



Higher Education
Quality Council
of Ontario

An agency of the Government of Ontario

High School Success and Access to Postsecondary Education Appendix

Karen Robson, Reana Maier,
Paul Anisef and Robert S. Brown



Published by

The Higher Education Quality Council of Ontario

1 Yonge Street, Suite 2402
Toronto, ON Canada, M5E 1E5

Phone: (416) 212-3893
Fax: (416) 212-3899
Web: www.heqco.ca
E-mail: info@heqco.ca

Cite this publication in the following format:

Robson, K., Maier, R., Anisef, P., Brown, R.S. (2019) *High School Success and Access to Postsecondary Education Appendix*. Toronto: Higher Education Quality Council of Ontario.

Note:

Karen Robson is Associate Professor of Sociology at McMaster University and Ontario Research Chair of Academic Achievement and At-risk Youth

Reana Maier is a Postdoctoral Fellow in the Department of Sociology at McMaster University

Paul Anisef is Professor Emeritus of Sociology at York University

Robert S. Brown is Research Coordinator at Toronto District School Board



The opinions expressed in this research document are those of the authors and do not necessarily represent the views or official policies of the Higher Education Quality Council of Ontario or other agencies or organizations that may have provided support, financial or otherwise, for this project. © Queens Printer for Ontario, 2019

Appendix A: Cohort Choice

As was mentioned in the data section, the longitudinal data set from which we have drawn our cohorts for this paper contains information from three key sources: two at the secondary level — the TDSB administrative data and the TDSB Student Census — and one at the postsecondary level, the Ontario university and college application services (they were merged together via anonymized identifiers). When the data set was initially constructed, it contained only administrative data and followed the pathways chosen by Grade 9 students over five years. Moreover, though the data set tracks back to the 2000 Grade 9 cohort, course, demographic and achievement data began to be consistently collected and recorded with the 2003 Grade 9 cohort. Because of this, comparisons of cohorts pre-2003 are limited due to incomplete administrative information. Over the five years that each cohort is followed, there is an attrition rate of about 20% due to students leaving the TDSB, either to go to another school district or dropping out of school altogether. The records of the some 80% of students who remain in the TDSB from Grade 9 through to the end of their secondary schooling are, nevertheless, remarkably complete.

The Student Census records are more complicated. In the fall of 2006, the first Student Census was administered to all TDSB students in Grades 7–12, then again in the fall of 2011 and fall of 2016, adding a wealth of demographic and attitudinal information to the already available administrative data. The Student Census records, while allowing unprecedented opportunities for analysis, must be used with some caution for two reasons. First, each question on the Student Census has some level of missing data, which varies depending on the kind of information required by the research question posed. For example, the question asking students to self-identify their racial background is the most complete variable, while the least complete variables come from questions asking students to list their parents' occupations or level of education, information that some students either do not know or do not possess. Second, completion rates of the Student Census as a whole vary dramatically by grade; students in Grades 7–9 have around an 85% completion rate, which declines to about 64% by Grade 12. An analysis of those who do not complete the Student Census shows that they are more likely to be male, from a low socioeconomic background and, most crucially, tend to be less engaged in school and lower in academic achievement. In other words, those students for whom we do not have Student Census data are more likely to be at-risk.

With this caution related to missing data in mind, we examined the cohorts we had available in order to determine which would offer the most valid comparisons for this paper. It is important to note that the nature of our analysis meant that we could only include students for whom both administrative and census data was present. The administrative records did not contain the demographic data necessary to create intersectional models, and the census data did not contain achievement and behavioural indicators (e.g., absenteeism and suspensions). Because the TDSB administrative records are, for our intents and purposes, complete from the 2003 cohort on, questions of comparability rested on the Student Census records. We recognized that all cohorts would have missing data and that there was no way to avoid some level of non-response. What was important was that the cohorts to be compared have consistent patterns of non-

response. We wanted to start with the earliest cohort possible in order to maximize the longitudinal nature of the analysis and have a gap of five years in between the cohorts, so that each cohort completed the census in the same grade.

