

What matters more? What matters less? Changes in the transition to post-secondary between two Toronto high-school cohorts

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Résumé de l'article

À partir des données de deux cohortes d'élèves de Toronto ayant commencé l'école secondaire avec cinq ans d'intervalle, cette étude utilise les techniques descriptives et multivariées afin d'examiner le changement à court terme dans les prédicteurs de quatre parcours potentiels après le secondaire : une place confirmée dans une université, une place confirmée dans un collège, une candidature déposée mais sans admission ou aucune candidature déposée. Dans une perspective de comparaison des cohortes, l'analyse prend en compte divers facteurs scolaires et autres qui se chevauchent et contribuent à des transitions inégales : de la race, du genre et des origines migratoires à la réussite précoce, en passant par l'assiduité et les renvois. On observe des changements dans les modèles de transition même sur une courte période. Les résultats démontrent qu'une approche comparative des cohortes permet de mieux comprendre comment la transition vers l'enseignement postsecondaire dans un environnement urbain évolue, même sur des périodes relativement courtes.

WHAT MATTERS MORE? WHAT MATTERS LESS? CHANGES IN THE TRANSITION TO POST-SECONDARY BETWEEN TWO TORONTO HIGH SCHOOL COHORTS

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Abstract

Using data from two Toronto student cohorts that entered high school five years apart, this study uses descriptive and multivariate techniques to examine short-term change in the predictors of four possible pathways after high school: confirming a place in university, confirming a place in college, applying but no admittance, or not applying at all. From a comparative cohort perspective, the analysis considers various overlapping ascriptive and school experience factors that contribute to unequal transitions—from race, gender, and immigration background to early achievement, attendance, and suspensions. Even across a short time period, there is change in transition patterns. The results highlight that a comparative cohort approach provides insight into how the transition to post-secondary education in an urban environment changes even over relatively short periods of time.

Keywords: Toronto, cohort, post-secondary, acceptance, race, gender

Résumé

À partir des données de deux cohortes d'élèves de Toronto ayant commencé l'école secondaire avec cinq ans d'intervalle, cette étude utilise les techniques descriptives et multivariées afin d'examiner le changement à court terme dans les prédicteurs de quatre parcours potentiels après le secondaire : une place confirmée dans une université, une place confirmée dans un collège, une candidature déposée mais sans admission ou aucune candidature déposée. Dans une perspective de comparaison des cohortes, l'analyse prend en compte divers facteurs scolaires et autres qui se chevauchent et contribuent à des transitions inégales : de la race, du genre et des origines migratoires à la réussite précoce, en passant par l'assiduité et les renvois. On observe des changements dans les modèles de transition même sur une courte période. Les résultats démontrent qu'une approche comparative des cohortes permet de mieux comprendre comment la transition vers l'enseignement postsecondaire dans un environnement urbain évolue, même sur des périodes relativement courtes.

Mots-clés : Toronto, cohortes, postsecondaire, acceptation, race, genre

Introduction

The rate of high school graduation and transitioning to post-secondary education (PSE) in Canada is at a historic high (Sweet & Anisef, 2005), with attainment rates often increasing, even across short time periods.

The five-year high school graduation rate in Ontario increased from 69% to 87% between 2004 and 2016 (Rushowy, 2017). In the Toronto District School Board (TDSB), 29% of the 2010–11 high school graduating class did not apply to PSE within two years of graduating—five years later, this rate dropped to 20% among the

2015–16 graduating class (Brown & Tam, 2017). Even with this change, certain groups continue to have lower PSE transition rates—including students with special education needs (SEN) and certain social and racial groups—as relative differences remain even when overall attainment rates increase (Finnie et al., 2011; Robson et al., 2014). For example, there was a 16 and 19 percentage point increase in the number of Latin American and Black students confirming PSE between the 2010–11 and 2015–16 graduating high school classes at the TDSB; however, because confirmation rates also increased for all other racial groups, Latin American and Black students continued to have lower PSE transition rates in the later period (Brown & Tam, 2017).

Comparing outcomes across student cohorts offers a holistic approach to understand if the predictors of transitioning from high school to PSE change over time. Prior studies comparing student cohorts study a range of factors, from change in the influence of family background on outcomes (Vergolini & Vlach, 2017) to pre- and post- studies that measure how curriculum change impacts achievement (Parmar et al., 2019). Comparing across two or more cohorts enables insight into *cohort effects*; that is, social change in terms of how earlier conditions and experiences are associated with later outcomes and patterns (Ryder, 1965). When these effects remain unknown, “one implicitly assumes that changes...are equally applicable across all cohorts” (Yang & Lee, 2009, p. 2095). While comparative cohort analysis can shed light on if social change is taking place, it is much more difficult to explain the exact sources of change, as they may be due to inter-cohort (e.g., change in the curriculum) and/or intra-cohort (e.g., change in the composition of students) variation (Elder & George, 2016).

In this article, we use a unique and extensive cross-cohort and longitudinal data set from the TDSB to explore change to PSE confirmation between two graduating cohorts. With over 246,000 students at the elementary and secondary level, the TDSB is by far the largest school board in both Ontario and Canada and represents one of the most diverse student bodies (Toronto District School Board, 2014a).¹ The unique and rich quality of the data from the TDSB deserves emphasis; as discussed below, it offers longitudinal insight into high school experiences and the transition to PSE, as well as extensive demographic information. These data enable insight into understanding how pathways and out-

comes across multiple classes of students entering and finishing high school differ over time, offering a unique opportunity to examine change, especially for under-represented groups. With this aim, this study provides evidence on how factors associated with the transition to PSE changed between two student cohorts, students who started high school in 2005–06 and 2010–11. As the literature review discusses next, we explore change in two types of factors that are typically associated with the transition from high school to PSE: early achievement markers at the start of high school, and ascriptive factors of each student cohort. After providing an overview of prior research in these areas, the methodology section discusses the data, variables, and statistical approach, with the findings section focusing on change between cohorts. Finally, the discussion section returns to the strengths and weaknesses of comparative cohort analysis and provides avenues for further research.

