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**PROJECT SNAPSHOT**

**Predicting Transfer Pathway Uptake and Associated Income Profiles – A Second Look at the TDSB-PSIS Linkage with a Focus on Disability**

**Type:** Research

**Project Number:** 2022-04 or R2204

**Project Lead:** York University

**Principal Investigator:** Dr. Gillian Parekh

**Co-Investigators:** Dr. Rob Brown and Dr. David Walters

**Collaborators:** University of Guelph

**Project Summary**

Through this follow up contract, the project team will draw on the TDSB-PSIS-T1 FF linkage to explore an additional set of questions that have been identified by ONCAT as being of key strategic importance.

* Dr. Gillian Parekh, Project Lead, Associate Professor, York University
* Dr. Rob Brown, Project Co-Lead, Adjunct Professor, York University
* Dr. David Watters, Project Co-Lead, Professor, University of Guelph·
* Researchers/Student Interns

1. What are the net socio-demographic predictors of (disaggregated) transfer pathway uptake?
2. Is there a net earnings premium or "penalty" associated with disaggregated transfer pathways?

Two Reports (as outlined in work plan above) that present the project's findings in detail, including extensive sets of tables and figures. Research processes used to generate findings (i.e. syntax used to produce all of the quantitative analysis; interview guides for qualitative projects). Project Snapshot/Project Brief: Shorter research brief, or series of briefs: brief(s) summarizing particular findings of interest for a more general audience. Presentation of findings to ONCAT stakeholders - upon request, PCCAT conference (June, 2022), and other prospective events.

### Project Rationale

Access to postsecondary education is becoming increasingly important with over 75% of new jobs in Canada “expected to be in high-skill occupations over the period of 2019–2028” (Canadian Occupational Projection System, 2017, para. 12). Although Canada has reached a “universal” level of postsecondary education access, several groups continue to experience barriers (Kirby, 2009). There is also greater evidence emerging that ties postsecondary attainment to greater long-term health and economic security (Fonseca & Zheng, 2011; Irwin, 2015; M. Kearney et al., 2015). Research has shown that students with disabilities and students accessing special education services often experience both attitudinal and structural barriers throughout their K-12 schooling (Brown et al., 2020; Parekh, 2019; Parekh & Brown, 2019). Student pathways can be shaped by their experiences of academic exclusion, decreased expectations for achievement, and stigma. As such, students may be left with inadequate course credits to pursue college and university programs. However, even when admission to a postsecondary program is secured, students with disabilities often face programmatic, environmental, and attitudinal barriers as well as additional financial demands throughout their postsecondary studies (Dolmage, 2017; National Educational Association of Disability Students, 2012; Shanouda & Spagnulo, 2021). Similarly, research demonstrates how PSE graduates with disabilities continue to face barriers in securing equitable employment opportunities (Chatoor, 2021; Morris et al., 2018). Walters et al., 2021) and a growing field examining disability and transference, there is far less research addressing the relationship between students’ experience of disability, transference, PSE graduation, and future income. As such, our research team examined the relationship between disability and transfer in relation to postsecondary education and future income outcomes. Additionally, using the unique data set provided by the Toronto District School Board, our research team was able to extend the investigation beyond the PSE and employment sectors and investigate the relationship between student identity and public school factors, such as program, secondary school achievement, suspension, absenteeism, to students' future trajectories. This investigation led to important results that not only shed light on the importance of students' secondary school experiences, but also on the relationship between PSE transference and disability, in relation to PSE and future earning outcomes.

### Methods

Data

This project uses a linked administrative dataset which includes the Grade 9 Cohort dataset from the Toronto District School Board (TDSB), the Postsecondary Student Information System (PSIS), the Canada Student Loans Program (CSLP), and the 2017 T1 file (tax information). The TDSB data represent 13 cohorts of students who started Grade 9 between 2000 and 2012 and include over 230,000 students. PSIS and CSLP are both included in Statistics Canada’s linked Education and Labour Market Longitudinal Platform (ELMLP).

