

**Student Transfer Processes and Labour Market Outcomes:
A Life Course Analysis of the Class of '73**

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Executive Summary

In this report, we explore cohort data spanning over 46 years to examine the historical patterns of transfer among Ontario post-secondary students. More specifically, we employ the Class of '73 longitudinal database –spanning a time frame from 1973 to 2019 --to explore the antecedents, covariates, and long-term outcomes experienced by students who moved through the Ontario post-secondary system in the late 1970s and early 1980s. It is important to recognize that the experience of student transfer is not new, and as our data analysis reveals members of this cohort participated in some kind of transfer, whether it was from college to university or university to college, or between universities or colleges. The study fills an important gap in the transfer literature around the historical practices of post-secondary transfer by using data from the longest running cohort study to date in Canada. Data collected in 1973 (high school), 1975 (when many young people had chosen to enter a post-secondary institution), 1979 (when members of the Class of '73 were about 24 and most likely to have completed post-secondary), 1988 (when members of the Class of '73 were about 33 and participating in the labour market) and 1995 (22 years after high school, around 40 years old and in mid-career) were employed to create a descriptive analysis of the detailed post-secondary pathways of cohort members. Insofar as that the Class of '73 cohort study employs a longitudinal design, we were also able to establish a sequence of events with respect to their choice of post-secondary institution(s) and employment outcomes (i.e. occupational prestige, income, and job satisfaction).

We had two research questions:

1. Did the characteristics of students that chose to transfer differ substantively with those that did not transfer over the course of the Class of '73 study? and

2. Did the short and longer-term labour force consequences of students that engaged in transfer differ substantively from those that did not transfer over the course of the Class of '73 study?

The data analysis presented in this report consists of three components:

1. Descriptive statistics intended to introduce the reader to the key characteristics of the sample;
2. Bivariate analyses of 'between wave' transfer and 'total' transfer that provides a description of the prevalence of different kinds of transfer among respondents participating in waves 1 through 6. This analysis provides a basic impression of how specific background characteristics (e.g., sex, SES, region) relate to the experience of student transfer and
3. multivariate analysis in two parts. In part one, multinomial logit models predicting transfer-type were estimated, using socio-demographic variables as independent predictors. These models allowed us to analyze the extent to which background characteristics affected the probability of an individual transferring between types of post-secondary education (e.g., are women more likely to transfer than men). The second part of the multivariate analysis employed growth curve models to describe the extent to which labor market outcomes such as income and occupational status change over time and to explain how the pattern of change differs in relation to the independent variables employed in the models.

The analyses revealed some notable findings, including:

- In total, transfers made up only 24% of the total of educational pathways across waves 2 to 6, indicating that transfer students comprised a minority of all respondents in our sample. Within this small minority, it is also clear that University to CAAT transfers are the most common type of transfer overall.
- Women modestly outnumbered men in all of the transfer categories especially in CAAT to University. We suggested that the women in our cohort study commonly appear to have taken a different path into university than men--namely by transferring from CAAT to University. However, by later phases of the cohort study sex differences became trivial.
- Among those with lower grades, transfers were predominantly other or CAAT to University (though with notably smaller overall numbers). Among those in the 60% to 69% group, transfers are more evenly distributed between CAAT to University and University to CAAT. Finally, among those with the highest grades, transfers were predominantly from University to CAAT.

Among the results of the multinomial logistic regressions that are noteworthy:

- For transfer from college-to-university, it was found that females were more likely to report this type of transfer, that high SES individuals were less likely to report this type of transfer, and that those with higher grades were less likely to report this type of transfer.
- For transfer from university-to-college, we find no sex or SES effects, but a negative odds ratio associated with high grades (relative to average grades).

The growth curve analysis revealed the following noteworthy findings:

- In terms of occupational prestige over time, we observed higher rates of return for university-to-college-transfer transfer compared to college-to-university transfer. In fact, cohort

members who experienced a university-to-college transfer had later-life occupational prestige scores similar to those with university-only pathways.

- In terms of income over time, the college-to-university pathway showed the greatest returns in later-life, again with trajectories similar to those who had university-only pathways. While there were significant income differences by sex, this did not change the relative impact of the type of pathway on predicted income.
- We found no differences in later-life job satisfaction by pathway type.

We conclude our study by considering how our findings both reinforce and challenge existing knowledge on transfer pathways. We found that transfer students tended to be female and from lower SES backgrounds and had lower grades, which is consistent with the existing transfer literature. However, we also emphasize that while the discourse in transfer literature tends to favour the college-to-university pathway as the most desirable, our findings do not demonstrate any later-life income or occupational status outcomes that are consistent with such a belief. In contrast, cohort members who engaged in university to college transfers experienced trajectories very similar to those who only attended university. We can only speculate on why that may be and we contextualize our findings in the sociopolitical context of the time, that was characterized by considerable restructuring to education in Ontario.

