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The Pursuit of Post-Secondary Education: A Comparison of First Nations, African, Asian and European Canadian Youth

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The pursuit of post-secondary education: A comparison of First Nations, African, Asian, and European Canadian youth

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Abstract

Using the nationally representative longitudinal Youth in Transition Survey, this paper examines the argument that inferior educational outcomes of various visible minorities and immigrants can be attributed to their socio-economic disadvantages, while superior outcomes of other visible minorities is due to their cultural supports. The analyses document sizable inequalities in educational pathways of First Nations, visible minorities, and immigrants. However, neither structural location nor cultural attributes (nor both in conjunction) totally account for differences in their educational pathways nor can they be reduced to a simple pattern whereby structural disadvantages account for inferior pathways and cultural factors for superior ones.

JEL Codes: I20, I21, I29

Keywords: *Aboriginals, Visible Minorities, Immigrants, Academic Performance, Educational Attainment, Post-Secondary Education*

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Executive Summary

This paper explores the links between socio-economic structural location and cultural features on the educational pathways among First Nations, African, Asian, and European Canadian youth. The analyses are based on cycles 1 and 2 of the older cohort of the nationally representative Youth in Transition Survey (YITS).

All measures of structural location and cultural attributes (except for number of siblings) have direct effects on educational pathways that are not attributable to measures of academic performance. Academic performance is the primary basis on which respondents appear to make their decisions about whether to participate in PSE and whether to pursue a community college or a university credential. Nevertheless, both structural and cultural factors have direct effects on educational pathways in addition to their indirect effects on academic performance. This is another way of saying that both structural advantages and certain cultural practices not only facilitate academic performance but also directly increase the likelihood of PSE participation.

The multivariate analyses show that neither socio-economic location nor cultural attributes (nor both in conjunction) totally account for population group differences in educational pathways. Further, the findings presented cannot be reduced to a simple pattern whereby structural disadvantages account for inferior pathways and cultural factors for superior ones. Indeed, the patterns are decidedly more complex with distinctly different effects on the magnitude of the population group gaps, particularly with respect to pursuing a university degree. Structural and cultural factors together are sufficient to reduce all population group gaps in community college enrolment to statistical insignificance. With respect to the pursuit of a university education, after controlling for structure, culture, and academic performance, only native-born East Asians remain anomalously high and other Asian immigrants have significantly lower likelihood of this pathway than do Canadian-born youth of European descent. The conclusion is that except for these two groups, differences in educational pathways are accounted for by a combination of structure, culture, and academic performance.

This paper provides strong evidence against the practice of treating visible minorities as one group. The variation in educational pathways between the different visible minorities is arguably larger than the difference between white and visible minority youth. In particular, after controlling for structural and cultural differences, Canadian-born East Asian youth are the most likely to pursue a university education while immigrant other Asians are the least likely, even less likely than First Nations and African Canadians. It may be true that visible minority immigrants as a group have higher educational aspirations and expectations than mainstream Canadian-born youth of European descent. Yet this is misleading, since *none* of the visible minority immigrants have higher

university aspirations or expectations than their Canadian-born visible minority counterparts. Instead, it is Asian visible minorities, regardless of their immigration status, that have exceptionally high university aspirations and expectations.

With respect to population group differences in educational pathways, the goal of social policy should be to ensure that educational pathways are equal once legitimate bases for differences are held constant. The findings presented in this paper suggest that in some respects, Canadian educational social policy has been relatively successful in creating equitable educational pathways. The high university participation rate of East Asians, for example, is not because the link between academic performance and educational attainment is especially strong for them. Rather, it is because they are more likely to have taken university-preparatory math and language classes than the other population groups. The important policy issue, then, is how to optimize the proportion of young people who take these classes at the more advanced levels.

The educational pathways of First Nations youth are fundamentally a manifestation of both structural and cultural disadvantages. After controlling for structural and cultural factors, their academic performance has negligible independent effects on their decision to pursue PSE. While it is corroborated here that First Nations youth consistently score lowest on all indicators of academic performance, their structural and cultural barriers appear to be what accounts for both their low academic performance and their non-participation in PSE.

The barriers and facilitative mechanisms among African Americans (both immigrant and Canadian-born) are quite different from that of First Nations. Controlling for structural disadvantages increases their likelihood of participation in both forms of PSE, indicating that their non-participation can be traced back partly to these disadvantages. On the other hand, controlling for cultural features decreases the odds of participation in both community college and university. This suggests their participation in PSE would be even lower if they didn't enjoy the benefits of culturally protective factors, such as their parents' high aspirations. In contrast to First Nations youth, however, their non-participation in PSE is substantially a matter of their academic performance. In other words, in addition to structural disadvantages, the non-participation in PSE of African American youth is a function of their marks, grade retention/prior dropout, and streaming into non-university preparatory classes, but it is not a function of their lack of academic effort or lack of educational supports from parents and peers.

Introduction

As the review of empirical studies will show, and the subsequent analyses will substantiate, Canadian young people of various cultural identities differ substantially in their educational aspirations, academic effort, and academic performance. They also come from homes that differ considerably in socio-economic status (SES) and cultural features, with their associated advantages and disadvantages. This paper explores the processes that link these factors to subsequent educational pathways among Canada's ethnic/racial population groups, both native-born and immigrants. Three main questions are addressed: First, to what extent can population group differences in educational pathways be attributed to socio-economic factors? Second, what is the role of cultural differences in social/familial supports, aspirations, academic performance, and effort? Third, are the underlying dynamics that propel educational pathways similar for these population groups?

Explanations for the immigrant and visible minority disparities in educational outcomes differ in their focus on cultural versus structural factors (Kao and Thompson 2003). Cultural explanations emphasize achievement motivation, aspirations, and effort. The cultural explanation is typically employed to account for the superior outcomes of Asians and immigrants, but is eschewed as an explanation for inferior outcomes of North American Africans and aboriginals (Blair and Qian 1998; Chow 2000; Schmid 2001). For these groups, structural factors are seen as paramount, particularly parental SES and the advantages and disadvantages that accrue to them (Davies and Guppy 2006:120; Rumbaut 2005). While political sensitivities might well warrant these distinctive emphases, they nevertheless need to be empirically assessed. This paper examines simultaneously the role of both structural and cultural factors on the educational pathways of each of the population groups rather than assuming that structural factors are more important for explaining inferior outcomes and cultural factors for accounting for superior outcomes.

Prior Canadian research has established that the educational attainment of First Nations youth is low (Aman and Ungerleider 2008; Aydemir, Chen and Corak 2008; Finnie, Lascelles and Sweetman 2005; Krahn and Hudson 2006), especially among those living on reserves (Brunnen 2003; Mendelson 2006). Although the First Nation high school dropout rate has declined over the past two decades, the gap in educational attainment between First Nations and non-aboriginals has actually increased (Clement 2008; Hull 2005; Siggner and Costa 2005; Tait 1999). Further, although First Nation students are also especially unlikely to participate in post-secondary education (PSE), the immediate reason probably is their low academic performance (Finnie, Lascelles and Sweetman 2005). Research on achievement tests corroborates this interpretation, since First Nation students consistently score substantially lower than other students on various standardized achievement tests (Ma and Klinger 2000; Vandenberghe and Gierl 2001, Human Resources and Skills Development Canada, 2005 #1729). Similar results are found in the United States, where aboriginals are least likely to be in an academic track in high school or to have obtained a university degree, and most likely to have dropped out of high school (Kao and Thompson 2003; Rumberger and Thomas 2000).

Due to data limitations, Canadian research often treats visible minorities as a single population group. As a group, they are modestly more likely than others to participate in PSE—a difference that is stronger with respect to enrolment in a university program (Krahn and Hudson 2006; Lambert et al. 2004; Tomkiewicz and Bushnik 2003). This difference in PSE participation is foreshadowed by remarkably higher educational aspirations of visible minorities, especially immigrant visible minorities (Krahn and Taylor 2005). The few studies that differentiate among visible minority groups of different cultural identities find substantial heterogeneity between the groups in their academic performance and educational attainment, with particularly solid outcomes among Asian Canadians, but with African Canadians performing below European Canadians (Crysdale, King and Mandell 1999; Finnie, Lascelles and Sweetman 2005).

