

Consumption of Post-secondary Education Across Cultures

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Abstract

The broad objective of this paper is to explore the antecedents and correlates of PSE consumption among youth in Ontario's Toronto District School Board (TDSB), the fifth largest school board in North America. Because first and second generation immigrant students now make up 80% of TDSB high-school enrolments we focus on the cultural distinctions in the prediction of PSE university or college pathways but include other factors that bear on PSE choice. An administrative longitudinal dataset consisting a Grade 9 cohort of students consisting of 18,469 TDSB students is employed in profiling and comparing youth who confirmed university and community college attendance after graduation. Descriptive tables and a binary logistic regression analysis are employed to identify the role played by socio-demographic, cultural, school and individual level factors in influencing the choice of university over community college among students in the Grade 9 cohort. The findings confirm that the student composition of Ontario universities and community colleges are different, with universities drawing upon students that reside in higher income neighborhoods and benefit from the social and cultural capital advantages that result from these residential origins. Secondary students choosing university over community college are disproportionately female and, from a cultural perspective, are more likely to have been born in certain regions of the world including Africa, Eastern Asia and South Asia. Students choosing university over college also tend to have studied in secondary schools that favor academic culture and relate to middle class peers in more linguistically diverse school settings. Those confirming university possess few at risk characteristics having taken academic courses in Grade 9-10, university courses in Grade 11-12 and done very well in their Grade 9 math course.. Future research might examine the presence of

'resilience' among low-income students and those who are members of an ethnic immigrant group that on average is not taking advantage of the PSE opportunities on offer.

Introduction

The significant expansion of post-secondary education (PSE) in North America and other parts of the world has been attributed to a need for knowledge-based human capital and to a fundamental belief that expansion would increase equality of opportunity (Cheung, 2007). As a consequence, over half of every new age cohort moves on to PSE (Davies & Guppy, 2006:61). The Canadian PSE system has become a 'market' in which individuals – principally high school graduates -- must make several consequential choices involving which PSE pathway to follow (college or university) and how to finance those choices. While the lines between universities and community colleges have blurred in recent years, particularly in some provinces, there is little dispute that degree granting universities have more rigorous entrance requirements, are viewed as academically more intensive and, in the longer term, offer more prestigious and lucrative job opportunities to graduates than do community colleges (Anisef, Ashbury & Turriffin, 1992). On the other hand, colleges have lower tuition fee levels and, because of their shorter duration, more favourable opportunity costs. Canadian youth then have considerable latitude in PSE choice but these are not necessarily rational decisions.

There is an established body of sociological literature in Canada (and elsewhere) that demonstrates the constraints of gender, race, and family socioeconomic status on adolescents' academic preparation, their levels of aspiration and post-secondary pathways (Thiessen, 2009). Even when young people enjoy equal access to educational institutions, parents' income and level of education ensure the continued presence of inequalities in post-secondary outcomes. To

these standard SES measures, we need to add cultural indicators of the increasingly diverse student population (Cheung, 2007). Doing so is consistent with an emerging sociological interest in the need to incorporate new forms of inequality and associated claims for the right to incorporate (ethnic) difference in the analysis of stratification. Lamont and Bail (2007), for example, refers to the challenge of including cultural ‘recognition’ in the understanding of stratification – with implications for policies of resource distribution among families for whom PSE is a critical vehicle for social mobility. In the context of the TDSB, the educational and occupational aspirations of immigrant youth are, with some notable exceptions, extremely high (Brown, 2009). The variability in PSE aspirations and attainment within the immigrant student body has been overlooked in previous research which, for the most part, compared immigrant and non-immigrant categories. In this analysis we will distinguish immigrants’ country of origin and generational status in an attempt to accommodate the cultural dimension in our analysis of PSE choice.

