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Academic Persistence among Canadian First-Generation University Students

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Research Note 9

Academic Persistence among Canadian First-Generation University Students

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Introduction

For several years, research on inequalities in higher education has highlighted the influence of various social and cultural factors. Some of these factors pertain to the organization of education systems themselves, including the rules that control access and the conditions of study. Other factors relate to students and their educational paths, which are modulated at least in part by financial resources or other material constraints that affect the living conditions of students and their families. The cultural capital of students' families also influences decisions about higher education. This capital is, among other factors, composed of educational capital, which can be measured through the concept of first-generation student (FGS). This concept originated in the U.S., where it is used as both an administrative category in programs that help to increase student success rates in post-secondary education and as an indication of the educational capital of a family in scientific research terminology. According to the current research, two principal phenomena characterize these first-generation students: they have a lower tendency to go on to post-secondary studies, in particular at the university level, and when they do, their experience appears to be characterised by difficulty.

This research paper addresses the educational pathways taken by FGSs who pursue university studies in Canada. Specifically, the objective is to examine in which way and to what extent this concept, used mostly in the U.S., can be useful to evaluate both the access and the academic persistence of Canadian students. At the same time, it aims to evaluate whether being an FGS constitutes a handicap or not. The following questions guide our research:

1) Is being an FGS a real factor in access?
2) Is the socio-demographic composition of FGSs different than that of non-FGSs?
3) Does FGS status have an effect on persistence? – persistence being evaluated here through two indicators: obtaining a bachelor's degree and continuing on to graduate studies.

This study uses pan-Canadian data from Statistics Canada's Youth in Transition Survey (*YITS*, cohort B), as well as from ICOPE, a regional survey carried out by the University of Quebec system.

This text is divided into three chapters. The first explores the key issues through a brief overview, starting with selected studies on the situation of FGSs in the U.S., and, to a lesser extent, in Canada. Next, we identify the principal elements on which our analytical model has been organized, in light of the available data. The second chapter is a description of our methodology. We describe the data base used, the definition and operationalization of the variables in our analytical model, and the statistical analyses. In the third chapter we present and interpret the results. As part of our conclusion, we summarize the essential points and suggest further research avenues. This paper was inspired in large part by Note 2 (Auclair et al., 2008), produced by the *Transitions* project.

1. Key Question and Theoretical Issues

Before addressing the principal results of FGS studies, we clarify the scope of the concept of FGS itself.

1.1 First-generation students (FGSs): a definition

In the U.S., first-generation students have been the subject of numerous studies which have allowed for precisions at the theoretical level. In general, these empirical studies have tried to understand the influence of the parents' education level on student access, persistence and educational experiences in higher education.

The definition of the FGS concept varies depending on the authors and the purposes for which it is employed. From an administrative standpoint, the FGS category is relatively wide. For the American federal TRIO programs (programs that finance interventions aiming at college access equality), an FGS is a student whose parents have not obtained a bachelor's degree. This definition includes those students whose parents have had some post-secondary experience, but without having completed a bachelor's degree. Very few researchers, however, use this definition in their analyses (Dennis, Phinney and Chateco, 2005; Pike and Kuh, 2005; Ishitani, 2003; Naumann, Bandalos and Gutkin, 2003; Penrose, 2002).

In most of these scientific articles, an FGS is a student whose parents have not attended a post-secondary institution, either at the college or university level. Overall, most researchers argue that simply having attended a college or a university is sufficient to ensure that an individual has acquired some knowledge of post-secondary education and the social and cultural capital to ease their children's transition towards this level of studies (Lohfink and Paulsen, 2005; Pascarella et al., 20004, 2003; Duggan, 2002).

The most commonly-used definition in studies such as these, therefore, is more restrictive than that of the TRIO programs, even though it does not completely cover the higher education experiences of a whole family. Indeed, it does not account for the possibility that a brother, a sister or another close family member could have pursued post-secondary studies[1] and thereby pass on important knowledge regarding such studies. Moreover, in contemporary non-traditional family situations, the concept of "parent" has different meanings. Determining exactly "who" the parents are can be difficult in the context of single parents, reconstituted families, and families where there is shared custody of the children. In general, the authors of most of the research works studied did not specify how they addressed these situations.

In this research note, an FGS is a student whose parents do not hold a post-secondary degree. Non-FGSs can then be logically divided into two categories: "college" non-FGSs are students with at least one parent that holds a college degree; "university" FGSs are students with at least one parent that holds a university degree[2].

1 A study by York-Anderson and Bowman (1991) is one of the rare cases where the post-secondary experiences of both parents and siblings were taken into account.

2 Throughout this text the term "college" refers mostly to what is known in Canada as a community college and in Quebec as a *collège*, including the public *cégep* (*collège d'enseignement général et professionnel*). Colleges do not grant university degrees such as the BA, BSc, MA, MSc, PhD, etc.

1.2 FGSs and their access to higher education in the U.S.

In general, the research on access to post-secondary education has been focused on the distribution of different social groups in post-secondary institutions. From this perspective, studies dealing with the access of FGSs to higher education have tended to show that several demographic and social factors distinguish these students from their fellow non-FGS students. FGSs suffer from multiple disadvantages: in their level of academic preparedness, in the amount of cultural and educational capital they acquired before beginning their studies, in the level of support they receive at home and at school, and in their difficulties in social and academic adaptation and integration. Considering that their parents are generally from a more disadvantaged socio-economic background than their peers, FGSs will also face more financial difficulties and are more likely to have more difficult living situations.

1.2.1 Differences associated with socio-demographic factors

Horn and Nuñez (2000) analyzed a sample of the total number of high school graduates in 1992 in the U.S., using data from the National Education Longitudinal Study. Their results indicate that a little more than a quarter of the sampled high school graduates in 1992 were FGSs. Half of these came from low-income families, while only 10% of the graduates who had at least one parent with a bachelor's degree were from such families. According to this study, FGSs were also more likely to be either Hispanic or African-American and to have been from single-parent households (Horn and Nuñez, 2000: 10). Other studies (notably, Warburton, et al., 2001; Inman and Meyes, 1999; Brown and Burkhardt, 1998; and Nuñez et al., 1998) have also shown that the average age at which FGSs begin their higher education programs is generally higher than for other students.

These differences in the demographic composition of FGSs and non-FGSs led us to question the respective influences of these different "factors" on their educational pathways. Are FGSs less present in universities because the educational capital of the families influences their children's choices, or does their age or ethnic origin influence their decision?

1.2.2 Social and cultural capital

Still according to Horn and Nuñez (2000), one of the biggest obstacles to participation in post-secondary studies faced by FGSs is the lack of any parental experience on the transition from secondary to post-secondary education. For these parents, who do not hold a post-secondary degree, it is impossible to transfer the social and cultural baggage associated with post-secondary education, as they never had a chance to acquire it. FGSs, therefore, do not suffer from an intrinsic and unavoidable deficiency, but rather from a lack of information and role models which results in a reduced access to post-secondary education. York-Anderson and Bowman, for example, report important differences on the amount of basic knowledge that FGSs have about post-secondary education, at the level of their personal engagement in their studies, and at the level of support that they receive from their families.

For some authors, such as Barahona (1990), the status of FGS has an indirect but important effect on participation in post-secondary education. As such, the educational capital of a family has an early influence on school pathways through educational and professional aspirations. These in turn influence educational choices at the end of high school.

Differences in the level of academic preparedness

After having controlled for variables such as educational success in high school, family income, family structure and related characteristics[3], Horn and Nuñez' results (2000) show that FGSs differ significantly from other students in terms of their previous academic preparedness. Indeed, FGSs

3 The other variables were: the level of family income, the family structure (being from a single-parent family or not), the type of secondary school (private or public), the place of residence (rural, suburban or urban), the assessed scholastic aptitudes and the level of preparation, the educational aspirations of both parents and children, the parents' engagement in college-preparatory activities, friends' plans in terms of further studies, the assistance provided by the secondary school to support college admission, and the students' extracurricular activities.

have less chance of having taken a mathematics course in secondary school that would prepare them for university admission. Even once the effect of taking the appropriate mathematics courses was controlled for, FGSs were less likely to undertake university studies. Overall, two years after completing their secondary schooling, their proportion at university was 42.3%, compared to 43.6% for students who had at least one parent with some university experience and 51.1% for students with at least one parent with a university degree (Horn and Nuñez, 2000).

Support at home and at school

Still according to Horn and Nuñez (2000), some factors associated with the support offered by parents and by schools seem to influence FGS access to post-secondary education. It appears that parental involvement in activities regarding preparation for college, such as discussing the standardized SAT/ACT exams[4] or collecting information on financial aid, plays a significant role in the access to post-secondary education. Some support programs provided by high schools can significantly increase the probability that an FGS will enroll in post-secondary studies.

Previous emotional and psychological experience

Several studies on the transition between secondary and post-secondary education have provided personal accounts of the experiences that affect students (Lara, 1992; Rendon, 1992, Rodriguez, 1982, 1975). For example, FGSs have to deal with various sources of anxiety and uprooting. Their experience sometimes includes a process of acculturation which adds to the social and academic difficulties of this transition (London, 1996, 1989; Weis, 1992, 1985). These qualitative studies reveal the emotional and psychological experiences of FGSs as they go through their college or university programs, rather than merely reporting on their access to higher education.

In sum, studies have indicated that, compared to their peers who have at least one parent who has attended a post-secondary institution, FGSs are less likely to continue on to higher education. Several other important factors can influence access to higher education, especially certain demographic characteristics (age, gender, ethnicity, income, and region (urban or rural)), the quality of academic preparation, family and institutional support, the level of mobilisation within the family, and, finally, the presence of a role model who can provide social and cultural capital along with the knowledge and the aspirations linked to the higher education environment.

1.3 FGSs and higher education in the U.S.

A large body of research about the pursuit of higher education among FGSs describes different aspects of their academic experiences in colleges and universities, chief among them persistence and academic success. Even though the results of several studies based on representative samples are convergent and often complementary (Pike and Kuh, 2005; Pascarella et al., 2004; Hahs-Vaughn, 2004; Duggan, 2002; Warburton et al., 2001), others are ambivalent (Pratt and Skaggs, 1989; Chen and Carroll, 2005).

Furthermore, several studies have emphasized the factors that could explain the possible differences in the levels of persistence and academic success between FGSs and non-FGSs. These studies have explored the effects of FGSs' school attendance patterns and levels of social and intellectual integration on their academic progress.

1.3.1 Academic persistence

A number of studies have evaluated the level of persistence and success of FGSs. Most have shown that coming from a family with a lower education level hinders a student's schooling (notably, Billson and Brooks-Terry, 1982; Nuñez, Curraco-Alamin and Carroll, 1998; Choy, 2001, Warburton et al, 2001, Ishitani, 2003, 2006; Lohfink and Paulsen, 2005). For example, Warburton et al. (2001) conclude that being an FGS has a negative effect on going on to

4 The tests required for admittance to most universities in the U.S.

post-secondary education. In addition, three years after starting a bachelor program, 72% of the students who had at least one parent with a university degree were still enrolled, compared to 64% for FGSs (Warburton et al., 2001: 41-43). However, not all studies support these findings. In a multivariate analysis with a nation-wide sampling of high school students in the U.S., Chen and Carroll (2005) did not observe a significant difference between the persistence levels of FG and other students, either among students enrolled in any post-secondary institution or among those at a four-year college (Chen and Carroll, 2005: 49). However, the authors did note that FGSs were less likely than non-FGSs to obtain an undergraduate degree (Chen and Carroll, 1995: 53), and added that FGSs were much more likely to have to take remedial courses.

1.3.2 Socio-demographic factors and attendance patterns

Just as for access to post-secondary studies, persistence can be affected by an individual's socio-demographic characteristics, as observed by Lohfink and Paulsen (2005). This would be influenced by social class, gender, and ethno-cultural appearance, among other factors. Pascarella et al. (2004) have also concluded that when first-generation students begin university studies, they are at a significant disadvantage in terms of their school experience and extra-curricular pursuits. They are less likely than other students to live on campus or to become involved in academic or extra-curricular activities, and less likely to join a student fraternity/sorority. Although FGSs' participation in these types of activities is less common, studies have shown that when they do participate they benefit from an improvement in their development of critical thinking, in their preference for intellectual pursuits and in their expectations for success, and their chances of finishing their degree are increased.

Differences in the way FG and regular students attend post-secondary institutions influence several indicators. In terms of the time dedicated to coursework, of the type of institution attended, of the number of weekly hours spent in class and at work, in the courses and programs selected, FGSs are very different from their peers.

Pascarella et al. (2003) have shown that FGSs dedicate significantly fewer hours to their studies than non-FGSs. In this same vein, Nuñez et al. (1998) as well as Warburton et al. (2001) concluded that FGSs were more likely to follow a college or university program part-time while working full-time, while their non-FGS peers were much more likely to be 'regular' full-time students.

Differences between FGSs and non-FGSs were also observable in the choice of field of study and in the choice of courses. FGSs are more likely to choose professional or technical programs for their majors, and differ in terms of the number of courses in mathematics, sciences and social sciences they take (Pascarella et al. 2003). In general, FGSs are more likely to choose programs such as business management (Touktoushian, 2001).

According to some authors (Berkner and Chavez, 1997; Horn and Nuñez, 2000), on the sole basis of the distinction FGS/non-FGS, most FGSs with a high school degree choose to go on to a long undergraduate program rather than a short one. However, by using a multiple regression model that incorporates other factors, Nuñez et al. (1998) concluded that FGSs in the U.S. were more likely to enroll in 2-year rather than 4-year programs.

1.3.3 Intellectual and social integration

Since Billson and Brooks-Terry published their 1982 article on the intellectual and social integration of first-generation students and their persistence in college, many researchers have investigated this aspect of the academic experience.

In a qualitative analysis of the cultural transformations that are involved in the transition to post-secondary education, London (1998, 1996) describes how going on to higher education is a time of separation from one's family. A good number of FGSs, not having grown up with the idea of going to college or university, experience a process of profound transformation when they begin. Adapting to and integrating into an academic culture can distance a student from his or her culture of origin. The student must then

renegotiate his or her relations with family members and the community.

Hahs-Vaughn (2004) set out to determine the most important factors that affect academic integration and the general student experience throughout four years of college or university. According to Hahs-Vaughn's analysis, the post-secondary experience[5] has more influence on the FGS' academic results than on those of non-FGSs. In a similar study of students at 4-year colleges, Pascarella (2004) concluded that even if the academic experience of FGSs differed from that of non-FGSs, this difference did not have an adverse affect on their academic outcomes. Terenzini et al. (1996) demonstrated that FGSs had special attributes, acquired through their previous academic experience and their ongoing experience, which differentiated them from their peers, mostly to their disadvantage. Even so, the difference between the performance of FG and non-FG students appears to diminish with time (Ishitani, 2006; Hahs-Vaughn, 2004; Duggan, 2002).

Pike and Kuh (2005) found that FGSs are less committed to and not as integrated into the institutional/community life as other students, that they view their institutions as less supportive, and that they felt they were making less progress in their intellectual and academic development. On the other hand, Pike and Kuh do point out that these lower levels of commitment are an indirect result of their status as FGSs and are linked mainly to their lower educational aspirations and the fact that they tend to live off campus.

1.4 FGSs in Canadian higher education

In Canada as in the U.S., the impact of the parents' education level on their children's access to post-secondary education, along with a portion of the variance linked to this variable, was partially established by Rahman, Situ and Jimmo (2005). These authors showed that this factor maintains its influence independently of other variables such as regional or rural origin, gender, family structure, and especially, family income. Based on the School Leavers Survey (SLS) and the Youth in Transition Survey (YITS), Finnie, Laporte and Lascelle (2004) have corroborated the positive relation between being a post-secondary student and parental education level, the two-parent family structure and the provincial origin (ex: Quebec). Finnie et al. also showed that the influence of the parents' education level is clearly independent from variables such as age, province of residence and type of family. This same independence from other variables was also shown by Shaienks and Gluszynski (2007). Finally, based on the data from the YITS, Finnie, Lascelles and Sweetman (2005) calculated that for parents, each additional year of schooling added 5% to the probability that their children would attend a post-secondary institution.

That said, the number of Canadian studies that have explicitly used the concept of FGS in reporting on academic experience is very low. Grayson's study (1997) is one exception. Grayson aimed to better understand the link between students' socio-demographic characteristics (level of education of the parents, gender, family income, and high school academic record), their college experience, and their cumulative grade-point averages (GPA). He states that at York University in Toronto, FGSs had lower GPAs than non-FGSs. His studies showed that FGSs were not as involved in extra-curricular activities, but that there was no difference in their academic commitment.

A second Canadian study on FGSs was undertaken by Lehmann (2007). Focussed on the experiences of FGSs at a university in the south-west of Ontario, this research sought to understand the connections between being an FGS, social class, and dropping out of college or university. The results indicate that FGSs have a greater chance of dropping out prematurely, and that this occurs even when they have had good academic results.

Kamanzi et al. (2009) also tried to understand the influence of parents' educational capital, by looking at the "first-generation student" variable in different analyses. Their results were obtained by evaluating a panel of youths who were 15 in 1999 (cohort A of the Youth in Transition Study),

5 Including non-academic and academic experience, and the "intensity of enrollment" (registration status).

and show that access to post-secondary education is indeed influenced by parents' educational capital. Proportionally, a higher number of these FGSs did not go on to post-secondary studies. They were less likely than their peers to continue on to college level, and even fewer went on to university studies. It appears that the educational capital of parents carries more weight in terms of access to university studies than for other types of post-secondary programs.