With respect to immigration status, young immigrants to Canada are more likely than native-born Canadians to attend a PSE institution (Butlin 1999; Hansen and Kučera 2004; Statistics Canada and OECD 2005). At the same time, they appear not to perform as well on standardized literacy tests, especially reading achievement (Frempong and Ma 2006; Statistics Canada and OECD 2005; Willms 2004; Zhang 1999). However, immigration status per se may not be the crucial factor, since whether the parent or respondent speaks one of the official languages is thought to be a salient factor, although the findings are not consistent in this respect. On the basis of the National Longitudinal Survey of Children and Youth (NLSCY), Worswick (2001) documented that children of immigrants whose parents speak English or French perform at least as well as children of native-born Canadians, while children whose immigrant parents speak neither official language performed worse in reading and writing. Nevertheless, the academic performance of even these children caught up with that of native-born children by about the end of primary school. Similarly, one Canadian study found that various indicators of educational achievement did not differentiate immigrants from Canadian-born students (Dinovitzer, Hagan and Parker 2003). However, and in contrast to the above finding, it was immigrants for whom English was their second language who, for example, were 2.5 times as likely to attend university as other students.

Krahn and Taylor (2005:424) in an analysis of the 15 year-old Youth in Transition Survey (YITS) cohort, found that visible minority immigrants had substantially higher educational aspirations than other students even after controlling for a large number of factors known to be associated with educational aspirations. Although the immigrant visible minority “effect” was only half as large after the introduction of these controls, the odds of visible minority immigrants aspiring to a university education remained one and a half times higher than that of other Canadian youth. It appears that first generation immigrant parents and their children have particularly high educational aspirations and expectations (Glick and White 2004). Even among visible minorities, recent immigrants appear to value education more than those where both the students and their parents are Canadian-born (Smith, Schneider and Ruck 2005).

On theoretical grounds, visible minorities and immigrants should differ in their schooling experiences and educational pathways. Much research was spawned by Ogbu’s (1992) distinction between voluntary and involuntary minorities, for example. Immigrants are

voluntary minorities who usually emigrate to the host country in the hopes for a better life for themselves or their children. In contrast, historically African Americans constitute an involuntary minority who “could not (and still cannot) easily escape from their birth-ascribed membership in a subordinate and disparaged group by “passing” for White” (Ogbu 1992:9). As a result, Ogbu argues, they developed an oppositional identity reinforced by peer pressures that discourages academic success. Despite its appeal, systematic analyses in the U.S. finds little support for any of the hypotheses derived from Ogbu’s explanation (Ainsworth-Darnell and Downey 1998; Morgan and Mehta 2004; Stoner-Eby 2002). In the Canadian context, the historical treatment of First Nations, particularly the introduction of the reservation schools that systematically stripped these children of their language and culture, makes it appropriate to consider them an involuntary minority.

Large differences characterize immigrants from different countries. In many countries, it is Asian immigrant students whose academic performance and educational attainment is superior to that of other population groups. (Marjoribanks 2003; Rumbaut 2005; Rumberger and Thomas 2000; Sun and Li 2001). In Canada, children of Asian and Indian immigrants are particularly likely to obtain a university degree (Abada, Hou and Ram 2008; Aydemir, Chen and Corak 2008). Asian students report higher parental expectations and lower parental satisfaction concerning academic achievement than do Whites. Asian parents seem to emphasize and pressure their children to achieve academically. So an “educational culture” might be greater there than in certain other cultures/ethnic groups (Chow 2000).

Data and methodology

Processes of educational pathways are addressed using cycles 1 and 2 of the older cohort of YITS, who were 18-20 years old in the baseline survey. Cycle 1 was administered between January and April 2000 to residents of the 10 Canadian provinces. The sampling frame was based on the Labour Force Survey (LFS), which excludes persons living in Yukon, Nunavut, and the Northwest Territories or First Nations reserves, as well as full-time members of the armed forces and inmates of institutions. Computer-assisted telephone interviews were completed with 23,592 youth, yielding a response rate of 80.9 percent. Systematic non-response rates by province, age, gender, and date of LFS household data were taken into account in post-stratification weighting.¹ The follow-up survey was conducted two years later. The response rate in the follow-up survey was 83.9 percent, and the weights were recalibrated to take non-response into account. These recalibrated weights are used throughout the ensuing analyses so that the findings are reasonably representative of Canadian youth, within the limitations imposed by the initial sampling frame. The remainder of this section provides information on the construction of the measures, starting with the operationalization of educational pathways.

¹ Further methodological details can be found in Statistics Canada (2006).

Educational pathways

Educational pathway, the dependent variable, measures the highest level of education obtained or participated in at cycle 2. Although information from cycles 3 and 4 are currently available, it was decided not to use this data since the number of cases in the different population groups is quite small, a problem that would be exacerbated with the additional sample attrition that occurred in subsequent cycles of data collection. As a result, the analyses conducted in this paper are best conceived of as the *initial* rather than the *final* educational pathways.

Educational transitions are fluid and fractured, with many possible states and sequences. Analytical considerations, however, force one to be satisfied with crude categories intended to capture the more important distinctions. Three categories of educational status were constructed that have sufficient sample sizes:

1. *No PSE*. This category includes only those who at the time of cycle 2 had not participated in any credentialized form of PSE. Some were dropouts (11%), a few were still in high school (2%), but the majority had obtained a high school completion certificate (87%).
2. *Community college*. All forms of PSE other than university were combined into this outcome. The majority of respondents in this category (92%) attended a community college or CEGEP and hence are labelled as such.
3. *University*. Youth who reported being enrolled in a university program in either cycle 1 or cycle 2 were placed into this category. A small number switched from a university program to a non-university program between cycle 1 and cycle 2, but they are nevertheless considered to belong in this category. One reason is that some young people pursue a non-university program subsequent to completing their undergraduate education in order to get concrete work skills.

Cultural/racialized population groups

Cultural/racial self-identity was ascertained in response to the question “People in this country come from many different cultural or racial backgrounds. I’m going to read you a list.” The list included “White”, “Aboriginal”, and a variety of visible minority identities (“Black”) and countries (“Latin American”), with multiple self-identities permitted. To maximize the number of aboriginal and visible minority cases, those who mentioned “Aboriginal” were classified as First Nations², regardless of whether they also mentioned other identities. Additionally, those who listed a non-European (and non-aboriginal) identity were classified into one of the visible minority groups defined below. All other respondents were classified as “European”.

Ethnic/racial classification and terminology is inherently problematic. There are insufficient numbers of cases in many of these groups to permit stable parameter estimates to be made. Hence it is necessary to combine some of the groups. Several

² The term *First Nation* is preferred by groups designated as aboriginal in Statistics Canada surveys and hence this term will generally be used when referring to them in the Canadian context.

criteria were used to this end. The most important criterion was that the educational pathways of the groups to be combined had to be relatively similar; i.e., the groups to be combined had to be homogeneous with respect to the dependent variable. Second, the groups to be combined should also be relatively similar with respect to the most important determinants of PSE, such as academic performance. Third, it was felt that the minimum number of cases for any population group had to be at least 100. Extensive exploratory analyses were conducted to ascertain the similarities and differences between the various visible minority categories. Based on these criteria, those who identified themselves as Japanese, Chinese, or Korean were combined into “East Asian”. All respondents who identified any other Asian origin were collapsed into a category called “other Asian.” Despite obvious cultural differences, youth who identified themselves as “Black” were remarkably similar to those who identified themselves as “Latin American” with respect to educational pathways, academic performance, and many other characteristics. Hence they were combined as “African/Latin American”; a large majority of them were in fact of African heritage. A few respondents identified themselves as “Arab”. These were too dissimilar to any other category to permit combining with any of the groups and were therefore deleted from the analysis. All other youth had listed “White” as one of their identities and these are labeled “European” here. Obviously, substantial heterogeneity remains within each of the population groups defined here. So, for example, South Asians are somewhat more likely to pursue a university education than are the other Asians with whom they are combined, a difference that to a large extent is due to their greater effort and superior academic performance. The decision to combine groups such as these is based on a delicate trade-off between obtaining sufficient sample sizes to obtain reliable parameter estimates at the price of masking potentially noteworthy differences between the groups that have been combined.

The review of the literature also suggested that immigrants differ in systematic but not always similar ways from non-immigrants. To assess whether immigrants differ from their native-born counterparts of the same cultural heritage, all non-aboriginal youth were sub-divided on the basis of their immigrant status; those born in Canada are referred to as Canadian-born, all others as immigrants. This produced the nine population groups listed in Table 1 whose educational pathways will be compared (the unweighted sample sizes are provided in the last column).