The broad objective of this paper is to explore the antecedents and correlates of PSE consumption among youth in the Toronto District School Board (TDSB), the fifth largest school board in North America. Because first and second generation immigrant students now make up 80% of TDSB high-school enrolments (Yau & O’Reilly, 2007), we focus on the cultural distinctions in the prediction of PSE university or college pathways but include other factors that bear on PSE choice. A Grade 9 cohort of students consisting of 18,469 TDSB students is employed in profiling and comparing youth who confirmed university and community college attendance after graduation and a binary logistic regression analysis is employed to identify the role played by socio-demographic, cultural, school and individual level factors in influencing the

choice of university over community college among students in the Grade 9 cohort.

Literature Review

Within the last two decades, the Canadian PSE student has, by degrees, become a consumer. In the consumption of PSE both domains of choice – program and finance – are subject to ascriptive forces. Socio-economic status (SES) and culture are key factors in understanding adolescent’s academic performance, their levels of aspiration and the nature of participation in PSE (Sweet & Anisef, 2005; Sweet, Anisef & Walters, 2008). Research has shown that there exist clear and important differences among those who attend postsecondary schooling and those who do not, as well as among those who attend university, community college, and vocational schools. In a comprehensive review of Canadian literature, Cheung (2007) concluded that cultural factors and socioeconomic status are important determinants of high school dropout and postsecondary participation. More specifically, higher levels of parental income and education are positively associated with educational aspirations and expectations. Students from higher income families are more likely to complete high school and attend community college and university. Academic “tracking” or “streaming” (i.e., the stratification of students according to ability) is a practice used in parts of Canada and in many other countries in order to allow students to take courses that best suit their abilities and aptitudes. However, research shows that students from disadvantaged backgrounds, including poor students and racial minorities, are

disproportionately channeled into the low ability streams (Cheung, 2007; Davies and Guppy, 2006; Oakes, 2005). Despite these general trends, there are some groups such as visible minority immigrants that are disproportionately represented in low SES households but are highly successful academically and are more likely to have PSE aspirations (Kazemipur and Halli, 2001).

The exceptionally high educational attainment of Asian immigrant youth – particularly the Chinese – is one that has been featured prominently in the research literature, particularly in the United States. The academic success of Chinese students is often attributed to characteristics associated with Asian cultures, such as compliance, diligence, industriousness, and an emphasis on the importance of learning, are believed to be the precursors for the exceptional school performance among Chinese youth (Peng and Wright, 1994).

While cultural factors play a role in the consumption of PSE, research studies indicates that, after statistically controlling for SES, the performance gap between immigrants and the native-born – and between ethnic minorities and whites – narrow and, in many cases, converge (Bennett and Lutz, 2009). After controlling for various structural factors, including education levels and occupational prestige of both parents, Thiessen (2009) reports that the disparity in university enrolment between native-born European Canadians and immigrants and non-immigrants of African and Latin American backgrounds narrows. These findings suggest that the lack of participation in university is due, in part, to socioeconomic disadvantage among these groups.

Methodology and Analysis

Data and Variables

The main source of data used in this study is the year 2000 Grade 9 cohort of students who began high school in the TDSB in September 2000 and were tracked through the TDSB until fall 2006. The data includes more than 18,469 respondents. Of these, 4,217 students transferred to another educational system outside the TDSB sometime between Fall 2000 and Fall 2006, or were eliminated for other reasons e.g. missing data, leaving a base of 14,252 students tracked in the cohort until Fall 2006. Students that confirmed either university or community college after graduating high school were selected and then formed the basis for profiling and comparing youth in terms of neighborhood, family, school and demographic characteristics. The selection resulted in 6,409 of university and 2,034 of community college confirmations. It should be noted that PSE confirmations was obtained by matching data from the Ontario universities Applications Centre (OUAC) and the Ontario College Application Centre (OCAS) (applications between 2004 and 2008) with the TDSB Student Information System for the Year 2000 Grade 9 cohort (followed from 2000 to 2006).

All variables employed in the descriptive and binary regression analysis are listed in Table 1. Also provided in this table are the percentages of student confirming either university or community college in relation to these variables. The administrative dataset contains a series of variables that measure a variety of socio-demographic characteristics, including gender, region of birth (seven key regions of birth including Canada), language, family structure (those who live with both parents and those who do not) Region of birth is based on a classification of student's country of birth and derives from the student classification system maintained by the TDSB. There is a proxy variable for generational status with first generation immigrant status defined as being foreign-born, second generation as being born in Canada but not speaking English in the

home, and third generation as being born in Canada and speaking English in the home. We also looked at the proportion of students speaking English or another language in the school.