Introduction

In this report, we examine student transfer at the post-secondary level and how it relates to later-life employment outcomes. Our analyses are based on an Ontario cohort of late baby boomers who were part of a high school graduating class of 1973 which gives us the opportunity to examine student transfer from a life-course perspective. Efforts have been made to contact the original cohort members a total of seven times, with the most recent data collected in 2019, making this 46- year study the longest cohort study ever undertaken in Canada. From the perspective of student transfer, we are in a unique position to examine the long-term associations of student transfer in Ontario using this data set.

The Class of '73 and Post-Secondary Education in Ontario

Members of the Class of 73' were typically born in 1955 and, unlike their parents who grew up during the deepest economic depression and most intense war Canadians had ever confronted, they grew up in homes that valued stability and opportunity and with parents that were committed to the notion that their children's lives should be better than their own (Anisef et. al, 2000). It should also be noted that the post-secondary educational system in Ontario expanded significantly in the 1960s and early 1970s. This was driven by a number of factors, including population growth, economic demand, human capital theory and the promise of social justice through equality of opportunity. Thus, full-time university enrolments rose from 32,100 in 1960 to 159,700 in 1975 – a growth of nearly 500%. During the same period, 'non-university' post-secondary enrolment increased from 16,600 to 59,600 – a growth of around 350% (Anisef et. al, 2000).

The Ontario Colleges of Applied Arts and Technology (CAATs) were founded some fifty-four years ago for the purposes of increasing access to post-secondary education, addressing the needs of students not served by the university system, and meeting local economic and community development needs. (Lennon et. al., 2015; Deacock et.al., 2011). According to the Hon. W. Davis, then minister responsible for colleges and universities, “community college”:

goes far towards making a reality of the promise...to provide through education and training not only an equality of opportunity to all sectors of our population, but the fullest possible development of each individual to the limit of his ability...This expansion of our school system is imperative to meet the need of individual citizens as well as the society as a whole (cited in Anisef, 1985:76).

The development of the community college system in Ontario was not without its critics and implicit biases against the roles of such institutions. For example, Mr. MacDonald, a member of the NDP, argued that:

If community colleges are going to be sharply oriented to technology, with a core of liberal arts, and with ill-defined and limited opportunities for transfer to university for the brighter students, they will cement the fate of the disadvantaged child. Even if he does overcome earlier handicaps sufficiently to reach high school and complete years in the non-university stream, there is little prospect that he can go beyond the community college (Hansard, June 9, 1966:4483).

In 1966 when Centennial College was the first college to open its doors there were 450 full-time and 160 part -time students in 16 programs. By 1973 (when our study participants were in Grade 12), twenty-two community colleges were operating, as were fifteen universities (Anisef et. al., 2000).

In choosing to attend either a university or community college, Frenette (2003) points out that geographical proximity has proven an important factor in the decision-making process, particularly for low-income high school students and their parents. Frenette’s research demonstrated that “when no university is nearby students from lower income families are far less likely to attend than students from upper income families” (Frenette, 2003:20). Research by

Drolet (cited in Kerr et. al., 2010) also indicates that the participation rate of students from the lowest income categories is 50% higher in colleges than in universities, again showing the important role played by the colleges in providing equitable access to PSE.

A review of the educational pathways chosen by members of the Class of '73 after they left high school led to a number of important insights regarding the impact of social forces and agency. It also underscores the importance of education over the long term, from the subjective standpoint of the participants (Anisef et. al., 2000). The findings reported from phases conducted in 1973 and 1979 clearly documented the importance of social background forces such as class, sex, and region in shaping the educational preferences and decisions taken in their high school years (Anisef, 1975; Anisef, 1980; Anisef, Turriffin, & Lin, Z., 1999; Anisef, & Axelrod, 2001). Participants were strongly influenced by class structures, sex role considerations, and the opportunities available in their region of residence, when deciding on high school programs and future educational goals. In general, there appeared to be a strong reciprocal association between social background and educational pathways taken, in that social privilege increased the likelihood of gaining higher educational credentials and subsequent employment and occupational success.

Once personal educational expectations have been developed, these expectations serve to mediate the influence of social background on subsequent educational choices, particularly as members of the Class of '73 began their careers and assumed new responsibilities and challenges (e.g., marital and parental status). The impact of structural factors in sustaining educational advantage should not be minimized. However, the analysis conducted in earlier phases of this

longitudinal study illustrates the importance of factoring in the role played by personal agency in the critical high school and post-secondary years (Anisef et. al., 2000). Though working- class origins did influence future success, some working-class participants were able to overcome their lack of cultural capital, complete Grade 13, and move on to a university or community college education and, in some instances, both types of PSE. Similarly, a significant number of women were able to surmount gender obstacles. Many of these women were from rural areas and a high proportion chose to leave their community to improve their educational and career opportunities (Anisef, Turriffin & Paasche, 1980; Anisef et. al., 2000).