Predictors of educational pathways

For the multivariate analyses, three cumulative models (structural location, cultural features, and academic performance) of educational pathways were developed. The distinction between structural and cultural factors is conceptually arbitrary, since the two are intrinsically intertwined making it hazardous to assign causal priority to one or the other. For example, it is well-known that family size (often conceptualized as a cultural characteristic) is associated with poverty, which is clearly a structural feature. Nevertheless, the distinction serves a useful heuristic purpose. For the purpose at hand, parental and household features that are direct measures of socio-economic position, as well as those factors that have direct implications for one’s socio-economic position are classified as structural. The heuristic advantage is that the first model arguably assesses the extent to which gaps in educational pathways can reasonably be attributed to the

socio-economic advantages or disadvantages that characterize the different population groups. The second model then assesses the additional impacts of educationally-relevant practices that might be differentially associated with the nine population groups. The final model assesses the extent to which the structural and cultural factors operate via their relationship with academic performance (which is the primary screening method for admission into a university program). The specific measures for each of the three models were selected on the basis of prior research that documented their relevance to educational pathways and simultaneously being available in this data set. These measures, and their assignment to structural, cultural, and academic performance categories, are described next.

Structural location

Information on six possible structural features is available in this data set.

Education of mother and father (continuous): Respondents who lived with a parent during high school were asked the highest level of education of their mother and father. Responses ranged from “less than Grade 6” to “Doctorate degree”. These were recoded into approximate years of education.

Occupational prestige of mother and father (continuous): A series of questions were asked about the main job of both the mother and father while the youth was in high school. Statistics Canada used this information to classify the jobs into the SOC occupational codes. These were then converted into measures of occupational prestige.³

Maternal employment (indicator): The mother had a job while the youth was in high school.

Private high school (indicator): Youth reported that the last high school they attended was a private school.

Two biological parents (indicator): Respondents reported living mostly with both their birth mother and birth father during the time they were in high school.⁴

Number of siblings (continuous): Youth were asked how many older or same age brothers and sisters they had and then how many younger brothers and sisters. In both instances, they were asked to include half-, step- and adoptive brothers and sisters. Responses to the two questions were added together.

³ I would like to thank John Goyder for providing me the syntax file for converting SOC to occupational prestige codes. Information on the construction and validation of the prestige scales are contained in Goyder and Frank (2007).

⁴ The number of cases of adoptive and step-parent families was too small to permit separate analyses. Exploratory analysis also indicated that with respect to educational pathways, the effects of these family structures were similar to those of single-parent families. This is congruent with studies of academic performance where the performance of children in adoptive and step-parent families is generally similar to those in single-parent households (Marks 2006).

Unfortunately, information on parental income is not available in this data set. However, other research (Finnie, Lascelles and Sweetman 2005) indicates that parental income has only a modest effect on educational pathways once parental education and other structural features are held constant.

Cultural features

Factors that are known determinants of educational pathways but that are not direct measures of academic performance are candidates for cultural differences that may account for differential PSE pathways among the population groups. The cultural features considered are: academic effort, alcohol/marijuana use, educational aspirations and expectations of the youth, parental aspirations for their children's education, peer PSE plans, early marriage, and bilingualism. Prior research has documented that each of these factors is implicated in the educational pathways pursued or not pursued. Although it can be argued that these features are manifestations of class, the descriptive analyses presented below will show that sizable population group differences occur on each of these of these features. Hence it is also reasonable to think of them as grounded in culture. Features such as alcohol and marijuana use may be better conceived as consequences of a subordinate group's historic relationship to the dominant group than as an intrinsic cultural attribute.

Academic effort (scale): Factor analysis was employed to obtain a measure of academic effort. Four questions (hours per week spent on homework; completion of homework on time; frequency of cutting or skipping classes without permission; doing as little work as possible to just get by) had factor loadings higher than 0.67 on the single dimension extracted: Just over half the variance in these items (51%) was accounted for by this factor. Items were recoded so that higher scores indicate greater effort, and an index consisting of the sum of the responses was constructed, yielding a satisfactory reliability (Cronbach's alpha = 0.68).

Alcohol/marijuana use (scale): After reminding the respondents that their information was confidential, youth were asked how often they had consumed alcohol, how many drinks they usually had, and how often they had used marijuana/hashish in the past three months. Factor analysis of the responses to these three questions loaded on a single dimension that extracted 65 percent of the variance. Since unequal response options were provided for these questions, the standardized factor score served as the measure (Cronbach's alpha = 0.72).

University expectations/aspirations and (indicators): Respondents were asked "As things stand now, what is the highest level of education you think you will get" followed by how much they "would like to get." Responses were dichotomized at a Bachelor's degree level.

PSE very important to parents (indicator): Youth were asked how important they believed it was to their parent(s) that they participate in PSE. Due to the skew in the distribution, the responses were dichotomized so that "very important" = 1; 0 otherwise.

PSE peer plans (continuous): Respondents estimated how many of their friends planned to pursue PSE, with four response options ranging from “none of them” to “all of them”. Responses to this single item were converted to standard scores.

Bilingualism (indicator): Respondents were asked which languages they speak. Those who reported two or more languages are classified as bilingual, regardless of whether none of them are either English or French.

First language neither French nor English (indicator): Respondents were asked “What is the language that you first learned at home in childhood and still understand?” If the youth no longer understood the first language, the second language learned was recorded.

Married (indicator): Youth who reported being married or in a marital-type relationship. This includes those currently married, previously married, or “living common law or with a partner.”

Academic performance

Three aspects of academic performance are central to the analyses presented here:

Grade retention (indicator): Early school difficulties were assessed by whether the respondent reported ever having repeated a grade in elementary school

Marks in math and language (continuous): High school performance in math and language is captured by the marks young people reported in response to the following questions that referred to the highest math/language class taken: “What was your grade-average in that Math (Language) course?” The response options ranged from “under 50%” to “90% to 100%”. These were recoded to represent the mid-point of each grade range. In the multivariate analysis, the mean of the two marks is used. Marks from official transcripts would have been more ideal, since an unknown amount of both random and systematic measurement error likely characterizes self-reported marks. Nevertheless, evidence from the US “High School and Beyond” (HS&B) survey suggests that self-reported marks may be quite reliable, since among Grade 12 students, the correlation of self-reported average marks with those obtained from official transcripts was 0.77 (Fetters, Stowe and Owings 1984). Nonnamaker (2000) reports an almost identical correlation of 0.76 for university students. Kurman and Sriram (1997:429) report correlations of .71 and .93 in two different samples of Grade 8 students. With respect to systematic measurement error, all three studies uncovered a self-enhancement bias in self-reports; in the HS&B survey, the magnitude of such self enhancement was approximately a quarter of a letter grade. This self-enhancement effect is larger among those with lower marks (Kurman and Sriram 1997).

University-preparatory math and language (indicators): Since education falls under provincial jurisdiction in Canada, the types of programs (and the class numbers and names by which they are known) differ by province. For this reason, respondents were first asked in which province they took their final year of mathematics and language classes. They were then asked the highest grade they completed in these two subjects, and

the level (such as university preparatory) at which they were taken. The grade, level names, and class numbers corresponded to the provincial lexicon in which a student had taken the class. Statistics Canada created five program levels: general, work-preparatory, work and college, university-preparatory, and other. These were collapsed to represent whether the last class taken in the subject was at a university-preparatory level. In the multivariate analysis, the mean of the two indicators is employed.

This data set has a number of features that make it appropriate for the questions at hand:

- It is comprised of youth who are at an age where educational decisions are being implemented that will vitally affect their future labour market experiences and the extent to which their human capital skills will be utilized and augmented.
- It contains rich information on various aspects of structural location and cultural attributes of the respondent, their academic performance, and their educational transitions.
- It is longitudinal, permitting better assessment of thorny causality issues. For the multivariate analyses, all measures of the independent and control variables are from cycle 1 (except for marital status, for reasons indicated previously); measures of educational pathways are obtained from cycle 2.
- While the sample is comprised primarily of native-born European youth, it nevertheless contains over 750 self-identified First Nation, 1,300 visible minority, and about the same number of immigrant youth. These numbers are sufficiently large to permit cautious statistical comparisons between the population groups.