Literature Review

In this study, we conceptualize inequality in the transition to PSE as connected to interwoven ascriptive and achievement factors. Researchers typically consider aspects that characterize students but over which they have no control as ascriptive factors, such as socioeconomic status (SES), race, or gender. On the other hand, students’ own behaviour and personal agency may (to a greater or lesser extent) impact experiences and opportunities that culminate in achievement factors (Mayor & Suarez, 2019). Early status attainment research largely contrasts both factors in an attempt to understand which type is more influential on elements of social stratification (i.e., Nock & Rossi, 1978). Later research emphasizes several shortcomings of this theoretical model, most notably the often-incomplete specification of fully capturing distinct ascriptive and attainment factors (Nielsen, 2006). For this reason, we present a framework of interwoven ascriptive and achievement factors that simultaneously shape students’ experience of high school and their later PSE options.

A large body of research on the transition to PSE examines the association between academic achievement (i.e., standardized test scores or high school grades) and later outcomes (Brown et al., 2019; Jennings et al., 2015). Achievement at all levels is typically associated with academic outcomes; for example, a series of studies by the Chicago Research Consortium shows that Grade

9 marks are strong predictors of PSE enrolment, often more highly correlated than standardized tests (Easton et al., 2017). There also continues to be general consensus that SES remains one of the strongest predictors of *both* academic achievement and later outcomes (de Broucker, 2005; Cheung, 2007; Edgerton et al., 2008). The association between SES and academic outcomes is prone to spurious associations when researchers ignore connected student and home characteristics (Van Ewijk & Sleegers, 2010), such as attitudes toward education, aspirations, parental education, immigration background, and household composition (Finnie et al., 2008, 2010). Many factors associated with both SES and later outcomes begin early in childhood, such as the availability of books and academic support in the home (Davies & Guppy, 2006) and school readiness (Robson, 2013). While parental education is the most common measure researchers use to estimate family SES, prior Canadian research indicates that growing up in a single-parent household increases the likelihood of living in poverty (Härkönen, 2018) and decreases academic aspirations (Garg et al., 2007)—although in both cases, the parental education is still influential.

Given the culmination of factors, TDSB students from lower SES backgrounds are more likely to have high school experiences that are associated with fewer PSE options and lower transition rates, from being overrepresented in non-academic high school streams to having greater suspension and absenteeism rates (Brown, 2009; Brown & Tam, 2017). Streaming is a key predictor of PSE transitions as students in applied courses are less likely to go to college or university and are more likely to drop out (Davies & Guppy, 2006; King & Warren, 2006; Krahn & Taylor, 2005). Receiving a high school suspension is also associated with lower outcomes (Jabbari & Johnson, 2020); for example, Brown and Parekh (2013) demonstrate that nearly one-half of TDSB students who did not apply to PSE had a previous suspension, compared to around one-tenth of students who had confirmed an offer of admission to university. One reason for this may be that students who have a history of suspension are more likely to have lower credit accumulation and higher absenteeism rates (Brown, 2009; Zheng & De Jesus, 2018)—yet, this relationship is bidirectional, as academic underachievement is also associated with later delinquency (Hoffmann, 2020). Students who fall below standard rates of credit accumulation are less likely to graduate and attend PSE (Ontario

Ministry of Education, 2005).² In Toronto, students from lower-income neighbourhoods have a higher proportion of below-standard Grade 9 credit accumulation compared to students from the highest-income neighbourhoods (Brown et al., 2017). This early credit accumulation is highly correlated with later PSE outcomes; in one study, 59% of students who completed the full credits expected in Grade 9 confirmed an offer of admission from an Ontario university, compared to 15% of those who completed one less credit and 4% who completed two or fewer credits (Brown & Tam, 2017).

Gender and race are key intersecting ascriptive factors associated with academic success, each of which has a unique relationship with achievement factors. In the TDSB, a consistent gender gap exists, with male students being less likely to transition to PSE than female students (Brown & Tam, 2017). Achievement factors can often explain gender differences, such as the higher academic achievement among girls (Andres, 2015) and higher suspension rates among boys (Skiba et al., 2002). As discussed in the introduction, PSE transition rates are highest among East Asian students and lowest among Black and Latin American students at the TDSB (Brown & Tam, 2017). Racialized students, particularly Black males, are more likely to take special education and applied classes (Robson et al., 2014), both of which are associated with lower transition rates. Research conducted in the United States also shows that Black and Latino students are more likely to receive suspensions (Morris & Perry, 2016; Skiba et al., 2002).

Both race and gender intersect with two other key ascriptive factors: immigration background and SEN status. In the 2006 TDSB census, 30% of Grade 7 and 8 students were born abroad, with more than half of this group originating from East and South Asia (Yau & O'Reilly, 2007). While recent immigrants who do not yet speak English or French fluently will enroll in language support courses, they are also more likely to take International Baccalaureate (IB) programs and have achievement-based outcomes that are equivalent to students who do not need language support at the TDSB (Sinay, 2010). Nonetheless, prior research indicates that immigrant admission class (e.g., skilled worker, family, and refugee class) is influential on the likelihood of transitioning to PSE (Hou & Bonikowska, 2017). Finally, as identified by having an Individual Education Plan (IEP) at the TDSB, students with a SEN may have a range of one or more exceptionalities that may or may not require

classroom support, although nearly half of students with an IEP do not have an exceptionality (Yau et al., 2015). Prior research at the TDSB shows that students with a SEN have lower achievement compared to students without a SEN, as well as gender, race, and SES differences in the likelihood of identification. As our research shows next, however, the relationships among ascriptive and achievement factors and the transition to PSE may not be stagnant across cohorts as inequality shifts over time.

