University Attainment, Student Loans, and Adult Life Course Activities

A Fifteen Year Portrait of British Columbia Young Adults

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MESAMEASURING THE EFFECTIVENESS OF STUDENT AID

Canadian Education Project | Queen's University School of Policy Studies | Canada Millennium Scholarship Foundation
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The MESA Project

The Measuring the Effectiveness of Student Aid Project, or the MESA Project, is a four year research effort being conducted by the Canadian Education Project and the School for Policy Studies at Queen's University on behalf of the Canada Millennium Scholarship Foundation. It has been designed to answer the following four questions:

- After graduating from high school, teenagers coming from low-income backgrounds face a choice as to attend college or university, or not. For those who did attend, how do they compare to those who did not?
- Does providing more funding in a student's first few years of further education attract more low-income students to post-secondary education?
- Does providing more funding in a student's first few years of further education make it more likely for low-income students to stay in and graduate?
- Are low-income students different across Canada?

This paper is part of a series of research papers solicited from some of the leading Canadian researchers in the field of post-secondary education; the researchers were asked to write about issues of access and persistence in post-secondary education in Canada. The requirements for the papers were that the researchers use one of several currently-existing Statistics Canada databases or another source of Canadian data. Each of the papers commissioned during this project is available for downloading from the MESA Project website at www.mesa-project.org.

The findings and conclusions expressed in this paper are those of the authors and do not necessarily represent those of the MESA Project or its partners.

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The **Canada Millennium Scholarship Foundation** is a private, independent organization created by an act of Parliament in 1998. It encourages Canadian students to strive for excellence and pursue their post-secondary studies. The Foundation distributes $325 million in the form of bursaries and scholarships each year throughout Canada. Its objectives are to improve access to post-secondary education for all Canadians, especially those facing economic or social barriers; to encourage a high level of student achievement and engagement in Canadian society; and to build a national alliance of organizations and individuals around a shared post-secondary agenda. The Foundation is funding the MESA Project overall, and has negotiated access to its student administrative lists with each of the provinces on the project's behalf.

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Abstract

In this paper, we employ data from the Paths on Life's Way data base to examine the impact of student loans on the educational and occupational outcomes and other life activities of the BC high school graduating class of 1988. Multiple forces – both individual and structural – conspired to facilitate or prevent post-secondary participation and completion by these graduates. We focus on three macro forces affecting this cohort as they made the transition from high school and through the next 15 years of post-high school life. First, we locate the analysis in the policy debate, beginning with the "Access for All" initiative that was underway in BC in the mid-1980s, Second, we highlight the BC student financial assistance program available to students as they left high school in 1988 in relation to tuition fees and document how this program evolved over time. Third, we describe the changing nature of the BC post-secondary system from the 1980s onwards. Lastly, we switch our conceptual focus to a life course perspective in order to examine how these forces likely impacted individuals' post-secondary educational opportunities, experiences, and outcomes. By taking into account individual characteristics such as social class, gender, and geographic location, we reveal the different ways individuals negotiated life stages in the face of these forces.

Because our analyses span 15 years, none of the forces described above remained static over time. Changes have occurred to post-secondary structures, policy agendas and directions, and the individuals themselves as they matured and took on new adult roles. Hence, it is a challenge to capture the ongoing dance between structure and agency across time.

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Introduction

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Because our analyses span 15 years, none of the forces described above remained static over time. Changes have occurred to post-secondary structures, policy agendas and directions, and the individuals themselves as they matured and took on new adult roles. Hence, it is a challenge to capture the ongoing dance between structure and agency across time.

The Paths data base itself was initially part of an endeavour in the 1980s to further understand post-secondary participation and completion patterns. In 1989, the British Columbia Research Corporation and the British Columbia Institute of Technology, under contract with the Ministry of Education and the Ministry of Advanced Education and Job Training, undertook a survey of new Grade 12 graduates. Two of the primary purposes of this survey were to "collect fundamental, student-based information" (British Columbia Research Corporation, 1990, p. 2) and "to investigate reasons why students choose to go, or not to go, to post-secondary education" (p.4). This baseline study was transformed into the *Paths on Life's Way* longitudinal project (Andres, 2002a; 2002b; 2002c; 2002d).

In the next sections, organized under three main headings, we provide an overview of access policies, student financial assistance and related tuition policies, and the changing structure of the BC post-secondary system from the mid-1980s until the present. It is not our goal to analyze direct relationships between these policies and respondent outcomes. Rather, the purpose of these sections is to locate the *Paths on Life's Way* project within the contexts over time in which it was embedded.

British Columbia Access Policy

In the mid-1980s, BC educational policy makers were troubled by the low numbers of young people making the transition from high school to post-secondary education and in particular, the low transition rate to university. The Report of the Standing Committee on National Finance (1987) indicated that of all of the provinces in 1985/86, British Columbia had the lowest proportion of students entering directly into

university. Of this total cohort, 29 percent continued on to a community college, and 17 percent entered a university; in other words, 55 percent of those graduating from high school did not continue directly to post-secondary studies. In contrast, other provinces had much higher transition rates (i.e., Ontario at 32 percent and 25 percent, respectively).

The structure of post-secondary education in British Columbia could account for some of these differences. Even in the 1980s, students were able to complete one or two years of university-equivalent courses at community colleges, thus lowering the numbers entering university directly. However, in Alberta, with similar post-secondary transfer arrangements and the second lowest transition rate to university, 27 percent of high school graduates continued directly to university. This figure was much closer than British Columbia to the national average of 29 percent.

In the 1980s, transfer rates between community colleges and universities in BC were also considered problematic. Of the Grade 12 graduates in British Columbia who entered the post-secondary system in the 1985/86 year, 64 percent entered community colleges and 36 percent directly entered universities (Standing Senate Committee on National Finance, 1987). In 1985, the estimated total transfer rates from British Columbia community colleges to universities ranged from 14 to 51 percent with a median rate of 29 percent (BC Ministry of Advanced Education and Job Training, 1987). Degree completion rates of students transferring from college to university were estimated to range from 8 to 32 percent compared with 29 to 56 percent for those students directly entering university (p.10). The Ministry of Advanced Education and Job Training (1987) concluded that "on average less than one in four full-time students who begin college academic programs can expect to end up with a first degree. Looking at it another way, those who begin studies at university have twice the chance of completion as those who begin college" (p.11).

These concerns led to a governmental review from which the Provincial Access Committee was established. This committee produced a report entitled *Access to Advanced Education and Job Training in British Columbia: Report of The Provincial Access Committee* (1988) which, in turn, led to the establishment of "Access for All" (1989) – a six year, $690 million fund targeted at expanding access to all types of education throughout the province. The impact of this report is arguably second only to the MacDonald Report (1962) in changing the face of post-secondary education in British Columbia. Its focus was on access in the broadest sense and resulted in dramatic structural changes such as the establishment of five university colleges. In addition, the BC Council on Admissions and Transfer (BCCAT) was created and given a mandate to ensure that the various post-secondary institutions worked together as an integrated and coordinated system (Andres & Dawson, 1998).

The BC Provincial Access Committee (1988) questioned the extent to which the BC post-secondary system provided equitable opportunities for successful degree completion. They pointed out that quotas were placed on both the number of students admitted to universities and the number of transfer students accepted from colleges. Thus, those who were currently over-represented in the community college system in British Columbia were the

most likely to be affected by these policies (Committee, 1988). This finding supported claims in the research literature that community colleges only exacerbated the problem of less equitable outcomes for disadvantaged youth. As Karabel (1986) lamented, "the implications of this pattern of overrepresentation – one in which individuals from working-class and minority backgrounds tend to be concentrated in the very institutions that offer them the least chance of obtaining a bachelors degree – are sobering" (p.17). Others commented on the paradox of the increasing availability of post-secondary places together with a concomitant escalation of competition for, in particular, university places (Coleman & Husén, 1985).

In subsequent reports over the years, attention was directed toward the relationship among the economy, the post-secondary system, and the labour market. These reports focused on topics ranging from structural unemployment as a result of the shifting economy (An Analysis of Career, Technical, Vocational and Basic Training Needs in British Columbia, 1989-93), the qualification/skills gap (Access for Equity and Opportunity, 1992), skills (Skills Now: Real Skills for the Real World, 1994), and skills and employability (Training for What?, 1995). However, it was the focus on equality of opportunity of access – based on theories of human capital and social justice that drove the dramatic expansion of post-secondary education in Canada and BC – that probably had the greatest impact on the BC high school graduating class of 1988.

British Columbia Student Financial Aid and Related Tuition Policies

In contrast to extensive attention to issues of access and transfer, in the 1980s the BC student financial aid system was in disarray. In 1984, the provincial grant portion of available financial aid was eliminated and replaced by the "BC Student Loan" (*Review of BC Student Assistance and Barriers to Post-secondary Participation. Final Report*, 1992, p. 8). As a result of this change and related meagre loan remission policies, until 1987 British Columbia ranked 10th among the provinces in financial aid expenditures per full-time enrolment (Table 1). In 1987, a new student financial aid scheme was adopted, one that included equalization grants to students during their first two years of study, supplementary grants for students in college preparatory programs, and an improved loan remission program. As a result of these changes, BC moved from 10th to 6th place in terms of financial aid expenditures per full-time enrolment (Table 1) (p.8). It was this student financial aid milieu that confronted the BC high school graduating *Class of '88*.[1]

However, student aid policies did not remain static. In 1992, a 15 member committee was appointed by the Minister of Advanced Education to review the BC Student Assistance Program, identify financial and other barriers to post-secondary participation, and recommend improvements to the existing scheme (Report

1 In addition, the Ministry of Education provided a limited number of scholarships to students who wrote and achieved high scores on scholarship examinations. Scholarships were awarded to students on the basis of Standard Ministry Scores. In 1987/88, 1,174 of the 6,372 students who wrote scholarship examinations received these awards. Also, school districts offered awards ($500 value) to 1 percent of their students. In 1987/88, the "Passport to Education" program was introduced, which according to the Ministry of Education (1988) "was designed both to recognize current achievement and to promote greater effort and achievement in the future" (p.22), and it allowed students to accumulate award credits over the four years of high school (to a maximum of $800). However, it had limited impact on 1988 graduates as, at most, eligible students would have earned $275 (Ministry of Education, 1988).