However, the effect of parents' educational capital plays much less of a role in persistence. In 2005, FGSs who were enrolled in post-secondary programs were proportionally more likely than others to have completed their studies with a diploma. This could be explained, at least in part, by the large numbers of FGSs who were enrolled in professional or technical programs, which generally take less time than university programs. Inversely, FGSs were proportionally less likely to still be studying in 2005 (at the age of 20-21). In fact, multivariate analyses have shown that being an FGS does not have a significant influence on obtaining a degree.

Taking all of these studies into account, the research on FGSs in Canada nevertheless remains, at least for now, limited in comparison to the research in the U.S. However, the available data represents an enormous potential of as-of-yet unexplored research avenues. The YITS, for example, allows a comparison of FGSs both in and out of the higher education system, something that most American studies cannot do. Likewise, the findings from the University of Quebec system (the ICOPE survey) are of great value at the provincial level.

The goal of this research paper is to make use of recent data from Canadian surveys to explore the effect of FGS status on enrollment in post-secondary education. More specifically, we explore the questions of access to and persistence in university programs.

1.5 Analysis model

Studies in the U.S. have underlined the important influence of parental educational capital on access to and persistence in higher education. However, the concept of first-generation student has not been used widely in Canada, nor has it been used in the majority of developed countries, thus our interest in exploring the potential of this concept.

The U.S. studies have indicated that being an FGS has an effect on academic persistence. Researchers have concluded that FGSs are at a disadvantage compared to their counterparts. Those FGSs that begin their university studies will be confronted with obstacles that make their academic progress more difficult. According to several studies, it appears that being an FGS, along with other socio-demographic characteristics (gender, residential environment (urban or rural), ethnic and cultural origin, etc.) not only influence the decision to begin a post-secondary program, but also continue to have an effect throughout a student's higher education pathway. At first, these factors have an indirect effect, having already influenced the choices for earlier schooling (choice of elementary and high schools, educational guidance, etc.) and the accumulation of social and cultural capital (parental support and expectations, academic aspirations, etc.). This effect then seems to continue to have an influence via the attendance pattern (full-time or part-time, institution attended, choice of program), the level of social and intellectual integration (participation in social and academic activities, for example), and the acquired academic skills (performance in core subjects, level of commitment to studies).

To better understand the Canadian situation, this note aims to evaluate whether being an FGS has an influence on the access to and persistence in university, based on empirical Canadian data (YITS, cohort B). More precisely, the question is whether, in Canada, this variable has only an effect on access or if, on the contrary, it exerts an influence on other aspects of academic pathways, such as completing a bachelor's degree and continuing on to graduate studies.

2. Methodology

We address our question by examining the effect of various factors on graduating with a bachelor's degree. Some factors are related to the academic institution, others to the personal characteristics of the students who enter university. We make use of two data sources: the Youth in Transition Survey (YITS), which is a nation-wide study, and ICOPE (*Indicateurs de conditions de poursuite des études*)[6], a survey conducted by the University of Quebec network in several of their constituent universities.

Using these two studies provides us two different but complementary portraits of obtaining a bachelor's degree and continuing on to graduate school. With YITS, the outlook is national. We can thus determine the global influence of family educational capital, as well as that of a whole ensemble of individual and institutional variables. To this end, we have divided Canadian universities into two categories: traditional universities and new universities. The latter category contains universities that were created recently (since 1959), whose mandate is to promote the democratisation of higher education.

The ICOPE survey was conducted in one of these new universities. The University of Quebec – Université du Québec in French – was created at the end of the 1960's in an effort to democratise university studies. The University of Quebec (UQ) is composed of ten institutions. Among these, four are considered to be specialised: TELUQ (now integrated into UQAM) in the domain of distance teaching, INRS for research and graduate training, ENAP for graduate education in the field of public administration, and the École de technologie supérieure (ETS) for applied sciences. The other six are universities offering a range of undergraduate and graduate programs, and they are located in different regions of Quebec: Montreal (UQAM), Gatineau (UQO), Abitibi-Témiscaminque (UQAT), Saguenay-Lac-Saint-Jean (UQAC), Bas-Saint-Laurent (UQAR) and Mauricie (UQTR). The Office of Institutional Research at UQ initiated the ICOPE survey in order to compile the characteristics of new students as they begin their studies. With the permission of students, their individual characteristics were then paired to their academic pathways. The database also provided a way to evaluate the weight of different academic persistence factors in this university system, whose main mission is to provide broad access to higher education.

The comparison between these two portraits, global and local, helps us to better understand the process of obtaining a university degree, taking stock of institutional and individual factors.

2.1 Data sources

Compared to the analyses completed from cohort A data – respondents aged 15 in December 1999 and 20-21 at the end of cycle 4 in 2005 – (Kamanzi et al., 2009; Doray et al. 2009), having access to both of these databases allows us to better measure persistence in university. In the case of the YITS, the respondents were between 18 and 20 at the beginning of the study, and thus between 24 and 26 at the end of the last cycle, which allowed us to observe their university pathway for a period of as much as six years. With ICOPE, we followed for five years respondents who were enrolled in the UQ system in 2001.

2.1.1. The Youth in Transition Survey (cohort B)

Begun in 2000 by the Human Resources and Skills Development Canada (HRSDC) and Statistics Canada, this is a longitudinal study (four cycles) carried out on a representative panel of youth aged 18 to 20 in December 1999 (this panel is called cohort B in the jargon of the study), born between 1979 and 1981, for a sample base of 10,882 subjects throughout all of the Canadian provinces.

6 Indicators of conditions conducive to academic persistence.

Keeping in mind the questions at hand (the influence that being an FGS has on access to and persistence in university), we make use of the data from the four cycles of this study. The YITS database contains information on the parents' education level as well as that of the respondents. Among other categories, this survey provides information on students' academic pathways, both in high school and beyond, including high school grades, as well as certain variables that are characteristic of the level of commitment in high school and college (the time allotted to homework, drop-out status, type of institution, field of study, registration status, etc.). The YITS has compiled a body of information on the students' socio-demographic characteristics (for example, gender, linguistic group affiliation, country of birth, age of entry to university) and the environment in which they have grown up – in sum, an assemblage of information that provides the possibility to create a general portrait of the young people who attend university.

2.1.2 The ICOPE survey

We also make use of the data collected by the ICOPE survey, conducted in the province of Quebec by the University of Quebec system. The ICOPE survey, begun in 1993, has collected information on the socio-demographic characteristics of new students, by means of surveys, and has paired this information with data on their academic pathways in the UQ system. One goal of the ICOPE survey is to track the profile of the student population from their entry into the university system, to follow their evolution and their needs for some years, and also to help them to succeed. The study covers a number of student characteristics, notably academic and socio-demographic variables, living conditions, level of preparedness for higher education, motivation, interest in their field of study, their prior knowledge of that field, as well as their connections with the workplace.

Even though more recent data is available, that of the 2001 study has been used in the framework of this study. Enough time has gone by since the study was undertaken that we can view the academic pathways of the respondents and conduct an analysis of academic persistence, which we would not be able to do with more recent data. The sample for this study includes 8,600 respondents from six of the non-specialized institutions of the UQ system: UQAM, UQTR, UQAC, UQAR, and UQAT.

We should mention that we eliminated those respondents for whom the information on their parents' education level was not adequate to define their status of FGS[7] (about 2% of respondents), as well as those for whom data on academic pathway was not available[8].

Furthermore, the ICOPE survey was a student census, not a sample study; its data has not been weighted. It can be noted that there is a slight overrepresentation of women in the sampling (71% of the respondents were women, compared to the fact that women made up 65% of the eligible study population). The young adults aged 18 to 20 were also a bit more inclined to respond to the questionnaire than older students. For more details on the non-response bias, please refer to Bonin (2003).

Given that the ICOPE survey provides a rather specific view of the overall situation (francophone students in Quebec in a new university system), the study does cover a larger population of *students* than the YITS. All students, no matter their age, were invited to participate in this survey. Therefore, one finds the 18-20 year old students, which comprises the population targeted by the YITS, as well as students who are 21 and older. The results from ICOPE thus have a higher potential for generalization than those of a sample.

It should be noted that the data received by the ICOPE survey do not allow us to deal with the question of access to higher education, because the survey only applies to students who are already attending university.

7 The definition of a first-generation student as applied to the ICOPE data is similar to that used for the YITS data.

8 Since the linking of the ICOPE data with that of the student's academic progress was carried out only for a portion of the respondents (bachelor students), it is difficult to evaluate the overall percentage of the sample affected. For the bachelor students, this linking meant that we had to eliminate 10% of the respondents (students who had dropped out of all of their classes at the beginning of a term or who had changed their program after having completed the questionnaire).

2.2 Operationalization of the variables

2.2.1 Dependent variables

Three dependent variables will be studied:

1) access to university;

2) completion of a bachelor's degree;

3) continuing on to graduate studies.

2.2.2 Independent variables[9]

FGS status is the principal independent variable. We also take account of three groups of variables: those associated with social and cultural affiliation, with academic background, and with the types of academic pathways. The Appendix presents the definition of these variables as well as their operationalization.

The variables in the category of social and cultural background include the parents' educational capital (FGS or not), the linguistic group, being part of a visible minority, the province and the residential environment (rural or urban). The academic background variables include questions on academic life in high school: grade point average, time devoted to homework, drop out periods, interruption of studies between high school and university, type of high school (private or public) and academic aspirations. The variables associated with academic paths are: age of entry to university, the field of study and the registration status.

Two variables allow us to introduce into our analysis elements of the educational offer: the province and the type of university attended. We have already emphasized that in Canada education is a provincial responsibility. By including the province, we take into account the differences among the various provincial education policies, as well as their respective socio-economic characteristics. In addition, in the last 50 years, several provinces have created universities whose explicit purpose is to facilitate access to higher education, which are known as new universities. The University of Quebec system, where the ICOPE survey was carried out, is one example. We have tried to verify if these universities do indeed recruit a larger proportion of first-generation students.

2.2.3 Statistical analyses

We propose a descriptive analysis and a multivariate analysis. The first is to determine, using a Khi-2 test, the independent variables that have a significant influence on the likelihood of completing a bachelor's degree and of continuing on to graduate studies, with special emphasis on FGS status. This analysis also aims to present a general portrait of persistent students as a function of their socio-demographic characteristics, their academic experience and their university pathway.

The second, multivariate, analysis will allow us to estimate the relative influence of each of the variables associated with social and cultural background, as well as the variables of previous academic achievement on the probability of going to a university, of achieving a bachelor's degree and on continuing on to graduate studies – if the effects of other variables are controlled. We use logistic regression, a type of analysis that explains or predicts a dichotomous variable by means of an ensemble of factors or independent variables. In this case, we consider to what degree the probability of access to university studies, the probability of completing a bachelor's degree, and the probability of continuing with graduate work are correlated with being an FGS and with other factors. The interpretation will be based on the odds ratio (OR), a statistical coefficient which serves to compare probabilities. When its value is equal to 1, it means that the influence of the independent variable associated with it is null. When an OR has a value greater than 1, this means that an independent variable's influence is positive, while an OR lower than 1 indicates that this influence is negative. In our analyses, an OR value between 0 and 1 indicates that the independent variable contributes to reducing – compared to the reference category – the

9 We emphasize that the definition and the operationalization of independent variables are not always similar, because the information from which we have created these vary in some cases from one database to another.

probability of access to higher education, of completing a bachelor's degree, or of continuing on to graduate studies. An OR value higher than 1 indicates that the variable contributes to increasing the same probability. One should note that the models based on the data from YITS and those based on the ICOPE data are slightly different because the two databases do not offer the same information on the variables used.

3. A Global Outlook - FGSs in Canadian Universities

3.1 Access to university studies

After high school, most young Canadians of the current generation continue on to some sort of post-secondary program. As shown in table 1, out of 10,784 young adults aged 24-26 in December 2005, 47% had attended a university, 34% a college, and only 19% had not gone beyond high school. Despite the fact that it is increasing for all Canadian youth, access to higher education does reproduce social inequities. Finnie et al. (2009) have demonstrated that for the young adults in cohort A, the parents' level of cultural and educational capital has an effect on access. In two recent studies, Kamanzi et al. (2009) and Doray et al. (2009) obtained similar results.

Table 1

Parental education level and access to post-secondary education (%), YITS, Cohort B, 2005

	High School	College	University	Total	N
FGS	32	39	29	100	3 990
Non-FGS/college (C)	16	40	44	100	3 128
Non-FGS/university (U)	7	23	69	100	3 666
Total	**19**	**34**	**47**	**100**	**10 784**

$\chi^2 = 1505.93$; $p < 0.001$

The results also show that access to higher education is strongly associated with the parents' education level. The children of parents who have no college or university experience are less likely to continue their studies after high school than students whose parents did have that experience. Thus, in 2005, the proportion of those who had attended a university was 69% among those whose parents had attended an institution of the same level, while this figure was 29% for FGSs.

Among those who were continuing their education after high school, the non-FGSs were proportionally more likely to enroll in a university (table 2). In fact, 75% of students with at least one parent who had a university degree (non-FGS/university) were enrolled in a university in 2005, while 52% of the non-FGS/college (with at least one parent that had college degree) category were attending a college. This figure drops to 42% for FGSs. The reverse is true for FGSs attending colleges. Here, FGSs are proportionally the most-represented, at 58%, followed by non-FGS/college with 48%, and non-FGS/university students with only 25%.

Furthermore, the probability of continuing on to university rather than finishing with a college degree varies according to the parents' profession (that of

the mother as well as that of the father), according to gender, residential environment, earlier schooling experience and the province (table 2).

In general, this probability of attending university tends to be higher among young adults whose parents have careers in management and in the professions, among Anglophones and allophones, women, and students who are members of visible minorities, as well as those who live in an urban environment. This tendency is also higher among young adults with above-average grades in high school, who completed their secondary-school studies without interruption (no drop-out periods), and who had indicated higher academic aspirations. Finally, the YITS results indicate that the Atlantic Provinces, Manitoba, Saskatchewan and British Columbia have the highest rates of access to university education in Canada.

Table 2

University enrollment rates according to parental education level and other socio-demographic and school factors (%), YITS, Cohort B, 2005

	No	Yes	Total
FGS status ($\chi^2 = 702.88$; $p < 0.001$)			
FGS	58	42	100
Non-FGS/college	48	52	100
Non-FGS/university	25	75	100
Father's occupation ($\chi^2 = 420.46$; $p < 0.001$)			
Upper management and executive	31	69	100
Professional	24	76	100
Technical and semi-professional	50	50	100
Intermediate-level	54	46	100
Lower-level and manual labour	52	48	100
Unemployed or retired	37	63	100
Mother's occupation ($\chi^2 = 247.74$; $p < 0.001$)			
Upper management and executive	31	69	100
Professional	29	71	100
Technical and semi-professional	44	56	100
Intermediate-level	50	50	100
Lower-level and manual labour	55	45	100
Unemployed or retired	40	60	100
Gender ($\chi^2 = 14.52$; $p < 0.05$)			
Men	44	56	100
Women	41	59	100

	No	Yes	Total
Linguistic background (χ^2 = 104.37; p < 0.001)			
Anglophones outside of Quebec	42	58	100
Francophones outside of Quebec	47	53	100
Francophones in Quebec	50	50	100
Anglophones in Quebec	40	60	100
Allophones	30	70	100
Visible minority (χ^2 = 66.69; p < 0.001)			
Yes	30	70	100
No	44	56	100
Residential environment (χ^2 = 119.01; p < 0.001)			
Rural	54	46	100
Urban	40	60	100
Overall grade-point average (high school) (χ^2 = 1 366.50; p < 0.001)			
90 – 100%	8	92	100
80 – 90%	27	73	100
70 – 80%	52	48	100
less than 70%	75	25	100
Time devoted to homework per week (χ^2 = 502.48; p < 0.001)			
Less than one hour	65	35	100
1 to 3 hours	54	46	100
4 to 7 hours	39	61	100
8 hours or more	29	71	100
Type of high school (χ^2 =83.47; p < 0.001)			
Private	27	73	100
Public	44	56	
Drop-out period (χ^2 = 321.61; p < 0.001)			
No	40	60	100
Yes	77	23	100
Level of academic aspirations (χ^2 = 3 838.25; p < 0.001)			
College	82	18	100
University/bachelor's degree	20	80	100
Graduate School	8	92	100

	No	Yes	Total
Province of residence (χ^2 =85.45; p < 0.001)			
Newfoundland and Labrador	37	63	100
Prince Edward Island	36	64	100
Nova Scotia	34	66	100
New Brunswick	37	63	100
Quebec	49	51	100
Ontario	43	57	100
Manitoba	33	67	100
Saskatchewan	36	64	100
Alberta	43	57	100
British Columbia	36	64	100
All respondents	**42**	**58**	**100**

In a more general way, from the multivariate analysis of table 3, we can point out that being a non-FGS increases the probability of access to higher education, even when many factors are accounted for. More precisely, we can observe that:

- Several factors have no significant effect on access to higher education: the mother's occupation, student's gender, ethno-linguistic group, belonging to a visible minority, the time dedicated to homework and having had a drop-out period.
- Among the social and cultural factors, only the father's occupation had an influence on access. Having a father who works in upper management or in the professions increases the probability of continuing on to university compared to those whose father is employed at a technical or semi-professional level (the reference category).
- Living in a rural area reduces the probability of attending university.
- Access is also affected by the province of residence. Those who live in the Atlantic Provinces, Manitoba and Saskatchewan have an increased probability of continuing their education compared to those who live in Ontario.
- At the level of secondary schooling, two variables have a significant effect: the grade-point average and the type of school.
- The most important factor remains a student's academic aspirations as he/she finishes high school.