Literature Review

Researchers rely on literature reviews to establish the state of knowledge in a particular area and generate hypotheses that subsequently can be tested through the use of empirical data. Our main objective in this report is to trace the student transfer experiences of a cohort that graduated from high school in the mid 1970s, relate these experiences to their demographic, socio-cultural and attitudinal characteristics and then examine the short and long- term labour market outcomes of this cohort. In analyzing the student transfer experiences of the Class of '73, we will examine college-to-university, university-to-college, college-to-college and university-to -university student transfer. These different sub-categories of student transfer will be compared and contrasted with those students in the Class of '73 that chose not to transfer over the course of the longitudinal study.

In conducting the literature review we were interested in:

(1) Whether the research studies that we identified with respect to sub-categories of student transfer provides us with adequate coverage of the period ranging from the mid 1970s to the present day;

(2) Discovering what is known about these distinct sub-categories of student transfer in Ontario and;

(3) understanding if existent studies provide us with information regarding short- and long-term labour market outcomes so that we can assess important differences between those that chose to transfer and those that chose not to transfer.

Coverage of Student Transfer: mid- 1970s to 2020

As noted above, Ontario experienced a phenomenal expansion of universities and the creation of community colleges of applied arts and technology in the 1960s. Prompting this expansion were two factors: the rapid increase in the baby boom population of students leaving high school and an upgrading of the educational requirements for numerous occupations in commerce, industry, and the public service (Anisef et. al, 1985). This expansion, beginning in the 1960s and extending into the 1970s, was also fueled by optimism or hope that this type of expansion would provide opportunities for individuals and groups that had previously been unable to attend these institutions (Anisef and Okihiro, 1982).

In these early decades, the pathways by high school graduates in Ontario to universities and colleges were far more direct with students being more likely to transition directly to a university or college of their choice. However, in recent decades there has been a shift in student demographics and a rapid growth in non-traditional students or students that do not directly enter

post-secondary education (PSE) upon graduation from high school. Gorman et. al. (2013)

describe the differences between these two pathways:

The spectrum of non-traditional pathways to PSE is varied and complex. The traditional pathway has long been one where students enter a post-secondary institution immediately after high school, graduate and obtain employment commensurate with their education (though even this traditional pathway is being challenged in today's challenging labour market; e.g., Carrick, 2012). Alternatively, students following non-traditional pathways may experience disruptions, social and economic barriers, and/or challenges to employment. Preparatory programs are an opportunity to bridge this gap by providing a pathway through to post-secondary education and, in some instances, into employment.

Liu (2013) provides a more detailed understanding of the differences in entry between students that chose university and community colleges in Ontario and between direct entry students and those that follow more non-traditional pathways in pursuing a post-secondary education in Ontario. In Ontario, approximately 50 to 60 per cent of bachelor's graduates were found to have entered university directly from high school. In contrast, the percentage of college graduates that chose to directly enter college from high school was considerably lower and has actually dropped over time (from 40 to 45 % for earlier cohorts of 1982, 1986 and 1990 to under 30 % since cohort 1995). Liu (2013) concludes that delayers are no longer a marginal group in Ontario's PSE system and this should in fact be of great interest to policymakers.

Against this backdrop, the authors of the report conducted a detailed review of literature with respect to student transfer in the province of Ontario with particular focus on research studies that would reveal information regarding the demographic, social, cultural and attitudinal characteristics of students that elected to transfer between colleges and universities or across universities and colleges. While we did find discussion relevant to the emergence of community colleges in the mid 1960s and their relationship to universities within Ontario (e.g., Skolnik,

2010), no evidence-based studies on student transfer could be located for the period extending from the mid 1970s through the mid 1990s. Deacock et. al. (2011) indicate:

Indeed, even though some historical evidence of student movement from colleges to university since the inception date of the college system exists, there is a very limited amount of data on the full picture of transfer in the province of Ontario. Hard data on the movement of students in all directions-college-to-college, college-to-university, university-to-college, and university-to-university is minimal. The lack of information relates to the number of students, their characteristics, and their overall transfer experience. There is no systematic method to collect the data. (p.9)

With the emergence of the Ontario Council for Articulation and Transfer (ONCAT) in 2011, the research landscape has begun to alter. ONCAT has buttressed its mandate to enhance student pathways and reduce barriers for students that seek to transfer among Ontario's 45 postsecondary institutions by creating a knowledge base to facilitate transfer of credits.