Methodology

Data

To study change in the determinants of post-secondary confirmations, this study uses comparative longitudinal cohort data from the TDSB. It includes survey-based information from the TDSB Student Census about students' background (e.g., gender, race, immigration background) and attitudes toward school. Linked administrative data provides information about academic achievement, course streaming, attendance, disciplinary action, and applications to PSE. From this extensive data set, we construct two cohorts for which PSE application data is available. This information captures students' applications to Ontario universities and colleges from the Ontario Universities' Application Centre (OUAC) and Ontario College Application Service (OCAS). This makes it possible to know who applied, was accepted, and confirmed an offer of admission from an Ontario college or university.

As Table 1 illustrates, students in Cohort 1 were in Grade 9 in 2005–06 and wrote the Student Census in 2006. Students in Cohort 2 were in Grade 9 in 2010–11 and wrote the Student Census in 2011. Because a third

of Ontario students return for a fifth year of secondary school, often referred to as the *victory lap* (Brady & Allingham, 2010), students who go directly to an Ontario college or university after high school may apply in Years 4 or 5. Thus, the construction of cohorts includes two PSE application cycles: Cohort 1 would have been in Year 4 in the 2008–09 school year, so their relevant PSE application cycles are 2009 and 2010; and Cohort 2 would have been in Year 4 in 2013–14 school year, so their relevant PSE application cycles are 2014 and 2015.

Variables

In this study, the main outcome variable measures post-secondary confirmation capturing whether the student: (1) confirmed an offer to an Ontario university, (2) confirmed an offer to an Ontario college, (3) applied to an Ontario post-secondary institution but was not accepted, or (4) did not apply to any Ontario post-secondary institution. The term *confirmation* indicates that an institution offered and that the student accepted a place.

As informed from our review of the literature, we model several predictor variables that examine the correlation between these outcomes and ascriptive factors. Capturing students' background, the models include: gender (male = 0, female = 1); self-identified race (Black, East Asian, Latin American, Middle Eastern, Mixed, South Asian, Southeast Asian, and White, with White as the reference category);³ SEN designation (no = 0, yes = 1);⁴ parental PSE (no PSE = 0, at least one parent participated in PSE = 1); self-reporting a two-parent household in the Student Census (yes = 0, no = 1); self-reporting being born abroad in the Student Census (born in Canada = 0, born abroad = 1); and median neighbourhood family household income, ranging from 1 (lowest) to 20 (highest).⁵

In terms of experience and achievement indicators,

Table 1

TDSB Cohort Data

	Year 1 (Grade 9)	Year 4 (Grade 12)	Year 5 (victory lap)	Census year	PSE entry cycles
Cohort 1	2005–06	2008–09	2009–10	2006	2009, 2010
Cohort 2	2010–11	2013–14	2014–15	2011	2014, 2015

the models include high school stream (applied = 0, academic = 1);⁶ suspension record (suspended at least once = 1, never suspended = 0); Grade 9 achievement (four categories from high to low, with the lowest being the reference group);⁷ successful completion of the Ontario Secondary School Literacy Test (OSSLT) (no pass = 0, pass = 1);⁸ absenteeism as a continuous variable indicating how many days a student was absent during Grade 9; and self-reported school enjoyment in the Student Census, ranging from 1 (high) to 5 (low).⁹

Analysis

After presenting descriptive statistics, this study measures PSE pathways using multinomial logistic regression, an approach that determines the extent to which the predictor variables characterize each outcome category. Like logistic regression, multinomial regression is based on a likelihood function that generates conditional probabilities for each outcome category in comparison to a single reference category. In this study, the multinomial logistic framework models the probability of each transition as:

$$h(\text{confirm university}) = \frac{\exp(X\beta_{\text{confirm university}})}{1 + \exp(X\beta_{\text{confirm university}}) + \exp(X\beta_{\text{confirm college}}) + \exp(X\beta_{\text{no acceptance}})}$$

$$h(\text{confirm college}) = \frac{\exp(X\beta_{\text{confirm college}})}{1 + \exp(X\beta_{\text{confirm university}}) + \exp(X\beta_{\text{confirm college}}) + \exp(X\beta_{\text{no acceptance}})}$$

$$h(\text{no acceptance}) = \frac{\exp(X\beta_{\text{no acceptance}})}{1 + \exp(X\beta_{\text{confirm university}}) + \exp(X\beta_{\text{confirm college}}) + \exp(X\beta_{\text{no acceptance}})}$$

As the reference group is by definition, $1 - h(\text{confirm university}) - h(\text{confirm college}) - h(\text{no acceptance})$, it is rewritten as:

$$h(\text{no PSE applications}) = \frac{1}{1 + \exp(X\beta_{\text{confirm university}}) + \exp(X\beta_{\text{confirm college}}) + \exp(X\beta_{\text{no acceptance}})}$$

In this model, X represents the predictor variables measuring ascriptive and achievement/experience factors and therefore $X\beta_{(\text{confirm university})}$, $X\beta_{(\text{confirm college})}$ and

$X\beta_{(\text{no acceptance})}$ express linear combinations of these variables.

Along with models that examine each cohort separately, a pooled estimation approach with data from both cohorts compares change in the predictor variables between the two time periods. This model includes a cohort variable as a moderator (i.e., interaction term) between all other variables in the model. If these interactions are statistically significant, it indicates that change in the relationship between the predictor and outcome variable between the two cohorts is meaningful in terms of statistical accuracy and low error. To aid in the interpretation of this change, we graphically present the main statistically significant coefficients of interest as predicted probabilities to allow for the interpretation of the reference category directly.