As noted above, a variety of studies have documented the negative impact of poverty on student achievement. To capture poverty, a variable that measures the proportion of people in the respondent's immediate neighbourhood that fall below the low-income cutoff (LICO) is included. The variable is based on information located in the 2001 Canadian Census; postal code information of student residences were matched with neighborhoods or Dissemination Areas in which students lived and linked to LICO. We also used a school-level variable that situated the school attended by the students according to the degree of socio-economic challenge faced by students in the school, from high challenge (low SES) to low challenge (high SES).

Five independent variables that provide information on various aspects of schooling at the student level were included. The first variable reflects streaming within secondary school. Streaming refers to the majority of courses taken in grades nine and ten, and is employed to classify the student's program of study as Academic (university-directed), Applied (college-directed), or locally-developed Essentials (workplace-directed). It should be noted that Ontario students take Academic-university bound or vocational (college bound) courses in Grade 9-10 but can also elect to take Workplace, certain types of Special Education courses or Open courses such as Physical Education or Music. Similarly, in their third and final years of high school (Grades 11-12), students can take University, College or mixed University-College courses.

The second independent variable indicates whether or not a student is considered to be "at risk." A student is classified as "at risk" if he or she had completed fewer than seven courses by the end of Grade nine. Previous cohort studies conducted by the TDSB found that students who finished six or fewer credits (out of 8 credits) by the end of Year 1 had a much higher

probability of not completing high school within five years (e.g. Brown, 1993). In addition we looked at whether students graduated within four years of starting high school (“on time” for completing Grades 9-12) or five years (that is, taking one year longer than expected). An early school achievement variable examined those with high performance in Grade 9 Math, that is, who achieved an average of 80% or higher. Lastly, the fifth variable distinguishes between students who have taken English as a second language (ESL) courses and those who did not. This variable also represents a proxy for language proficiency and is derived from a student information system maintained by the TDSB.

Finally, we examined mobility in two ways: first, we looked at whether students had stayed in the same school over their time in high school; and then, we looked at whether students had moved their student residence over their time in high school.

Table 1. Variables Employed and Percentages Confirming University and Colleges

Variable	University Confirmations	College Confirmations
Proportion of students living in higher SES neighbourhoods		
% of students living in neighbourhoods with low economic/high SES:	26.2%	17.3%
School SES (External Challenge)		
% of students in schools with low challenge/high SES:	42.6%	25.8%
Program of Study - Grades 9-10		
% taking a majority of Academic courses:	98.3%	67.7%
% taking a majority of Applied courses:	1.6%	30.7%

Program of Study - Grades 11-12		
% taking a majority of University courses:	88.8%	37.4%
% taking a majority of College courses:	2.0%	33.7%
% taking a majority of Mixed University-College courses:	8.8%	23.6%
Credit Accumulation		
% with 6 or fewer credits at the end of Grade 9:	1.7%	11.6%
Math Achievement in Grade 9		
% at Level 4 in Grade 9 Math:	46.9%	9.8%
School Mobility		
% who changed schools:	9.4%	18.3%
Time of Graduation		
% graduating in four years:	90.2%	55.1%
% graduating in five years:	8.5%	31.2%
Family Structure		
% of students living with both parents:	58.9%	42.4%
Student Language		
% speaking English only:	57.0%	63.0%
Region of Birth		
% born in Canada:	62.6%	65.2%
% born in Eastern Asia (e.g. China):	13.3%	4.4%
% born in South Asia (e.g. India):	10.3%	11.0%
Gender		
% of male students:	44.8%	51.7%
Student Mobility-Residence		
% of students with different postal code:	27.6%	29.2%