Findings

The first task is to document that educational pathways do indeed differ between the various population groups. Table 1 gives the percentage of each population group who did not participate in PSE, enrolled in a community college, or pursued a university education. In this table, First Nations youth stand out as being most likely to curtail their education with high school or less and least likely to enroll in university (50% and 21%, respectively). At the opposite extreme, East Asians (both Canadian-born and immigrant) are least likely to curtail their education at a secondary school level (< 20%), and most likely to have university as their destination (at least two-thirds). They are also the least likely to choose a non-university type of PSE (< 15%). Regardless of immigrant status, two in every five (41%) African/Latin American Canadians had enrolled in community college, representing the highest proportion of any population group. However, they are underrepresented in university programs and overrepresented in failing to pursue PSE of any kind.

Table 1: Educational pathways of population groups (%)

Canadian-born	No PSE	Community college	University	Unweighted N
European	28	35	37	16,342
First Nation	50	29	21	573
African/Latin American	36	41	23	209
East Asian	11	11	78	185
Other Asian	17	26	58	347
Immigrant				
European	28	29	43	406
African/Latin American	31	41	28	121
East Asian	18	14	68	198
Other Asian	34	32	34	331
Total	28	34	38	18,712

Immigration status appears to affect educational pathways, but in distinct ways for different population groups. Ten percent fewer East Asian immigrants pursue a university degree than do their Canadian-born counterparts (68% versus 78%, respectively). This immigrant difference is most pronounced among other Asians, where only a third (34%) of immigrants but about three-fifths (58%) of the Canadian-born with this identity participated in a university program. In contrast to Asian immigrants, those from Africa and Europe are at least as likely, if not more so, as their native-born counterparts to pursue a university degree.

Population group profiles

Having established that the population groups have distinct educational pathways, the next task is to examine those aspects of their structural location, cultural features, and academic performance known to impinge on educational attainment. Table 2 provides this information. Rather than examining the specific population group differences on each attribute, two summaries are provided: the first sketches the outstanding characteristics of youth with different cultural identities, while the second summarizes the main differences between immigrants and non-immigrants.

Table 2: Population group profiles

Structural location	CEU	CFN	CAF	CEA	COA	IEU	IAF	IEA	IOA	Eta²
Mother's education (in years)	12.5	11.8	12.5	12.4	12.9	13.3	12.2	11.8	11.7	0.01
Father's education (in years)	12.5	11.5	12.5	13.6	13.3	13.5	13.0	12.5	13.3	0.01
Father's occupational prestige	65.7	64.2	66.1	66.7	64.9	67.1	63.9	65.4	64.3	0.00
Mother's occupational prestige	65.6	64.2	65.6	64.1	65.2	65.2	63.8	61.0	62.2	0.01
Mother had job (%)	88	86	91	86	89	83	87	70	77	0.01
Private school (%)	8.1	6.6	11.5	5.1	12.0	9.5	7.7	8.3	12.4	0.00
Two biological parents (%)	71	48	52	81	87	79	51	80	74	0.02
Number of siblings	1.9	2.8	2.1	1.5	1.8	1.9	3.0	1.4	2.3	0.03
Cultural features										
Alcohol/drug use (standard score)	0.05	0.07	-0.33	-0.53	-0.59	-0.27	-0.65	-0.87	-0.87	0.06
Homework (hours per week)	5.3	4.6	5.3	7.1	7.8	6.3	6.0	8.5	7.3	0.03
University degree aspiration (%)	53	43	55	84	73	62	52	82	64	0.02
University degree expectation (%)	42	26	37	77	62	51	33	75	49	0.03
PSE very important to parents (%)	66	52	80	87	91	78	85	81	88	0.01
Friends' PSE plans	4.0	3.5	3.9	4.1	4.3	4.1	4.0	3.9	3.9	0.03
Bilingual (%)	43	33	36	48	46	52	49	88	63	0.03
First language neither French nor English (%)	3	9	15	49	34	68	54	93	82	0.48
Married or equivalent (%)	6	13	7	*	2	4	3	*	6	0.01
Academic performance										
GPA	76.8	73.8	73.6	80.4	78.5	77.9	74.8	78.4	76.9	0.01
Math mark	74.9	73.3	73.3	79.4	76.2	75.9	71.6	80.6	78.4	0.01
Language mark	77.0	74.9	73.7	79.5	78.9	76.8	75.2	73.8	73.6	0.01
Repeated a grade in elementary school (%)	12	19	17	7	6	5	11	1	4	0.02
Previously dropped out of school (%)	16	36	21	6	6	16	16	6	15	0.03
University-preparatory math class (%)	59	43	48	92	80	56	37	85	62	0.03
Took Grade 12 language (%)	62	54	53	91	84	73	56	80	69	0.01
Took Grade 12 math (%)	47	38	38	80	64	57	39	83	59	0.01

Key: The first letter (C or I) refers to Canadian-born or immigrant; the last two are: EU=European; FN=First Nations; EA=East Asian; OA=other Asian; AF=African/Latin American

* Suppressed for confidentiality reasons

First Nations

First Nations families can be described as being in multiple jeopardy with respect to their children's education. The first jeopardy is their socio-economic position, which tends to be the worst of all Canadian-born groups. This is especially marked with respect to the educational attainment of the parents, which is lower than that of all Canadian-born groups. Only on mother's occupation do First Nations have a middling position.

The second jeopardy consists in their family structure. Only about half (48%) of First Nations youth in the YITS sample lived with both biological parents. Likewise, First Nations youth come from larger families, with an average of 2.8 siblings. In this respect they are surpassed only by immigrant African youth, who have 3.0 siblings.

The third jeopardy is with respect to peer and family supports for pursuing PSE. First Nations youth are least likely to report that it is very important to their parents that they pursue PSE and they have fewer friends who plan to pursue PSE. It is therefore to be expected that they are the least likely to aspire to a university education and least likely to expect to attend university. In light of these multiple jeopardies, it is not surprising that on every measure of academic performance, First Nations youth fared worse than any of the other population groups. About the only educationally-relevant factor working somewhat in their favour is that only nine percent did not have English or French as their first language.

East Asian

The outstanding feature of East Asian youth is their high educational aspirations and expectations. More than four-fifths of them aspire to a university education and at least three-quarters of them expect to obtain at least a bachelor's degree. From an academic performance point of view, these expectations are realistic: they have the highest marks (except for language marks among immigrants), are most likely to have taken a university-preparatory math class, as well as Grade 12 math and language classes. They are also notable for eschewing alcohol and marijuana products and for putting substantial time into their homework, especially among the immigrant youth. Finally, they stand out as having the fewest number of siblings. Only with respect to native language are they at a possible disadvantage, since they are the most likely of all population groups to have a native language other than English or French.

Other Asian

Several indications suggest that education is particularly important to Other Asians. They are the most likely to believe that PSE is very important to their parents, with about nine in every ten youth holding this view. Further, they are the most likely of any group to have attended private school (12%). Additionally, they are similar to East Asian youth in the amount of time they spend on homework. Finally, their academic performance is surpassed only by East Asians.

European

Among Canadian-born youth, these youth are exceptional primarily with respect to having English or French as their first language (97%). They are in almost all respects best described as “average”, with no particularly outstanding characteristic. If we exclude First Nations youth, then Canadian-born youth of European descent are distinguished by two characteristics: they put in less time on homework than all other groups, and they are more likely to consume alcohol and marijuana/hash.

The outstanding characteristic of immigrant Europeans is the high level of parental education. Both the mothers and the fathers have more education than any of the other population groups. The fathers also had the highest-prestige occupations. One might expect the immigrant Europeans to exhibit superior academic performance than their Canadian-born counterparts, since they come from somewhat more advantaged homes, put in more effort, have higher aspirations and enjoy greater peer and family support for PSE. This expectation is supported on most indicators of academic performance.

African/Latin American

Aside from First Nations youth, this visible minority group scores lowest on all indicators of academic performance; sometimes the Canadian-born fare somewhat better, sometimes somewhat worse, than their immigrant counterparts. Nevertheless, in terms of possible barriers (low effort, involvement in alcohol and drugs), they put in at least as much effort as their European counterparts and are less likely to drink or smoke marijuana. But on both counts they are more at risk than most of the Asian groups. The same is true with respect to parental aspirations, peer plans, and own aspirations. With respect to expectations, they have the lowest, which is probably due to their recognition that their academic performance is relatively low. In general, for this visible minority only minor differences emerge on the basis of immigrant status.