Table 1: Provincial Student Financial Aid Expenditure per Full-Time Enrolment ($)

	1985/86	1986/87	1987/88	1988/89	1989/91	1991/92
British Columbia	81	52	345	522	622	735
British Columbia*	NA	45	394	574	637	NA
Alberta	1141	1465	1550	1595	1389	1227
Saskatchewan	548	981	567	853	988	1660
Manitoba	294	374	386	676	733	726
Ontario	489	547	609	606	607	626
Quebec	776	672	656	642	656	834
New Brunswick	555	558	617	738	811	850
Nova Scotia	395	372	382	419	444	482
PEI	725	816	816	731	776	818
Newfoundland	521	643	803	751	903	1028
Yukon**	10898	15365	9440	6914	6830	8418
NWT**	10639	16718	15392	16750	14893	17500
CANADA	553	648	673	753	793	899

Source: Review of BC Student Assistance and Barriers to Post-Secondary Participation (1992, p.59)

* BC provincial figures use the BC Government definition of post-secondary education which differed from that of Statistics Canada (Review of BC Student Assistance and Barriers to Post-Secondary Participation, 1992, p.59).

** Yukon and NWT data were not used to calculate the Canadian averages (Review of BC Student Assistance and Barriers to Post-Secondary Participation, 1992, p.59).

of the Provincial Access Committee, 1988, p. i). The committee found that despite putative improvements, numerous problems could be identified. In particular, they highlighted how equalization payments, loan remission, and timely completion policies created hardships for "mature students, . . . single parents, students with disabilities, and educationally disadvantaged students" (1988, p. 11). In addition, the committee described the BC student financial aid scheme as "a complex, very difficult-to-understand web of programs" (p.5) that students, parents, and "even professionals in the student aid field" (p.11) found difficult to comprehend. In its final report, the committee advanced 173 recommendations to improve the existing system. Of these, 80 were flagged as priorities.

In 1997, the Chair of the committee wrote a "report card" to assess the extent to which the committee's recommendations had been implemented. Orum (1997) reported that although a few improvements to the system (e.g., more flexible repayment arrangements with lending institutions and reduced turnaround times in processing loan remission applications) had been implemented since the 1992 report, the vast majority of recommendations were not endorsed. Moreover, some changes implemented by the BC government, such as limiting loan remission to apply only to BC student loans, further reduced the extent to which students could be relieved of onerous debt loads.

Over the years between 1988 and 2003, both the Canada Student Loans Program and what is now called StudentaidBC have evolved. Despite an announcement in the 2004 BC budget in BC to eliminate student grants and replace them with an enhanced student loan scheme (Malcolmson & Lee, 2004, p.16), a limited and for the most part specifically targeted

grant program is still in place. In addition, since 2000, bursaries have been available through the Canadian Millennium Scholarship Foundation for full-time undergraduate students who have successfully completed at least 60 percent of a year of post-secondary studies and are eligible for student financial assistance in their province or territory of residence[2].

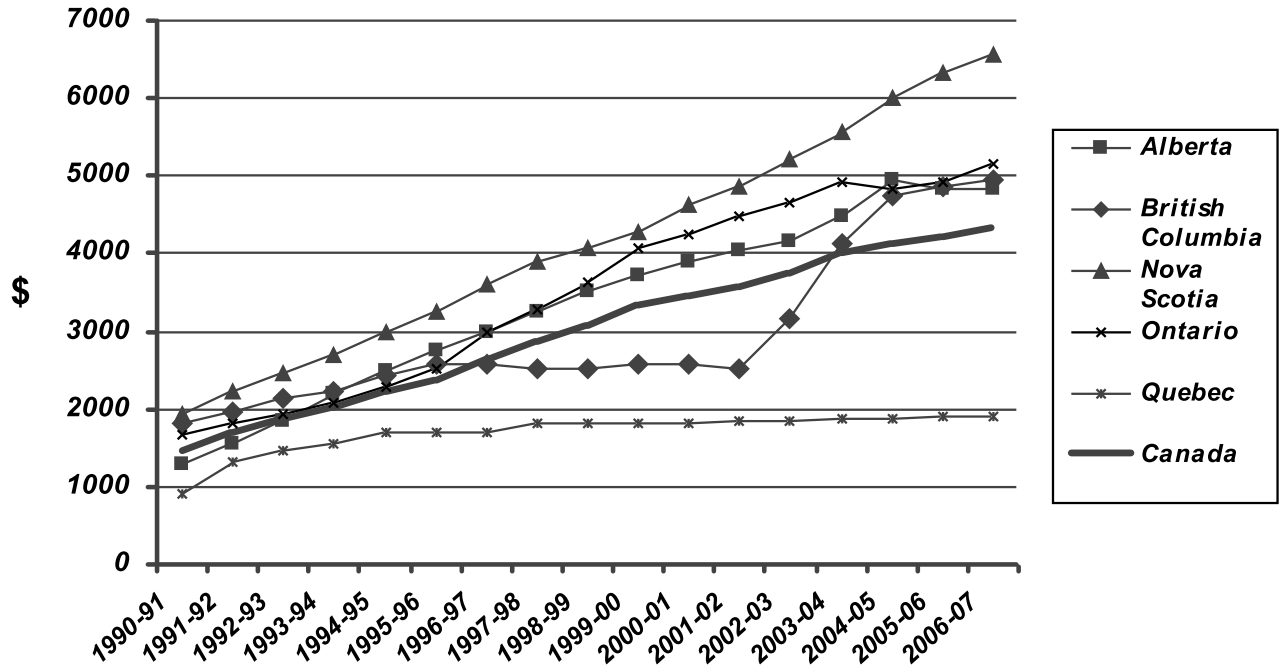
BC Tuition Fee Policy

As this graduating class was about to embark on post-secondary studies, tuition fees in BC posed a constraint to access. In 1990, the median domestic undergraduate tuition fees in Canada were $1545, ranging from a low of $904 in Quebec and a high of $1941 in Nova Scotia. For BC, this figure was $1808. Within five years, tuition rates in BC had increased by 25 percent to $2563. In 1996/97, in an attempt to enhance access to the post-secondary system, the provincial government imposed a freeze on tuition fees. The freeze remained in place until 2002/03; since then, tuition rates have risen steadily (Figure 1).

The Structure of the BC Post-Secondary System

Finally, the evolving structure of the BC post-secondary system must be considered when examining issues of student financial aid policies in relation to post-secondary participation and completion rates. In 1988, BC students leaving high school had a wide array of post-secondary choices available to them. As Table 2 demonstrates, the post-secondary system was extensive, highly diversified, and advanced in terms of inter-institutional articulation. In 1988, it included four public universities, one private university, 15 community colleges, four public

Figure 1. Undergraduate Domestic Tuition Fees for Full-time Students by Selected Provinces, 1990 - 2007



Source: Statistics Canada (2005; 2006; 2007)

2http://www.millenniumscholarships.ca/en/index.asp.

Table 2: The BC Transfer System

	1989/90	2000/01	2004/05	2005/06*
Public post-secondary institutions	23	28	26	26
Public degree granting institutions	4	14	15	17
Out of Province public institutions	1	1	1	1
Private degree granting institutions	1	1	3	4
Private non-degree granting institutions	3	3	3	3
Total institutions in the transfer system	27	33	33	34
Number of "sending" transfer courses	5,000	7,254	7,921	**8,757***
Number of current transfer equivalencies	16,000	47,000	57,520	**55,656**
Number of transfer agreements per course	3.2	6.5	7.3	6.4
Number of grand-parented transfer agreements			27,506	**36,208****
Documented block transfer agreements	N/A	600	774	**759**
Associate Degree block transfer		N/A	N/A	➳➳
Number of changes made to the database		20,234	**9,721*****	

Source: Gelin, F. (2006)

* as of March 31, 2006

** with an end-date prior to March 31, 2006

*** compares to 6,427 in 02-03; 7,227 in 03-04

institutes, an Open University and an Open College, and hundreds of private colleges and trade schools.

However, like student financial aid and tuition fees, the structure of the system did not remain static. Over a 15 year time period, both the structure and the nature of post-secondary institutions and the number of available seats changed dramatically. The figures in Table 2 indicate (1) overall expansion of the system, (2) increased numbers of institutions awarding university degrees, and (3) increased inter-institutional transfer. According to Malcolmson and Lee (2004), between 1991/92 and 2003/04 the number of full-time equivalent spaces in BC colleges and universities increased by 42,700, "an increase of 38 percent" (p. 7). Enrolments at universities grew from 49,482 in 1990/91 to 71,134 in 2003/04, representing an unweighted increase of 44 percent or a weighted increase of 51.4 percent[3]. At first glance, such expansion could be interpreted as a positive development for enhancing post-secondary participation. However, during this period of time, funding support for BC students decreased by a total of 17.3 percent (unweighted) or 21.4 percent (weighted). Translated into constant 2003 dollars, funding declined from $11,374 per student in 1990/91 to $9,407 in 2003/04, "a fall of almost $2000 per student" (Malcolmson & Lee, 2004, p. 10). As Malcolmson and Lee point out, on one hand the BC post-secondary system experienced enormous expansion throughout the 1990s; on the other hand, the extra seats created were not adequately funded. They conclude that "provincial policy may reduce one barrier to accessing post-secondary education while simultaneously increasing another barrier (the financial cost of attending)" (Malcolmson & Lee, 2004, p. 8). As Finnie (2005) demon-

3 A weighted full-time equivalent (WFTE) is adjusted to account for variations in the cost of tuition fees, for example between an undergraduate Arts student and a medical student (Malcolmson & Lee, 2004, p.20)

strates, understanding the capacity/demand/funding nexus is critical.

