0	86.7	7.5	0.3	2.7	1.3	1.4	100.0
Year 2	1,848	Percentage	34.8	43.9	31.2	6.1	0.3	3.3	1.3	1.6	21.4
		Distribution	100.0	100.0	71.1	13.9	0.8	7.6	2.9	3.8	100.0
Year3	1,848	Percentage	54.5	23.5	11.2	4.7	0.2	4.3	1.8	1.4	22.0
		Distribution	100.0	100.0	47.7	19.9	0.7	18.2	7.6	5.9	100.0
Year 4	1,848	Percentage	64.7	12.1	3.5	2.4	0.1	3.3	1.3	1.5	23.1
		Distribution	100.0	100.0	28.9	20.0	1.1	26.9	11.0	12.1	100.0
Year 5	1,848	Percentage	70.6	6.3	1.1	1.8	0.1	1.6	1.0	0.7	23.1
		Distribution	100.0	100.0	17.3	28.8	1.3	25.1	15.6	11.9	100.0
University											
Year 1	1,671	Percentage	0.4	93.4	83.8	2.5	1.1	3.8	1.9	0.3	6.2
		Distribution	100.0	100.0	89.7	2.6	1.2	4.1	2.1	0.3	100.0
Year 2	1,671	Percentage	2.2	90.4	73.9	5.4	1.6	4.8	3.8	1.0	7.5
		Distribution	100.0	100.0	81.7	5.9	1.8	5.3	4.2	1.1	100.0
Year3	1,671	Percentage	10.6	83.0	62.3	7.7	1.5	5.8	5.1	0.6	6.4
		Distribution	100.0	100.0	75.1	9.2	1.8	7.0	6.1	0.7	100.0
Year 4	1,671	Percentage	51.6	41.9	25.0	6.1	1.4	5.0	4.0	0.5	6.5
		Distribution	100.0	100.0	59.6	14.5	3.3	12.0	9.5	1.1	100.0
Year 5	1,671	Percentage	77.1	16.8	6.3	4.2	0.6	2.5	2.6	0.6	6.1
		Distribution	100.0	100.0	37.7	25.3	3.4	14.6	15.4	3.6	100.0

Appendix Table 6: Overall Persistence Rates – YITS-B (cont.)

Rest of Canada

Obs.		Graduate	Still In PSE			Same Inst.		Diff. Inst.		Don't Know	Not In PSE
			Total	Same Prog.		Same Level	Diff. Level	Same Level	Diff. Level		
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
College											
Year 1 4,910	Percentage	12.2	77.1	62.9		5.8	0.3	4.4	1.1	2.5	10.7
	Distribution	100.0	100.0	81.6		7.5	0.4	5.8	1.4	3.3	100.0
Year 2 4,910	Percentage	37.9	46.7	28.5		6.4	0.5	5.7	1.8	3.7	15.4
	Distribution	100.0	100.0	61.1		13.8	1.1	12.2	3.8	7.9	100.0
Year3 4,910	Percentage	58.1	25.9	8.4		5.3	0.4	5.5	3.2	3.1	16.0
	Distribution	100.0	100.0	32.6		20.6	1.4	21.1	12.4	11.8	100.0
Year 4 4,910	Percentage	66.9	16.0	3.1		2.3	0.3	3.9	4.2	2.1	17.1
	Distribution	100.0	100.0	19.5		14.7	1.7	24.6	26.5	13.1	100.0
Year 5 4,910	Percentage	74.2	9.9	1.0		1.6	0.1	2.5	3.3	1.4	15.9
	Distribution	100.0	100.0	9.9		15.7	0.8	25.3	33.7	14.5	100.0
University											
Year 1 3,168	Percentage	1.9	88.7	78.0		3.2	0.6	3.3	2.1	1.5	9.4
	Distribution	100.0	100.0	88.0		3.6	0.6	3.8	2.3	1.7	100.0
Year 2 3,168	Percentage	5.0	83.2	64.8		6.5	0.6	5.5	3.6	2.2	11.7
	Distribution	100.0	100.0	77.9		7.8	0.7	6.6	4.3	2.7	100.0
Year3 3,168	Percentage	11.7	74.8	51.9		9.1	0.6	6.8	3.7	2.7	13.4
	Distribution	100.00	100.00	69.40		12.14	0.79	9.03	5.00	3.64	100.00
Year 4 3,168	Percentage	38.4	48.4	28.5		8.3	0.8	6.6	2.6	1.6	13.2
	Distribution	100.0	100.0	58.8		17.2	1.6	13.6	5.4	3.4	100.0
Year 5 3,168	Percentage	62.0	23.8	9.5		5.6	0.5	4.5	2.2	1.5	14.1
	Distribution	100.0	100.0	40.0		23.5	2.0	18.8	9.4	6.4	100.0

Note:

1. At the end of each year, students are categorized in a sequential manner into three groups: Graduate from a PSE program, Still in PSE, and Not in PSE. Students who are still in PSE are further categorized into the six groups shown.

Appendix Table 7
Group Distributions (%) by Region

Appendix Table 7: Group Distributions (%) by Region		
	Ontario	All Provinces Excluding Ontario
Family Income		
Income Below $50,000	26.4	37.3
Income Greater Than $50,000	73.6	62.7
Total	100	100
Parental Education		
No PSE	28.9	31
At Least Some PSE	71.1	69
Total	100	100
Rural/Urban		
Rural	16.2	27.2
Urban	83.8	72.8
Total	100	100
French Minority		
French Minority	4.2	1.9
Non-French Minority	95.8	98.1
Total	100	100
Family Type		
Single-Parent Family	17.2	17.2
Two-Parent Family	82.8	82.8
Total	100	100
Immigrant Status		
First Generation Immigrant	12	6.1
Second Generation Immigrant	26.1	14.4
Non-Immigrant	61.9	79.5
Total	100	100
Aboriginal Status		
Aboriginal	2.3	3.1
Non-Aboriginal	97.7	96.9
Total	100	100
Disability Status		
Disability	11.4	13.7
No Disability	88.6	86.3
Total	100	100