Table 3

Influence of social and cultural characteristics and of high school pathways on university enrollment rates in Canada, YITS cohort B, 2005 – Logistic regression odds ratios

Characteristics	Odds Ratio
First-generation students	
FGS	Ref.
Non-FGS (college)	1.35*
Non-FGS (university)	1.97***
Gender	
Women	1.05
Men	Ref.
Father's occupation	
Upper management and executive	1.57**
Professional	1.61**
Technical and semi-professional	Ref.
Intermediate-level	0.98
Lower-level	1.98**
Unemployed or retired	1.00
Mother's occupation	
Upper management and executive	1.61*
Professional	1.21
Technical and semi-professional	Ref.
Intermediate-level	1.00
Lower-level	1.22
Unemployed or retired	1.34
Province of residence	
Newfoundland and Labrador	2.29***
Prince Edward Island	2.25***
Nova Scotia	2.05***
New Brunswick	1.76***
Quebec	0.70
Ontario	Ref.
Manitoba	2.91***
Saskatchewan	1.95***
Alberta	1.25
British Colombia	0.93
Linguistic background	
Anglophones in Quebec	0.74
Anglophones in other provinces	Ref.
Francophones outside of Quebec	1.10
Francophones in Quebec	1.02
Allophones	1.05

Characteristics (Suite)	Odds Ratio
Visible minority	
Yes	1.11
No	Ref.
Residential environment	
Rural	0.66***
Urban	Ref.
High school grade average	
90 – 100%	9.21***
80 – 90%	3.57***
70 – 80%	1.83**
Less than70%	Ref.
Time devoted to homework per week	
8 hours or more	1.70
4 to 7 hours	1.62
1 to 3 hours	1.33
Less than one hour	Ref.
Drop-out period?	
Yes	0.64
No	Ref.
Level of academic aspirations	
Graduate School (Master's level)	28.94***
Bachelor's degree	13.62***
College degree	Ref.
Type of high school	
Private	1.86***
Public	Ref.
Pseudo-R^2	0.09
χ^2 wald	279.04***
DF	19
N	6 771

Access to university depends on several factors. One of the most important is certainly the nature of the opportunities themselves. In this respect, the importance of universities in the whole spectrum of post-secondary institutions is a very significant element. One even wonders if this may explain the effect of the *province* variable on access. The provinces that have a significantly higher proportion of university attendance compared to Ontario are those where the universities are more prevalent, because the college programs are less developed. In these conditions, young adults who want to continue their education beyond high school are much more likely to go to university. The influence of the residential environment can be explained by how far or how close to university a student lives. However, it is also possible that cultural differences among those residing in urban or rural areas have not been explicitly accounted for.

In terms of individual characteristics, a family's educational capital is a factor that remains influential even after controlling for the characteristics of academic achievement in high school. The social reproduction effect is also observable in terms of the father's occupation. A father in upper management or in the professions is linked to the highest probability of attending a university.

The differences observed between men and women were not statistically significant, which could be considered counter-intuitive. In fact, this difference would be significant if the variables of high school performance and academic aspirations were excluded from the analysis, which leads us to suppose that the influence of gender is expressed in the differences in aspirations and in grade-point averages between high school boys and girls. Several studies have shown that access to university is influenced by high school performance and by a student's academic aspirations at the end of high school. However, aspirations, which act as a symbolic and cultural catalyst for educational choices, remain the major influence on access.

We can continue our evaluation of the access to university by examining in which type of university and in which types of program FGSs are enrolled. We observe that first-generation students are more likely to attend the newer universities, and in a proportion (38%) that is higher than for the non-FGSs (31% for students who have a parent with a college degree and 27% for students who have a parent with university degree, table 8).

According to the highest program level attended, the distribution of students is as follows: 5% enrolled in an undergraduate certificate program, 90% in a bachelor's program and 5% in a graduate program (table 4). The analysis also indicates that the distribution of students enrolled in these programs varies slightly according to their parents' education level. In fact, the largest difference between the students who pursue graduate studies was between those whose parents attended a university and all the others.

Table 4

Distribution of the university respondents according to FGS status and highest level of studies achieved (%), YITS, Cohort B, 2005

	Undergraduate certificate	Bachelor's degree	Graduate studies	Total	N
FGS	5	91	4	100	1089
Non-FGS/college	7	90	3	100	1 336
Non-FGS/university	4	89	7	100	2 474
Total	5	90	5	100	4 949

$\chi^2 = 37.01$; $p < 0.01$

3.2 General portrait of FGSs enrolled in universities

As we have already stated, there is a large difference in access to university between FGSs and other students. The proportion of FGSs who attend university is less than that of other students. Several studies in the U.S. have emphasized that the academic experience of FGSs can be the result of a combination of social and cultural factors. This leads to the following questions: Who are the FGSs who attend university? What is it that distinguishes them from the others in terms of socio-demographic and academic characteristics?

3.2.1 Social and cultural characteristics

The first-generation students who continue their studies at a university level in Canada are composed of a majority (62%) of women (table 5). This difference can also be observed, but in a less pronounced degree, among the students from families who have at least one parent who had attended a college: young women from these families are represented in universities at a rate of 58% compared to 42% for young men in the same category. However, among young adults whose parents had some university experience, the proportion of women at university was the same as that for men (50%). In other words, the influence of gender on access to university decreases as the level of their parents' education increases.

Most first-generation students have parents who work at a semi-professional, lower-level or manual/skilled labour job. In this, they are very similar to those from the category of non-FGS/college. However, in regards to this aspect they are quite distinct from students classified as non-FGS/university, who, for the most part, have parents who work in management or in the professions. There is little difference between FGSs and their fellow students in terms of which province they live in or based on their linguistic background. Most FGSs come from the four most-populated provinces, Ontario, Quebec, British Columbia and Alberta; and most are from the two major population groups: either the Francophones of Quebec or the Anglophones residing outside of Quebec.

Table 5

Distribution of the university respondents according to FGS status, gender and residential environment (%), YITS Cohort B, 2005

	All respondents	FGS	Non-FGS/ college	Non-FGS/ university
Gender				
($\chi^2 = 61.45$; $p < 0.001$)				
Men	45	38	42	50
Women	55	62	58	50
Total	100	100	100	100
Residential environment				
($\chi^2 = 49.57$; $p < 0.001$)				
Rural	16	19	20	12
Urban	84	81	80	88
Total	100	100	100	100
Father's occupation				
($\chi^2 = 1\,071.06$; $p < 0.001$)				
Upper management and executive	20	17	17	22
Professional	27	4	11	46

	All respondents	FGS	Non-FGS/ college	Non-FGS/ university
Technical and semi-professional	34	41	50	21
Intermediate-level (salaried)	15	28	16	8
Lower-level and manual labour	4	7	5	2
Unemployed or retired	1	3	1	1
Total	100	100	100	100
Mother's occupation ($\chi^2 = 822.24$; $p < 0.001$)				
Upper management and executive	7	8	7	8
Professional	29	4	18	45
Technical and semi-professional	23	24	29	20
Intermediate-level (salaried)	23	35	27	15
Lower-level and manual labour	5	10	5	2
Unemployed or retired	13	19	13	10
Total	100	100	100	100
Linguistic background ($\chi^2 = 62.61$; $p < 0.001$)				
Anglophones outside of Quebec	64	60	68	64
Francophones outside of Quebec	3	3	3	2
Francophones in Quebec	19	18	19	20
Anglophones in Quebec	2	2	-	2
Allophones	13	17	10	12
Total	100	100	100	100
Visible minority ($\chi^2 = 14.35$; NS)				
Yes	14	16	11	14
No	86	84	89	86
Total	100	100	100	100
Province ($\chi^2 = 32.11$; NS)				
Newfoundland and Labrador	2	2	2	2
Prince Edward Island	-	-	-	1
Nova Scotia	4	5	5	4
New Brunswick	3	3	4	3
Quebec	23	22	20	23
Ontario	39	35	41	39
Manitoba	4	4	4	3
Saskatchewan	4	5	4	3
Alberta	10	10	9	10
British Colombia	12	13	12	12
Total	100	100	100	100

Note: ***: NS indicates non-significant at 0. 05.

The residential environment does not seem to have an effect on the proportion of FG and non-FG/college students attending a university (table 5). However, the place of residence does appear to have an impact on non-FGS/university students: their likelihood of enrolling in a university is higher if they are in an urban environment, and lower if they are located in a rural area. Overall, for all three categories of students, a strong majority comes from an urban area, and the proportion of young adults from rural areas who enroll in a university is higher for FG and non-FG/college students. Out of 100 FGSs, approximately 20 come from a rural area. In contrast, out of 100 students in the non-FGS/university classification, only 12 are from a rural area. This could be explained in part by the different occupational structures found in urban and rural areas.

The proportion of FGSs at university is relatively equal in all of the Canadian provinces. That is to say, the differences between the provinces are not great enough to be considered significant. This same proportion does vary, however, according to linguistic category, and is higher for minority populations: among allophones (30%), among Francophones living outside of Quebec (29%), and for Anglophones living in Quebec (28%).

3.2.2 Characteristics of secondary schooling

There is little difference between FG and other university students in terms of their earlier academic records (table 6). Most of the university students (approximately 90%) had grades that were average or better (70% or higher). The results also show that there is a small but significant difference between FG and other students in how much time they had spent on their homework. Throughout high school, FGSs had a tendency to spend slightly less time on their homework. For example, the proportion of students who indicated that they had studied 8 hours or more per week was highest among those in the non-FG/university category (38%) and lowest for FGSs (32%).

Table 6

Portrait of the university respondents according to previous high school record (%), YITS, Cohort B, 2005

	All respondents	FGS	Non-FGS / college	Non-FGS/ university
Grade average ($\chi^2 = 51.44$; $p < 0.001$)				
90 – 100%	14	11	11	16
80 – 90%	47	46	46	47
70 – 80%	34	37	35	31
60 – 70%	6	5	7	5
Less than 60%	1	0	1	6
Total	100	100	100	100
Time devoted to homework per week ($\chi^2 = 42.65$; $p < 0.001$)				
less than 1 hour	5	4	4	7
1-3 hours	23	27	25	20
4-7 hours	36	37	37	35
8 hours or more	36	32	35	38
Total	100	100	100	100
Drop-out period ($\chi^2 = 2.08$; NS)				
Yes	3	3	3	3
No	97	97	97	97
Total	100	100	100	100
Break in studies before enrolling in a university ($\chi^2 = 14.21$; $p < 0.05$)				
Yes	8	91	91	94
No	92	9	9	6
Total	100	100	100	100
Received a diploma before age 18 ($\chi^2 = 0.37$; NS)				
Yes	50	49	49	50
No	50	51	51	50
Total	100	100	100	100
Type of high school ($\chi^2 = 92.17$; $p < 0.001$)				
Private	11	6	8	15
Public	89	94	92	85
Total	100	100	100	100

Note: NS indicates non-significant at 0.05.

Few FGSs who become university students attended a private high school; that proportion is only 6%, versus 15% for students whose parents held a university degree. However, FGSs do not display any differences from their peers as far as having dropped out, or in taking a break before enrolling in a university, or in terms of their age when finishing high school.

3.2.3 Age and year of entry to university

The results reveal that the academic pathways of FGSs do not differ much from those of their peers, according to the variables included in the YITS. In terms of their age in 2005 and year of entry to university, FGSs had practically the same profile as other students (table 7 and figure 1). This situation can be explained by the nature of the sample population, which was composed of a set of young students who were born in 1979, 1980 and 1981, rather than an assortment of students enrolling in a university at a particular time. When we examine the year students enrolled at university, one observes that, like their peers, by far the largest block of FGSs started their university studies between 1997 and 2001: 8% in 1997, 21% in 1998, 26% in 1999, 19% in 2000 and 10% in 2001. They followed a pattern similar to that of the two other categories of students. Moreover, in 2005, among FGSs who had entered university, 31% were 24 years-old, 33% were 25 and 36% were 26. Clearly, one can discount any hypothesis claiming that early entry to university is linked to having parents with some college or university experience and that late entry is reserved for FGSs.

Table 7

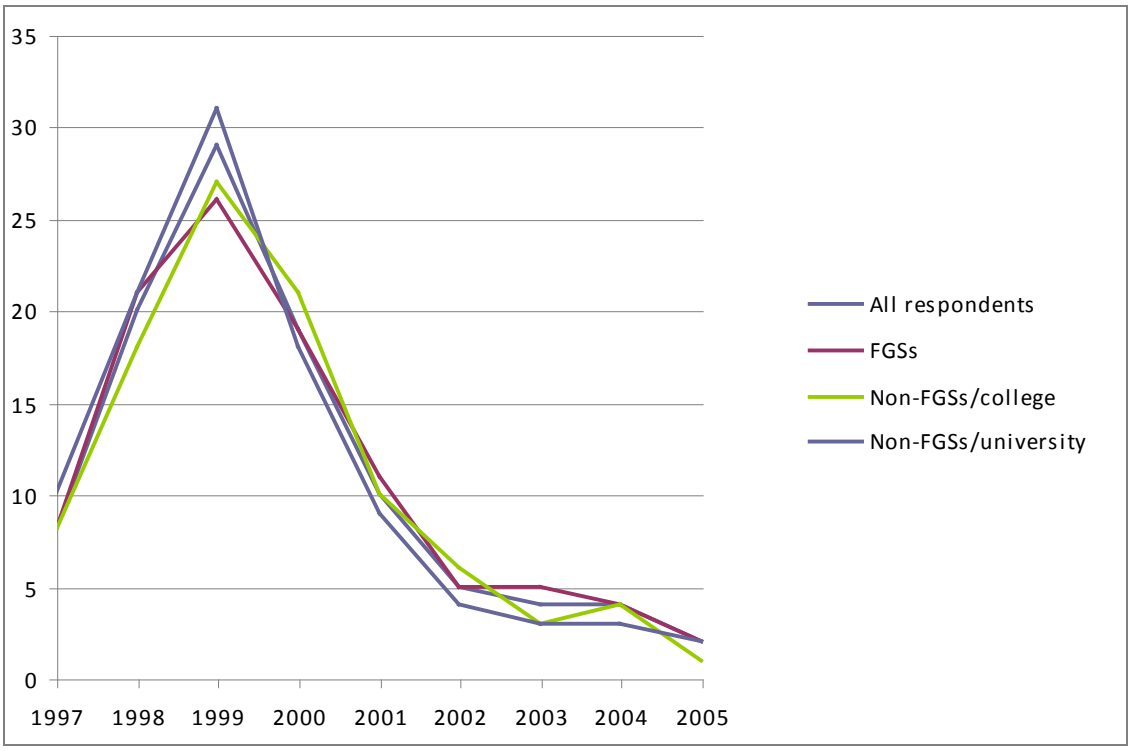
Distribution of the respondents according to parental education level, year of entry to university and age in 2005 (%), YITS, Cohort B, 2005

	All respondents	FGS	Non-FGS / college	Non-FGS/ university
Year of entry to university (χ^2 = 32.53; NS)				
1997 (16-18)	8	8	8	10
1998 (17-19)	20	21	18	21
1999 (18-20)	29	26	27	31
2000 (19-21)	19	19	21	18
2001 (20-22)	10	11	10	9
2002 (21-23)	5	5	6	4
2003 (22-24)	4	5	3	3
2004 (23-25)	4	4	4	3
2005 (24-26)	2	2	1	2
Total	100	100	100	100
Age in 2005 (χ^2 = 7.5; NS)				
24	32	31	34	32
25	33	33	35	33
26	34	36	32	35
Total	100	100	100	100

Note: NS indicates non-significant at 0.05.

Figure 1

Timing of university enrollment according to student's status, YITS, Cohort B, 2005



3.2.4 Choice of program and attendance pattern

Do FGSs at universities decide on their field of studies differently than their peers? The results in table 8 show that their parents' education level exerts an influence on their choice of programs. The most popular choices among all the respondents were in the social sciences (47%) and in the category of pure sciences/physical technologies (26%). FGSs were represented in higher proportions in the social sciences: out of 100 FGSs enrolled in a university in 2005, 52 were in the social sciences, compared to 44 of their non-FGS/University peers. The inverse was true for the representation of FGSs in the pure sciences and physical technologies. FGSs were more likely to attend a new university[10]. Their proportional representation at new universities is 38%, compared to 27% for their non-FGS/University peers. There does not appear to be any difference among all three categories of students in terms of their registration status or in the numbers of program changes, which leads us to assume that the living conditions of FGSs, presumed to be more difficult than for their peers, does not force them to choose part-time studies or to change programs any more frequently than other students.

10 The term "new universities", in the framework of this text, designates those institutions established since 1959, and the term "traditional universities" are those that were already functioning in 1958.

Table 8

Distribution of the respondents according to some variables related to university pathways (%), YITS, Cohort B, 2005

	All respondents	FGS	Non-FGS / college	Non-FGS/ university
First field of study				
($\chi^2 = 49.99$; $p < 0.01$)				
Life sciences and technologies	9	12	11	8
Pure sciences and physical technologies	26	20	25	29
Social sciences and management	47	52	46	44
Humanities	13	13	12	14
Arts and Letters	5	3	6	5
Total	100	100	100	100
Type of University				
($\chi^2 = 41.74$; $p < 0.001$)				
Traditional	70	62	69	73
New	30	38	31	27
Total	100	100	100	100
Registration status (first program)				
($\chi^2 = 0.75$; NS)				
Full time	72	69	72	73
Part-time	28	31	28	27
Total	100	100	100	100
Change in field of study				
($\chi^2 = 0.75$; NS)				
Yes	28	27	26	27
No	72	73	74	73
Total	100	100	100	100

Note: NS indicates non-significant at $p < 0.05$.

3.3 Access to a bachelor's degree

Access to university is one thing; but having the persistence to continue and to finish a degree is another. In what measure is persistence influenced by the parents' education level? To address this question, we chose to examine the group of students who, as their first post-secondary experience, enrolled in a bachelor's program. Among these students, some will leave the academic system with their degrees, some without; others will be continuing their undergraduate or graduate studies. Our decision to study this group is based on the fact that it constitutes the largest group in our sample population, representing 90% of the total. Students qualified as 'persistent' are those who, in cycle 4 of the YITS, had obtained their bachelor's degree.