It is within these evolving sets of policies, practices, and institutional changes that we examine the post-secondary trajectories of the 1988 BC high school graduates. Rarely are we able to take a 15 year retrospective look at the life trajectories of individuals with the intent to inform our current educational policies and practices. Few studies exist to assess the impact of policies such as student financial aid on educational and occupational outcomes in relation to both the factors affecting those outcomes (e.g., gender, academic capital, socio-economic status, and geographic location), and adult life events (e.g., marriage, family, home ownership) that are affected by these factors.

However, there are considerable conceptual and methodological challenges in conducting analyses of longitudinal data. Most often, structures are treated as unchanging, which clearly is not the case. In addition, study participants age, get married, have children, become mature students; as such, structures and related policies will have different impacts on the people passing through the system at different times. In order to take up this challenge, we employ a life course framework. First, we specify our research questions, followed by a brief overview of a life course perspective used to address these questions.

Purpose

In this empirical structural study, we employ *Paths on Life's Way* longitudinal data to examine the interrelationships among background characteristics, post-secondary educational participation and attainment, student financial assistance (i.e., student loans), labour force participation, and adult life course activities. The policy context provided in the previous session is intended as a backdrop to our analyses. We address the following research questions:

- Who was eligible for university studies (i.e., gender, social class) and how did this relate to the post-school status of respondents one year after high school graduation?
- What were the educational attainment levels of young women and men over a 15 year period following high school graduation? What are the costs incurred by those who obtained a university education?
- How are the timing and sequences of paths taken to obtain a university degree related to various individual factors? How are they related to the level of student debt incurred?
- How are various paths to university completion associated with family background, eligibility for university, student debt incurred, educational attainment, timing of marriage and parenthood, home ownership, and job characteristics 15 years following high school graduation?

In other words, how can 15 years of data on educational, work, debt load, and other life events of British Columbian youth contribute to a better understanding of current post-secondary trends?

Conceptual Framework

In this paper, we adopt a sociological life course perspective to address the questions listed above. Rather than examining changes in one or more dependent variables in relation to

a fixed set of independent variables, we endeavour, as Hunt (2005) specifies, to "attempt to comprehend the human experience in terms of the institutional context…or the 'processes' which forge the lives of individuals, and the life chances and opportunities of particular social constituencies" (p. 7). The following concepts are central to this approach: individuals as agents and their related "choices"; social structure; "linked social lives" such as "family, education, and work" (p. 23); and the "timing of lives" which Hunt defines as "a strategic adaptation to external events and the resources available to an individual" (Hunt, 2005, p. 23).

The transition from adolescence to adulthood depends on the interplay of given characteristics of individuals and the demographic, economic, social, and cultural contexts through which they pass. As we described above, from a structural perspective, how society and its related institutions are constructed, organized, and defined in successive periods provides the macrosociological context in which to study the life course of individuals. Cohort characteristics (e.g., to which generation they belong), government policies related to education and the labour market, public sentiment toward education and work, changing conceptions of the family, economic conditions such as recession and unemployment, and the changing structure of the educational system and labour market, shape transitions from one life stage to another.

To understand the impact of social institutions and structures on individuals' lives, we need to, as Hodgkinson (1985) asserts, begin to examine social institutions from the perspective of the people who move through them. Social theory and the life course literature highlight the dynamic relationship between macro social and cultural forces and contexts, and individuals as purposive actors (Bourdieu, 1990; Giddens, 1984, Hunt, 2005). These theoretical perspectives provide us with the conceptual tools to expand and deepen our understandings of how individuals seize, ignore, or resist opportunities, and how they are constrained by structures, policies, and practices of the larger society. To detect the impact of a given set of social forces on a given cohort at both the micro and macro levels, it is essential to conduct analyses across time. This requires the availability of data bases that lend themselves to analyses of cohorts.

Research Design

Paths on Life's Way longitudinal data sets includes information on education, careers, and family formation patterns of female and male high school graduates of the British Columbia *Class of '88* who answered four follow-up surveys (Andres, 2002a; 2002b; 2002c; 2002d). A total of 733 respondents (60 percent women) answered all four waves of surveys which represent about three percent of the entire *Class of '88* high school graduates. Over time, the sample has been affected by attrition with a slight bias toward women and respondents coming from more educated backgrounds and better high school performance. However, overall, the longitudinal sample remained remarkably representative of the original respondent group (Andres, 2002a). Hence, results of this study represent the best case scenario in terms of education and work which suggests that the findings are even more relevant in explaining existing social inequities in schools, post-secondary institutions, and the labour market.

To emphasize the importance of study findings in relation to today's university participants, we compare and contrast results with data from the Youth in Transition Survey *Cohort B* (YITS-B). YITS-B is a longitudinal study of youth aged 18-20 in 2000, re-interviewed in 2002 (aged 20-22) and in 2004 (aged 22-24), which has much in common with the 1989 and 1993 *Paths on Life's Way* project surveys. For the purpose of this study, we selected a sample of respondents who graduated high school in 1998 at age 19 or below (N=3,900). If they started post-secondary education in 1998, respondents would have had over five years to complete university degrees (by December 2003, the final date covered by YITS-B surveys). Since YITS-B data provide information on a Canadian representative sample, this comparative analysis can be considered to add to the generalizability of the 15-year British Columbia longitudinal study, albeit outside the historical context and policies of a province. In addition, comparing the YITS-B British Columbia subsample with the *Paths on Life's Way* data serves as a validation exercise. However, because YITS data span only five years, it can be used as a comparative reference point only for the 1993 *Paths on Life's Way* findings.

Variables - Paths on Life's Way Project

Although post-secondary participation, credentials obtained, and occupations are recorded year by year, for the purpose of this study, only the 1989 post-secondary destinations and highest credentials earned by 1993, 1998 and 2003 are employed. The variables are discussed in detail in Appendix I, and introduced briefly in this section.

High school achievement is directly related to respondents' chances of continuing post-secondary education. Great point average (GPA) scores and eligibility for university admission are measures of achievement during the senior high school years. These indicators from student high school records were matched with survey data and used in the current analysis.

Post-secondary participation one year after high school graduation is an indicator of purposeful planning, fulfilment of requirements, aspirations to continue to post-secondary education, and availability of resources. Respondents are classified into three groups: non-participants, non-university participants (i.e., community colleges, institutes, university colleges), or university participants. Educational attainment by 1993, 1998 and 2003 refers to the highest credential earned by respondents at five, 10 or 15 years since high school graduation. We distinguish five categories: non-participants, non-completers (i.e., those who attended but did not obtain any credential), those who possess non-university credentials, those who completed bachelor's degrees, and those who obtained first professional or graduate degrees. Most of the analyses are conducted with university graduates (N=433) only – the last two groups described above. We further divide the sub-sample of university graduates into three groups: those who obtained bachelor's degrees by 1993, those who obtained bachelor's degrees after 1993, and those who obtained degrees beyond the bachelor's level. We anticipate that timing and/or duration of university completion is strongly related to financing and student loans.

The focal variable of the study is the government student loan. First, we determine whether students have government student loans, and second, the amount of student loans

over time. We anticipate that various social and cultural factors impact the way individuals manage the funding of their university studies. Other financial burdens that occur over life course (e.g., buying a house) are included in the study. In addition, whether respondents are married and have children (yes/no) by 2003 is included in the analysis.

Occupational status is the current or most recent job held by respondents in 2003. Three categories of occupational prestige have been derived by aggregating the Pineo-Porter-McRoberts (Pineo & Goyder, 1988) socio-economic classification of occupations scale of 16 prestige categories. We distinguish the following: unskilled and semi-skilled, technical and skilled, and management and professional occupations.

Variables – YITS

YITS-B contains data on post-secondary education, financial barriers and acquired loans, educational attainment, as well as demographic characteristics of respondents. Variables used for the purpose of this paper are specified in Appendix II. They describe university participation and degree completion within five years after high school graduation, and whether respondents relied on government student assistance to finance their studies. Results are presented by gender and parental education. Although we acknowledge that *YITS* data can be used to address many other aspects of financial aid, only limited information is provided in Analysis 1 with the purpose of supporting the generalizability of Paths analyses.

The first set of *YITS* variables (Table Appendix II) includes variables used to select the sample – respondents who were age 19 or below in 1998 when they graduated high school, who did not participate previously in post-secondary education. The second set of variables describes university participation and degree completion patterns by this sample as of December 2003, based on a two-category variable (i.e., Yes=1 and No=0). The third set of variables contains the following financial information: whether respondents had student loans in any of the three *YITS* cycles, amount of loans, and whether respondents thought that financial barriers were standing in the way of their education. We constructed two-category variables for "student loan ever" and "financial barrier" (i.e., Yes=1 and No=0), and a third continuous variable that indicates the maximum student loan amount ever reported. The last set of demographic variables corresponds to gender and social class (i.e., parental education). Both are recoded as two-category variables. Parental education indicates whether at least one parent/guardian has earned a university degree (i.e., Yes=1 and No=0).

Methods of Analysis

In the first analysis, we provide an overview of post-secondary participation and completion rates of the *Class of '88* longitudinal sample, and of student loans incurred by respondents within five, 10, and 15 years after high school graduation. The 1993 results are contrasted to results shown by the *YITS* cohort in 2003, with both data sets having been collected within five years from high school graduation. For both samples, university completion and student financial assistance information is analyzed in relation to gender and family background.

In the second analysis, we employ correspondence analysis (CA) to unveil the associa-

tions among university completion paths (i.e., differentiated by level of education and timing), student loans, individual characteristics (e.g., gender, high school academic capital), family background (e.g., parental education, geographical location), and other life circumstances (e.g., marital status, parenthood, home ownership, job characteristics) of the *Class of '88* university graduates. We conclude this analysis with a descriptive profile of those who graduate from university with and without student debt.