Among immigrants, this visible minority has the largest family size and the fathers' occupations are accorded the lowest prestige. Among the immigrant groups, they are the most likely to have either English or French as their first language (46%); even European immigrant youth are less likely to have English or French as their first language (32%). This is the only visible minority where the Canadian-born youth did not have better educational pathways than their immigrant counterparts; immigrant African/Latin American youth were five percentage points more likely to attend university than their Canadian-born counterparts (28% versus 23%, respectively). Likewise, they were five percentage points less likely to terminate their education with a high school diploma or less (31% versus 36%).

Immigration effects

Immigrant youth differ from their native-born counterparts in a number of ways:

- Immigrants are substantially more likely to have learned a language other than English or French as their first language. On this variable there is the greatest diversity between the population groups. At one end are Canadian-born youth of

European descent, among whom only three percent had a language other than English or French as their first language. At the other extreme are immigrant East Asians, among whom only seven percent had English or French as their first language.

- For all population groups except Other Asians, immigrants report doing somewhat more homework than their Canadian-born counterparts.
- Immigrants are less likely to consume alcohol and marijuana than are their Canadian-born counterparts.
- Except for African/Latin Americans, immigrants have somewhat better math marks than do Canadian-born students. In contrast, and again except for African/Latin Americans, immigrants have somewhat lower language marks. Perhaps because of the difference between math and language, grade-point average (GPA) shows no consistent difference between immigrant and non-immigrant cultural groups.
- Immigrants are less likely to have experienced grade retention than their non-immigrant counterparts. Yet in high school, immigrants are less likely to elect or be placed into university-preparatory math classes than are their non-immigrant counterparts.
- Surprisingly, given the findings reported in the literature review, only among Europeans do immigrants have higher university aspirations than do their native-born counterparts. For all other cultural groups, the Canadian-born groups are somewhat more likely to aspire to a university credential than their immigrant counterparts.
- Except for a small reversal among East Asians, immigrants have larger families than their non-immigrant counterparts.
- Among visible minorities, immigrant mothers have less education than Canadian-born mothers. The reverse is true among Europeans. In contrast, for all groups except East Asian, Canadian-born fathers have *less* education than their immigrant counterparts. Canadian-born East Asian fathers have the highest education of all groups (on average one year more than their immigrant counterparts), with immigrant Europeans the second-highest. Surprisingly, Canadian-born European fathers have the second-lowest educational attainment, but it is still fully one year more than that of First Nations fathers.
- Among visible minorities, immigrant fathers have less prestigious occupations than do Canadian-born fathers. Among Europeans, immigrant fathers enjoy higher occupational prestige than their Canadian-born counterparts. In fact, immigrant European fathers have the highest occupational prestige of all population groups and the second-highest education. Since education is intimately connected to occupational prestige, it is not surprising that East Asian Canadian fathers have the second-highest occupational prestige, surpassed only by immigrant Europeans. Immigrant mothers, like immigrant fathers, are in less prestigious occupations than their Canadian-born counterparts. This is the only structural variable in which First Nations are near the middle. On all others, First Nations are at or near the bottom.

Multinomial logistic regression models of educational pathways

The analyses presented so far documented that the population groups differ substantially in their educational pathways, their prior academic performance, their structural location, and their cultural characteristics. This section addresses the following questions:

- To what extent are the unequal educational pathways of the population groups a function of their a) structural locations, b) cultural characteristics, and c) academic performance?
- Are the differences in educational outcomes of the population groups minimized or even erased after controlling for structural location and cultural differences?
- Do structural location and cultural differences affect educational pathways solely through improving academic performance, or do they have additional direct effects on youth's decision on whether, and what type, of PSE to pursue?
- Are the effects of academic performance, effort, aspirations, and self-assessed skills comparable for each population group?

Any pan-Canadian analysis of educational pathways must be cognizant of the fact that education is under provincial jurisdiction, resulting in provincial variation in its structure and delivery. The Quebec educational system in particular differs substantially from that in the other provinces. A first difference is that the last year of high school is Secondary V which is equivalent to Grade 11 in other provinces. This is an important difference since it means students graduate a year earlier than in other provinces. Second, university preparatory language classes are generally not offered in Quebec high schools. Third, and most importantly, the Quebec educational system normally requires enrolment in CEGEP for two- to three years prior to entering a university program. Alternatively they can pursue a college-level program in its own right and this is typically a 3-year program. So youth in Quebec who choose university actually start their university enrolment later than youth from other provinces. Extensive exploratory analyses led to the conclusion that including Quebec in the analysis would mask certain relationships and distort others. Hence for the multinomial logistic models, all respondents who had been enrolled in any programs in Quebec at either cycle 1 or cycle 2 were excluded. As a consequence, the findings can be generalized only to youth outside of Quebec.

Item non-response plagues all multivariate survey analyses. Listwise deletion of missing cases can result in a severe loss of cases. For the purposes at hand, substitution of the mean values of the independent variables, in conjunction with inclusion of missing value indicators was used. This approach retains the maximum sample size while simultaneously providing information on whether missing value status is statistically significant. Preliminary analyses indicated that mean substitution for parental education was unacceptable unless the missing value indicator was also included, since respondents who failed to provide information on their parent(s) education were less likely to participate in any form of PSE. Finnie (2005) came to the same conclusion using a different data set, estimating that the level of parental education was substantially lower than the mean among youth who failed to provide information on their parents' education. For this reason, the missing value indicator for mother's education is included in the multinomial models (and is conceptually treated as a structural indirect measure of

mother's education). Once entered into the models, none of the other missing value indicators were statistically significant.

The profile analysis (Table 2) documented that the population groups differed substantially in both their educational aspirations and expectations. Nevertheless, to reduce possible endogeneity in the multivariate models it was decided to exclude aspirations and expectations. This is because many respondents at the time of the baseline survey had already enrolled in a university, for example, and it would be nonsensical for them to state that they did not expect/desire a university education.

Four cumulative models are assessed. The first acts as a baseline model that examines the gaps in educational pathways of the population groups relative to Canadian-born youth of European descent (the omitted reference category). Three variables—age, gender, and rural-urban residence—known to be important determinants of educational pathways are held constant in this and subsequent models (they operate in the expected direction; parameter estimates are not shown since these variables are not relevant to the arguments being made). The second assesses structural effects as defined previously. The missing value indicator for mother's education is included in this model, since it likely represents a proxy measure of low parental education. The third model adds a variety of factors that may reflect cultural differences pertinent to educational pathways. These include academic effort, educational supports from parents and peers, and early marriage. The fourth includes a variety of measures of academic performance. These models will help to ascertain which factors play an independent role in the decision of whether, and what type, of PSE to pursue. Although multinomial logistic regression simultaneously assesses the effects of the independent variables on both the decision to participate in a non-university and a university program, the differences in the magnitude of the effects are sufficiently different that they will be described separately, starting with the decision to pursue a non-university form of PSE.

Collinearity among the predictor variables is often problematic. One of two strategies is generally employed to minimize this problem. The first is to combine independent variables that are conceptually similar; the second is to delete one or more of the variables that are highly correlated. For the structural model, the candidates for collinearity are the four measures of parental education and occupational prestige. Since a main aim of this paper is to provide the strongest possible test of structural explanations, a variety of auxiliary analyses were conducted to assess the impact of combining some of the measures. The results indicated that the separate measures of mother's and father's education and occupational prestige could be combined into parental education and parental occupation, respectively, without loss of explanatory power. In the academic performance model, marks in math and language were combined into a single measure. Likewise, whether these classes were taken at a university-preparatory level were combined.

Two structural factors (attending a private high school and number of siblings) as well as three cultural attributes (bilingualism, a native language other than English or French, and alcohol/marijuana use) failed to have statistically significant effects on educational

pathways in their respective models. For this reason they are excluded from the analysis. This does not mean that they are irrelevant, but rather that collinearity in the complete set of predictor variables makes it difficult to isolate their possible effects. For example, in the cultural model the index of alcohol and marijuana use was significantly related to educational pathways in the expected direction if entered on its own. However, once the remaining cultural measures were entered, it failed to have an independent effect.