3.3.1 Descriptive analysis

The results (table 9) show that in 2005, 56% of students had received their bachelor's degree, while 44% were either still pursuing their degrees or were

out of the system. The likelihood of obtaining a bachelor's degree was relatively the same for all students and was not affected by their parents' education level – the status of FGS did not have an influence on completing a degree.

In terms of socio-demographic characteristics, obtaining a bachelor's degree is influenced by a father's occupation, by gender and by age. Students whose fathers worked in upper management or in the professions achieved their bachelor's degree in greater proportions than others. In their first program women were more likely to have obtained their degrees by cycle 4 (in 2005) of the YITS than men: 60% vs. 52% for men. Older students (age 26) were also more likely to have attained their degrees than younger students. However, the year of entry to university had by far the largest influence on obtaining a bachelor's degree. The results indicate that the graduation level varied from 61-63% for those who began their university studies between 1997 and 2000, while it is only 37% for those who enrolled after 2000. We will see below if the year of entry to university is itself influenced by the quality of high school academic preparedness. There is no significant difference observed according to the residential environment (rural/urban), nor according to ethnic or linguistic background.

Table 9

Bachelor's degree graduation rates according to parental education level and social and cultural characteristics (%), YITS Cohort B, 2005

	Degree not completed	Degree granted	Total
FGS status (χ^2 = 11.33. NS)			
FGS	47	53	100
Non-FGS/college	47	53	100
Non-FGS/university	41	59	100
Father's occupation (χ^2 = 36.00; $p < 0.01$)			
Upper management or executive	37	63	100
Professional	40	60	100
Technical or semi-professional	47	53	100
Intermediate-level	44	56	100
Lower-level and manual labour	59	41	100
Unemployed or retired	51	49	100
Mother's occupation (χ^2 = 7.78; NS)			
Upper management or executive	47	53	100
Professional	44	56	100
Technical or semi-professional	43	57	100
Intermediate-level	43	57	100
Lower-level and manual labour	52	48	100
Unemployed or retired	44	56	100

	Degree not completed	Degree granted	Total
Gender ($\chi^2 = 24.11$; $p < 0.01$)			
Men	48	52	100
Women	40	60	100
Age in 2005 ($\chi^2 = 15.90$; $p < 0.5$)			
24	48	52	100
25	44	56	100
26	40	60	100
Year of entry to university ($\chi^2 = 238.13$; $p < 0.001$)			
1997 or earlier	37	63	100
1998	39	61	100
1999	39	61	100
2000	39	61	100
2001 or later	63	37	100
Visible minority? ($\chi^2 = 3.58$; NS)			
No	41	59	100
Yes	45	55	100
Linguistic background ($\chi^2 = 17.53$; NS)			
Anglophones outside of Quebec	46	54	100
Francophones outside of Quebec	44	56	100
Francophones in Quebec	39	61	100
Anglophones in Quebec	29	71	100
Allophones	44	56	100
Residential environment ($\chi^2 = 0.48$; NS)			
Rural	43	57	100
Urban	44	56	100
Total respondents	**44**	**56**	**100**

The likelihood of obtaining a bachelor's degree is associated with a student's high school academic record. The results of a bivariate analysis (table 10) show that the students who had higher grade levels in high school, who spent much more time on their homework and who did not have any academic irregularities such as dropping out or interrupting their studies after high school were more likely to have completed their degree at the time of this study. Furthermore, the proportion of those who had received their bachelor's degree was 70% among students whose grade-point average in high school was between 90-100%, while this proportion dropped to 20% for students whose high school grade-point average was below 70%. Among students who had claimed to spend 8 hours or more per week on homework during high school, the graduation rate was 63%, compared to 28% for those who had said they spent less than 1 hour studying per week. For young adults who had experienced a drop-out period or who had interrupted their studies before enrolling at university, their likelihood of having obtained their bachelor degrees were 11 and 18%, respectively. We can state that completing a bachelor's degree is associated with the level of academic preparedness and with the level of commitment.

Table 10

Bachelor's degree graduation rates according to previous high school record (%), YITS Cohort B, 2005

	Degree not achieved	Degree completed	Total
Grade average (χ^2 = 234.38; p < 0.001)			
90 – 100%	30	70	100
80 – 90%	38	62	100
70 – 80%	55	45	100
Less than 70%	80	20	100
Drop-out period? (χ^2 = 79.46; p < 0.001)			
No	43	57	100
Yes	89	11	100
Interrupted studies before university? (χ^2 =169.84; p < 0.001)			
No	41	59	100
Yes	82	18	100
Time spent on homework per week (χ^2 = 100.73; p < 0.001)			
Less than 1 hour	72	28	100
1-3 hours	51	49	100
4-7 hours	46	54	100
8 hours or more	37	63	100
Graduated before age 18? (χ^2 =1.20; NS)			
Yes	42	58	100
No	44	56	100
Level of academic aspirations (χ^2 =286.50; p < 0.001)			
College	83	17	100
Bachelor's degree	44	56	100
Graduate school	35	65	100
Type of school (χ^2 = 0.35; NS)			
Private	44	56	100
Public	46	54	100
All respondents	46	54	100

Note: NS indicates non-significant at 0.05.

Students who had a higher level of academic aspirations in high school have a higher rate of obtaining their bachelor's degree than their peers. The completion rate was 65% for those who had expected to achieve a bachelor's degree, while this rate was 17% for those who had only expected to complete a college degree.

Completing a bachelor's degree also depended on certain academic characteristics related to the university years, such as the type of university, how it was attended and in which field of study (table 11). The results show that students who enroll full-time at the start of their first university program are more likely to have completed their degree (57%) than those who enroll part-time (47%). Also, students in the fields of life sciences and technologies, and those in the areas of pure science and physical technologies, had higher graduation rates, at 72 and 68%, respectively.

Table 11

Bachelor's degree graduation rates according to some academic features, YITS, Cohort B, 2005

	Degree not completed	Degree completed	Total
Type of university (χ^2 = 9.90; NS)			
Traditional	44	56	100
New	50	50	100
Registration status (χ^2 =28.62; $p < 0.001$)			
Full time	43	57	100
Part-time	53	47	100
Field of study (χ^2 =41.33; $p < 0.01$)			
Life sciences and technologies	28	72	100
Pure sciences and physical technologies	32	68	100
Social sciences and management	36	64	100
Humanities	47	53	100
Arts and Letters	37	63	100
All respondents	46	54	100

Note: NS indicates non-significant at 0.05.

3.3.2 Multivariate analysis

In order to evaluate the relative influence of each independent variable, we have performed a multivariate analysis. From the start, we should clarify that the analysis model only contains the variables that a bivariate analysis identified as having a significant influence on the probability of completing a bachelor's degree. As indicated in table 12, there is no significant difference between the persistence of FGSs and their peers. At the same time, this is not to say that there could not be differences in terms of the factors that influence persistence for FGSs and for other students. From this perspective, we conducted separate analyses for each of the three groups of students to evaluate if the influence of these variables varies according to the parents' educational capital.

The results of a complete model show that only a few variables maintain their significant influence on the probability of obtaining a bachelor's degree after all the other variables have been considered. These are the year of entry to university, the grade-point average and the time devoted to homework in high school, the academic aspirations at the end of high school, and having a drop-out period in high school or having had a 'pause' in studies before university. Except for the year of entry to university, the influence of these variables varies according to a student's status.

Table 12

Influence of social and cultural characteristics and of high school pathway on academic persistence in Canada, YITS, Cohort A, 2005 – Logistic regression odds ratios

	FGS	Non-FGS/ college	Non-FGS/ university
Father's occupation			
Upper management or executive	0.89	1.46	1.01
Professional	0.39	0.92	1.22
Technical or semi-professional	Ref.	Ref.	Ref.
Intermediate-level	0.81	0.48*	1.22
Lower-level and manual labour	1.02	0.31*	1.91**
Unemployed or retired	0.11	0.14*	0.46
Gender			
Women	1.39	1.28	1.48*
Men	Ref.	Ref.	Ref.
Province			
Newfoundland and Labrador	0.59	0.17***	0.24**
Prince Edward Island	0.42	1.29	1.52
Nova Scotia	0.546	0.40	1.71
New Brunswick	0.56	2.39	,76
Quebec	0.80	1.39	1.12
Manitoba	0.64	0.58	0.94
Saskatchewan	0.45*	0.50	0.53*
Alberta	0.40	1.10	0.62
British Columbia	1.25	0.42	0.75
Ontario	Ref.	Ref.	Ref.
Grade-point average, high school			
90 – 100%	18.29***	3.87	2.54
80 – 89%	8.66***	2.50	2.64
70 – 79%	9.034***	1.01	1.30
Less than 70%	Ref.	Ref.	Ref.
Time devoted to homework per week, high school			
8 hours or more	2.57	3.03*	5.50*
4 to 7 hours	2.02	2.14	4.95*
1 to 3 hours	2.44	1.03	5.47*
Less than one hour	Ref.	Ref.	Ref.
Drop-out period			
Yes	0.08	0.003**	0.66
No	Ref.	Ref.	Ref.
Break in studies before university			
Yes	0.08***	0.52	0.44
No	Ref.	Ref.	Ref.

	FGS	Non-FGS/ college	Non-FGS/ university
Level of academic aspirations			
Graduate school	3.53*	2.47	1.70
Bachelor's degree, university	3.02*	2.43*	1.37
College	Ref.	Ref.	Ref.
Registration status			
Part-time	0.81	1.01	0.58*
Full time	Ref.	Ref.	Ref.
Field of study			
Life sciences and technologies	0.93	1.82*	1.01
Pure sciences and physical technologies	0.81	0.66	0.93
Humanities	0.45	0.51	0.52*
Arts and Letters	0.48	0.67	1.33
Social sciences and management	Ref.	Ref.	Ref.
First year entry to university			
1997 – 1998	3.50**	8.82***	6.65***
1999 – 2000	0.95	2.31*	2.65***
After 2000	Ref.	Ref.	Ref.
Pseudo-R^2	0.23	0.23	0.18
χ^2wald	110.49***	114.19***	145.86***
DF	32	32	32
N	809	788	1 346

Note: *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$.

The first year of entry to university plays a determining role. No matter what the status of a student, the earlier the enrollment, the higher the probability of having completed a bachelor's degree. This rate is distinctly higher for those who first enrolled between 1997 and 1998. For students in the category non-FGS/college, this rate is higher for those with higher academic aspirations at the end of high school, and lower for those who had either a drop-out period or who took a break before starting at a university. Among FGSs more specifically, those with the highest grade-point averages in high school had a distinctly higher rate of finishing their bachelor's degree.

In addition, table 13 shows that students with higher grades and higher academic aspirations in high school were more likely to have started their university studies earlier than those with lower grades and those with lower academic aspirations. Furthermore, among those who had the highest grades (of between 90-100%), 91% had first enrolled in a university between 1997 and 2000 (40% between 1997 and 1998 and 51% between 1999 and 2000). In contrast, among students whose average high school grades were below 70%, only 47% attended a university between 1997 and 2000 (12% in 1997-1998 and 35% in 1999-2000). Inversely, only 10% of students with the highest grades had taken a break and started at a university in 2000, while for those with the lowest grades (below 70%) this proportion was 53%. In a similar vein, 87% of students who had aspired to achieve a university degree had enrolled in a university between 1997 and 2000, while only 38% of those who had expected to obtain a college degree had enrolled at a university during this same time period.

Table 13

Distribution of the respondents according to high school grades, level of academic aspirations and year of entry to university (%), YITS, Cohort B, 2005

	1997-1998	1999-2000	2001 or later	Total
Grade-point average in high school				
($\chi^2 = 370.89$; $p < 0.001$)				
90 – 100%	40	51	10	100
80 – 89%	32	50	18	100
70 – 79%	22	44	33	100
less than70%	12	35	53	100
Level of academic aspirations				
($\chi^2 = 595.20$; $p < 0.001$)				
Graduate studies	35	52	13	100
Bachelor's degree, university	27	51	22	100
College	19	19	62	100

3.4 Access to graduate studies among bachelor's degree holders

3.4.1 Descriptive Analysis

After achieving their bachelor's degree, 79% of the graduates left the university system, and 21% continued to pursue their education in a graduate studies program (table 14). The probability of continuing on to this level varies according to a student's FGS status. The results show that the proportion of graduates who continue their studies is 24% among those whose parents had some university experience. This proportion decreases to 17% for graduates whose parents' education had not gone beyond college level and 16% for FGSs. The father's occupation again has a significant influence: the probability of continuing on to graduate studies is slightly higher for graduates whose father works in upper management or in the professions. The results also indicate that the level of enrollment in graduate studies varies significantly according to linguistic group: highest among francophones in Quebec at 34%, and next-highest for francophones outside of Quebec. Gender, belonging to a visible minority, residential environment and age do not appear to have any influence.

Table 14

Enrollment in graduate studies according to social and cultural characteristics (%), YITS, Cohort B, 2005

	Ceased studies at Bachelor's level	Continued to graduate school	Total
FGS status ($\chi^2 = 21.73$; $p < 0.001$)			
FGS	83	17	100
Non-FGS college	84	16	100
Non-FGS university	76	24	100
Father's occupation ($\chi^2 = 29.61$; $p < 0.01$)			
Upper management and executive	80	20	100
Professional	74	26	100
Technical or semi-professional	86	14	100
Intermediate-level	84	16	100
Lower-level and manual labour	84	16	100
Unemployed or retired	77	23	100
Mother's occupation ($\chi^2 = 32.66$; $p < 0.001$)			
Upper management and executive	88	12	100
Professional	74	26	100
Technical or semi-professional	77	23	100
Intermediate-level	83	17	100
Lower-level and manual-labour	95	5	100
Unemployed or retired	79	21	100

	Ceased studies at Bachelor's level	Continued to graduate school	Total
Gender (χ^2 = 2.56; NS)			
Men	78	22	100
Women	81	19	100
Age in 2005 (χ^2 = 1.20; NS)			
24	81	19	100
25	79	21	100
26	79	21	100
Visible minority (χ^2 = 2.55; NS)			
No	83	17	100
Yes	79	21	100
Linguistic background (χ^2 = 67.49***)			
Anglophones outside of Quebec	84	16	100
Francophones outside of Quebec	73	27	100
Francophones in Quebec	66	34	100
Anglophones in Quebec	76	24	100
Allophones	82	18	100
Residential environment (χ^2 = 4.10; NS)			
Rural	83	17	100
Urban	79	21	100
All respondents	**79**	**21**	**100**

Note: NS indicates non-significant at $p < 0.05$.

We evaluated students' academic backgrounds in both high school and university, and students' university pathways, to determine the factors associated with continuing on to graduate school. The results (table 15) reveal that only the grade-point average and the academic aspirations at the end of high school had a significant influence. The results show that the higher the grade average and the higher the academic aspirations, the greater the chance that a student will pursue graduate studies after their bachelor's degree. More specifically, 30% of the students who had a grade-point average above 90% continued to graduate school, as opposed to only 7% for students whose average grades were below 70%. Similarly, 30% of the students who had aspired to graduate school at the end of high school enrolled in a graduate program, as compared to only 8% of those who had expected to finish their studies with a college degree.

Table 15

Enrollment in graduate studies according to previous high school record (%), YITS, Cohort B, 2005

	Ceased studies at Bachelor's level	Continued to graduate school	Total
Grade-point average (χ^2 = 45.44; p < 0.001)			
90 – 100%	70	30	100
80 – 90%	79	21	100
70 – 80%	86	14	100
Less than 70%	93	7	100
Drop-out period (χ^2 = 2.76; NS)			
No	79	21	100
Yes	100	0	100
Break in studies (χ^2 = 0.40; NS)			
No	79	21	100
Yes	83	17	100
Time devoted to homework (χ^2 = 1.17; NS)			
Less than 1 hour	80	20	100
1-3 hours	79	21	100
4-7 hours	81	19	100
8 hours or more	79	21	100
Graduation before age 18 (χ^2 = 8.80; NS)			
Yes	77	23	100
No	82	18	100
Academic aspirations at the end of high school (χ^2 = 90.34; p < 0.001)			
College	92	8	100
Bachelor's degree, university	86	14	100
Graduate school	70	30	100
Type of school (χ^2 = 3.20; NS)			
Private	75	25	100
Public	80	20	100

Note: NS indicates non-significant at 0.05.

As for the influence of university pathways, the results show that continuing on to graduate school is associated with the field of study chosen (table 16). Graduate school is more likely for students in pure sciences and physical technologies (29%), in the humanities (21%) and in the social sciences (19%). The categories of students the least likely to continue on to graduate school are those who had changed their field of study (11%) before graduating.

Table 16

Enrollment in graduate studies according to undergraduate pathway characteristics (%), YITS, Cohort B, 2005

	Ceased studies at Bachelor's level	Continued to graduate school	Total
Type of university (χ^2 = 0.49; NS)			
Traditional	79	21	100
New	81	19	100
Field of study (χ^2 = 45.44; p < 0.001))			
Life sciences and technologies	90	10	100
Pure sciences and physical technologies	71	29	100
Social sciences and management	81	19	100
Humanities	79	21	100
Arts and Letters	87	13	
Change of major (χ^2 = 457.7; p < 0.001)			
Yes	89	11	100
No	44	56	100
All respondents	**79**	**21**	**100**

Note: NS indicates non-significant at 0.05.

3.4.2 Multivariate analysis

In order to estimate the relative effect of each of the variables whose influence was identified as significant by bivariate analysis, we have undertaken a multivariate analysis. The results (table 17) show that when all of the independent variables are included in the model, there is no longer a significant influence observed from the status of FGS on the likelihood of attending graduate school. We can only state that there are certain small but statistically significant effects from the following variables: linguistic background, having changed a major, field of study and home province.