Findings

Descriptive Statistics

Table 2 lists the means or proportions for all the variables included in the final model.¹⁰ The proportion of high school students confirming university or college increases from Cohort 1 to 2, while the proportion not applying decreases and those who applied but had no offer remains the same. The gender and racial composition of the two cohorts are similar; although, there is a 5-percentage point decrease in the number of students who self-identify as White between Cohort 1 and 2 that small increases across other racial categories reflect. While Cohort 2 is slightly more racially diverse, there is a small decrease in the proportion of students born abroad compared to Cohort 1. While the proportion of students in an applied stream is the same between the two cohorts, there is a decrease between Cohort 1 and 2 in the proportion who have a suspension record and low Grade 9 academic achievement. Finally, there is an increase in the proportion of students with a SEN, growing from 11% in Cohort 1 to 18% in Cohort 2.

Full Model

Table 3 displays the odds ratios predicting all outcomes of interest for both Cohort 1 and 2 with the estimates in red signifying those that are significantly different

Table 2

Descriptive Statistics by Cohort

Variable	Cohort 1 (N = 13,296)	Cohort 2 (N = 14,889)
Outcomes		
Confirm university	0.481	0.520
Confirm college	0.139	0.182
Applied but no offer	0.095	0.092
Did not apply	0.281	0.206
Female	0.502	0.489
Self-identified race		
Black	0.114	0.119
East Asian	0.182	0.167
Latin American	0.019	0.021
Middle Eastern	0.044	0.055
Mixed	0.056	0.074
South Asian	0.193	0.222
Southeast Asian	0.037	0.049
White	0.356	0.294
Applied academic stream	0.767	0.772
Ever suspended	0.204	0.139
Grade 9 achievement		
low – fewer than 8 credits	0.158	0.110
med – below level 4 but 8+ credits	0.309	0.313
high – level 4 in 1 to 3 subjects	0.399	0.429
very high – level 4 in all 4 subjects	0.135	0.148
Passed OSSLT first time	0.792	0.784
Parent has PSE	0.641	0.656
Two-parent household	0.771	0.804
Born abroad	0.352	0.305
Special education needs	0.108	0.178
Grade 9 absenteeism	4.10	3.74

Variable	Cohort 1 (N = 13,296)	Cohort 2 (N = 14,889)
Neighbourhood HH income (ordinal)	10.76	10.83
Enjoy school	3.51	3.59

Table 3

Regression Models Predicting Post-Secondary Confirmations by Cohort, Odds Ratios

	Cohort 1 University	Cohort 2 University	Cohort 1 College	Cohort 2 College	Cohort 1 Non-acceptance	Cohort 2 Non-acceptance
Female	1.204***	1.369***	1.076	1.235***	1.210**	1.346***
Academic stream	5.549***	5.027***	0.907	0.822**	1.966***	1.814***
Self-identified race						
Black	1.290*	1.566***	1.436***	1.615***	1.336*	1.199
East Asian	3.336***	3.723***	1.399**	1.741***	1.438**	1.641***
Latin American	0.580**	0.786	1.319	0.953	0.824	0.895
Middle East	1.831***	2.575***	1.351*	1.789***	0.980	1.646**
Mixed	0.914	1.178	0.887	1.034	0.841	1.005
South Asian	2.394***	3.704***	1.664***	2.212***	1.087	1.617***
Southeast Asian	1.398*	1.494**	1.425*	2.519***	1.080	0.702
Ever suspended	0.435***	0.400***	0.576***	0.499***	0.809*	0.686***
Academic achievement						
Medium	4.153***	4.990***	2.487***	2.904***	2.166***	1.846***
High	8.351***	9.861***	1.806***	2.316***	2.366***	2.044***
Very high	20.74***	16.52***	0.982	0.983	6.048***	3.331***
Passed OSSLT	4.073***	3.900***	1.441***	1.576***	1.654***	1.914***
Parent PSE	1.422***	1.504***	0.942	0.981	1.316***	1.483***
Two-parent household	1.547***	1.535***	1.372***	1.241**	1.424***	1.446***
Born abroad	0.919	0.860*	0.668***	0.772***	0.882	0.860
Special education needs	0.853	0.500***	1.355***	0.976	0.874	0.760**
Grade 9 absenteeism	0.916***	0.930***	0.918***	0.943***	0.959***	0.967***
Median neighbourhood inc	1.029***	1.018***	1.010	1.004	1.022***	1.027***

	Cohort 1	Cohort 2	Cohort 1	Cohort 2	Cohort 1	Cohort 2
	University	University	College	College	Non-acceptance	Non-acceptance
Enjoy school	1.226***	1.247***	1.045	1.077*	1.245***	1.173***
N	13,303	14,889	13,303	14,889	13,303	14,889

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: The odds ratios presented in red indicate those that are significantly different by cohort.

between the two cohorts. In terms of interpretation, statistically significant values above 1.00 have a positive association and significant values below 1.00 have a negative association with each outcome category. As the omitted reference group is “no PSE application,” interpretation of each estimate compares the outcome in question to not applying at all. For example, the first odds ratio for the Cohort 1 variable female is 1.204. This means that, controlling for all other variables in the model, female students in Cohort 1 were 20.4% more likely than male students to confirm university as opposed to not applying to PSE at all. For Cohort 2 this increases to 36.9%; however, due to uncertainty in the point estimate, this change over time is not significant in the fully interacted model.

In Table 3, Black, East Asian, Middle Eastern, South Asian, and Southeast Asian students are more likely to confirm university or college than not apply at all compared to White students in both cohorts. Parental PSE, living in a two-parent household, and neighbourhood income also increase the likelihood of confirming university than not applying at all in both periods. There is also a significant association between family composition and confirming college, although there is no association between this outcome and parental PSE and neighbourhood income. Suggesting SEN students are more likely not to apply at all, this ascriptive factor has a significant negative effect on confirming university for Cohort 2 but not Cohort 1, even when controlling for measures of early academic achievement. In contrast, there is an association between SEN status and confirming college for Cohort 1 but not Cohort 2.