Correspondence Analysis Method

Correspondence analysis is the most effective analytical technique to describe data patterns and explore relations among the categorical data of the *Paths on Life's Way Project*. This is a multivariate technique that analyzes two-way contingency tables in which columns correspond to the variable to be explained (e.g., university completion paths) and rows correspond to various explanatory variables (e.g., gender, parental education, high school academic capital). It offers a visual representation of the data distribution in a two-dimensional CA map where points correspond to each category (row or column profile) of variables included in the analysis (Greenacre, 1993). The location of these profiles in a multidimensional space is computed from data in contingency tables, and the dispersion of profiles is described by a variance-type measure called *inertia*. Correspondence analysis is viewed as a method for decomposing the overall *inertia* along principal axes. The CA map used for analysis is usually based on the pair of principal axes that explain the largest amount of inertia. Because there are no dependent variables in CA, no causal claims on relationships are made. We used XLSTAT to compute the chi-square coordinates of profile points and the statistical tests of the analysis. Elsewhere, we offer more details on the use of this method in analyzing educational data (Adamuti-Trache & Andres, 2007; Andres, Adamuti-Trache, Soon, Pidgeon, & Thomsen, 2007).

For the purpose of this paper, we refer primarily to the so called *dimensional* or *factor-analytic* interpretation of the map that examines the most likely row or column profiles aligned along principal axes in order to identify a latent "hidden" variable along each axis, and then establish how other sets of profiles are associated to this structure. Additional CA tests obtained with XLSTAT provide exact information on the contributions of row and column profiles to inertia that support the *factor-analytic* interpretation. Occasionally, we use a *descriptive* approach to identify similar categories corresponding to sets of points that are close on the map and contrast them with dissimilar categories corresponding to points situated far apart from each other.

Findings

We begin with a descriptive analysis of the variables described above. Then, we employ correspondence analysis to examine relationships among the variables.

Analysis 1[4]

The post-school status of high school graduates is only partially determined by their educational histories as reflected in overall school assessments of eligibility for university

4 In several tables, cells contain small Ns. These results must be interpreted with caution. However, when compared with other cells in a table (e.g., Table 6), small Ns demonstrate that some trajectories are very infrequently embarked upon.

education. Table 3 demonstrates that within about one year following high school graduation only 50 percent of those who were eligible to commence study at a university actually did, while 40 percent enrolled in non-university institutions, and 11 percent did not participate in any post-secondary studies. Percentages differ by gender, with eligible men more likely to enrol at university (i.e., 59 percent of men vs. 43 percent of women). Among those not eligible for university, there are also clear gender differences. Whereas 63 percent of women attended community colleges and institutes, only 51 percent of their men counterparts chose this route. Also, larger proportions of men (41 percent) than women (28 percent) in this group were post-secondary non-participants in 1989. A very small proportion of women (9 percent) and men (8 percent) attended university studies although they were assessed as non-eligible based on their high school performance.

When contrasting post-secondary participation within one year after high school graduation with parental educational attainment, it is evident that respondents with university-educated parents were more effective than those with less educated parents in turning eligibility for university into university enrolment. According to Table 4, 61 percent of the former group enrolled in universities compared to 44 percent of the latter group. Even if they were eligible for university, 45 percent of individuals from families where one or more parent had not completed university enrolled in non-university institutions (45 percent). Among those not eligible for university, respondents with educated parents were again more likely to participate in either non-university (65 percent) or university (14 percent) institutions. In contrast, lower proportions of those from less advantaged backgrounds enrolled in non-university institutions (58 percent) and universities (8 percent). Respondents with less educated parents who were not eligible for university were the most likely to be non-participants (35 percent) one year after high school graduation.

These analyses indicate that social class (i.e., parental education), gender, and academic ability as measured by eligibility for university

Table 3: University Eligibility versus 1989 Post-school Status by Gender

	Eligible for university						Non-eligible for university					
1989 status	**All**		**Female**		**Male**		**All**		**Female**		**Male**	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Non-participant	47	11	31	12	16	9	95	33	47	28	48	41
Non-university	178	40	120	45	58	32	167	58	108	63	59	51
University	221	50	116	43	105	59	25	9	16	9	9	8

Table 4: University Eligibility versus 1989 Post-school Status by Parental Education

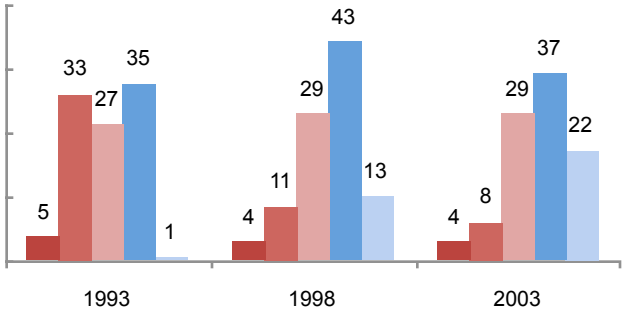
	Eligible for university				Non-eligible for university			
1989 status	**Parents - no univ**		**Parents - univ**		**Parents - no univ**		**Parents - univ**	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Non-participant	47	11	31	12	95	33	47	28
Non-university	178	40	120	45	167	58	108	63
University	221	50	116	43	25	9	16	9

played a significant role in the paths chosen by high school graduates. Although women and men were equally eligible for university (i.e., about 60 percent), more women tended to enrol in community colleges and institutes directly after high school graduation. Similarly, even if they were eligible for university, students from less advantaged backgrounds were more likely to commence their studies at non-university institutions such as community colleges. Although high school academic histories as reflected by eligibility for university had a strong influence on respondents' post-school choices, other factors also influence whether and where respondents continued to study at post-secondary institutions. These findings confirm that there is a relationship between university participation and family background (Drolet, 2002) and support the concerns raised by the BC Provincial Access Committee (1988) regarding equitable opportunities to attend university for disadvantaged young adults and suggests that "reserves of talent" (Härnqvist, 1978) remained untapped.

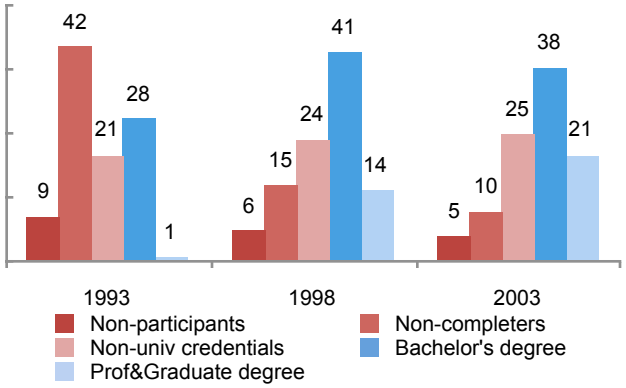
The one year out of high school picture changed over time and the question is whether government student assistance programs had any impact on this change. Indeed, the proportion of BC young women and men who completed post-secondary studies increased considerably over the 15 year period following high school graduation. By 2003, 59 percent of all respondents (N=733) obtained university degrees (i.e., 37 percent obtained Bachelor's degrees and 22 percent professional and graduate degrees). Only 4 percent of respondents had never participated in post-secondary education, 9 percent did not complete their studies by 2003, and 27 percent obtained only non-university credentials. This distribution suggests a high educational profile for this sample with 96 percent participating in post-secondary studies and 59 percent obtaining university degrees. As Figure 2 reveals, the change in educational attainment occurred primarily within first 10 years or less after high school graduation. The 1993 and 1998 pictures are very different, showing that women were likely to complete university degrees in a more timely fashion than men. In 1993, 35 percent of women versus 28 percent of men obtained bachelor's degrees or higher, with only 5 percent of women versus 9 percent of men not yet participating in post-secondary education. By 1998, more men than women were non-participants (i.e., 6 percent vs. 4 percent) or non-completers (i.e., 15 percent vs. 11 percent). However, university completion was quite similar for men and women (i.e., 55 percent and 56 percent), and results did not change dramatically between 1998 and 2003.

Fig 2. Highest Educational Attainment

Females



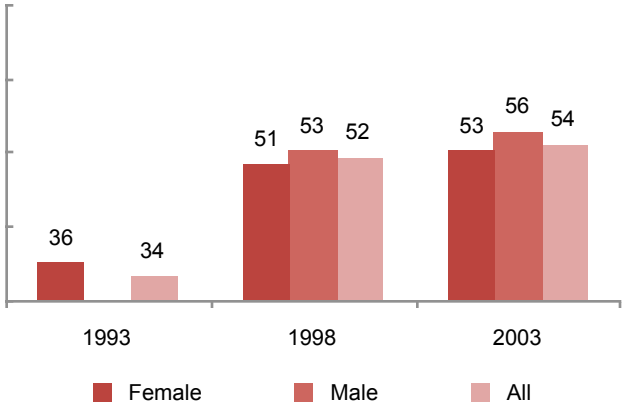
Males



Elsewhere (Andres & Adamuti-Trache, 2006), we have specified the variety of educational trajectories followed by this longitudinal sample – in part, as a consequence of a highly articulated post-secondary system in BC that allows individuals to tailor their educational journeys according to their life circumstances. In principle, students are not constrained by their original choices and can negotiate their way through the system. Overall, we notice that the proportion of respondents who completed non-university credentials at community colleges and institutes varied slightly, while most of the change occurs with increasing proportions of female and male respondents completing university degrees. Since university education is associated with more significant costs, we focus our attention on determining to what extent financial issues affected university completion. What were the costs incurred by those who obtained a university education and how were they intertwined with the dynamics of completing a university degree? The research sample consists of those who obtained a bachelor's degree or higher by 2003 (N=433, 60 percent women), from which sub-samples are selected to analyze the 1993 results (N=242, 65 percent women) and 1998 results (N=409, 60 percent women).

By 1993, about 34 percent of all university graduates requested government assistance and other financial aids to fund their post-secondary education. As Figure 3 shows, this

Fig 3. Proportion of University Graduates with Student Loans



proportion increased to 52 percent by 1998, and to 54 percent by 2003. There are slight differences by gender. More female respondents (36 percent), who were more likely to start and complete education earlier ***but*** were also more likely to commence their studies at non-university institutions, borrowed money by 1993. The comparable figure for men was 30 percent. By 2003, 56 percent of men and 53 percent of women who obtained university degrees reported that they had taken out student loans.