Table 17

Influence of social and cultural characteristics on enrollment in graduate studies in Canada, YITS, cohort B, 2005 – Logistic regression odds ratios

	All respondents	FGS	Non-FGS/ college	Non-FGS/ university
FGS status				
FGS	0.58	—	—	—
Non-FGS/college	0.72	—	—	—
Non-FGS/university	Ref.	—	—	—
Father's occupation				
Upper management or executive	1.34	0.84	0.47	1.94
Professional	1.30	—	1.00	1.62
Intermediate-level	0.91	1.66	0.38	0.87
Lower-level and manual labour	2.10	3.70	1.85	0.52
Unemployed or retired	1.42	4.19	7.74*	
Technical or semi-professional	ref.	ref.	ref.	ref.
Mother's occupation				
Upper management or executive	0.58	1.29	0.09	0.79
Professional	0.92	1.29	0.72	0.94
Intermediate-level	0.87	4.87*	0.35	0.76
Lower-level and manual labour	0.28*	0.12	0.54	0.39
Unemployed or retired	1.06	3.60	0.18**	1.51
Technical or semi-professional	ref.	ref.	ref.	ref.
Linguistic background				
Francophones outside of Quebec	1.30	-	1.62	1.52***
Francophones in Quebec	10.79***	17.92	2.60	15.06***
Anglophones in Quebec	1.55	-	-	2.51
Allophones	1.15	0.39	2.12	1.38
Anglophones outside of Quebec	ref.	ref.	ref.	ref.
Grade-point average in high school				
90 – 100%	3.14	0.11	0.22	7.05
80 – 90%	2.61	0.19	0.32	4.12
70 – 80%	2.25	0.24	0.06	4.56
Less than 70%	ref.	ref.	ref.	ref.
Level of academic aspirations				
Bachelor's degree, university	2.10	1.22	1.38	1.46
Graduate school	4.16*	3.63***	1.88	3.56
College	ref.	ref.	ref.	ref.
Change of major				
Yes	0.08***	0.04***	0.03***	0.08**
No	ref.	ref.	ref.	ref.

	All respondents	FGS	Non-FGS/ college	Non-FGS/ university
Field of study				
Life sciences and technologies	0.77	0.34	0.64	0.87
Pure sciences and physical technologies	2.03**	5.54*	1.39	1.61
Humanities	1.11	3.68	0.42	0.93
Arts and Letters	1.09	-	3.65	1.25
Social sciences and management	ref.	ref.	ref.	ref.
Province of residence				
Newfoundland and Labrador	0.34*	0.30	0.29	0.29*
Prince Edward Island	1.20	-	-	1.88
Nova Scotia	0.35*	0.05*	0.76	0.35
New Brunswick	0.59	0.41	1.73	0.36
Quebec	0.20*	0.08	0.98	0.13*
Manitoba	0.79	0.29	2.98	0.62
Saskatchewan	0.59	0.28	0.08*	1.12
Alberta	1.00	0.59	0.16	1.25
British Columbia	0.77	0.98	0.94	0.56
Ontario	ref.	ref.	ref.	ref.
Pseudo-R^2	0.27	0.41	0.41	0.27
χ^2wald	246.32***	72.55	126.02***	162.80***
DF	35	26	31	32
N	2 152	277	458	883

Note: * indicates $p < 0.05$; ** indicates $p < 0.01$; *** indicates $p < 0.001$.

In addition, the influence of these variables varies according to the FG status of a student. For example, linguistic background only has an influence on continuing on to graduate school for students in the non-FGS/university category. Also, among this same group, the impact of this variable is highest for francophones in Quebec as well as outside of Quebec. However, independent of the parents' education level, having changed a major before completing a bachelor's degree decreased the likelihood of attending graduate school.

3.5 Synthesis

This section gives us the opportunity to sum up some observations about FGSs in Canadian universities. First of all, as we have stated in an earlier research note (Kamanzi, Doray et al., 2009), FGSs are significantly less likely to attend a university than their peers whose parents have completed a college or university program. In addition, in line with the results of Note 6, our data confirms that there is no significant difference in academic persistence between FGSs and other students. Having said this, however, there are certain factors that do have a particular effect on

FGSs' academic persistence: earlier school performance and having had a break before enrolling in university. As with their peers, having had higher academic aspirations at the end of high school is linked to academic persistence at university. After achieving their bachelor's degree, FGSs are significantly less likely to continue on to graduate studies. However, this difference fades after taking socio-demographic variables and previous school record into account.

There is cause to support the claim that Canada has an education system that is more equitable and meritocratic than that of the U.S. Certainly, one can say that there are resilient individuals. For example, young Canadians from socio-economically disadvantaged backgrounds, a category which includes a large portion of FGSs, achieve advanced educational goals to the same extent as their more socio-economically advantaged peers. For contemporary sociologists, FGS success is explained less by their individual talents than by the stimulation they have received during their previous schooling (Dubet and Martucelli, 1996). In other words, young people who overcame the obstacles to obtaining a university education despite their difficult life conditions and modest cultural capital had had a positive prior academic experience.

4. An Institutional Perspective: FGSs in the University of Quebec System

We have just presented a global portrait of Canadian FGSs and their persistence at university. In this section, we will be able to deepen our understanding of the factors that influence persistence at university by using data that is more specific to one area: the ICOPE survey of students in the University of Quebec system.

4.1 Overall portrait of FGSs according to ICOPE

First-generation students represented 40% of new students in the University of Quebec system in autumn 2001. Among the 55% who were not FG, a little less than half were students whose families did not have any university experience: 24% were from the non-FGS/college category and 31% from the non-FGS/university category (table 18).

Table 18

Distribution of the ICOPE 2001 respondents according to parental education level

Education level	Number of respondents	Percentage
FGS	3 805	45
Non-FGS/college	1 989	24
Non-FGS/university	2 623	31
Total	**8 417**	**100**

4.1.1 Social and cultural characteristics

Student's age

The YITS student age data refers to the student's age the year they first entered university. Table 19 indicates that only 22% of ICOPE respondents fell into the 18-20 year-old group, while 31% were 21-25 and 47% were over 25. Furthermore, the age of FGSs is distributed in a way that is significantly different than that of their peers. First-generation students, on average, are older than non-FGSs. For this reason, and also to facilitate comparisons with the YITS, the next ICOPE table results will nuance the ages of respondents: the younger students, aged 18-20, and the others[11].

11 To facilitate the interpretation of the results presented in the next few paragraphs, we mention here that the characteristics selected to establish our portrait of FGSs have been grouped in two tables: Table 20 portrays the characteristics that are in both ICOPE and YITS (thus enabling comparison between the two studies), and Table 21, presents those characteristics that are present only in the ICOPE.

Table 19

Percentage distribution of the ICOPE 2001 respondents characterised by age and parental education level (%)

	FGS	Non-FGS/ college	Non-FGS university	TOTAL
Age category				
18– 20	14	30	28	22
21-25	23	35	39	31
26-40	39	26	27	32
41 and older	24	9	6	15
TOTAL	**100 (n= 3800)**	**100 (n= 1989)**	**100 (n= 2622)**	**100 (n= 8411)**

$\chi^2 = 884.29$; $p < 0.01$

Student's gender

The YITS results indicate that the proportion of women is higher for FGSs than for other students, and that the proportion of women decreases as the parents' educational capital increases. The data from ICOPE does not let us confirm those results. With ICOPE, no significant difference was observed regarding the gender distribution of FGSs and that of non-FGSs, for the 18-20 year-olds as well as for students 21 and older[12] (table 20).

Table 20

Percentage distribution of the ICOPE 2001 respondents according to parental education level and comparable YITS characteristics

	From 18 to 20				21 and older			
	FGS	Non-FGS/ college	Non-FGS/ university	TOTAL	FGS	Non-FGS/ college	Non-FGS/ university	TOTAL
Gender		**(χ^2 =4.64; NS)**				**(χ^2 =2.98; NS)**		
Men	20	18	23	21	31	30	33	31
Women	80	82	77	79	69	70	67	69
TOTAL	100	100	100	100	100	100	100	100
University environment		**(χ^2 =50.38; p < 0.01)**				**(χ^2 =120.91; p < 0.01)**		
Metropolitan	33	38	51	41	29	34	44	34
Regional	66	62	48	58	52	50	43	49
Distance learning	1	0	1	1	19	16	13	17
TOTAL	100	100	100	100	100	100	100	100
Type of program (a)		**(χ^2 = 2.85; NS)**				**(χ^2 = 166.73; p < 0.01)**		
Bachelor	93	95	94	94	27	38	39	33
Undergraduate certificates	7	5	6	6	58	46	40	50
Graduate programs	--	--	--	--	15	16	21	17
TOTAL	100	100	100	100	100	100	100	100

12 According to the results of the 2006 ICOPE (Bonin, 2007), there is a small but statistically significant difference between the gender distribution of FG and non-FG students, with women being proportionally better represented among FGSs. The definition used in Bonin (2007), which was limited to first-generation "university" students, differs from the definition used in this present study. By re-grouping the FG and the non-FG/collegial students of Table 20, a small but significant difference of 5% (more women) is observed between these students and the non-FGS/university group, which is in agreement with the 2006 results.

	From 18 to 20				21 and older			
	FGS	Non-FGS/ college	Non-FGS/ university	TOTAL	FGS	Non-FGS/ college	Non-FGS/ university	TOTAL
Father's occupation		**(χ^2 = 693.90; p < 0.01)**				**(χ^2 = 2587.38; p < 0.01)**		
Upper management and executive	8	11	22	14	10	16	21	14
Professional	2	4	46	20	1	4	47	15
Specialized and technical	49	55	23	40	50	55	21	43
Office, support and intermediate-level	29	25	6	19	27	19	9	20
Lower-level	11	5	2	6	12	5	2	8
At home, retired, deceased	1	0	1	1	0	1	0	0
TOTAL	100	100	100	100	100	100	100	100
Mother's occupation		**(χ^2 = 530.00; p < 0.01)**				**(χ^2 = 1839.88; p < 0.01)**		
Upper management and executive	4	5	7	5	5	5	6	5
Professional	1	3	39	17	1	7	37	13
Specialized and technical	34	49	29	37	19	41	25	25
Office, support and intermediate-level	28	22	11	19	19	19	10	16
Lower-level	8	3	1	4	6	2	1	4
At home, retired, deceased	25	18	13	18	50	26	22	37
TOTAL	100	100	100	100	100	100	100	100
Field of study		**(χ^2 = 42.17; p < 0.01)**				**(χ^2 = 117.82; p < 0.01)**		
Health sciences	5	4	3	4	9	6	4	7
Pure and applied sciences	10	11	13	12	8	10	11	9
Humanities and law (b)	26	32	34	31	19	24	25	22
Arts and letters	7	11	11	10	9	12	13	11
Education	30	27	20	25	9	11	11	10
Management	22	15	19	18	46	37	36	41
TOTAL	100	100	100	100	100	100	100	100
Registration status		**(χ^2 = 0.15; NS)**				**(χ^2 = 244.71; p < 0.01)**		
Full time	96	96	96	96	32	44	54	41
Part-time	4	4	4	4	68	56	46	59
TOTAL	100	100	100	100	100	100	100	100
Experienced interruption of studies		**(χ^2 = 1.89; NS)**				**(χ^2 = 9.59; p=0.01)**		
At least once	8	10	10	9	47	43	45	46
Never	92	90	90	91	53	57	55	54
TOTAL	100	100	100	100	100	100	100	100

Note: NS indicates non-significant at 0.05.

(a) Auditors and non-program students were removed from the distribution.

(b) There were relatively few law respondents. This program is only offered in one of the UQ institutions (UQAM), and we have therefore combined this category with that of humanities, which represents a type of student with an academic level similar to that of law students. Students with multiple majors or who did not specify a major were removed from the distribution.

University environment

ICOPE treats and categorizes student's residential environment a bit differently than the YITS. In the YITS, it refers to a residential environment, while in ICOPE, it refers rather to the location of the university. Yet the results show a great deal of similarity; the FG and the non-FG/college students are proportionally better represented in the regional universities[13] than the non-FGS/university population, which is more likely to attend a university located in a metropolitan area.

Parents' occupation

Student's parents' occupation is of course strongly linked to their level of education. For both age categories, the father's of FG and non-FG/college students have, for the most part, jobs in the specialized and technical category, while those fathers who have a university background are much more likely to be employed as professionals. Fathers working in upper management or executive positions are also more likely to be in this last educational category. These groupings are also valid for the mother's occupation. In addition, there is a higher proportion of mothers at home among FGSs, most notably for older students. In fact, 50% of the mothers of FGSs 21 and older were at home, compared to 26% for non-FGS/college and 22% for non-FG/university students who are the same age.

Cultural background

The variables available to measure cultural background in ICOPE differ from those used in the YITS. In ICOPE, we have access to the student's legal status in Canada, their mother tongue, their everyday language, and their level of French. For this study, we have retained the legal status in Canada, which allows us to divide students into two categories: international and Canadian citizens or permanent residents. We have also retained their level of knowledge of French, because it is the language of instruction in the UQ system.[14] Let us point out here that knowledge of French does not pertain only to a student's cultural background. It does provide also information on a Quebecois student's potential difficulties with the French language, regardless of origin. The question asked was aimed at precisely determining reading and communication skills. To simplify our analysis, these different aspects have been regrouped to obtain a global index of linguistic competence.

Even though these differences may not be that pronounced, we can state that international students are proportionally more numerous in the non-FGS/university category than in the other groups (FGS and non-FGS/college), which suggests that having a parent with a university background makes university studies abroad more accessible in comparison to students who do not have such a parental model (refer to table 21). In terms of linguistic competence, the differences were very small and not significant for students 21 and older, indicating that the FGSs were slightly more likely (13%) to judge their French as 'weak' compared to non-FGS/university students (10%).

13 The universities classified as regional in this distribution are the UQTR, UQAC, UQAR, UQO and UQAT, while UQAM is considered to be metropolitan. "Distance learning" is represented by TÉLUQ.

14 There are a few programs that are exempted from this rule.

Table 21

Percentage distribution of the ICOPE 2001 respondents according to parental education level and some characteristics specific to ICOPE

	From 18 to 20				21 and older			
	FGS	Non-FGS/ College	Non-FGS/ University	TOTAL	FGS	Non-FGS/ College	Non-FGS/ University	TOTAL
Parental responsibilities	(χ^2 = 4.67; NS)				(χ^2 = 439.42; p < 0.01)			
With children	1	0	0	0	52	30	24	39
No children	99	100	100	100	48	70	76	61
TOTAL	100	100	100	100	100	100	100	100
Employment situation	(χ^2 = 5.45; NS)				(χ^2 = 44.89; p < 0.01)			
Working	57	64	62	61	79	77	71	76
Not working	43	36	38	39	21	23	29	24
TOTAL	100	100	100	100	100	100	100	100
Number of hours at work per week (a)	(χ^2 = 23.00; p < 0.01)				(χ^2 = 162.08; p < 0.01)			
15 or less	48	53	61	55	11	16	22	15
16 to 20	31	30	25	29	7	12	13	10
21 to 29	13	14	10	12	9	10	10	9
30 or more	8	3	4	4	73	62	55	66
TOTAL	100	100	100	100	100	100	100	100
Self-evaluation of financial situation	(χ^2 = 25.44; p < 0.01)				(χ^2 = 18.88; p < 0.01)			
Comfortable	15	21	25	21	21	20	20	20
Satisfactory	53	55	53	53	53	50	48	51
Precarious	32	24	22	26	26	30	32	29
TOTAL	100	100	100	100	100	100	100	100
Anticipated means of completing this degree	(χ^2 = 8.48; NS)				(χ^2 = 63.26; p < 0.01)			
Without interruption	92	92	89	91	66	74	75	70
With a possible interruption	3	4	4	4	20	16	14	18
Do not know	5	4	7	5	14	10	11	12
TOTAL	100	100	100	100	100	100	100	100
Last time attended an educational institution was……ago	(χ^2 = 2.61; NS)				(χ^2 = 277.73; p < 0.01)			
Less than 1 year	98	98	98	98	35	48	51	42
1-3 years	2	2	2	2	18	20	22	19
3-5 years	--	--	--	--	12	12	10	12
5 or more years	--	--	--	--	35	20	17	27
TOTAL	100	100	100	100	100	100	100	100

	From 18 to 20				21 and older			
	FGS	Non-FGS/ college	Non-FGS/ university	TOTAL	FGS	Non-FGS/ college	Non-FGS/ university	TOTAL
Self-evaluation of academic preparedness	(χ^2 = 2.51; NS)				(χ^2 = 37.78; p < 0.01)			
Very good to excellent	68	70	66	68	54	60	62	58
Good	28	27	29	28	36	34	31	34
Weak or poor	3	2	4	3	8	5	5	6
Do not know	1	1	1	1	2	1	2	2
TOTAL	100	100	100	100	100	100	100	100
Legal status in Canada	(χ^2 = 19.94; p < 0.01)				(χ^2 = 54.62; p < 0.01)			
International student	2	0	4	2	2	1	5	3
Canadian citizen or permanent resident	98	100	96	98	98	99	95	97
TOTAL	100	100	100	100	100	100	100	100
Level of French	(χ^2 = 1.82; NS)				(χ^2 = 12.03; p=0.02)			
High	23	25	23	24	34	34	36	34
Average	65	64	65	65	53	55	54	54
Low	12	11	12	11	13	11	10	12
TOTAL	100	100	100	100	100	100	100	100

Note: NS indicates non-significant at 0.05.

(a) This breakdown of hours only applies to those who indicated that they worked while studying (see occupation category above).