Sub-categories of Student Transfer

Various researchers have reported that while there is an ample supply of student mobility literature, most of the research reports on and analyzes the college-university credit transfer pathway. A more limited amount of research in the area of student transfer, focuses attention on the university-college transfer ("reverse transfer") and even less analyzes the university-university transfer (Robson et. al. (2016); Arnold & Woodhead (2015); Cameron, 2015; Popovic, 2012). Scanning the past research studies by ONCAT, we found 68 completed studies on transfer from college-to-university; college to college was second with 18 studies and university-to-college was third with 11 completed studies.

Popovic (2012) maintains that although there are many sorts of transfer possible in Ontario's PSE system, the most common forms consist of college-to-college, college-to-university, university-to-university, and from apprenticeship to college. Deacock et. al. (2013) assert that hard data on the movement of students in all of these transfer directions is actually minimal.

Lavigne et. al. (2015), however, argue that the biggest number of educational pathways in Ontario and Canada generally occur within the college and university sectors rather than between sectors. Thus, by far the biggest pathway in Ontario has been university-to-university, comprising 53.1% of all graduates with a prior Canadian qualification.

Before examining the characteristics of sub-categories of transfer students it is first informative to describe the characteristics of students that enter directly from high school (or DEHS) to PSE. Robson et. al. (2016:4) reviewed various research studies and provided a description of DEHS students in Ontario. These students tended to be below the age of 19, non-Indigenous, and declared no disabilities. In contrast, transferring students displayed more diverse demographics. They were more likely to be female, older on the average, and showed more variability in age than DEHS students. Also, transferring students were found to be more likely than DEHS students to be of Indigenous ancestry, the first in their families to pursue a higher education, and were more likely to have a disability. Moreover, given that they tended to be older than DEHS students, transfer students were more likely to be married, have children and work either full or part-time.

College-University Student Transfer

Camman (2015) indicates that over the past decade or so, the percentage of college graduates who transferred to universities increased from 5 to 7.7 % -- a difference largely attributed to increased credit pathways. The College-University Consortium Council (CUCC) created a transfer student profile in 2007 that outlined four key attributes of college graduates that transferred to a university. Those that transferred were found to be in the youngest age group,

female, to have graduated from a basic or advanced diploma program and, finally, to have graduated from Applied Arts or Business programs.

Data that was collected from the MTCU Graduate Student Satisfaction survey conducted in 2008-2009 also provides a profile of Ontario transfer students. College graduates who transferred to a university were more likely to be female and under the age of 22. They were found to have graduated with a “Basic Diploma” or an “Advance Diploma” from a large college in the Metropolitan Toronto or central region of Ontario. In addition, survey data collected by Academica Group, Inc. indicated that higher proportions of university applicants from various under-represented groups -including Indigenous students, students with disabilities, first generation students and low-moderate income students tended to be college transfer students compared to other university applicants (Kerr et. al., 2010). Stewart and Martinello (2012) remind us that it is not uncommon for students who have successfully completed two or three years at an Ontario community college to be granted less than a full year of academic credit at a university.

In terms of academic performance, Kerr et. al. (2010) reviewed multiple studies that showed that transfer students performed equally well in grade point average and course grades as university students that did not transfer. However, these authors also found that, in Ontario, college transfer students were also more likely to drop out. Robson et. al. (2016) suggest that overall findings indicate that transfer students performed at least as well academically as DEHS students and, in some instances, actually outperformed them.

An investigation conducted by Smith et. al. (2016) documented the transfer between York University and Seneca College over a period of 12 years (2000-2012) through the use of academic and administrative data. Of the 9,330 students who transferred from Seneca to York, 64% were Seneca graduates; by 2012, 47% had graduated, 20% were still enrolled and 33% had chosen to withdraw from York. When transfer students to York from Seneca were examined, it was found that 59% were female, 74% were Canadian citizens, 32% were older than 25, 39% claimed not to have either French or English as their mother tongue, and 27% did not have at least one parent that has attained some post-secondary education.

Steffler et. al. (2018) employed administrative and survey data from 2007 to 2014 to track 36,054 Seneca College entrants from high school until six months after college graduation. They discovered that transfer to university was 3% higher for college graduates who had a parent with a degree than graduates without a degree; this relationship held when the researchers controlled for socio-demographic factors and grades. While rates of transfer did not differ by income, when income was combined with parental education (where at least one parent had a degree), graduates who had a low income but had at least one parent with a degree were 4% more likely to transfer to university. Finally, those graduates with the highest grades and who aspired to attend university proved to be the most likely students to transfer.