The substantial increase in the number of students who relied on government financial assistance occurred before 1998, within 10 years after high school graduation. Table 5 portrays the proportion of those who took out student loans and the total debt load accumulated over time by those who graduated from university by 2003. For all respondents, a 71 percent increase in median amounts of borrowing occurred between 1993 (i.e., $8,200) and

Table 5: Median Debt Load from Student Loans and Amount Owed in 2003

	Median Debt Load by each Year									Still owing		
	By 1993			By 1998			By 2003			2003		
	N	%	$	N	%	$	N	%	$	N	%	$
Female	55	69	9500	125	61	15000	138	59	18000	34	53	15000
Male	25	31	6900	81	39	13500	95	41	18000	30	47	10000
All	80	100	8200	206	100	14000	233	100	18000	64	100	11500

1998 (i.e., $14,000), with an additional 30 percent increase between 1998 and 2003 (i.e., $18,000).

Although debt incurred in the first stage until 1993 is related to the costs of completing a bachelor's degree, higher costs that occur in later stages are likely to be related to either pursuing graduate studies or delayed or prolonged study. By 2003, regardless of gender, the median debt load for those with student loans was $18,000. Of the total of 233 university graduates who borrowed money, about 73 percent (i.e., 75 percent of women and 68 percent of men) had repaid their debt. In 2003, less than one third of university graduates had not yet repaid their student loans.

Our analyses indicate that respondents used multiple sources to finance their education. In Tables 6a and 6b, we report various sources of financial support received by those who were university graduates by 2003 and contrast the two groups of respondents who did or did not rely on student loans, by social class and gender. Overall, we notice that in both 1993 and 1998, those who pursued and completed university education relied mainly on parental support, scholarships or bursaries, personal savings, and to large extent, on earnings from full-time summer work or part-time work during the academic year. There is some variation in the proportions of respondents who indicate various sources of support by gender and parental education. Although steady trends are not clear, a drop in parental support over time is evident; also, larger proportions of male respondents report earnings from full-time work as a source to finance education. Perhaps more significant for our study is that, for the most part, those who take out stu-

Table 6a: University Graduates by 2003 with Student Loans Declared by 1993 by Sex and Parental Education

1989 status	No loans percent				Loans percent			
	Parents no univ		Parents univ		Parents no univ		Parents univ	
	Female (n=71)	**Male** (n=37)	**Female** (n=61)	**Male** (n=47)	**Female** (n=48)	**Male** (n=38)	**Female** (n=36)	**Male** (n=17)
Direct support from parents or other relatives	80	62	72	49	65	55	61	53
Direct support from spouse	7	0	0	2	6	0	3	0
Repayable loans from family	13	16	5	11	21	21	33	24
Scholarships or bursaries	62	49	53	36	58	50	69	53
Earnings from full-time work (including summer employment)	63	76	69	70	79	92	86	100
Repayable loans from employer (including repayment in time)	0	0	0	0	0	0	0	6
Non-repayable loans/assistance from employer	1	5	0	0	0	0	0	6
Part-time work during the academic year	58	54	53	40	63	61	78	35
Full-time work during the academic year	9	5	7	6	8	5	6	6
Personal savings	49	51	48	55	52	47	39	59
Other	9	8	16	9	4	5	11	12

N=355

Table 6b: University Graduates by 2003 with Student Loans Declared by 1998 by Sex and Parental Education

1989 status	No loans percent				Loans percent			
	Parents no univ		Parents univ		Parents no univ		Parents univ	
	Female (n=66)	**Male** (n=38)	**Female** (n=53)	**Male** (n=40)	**Female** (n=68)	**Male** (n=57)	**Female** (n=52)	**Male** (n=30)
Direct support from parents or other relatives	61	63	54	53	43	42	52	57
Direct support from spouse	12	5	8	5	4	11	4	7
Repayable loans from family	14	3	8	10	15	21	8	13
Scholarships or bursaries	39	24	38	55	56	46	62	50
Earnings from full-time work (including summer employment)	50	58	56	66	60	75	79	70
Repayable loans from employer (including repayment in time)	0	0	0	0	0	0	0	0
Non-repayable loans from government	0	0	0	0	3	2	1	3
Non-repayable loans/assistance from employer	0	3	0	0	3	0	0	3
Part-time work during the academic year	42	37	46	28	57	56	62	40
Full-time work during the academic year	9	11	16	5	4	4	0	0
Personal savings	41	34	38	43	35	30	31	33
Other	9	3	6	18	4	9	8	17

N=403

dent loans are more likely to rely on earnings from work (all gender and social class groups) and less likely to rely on parental support (those with less educated parents). Very few respondents were employed full-time during the academic year. However, in the five years following high school graduation, the vast majority – and in particular those with student loans – were employed full-time during the summer months.

In Table 7, we examine student loan patterns by entry into and exit from the post-secondary system, by social class as determined by whether at least one parent had earned a university degree, and by gender. One clear finding emerges. That is, those who complete university studies in a timely fashion – either as direct entry students from high school, as transfers from non-university institutions, or in the rare instance as non-participants, incur lower levels of student debt than do those who delay degree completion regardless of entry point. The one exception was male university participants in 1989 who delayed completion; they had one of the lowest median debt levels at $5,000). The mean income of males with university educated parents who were university non-completers in 1998 was considerably higher than others who had not earned university credentials (Andres, 2002a), which supports the speculation that this group has been lured away from university study and into lucrative careers. Eventually, however, most completed their university studies. This group of males was far more likely than females in the same category not have taken out student loans.

Across most groups, the median amount of student loans is higher for women. The exception is in relation to the completion of graduate

Table 7: Student Loan Status by Parental Education, Initial Post-high School Status and Gender

	Females				Males			
1989 status	**No loan (%)**	**Loan (%)**	**Media loan ($)**	**N**	**No loan (%)**	**Loan (%)**	**Media loan ($)**	**N**
University educated parents								
University completion								
Univ-Early Bachelor	77	23	15000	26	69	31	8000	16
Univ-Delayed Bachelor	33	67	20000	6	67	33	5000	12
Univ-Graduate	33	67	23000	18	47	53	24500	15
Non-univ - Early Bachelor	53	47	12000	17	50	50	3175	4
Non-univ - Delayed Bachelor	59	41	16500	17	56	44	23000	9
Non-univ - Graduate	23	77	13500	13	57	43	27500	7
Non-part - Early bachelor	NA	NA	NA	0	0	100	45000	1
Non-part - Delayed Bachelor	0	100	40000	4	50	50	20000	2
Non-part - Graduate	50	50	25000	6	0	100	52500	4
University educated parents								
University completion								
Univ-Early Bachelor	74	26	16000	23	47	53	9800	17
Univ-Delayed Bachelor	50	50	31500	8	30	70	22000	10
Univ-Graduate	41	59	23500	27	43	57	34500	21
Non-univ - Early Bachelor	32	68	12000	25	25	75	7000	8
Non-univ - Delayed Bachelor	55	45	23000	22	44	56	17000	18
Non-univ - Graduate	40	60	13100	20	40	60	20000	10
Non-part - Early bachelor	50	50	18000	2	100	0	NA	1
Non-part - Delayed Bachelor	50	50	32500	4	25	75	16500	8
Non-part - Graduate	0	50	11500	4	0	100	21500	2

study where the debt load carried by males is considerably higher.

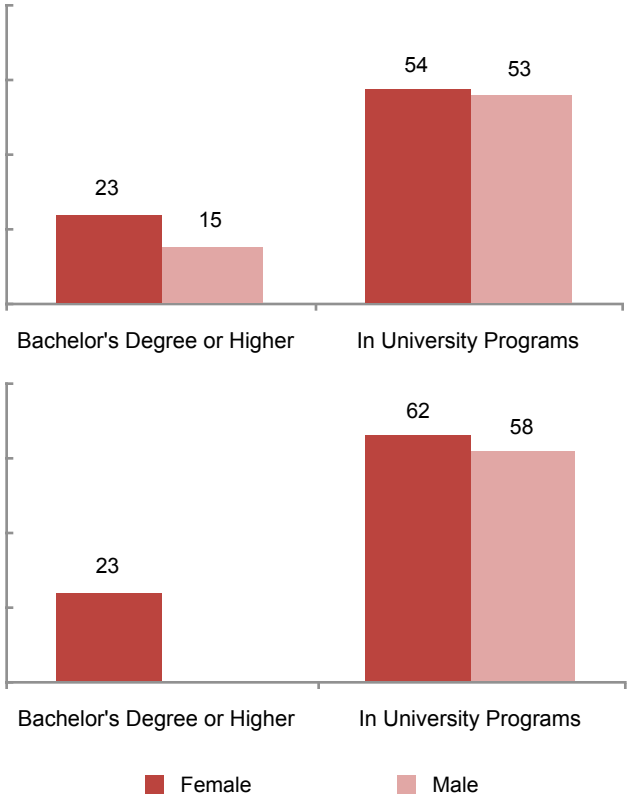
It is not necessarily the case that respondents whose parents had less than university education were more likely to have taken out student loans. This may mean that parental education level is not a good proxy for parental income level or it may mean that more students from the middle class are applying and qualifying for student loans. However, as Table 7 indicates, gender is a key factor as there are much greater differences between males from educated and non-educated families than there are between women from these two groups. Overall, most of those with student loans and whose parents have not completed university had higher debt loads.

If our analysis stopped in 1993, five years after respondents graduated high school, the story told by the *Paths* data would show a discrepancy in university completion rates by gender (i.e., 37 percent women compared to 29 percent men, Fig 2), a moderate proportion of university graduates with student loans (i.e., 36 percent of women and 30 percent of men), and relatively modest debt loads (i.e., $9500 for women and $6900 for men). However, the results portrayed above indicate that following respondents over 15 years changes the story considerably.