Across both cohorts, students in academic streams and those who passed the OSSLT on their first eligible attempt are more likely to confirm university, college, and apply but receive no admittance than not apply at all compared to their reference groups. Suspensions

and absenteeism are also negative predictors of all outcomes across both cohorts. Students who achieved medium or better on the Grade 9 achievement variable are more likely to confirm university and apply but receive no admittance compared to students who had fewer than eight credits in Grade 9. Only students with high and medium academic achievement are more likely to confirm college than not apply at all, while there is no significant college finding for the very high academic achievement group. Finally, school enjoyment is positively associated with confirming university and applying but receive no admittance for both cohorts, as well as confirming college for Cohort 2.

Cohort Change: Self-Identified Race

The extent to which self-identified race functions as a predictor of university confirmation is similar across both cohorts, with only two variables showing significant differences over time in the pooled analysis—the South Asian and Southeast Asian racial categories. Figure 1 illustrates the predicted probabilities of all four outcomes among these two racial groups, as well as White students (the reference category). While both South Asian and White students made some gains in the predicted probability of confirming university or college from Cohort 1 to 2, the predicted probability for South Asians grew significantly more. South Asian students are also less likely to apply but receive no admittance across the two periods. While all three groups made gains in the predicted probability of confirming college between Cohort 1 and 2, these gains were much more dramatic for Southeast Asian students.

Figure 1

Probability of PSE Outcome by Race

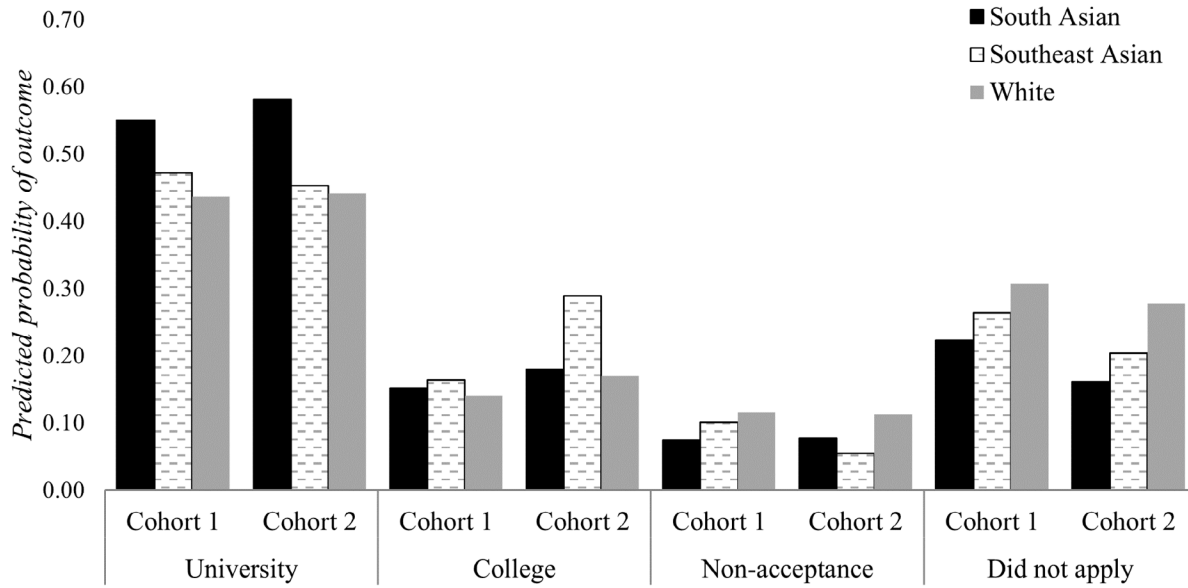
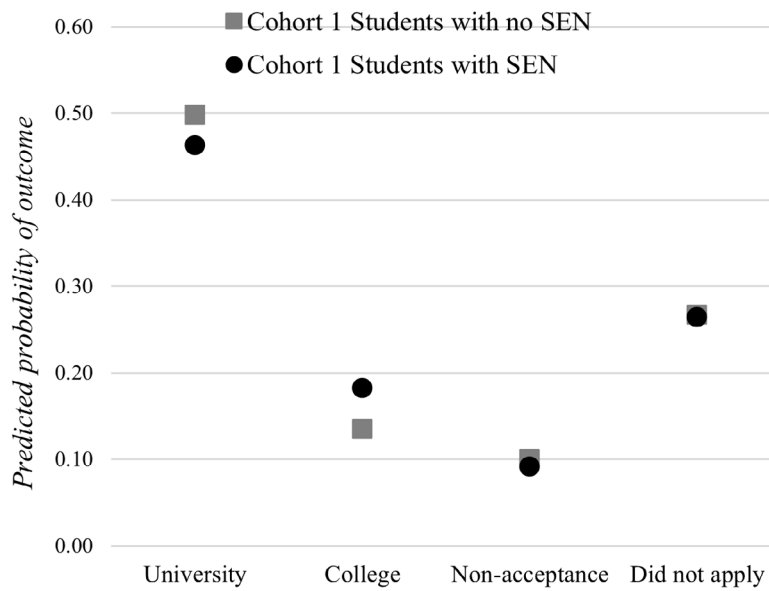
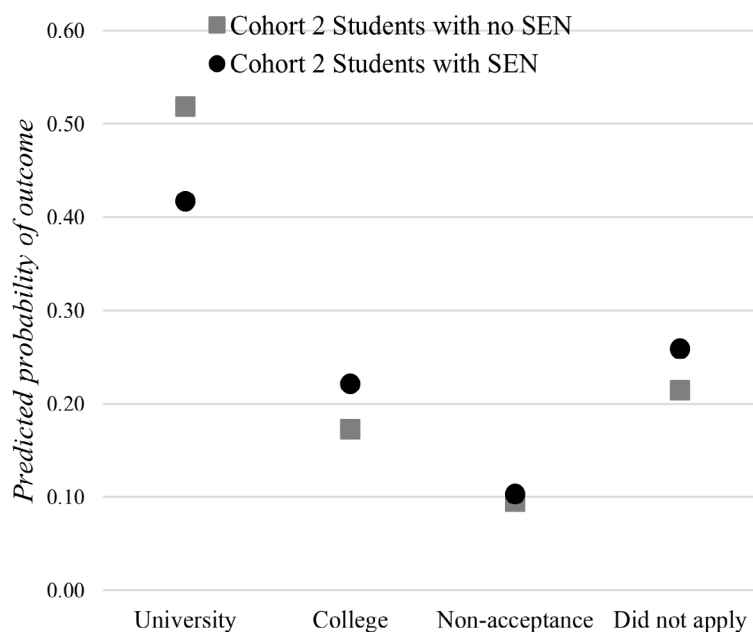