Population group gaps

The first task will be to examine the magnitude of population group differences in transitioning to community college rather than terminating one's education with no more than a high school completion certificate. This is followed by a parallel examination of the gaps in the transition to university. All gaps are expressed in terms of the odds ratios for this transition relative to that of the omitted comparison group, which in all models is comprised of Canadian-born youth of European descent. Odds ratios of 1.0 indicate that the odds of a given transition for a given population group is identical to that of native-born Canadians of European descent. Odds ratios greater than 1.0 indicate higher odds of such a transition, whereas odds ratios less than one means lower odds. For example, in the base model (column 1 of Table 3) immigrant Europeans and East Asians have trivially higher odds of enrolling in a community college than native-born Europeans (odds ratios of 1.03 and 1.08, respectively). In contrast, Canadian-born other Asians have 63 percent higher odds, while First Nations youth have 38 percent lower odds ($1.0 - 0.62 = 0.38$) of this transition than their European counterparts. Of particular importance for both transitions is the change in the magnitudes of the odds ratios under the three explanatory models—structure, culture, and academic performance. They are the indicators for how important each set of factors is in accounting for the population group differences in transition likelihoods.

Community college versus high school

In the base model (which controls only for gender, age, and rural-urban location), only two groups differ significantly from Canadian-born Europeans in their likelihood of attending community college: First Nations youth are less likely, while native-born other Asian youth are more likely to make this transition. Controlling for structural factors modestly increases the odds of enrolling in a community college for all population groups (compare the population group odds ratios in column 2 with their corresponding odds ratios in column 1). It is the consistency of the pattern rather than the magnitude of the changes in the odds ratios that is noteworthy, since the effect of structural location is small—the largest change in odds ratio (26%) is for immigrant East Asians ($1.36 - 1.08 = 0.26$), followed by immigrant Africans with a 24 percent increase. The implication is that if the population groups had identical structural locations as Canadian-born European youth, they would all be somewhat more likely to participate in a community college education. It is important to point out that controlling for structural factors does not always minimize the disparities between the population groups in their likelihood of pursuing a community college education. It does for First Nations, for example (the odds ratio is now closer to 1.0, having increased from 0.62 to 0.77) but it has the opposite

effect for Canadian-born other Asians and for East Asians regardless of their immigration status.

Table 3: Multinomial odds ratios of transitions to community college and university

	Community college versus high school or less				University versus high school or less			
	Base	Structure	Culture	Performance	Base	Structure	Culture	Performance
CFN	0.62 **	0.77 *	0.95	0.96	0.30 ***	0.50 ***	0.69 *	0.72
CAF	0.80	0.86	0.80	0.93	0.44 **	0.54 *	0.52 **	0.83
COA	1.63 **	1.76 ***	1.23	0.96	2.63 ***	2.81 ***	1.73 *	1.05
CEA	1.24	1.43	1.06	0.85	6.72 ***	9.03 ***	6.53 ***	3.45 ***
IEA	1.08	1.36	0.94	0.65	3.82 ***	6.33 ***	3.85 ***	2.22
IEU	1.03	1.07	0.87	0.93	1.25	1.04	0.78	0.97
IAF	1.09	1.33	0.87	0.93	0.71	1.07	0.60	0.91
IOA	0.93	1.10	0.74	0.70	0.86	1.07	0.61 *	0.56 *
Two biological parents		1.60 ***	1.44 ***	1.21 *		2.62 ***	2.23 ***	1.69 ***
Parental education		1.36 ***	1.21 ***	1.09		2.50 ***	2.11 ***	1.67 ***
Education not ascertained		0.57 ***	0.60 ***	0.72 **		0.37 ***	0.39 ***	0.58 ***
Parental occupational prestige		1.29 ***	1.29 ***	1.25 ***		1.60 ***	1.63 ***	1.47 ***
Mother employed		1.37 **	1.25 *	1.25 *		1.11	.99	1.08
Number of siblings		0.96	0.98	0.98		0.90 ***	0.93	0.96
Academic effort			1.42 ***	1.18 ***			2.45 ***	1.62 ***
PSE very important to parents			2.72 ***	2.56 ***			3.37 ***	3.26 ***
PSE peer plans			1.30 ***	1.21 ***			1.48 ***	1.26 ***
Married			0.45 ***	0.51 ***			0.19 ***	0.20 ***
Marks				1.14 **				2.18 ***
University-preparatory classes				2.08 ***				22.99 ***
Grade retention/prior dropout				0.31 ***				0.15 ***
Nagelkerke R ²					0.086	0.256	0.408	0.582

Key: The first letter (C or I) refers to Canadian-born or immigrant; the last two are: EU=European; FN=First Nations; EA=East Asian; OA=other Asian; AF=African/Latin American

Note: The omitted reference category for population groups is Canadian-born Europeans. Age, rural-urban residence, and gender are included in all models as control variables.

*p < .05; **p < .01; ***p < .001

Controlling for cultural differences has rather different effects on the population group gaps on the odds of pursuing community college. First, in this model none of the population groups differ significantly from native-born Europeans. Second, for all population groups except First Nations, the odds ratios are lower than the corresponding ones in the structural model. Third, all of the immigrant groups have odds ratios less than 1.0 (i.e., after controlling for both structural and cultural differences, they are somewhat less likely than native-born youth of European descent to choose community college rather than terminate their education with at most a high school completion certificate.

Controlling for academic performance has little effect on the transition to community college for First Nations and for immigrants from Europe, Africa, and non-eastern Asia. It increases the odds somewhat for native-born African Canadians, while decreasing the odds for East Asians (both native-born and immigrant) and native-born other Asians.

University versus high school or less

It is in the transition to university that large population group differences are manifest (see column 4—base model of Table 3). The odds ratios of First Nations youth participating in a university degree program are less than a third at one extreme and more than six times higher among native-born East Asian Canadians compared to Canadian-born youth of European descent at the other. Note also that immigrants from Europe and Africa have higher odds of a transition to university, while those from Asia (regardless of region of origin) have lower odds of enrolling in university than their Canadian-born counterparts.

Structural factors play a relatively consistent role with respect to population group gaps in the transition to university. Specifically, all population groups except immigrant Europeans are predicted to have higher university participation rates if they had average structural locations. However, this is not the same as saying that structural factors diminish the gaps, since for some population groups, controlling for broadly-defined socio-economic location would actually increase the university participation gaps rather than decrease them. This increase in gaps is especially pronounced for both immigrant and native-born East Asian Canadians; to a smaller extent this is also true for native-born other Asian Canadians. For the remaining groups, controlling for structural location narrows the gap between their odds of a university pathway and that of native-born European Canadians to varying degrees. Note that after controlling for structural features, none of the immigrant groups have odds ratios lower than 1.0, indicating they would be at least as likely as native-born European Canadians under these conditions to pursue a university degree.

Controlling for cultural factors has relatively large effects for most of the population groups. For First Nations youth, it increases the odds by 19 percentage points (from 0.50 to 0.69). Cultural factors do not appear to be a factor that would account for the low odds of native-born African Canadians pursuing a university education (the odds of a transition to university for this group remains at just over half that of native-born European Canadians). The introduction of cultural controls reduces the odds of a university

transition for all other population groups. Nevertheless, East Asians and native-born other Asians continue to have significantly higher odds of enrolling in a university than do native-born European Canadians. Note that all immigrant groups except East Asians have substantially lower odds of attending university than native-born European Canadians. Likewise, with the exception of Africans, immigrants also have lower odds of attending university than their Canadian-born counterparts.

After controlling for structural, cultural, and academic performance factors, only two population group gaps remain statistically significant: native-born East Asian Canadians continue to have higher university transition rates, while immigrant other Asians have lower likelihoods of enrolling in university than do Canadian-born youth of European descent.

Determinants of educational pathways

Having examined the extent of population group gaps in educational pathways, attention now is turned to the role of the various predictor variables. Overall, there are few surprises, since the relationships are largely consistent with previous research. Certain features merit highlighting. First, with the exception of number of siblings and maternal employment, all independent variables have statistically significant effects in all models and in a consistent direction for both the transition to community college and to university. Maternal employment is the only independent variable that has significant effects on the transition to community college but not on the transition to university. Second, all independent variables except maternal employment discriminate more sharply in the contrast between university and high school than in the contrast between community college and high school.