Henderson and McCloy (2019) conducted a study to examine the profiles and pathways of college-to-university students in order to identify who chose a transfer pathway as well as their unique needs and experiences. Academica Group's University and College Applicant Study (UCAS™) database was employed to compare college applicants who aspired to a degree

to those who did not, and to compare university applicants who had a previous college credential to those with no previous PSE experience. The results are based on a sample of over 125,000 Ontario college and university applicants who participated in the UCAS™ between 2010 and 2015. This included 70,813 survey respondents who had applied to Ontario universities and 57,839 survey respondents who had applied to Ontario colleges. The researchers found that profiles of university applicants with a previous college credential and those with no previous PSE experience differed significantly, with many of the traditionally under-represented groups in university composing a larger proportion of the population with a previous college credential. In particular, there was a larger percentage of first-generation students, students with a disability, lower income students, Indigenous students, and rural students in the group with previous college credentials compared to the university applicant group with no previous PSE. College transfer students were also shown to be more likely to have identified as White/ Caucasian, or Black, and less likely to have self-reported as being Chinese or South Asian. Academically, university applicants who had completed a college credential were much less likely to have taken university preparatory courses in high school than those with no previous PSE experience, and their average high school GPA was significantly lower.

University-College Transfer

Lavigne et. al. (2015) argue that the biggest educational pathways in Ontario are within the college and university sectors rather than between sectors. They found that college graduates with prior qualifications from a Canadian university were 13% of all PSE graduates with a prior Canadian PSE qualification in Ontario, in contrast to the 9% of college graduates who had a prior Canadian university qualification in all of Canada. Kerr et. al. (2010) reported that university-college pathways (UTC or “reverse pathways”) are increasing although generally less

quickly than college-university pathways. These researchers reported that UTC students tended to be over 25 years of age, spoke a first language other than French or English, and were enrolled in narrow and applied courses. Arnold and Woodhead (2015) also indicated that while there is an ample supply of student mobility literature that analyzes college-university credit transfer, there is only a limited amount of research that focuses on college-college and university-college transfer.

Kerr et. al., (2010) documented that the profile of university-to-college transfer students was somewhat different than that of college-to-university transfer students, the former group were more likely to be female, older than 25 years of age, and speaking a first language other than French or English. In many instances, students in this group have sought programs in colleges that would prepare them for employment/career, have been in the workforce for some time before returning to PSE and may have been in the process (voluntarily or involuntarily) of pursuing a second career. In the study of transfer between York University and Seneca college, Smith et. al. (2016) identified the following characteristics of York to Seneca transfer students: 61% were female, 91% were Canadian citizens, 27% were older than 25, relatively few had English or French as their mother tongue and 21% did not have at least one parent that had attained some PSE. Upon entering Seneca, the authors found that almost two-thirds of the university transfer students reported plans to enter the workforce following their graduation from Seneca.

Robson et. al. (2016) examined TDSB data for a cohort of students (N=16,364) that were in Grade 9 in 2006 and were followed for eight years, until fall 2014. In terms of those students

who appeared to have reverse transferred from university-to-college, an exploratory analysis revealed that these students were more likely to be from lower socioeconomic groups and be racialized (particularly Black, South Asian, or Southeast Asian). A qualitative follow-up by Maier and Robson (2020) found that UTC were characterized by struggles with university coursework, poor physical and mental health, unmet special education needs, and worries about future career prospects.

College-college and University-university Student Transfer

Arnold and Woodhead (2015) indicate that while there is a plentiful supply of student mobility research, most of this research centers on and analyzes college-university credit transfer. Only a limited amount of research discusses college-college transfer. In a review of literature on student mobility and transfer pathways, further support for the plentiful amount of research on college-to-university transfer and the lack of comparable research on other transfer pathways (eg. College-to-college, university-to-university) is provided (Camman (2015:5-6)). A detailed review of literature by the authors of this report failed to identify studies that report on the characteristics of students that transfer within post-secondary institutions and whether these students differ from students that transfer across post-secondary institutions.

Labour Force Outcomes of Student Transfer

Kerr et. al. (2010) report on the negligible amount of research with respect to the post-graduation labour market outcomes of college and university graduates that have pursued non-traditional pathways:

Most of the research that has been conducted has explored the labour market outcomes of graduates with multiple credentials or with previous post-secondary experience... In terms of labour market status five years after graduation, graduates with prior PSE were similarly or less likely to be out of the labour force or unemployed compared to those without prior PSE. One exception to this outcome was observed for university graduates at the bachelor's level

with a previous trade or college degree, who were more likely than bachelor's without prior PSE to be unemployed (p24).

A study using the 1995 NGS examined the earnings outcomes (two years after graduation) of graduates who had obtained a prior post-secondary credential relative to graduates who had not. In most cases, further PSE was associated with higher earnings, although there was some variation by field of study. The most noteworthy exception to this finding was that university graduates who had pursued further college education earned less than graduates with one university undergraduate degree (p25).

After reviewing the limited number of studies in the area, Kerr et. al (2010) caution that although it is generally thought that acquiring additional PSE will lead to improved labour market outcomes, the research done to date indicates that economic rewards associated with the acquisition of additional PSE vary by credential or type of PSE experience obtained, field of study, the timing of credential attainment as well as individual student characteristics (p25).