Figure 2

Probability of PSE Outcome by Special Education Status





Cohort Change: SEN

Figure 2 illustrates that from Cohort 1 to 2, the predicted probability of students with a SEN confirming university dropped significantly. As it was not a significant predictor of university confirmation for Cohort 1, this means there was no statistically significant difference in the likelihood of confirming university between students with and without a SEN (at least relative to no PSE application at all). For Cohort 2, this significant indicator is negative and demonstrates a decreasing rate of university confirmation by approximately 50% compared to students without a SEN.

In Table 3, having a SEN is also positively associated with college confirmation for Cohort 1 but not a statistically significant predictor of this outcome for Cohort 2. As Figure 2 shows, Cohort 1 students with a SEN are more likely than students without a SEN to confirm college; however, when it comes to not applying at all, the two cohorts have an equal probability. Though the likelihood of confirming college increases overall for Cohort 2, students with a SEN are still more likely than students without a SEN to confirm college. Nevertheless, students with a SEN are more likely to not apply to PSE at all in the later period. This suggests that students without a SEN have made an indirect gain in that, though they were still less likely to confirm college than students with a SEN, there was an overall reduction in the number of non-applications in Cohort 2.

Cohort Change: Grade 9 Achievement

The association between Grade 9 achievement and college confirmation changes between cohorts with regard to those who were high achievers (i.e., Level 4 in one to three subjects) compared to those with the lowest level of achievement. As Figure 3 illustrates, the probability of confirming college for high achievers increases between the two cohorts, while the likelihood of low achievers confirming college decreases. Low achievers are instead far more likely to not apply at all in Cohort 2, a finding that suggests that the college applicant pool shifts between these two cohorts.

Cohort Change: Grade 9 Absenteeism

The final association that changes from Cohort 1 to 2 is Grade 9 absenteeism as the correlation between college confirmation and this experience factor weakens over time. Figure 4 illustrates that, while there is a negative association between absenteeism and the probability of confirming college for both cohorts, the relationship is not as strong in Cohort 2 compared to Cohort 1. The association between absenteeism and not applying at all is also flatter in the later cohort. This means that Cohort 2 students with high absenteeism rates confirmed college instead of not applying at all to a greater degree than Cohort 1 students.