Before conducting multivariate analyses of the *Paths* data, we compare some of the 1993 results with those obtained with *YITS-B* data that describe educational attainment and financing patterns of a sample of Canadian young adults who graduated high school in 1998. As Figure 4a shows, 23 percent of women and 15 percent of men in the *YITS* sample reported obtaining university degrees at bachelor's level or higher by December 2003 (i.e., last *YITS-B* follow up). Similar results are obtained using the British Columbia *YITS* sample (Figure 4b). There is a discrepancy between the five year university completion results obtained with the *Paths* (i.e., 37 percent for women and 29 percent for men) and *YITS* (i.e., 23 percent of women and 15 percent of men) samples. However, results similar to *YITS* are obtained if the 1993 sample (N=2,220), which is less affected by attrition, are analyzed (Andres, 2002c). Using the *Paths* 1993 sample, 27 percent of women and 19 percent of men obtained university degrees within five years after high school graduation, a result that is comparable to *YITS.*

Although only 19 percent of *YITS* respondents completed degrees by 2003, by that time a large proportion of respondents (i.e., 54 percent in Canada, and about 60 percent in BC) had participated in university education, which suggests that over time the university completion rate of this cohort is likely to increase. Higher participation by the BC sample is likely due to a highly articulated system, an ever increasing number of seats, and as a result of frozen and hence lower tuition fees in BC over the first two cycles covered by the *YITS* study. The abrupt increase in BC university tuition fees (over 60 percent) in 2003-04 (*YITS* Cycle 3) compared to 2001-02 (*YITS* Cycle 2) may, in turn, have a negative impact on degree completion by this and subsequent cohorts.

Fig 4. 2003 University Participation and Completion – 1998 YITS cohort (Canada and British Columbia)



Other results that compare *Paths* and *YITS* data are directly related to the topic of this paper: the effect of social class and gender on student loans acquired by university graduates. Since the BC *YITS* sample of 1998 high school graduates was not large enough to analyze by these various factors, comparisons are based on the Canada *YITS* sample only. In Table 8, we report the proportion of university graduates who declared receiving student loans in at least one of the three *YITS* cycles, and the cumulative amount of loan as declared in the last cycle.[5]

5 For the analysis of *YITS-B* sample, rescaled weights are computed from the longitudinal survey weights and were used in estimating correct population proportions. For the purpose of this study, reporting counts is not useful.

Table 8: Median Debt Load of University Graduates with Student Loan and (YITS Canada)

	University Graduates (%)	Median Debt Load ($)
Female	45	13000
Male	40	12000
All	43	12000

As demonstrated in Figure 5, there is a modest effect of parental education on the proportion of graduates in the *YITS* sample who received student loans. Differences are more pronounced for female university graduates since 52 percent of those with non-university educated parents versus 38 percent of those with university educated parents had student loans by 2003. Parental education was less of an influence for males (42 percent non-university educated parents vs. 39 percent of university educated parents). Almost two thirds of female university graduates coming from less privileged families (64 percent) also reported that financial barriers stood in the way of their post-secondary education. In contrast, financial barriers were acknowledged by only 36 percent of men with similar family backgrounds, and by 49 percent (female) and 51 percent (male) of graduates with university educated parents.

However, when compared with *Paths* data, a much higher proportion of male *YITS* respondents incurred student debt within five years of high school graduation and the median debt load for both females but particularly males was much higher (a median increase of $3500 for females and $5100 for males).

In summary, in this section we have demonstrated that

- there is some comparability between *Paths* and *YITS* data within first five years after the high school graduation of each cohort, sufficient to support the credibility and generalizability of the BC longitudinal results;
- preliminary paths results shown in this section demonstrate that data collected over a period of five years following high school provide an incomplete picture of the post-secondary education trajectories, completion rates, and borrowing patterns of students.

To better understand these dynamics over a longer time frame, we continue the analyses to include other aspects of individuals' lives, such as work, marriage, and parenthood. Only *Paths* respondents who completed university degrees by 2003 are included in the following analysis.

Analysis 2

The first analysis has revealed that the majority of Paths respondents have reached high levels of university education (i.e., 37-38 percent had earned bachelor's and 21-22 percent graduate degrees) with median student loans of $18000 over 15 years. However, we hypothesize that by examining the variety of educational paths which lead to degree completion in relation to other adult life activities, we will be able to cast a different light on the student

Fig 5. Proportion of University Graduates with Student Loans (YITS Canada)

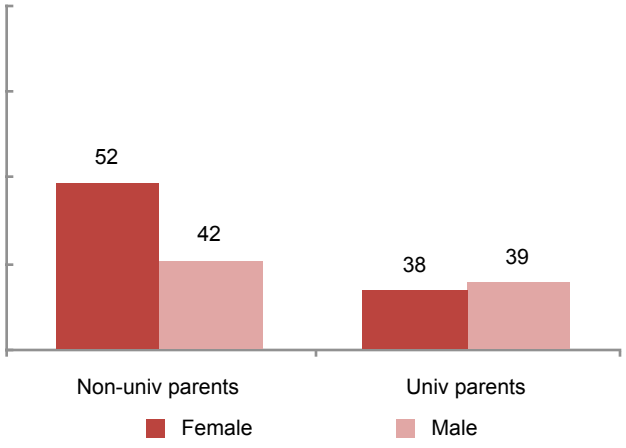


Table 9: University Completion and Student Loans by Gender

	Early Bachelor's		Delayed Bachelor's		Graduate Degrees	
	Female (n=97)	Male (n=51)	Female (n=65)	Male (n=61)	Female (n=97)	Male (n=62)
Student loans (%) (1989-2003)	43	49	54	52	63	61
Median Student Debt						
1993	8600	6330	12250	7400	12000	11000
1998	9750	6830	21000	15000	15000	19500
2003	12500	8000	24000	18000	19000	26000

loan story. For the purpose of this analysis, the university graduate sample is divided into three groups: those who obtained bachelor's degrees by 1993 (early bachelor's degree), those who took a longer time period to obtain bachelor degrees (delayed bachelor's degree), and those who obtained graduate degrees any time before 2003 (graduate degree).

Results in Table 9 indicate that those completing a bachelor's degree "early" – that is, within five years following high school graduation) were clearly in a better position to graduate with no loans or a very small debt load. The slight increase in median student debt by 1998 and 2003 for this "early bachelor's" group is due to participation in other levels of education, either as extra credentials at non-university level or in graduate programs that had not yet been completed by 2003. Meanwhile, those who had not completed bachelor's degrees by 1993 incurred larger amounts of debt across all time periods. The largest increase in student debt for this group occurred between 1993 and 1998. Regardless of the timing of bachelor degree completion, women incurred higher median student debt at all times.

Those who completed first professional or graduate degrees by 2003 are located in the last two columns of Table 9. Men who obtained such credentials reported the highest median student debt by 2003 ($26,000), as opposed to men who obtained bachelor's degrees within five years ("early bachelor's") and reported a median debt load of only $8,000 by 2003. In 1998 and in 2003, the median student debt incurred by men who obtained graduate degrees surpassed that reported by women.

As indicated at the outset of this paper, we employ a life course perspective when examining university completion and student financial burden. In the ensuing correspondence analysis, many factors related to life course events, such as academic capital accumulated in high school, various demographic characteristics, and occupational status are included in the analysis.

The correspondence analysis map in Figure 6 positions the points corresponding to the three columns profiles assigned to the university completion categories (i.e., early bachelor, delayed bachelor, graduate degrees) in relation to the 30 row profiles corresponding to gender (2), parental education (2), family geographic location (3), high school GPA (3), university eligibility (2), 1989 post-school status (3), debt load (2), amount of student loan (4), marital status by 2003 (2), parenthood by 2003 (2), home ownership by 2003 (2), occupational status in 2003 (3). The two-dimensional CA map is an exact representation of all profile points and the two principal axes explain 100 percent of the dispersion of points.

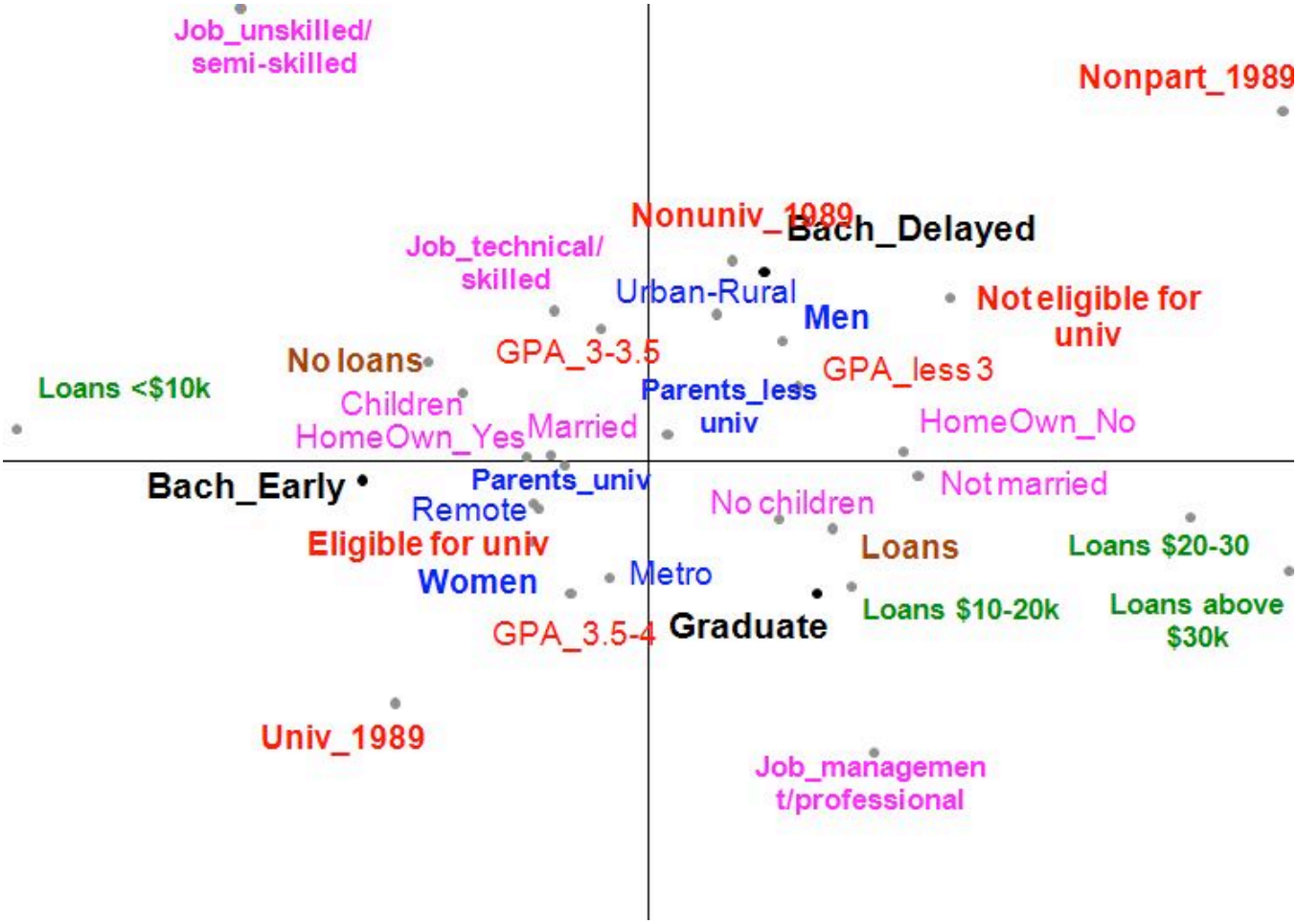
The horizontal axis accounts for 55 percent of the average total inertia. It opposes the group that completed a university degree by 1993 (early bachelors) to the left and the groups who took longer time to completion (delayed bachelors and graduates) to the right side of the map. The "hidden" variable can be identified as time to university completion – with shorter time to completion to the left and longer completion times to the right side of the map. The row profiles that best align to the horizontal axis (based on map and CA statistical tests of row contributions to inertia) are those describing the amount of student loan: the "loans $10-20k" category to the left is far apart from the "loans above $30k" category to the right side of the map. The correspondence analysis shows clearly that the timing of university completion is associated with the amount of student loan incurred by respondents (these row profiles contribute by 35 percent to the horizontal axis inertia).