Discussion of Findings

Descriptive Findings

A comparison of youth that decided on confirming university or community college as their PSE destination provides support for a stratification-based perspective regarding consumer choice (Table 1). Significantly higher proportions of youth that confirm university (26.2%) than youth that confirm community college (17.3%) live in high-income neighborhoods. These neighborhoods provide opportunity structures and environments that are more supportive of transitioning to PSE than low-income neighborhoods. The vicinity in which schools are located were also ranked on a composite index of external challenge, including median and average income, mobility, recent arrival in Canada, housing type and proportion of lone parents. This measure provides us with a school level measure of socio-economic status or external challenge and Table 1 reveals that a much higher proportion of youth confirming university (42.6%) than community college (25.8%) completed their secondary studies in schools characterized by low external challenge. Many students living in either low or high SES neighborhoods attend correspondingly low or high external challenge schools.

Youth that confirm university in contrast with community college also differ with respect to their secondary school experiences and achievement. With respect to the nature of courses taken, we find that much higher proportions of university-bound students select Academic courses while in Grades 9-10 (98.2%) than community college oriented youth (67.7%). This pattern is repeated when the types of course selected in Grades 11-12 are analyzed. Two aspects of school performance were examined given their importance in predicting PSE destinations, that is, credit

accumulation and math achievement in Grade 9. Previous cohort studies in the TDSB indicated the utility of employing these factors in understanding student PSE decisions. Thus, students who fail to accumulate six or more credits by Grade 9 are often seen as ‘at risk’ with high proportions choosing to leave school early and not graduating with a secondary diploma in hand. Table 1 show that a negligible proportion of university-bound youth (1.7%) accumulated 6 or fewer credits by Grade 9; the proportion for those youth confirming community college was 11.6%. With respect to math achievement in Grade 9, we can see that a substantially higher proportion of youth that confirmed university (46.9%) achieved grades of 80% or higher than was the case for those confirming community college (9.8%). It is interesting to note in this context that youth confirming community college over university were also more likely (18.3%/9.4%) to switch schools during their secondary school careers. Past research indicates that moving between schools can be disruptive, with deleterious effects on school performance (Brown, 1995). Similarly, when we examined the time it took for youth, who confirmed either university or community college to graduate from high school, we found that a substantially higher proportion of those confirming university (90.2%) than community college (55.1%) succeeded in graduating within four years of entry—the modal number of years for finishing high school studies in Ontario.

In profiling PSE confirmations, we looked at a number of background characteristics of youth including their gender, family structure and region of birth. As other studies show, university is no longer an exclusively male club: only 44.8% of university bound students were male; in contrast to over 50% of community college confirmations. While over 60% of youth that confirm PSE were born in Canada, there are region of birth differences worth noting. Thus, university

confirmations were more like to be born in Eastern Asia (e.g. China) than were college confirmations (13.3% of university confirmations compared to 4.4% of college confirmations). The proportions from South Asia confirming university and community college are approximately the same. Finally, we examined the proportion of youth who chose different PSE destinations in terms of whether they came from intact families and found that a significantly higher proportion of youth bound for university (58.9%) than community college (43.4%) lived with both parents; this may reflect a greater capacity of intact families to mobilize the resources required for their children to enroll in university, with university studies being more prolonged and expensive in Ontario.

Logistic Regression Analysis

A binary logistic regression is often considered the most appropriate methodology when the dependent variable is dichotomous and the population is not normally distributed. Both cases apply to this dataset, with the dependent variable (postsecondary confirmations) consisting of university (coded as '1') and college confirmations (coded as '0'). Insofar as other educational pathways including dropping out of high school and were not considered in this analysis the distribution cannot be considered to be normal.

The original model included year of graduation and while all variables were significant, the Hosmer and Lemeshow test was employed to evaluate the goodness of fit of the model. The Hosmer and Lemeshow Goodness-of-Fit test divides subjects into deciles based on predicted probabilities, then computes a chi-square from observed and expected frequencies. The test was

statistically significant, indicating a lack of fit between the model of dependent and independent variables. However, once year of graduation was removed from the model, the Hosmer and Lemeshow test yielded a non significant result, indicating a goodness of fit of the model¹. With this revised model, the overall percentage correct is 84.8% compared to 75.6% in the model without variables, again showing a good (although not perfect) fit.