Population group differences

The analyses reported in the table above make the statistical assumption that the determinants of educational pathways operate in an identical fashion for each population group. The following analyses remove that restrictive assumption by assessing these factors separately for each population group. The small sample sizes for all population groups other than Canadian-born youth of European descent warranted simplifying the analysis for this section in several ways.⁵ Separate models for immigrant groups were not constructed. Instead, immigration status was entered as a variable for each visible minority group. This procedure makes the assumption that the underlying processes for immigrants of a given visible minority are the same as those of their Canadian-born counterparts. At the same time, it permits an assessment of whether the educational pathways differ for immigrants after controlling for their structural location, culture, and academic performance. Parental education and occupational prestige were combined into a single measure to further minimize collinearity. Due to the low incidence of early marriage in some of the population groups (especially Asian), parameter estimates of its effect would be too unstable to retain in the subgroup analysis. Finally, the effects of family size were quite modest and therefore not included. Despite these simplifications,

⁵ Students of European descent are excluded from the analysis here since their numerical preponderance would produce findings quite similar to those obtained for the total sample.

the standard errors of the parameter estimates are relatively large and therefore the findings are only suggestive. Note also that since sample sizes differ between groups, it is possible that equally large estimated parameters may be statistically significant for one group but not another. For this reason, if effects are roughly comparable, it is concluded that the effects are the same, even if one or more of them are not statistically significant. Although the table provides information on the level of significance, it is perhaps better to focus on general patterns.

Table 4: Multinomial odds ratios for educational pathways by First Nations and visible minority groups

	Community college versus high school or less				University versus high school or less			
	First Nations	African	East Asian	Other Asian	First Nations	African	East Asian	Other Asian
Immigrant		1.00	0.54	0.61		1.09	0.34	0.54
Two biological parents	1.22	1.50	1.63	0.64	3.02 *	1.52	2.48	2.59
Parental education and occupation	1.21	1.17	1.08	1.79	1.44	2.16	1.42	2.13
Mother employed	1.32	3.90 *	1.01	0.89	0.68	8.26	0.62	0.91
Education not ascertained	0.23 ***	0.34	1.29	0.51	0.27	0.07	1.08	0.37
Academic effort	1.11	2.11 *	1.97	1.52	1.43	7.19 ***	4.10 **	1.89 *
PSE very important to parents	2.69 *	3.07 ***	2.64	1.13	6.17 ***	3.77	3.32	2.18
PSE peer plans	0.77	1.10	0.79	1.50	1.43	1.11	0.80	2.11 **
Marks	1.03	0.90	1.22	0.90	1.18	0.96	3.05	3.20 ***
University-preparatory classes	2.47 *	3.21	1.66	4.44 **	14.74 ***	24.61 *	10.18	53.50 ***
Grade retention/prior dropout	0.28 ***	0.61	0.53	0.41	0.39	0.29	0.19	0.07
Nagelkerke R ²	.555	.577	.478	.623				

Note: *p < .05; **p < .01; ***p < .001

Examining the separate population group models in Table 4 reveals both broad overall similarities as well as some possible distinct dynamics. Turning to the similarities first, the odds ratios of all parental SES always exceed 1.0 (although none are statistically significant) for both forms of PSE participation. This suggests that although parental cultural and economic capital may have some independent positive effects after controlling for academic performance and other factors, the effects on choosing community college would be rather modest but somewhat higher on participation in a university program. More importantly, parental influence extends beyond structural advantages: the perceived parental aspiration for their children's education is to varying degrees important both for participation in either community college or university for all population groups. Not surprisingly, university-preparatory classes and grade retention/prior dropout are crucial determinants of initial pathways taken for all population groups. Finally, putting more effort into one's work appears to signify commitment to a PSE since it has positive effects independent of academic performance. It should be pointed out that the effects of family structure, parental SES, parental aspirations, academic effort and academic performance tend to be larger for university enrolment than for community college, although there are some minor exceptions to this pattern.

There are also several indications that the processes underlying educational trajectories contain distinctive elements for some of the population groups. The coefficients for academic effort are lowest for First Nations youth, and the marks they obtained are only weakly associated with their educational pathways. African/Latin American youth share with First Nations youth the trivial association of marks with participation in PSE. However, they differ from First Nations youth in that academic effort is particularly strongly associated with their PSE decisions: a one standard deviation in effort is estimated to increase more than seven-fold their odds of enrolment in university. This is also the only population group where mother's employment has a strong positive effect on participation in both community college and university: For participation in university, the odds ratio is estimated to be more than eight times higher for African/Latin American youth whose mothers are in the labour force than when they are not. For all other population groups, the estimated coefficients associated with maternal employment are actually less than 1.0 (although not statistically significantly so). Finally, it is only among African/Latin American youth that immigrants are estimated to be at least as likely to enroll in either community college or university as their Canadian-born counterparts. For Asians, regardless of region of origin, the odds ratios for immigrants range between about one-third to three-fifths that of their Canadian-born counterparts. The parameter estimates for East Asians do not stand out in any particular way. There is some indication that parental SES may be a slightly less important determinant for this group than for the others. It is also the only group where, anomalously, youth who did not report their mother's education have higher estimated odds for PSE than those who did. Other Asians stand out in two respects. First, every indicator of academic performance appears to have stronger associations with enrolment in a university program for this group than it does for any other group. Second, it is the only population group where the perceived PSE plans of peers appear to be more influential than parental aspirations. Note that a one standard deviation increase in marks is estimated to triple the odds ratio of university

enrolment among both East Asians and other Asians, while for First Nations and African/Latin American youth the effect of marks obtained are trivial.

Summary

The overall purpose of the analyses conducted in this paper was to explore the links between structural location, cultural features, and academic performance with educational pathways among nine population groups of Canadian youth. The underlying rationale was to determine the extent to which inequalities in educational pathways are a function of prior differences in these factors. The analyses documented that inequalities in the educational pathways of the population groups, especially with respect to enrolling in a university program, are sizable. First Nations youth generally have the lowest likelihood of participation in PSE of any kind, followed by Canadian-born African/Latin Americans. These are the only two groups where for all models the estimated odds ratio are consistently less than 1.0, although not always statistically significantly so. At the other extreme, East Asians are especially likely to enroll in a university program.

The profile analyses also revealed that the population groups differ, in some instances substantially, in their structural location and cultural attributes. Not surprisingly, both sets of factors are intimately connected to educational pathways in all population groups. However, they operate in distinctive ways for the different population groups, and some of them magnify rather than diminish population group gaps. The educational pathways of First Nations youth are fundamentally a manifestation of both structural and cultural disadvantages. This is inferred from the fact that the odds ratios become progressively higher between the base, structural, and cultural models (rising from 0.62 to 0.95 for the community college models, and from 0.30 to 0.69 for the university models. After controlling for structural and cultural factors, their academic performance has negligible independent effects on their decision to pursue PSE. While it is corroborated here that First Nations youth consistently score lowest on all indicators of academic performance, their structural and cultural barriers appear to be what accounts for both their low academic performance and their non-participation in PSE. Some aspects of Ogbu's (1992) explanation of the plight of involuntary minorities appear to have merit in understanding the educational pathways of First Nations youth. He notes, for example, that "(a)lthough making good grades is strongly verbalized by students, parents, and the community as a desirable goal, there is less community and family pressure to achieve it" and "there rarely is any stigma attached to being a poor student" (Ogbu 1992:11). This seems to be an apt description of First Nations communities. Less apt and less convincing is the emphasis on oppositional identities, since there is little evidence of oppositional culture among Canadian youth (Lehmann 2007; Thiessen and Blasius 2002). As Lehmann (2007:111) astutely notes, the development of a counter-school culture is a consequence of educational failure, not its cause."

The barriers and facilitative mechanisms among African/Latin Americans (both immigrant and Canadian-born) are quite different from that of First Nations. Controlling for structural disadvantages increases their likelihood of participation in both forms of PSE, especially for the immigrants, indicating that their non-participation can be traced back partly to these disadvantages. On the other hand, controlling for cultural features

decreases the odds of participation in both community college and university. This suggests their participation in PSE would be even lower if they didn't enjoy the benefits of culturally protective factors, such as their parents' high aspirations. Again, these protective factors decrease the gaps more among the immigrant than the Canadian-born youth; their odds of participating in either form of PSE are estimated to decrease by 46% without the cultural protective mechanisms. In contrast to First Nations youth, however, their non-participation in PSE is substantially a matter of their academic performance. The likelihood of African/Latin American youth (both immigrant and Canadian-born) enrolling in a university, for example, is estimated to increase by 31 percent if academic performance is held constant (compare the odds ratios contained in the last two columns of Table 3). In other words, in addition to structural disadvantages, the non-participation in PSE of African/Latin American youth is a function of their marks, grade retention/prior dropout, and streaming into non-university preparatory classes, but it is not a function of their lack of academic effort or lack of educational supports from parents and peers. These patterns suggest that what happens in school (such as low teacher expectations) may be particularly salient for the educational pathways of African Canadians. Dei (1996:20), for example, argues that we "must examine not only how schools promote academic success, but also how schools are engendering student failures." This part of the puzzle is not included in the present analyses.