We first considered a comparison of the 2003 and 2008 cohorts, but on closer examination found that the 2003 cohort's census data had a high level of incompleteness, while the 2008 cohort's census data had a high level of completeness. This was likely because the 2003 cohort wrote the census when they were in Grade 12, when the response rate is lowest, while the 2008 cohort had the opportunity write the census twice, first in Grade 7, when the completion rate is quite high, and then again in Grade 12. As mentioned above, those who are missing from the Student Census are more likely to be at-risk whichever cohort is examined, but the proportion of missing students was so much greater in the 2003 cohort than the 2008 cohort (approximately 6,000 cases or 35% versus 1,800 cases or 7% respectively), that it created a false impression of change between these two cohorts. For example, we can calculate the four-year graduation rate for the full cohort in both 2003 and 2008, and we can calculate the graduation rate for the students in those cohorts who participated in the census. The graduation rate for the full 2003 cohort was 73.7%, but if we only look at those students for whom we have census data, the graduation rate jumps to 87.2%, a 13.5 percentage point difference. In the 2008 cohort, on the other hand, the full cohort graduation rate is 82.9% and the census graduation rate is 85.5%, a difference of only 2.6 percentage points. Because we can only include those who participated in the census, these numbers would make it appear that the graduation rate decreased from 2003 to 2008, when in reality it increased by about 9 percentage points. Other indicators, such as grades in key Grade 9 subjects and progression to postsecondary, also showed much wider gaps between the full/census 2003 cohorts than the full/census 2008 cohorts. We therefore rejected this pair, because comparisons between them would not be valid and results over time would not be accurate.

We performed a similar analysis of the 2005 and 2010 cohorts and found these to be a much more compatible match while maintaining a five-year gap. There are missing cases in each of these cohorts, as there is in all the cohorts, but the patterns are more consistent between the two. The proportion of missing cases was more similar (19% in 2005 and 12.5% in 2010), and gaps between the full cohort and census cohort on key indicators were also more aligned. For example, the four-year graduation rate for the full 2005 cohort was 78.2%, while the rate for those completing the Student Census was 83.6% (a difference of 5.4 percentage points), and the graduation rate for the full 2010 cohort was 84.9%, while the rate for the census-takers was 89.3% (a difference of 4.4 percentage points). Moreover, the increase in the graduation rate from 2005 to 2010 for those who completed the Student Census (5.7 percentage points) is more accurately reflective of the increase in the graduation rate for the full cohort over the time period (6.7 percentage points). For this reason, we chose to compare the 2005 and 2010 cohorts, which we refer to throughout the paper as Cohort 1 and Cohort 2.

Appendix B: Supplementary Tables and Figures

Figure B-1. Distribution of Postsecondary Confirmations by Cohort, Full versus Estimation Samples