Living conditions

Even though the socio-demographic characteristics studied in this sub-section are not available in the YITS, we believe it would be interesting to include them in the global portrait as they provide a better description of an older student population like that of the UQ. Students that are 21 and older, who represent 78% of the ICOPE respondents, are proportionally more likely to have to balance study, work and family obligations. The characteristics related to this balancing are presented in table 21.

First of all, we observe that the distribution of FGSs and non-FGSs, according to these variables, is only significantly different for older students (21 and older) except for one characteristic. For these older students, FGSs are more likely (52%) to have children than their non-FGS/college (30%) and non-FGS/university (24%) peers. They are also more likely to be working while they are enrolled at university. This difference is most notable between FGSs (79%) and the non-FGS/university category (71%). Furthermore, among the working students, FGSs work more hours than their non-FGS peers. It is noteworthy that they are proportionally more likely to be working full time[15] (73%) than their non-FGS/college (62%) or non-FGS/university (55%) peers. When asked how they assess their financial situation, more 18-20 year-old FGSs judge their situation as precarious (32%) than other students the same age (22-24%). Among older students, the situation is reversed; less FGSs view their financial situation as precarious (26%) than their non-FGS peers (30-32%). This can probably be explained by the fact that FGSs are more likely to have worked throughout their student years as a way to meet their needs, and, as needed, those of their family too. Finally, we saw earlier that older FGSs begin their university study as part-time students at much

15 In the ICOPE, working 30 hours or more per week is considered to be full time.

higher rates than other students. The ICOPE questions that deal with academic persistence also indicate that a larger proportion of older FGSs anticipate that they may interrupt their studies (apart from summer terms) or are not yet certain that they will want/be able to continue their studies uninterrupted. In fact, only 66% of FGSs 21 and older expect to be able to finish their studies without interruption, versus 74-75% for non-FGSs in the same age group.

4.1.2 Previous academic background characteristics

The only characteristic of earlier academic background that is common to both ICOPE and YITS refers to an interruption in studies before university-level (see table 20). Just as in the YITS, the differences between FGSs and their peers remain relatively small in this regard. The biggest difference observed was that FGSs had experienced a break in their studies, either in high school, at college or at university before enrolling in their present program at a rate of 47%, while a similar break for those in the non-FGS/college category occurred at a rate of 43%.

Two other ICOPE variables which focussed on previous academic experience merit a closer examination for students that are 21 and older (table 21): when school was last attended and the respondent's evaluation of his or her academic preparedness. Only 35% of the FGSs had been enrolled in a program of study in the year before their present university enrollment, compared to 50% for their non-FG peers. In addition, 35% of FGSs 21 and older had had a pause in their studies of five or more years before enrolling in their current program, while this proportion was only 17% for their non-FG/university peers in the same age category. When they were then asked how they would evaluate how prepared they were when they undertook their current program, the FGSs 21 and older declared that they felt they were less well-prepared than other students in the same age bracket. Furthermore, we observe that 62% of non-FG/university students considered their own preparation to be very good or excellent, while for FGSs, only 52% had this same positive self-evaluation.

4.1.3 University attendance pattern

Type of program

We saw earlier with the YITS that there is no marked difference between FG and non-FG/college students in terms of which type of program a student chooses. The only significant difference observed was that students in the non-FGS/university category were proportionally more represented in graduate studies than other students. According to ICOPE, significant differences are observable in terms of types of programs, but only among students 21 and older. As with the YITS, we can state with ICOPE that non-FGS/university students were proportionally better represented in graduate programs than their peers (21% compared to 15-16%). We can also observe that non-FG/college students are more likely to choose bachelor's programs than FGSs (38% compared to 27%), who are more likely to choose programs that take less time (undergraduate certificates or shorter programs).

Fields of study

Significant differences can be noted in terms of the fields of study chosen, as much for 18-20 year-olds as for older students. FGSs are more likely than non-FGSs to choose programs in management; the difference is especially pronounced among older students (21+), with figures of 46% for FGSs and 36-37% for their non-FGS peers. The YITS data showed very similar results: FGSs were more likely to choose social sciences or management. The 18-20 year-old FGSs are more likely to choose education (30%) than their non-FGS/university peers (20%). On the other hand, FGSs are proportionally less likely to enroll in the humanities and law than their peers. In other fields, the differences are relatively small. We can observe a slightly higher presence of FGSs in the health sciences[16], but slightly less in the natural and applied sciences, as well as in the arts and letters.

16 The UQ system does not include a Faculty of Medicine. The students in health sciences are predominantly women enrolled in nursing programs.

Early registration status

As with the YITS, the ICOPE results do not indicate a significant difference for students in the 18-20 year-old category. However, there are significant differences in registration status for older students. FGSs that are 21 and older are proportionally less likely to be enrolled full time than other students in the same age category. In fact, the proportion of full-time students increases along with the educational background of students' parents: 32% for FGSs, 44% for non-FGS/college students and 54% for students in the non-FG/university category.

4.2 Access to a bachelor's degree according to ICOPE

The data from the student cohorts system of the UQ Direction of Institutional Research have been combined with the ICOPE data for respondents who enrolled in a bachelor's program in the fall of 2001. This made it possible to analyse the pathways of these ICOPE respondents over a period of five years. At the end of this observation period, in the fall of 2006, the students were in one of three situations: graduated (with a bachelor's degree or a certificate of some other program), continuing (a student still active in a bachelor's program or in another program), or having left without a degree (a student who had quit their academic program altogether). Table 22 shows the breakdown by percentage of students (from 2001) according to their situation in the fall of 2006 and according to their parents' educational background. The results are once more detailed as a function of the respondents' age.

4.2.1 Descriptive analysis

First of all, the overall graduation rate of the undergraduate ICOPE respondents was 84% for those who had enrolled at age 18-20, while it was only 65% for those who were 21 and older. Also, even though the older students had the biggest proportion of continuing students at the end of this observation period, they were at the same time proportionally twice as likely as the 18-20 year-olds to have stopped their studies by the fall of 2006 (20% of 21 and older category quit their studies without a degree, compared to 10% for the 18-20 year-old).

The situation for the 18-20 year-old students in the fall of 2006 was not that different in terms of FGS status. However, for the older students (21 and older in 2001), the graduation level of the FGSs (60%) was less than that of the non-FGS students (67-68%).

Table 22

Bachelor's degree graduation rates (%) of ICOPE 2001 respondents after 5 years, according to parental education level

	18 to 20				21 and older			
	Graduated	Continuing	Left without degree	Total	Graduated	Continuing	Left without degree	Total
Parental education level			**(χ^2 = 3.10; NS)**				**(χ^2 = 16.80; p < 0.01)**	
FGS	83	7	10	100	60	17	23	100
Non-FGS/ college	82	7	11	100	68	16	16	100
Non-FGS/ university	85	5	10	100	67	12	21	100
TOTAL	**84**	**6**	**10**	**100**	**65**	**15**	**20**	**100**

Note: NS indicates non-significant at 0.05.

Aside from the parents' education level, it is legitimate to examine the other characteristics that can influence the probability of persisting until graduation. An earlier analysis of the ICOPE data (Pageau and Bujold, 2000), and the ongoing update of the PROSPERE[17] tool, has allowed for the identification of a number of characteristics that are strongly linked to pursuing a bachelor's degree. By cross analyzing a number of variables with students' pathways, Pageau and Bujold observed that the students who obtain their diploma were more likely than their peers to posses the following characteristics:

- Were full-time students;
- Passed all of their courses in their first semester;
- Were women;
- Were 21 or younger when they began;
- Did not have children;
- Considered their financial situation to be at least satisfactory;
- Had a D.E.C. in a pre-university program;
- Had attended some sort of educational institution in the two years prior to enrolling at university;
- Judged that their own state of preparation for university studies was very good or excellent;
- Had never had a break in their studies;
- Wanted to obtain the degree in the program in which they were enrolled;
- Considered their choice of institution to be definitive;
- Wanted to continue their studies in an unbroken fashion;
- Intended to take their classes during the daytime;
- Stated that they had a strong interest in their field of study;
- Did not show an interest in another field of study;
- Valued their study/class time more than their work or leisure time;
- Had a paying job that required not more than 15 hours per week;
- Had a good knowledge of their chosen program.

Since this earlier study presented a portrait of all students and was based on data from before 2001, table 23 examines these characteristics one by one to see if these observations still applied in 2001 and to verify if there are any observable differences according to age category (18-20 versus 21 and older).

17 PROSPERE stands for the *Profile de succès personnel des études*. For information on the functioning of PROSPERE, see Bujold (2007).

Table 23

Bachelor's degree graduation rates (%) of the ICOPE 2001 respondents after 5 years, according to the characteristics of success determined by Pageau and Bujold (2000)

	18 to 20				21 and older			
	Graduated	Continuing	Left without degree	Total	Graduated	Continuing	Left without degree	Total
Registration status								
		(χ^2 = 23.04; p < 0.01)				(χ^2 = 158.28; p < 0.01)		
Full-time	84	6	10	100	71	11	18	100
Part-time (a)	53	22	25	100	40	30	30	100
Passed all of their first-semester courses								
		(χ^2 = 77.75; p < 0.01)				(χ^2 = 166.79; p < 0.01)		
Passed 100%	87	5	8	100	72	14	14	100
Passed less than100%	66	13	21	100	41	18	41	100
Gender		(χ^2 = 4.43; NS)				(χ^2 = 0.82; NS)		
Men	80	8	12	100	64	14	22	100
Women	84	6	10	100	65	15	20	100
Parental responsibilities								
		(χ^2 = 0.54; NS)				(χ^2 = 21.58; p < 0.01)		
With children	nd	nd	nd	nd	55	21	24	100
No children	84	6	10	100	67	13	20	100
Self-evaluation of financial situation								
		(χ^2 = 3.70; NS)				(χ^2 = 2.43; NS)		
Comfortable	82	7	11	100	67	13	20	100
Satisfactory	85	5	10	100	63	16	21	100
Precarious	82	8	10	100	65	14	21	100
Pre-university D.E.C.								
		(χ^2 = 2.26; NS)				(χ^2 = 18.78; p < 0.01)		
Had this degree	84	6	10	100	69	11	20	100
Did not	81	7	12	100	62	18	20	100
Last time attended an educational institution								
		(χ^2 = 0.54; NS)				(χ^2 = 53.73; p < 0.01)		
Less than one year	84	6	10	100	71	12	17	100
1-3 years (c)		80	8	12	100	58	21	21
3-5 years	--	--	--	--	50	19	31	100
5 or more years	--	--	--	--	56	18	26	100
Self-evaluation of academic preparedness								
		(χ^2 = 47.22; p < 0.01)				(χ^2 = 69.82; p < 0.01)		
Very good to excellent	87	5	8	100	68	15	17	100
Good	79	9	12	100	63	16	21	100

	18 to 20				21 and older			
	Graduated	Continuing	Left without degree	Total	Graduated	Continuing	Left without degree	Total
Rather weak or poor	65	7	28	100	46	11	43	100
Do not know	54	8	38	100	45	3	52	100
Previous academic interruptions								
		(χ^2 = 5.07; NS)				**(χ^2 = 5.51; NS)**		
One or more	77	9	14	100	62	16	22	100
None	84	6	10	100	67	14	19	100
Expected completion of this degree								
		(χ^2 = 113.27; p < 0.01)				**(χ^2 = 100.80; p < 0.01)**		
Want the degree in this program	87	6	7	100	67	15	18	100
Might want another degree	61	11	28	100	51	11	38	100
Will attend some classes (d)	59	8	33	100	22	16	62	100
Do not know	41	18	41	100	31	19	50	100
Choice of institution								
		(χ^2 = 128.61; p < 0.01)				**(χ^2 = 64.35; p < 0.01)**		
Definitive choice	88	5	7	100	68	14	18	100
Temporary choice	58	5	37	100	41	15	44	100
Do not know	78	10	12	100	60	18	22	100
Anticipated means of completing this degree								
		(χ^2 = 75.19; p < 0.01)				**(χ^2 = 113.41; p < 0.01)**		
Without interruption	86	6	8	100	69	14	17	100
With a possible interruption	53	13	34	100	36	22	42	100
Do not know	62	11	27	100	42	17	41	100
Anticipated class times								
		(χ^2 = 20.62; p < 0.01)				**(χ^2 = 110.12; p < 0.01)**		
Mostly daytimes	85	6	9	100	72	11	17	100
Mostly evenings	74	12	14	100	46	27	27	100
Both days and evenings (equally)	76	9	15	100	65	15	20	100
Weekends	--	--	--	--	8	38	54	100
Interest in chosen field of study								
		(χ^2 = 51.40; p < 0.01)				**(χ^2 = 36.93; p < 0.01)**		
Exceptional	87	6	7	100	67	16	17	100
Great	84	5	11	100	65	14	21	100
Fair to medium	66	11	23	100	50	12	38	100

	18 to 20				21 and older			
	Graduated	Continuing	Left without degree	Total	Graduated	Continuing	Left without degree	Total
Interested in another program?								
		(χ^2 = 55.96; p < 0.01)				**(χ^2 = 9.18; NS)**		
Yes	72	10	18	100	59	17	24	100
No	88	5	7	100	66	14	20	100
Do not know	84	6	10	100	68	12	20	100
Placed a higher value on…								
		(χ^2 = 23.84; p < 0.01)				**(χ^2 = 109.33; p < 0.01)**		
Studies	85	5	10	100	70	12	18	100
Work	57	26	17	100	41	28	31	100
Leisure time	75	12	13	100	48	17	35	100
Had a paying job while in school (hours/week)								
		(χ^2 = 20.65; p < 0.01)				**(χ^2 = 105.60; p < 0.01)**		
15 hours or less (f)		86	5	9	100	76	11	13
16-20 hours	84	5	11	100	66	12	22	100
21-29 hours	79	10	11	100	64	17	19	100
30 hours or more	59	19	22	100	40	28	32	100
Global knowledge of their program								
		(χ^2 = 2.55; NS)				**(χ^2 = 15.37; p < 0.01)**		
High	84	6	10	100	68	13	19	100
Medium	82	7	11	100	64	16	20	100
Poor	87	4	9	100	55	14	31	100
Field of studies		**(χ^2 = 13.18; NS)**				**(χ^2 = 19.26; p < 0.05)**		
Health sciences	78	13	9	100	62	20	18	100
Pure and applied sciences	84	6	10	100	63	13	24	100
Humanities and law	82	6	12	100	68	15	17	100
Arts and letters	80	9	11	100	56	16	28	100
Education	87	5	8	100	67	13	20	100
Management	82	6	12	100	63	16	21	100

Note: NS indicates non-significant at 0.05.

(a) Among 18-20 year-old students only approximately 30 were enrolled part-time in a bachelor's program in the combined data file. The results for this group, therefore, should be used with caution.

(b) Among 18-20 year-old students less than 10 indicated parental responsibilities in the combined data file. Because of this small number, the distribution for this group was not available.

(c) Only about 40 students in the 18-20 year-old category had had a break in their studies in the 1-3 years before starting their bachelor's, and so the results for this group should be used with caution

(d) Very few students indicated the selection "Will only take a few courses", both among the 18-20 year-olds (12 students) and the 21 and older group (32 students).

(e) We note that the distribution of students 21 and older who have the intention to take classes on weekends is a small sample (24 students). Also, the students who said that they would follow their classes via distance learning or who did not know how they would be taking their classes were not considered in these results.

(f) The category "Working 15 hours or less" per week also includes those students who did not work.

The results obtained indicate that in the majority of cases Pajeau and Bujold's conclusions remained valid in 2001 for both age groups. They reveal that the probability of finishing a bachelor's degree is influenced by socio-demographic characteristics, living conditions, academic background and level of commitment to one's studies. As far as socio-demographic features are concerned, this probability is higher for women[18] and for students who were not a child's principal caregiver[19]. In terms of living conditions[20], the students who did not work while they were studying or who worked 15 hours or less per week had a better chance of graduating. We can observe that as the number of hours worked per week increased, the likelihood of completing their bachelor's degree decreased. Academic persistence was also higher for those who had a positive academic experience, particularly for students who had passed all of their first-semester courses and who had a good knowledge of their program and its prospects[21].

Student's academic background is also an important factor in completing a university degree. Those who indicated they were well-prepared to undertake their university studies, who had had a pre-university D.E.C.[22] , who were in a school in the year prior to their university registration[23] and who had never dropped out of a program[24] were more likely to complete their degree. Persistence is also strongly influenced by earlier academic aspirations, and especially by the level of commitment. We can state that, overall, academic persistence is higher for students who attend university full time, who plan to follow a continuous academic pathway, who plan to attend daytime classes rather than evening or weekend classes, who place more emphasis on education than on paid work and leisure time, who express a strong interest in their chosen program and do not express interest in (an) other program(s)[25], and who consider their choice of academic institution to be definitive. Furthermore, those who intend, at their initial registration, to complete their degree in the program they have just begun are more likely to graduate, compared to those who indicate that they may change programs or who do not yet have a clear goal for their studies when they begin their program.

Finally, when looking at the academic pathways of students as a function of their chosen fields of study, we can conclude that the choice of field had an impact on the chances of graduation only for the students who were 21 and older when they began. The highest graduation rates were for students in the areas of education and the humanities and law (67-68%), while those who had begun in the area of arts and letters had the lowest graduation rate (56%), and, consequently, the highest rate of leaving without a degree (28%) after five years.

18 Even though the Khi-2 statistics do not indicate a significant difference according to gender for the 18-20 year olds or for those 21 and older separately, there is a statistically significant difference present in the data when all of the respondents are considered together, without age distinctions. Being a woman has a favourable impact on academic persistence and obtaining a bachelor's degree; women graduate in a higher proportion (75%) than men (70%). These results nevertheless suggest that the age group is more of a determinant for completing studies than gender is.