Figure 3

Relationship between Grade 9 Achievement and PSE Confirmation

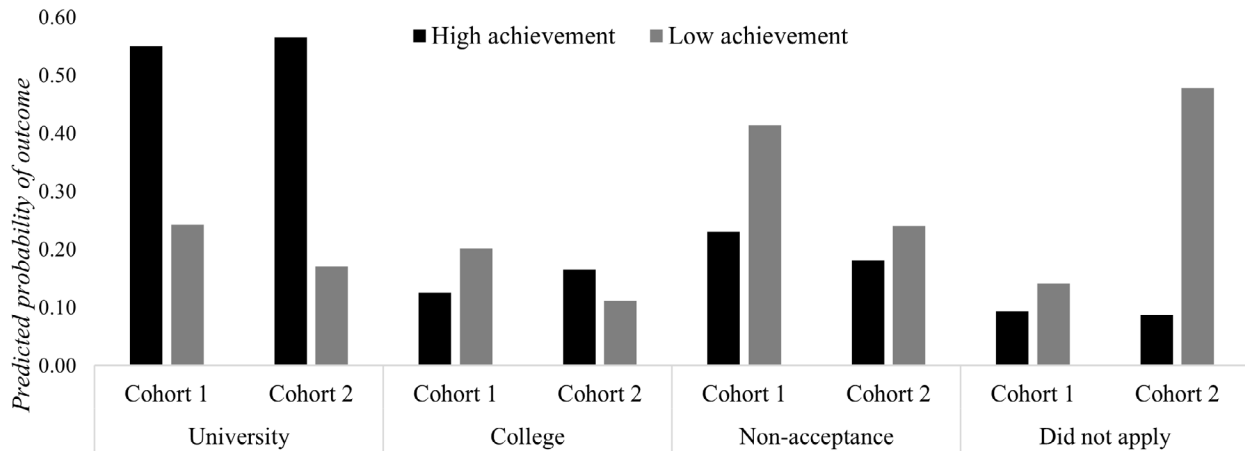
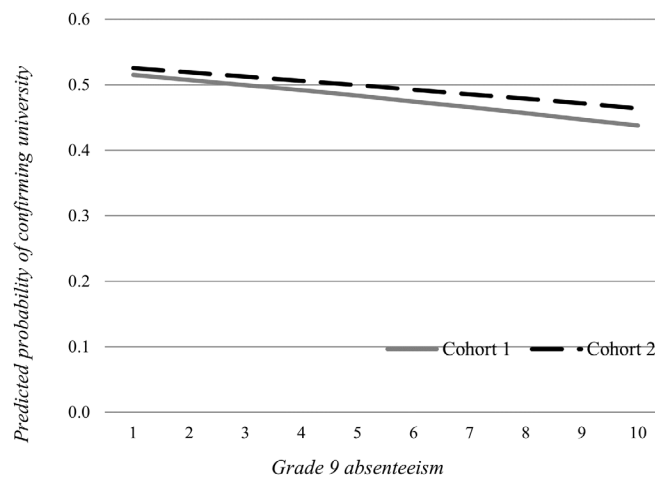
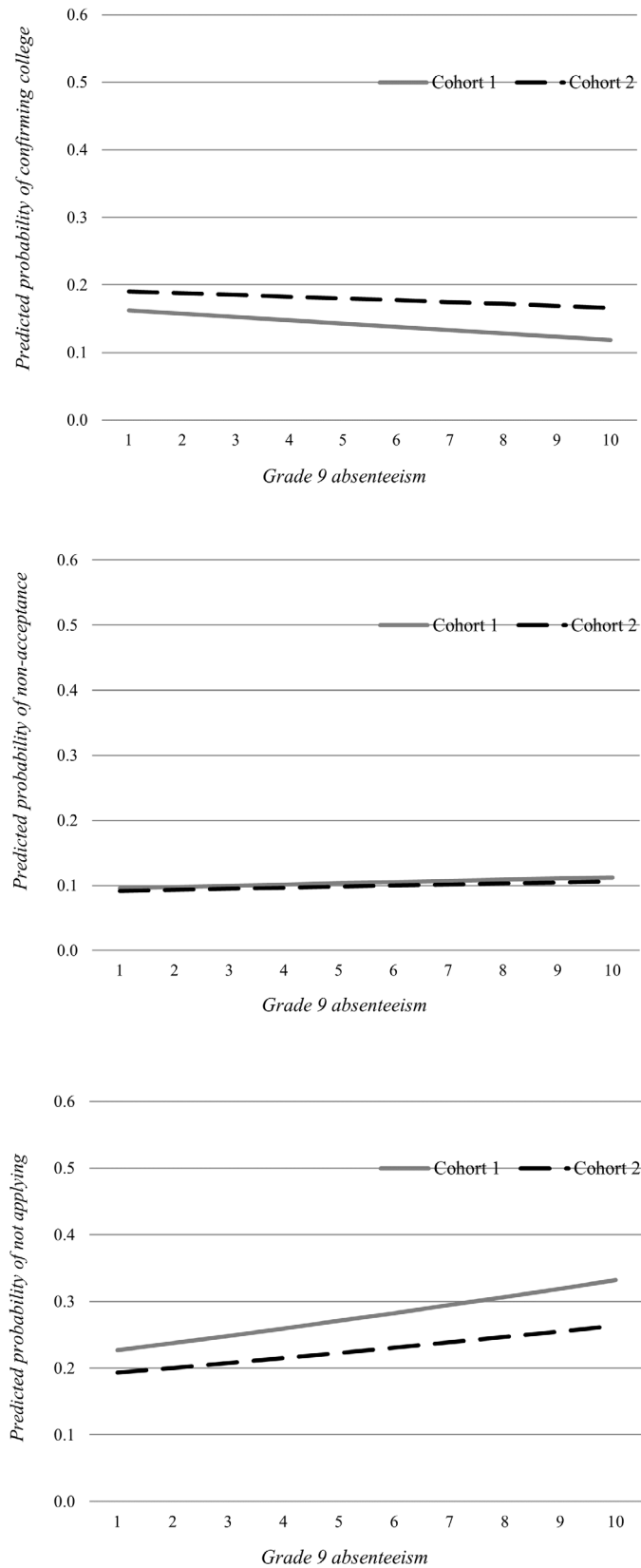


Figure 4

Relationship between Grade 9 Absenteeism and PSE Outcomes





Discussion and Conclusion

Broad access to PSE is an ongoing policy priority in Ontario, particularly heightened over the past two decades with the expansion of PSE programs and student places (Deller et al., 2019). Policy measures are largely financial in nature, focusing on enrolment-based funding formulas, some of which target the recruitment and support of students from historically underrepresented groups. Like the steady increase in high school graduation rates, PSE enrolment expansion over the past two decades in Ontario has led to some of the highest rates in not only Canada but almost all other OECD countries (Deller et al., 2019). This type of growth-model approach may easily lead to the assumption that there is equity of access for historically underrepresented groups. Yet, as discussed in the introduction, comparing across graduating high school cohorts enables insight into the extent to which social change is taking place (Ryder, 1965; Yang & Lee, 2009). While tracking cross-cohort attainment rates is common, the aim of this study is to broaden the purview of change by studying differences in the associations among ascriptive factors, early high school experiences, and PSE transitions for two high school cohorts.

While short-term change is the focus of this study, what remains the same is just as important. While a greater proportion of students in Cohort 2 confirm a place in an Ontario college or university, secondary schools continue to play an important gateway role in creating structures that push and/or pull students into PSE upon graduation. Students with a suspension record, as well as lower levels of Grade 9 academic achievement, attendance, and school enjoyment, continue to be less likely to confirm or receive acceptance into a PSE institution. Even when controlling for a range of other factors, there is no change between the two cohorts in the relationship between student SES and university confirmation—a trend in prior TDSB research as well (Brown & Tam, 2017). In terms of college, however, there continues to be no difference in enrolments between students who live in high- and low-income neighbourhoods or by parental PSE, although students from two-parent households are more likely to attend college across both cohorts.

While there is clear continuation in stratifying factors marking the transition to PSE, there is indication of change even across a short period of time. South Asian students in Cohort 2 are more likely to confirm college or

university compared to White students, while Southeast Asian students in Cohort 2 are more likely to confirm college. At the TDSB, South Asian students' lineage is largely from Sri Lanka, Indian, Pakistan, Guyana, and Bangladesh, and—reflecting the racial composition of the Greater Toronto Area—form the largest racial group after White students. For Southeast Asian students, most are from Vietnam or Philippines. There are several possible explanations for the racial change we observe in this study. Previous TDSB research indicates South and Southeast Asian students report average or higher parental expectations for PSE (Yau et al., 2011a, 2011b). High expectations combined with a change in the immigration composition in Ontario—where there is a lower percentage of *recent* immigrants over the last few census cycles, from 52% in the 2006 census to 39% in 2016 census (Statistics Canada, 2017)—may contribute to changes factors that support PSE transitions (i.e., higher SES among established immigrant groups). Further research on the immigration profile and parental expectations of racial groups would provide additional insight into these possible influences.