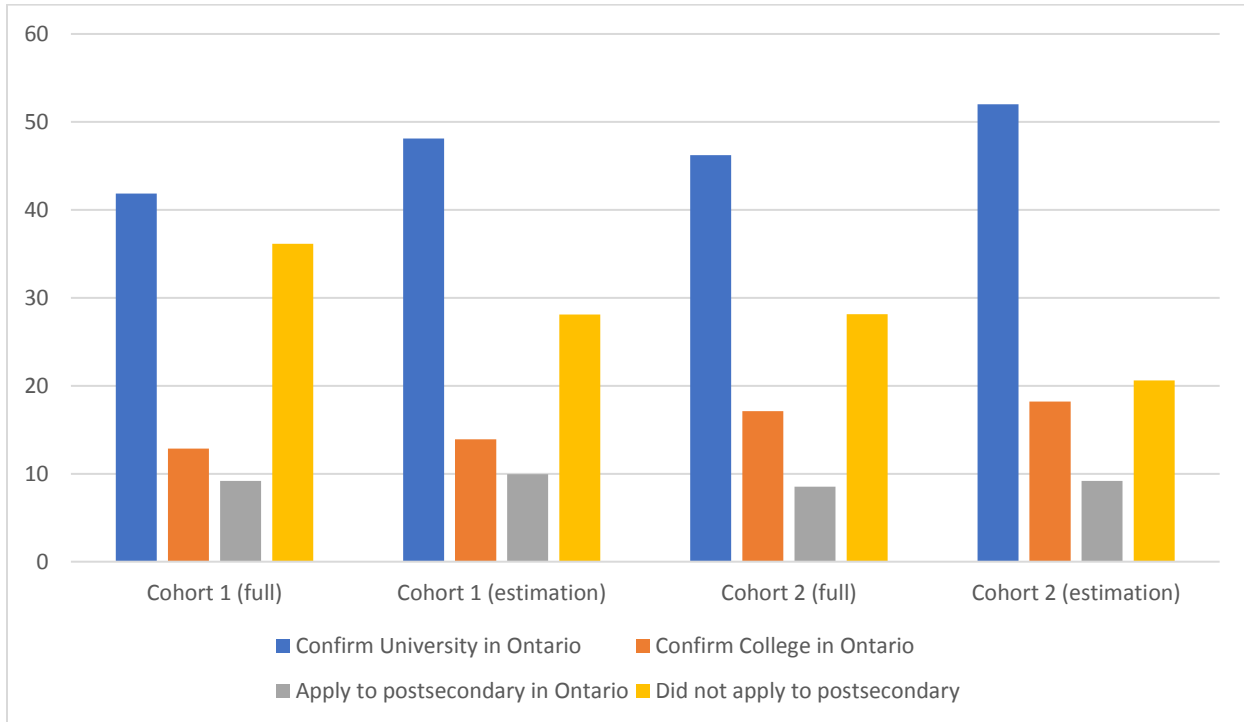


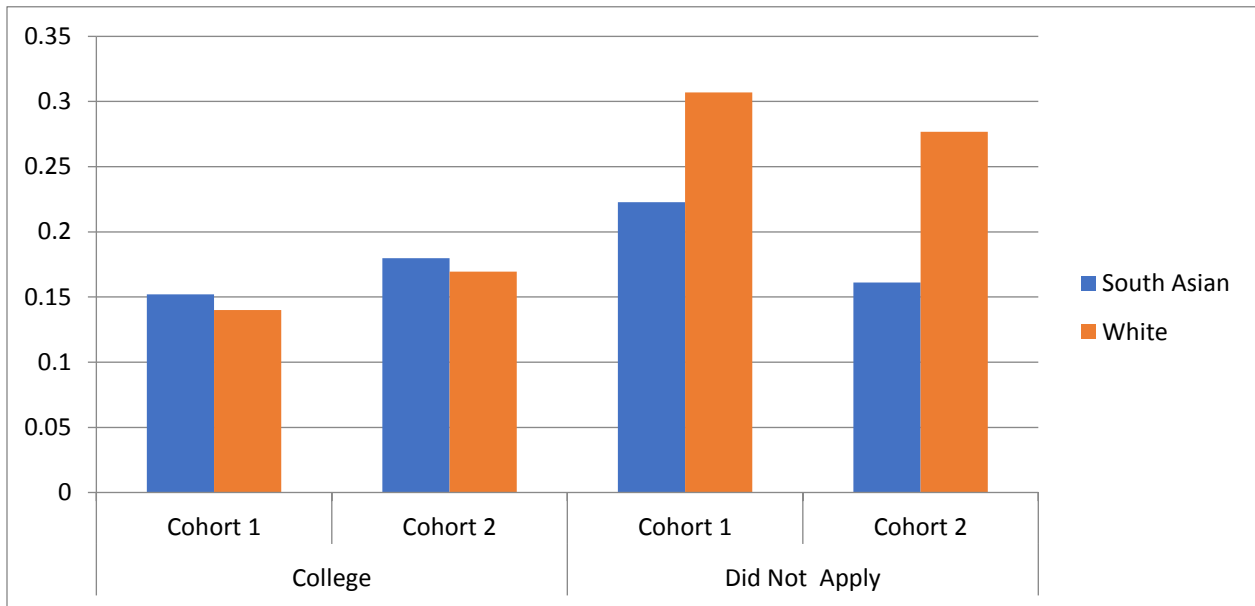
Table B-1: Descriptive Statistics by Cohort, Full and Estimation Samples