19 We can state that having children was not a determining factor for the 18-20 year-olds. This is not surprising given that few university students in this age group were parents.

20 We note that the student's evaluation of their financial situation did figure significantly in the 2001 data.

21 Global knowledge of a program was not a notable criterion among 18-20 year-olds, but it played a key role for older students. Having a pre-university D.E.C. was not a variable significantly associated with the success rates of 18-20 year-olds, as the majority of them (85%) had one. However, it was a significant influence for older students (21 and older), of whom only 44% had this degree. This difference between these two age groups can be explained in part by the fact that, from the age of 21, students can be admitted to university more on the basis of relevant experience than if they have the appropriate degree.

22 Having a pre-university D.E.C. was not a variable significantly associated with the success rates of 18-20 year-olds, as the majority of them (85%) had one. However, it was a significant influence for older students (21 and older), of whom only 44% had this degree. This difference between these two age groups can be explained in part by the fact that, from the age of 21, students can be admitted to university more on the basis of relevant experience than if they have the appropriate degree.

23 Almost all of the 18-20 year-olds had been students in the year before starting at university. Therefore, there was no significant difference observed for this factor in this age group. For the older students, we note that the rate of finishing a bachelor's degree was much higher (77%) when they had had a break in studies of less than one year before starting their program, compared to a graduation rates of between 50-58% for students whose break(s) in studying totalled one year or more.

24 As far as evaluating the variable of an earlier 'break in studies', even though the Khi-2 statistic does not indicate a noticeable difference within each age group, a significant difference does appear when taking all of the respondents together (without age distinctions). The 2001 respondents who had never had a break in their studies graduated in a much bigger proportion (77%) than those who had had one or more interruptions (64%).

25 For older students (21+), being more interested in a program other than the one they are enrolled in did not have a significant impact on their graduation rates according to the Khi-2 statistic. However, exhibiting interest in their own program was a condition conducive to graduation success when evaluating the respondents in both age groups together.

4.2.2 Multivariate analysis

In the preceding section, we identified a series of characteristics which, one-to-one, are associated with persistence to continue and achieve a bachelor's degree. At the same time, persistence cannot be explained by a single variable, but rather by a combination of several explanatory factors combined in a complex manner. We therefore proceed, in this section, to a logistic regression analysis with the aim of determining the factors that have an identifiable effect after controlling for the other variables. As with the YITS, separate models are presented, based on the parents' educational background, to determine if certain variables have more influence on the persistence of FGSs compared to their non-FGS peers. The results are also detailed according to the two age groups.

Table 24

Characteristics influencing the academic persistence of bachelor's students, based on ICOPE 2001 respondents – Odds ratios (logistic regression model), including all of the variables of interest

	Age 18-20			21 and older		
	FGS	Non-FGS/ College	Non-FGS/ University	FGS	Non-FGS/ College	Non-FGS/ University
Legal status in Canada						
International student	10.18	0.20	0.41	0.43	0.33	1.39
Canadian citizen or permanent resident	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Previous interruption in studies						
An interruption or interruptions	0.66	1.48	0.59	0.85	1.06	0.91
No interruption	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Registration status						
Part-time	0.07*	0.92	0.07**	0.53	0.31**	0.34**
Full time	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Objective for this degree						
Wants a degree in their chosen program	1.53	1.70	3.32**	1.62	0.94	1.74
May obtain another degree, take only a few classes, or did not know	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Number of hours of paid work per week						
Number of hours	1.00	1.01	0.98	0.97**	0.97**	0.98*
Anticipated means of completing this degree						
Without interruption (except for summers)	2.43	2.66*	1.10	1.46	2.27*	1.47
With the possibility of an interruption or did not know	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Last attended a school/college						
One year or more ago	0.97	0.82	1.10	0.63*	0.58	0.58*
Less than a year ago	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Gender						
Women	1.35	1.29	1.86*	1.09	1.38	0.96
Men	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Realistic academic aspirations						
Graduate studies	0.59	1.18	1.28	0.97	0.72	0.82
Bachelor's degree	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Passed all of their first-semester courses						
Passed 100%	4.35***	2.90**	3.36*	5.54***	4.93***	3.15***
Passed less than100%	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Parental responsibilities						
Has a child/children	>999.99	>999.99	< 0.001	1.02	2.34	0.74
No children	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Has a pre-university D.E.C.						
Has this degree	0.57	1.02	1.89	1.02	0.93	0.92
Does not have	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.

	Age 18-20			21 and older		
	FGS	Non-FGS/ College	Non-FGS/ University	FGS	Non-FGS/ College	Non-FGS/ University
Self-evaluation of their academic preparation						
Very good to excellent	1.45	0.73	1.70	0.82	1.37	1.71*
Poor to good	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Choice of academic institution						
Definitive choice	2.23*	1.87*	2.04*	1.64	2.44*	1.88*
Temporary choice or does not know	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Anticipated class times						
Especially daytimes	1.58	1.65	1.86*	1.17	2.00*	1.21
Especially evenings or weekends	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Interested in another program?						
Yes	0.82	0.42**	0.47*	0.95	0.92	0.98
No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Level of interest in their chosen program						
Great to exceptional	1.39	2.06	0.89	1.47	1.18	0.87
Weak to medium	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Placed a higher value on…						
Their studies	3.39*	1.67	0.05*	1.09	1.50	1.17
Their work or leisure time	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Global knowledge about their program						
High	0.64	0.71	0.96	1.09	1.29	1.21
Medium to poor	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Field of study						
Health sciences	0.29	999.99	0.74	2.05	1.15	0.94
Pure and applied sciences	0.50	1.27	4.20*	2.06	1.41	1.24
Humanities and law	0.54	0.53	1.26	1.88	1.33	1.40
Education	0.54	1.22	1.86	1.55	0.56	1.03
Management	0.45	0.75	2.56	1.86	1.72	1.37
Arts and letters	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Pseudo-R^2	0.22	0.22	0.24	0.20	0.35	0.21
χ^2 wald	54.5*	59.10*	79.64*	104.17***	82.74*	85.02*
DF	24	24	24	24	24	24
N	425	479	590	622	394	535

Notes: *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$

The abbreviation "Ref." indicates the reference category (relative effect).

Table 24 shows the results of a logistic regression analysis based on all of the variables associated with continuing studies as far as obtaining a bachelor's degree. We have added, for investigative purposes, two other independent variables: legal status in Canada and realistic academic aspirations. Here legal status is an institutional datum. Analyses of the UQ's database, performed in the context of another study[26] have shown that international students completed their bachelor's degrees in a lower proportion than students who were Canadian citizens or permanent residents. Therefore, it seemed reasonable for us to integrate this factor into our model. As for the category of realistic academic aspirations, since this was shown to have been significant in the YITS, we have added it to our ICOPE analysis. Even if this variable did not have a measurable impact on the data prior to 2001, perhaps it would have an impact on the 2001 data?

In reading the data presented in table 24, one can observe that relatively few of the explanatory variables show an impact of more than 5%, taking account of the broad spectrum of factors considered[27]. The factor with the most influence was without question that of passing all of the first-semester courses, which was highly significant[28] and was so in each of the models. The students who passed all of their first-semester courses, no matter how many classes they took, were more likely to go on to graduate with their bachelor's degree. A choice of institution declared definitive from the start also had a significant positive effect on the graduation rate for all of the student groups, except for the older FGSs.

The number of hours worked per week had, for its part, an impact on the persistence of the older students (21 and up). The more hours they worked, the more their chances of graduating diminished. Also, part-time enrollment, rather than full-time, had a non-negligible negative effect on the persistence of some groups of students.

We can conclude that the 18-20 year-old FGSs who enroll at a part-time level are more at risk of not graduating than their peers who are full time. This also holds true for the non-FGS/college and the non-FGS/university students of both age groups. Aiming at obtaining a diploma from the program they are enrolled in also has a positive effect on persistence for non-FGS/university students in the 18-20 year-old category. We can also conclude that students in the older age group who had a break in their studies of one year or more before starting their current program were less likely to obtain their degree than those who had been in school the year before, especially for FGSs and their non-FGS/university peers. We next observed that a student's gender only had an influence on the non-FGS/university 18-20 year-old group, in which women were more likely to continue their studies. Furthermore, the older (21+) group of non-FG/university students who felt that they were well-prepared to begin their studies in their chosen program had better chances of completing their degree.

It was also observed that the intention of taking daytime classes, as opposed to other types of schedule (especially evenings, or a combination of daytime and evenings, or even weekends), increased the likelihood of graduating for the 18-20 year old non-FG/university students and the non-FG/college students who were 21 or older. We note as well that both types of non-FGS in the 18-20 year-old group who expressed a strong interest in another program were more likely to have their chance of graduating decrease in a noticeable way.

26 Unpublished internal report.

27 The two variables that were added, "legal status in Canada" and "academic aspirations", do not appear to be significant.

28 Even though the table does not make this sort of nuance, it happens to have the variable with the smallest p value (less than 0.0001).

4.3 Access to graduate studies among bachelor's degree holders

Among the ICOPE respondents who had started their degree programs in the fall of 2001 and who had completed their bachelor's degree[29] at the end of the five-year observation period, 10% went on to graduate studies at the same university, while 90% had either left that institution, enrolled in another undergraduate program or attended university as non-program student (table 25). This rate of continuing on to graduate studies in the ICOPE survey is much lower than the rate found in the YITS (21%). We should note that in ICOPE, the students who decided to pursue graduate studies at another institution than where they had completed their bachelor's degree were counted among those who had graduated and finished their studies (not continuing on to graduate studies). This is because the study data did not provide sufficient means to follow a student beyond where they had first began their university studies. Therefore, the rate obtained by ICOPE for students pursuing graduate studies underestimates the actual situation in Quebec. Table 25 also shows the rate of continuing on to graduate studies according to the parents' educational background and according to age group. There is practically no difference between FGSs and their peers. For those in the 18-20 year-old group, 8% of FGSs continued on to graduate studies in the same institution, after obtaining their bachelor's degree, compared to 11% for the non-FG/college and 13% for the non-FG/university students. For those in the age 21 and older category, 8% of the FGSs stayed at the same university to pursue graduate studies after receiving their undergraduate degree, compared to 10% for their non-FG peers. Since there appears to be no significant link between parents' educational background and the rate of continuing on to graduate school, it was deemed logical not to pursue this analysis any further.

Table 25

Enrollment in graduate studies among the ICOPE 2001 respondents according to parental education level and age group

	Continued to graduate studies (%)		
	Yes	No	TOTAL
Age 18-20		**(χ^2 =1,90. p=0,39)**	
FGS	10	90	100
Non-FGS/college	11	89	100
Non-FGS/university	13	87	100
TOTAL	11	88	100
21 and older		**(χ^2 =0,70, p=0,71)**	
FGS	8	92	100
Non-FGS/college	10	90	100
Non-FGS/university	10	90	100
TOTAL	9	91	100
All respondents		**(χ^2 =2,67, p=0,26)**	
FGS	9	91	100
Non-FGS/college	11	89	100
Non-FGS/university	11	89	100
TOTAL	10	90	100

29 The students who obtained a certificate rather than a bachelor's were still counted along with the bachelor's degree graduates. However, this figure only represents about 2% of the total.

4.4. Synthesis

In sum, this section allows us to state that there are differences between the FGSs in the YITS sampling and those studied in the ICOPE. First-generation students are proportionally two times more numerous in ICOPE than in the YITS. They are also generally older than other students. In fact, when considering only those students aged 21 and older, one can see that it is principally the FGSs in this category that show distinctive traits, while the younger FGSs (18-20) are closer to their non-FG peers, or at least to the FGSs from the YITS sample. FGSs in the older age group are more likely to enroll in shorter undergraduate programs, are proportionally more likely to enroll part-time, are more likely to have been out of school in the year prior to their enrollment, and consider themselves less well-prepared at the beginning of their program than their peers. In addition, their living conditions are also different – they are more likely to be balancing work, study, and family responsibilities.

The situation of older FGSs is reflected in their chances of achieving their bachelor's degree. Even though the younger (18-20) FGSs' rates of graduation are barely distinguishable from those of their peers, the older FGSs have a rate of graduation significantly lower than that of their peers. The regression analyses indicate that for the 18-20 year-old FGSs, as well as for those 21 and older, the preponderant positive factors associated with finishing their degree are to have passed all of their first-semester courses and to have studied full-time. That said, for the older FGSs, other factors are also influential: intending to complete a degree in their initial program, limiting the number of hours worked per week, and having been in school in the year prior to their current enrollment.

Finally, in contrast to the YITS, the results obtained from the ICOPE data do not show a significant difference between FGSs and non-FGSs in terms of their rates of continuing on to graduate studies.

5. Options for Analysis

Three questions were at the basis of this analysis. The first had to do with first-generation students' access to higher education; the second concerned the social composition of this category of students, and the third was their academic persistence. This last question was analyzed based on the completion of a bachelor's degree and enrollment in graduate studies.

5.1 Access to university

The number of FGS who attend university in Canada has been increasing significantly. At the same time, this increase does not signify that their access is as easy as it is for other categories of students. In fact, FGSs in Canada face disadvantages similar to what has been observed in the U.S. by American researchers. In Canada, the percentage of young adults aged 24-26 who attend or who have attended a university is 29% for FGS, while this figure is 69% for young adults who have at least one parent who has completed a university degree. The multivariate analysis reinforced this first claim: that the parents' educational capital positively influences their children's access to university.

This same analysis also indicates that other factors have an influence on university access. Some of these pertain to individual traits such as the father's occupation, the residential environment, high school grades, the type of high school, and the student's academic aspirations. Other factors pertain more to the organization of the system. When considering individual traits, the logic of social reproduction still holds, with one exception: working-class students can continue on to university on the basis of their high school grades. In this respect, we should point out the effect of the academic meritocracy. However, the access to university is probably also linked to the actual structure and availability of post-secondary education, and in particular to the availability of college programs. In the provinces where this option is less available, access to university will be privileged. The distribution of available programs within the provinces also seems to play a role, because those who live in rural areas have a lower probability of attending a university.

The ICOPE did not allow us to gather data on access to university, but it did reveal that 45% of the students in the UQ system are FGSs. Meanwhile, according to the YITS data, 23% of the students in Canada are FGSs (table 26).

Table 26

Distribution of the university students according to parental education level (%), YITS, Cohort B, 2005

	N	%
FGS	1157	23
Non-FGS/college	1376	27
Non-FGS/university	2530	50
Total	5063	100

Note: Calculations are based on the numbers in table 1.

Any comparison between the YITS data and that of the ICOPE should obviously take into consideration the fundamental difference between the two populations: the ICOPE surveyed all of the new students in the UQ system, regardless of their age, while the YITS only surveyed a sample of a cohort of students aged 24-26 in their fourth sampling cycle, in 2005. Now, 63% of the FGSs in the UQ system were 26 or older (table 19). It is highly likely that this university system is distinct from the average Canadian university, but nothing allows us

to identify whether the most important factor is FGS status or a student's age. One thing is clear: by using the ICOPE data which was accumulated within an institutional framework, we can emphasize that the YITS does not allow estimation of the global weight of FGSs in Canadian universities. The ICOPE data indicates that, effectively, a very large segment of FGSs only have access to university studies much later in their lives. Furthermore, this institutional survey makes it clear that the academic pathway of FGSs does not necessarily follow the usual route, as many did not first complete their 2-year pre-university college program, which in Quebec is the standard prerequisite for entering university.

5.2 The social composition of FGSs

Some American research tends to explain the particular academic experience of FGSs in terms of the effects of the composition of this category – they have less access to university because they include a higher number of blacks, women, and people with lower incomes. The distinctive Canadian situation is characterised by the following differences in particular areas:

1. The FGSs at university are proportionally more female than male, even though this ratio changes from one university to another, as the ICOPE results made clear.
2. A larger proportion of FGSs come from families in which the parents work in intermediate- or lower-level jobs.
3. FGSs are proportionally more numerous to come from allophone families and less numerous from anglophone families outside of Quebec.
4. Among students from a rural background, FGSs are proportionally more numerous than non-FGSs with parents holding a university degree but less numerous than non-FGSs with parents who hold "only" a college degree.
5. The differences attributable to high school variables are non-existent, except for having attended a private high school.

As in the U.S. (Horn and Nuñez, 2000), we can observe some significant differences in terms of FGSs' social or ethnocultural background, even though there was no difference attributable to belonging to a visible minority.

From the perspective of their academic competence and their level of commitment in their studies, the situation of FGSs is comparable to that of their non-FGS/college peers. These groups of students were those who, for the most part, had had relatively high grades in high school and had devoted enough time to their homework.

In sum, FGSs differed from other students in their social and cultural composition but not in the characteristics of their schooling. In particular, their success in high school was their ticket for access to university. In this sense, there is really an effect of academic meritocracy on students' pathways.

5.3 Attendance pattern and academic persistence

The American researchers also emphasized differences in attendance patterns and academic persistence. We have also tried to evaluate this question in Canada, as much as the YITS data allowed. A first observation stood out: the "young" FGSs did not start their university programs any later than the other types of students. This observation must be weighed in light of what we said earlier about the ICOPE survey respondents: there are a number of FGSs who enter university beyond the maximum age of the YITS respondents at cycle 4.

A second observation lies in the different ways of attending university. FGSs are proportionally more numerous in the areas of social science and management/business, and less well-represented in the pure sciences (which is in agreement with the literature, notably Touktoushian, 2001). They are

also more numerous in the new rather than in the traditional universities. However, they are not different in terms of their registration status or their tendency to change programs.

Using the ICOPE data has allowed us to observe that with a sampling of young adults aged 18-20, we have only captured a portion of the FGSs who enroll in universities. Actually, FGSs tend to be older than other students – we find them more often in the 21 and older age groups – a characteristic that was revealed in earlier studies (Warburton et al., 2001; Inman and Mayes, 1999; Brown and Burkhardt, 1998, Nuñez et al., 1998).