The puzzle concerning East Asians (both immigrant and Canadian-born) is the popularity of the university pathway. Structural factors do not account for this propensity, since controlling for them actually substantially increases the likelihood of university enrolment (compare Columns 6 and 7 of Table 3). In other words, if East Asians enjoyed the same socio-economic and related advantages as other Canadians, they would be even more likely than they currently are to choose a university education. Turning to cultural factors, these have the expected effects of reducing the odds ratios of university participation. However, these cultural factors do not explain their high university participation rate, since the odds ratios in the cultural model are simply reduced to approximately what they were in the base model. The performance model provides a partial answer to the puzzle: East Asians are characterized by superior academic performance. Once the measures of academic performance are held constant, the odds ratios for university education drop sharply. At 3.45, the odds ratio for university participation of Canadian-born East Asians remains significantly higher than that for Canadian-born youth of European descent (the odds ratio for their immigrant counterparts is estimated to be more than twice that of any other population group, but fails to be statistically significant). Hence the puzzle is only partially explained by the models developed here, leading to the conclusion that additional factors drive the high university enrolment of East Asians. The literature suggests that family-level dynamics linking children's academic performance with the honour of the family might be implicated (Blair and Qian 1998; Chow 2000). It is also perhaps for this reason that Asian students continue to put in much effort into their academic work even when their prior academic performance is excellent (Carbonaro 2005).

Canadian-born other Asians share somewhat similar dynamics as those described for East Asians. That is, they have an above-average likelihood of enrolling in university,

and controlling for structural factors increases rather than decreases the gap between them and Canadian-born youth of European heritage. However, cultural factors account for a part of the baseline gap, and academic performance explains the remainder of the gap, since the odds ratio in the final university model is essentially 1.0. Unlike Canadian-born Asians generally and immigrant East Asians, immigrant other Asians do not have high baseline university participation rates. Structural controls raise the odds to about that of Canadian-born youth of European descent, while controlling for cultural factors significantly decreases the odds of university participation, suggesting that it is the cultural factors that propel them to university. Note also that immigrant other Asians are the only group in the final university model that have a significantly lower likelihood of attending university than do Canadian-born youth of European ancestry. It is the only group where controlling for cultural features induces a gap in educational pathways that was not apparent in the baseline model.

The multivariate analyses clearly show that neither structural location nor cultural attributes (nor both in conjunction) totally account for population group differences in educational pathways. Further, the findings presented here clearly cannot be reduced to a simple pattern whereby structural disadvantages account for inferior pathways and cultural factors for superior ones. Indeed, the patterns are decidedly more complex with distinctly different effects on the magnitude of the population group gaps, particularly with respect to pursuing a university degree. Structural and cultural factors together are sufficient to reduce all population group gaps in community college enrolment to statistical insignificance. To some extent this is due to relatively small population group differences in the choice of this educational pathway. With respect to the pursuit of a university education, after controlling for structure and culture, statistically significant population group gaps remain for all except two groups: immigrants from Europe and Africa.⁶ After introducing controls for academic performance, only native-born East Asians remain anomalously high and other Asian immigrants have significantly lower likelihood of this pathway than do Canadian-born youth of European descent. The conclusion is that except for these two groups, differences in educational pathways are accounted for by a combination of structure, culture, and academic performance.

The fourth and the last column of Table 3 document that all measures of structure and culture except for number of siblings have direct effects on one or the other or both educational pathways that are not attributable to measures of academic performance. Academic performance is the primary basis on which respondents appear to make their decisions about whether to participate in PSE and in whether to pursue a community college or a university credential. Nevertheless, both structural and cultural factors have direct effects on educational pathways in addition to their indirect effects on academic performance. This is another way of saying that both structural advantages and certain cultural practices not only facilitate academic performance but also directly increase the likelihood of PSE participation.

⁶ The odds ratio for African immigrants is actually lower than that for either First Nations or immigrant other Asians, but fails to be statistically significant due to the small number of African immigrants.

This paper provides strong evidence against the practice of treating visible minorities as one group. The variation in educational pathways between the different visible minorities is arguably larger than the difference between white and visible minority youth. In particular, after controlling for structural and cultural differences, Canadian-born East Asian youth are the most likely to pursue a university education while immigrant other Asians are the least likely, even less likely than First Nations and African Canadians.

Some immigrant population groups also differ in important, but distinct, ways from both Canadian youth generally as well as their Canadian-born counterparts of the same geographic region of origin. It may be true, as the literature reports (Krahn and Taylor 2005), that visible minority immigrants as a group have higher educational aspirations and expectations than mainstream Canadian-born youth of European descent. While informative, such findings are also misleading in two respects. First, as the profile analysis in this paper shows, immigrants from Africa do not have higher aspirations or expectations than Canadian-born youth of European ancestry. Second, the profile analysis also documents that *none* of the visible minority immigrants have higher university aspirations or expectations than their Canadian-born visible minority counterparts. Instead, it is Asian visible minorities, regardless of their immigration status, that have exceptionally high university aspirations and expectations.

The analyses uncovered findings that raise new questions that remain unaddressed here. Why is the participation in PSE enhanced for youth of African descent when their mothers are in the labour force but not for any other population group? Why is poor academic performance a factor in the educational pathways for youth of African heritage but not for First Nations youth? Conversely, why is academic effort a crucial factor for pursuing a university education among youth of African descent while having only a moderate effect for First Nations youth? Why do East Asians have such a high propensity for pursuing a university education even after controlling for structure, culture, and academic performance? In contrast, why do immigrant other Asians have such a low predicted likelihood of enrolling in a university when the same set of controls are applied?

Limitations

There are several limitations to the analyses presented in this paper. Most important is the fact that it is known that large variations exist within each of the population groups examined here. For example, previous research documents decisively that there are large inequalities in educational, labour market outcomes, and human capital skills between the Inuit, First Nations living on reserves, First Nations living off reserves, Métis, and those claiming aboriginal ancestry but not identity (Kuhn and Sweetman 2002; Thiessen and Looker 2008). Similar large differences characterize the various visible minorities, especially the distinction between Blacks and Asians (Pendakur and Pendakur 2002;

Thiessen and Looker 2008). Sample size limitations in the non-white and foreign-born populations make it hazardous to consider finer disaggregation of these groups.⁷

Caution is also necessary because the measures of academic performance are self-reported. The limited previous research on the relationship between self-reports and school records of marks suggests that self reports are reasonably reliable but inflated. Use of administrative records of marks, grade level, and program level would have been preferable, but these are not available. A full analysis of human capital skill development would also need to assess the relationship of achievement test scores (such as those obtained in PISA, IALS, and SAIP) with measures similar to the ones used here. Also, while self-perceived skills may be important in their own right, the particular measures available in YITS are rather crude.

Both the age and age heterogeneity (three year difference between the youngest and oldest respondents) of the sample analyzed here require caution in interpreting the results. Over the past several decades, the school-work transitions have become both elongated and variable. Some dropouts return to school, some who began a non-university PSE program switch to a university program and vice versa. Hence the outcomes and their determinants in this sample are still in a state of flux. This is especially important with respect to educational attainments of First Nations youth. It is known that First Nations youth tend to enroll in PSE institutions at a later age than other youth and therefore the gap in educational attainments diminish at later ages (Hull 2005). The age heterogeneity also creates the likelihood of endogeneity in the analyses of educational pathways. In particular, although educational pathways were measured at cycle 2 while their determinants were measured at cycle 1, some respondents had made the decision to drop out of school by cycle 1. Excluding such respondents reduced the magnitude of the effects, but all statistically significant effects remained significant.

Finally, the analyses presented in this paper are exploratory and descriptive. They documented a variety of inequalities between the population groups examined. However, from both a theoretical and a policy perspective, the important question is why these inequalities exist. Although suggestions about possible causal factors underlying some of the inequalities were hazarded (such as the differential amount of effort expended on homework that characterize the different population groups), a systematic assessment of the dynamics that produce these inequalities is beyond the scope of this paper.

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⁷ It is admittedly unusual to combine African and Latin American youth, which was done in this paper for arguably defensible reasons. To test the robustness of the models, the multivariate analyses were replicated excluding youth who identified themselves as Latin American. Although this altered specific parameter estimates slightly, the patterns remained the same.

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