Variable	2005 (N=13296) Estimation sample	Full sample (N=17762)	2010 (N=14889) Estimation sample	Full sample (N=18077)
Outcomes				
High school graduation	0.779	0.700	0.844	0.769
Confirm university	0.481	0.419	0.520	0.462
Confirm college	0.139	0.129	0.182	0.171
Applied but no offer	0.095	0.092	0.092	0.085
Did not apply	0.281	0.361	0.206	0.281
Female	0.502	0.484	0.489	0.479
Academic stream	0.767	0.720	0.772	0.724
Self-identified race				
Black	0.114	0.120	0.119	0.125
East Asian	0.182	0.179	0.167	0.165
Latin American	0.019	0.019	0.021	0.021
Middle Eastern	0.044	0.045	0.055	0.056
Mixed	0.056	0.056	0.074	0.074
South Asian	0.193	0.193	0.222	0.221
Southeast Asian	0.037	0.037	0.049	0.048
White	0.356	0.351	0.294	0.291
Suspended	0.204	0.243	0.139	0.162
Grade 9 achievement				
Low	0.158	0.209	0.110	0.156
Medium	0.309	0.299	0.313	0.305
High	0.399	0.374	0.429	0.406
Very High	0.135	0.118	0.148	0.133
Passed OSSLT first time	0.792	0.713	0.784	0.711
Parent has PSE	0.641	0.636	0.656	0.654
Two-parent household	0.771	0.765	0.804	0.799
Born abroad	0.352	0.346	0.305	0.308
Special education needs	0.108	0.125	0.178	0.205
Grade 9 absenteeism	4.10	5.12	3.74	4.69
Neighbourhood HH income (ordinal)	10.76	10.53	10.83	10.61
Enjoy school	3.51	3.50	3.59	3.58

Table B-2: Pooled Logistic Regression Models with Cohort Interactions

	High School	University	College	Applied but admitted
Cohort 2 (ref=Cohort 1)	1.347	1.172	1.086	1.321
Female	1.029	1.204***	1.076	1.210**
Cohort 2 X female	1.120	1.137	1.148	1.112
Academic stream	1.524***	5.549***	0.907	1.966***
Cohort 2 X academic stream	0.848	0.906	0.906	0.923
Self-identified race				
Black	1.086	1.290*	1.436***	1.336*
East Asian	1.524***	3.336***	1.399**	1.438**
Latin American	0.925	0.580**	1.319	0.824
Middle East	0.979	1.831***	1.351*	0.980
Mixed	0.818	0.914	0.887	0.841
South Asian	1.065	2.394***	1.664***	1.087
Southeast Asian	1.127	1.398*	1.425*	1.080
Cohort 2 X Black	1.049	1.214	1.125	0.898
Cohort 2 X East Asian	0.844	1.116	1.244	1.141
Cohort 2 X Latin American	0.928	1.354	0.722	1.087
Cohort 2 X Middle East	1.076	1.407	1.324	1.680*
Cohort 2 X Mixed	1.196	1.289	1.166	1.195
Cohort 2 X South Asian	1.198	1.547***	1.329*	1.488*
Cohort 2 X Southeast Asian	1.180	1.069	1.768**	0.651
Ever suspended	0.517***	0.435***	0.576***	0.809*
Cohort 2 X Ever suspended	0.907	0.921	0.866	0.848
Academic achievement				
Medium	3.138***	4.153***	2.487***	2.166***
High	4.882***	8.351***	1.806***	2.366***
Very High	14.03***	20.74***	0.982	6.048***
Cohort 2 X Medium	1.243*	1.202	1.168	0.852
Cohort 2 X High	1.005	1.181	1.282*	0.864
Cohort 2 X Very High	0.927	0.796	1.000	0.551*
Passed OSSLT first time	1.908***	4.073***	1.441***	1.654***
Cohort 2 X passed OSSLT first time	1.111	0.958	1.094	1.158
Parental PSE	1.024	1.422***	0.942	1.316***
Cohort 2 X parental PSE	1.043	1.058	1.042	1.128
Two-parent home	1.477***	1.547***	1.372***	1.424***
Cohort 2 X two parent home	0.940	0.993	0.904	1.016
Born abroad	0.741***	0.919	0.668***	0.882
Cohort 2 X born abroad	1.015	0.936	1.156	0.975
Special education needs	1.541***	0.853	1.355***	0.874
Cohort 2 X special education needs	0.671***	0.586***	0.720**	0.870
Grade 9 absenteeism	0.925***	0.916***	0.918***	0.959***
Cohort 2 X Grade 9 absenteeism	1.029***	1.015	1.027**	1.008
Neighbourhood income	1.020***	1.029***	1.010	1.022***
Cohort 2 X neighbourhood income	0.987*	0.990	0.993	1.004
Enjoy school	1.134***	1.226***	1.045	1.245***
Cohort 2 X enjoy school	0.996	1.017	1.031	0.943
N	28185	28192		

Figure B- 2: Interaction between Cohort and Self-identified Race in Predicting College Confirmation Relative to Not Applying





Higher Education
Quality Council
of Ontario

An agency of the Government of Ontario