Access to the ICOPE data has also allowed us to see that a significant number of FGSs are enrolled in certificate programs (equivalent to one year of study). Some of these finish their studies when they achieve this certificate, while others accumulate certificates to complete a bachelor's degree. Enrolling in a certificate program is therefore not unequivocal, underlying the importance of a thorough analysis of pathways. We should also note that Quebec is distinct among the other provinces because there is a vast array of undergraduate certificate programs, which constitutes a factor in the democratisation of university access among "adult" students.

The ICOPE results have also provided us the opportunity to emphasise the importance of the geographic availability of university programs, as FGSs are proportionally more numerous in the regional universities of the UQ system.

Another observation is related to the perception of the academic experience of FGSs, which is distinctive among the other groups of students. FGSs, particularly those who are 21 and older, consider themselves to be at a disadvantage compared to their peers, and they are more likely to have had an academic experience evaluated as 'difficult'. They state that they are poorly prepared to undertake university studies, and, effectively, there are fewer of them who say that they passed all of their first-semester courses. Also, more of them indicate that they are living in a precarious financial situation and that they have to combine work and study. They also work more hours per week than their non-FGS peers, a fact which probably explains why they are more frequently enrolled part-time and more often predict that they will most likely interrupt their studies. This portrait of FGSs is closer to that portrayed in the American literature (Horn and Nuñez, 2000; Pascarella, 2003).

Achieving a bachelor's degree does not significantly distinguish FGSs from other categories of students, which is different from the American context. However, this confirms the results of recent Canadian works (Kamanzi et al., 2009). That said, we have tried to find out, taking into account FGS status, if other factors could play a particular role. In this regard, two factors do distinguish FGSs: their high school grade-point average, which is positively correlated to the probability of achieving their bachelor's degree, and an interruption in their studies, which reduces that same probability. This result might seem trivial, but it is not, because having had a break in studies did not have an adverse effect on the other categories of students. These observations underline the importance of earlier schooling for FGSs and their chances of completing their university degrees.

In ICOPE, the younger FGSs increase their probability of finishing their degree by means of the following factors: passing all of their first-semester courses, not predicting that they will interrupt their studies, having made a definitive decision in choosing their academic institution, and prioritizing their studies over their work or their leisure time. Enrolling part-time, however, reduces their chances of obtaining their degree. This last condition implies the prolonged length of time required to complete a degree undertaken part-time, while the other positive factors relate to their subjective commitment to their studies and their capacity to master student skills, starting in their first semester. Passing all of their first-semester courses is a positive factor, while the number of work hours and the length of a break in studies before enrollment diminish the probability of completing a degree as they increase. These three factors relate especially to a student's availability for her/his studies and to her/his capacity to learn student skills.

The last aspect that we have examined is continuing on to graduate studies. Our studies (based on the YITS) indicate that this happens less frequently for FGSs, as well as for non-FG/college students. When we looked at this issue in the UQ system we came to a similar conclusion. Again, we wanted to know if certain socio-demographic or academic factors had an influence on access to graduate studies. As a whole, the response was negative. Two factors do have an effect: high academic aspirations had a positive effect and having changed a major had a negative effect on pursuing graduate studies. In the latter case, it must be said that the students who had changed their majors had not yet had the time to complete their undergraduate program (in YITS cycle 4). In fact, adding a subsequent study cycle could very well modify the above conclusions, as we had also concluded based on the high level of students who return to their studies in the UQ system.

Overall, the aspects and the factors examined in this analysis are better at explaining access than persistence, which could perhaps be an effect of selection or resilience. Once they have begun their university studies, FGSs are either not very distinguishable, or not by that much, from their non-FG peers. This is the case except for the impact of having had good grades in high school, which is considered as the main condition for success in further studies. However, academic persistence is linked to many aspects of the university experience, as much academic as social. For methodological reasons, we have not integrated all of them in this analysis, because not all of them were covered by the YITS. In some cases, we actually have no information at all. For example, the YITS has no information on the undergraduate students' academic record, while ICOPE includes the academic results for the first year at university.

Having access to the ICOPE data allows us to draw certain conclusions as well as to determine hypotheses on the influence of ongoing academic experience at university. For example, this analysis shows that the most influential factors on persistence for 18-20 year-old FGSs is their commitment and their capacity to assimilate the 'rules' regarding becoming a successful student. The role that these factors play seems to indicate that a student's capacity to rapidly adapt to the academic regime of a university is a contributing element to academic persistence. However, for the older FGSs, the question of integrating academic life with their other life commitments is made problematic by the number of hours worked per week while taking classes, which in turn has a negative influence on successfully completing their degrees.

Conclusion

The present study had the goal of verifying the hypotheses, presented in American studies, which support that both access to and persistence in university studies are influenced by the educational capital of parents. More precisely, these studies affirmed that being an FGS had an adverse effect on access and persistence. To verify these hypotheses, we used pan-Canadian data (YITS) and institutional data (ICOPE).

As for addressing access, the results confirmed what had been found in the U.S. First, the bivariate analysis confirmed that FGSs are under-represented in Canadian universities. Second, the multivariate analysis also allowed us to confirm this same situation, and that even when other factors are taken into consideration, the participation of FGSs in universities remains lower than that of non-FGSs. The young people whose parents have some post-secondary experience, especially in a university, enroll in universities in higher proportion than FGSs. At the same time, we note that, no matter what the parents' education level is, access to university depends on several factors, especially the level of academic aspirations and the skill background acquired during high school, which has a higher influence on access.

In terms of persistence, the tendency observed in the U.S. was not found in Canada. More specifically, the FGSs and the non-FGSs who enroll in university have a comparable level of academic persistence, as much for the rate of graduation as for the likelihood of continuing on to graduate studies. Based on this, how do we explain the significant differences with the situation in the U.S.? Are Canadian universities more conducive to helping 'disadvantaged' students to succeed? Does this hint at a more global effect of the educational structure itself? For the moment, it is difficult for us to answer these questions since, contrary to the ICOPE, the YITS only captures a portion of the reality of the situation of FGSs – the older FGSs who return later to their studies were not included in that study. Yet, we know that these are students for whom the path through post-secondary education is more difficult, since the constraints of daily life bear more heavily on them.

Furthermore, the data from these two studies lead us to somewhat contrasting FGSs' profiles. According to the YITS data, they differ from other students in socio-demographic terms but not on the academic level. However, the ICOPE data lead us to observe that FGSs' pathways differ in several ways. Compared to other students, FGSs have living conditions that are more difficult: precarious finances, more complicated work and study arrangements, etc. As a result, they exhibit a lower level of engagement in their studies and have to overcome more difficulties to succeed at their studies.

The comparison between these two studies has also allowed us to highlight an essential aspect of the social composition of first-generation students: a significant proportion of them are older. Yet, by its sampling structure, the YITS did not allow this situation to be seen.

We also wanted to make a comparison between a global portrait of the situation of FGSs and an institutional portrait. To accomplish this, we used the ICOPE survey, that has been conducted for several years, based on data in the UQ system. Besides the originality of this study, it is interesting because this study was developed so that UQ could encourage university access to increasing sectors of the population.

We noted several differences between the global Canadian situation and that of the UQ system. This comparison between two studies with different

bases (national/institutional) also served to emphasize that universities are not all alike, and that, because of their differences, the effective social composition of their respective student body can be different. In effect, some universities were created specifically in order to facilitate greater accessibility to university programs; the UQ system is a good example, but similar institutions exist elsewhere in Canada (York and Simon Fraser, for example). These universities have been able to accept the 'new' students, thus FGSs, in large numbers, which has been made clear in some of the results presented in this research paper, even though older students are absent from the YITS data.

ICOPE is particularly interesting because of its methodology, which combines the survey data with administrative data. This pairing allows us to discover pertinent information about individual characteristics such as cultural heritage, socio-economic situations, earlier academic pathways and students' academic achievements, information which is not otherwise available. This pairing also allows us to introduce a longitudinal component and to obtain, at little cost, detailed information which is consigned to student's individual files.

The results of this research paper call for further, more systematic comparative research. On one hand, our results indicate that there are differences in academic pathways between the Canadian and the U.S. situations, and that it would be worthwhile to deepen the approach to understand the origin of these differences. On the other hand, as we have indicated, there are also differences between universities, differences that could be the object of a more in-depth exploration, if only by taking into account the different university missions and the different services they offer to their students.

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Appendix

Presentation of the Variables

A. YITS data, cohort B

Name	Definition and operationalization	Possible responses
Access to post-secondary studies	Having been at enrolled at one time or another during the course of this survey	1- Yes 2- No
Obtaining a bachelor's degree	Having obtained a bachelor's degree between 2000 and 2005.	1- Yes 2- No
Continuing on to graduate studies	Continuing on to graduate studies (Master's degree or other graduate programs)	1- Yes 2- No
SOCIAL AND CULTURAL BACKGROUND		
First-generation student (FGS)	This variable is measured from the highest level of education achieved by one or another parent. In cycle 1 of the YITS, each parent was asked to specify his/her highest level of education. In the ICOPE survey, it was the students themselves who indicated the highest level of education of each of their parents.	1- Two parents who had not gone beyond secondary school 2- At least one parent who had attended a college 3- At least one parent who had attended a university
Father's/Mother's Occupation	Type of current employment. Recorded according to the *National Occupational Classification* (1991).	1- Upper management or executive 2- Professional 3- Technical or semi-professional 4- Intermediate-level 5- Lower-level and manual labour 6- Unemployed or retired
Gender		1- Women 2- Men
Linguistic background	This variable was created based on the student's mother tongue – the language learned in childhood and still understood, in conjunction with the province of residence.	1- Anglophones outside of Quebec 2- Francophones outside of Quebec 3- Francophones within Quebec 4- Anglophones within Quebec 5- Allophones
Member of a visible minority	This variable was derived by Statistics Canada based on the ethnic group that a respondent identifies with.	1- Yes 2- No
Province of residence	This variable is defined according to which province the student was living in for cycle 1 of the YITS.	The ten provinces of Canada
TYPE OF UNIVERSITY AND RESIDENTIAL ENVIRONMENT		
Type of university	This variable identifies universities according to their creation date (either before or after 1959).	1- Traditional 2- New
Residential environment	Established by Statistics Canada from geographic indicators based on the statistical area classification (SAC), this variable indicates if a region is rural or urban (geographical data from the 2001 census).	3- Rural 4- Urban

EDUCATIONAL BACKGROUND		
High school grade average	The average of the grades received in the last year of high school.	1- 90 – 100 % 2- 80 – 90 % 3- 70 – 80 % 4- 60 – 70 % 5- 60 % or less
Time devoted to homework per week in high school	The respondents were asked to estimate the approximate number of hours per week they spent on their homework per week during high school.	1- Less than one hour 2- 1 to 3 hours 3- 4 to 7 hours 4- 8 hours or more
Had a drop-out period	The students were asked if they had experienced a drop-out period during either their elementary or secondary schooling.	1- Yes 2- No
Type of high school		1- Private 2- Public
Completed high school before age 18?	A variable generated from the YITS data, cycle 2.	1- Yes 2- No
Break in studies before university?	This refers to the time between completing high school or a college program and enrolling at a university (excluding summer).	1- Yes 2- No
Academic aspirations (at the end of high school)	The respondents were asked to specify their educational goals.	1- College program 2- Bachelor's degree, university 3- Graduate studies
ACADEMIC PATHWAY		
Year and age of entry to university	A break-down was made based on the student's responses (right column).	1- 1997 (age 16-18) 2- 1998 (age 17-19) 3- 1999 (age 18-20) 4- 2000 (age 19-21) 5- 2001 (age 20-22) 6- 2002 (age 21-23) 7- 2003 (age 22-24) 8- 2004 (age 23-25) 9- 2005 (age 24-26)
Field of study	We established five categories based on the large categories of fields of study from Statistics Canada.	1- Life sciences and technologies 2- Pure sciences and physical technologies 3- Social sciences and management 4- Humanities 5- Arts and letters
Registration status		1- Full time 2- Part-time

B. The ICOPE Data

Name	Definition and operationalization	Types of responses
Parents' educational background	This variable is measured according to the highest education level achieved by one or both parents. As part of the study the students indicated the highest education level reached by their parents (whether completed or not).	1- FGS: two parents who had attended high school 2- Non-FGS/college: at least one parent had attended a college 3- Non-FGS/university: at least one parent had attended a university
Age category	A student's age as of September30th, 2001, from institutional data. For the purposes of analysis, these figures were grouped into four categories.	1- 18 – 20 2- 21 – 25 3- 26 – 40 4- 41 and older
Gender	This variable is taken from the institution's database.	1- Men 2- Women
Father's/mother's occupation	Students specified their father's (mother's) occupation throughout the major portion of their life. These occupations were then coded according the *National Occupational Classification* (1991) These coded occupations were subsequently re-grouped into six categories.	1- Upper management and executive 2- Professional 3- Specialised and technical 4- Office, support, and intermediate-level 5- Lower-level 6- Unemployed, retired, or dead
Parental responsibilities	Students were asked if they were parents and if they were still responsible for their children. Only those who indicated that they were still responsible for their children were counted as having parental responsibilities.	1- With children 2- No children
Employment situation	Students were asked if they had a paid position at the time of the study.	1- Working while at university 2- Not working
Number of hours worked per week	The students who stated that they were working for pay at the time of the study were then asked to specify the number of hours they worked per week at this job(s).	1- 15 hours or less 2- 16-20 hours 3- 2`1-29 hours 4- 30 or more hours
Self-evaluation of financial situation	Students were asked to qualify (self-evaluate) their financial situation for the current academic year. The response choices of "very comfortable" and "rather comfortable" were regrouped into a single category, as were the two choices "very precarious" and "rather precarious".	1- Comfortable 2- Satisfactory 3- Precarious
Anticipated way of pursuing one's studies	In terms of achieving the educational goal they indicated when they began their university program, each student was asked how s/he intended to pursue her/his studies.	1- Without interruption (summer trimesters excluded) 2- With the possibility of an interruption 3- Do not know
Last attended an academic institution	Each student was asked when was the last time they attended a teaching institution (high school, college or university).	1- Less than a year ago 2- From one to 3 years ago 3- From 3 to 5 years ago 4- 5 years ago or longer

Self-evaluation of academic preparedness	Each student was asked to evaluate, in a general way, his or her level of how prepared they were to begin their current academic program.	1- Very good to excellent 2- Good 3- Weak or poor 4- Do not know
Legal status in Canada	This variable is taken from the institution's database.	1- International student 2- Canadian citizen or permanent resident
Level of French	An indication of the student's global French knowledge was constructed based on 4 aspects. Each student was asked to assess their knowledge of French (high, average or low) in terms of their writing, reading, speaking and oral comprehension.	1- High 2- Average 3- Low
Geographic classification	The regional UQ institutions that participated in the 2001 study were UQAC, UQAR, UQTR,, UQO and UQAT. UQAM is classified as a metropolitan institution and TÉLUQ is a distance-teaching institution.	1- Metropolitan 2- Regional 3- Distance-teaching
Type of program	The category of "Bachelor's" includes professional undergraduate doctorates. "Other undergraduate programs" includes certificate programs and shorter-duration programs. "Graduate studies" encompasses the shorter-duration graduate programs, "Advanced Graduate Certificates", as well as master's and doctorate programs.	1- Bachelor's 2- Other undergraduate programs 3- Graduate studies
Field of studies	This variable is taken from the institution's database.	1- Health sciences 2- Pure and applied sciences 3- Humanities and law 4- Arts and letters 5- Education 6- Business administration
Registration status	This variable is taken from the institution's database.	1- Full time 2- Part-time
Previous academic interruptions	Students indicated if they had experienced a break in their studies, whether in high school, college or at university.	1- One or more 2- No interruptions
Passed all of their first-semester courses	This variable is determined by the ratio of two institutional data: the number of credits achieved out of the number of credits taken in the fall of 2001. This ratio, converted into a percentage, then makes it possible to identify the students who had passed all of their first-semester courses.	1- Passed 100% 2- Passed less than 100 %
Holding a pre-university DEC	The student's lists of their degrees, which they provided as part of this survey, allowed the identification of those who had completed this college-level pre-university degree.	1- Had this degree 2- Did not have it
Expected completion of this degree	The students indicated if they intended to complete the degree in the program they were beginning at the time of the study.	1- Want the degree offered by this program 2- Might want another degree 3- Will only take a few courses 4- Do not know
Choice of institution	The student's were asked to specify if their current academic institution was their definitive or their temporary choice.	1- Definitive choice 2- Temporary choice 3- Do not know

Anticipated class times	Students were requested to specify at which times they expected to take most of their classes.	1- Mostly daytimes 2- Mostly evenings 3- Both days and evenings 4- Weekends
Interest in chosen field of study	Students were asked to qualify their level of interest in their chosen field.	1- Exceptional 2- Great 3- Fair to medium
Interest in another program?	Students were asked if, considering their academic profile, there was another program that they would be interested in pursuing.	1- Yes 2- No 3- Do not know
Global knowledge of their program	An indication of each student's global knowledge of their program was established based on three questions in the survey that showed how much a student knew as far as how to complete their program, the subjects of the required courses and how this program would prepare them for the job market	1- High 2- Medium 3- Poor
Placed a higher value on…	This variable was determined by combining students' responses to three study questions which were constructed to reveal which aspect students' valued more between work and studies, between leisure time or work, and then between study and leisure time.	1- Studies 2- Work 3- Leisure time
Realistic academic aspirations	Students were asked to indicate the highest level of diploma they thought they would achieve, taking into consideration their various constraints of time, work, family and/or money.	1- A graduate degree 2- An undergraduate degree