Results

Table 2 shows the variables and their Exp(B) values. As seen, all variables in the model are significant. While region of birth is significant, being born in Canada (either speaking English or another language), being born in the Caribbean, and being born in Europe do not make a significant difference in terms of post-secondary institutional choice. THE ODDS OF Post-secondary students born in Africa, East Asia, and South Asia are more likely to attend university over community college. Likewise, being female, living with both parents, completing studies in the same high school, attending a higher SES school, attending a school with higher proportions of non-English speakers, are more likely to influence the choice of university over college.

¹ One possible reason for eliminating year of graduation from the model relates to its relationship to post-secondary registrations. Thus, those is that registering in university are very likely to graduate after four years of secondary study, while those registering for community college are more likely to graduate later. Thus, year of graduation is so closely related to the dependent variable (type of post-secondary institution) that it cannot be considered a valid independent variable.

Table 2: Binary Logistic Regression on University versus College Choice

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for	
							EXP(B)	
							Lower	Upper
Gender (female)	0.394421	0.066325	35.36394	1	2.74E-09	1.483525	1.302683	1.689473
Living with both parents	0.343282	0.068071	25.43181	1	4.58E-07	1.409566	1.233512	1.610748
Living in the same postal code	-0.15964	0.077501	4.243219	1	0.039407	0.852447	0.732316	0.992284
Low poverty	0.107947	0.027411	15.50864	1	8.21E-05	1.113988	1.055719	1.175474
Region of Birth			51.02779	7	9.07E-09			
Born in Canada English	0.16292	0.175527	0.861519	1	0.353314	1.176943	0.834347	1.660213
Born in Canada Non- English	0.286446	0.190657	2.257234	1	0.132991	1.331686	0.916461	1.935039
Caribbean	-0.43178	0.261016	2.73645	1	0.098082	0.649354	0.389318	1.083074
Africa	0.638474	0.252831	6.377108	1	0.01156	1.893589	1.153653	3.108108
Europe	0.181129	0.206659	0.768185	1	0.380779	1.19857	0.799382	1.7971
Eastern Asia	0.932052	0.221394	17.72346	1	2.55E-05	2.539716	1.645637	3.919548
South Asia	0.593933	0.193889	9.383589	1	0.002189	1.811097	1.238521	2.648379
Higher SES schools	0.264122	0.038069	48.13653	1	3.98E-12	1.302287	1.208656	1.403171
Higher proportion of Non-English in school	0.163019	0.045179	13.0197	1	0.000308	1.177059	1.077312	1.28604
Taking Academic courses in Grades 9- 10	2.21066	0.126651	304.6683	1	3.17E-68	9.121734	7.11659	11.69184
Taking University courses in Grades 11- 12	1.749126	0.069704	629.6942	1	5.8E-139	5.749577	5.015381	6.591251

Stayed in the same high school	0.255564	0.097401	6.884509	1	0.008695	1.29119	1.066798	1.562781
High marks in Grade 9 Math	1.486435	0.092416	258.6981	1	3.3E-58	4.421305	3.688803	5.299264
Regular credit range in Grade 9	0.498633	0.156021	10.21393	1	0.001394	1.646469	1.212684	2.23542
Constant	-5.61725	0.39872	198.4782	1	4.49E-45	0.003635		

The strongest influences on university over college choice are, perhaps not surprisingly, achievement and streaming. Students taking Academic (university-directed) courses in Grades 9-10 have an Exp(B) of 9.122, while those taking University courses in Grade 12 have an Exp(B) of 5.750 (where '1' is University confirmation and '0' is college registration). It should be noted that Exp (B) indicates the predicted change in odds for a unit increase in the corresponding independent variable. Odds ratios less than 1 correspond to decreases and odds ratios more than 1.0 correspond to increases in odds. Odds ratios close to 1.0 indicate that unit changes in that independent variable do not affect the dependent variable. High achievement in Grade 9 Math is also very important, with an Exp(B) of 4.421. Having 'average' Grade 9 credit accumulation of 7 or more credits is also powerful (1.646).