Overall, the "no loans" and "loans" categories are situated symmetrically and closer to the centre of the map that corresponds to an average profile since respondents are quite evenly distributed in these two groups (i.e., 54 percent had student loans by 2003, see Figure 3). What differentiates groups most is the amount of student loan incurred. One can also notice that "no loans" or lower amounts of loans profiles (left side) are associated with being married, having children or owning a home by 2003, while larger amounts of loans profiles (right side) are likely to correspond to not to having engaged in these adult life activities by 2003.

The vertical axis accounts for 45 percent of the total inertia, and mainly contrasts the column profile that corresponds to "delayed bachelors" (up) and "graduate degrees" (down), thus differentiating the two groups that take longer to complete university studies. Two sets of row profiles contribute the most to the vertical axis. First, 1989 post-school status that describes post-secondary participation directly out of high school contributes about 29 percent to the axis. It shows clearly that those who delay completion are likely to have started in non-university post-secondary institutions or (very few) to have never participated in post-secondary studies. Some respondents may have not been eligible for university admission due perhaps to lower GPA, lack of prerequisites, or both. Geographical location may also be a contributing factor in delaying completion. The second set of row profiles that contributes about 40 percent to the vertical axis is related to occupational status by 2003 which is a consequential variable. The CA map shows that those who delayed bachelor degree completion are more likely to occupy technical/skilled occupations and (very few) unskilled/semi-skilled jobs rather than occupations at the management/professional level. Perhaps those who delay university entry or take prolonged routes through the system were established in lower level jobs and degree completion did not guarantee a transition to the professional ranks. Those who completed bachelor's degrees early and did not continue on to graduate study incurred lower levels of student debt, were more likely to be married with children, and were more likely to have purchased a home.

Appendix III contains additional details on the data distributions of various individual characteristics of female and male respondents who completed university degrees in each of

Fig 6. University Completion, Student Debt and Life Course Characteristics



the three categories. The table demonstrates clearly that those who delayed bachelor's degree completion represented a more vulnerable group in terms of high school preparation and post-secondary participation. A slightly higher proportion came from families with less education and they were substantially more likely to have come from urban-rural areas. Overall, they incurred higher levels of student debt, a burden that is difficult to carry considering that return to education is less evident for these individuals. Only 20 percent of women in the delayed bachelor's completion category were in management or professional jobs. When compared to the other two groups, both women and men in this category were less likely to be married, have children, and own homes.

We conclude this section by contrasting the profiles of respondents who completed their university education with or without student loans. In Table 10, we report the composition of the two loan status groups by gender in relation to various factors in order to determine whether graduates with student loans are essentially different from those who completed their studies without loans. Of the 137 female respondents who had student loans, 25 percent obtained early bachelor's degrees, 30 percent were in the delayed bachelor's degree completion category, and 45 percent had earned graduate degrees. The composition of the group of women who did not have student loans is quite different: most (46 percent) obtained early bachelor's degrees. The chi-square test of independence shows that there is a sig-

Table 10: Student Loan Status by Gender

	Females			Males		
	No loan (n=122)	**Loan** (n=137)	**Tests***	**No loan** (n=77)	**Loan** (n=97)	**Tests***
University completion (%)						
Early bachelor	46	25	p<0.05	33	27	ns
Delayed bachelor	25	30		36	34	
Graduate	29	45		31	39	
Academic achievement (%)						
GPA 1.0 – 3.0	26	24	ns	20	33	ns
GPA 3.0 – 3.5	23	27		29	26	
GPA 3.5 – 4.0	51	48		52	41	
University eligibility (%)						
No	22	27	ns	20	21	ns
Yes	78	73		80	79	
1989 PSE participation (%)						
Non-participant	7	10	ns	7	14	ns
Non-university	43	53		33	34	
University	50	37		61	52	
At least one parent has university education (%)						
No	55	57	ns	49	64	p<0.1
Yes	45	43		51	36	
Family geog location (%)						
Metropolitan area	48	25	p<0.001	53	35	p<0.1
Urban-rural area	34	46		27	39	
Remote area	18	29		20	26	
2003 Home ownership (%)						
No	28	26	ns	27	30	ns
Yes	72	74		73	70	
1993 Mean salary ($)	12.4	11.2	ns	13.5	11.8	ns
1998 Mean salary ($)	19.0	18.2	ns	23.1	18.2	p<0.05
2003 Mean salary ($)	29.4	29.4	ns	32.5	35.1	ns

* We used chi-square tests to compare proportions and One-way ANOVA tests to compare means.

nificant association between loan status and university completion paths for female respondents. Quite similar but less pronounced patterns are evident for male respondents.

Family geographical location is another factor for which a significant difference between the student loan group distributions can be demonstrated. Those coming from urban-rural areas were the most likely to receive student loans and this pattern is stronger for women. Most respondents without loans had parents living in metropolitan areas, and this pattern is stronger for men. There is a modest association between family background (parental education) and student loan status, with about 57 percent of women and 64 percent of men who had loans came from less educated families. However, this relationship is significant only for males. There is no significant difference between the student loan groups by GPA or university eligibility status; since all of the respondents in this analysis are university graduates, their high school academic characteristics are quite similar. This suggests that all being relatively equal in terms of academic ability, other factors do contribute to delayed or prolonged study for some talented individuals. For exam-

ple, most women who received student loans over time began their studies in 1989 in non-university institutions (53 percent) while the majority (52 percent) of men who received loans entered university directly in 1989. Similar patterns are evident within the group of respondents without student loans, which supports a previous observation that women are more likely than men to go through a university transfer route. Few differences are detected between groups on variables related to home ownership and mean salary.

Discussion and Conclusion

The complexity of the analyses above attests to the challenges in portraying the various routes through the post-secondary system in relation to an examination of debt load incurred over time and in relation to evolving individual, institutional, and system characteristics. In an articulated system such as BC that encourages participation in post-secondary education by all age groups, multiple entry and transfer points must be taken into account. Individuals' actions reflect the structure of the system which means that if we focus on only one entry point (e.g., direct entry after high school graduation) or one exit point (e.g., completion of a bachelor's degree), some key components of the post-secondary attainment/student debt story remain concealed. Also, it is critical to account for where one commences post-secondary study and whether the journey through to degree completion is swift, delayed, or prolonged.

One key finding of this paper is that an extended time to degree completion – either due to delayed entry into the post-secondary system, a prolonged period of study, or transfer from a non-university institution to university – is costly in terms of overall student debt incurred. Our findings show clearly that those students requiring student financial assistance who complete university degrees within five years of high school graduation incur far less overall debt than those who fall into the "delayed bachelor's" category. This finding is even more remarkable given that BC had a tuition freeze in place for most of the years students in this category would have studied in post-secondary institutions. However, the less than generous BC student assistance policies, and in particular, a loan remission policy restricted to only BC student loans and limited access to grants and bursaries, may have offset any intended financial relief for students through frozen tuition fees. In addition, expansion of the number of post-secondary seats outside the large metropolitan areas may have encouraged students to begin post-secondary study in their local communities, which may, in turn, have resulted in prolonged completion times. Problems with transfer from non-university institutions to universities, such as difficulty gaining access to useful information about the transfer process and choosing courses that are transferable to receiving institutions (Andres, 2001) are well documented. However, our findings also reveal that those students who begin their studies at non-university institutions ***and*** complete their studies within five years incur the lowest amounts of student debt. In BC, this is considered an indication that the transfer system is working very well and as intended. However, gender differences in median debt loads are evident for this group. Elsewhere, Andres (1999) has demonstrated that women are more likely than men to work part-time during the academic year which suggests that men are able to earn more during the summer and per-

haps less likely to need high levels of student financial assistance. However, our study shows that those who hold student loans are also more likely to work, either full-time or part-time, which appears to be associated to high costs of obtaining a university education and limited parental financial support.

The correspondence analysis confirms that there is an association between timing and duration of paths to university completion and the amount of student loans incurred. In addition, commencing post-secondary studies within one year of high school graduation matters. The types and duration of paths taken to university completion have consequences for other spheres of respondents' lives (e.g., marriage, children, home ownership, occupational status). This analysis demonstrates that high school achievement is a relevant explanatory variable of educational paths that not only determines what respondents do one year after high school graduation but also has long term consequences.