Another major change between the two cohorts surrounds the composition of students with a SEN and their transition to PSE. In comparing Cohort 1 and 2, the overall proportion of students with a SEN increases by seven percentage points. While there are differences between each unique exceptionality, prior research suggests that students with any SEN have lower average school enjoyment and level of academic achievement (Yau et al., 2015), both of which are associated with lower PSE transition rates in our study. Even controlling for these factors, students with a SEN are less likely to confirm university across both cohorts and are more likely to not apply at all in the later cohort—although, the predicted probability of college confirmation is slightly higher among students with a SEN across both cohorts. Further research is necessary to examine why the relative gap between students with and without a SEN changes between the two cohorts, especially when there is greater identification of students in need of academic supports and accommodations. Separate analysis shows preliminary indication of compositional change in IEP type between the two cohorts, with an increase in the proportion of SEN students not listed as having an exceptionality and a decrease in the proportion of SEN students with mild intellectual and learning disabilities. This trend may

relate to the overall increase and greater identification of young people with mental health concerns in Canada (Boak et al., 2016), although current TDSB data access does not provide information detailed enough to examine the influence of this potential trend.

The other points of change surround suspension rates and Grade 9 absenteeism and achievement. Between Cohort 1 and 2, there is a 6.5 percentage point decrease in the proportion of students with a suspension history, a decline that may be at least partially attributable to change in the previous *zero tolerance* policy (immediate suspension or expulsion following a serious disciplinary infraction) that school boards across Ontario practised prior to a 2005 Human Rights Commission settlement. Nonetheless, students who have a history of suspension remain far less likely to confirm PSE across both cohorts. Along with lower suspension rates, there is also an incremental decrease in Grade 9 absenteeism and an incremental increase in Grade 9 achievement between the two cohorts. Greater achievement aligns with previous studies that show an increase in Grade 9 course completion and marks at the TDSB almost every year since 2001 (Brown et al., 2017; Brown & Tam, 2017). While the overall trend is positive, the present study shows that students with the lowest level of academic achievement are more likely not to apply to any PSE over time. It is a finding that highlights the importance of not simply examining overall increases in achievement but also the relative gap at each end of the distribution.

In conclusion, it is also important to remain aware that while ascriptive factors like SES and experience factors like academic achievement are important, they can never determine outcomes completely. Not all students with high academic achievement will excel and, against their odds, many students from lower SES backgrounds will still have high levels of academic achievement, a trend known as *academic resilience* (Agasisti et al., 2018). With the aim of ensuring the outcomes of students are not cast as overdetermined, our study demonstrates how inequalities in the transition between high school and PSE both change and remain the same over time using a unique data set that allows for insight into often understudied areas in Canadian higher education research—most notably differences between racial and SEN groups. In alignment with Gallagher-Mackay's (2017) standpoint that the research base necessary for an equity-of-access agenda remains incomplete and

disconnected, it offers an overview of the various overlapping ascriptive and school experience factors that contribute to unequal transitions.

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Notes

- 1 The demographics of the TDSB are not reflective of the rest of Ontario and Canada. In particular, students are more racially diverse. According to the 2011 National Household Survey, 26% of Ontarians self-identify as having visible minority status, with about 29% born outside of Canada and 31% who spoke a non-official language (Statistics Canada, 2013). According to the 2011 TDSB Student Census, the TDSB population had a similar proportion of those born outside Canada (27%) but the visible minority population was much higher at 61% (Yau et al., 2013).
- 2 To be designated at or above standard credit accumula-

- tion rates, TDSB secondary students are expected to obtain eight credits in Year 1 (Grade 9), 16 credits by Year 2, 23 credits by Year 3 and 30 or more credits by Year 4.
- 3 A 14-category item on the Student Census asks students to identify what category best describes their racial identity. This study combines some of these options (e.g., Black African, Black Caribbean, and Black Canadian) into eight race categories. Because the sample size is too small for analysis (i.e., < 50 per cohort), Indigenous students are not included.
 - 4 TDSB administrative data contains information on whether students have a SEN, usually in the form of additional support or resources to accommodate sensory, physical, learning, or mental health difficulties. For the purpose of this analysis, we categorize students identified as gifted, technically a SEN category, as having no SEN.
 - 5 A variable from Environics Analytics measures the 2018 median household income associated with a student's six-digit postal code dissemination area (typically around 300 households). Although not as ideal as measuring the characteristics of an individual student, it is a commonly used SES measure (e.g., Dooley et al., 2017).
 - 6 Applied courses "have an emphasis on concrete and practical learning," and academic courses, "have an emphasis on theoretical and conceptual learning" (Toronto District School Board, 2014b, n.p.).
 - 7 For TDSB students, there are four compulsory Grade 9 subjects: English, mathematics, science, and geography. Following prior research (Brown et al., 2019), we create a composite Grade 9 achievement variable using the four compulsory subjects: very high achievement—level 4 (A) in all classes; high achievement—grade of level 4 (A) in one to three of the classes; medium achievement—a passing mark of below 80 in all classes; and low achievement—completed fewer than eight Grade 9 credits.
 - 8 Completion of this Grade 10 test is necessary to obtain a high school diploma in Ontario, as well as a requirement for PSE programs. Of note, if students were absent, deferred, or failed, they could also take the test in Grade 11 or 12.
 - 9 For this indicator, students responded to the statement, "I enjoy school" using a 5-point Likert-type scale. In the analysis, 1 = never and 5 = all the time.
 - 10 Descriptive statistics were calculated for both full and estimation samples. The full sample consists of all students in each cohort for whom any data was available. The estimation sample consists of students included in the final model because they had data available for all the variables included in the model. Only descriptive statistics from the estimation sample are reported here, but they are largely consistent with the descriptive statistics from the full sample.