The only significant variable below 1 is the variable showing students staying in the same postal code (that is, the same house), with an Exp(B) value of .852. This contrasts with school mobility, that is, staying in the same school, which has an Exp(B) of 1.291. Although at first counterintuitive, this makes sense in the context of Toronto. Students who move schools in the secondary panel are often doing so because they experience academic and/or social difficulties in their current school. Students who move residences do so for reasons largely unconnected with

school life. They move in response to their parents needs and at times, involuntarily. However, parents elect to move for positive reasons. Thus, Toronto is a popular destination for many recent immigrants with their first residence often being a transitional rental accommodation. Once jobs have stabilized and they are able to afford to buy a home they will elect to change residence. In many of these cases, while their children move residences, they will elect to remain at the same school.

Conclusions

The goal of this study was to assess the antecedents and correlates of PSE consumption among youth in the Toronto District School Board (TDSB), paying particular attention to socioeconomic and cultural differences. The findings confirm that the student composition of Ontario universities and community colleges are different, with universities drawing upon students that reside in higher income neighborhoods and benefit from the social and cultural capital advantages that result from these residential origins. Secondary students choosing university over community college are disproportionately female and, from a cultural perspective, are more likely to have been born in certain regions of the world including Africa, Eastern Asia and South Asia. Students choosing university over college also tend to have studied in secondary schools that favor academic culture and relate to middle class peers in more linguistically diverse school settings. Those confirming university possess few at risk characteristics having taken academic courses in Grade 9-10, university courses in Grade 11-12 and done very well in their Grade 9 math course. The profile that emerges for those confirming university over college is one of stable and academic pathways, significantly higher-level academic performance and stronger multicultural exposure within secondary schools.

Cultural Differences and Future Research

We distinguished immigrant youth in terms of their generational status and country of origin.

The results of our analysis showed no significant relationship between generation and PSE choice. This indicates the continued (positive) ‘immigrant effect’ on the ambitions of youth born in Canada. However, recent research on national samples of Canadian immigrant youth suggests differences in the returns to PSE credentials where second-generation immigrants are compared to their third-generation contemporaries whose parents are native-born (Reitz, 200x).

Ethnic distinctions in PSE choices indicate the importance of early preparation and the marked differences among and within immigrant (and non-immigrant) groups. Math achievement and program choice in Grade 9 anticipate PSE pathway choice. Parents’ monetary and non-monetary investments as well as the transfer of values and dispositions that shape their children’s attitudes toward learning and affect their experiences in school. These investments and transfers are importantly influenced by the family’s socioeconomic position and cultural background.

Future research might also examine the presence of ‘resilience’ among low-income students and those who are members of an ethnic immigrant group that on average is not taking advantage of the PSE opportunities on offer. Many youth are able to surmount the barriers imposed by poor socio-economic conditions, do well in school, and proceed to PSE. Identifying these individuals and tracking their progress would give us greater insight into the dynamics of stratification in PSE pathway choice. Thiessen (2009), for example, has shown the value of distinguishing the ‘off-diagonal’ youth in his analysis of socio-economic effects on PSE attainment.

Policy

The findings reported in this study provide valuable information to the secondary school and post-secondary communities. Educators at the secondary school level learn that cultural, neighborhood, school and individual factors, some of which may be amenable to change, significantly influence the educational and future career pathways adopted by their students. Educators at the post-secondary level can also benefit from the findings of this study by exploring the sorts of institutional strategies and teaching supports needed to help entering students better prepare for and engage in academic and social pursuits within their institutions. Thus, while community colleges do offer secondary school graduates a ‘second chance’ or opportunity to experience a post-secondary education, these graduates are often ill prepared for the experience and may require remedial help. Insofar as a high proportions of secondary school graduates in Toronto who transition to university are children of immigrants from Africa, Eastern Asia and South Asia, universities may be well advised to put into place student services that allow these students to obtain the maximum benefit from their university experience.

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