PSIS collects annual information on all students entering a Canadian college or university. Although it began collecting information during the 2005–2006 academic year, full data from Ontario was reported beginning in 2009–2010. The CSLP provides information about anyone who borrowed from the Canada Student Loans Program from the 2003–2004 to the 2016–2017 academic years.

Subsample

The combined data linkages represent students who began secondary school with the TDSB in September of 2004, 2005, or 2006, and who pursued college or university in Ontario beginning in September of 2009, 2010, or 2011. Data were linked using the variable “Register\_group\_ID” from Statistics Canada’s ELMLP. Those who began their postsecondary programs at atypical times or as mature students were excluded from the analyses, since they represent unique groups of postsecondary students. Moreover, a small number of students had multiple enrollment records in the same year in the PSIS and were also excluded from the analyses. The final sample included 33,865 students who were registered in the TDSB’s 2004–2006 Grade 9 cohorts and entered college or university in Ontario between 2009 and 2011.

### Describe any limitations

The only limitations to the project were derived from the data:

As per Statistics Canada regulations, there is a requirement of minimum 15 cases per cell count in order to be reported publicly. In some cases, we are concerned we will run into limitations with the counts, particularly with the mobility categories. From earlier research, we know that the college-to-university pathway was the most problematic (earlier ONCAT report) in terms of low counts. Should we find out that the number of students who first attend college in Ontario then transfer to university is too low, can we a) see if looking at all TDSB students transferring from college to university across Canada would work or b) delete these students from the study or c) merge the college mobility pathways together (college to college and college to university)?

FSA – In the contract, FSA is among the list of variables. From our earlier research, we have concerns around the limitations of this particular variable and its possible impact on low cell counts. We may have to consider looking for alternatives.

In the contract, final field of study is listed as a variable, however, in our earlier research, we found first field of study to be the most accurate.

Due to potential low counts in several of the mobility pathways (as seen in earlier research) in relation to disability, we have opted to aggregate different disability identification strategies into a composite disability variable. For instance, students who self-identified with disability through income tax returns, students who accessed the federal permanent disability grant, and students identified (informally/formally) through TDSB special education information were flagged and included in a composite disability variable.

### Main Collaborators

Both York University and the University of Guelph were collaborators in this project. Quantitative work was conducted through the RDC.

### Research Findings

Our work was broken down into studies: 1) One examining the relationship between disability, transfer, and postsecondary education outcomes; and 2) a second study examining the relationship between disability, transfer, postsecondary outcomes and predicted income earnings.

Our first report was organized around the following research questions:

1. Are students with disabilities more likely to transfer between postsecondary institutions? If so, in which direction?
2. Dependent on transfer patterns, are students with disabilities more or less likely to graduate?
3. Which factors are most important in relation to students’ transfer and graduation patterns?
4. What role do students’ public school experiences play in relation to students’ postsecondary education transfer and graduation patterns?

Highlights from the findings:

* Students with disabilities are more likely to transfer between postsecondary education institutions.
* Students with disabilities are less likely to enter and stay in a university program than their non-disabled peers and are more likely to enter and stay in a college program and transfer between college programs than their non-disabled peers.
* Students who transferred between postsecondary institutions are less likely to graduate. Although there was an initial gap in graduation between students with and without a disability, once control variables were included, the gap was negligible.
* For both transfer patterns and graduation rates, it is clear that the inclusion of students’ public school markers is critical in explaining students’ postsecondary outcomes.

Our second report addressed the next set of research questions:

1. Do students with and without disabilities achieve parity in predicted income shortly after leaving their programs?
2. Dependent on transfer patterns, are students with and without disabilities more or less likely to reach income parity?
3. What role do transfer and students’ public school experiences play in relation to students’ earnings shortly after leaving PSE?