Lavigne et. al. (2015) also note that there has been very little published at the post-secondary level on the connections between qualifications within fields of education and the links between educational pathways and occupational pathways. They point out that this is partially due to the difficulty of obtaining accurate data in Ontario and Canada. However, they suggest that this issue will be resolved in most provinces, including Ontario, through the use of universal student numbers. Thus, Ontario recently expanded the use of the Ontario Education Number (OEN) to encompass post-secondary education. However, it will take some years before the data linked to the use of OEN are able to provide insights into students' trajectories as they complete multiple PSE qualifications.

Given that there is limited research regarding the labor market outcomes of students that transfer across PSE institutions in Canada, we turn to research conducted in the United States on this

topic area for additional insights. Andrews, Li and Lovenheim (2014) indicate that little is known in the United States with respect to how enrollment in multiple institutions of varying quality relates to later- life outcomes. Given this situation, they analyzed a panel data set in Texas in order to provide a detailed examination of the paths that students have taken toward a bachelor's degree and to estimate how enrollment in multiple institutions related to both degree completion and subsequent earnings. Their data consisted of 1.1 million post-secondary students in Texas that was subsequently combined with state administrative data, allowing researchers to trace out in a detailed manner the heterogeneous ways that students move through the post-secondary system (Andrews, Li & Lovenheim, 2014). When earnings were examined, the general finding was that direct attendee graduates earned more than transfers into their institutions. However, this difference proved to be small for the non-flagship (or less selective) sector (Andrews, Li & Lovenheim, 2014:94:107).

In a study conducted by Xu et. al. (2018), the researchers employed matching strategies to examine whether community college “vertical-transfer” students (i.e., community college-to-university) in Virginia, who resembled university only-students with respect to their accumulated college-level credits and performance at their point of entry into the 4-year sector, performed equally well in terms of both academic and labor-market outcomes. The analytic sample employed in this study consisted of 42,803 students, approximately 10% of whom (N = 4,678) were vertical transfer students. It should also be noted that although the majority of community college students aspired to a bachelor's degree, actually less than a quarter transferred to a four-year institution, indicating that the transfer process acts as a strong screening mechanism, so that only the most academically capable and motivated community college students managed to

transfer to a four-year institution. While the analysis revealed comparable baccalaureate attainment by community college vertical-transfer and university-only four-year students, vertical-transfer students had lower earnings eight years after college entry. Subsequent analyses by Xu et. al. (2018) examined possible mechanisms for this labour market penalty and suggested that the penalty could be partly attributed to a delayed entry into the labor market as a result of credit loss at the point of transfer.

Xu, Solanki & Harlow (2018) reviewed studies that have examined the impact of beginning one's post-secondary study experience at a two-year college on academic outcomes and generally concluded that there was a negative association between two-year college entry and the probability of obtaining a baccalaureate- even among students with a clear intent to earn a baccalaureate degree. They further point out that there are even fewer studies that identify the labour market outcomes for those students that initiate their post-secondary studies in two-year colleges. The researchers drew upon the Education Longitudinal Study of 2002 (a nationally representative study of students in 10th grade in 2002 and 12th grade in 2004) to investigate the impact on labour market outcomes of initiating post-secondary studies at two-year colleges. Given the profound compositional variation in the undergraduate body, the researchers sought to identify the heterogeneous effects on different groups of students that began their studies in two-year colleges. Using a propensity score matching strategy, Xu, Solanki & Harlow (2018) found that a two-year college pathway substantially reduced students' likelihood of earning a baccalaureate. In terms of labor market outcomes, estimates were generally negative. However, these estimated negative effects were substantially smaller after the researchers introduced controls for baseline differences between the two-year college and four-year institution entrants.

Further, the negative effects were no longer significant in the post-match sample (consisting only of baccalaureate aspirants who were at least somewhat likely to consider the two-year college pathway to a baccalaureate). The only exception was full-time employment for female students—female students who initiated at a two-year college program were less likely to be employed full-time (versus employed part-time or unemployed), compared to their four-year institution counterparts.

Witteveen & Attewell (2019) employed a large nationally representative dataset of college graduates to examine the correlates of vertical transfer on post-college labor market outcomes, noting first, that few studies have concentrated on the consequences that a vertical transfer has on post-college labor market outcomes, and second, that findings in earlier studies have been inconsistent. For example, one study reported an earnings penalty among graduates in Virginia, whereas a study of graduates in Texas reported a null finding. With this in mind, the researchers employed nationally-representative data from the National Survey of College Graduates of 2015 (consisting of 91,000 cases), a survey that was conducted by the National Science Foundation on a sample of bachelor's degree graduates (or higher) drawn from the American Community Survey (ACS). In this study, the researchers only included those who completed a BA among transfer and university-only four-year students. Furthermore, the researchers explored one important interaction based on research conducted by Hilmer (1997), who demonstrated that earning returns to college major vary across graduates who took different routes toward their degrees. Using nationally-representative US data, Witteveen & Attewell (2019) reported a significant earnings disadvantage (a roughly 14% decrement annually) for college graduates who started their post-secondary studies in a two-year institution. However, they also found no effect

of vertical transfer on graduates' employment chances. In addition, further analysis revealed that the earnings disadvantage experienced by college graduates who started their studies at a two-year college could not be negated or avoided by choosing a particular (high-paying) major, including many STEM majors. The exception was physics and science-related majors (e.g., health), with no transfer effect being identified.