In terms of policy implications, it appears clear that to ensure timely degree completion, adequate student financial assistance – through scholarships, bursaries, student loans that can be repaid without causing undue hardships for students who are becoming increasingly involved in other facets of adult life, or a combination of all of the above – is necessary. This requires adequate student services within post-secondary institutions to assist students who have difficulties in planning their way through the system in terms of academic and financial need, but also in relation to their career and life course plans. Especially in articulated post-secondary systems that offer a range of institutional opportunities, it is important to strengthen counselling services. It is a mistake to take for granted that by simply creating an articulated system, students will find optimal ways to navigate it.

The most able students are those who are most likely to finish their studies within five years. Secondary school personnel, policy makers, students, and parents should be made aware of the relationship between poor preparation in high school – as reflected in low achievement levels and ineligibility for direct entry into universities – and its subsequent impact on time to completion of university degrees, related debt load, and the ability to engage in adult life tasks. In other words, students who plan to earn university degrees would be well advised to take advantage of the educational opportunities offered by the tuition free segment of educational system – that is, senior secondary.

We have demonstrated that even though women complete their studies more quickly than men, they are more likely to incur higher levels of student debt. Elsewhere, it has been demonstrated repeatedly that women with equivalent levels of education are much more likely than men to be in lower status jobs and earn less money. Income contingent repayment schemes, such as those in Australia, could mitigate somewhat the burden of debt repayment in relation to low levels of income, particularly for women. Substantial loan remission for timely completion of university studies could be another strategy that would benefit women.

As we described at the beginning of this paper, policies around access and financial aid and the actual structure of the system are in constant flux. As such, it is very difficult for stu-

dents and their parents to monitor, plan for, and adapt to these changes. Perhaps students who enter the system should be able to "lock in" to certain conditions of funding for a given (e.g., five year) period of time to ensure continuity and to provide some guarantee that their saving strategies over years leading up to post-secondary participation are adequate to fund entry into and timely completion through the post-secondary system. An "education mortgage" scheme would both introduce predictability into borrowing patterns and reinforce the idea that education is truly an investment for one's future. A scheme that intertwines educational and financial goals could also serve as an incentive for students to complete each educational level more quickly and earn a credential over a shorter period of time.

Why do women complete their studies more quickly but yet incur more student debt? Why do males who take prolonged routes through the university system graduate with relatively lower levels of debt? Why are a relatively high proportion of respondents from middle class backgrounds (particularly notable in the more recent YITS cohort) taking out student loans to complete their studies? How does the nature of the BC transfer system enhance or hinder timely completion of university studies? Although the results of our analyses have allowed us to speculate about possible explanations, further research is required to explore in depth answers to these questions. Our findings not only suggest directions for further research, but indicate the nature and duration of data collection required.

Finally, the story told in this paper is clearly a British Columbia story. As highlighted at the beginning of the paper, the structure of the system, the nature of the student financial aid system, and the structure of provincial tuition fees clearly influences the way in which a given cohort manoeuvres a given post-secondary system. Although analyses of data drawn from a Canadian sample such as is available in *YITS* can provide an indication of overall trends, it is much more difficult to pinpoint reasons for high debt loads incurred by students and to devise policies designed to enhance the financial wellbeing of post-secondary graduates without locating the analysis within the relevant provincial context. However, even when considering the BC system alone, it is clear that student financial assistance policies were not in step with the intentions of the *Access for All* initiative and its enduring legacy.

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APPENDIX I: Study Variables – Paths of Life's Way project

Demographics

- **Gender:** Female/Male
- **Family background**: Two-category variable that describes whether at least one parent had earned a university degree: 0 = No; 1 = Yes.
- **Family geographic location**: Three-category variable that describes 1 = Metropolitan area; 2 = Urban/Rural area; 3 = Remote area.

High school graduation

- **High school GPA**: Three-category variable that aggregates GPA scores: 1 = Less than 3.0; 2 = Between 3.0 - 3.5; 3 = Between 3.5 - 4.0.
- **Overall eligibility for university**: Two-category variable that describes whether respond met the 1988 admission requirements to any of the BC universities: 0 = No; 1 = Yes.

One year after high school graduation

- **Post-school enrolment:** three-category variable based on attended institutions as indicated by respondents. 1 = Non-participant; 2 = Non-university attendance; 3= University attendance.

Student Loans by 2003

- **Had a student loan between 1988 and 2003:** two-category variable indicates 0 = No loan; 1 = Loan
- **Amount of student loan**: Four-category variable that aggregates the amount of student loan: 1 = Less than $10,000; 2 = $10-20,000; 3 = $20-30,000; 4 = Above $30,000.

University completion by 2003

- **Highest credential by 1993, 1998 and 2003:** The highest credential is recorded across the entire period starting in 1988, 1 = Non-participant; 2 = Non-completer; 3 = Non-university credential; 4 = Bachelor degree; 5 = Professional & Graduate degree. In addition, a three-category variable based on the highest university degree completed at each time differentiates by timing to complete a Bachelor's degree and degree level: 1 = Delayed Bachelor's (not completed in 1993); 2 = Early Bachelor's degree (completed in 1993); 3 = Professional & Graduate degree (anytime 1988-2003).

Work-related factors in 2003

- **Occupational status by 2003**: Ordinal variables that correspond to the Pineo-Porter-McRoberts socio-economic classification of occupations scale with 16 prestige categories, ordered from the lowest to the highest status. They are aggregated into three-category variables that describe skill level and occupational prestige:
    - 1 = Unskilled (i.e., farm labourers, unskilled manual, unskilled clerical sales and services) and Semi-skilled (i.e., semi-skilled manual, semi-skilled clerical sales and services, farmers)
    - 2 = Technical/Skilled (i.e., skilled crafts and trades, skilled clerical sales and services, foremen and forewomen, supervisors, technicians, semi-professional)
    - 3 = Management/Professional (i.e., middle management, high management, employed professional, self-employed professional).
- **Hourly salary by the end of each period**: Continuous variable that records hourly salary.

Family characteristics

- **Marital status by 2003**: Two-category variable: 0 = Not-married (i.e., single, divorced, separated, widow); 1 = Married (i.e., married, marriage-like relationship).
- **Dependent children by 2003**: Two-category variable that corresponds to 0 = No children; 1 = Children.
- **Home ownership by 2003**: Two-category variable that corresponds to 0 = No; 1 = Yes.

APPENDIX II: Study Variables – YITS-B

Variable name	Cycle	Variable description	Derived variable
Research sample selection			
HGDAA	1	Highest diploma attained as of Dec 1999	HGDAA=2
HSDIPYD3	3	Date (year) respondent completed high school diploma/SSVD requirements or equivalent.	HSDIPYD3=1998
ACMD3	3	Respondent's age at date completed high school diploma requirements or equivalent.	ACMD3<=19
B1	1	In what province or country did you LAST take high school, junior high or elementary school courses?	B1=59 (BC)
University participation and completion			
HEDATD3	3	Highest certificate, diploma or degree attained (or graduated from) as of December 2003.	University → Yes HEDATD3=9 to 14
HLPSD3	3	Highest level of post-secondary education taken across all programs and institutions as of December 2003	University → Yes HLSPD3=9 to 14
Financial information			
L3_A	1	Did you get a government sponsored student loan? (provincial or federal)	Yes=1, No=2 → Derive a 'Student loan ever' variable if at any time respondent had a loan
L2Q07B	2	Did you get a government sponsored student loan?	
L3Q07B	3	Did you get a government sponsored student loan?	
L4_B	1	Total amount owed on government student loans	Derive a variable that indicates the maximum student loan amount borrowed
L2Q07B1	2	As of December 31st, 2001, what was the total you had borrowed?	
L3Q07B1	3	Two years ago, you said you borrowed ($ amount) using the government sponsored student loan program. As of December 31st, 2003, what was the total you had borrowed?	
M5_2	1	Is there anything standing in your way of going as far in school as you WOULD LIKE to go?	-Financial barriers → Yes M5_2=1 M2Q32B=1 M3Q32B=1 -Derive a variable that indicates that financial barriers were mentioned at least once
M2Q32B	2	Is there anything standing in your way of going as far in school as you would like to go?	
M3Q32B	3	Is there anything standing in your way of going as far in school as you would like to go?	
Demographic information			
GENDERD3	3	Gender	
Ped1	1	Parental Education-parent (mother)	- Ped(x) = 8 to 12 correspond to completion of university education - Derived variable to indicate that at least one parent/guardian has university education
Ped2	1	Parental Education-parent (father)	
Ped3	1	Parental Education-guardian (mother)	
Ped4	1	Parental Education-guardian (father)	
Survey weight			
Weightc3	3	Longitudinal survey weight	Used to compute a rescaled weight that preserves the sample counts but gives correct estimates of population proportions.

APPENDIX III: Determinants and consequences of university completion paths (column percentages)

University completion	Early Bachelor's		Delayed Bachelor's		Graduate Degrees	
Gender	Female	Male	Female	Male	Female	Male
Academic achievement (GPA)						
1.0 – 3.0	23	22	31	31	24	27
3.0 – 3.5	23	33	31	30	25	19
3.5 – 4.0	55	45	39	39	52	53
University eligibility Yes	81	88	65	75	76	77
1989 PSE participation						
Non-participant	2	4	14	18	10	6
Non-university	44	26	65	44	42	18
University	54	71	22	38	47	38
Student loans (1989-2003)						
None	57	51	46	48	37	39
<$10,000	18	31	14	10	13	3
$10-20,000	11	12	8	18	20	13
$20-30,000	8	4	14	15	17	18
Above $30,000	6	2	19	10	13	27
Parents have university degree						
No parent	54	55	56	61	58	56
At least one parent	46	45	44	39	42	44
Parents' geographical location						
Metropolitan area	37	45	28	38	39	47
Urban- Rural area	36	31	54	38	36	32
Remote area	27	24	19	25	25	21
2003 Occupational status						
Unskilled/Semi-skilled	10	12	13	15	3	0
Technical/Skilled	55	46	67	42	44	31
Management/Professional	35	41	20	42	53	69
2003 Marital status Yes	78	82	71	75	70	73
2003 Children Yes	77	55	51	44	39	40
2003 Home ownership Yes	77	78	74	65	67	68
Sample size (N)	**97**	**51**	**65**	**61**	**97**	**62**