Highlights

* Regardless of their academic pathway, students with disabilities consistently earn less than their non- disabled colleagues.
* Students who enter and stay within their college or university program have higher predicted earnings than their respective peers who have transferred between PSE institutions.
* When the control variables were included in the model, the increase in earnings was larger for transfer students with disabilities than transfer students without disabilities, suggesting that if students are going to transfer, students with disabilities are more likely to benefit from transferring than their non-disabled counterparts.
* In our first analysis examining transfer and graduation from PSE (Parekh, et al., 2022b), the inclusion of students’ achievement, program, and school-based variables rendered the gap in students’ graduation rates for both transfer and disability variables negligible. However, in the analysis of predicted future earnings, the inclusion of these same variables reduced, but did not eliminate, the persistent income gap between both transfer and disability variables.

### Future Research

The research and data continue to demonstrate that students with disabilities face ongoing barriers within postsecondary education and workforce sectors. However, we also know that the experience of disability is not singular. Students’ social locations, their positionalities, and the conditions in which they work and learn can impact their ability to access and complete PSE studies as well as secure employment within the labour force. Therefore, we believe that future research could, and should, integrate an intersectional analysis examining the relational role of identity and pathways to and through PSE and into the workforce.

From the research our team has conducted over the last couple of years, we believe that an integrated focus on student identity, secondary and postsecondary program in relationship to:

1. time between Grade 9 entry, postsecondary entry and graduation rates
2. time of graduation of first postsecondary credential;
3. examination of initial steps of second postsecondary credential,
4. the timelines of apprenticeship.

### Student Outcomes

This project offers insight into the outcomes associated with transfer pathways and identifies the role of secondary and postsecondary variables on transfer outcomes. Therefore, the analysis offers further evidence of system indicators that could be used in the measurement and mitigation of disparate outcomes.

### Institutional Outcomes

Our research shows that in contrast to college pathways, university pathways can result in inequitable outcomes for students with disabilities. These inequities persist even after all controls and variables were included in the regression models, suggesting that universities, in particular, should have a greater focus on supporting students with disabilities. As students with disabilities are more likely to transfer, support throughout the transfer process is also important.

### Sector or System Implications

This study confirms the importance of tracking students' pathways to, through and after school. It also offers insight into the importance of students' demographic and secondary school experiences on predicting how well students will be able to navigate both the PSE system and transition into the world of work.

From our research, it appears that student mobility may be driven by a change of interest, external life circumstances, or a need for greater accessibility in programming. Mobility is related to lower graduation rates and lower future predicted earnings. However, our research reveals that when we control for students' sociodemographic identities and secondary school experiences, much of the initial gaps are reduced.

Therefore, partnerships with the public education sector and support targeted at the point of PSE transition could be helpful.

Our literature search revealed that students with disabilities often transfer due to inaccessible programs/campuses. Therefore, bolstering accessibility services, communications around how students can access support, and supporting faculty in adapting their courses to meet the needs of students would be important as well.

### Tips

1. The ELMLP platform will be a game changer in looking at postsecondary pathways and mobility. However, the postsecondary (PSIS) process started across Canada only in Fall 2009 (with some weaknesses of college data in initial years) and the apprenticeship (RAIS) data started only in 2008. We know from our study of TDSB university completion that it takes up to ten years after high school graduation to have a complete picture of first/initial postsecondary credential. Thus, only now do we have the ability to measure full postsecondary completion patterns, and one assumes it will take longer to have a more complete picture of second credential.
2. It is clear from the TDSB-PSIS studies sponsored by ONCAT that both timely entry into postsecondary, and success through postsecondary, are closely associated with secondary achievement and school variables (and, presumably, elementary information as well). However, the ELMLP Platform commences only at the beginning of postsecondary. This is a gap that hopefully will be addressed through expanding available secondary and elementary data beyond the TDSB.
3. The RDC process ran fairly smoothly, but can take time. We would recommend researchers leave ample time for RDC clearance of results.
4. Visualizations are important. We were fortunate to have a skilled team in both analysis and visualizations.
5. We would also encourage further data linkages as a source for analysis as the linkages we were able to draw on deeply enriched the analysis.