Study Rationale and Research Questions

As illustrated in the above literature review, there is a gap in the literature on the later-life outcomes of different types of post-secondary transfers. This is largely due to lack of data in Ontario (and Canada more generally) that allows for longitudinal analyses of educational outcomes. We are in a unique position to examine how different types of transfer are associated with different later-life work-related outcomes. The Class of '73 longitudinal study provides a rich data source containing an enormous number of demographic, social, cultural and attitudinal variables collected over 47 years.

To better understand the contribution this study will make in understanding student transfer and its impact on labour market outcomes, it is important that we distinguish between cross-sectional and longitudinal research designs. Generally, social scientists employ two types of design in developing empirical studies, cross-sectional and longitudinal, with the vast majority of research studies on student transfer employing cross-sectional designs. The defining feature of a cross-sectional study is that it can compare different population groups at a single point in time and allows researchers to compare many different variables at the same time. We could, for example, look at age, sex, race, income and educational level in relation to the ease with which students

transfer from college-to-university and/or locate employment after completing their studies. However, cross-sectional studies may not provide definite information about cause-and-effect relationships. While such studies offer a snapshot of a single moment in time; they do not consider what happens before or after the snapshot is taken. Longitudinal studies, in contrast, offer researchers an opportunity to analyze student transfer processes in detail and identify short and long- term labor market outcomes. In a longitudinal study, researchers conduct several observations of the same subjects over a period of time, sometimes lasting many years. As a result, researchers are able to detect developments or changes in the characteristics of the target population at both the group and the individual level. The key here is that longitudinal studies such as the Class of '73 extend beyond a single moment in time. As a result, they can establish sequences of events.

Approximately a decade ago, the Ontario government established the Ontario Council for Articulation and Transfer (ONCAT), an agency whose mandate is to support credit transfer and mobility of Ontario students. Since then, ONCAT has supported research, partnerships and projects to further the systematic capacity for student choice and opportunity (Lennon et. al., 2016). While ONCAT has supported a substantial number of research projects that improve our understanding of student mobility and student transfer, much more needs to be learned concerning the factors that facilitate the transfer of students among post-secondary institutions, particularly college-to-college and university-to-college transfer (Arnold & Woodhead (2015). Popovic (2012) indicates that Ontario's post-secondary education system was designed to be a binary system, one in which colleges and universities were developed as two separate sectors. This system is very different from other jurisdictions' PSE systems- that is, systems that are

typically developed around a traditional sending and receiving dichotomy where students take all or part of their first two years of study at a college (sending institution) and then move on to a research university (receiving institution) to complete their degrees. Though the Ontario post-secondary system was originally developed as a binary system, William Davis, the Education Minister at the time that Ontario's colleges were established, claimed that "no able and qualified student should be prevented from going on from a College of Applied Arts and Technology to a university" (cited in Kerr et. al., 2010:4; Deacock et. al., 2011:8). Be that as it may, it is not unusual for Ontario students who have completed two or three years at a community college to be granted less than a full year's academic credits when seeking to transfer to a university (Stewart & Martinello, 2012).

Many of the research studies on student transfer relate to factors impacting on the process of student transfer rather than predictive personal characteristics and later-life outcomes. Moreover, it is crucial that we evaluate the labour market outcomes (positive and negative) of transfer students, particularly if we are to develop policies and strategies that will enhance the academic pathways of vulnerable and marginalized students. How do transfer students compare to students that remain in one post-secondary institution throughout their PSE career, both in the short run and long term with respect to employment outcomes?

We will employ this data set to answer two research questions:

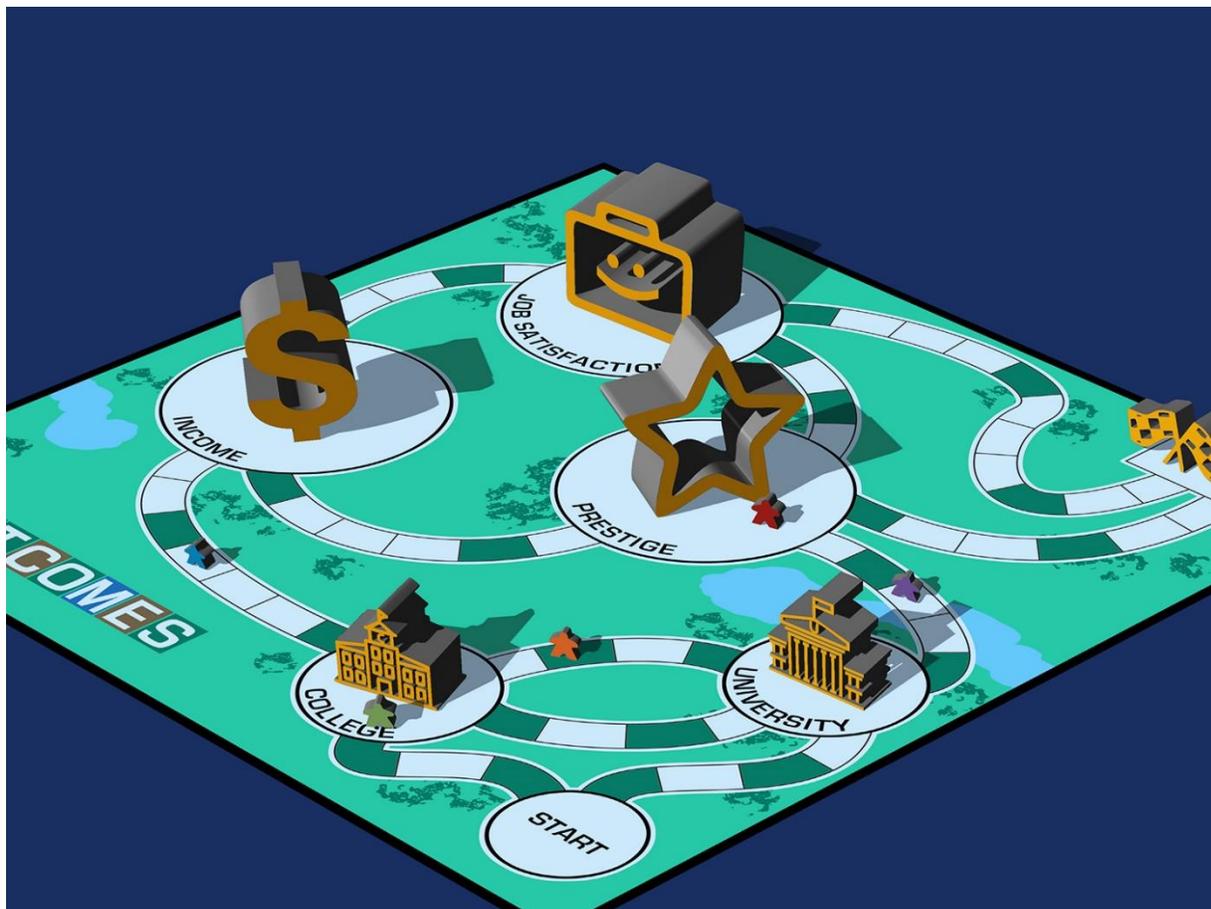
(1) did the characteristics of students that chose to transfer differ substantively with those that did not transfer over the course of the Class of '73 study; and

(2) did the short and longer-term labour force consequences of students that engaged in transfer differ substantively from those that did not transfer over the course of the Class of '73 study?

Given that postsecondary education (PSE) enrolment and student transfer among study participants occurred in the mid to late 1970s, these study findings will provide a benchmark for comparison with more recent studies and future studies that employ a longitudinal design.

The conceptual model displayed in Illustration 1 provides a visualization of the relationships that we are exploring between post-secondary pathways and later-life outcomes.

Illustration 1. Conceptual Model



Data and Methodology

The data collection began as a short-term study of high school students and their attitudes and behaviours with respect to educational plans in order to provide projection data for post-secondary enrolments to the Ministry of Colleges and Universities (MCU). With the assistance of the Survey Research Centre at York University, a sample survey of Ontario Grade 12 students was carried out in the spring of 1973. A total of 97 high schools from across Ontario agreed to participate, representing four types of communities: Metropolitan Toronto, other large and medium sized urban centers, smaller cities and the urban fringe around Toronto, and small towns and rural areas. A total of 2,555 usable questionnaire responses were obtained in what was subsequently designated as Phase I of the project. Over the next four decades, a total of five follow-ups were conducted with the same cohort, funded by MCU (Phases 1-5) and a Standard SSHRC grant (Phase 6). These follow-ups were conducted in the fall of 1973 (Phase 2, N=2156), fall of 1974 (Phase 3, N=2163), fall of 1979 (Phase 4, N=1522), summer of 1988 (Phase 5, N=1129), winter of 1994 (Phase 6, N=788), and fall of 2019 (Phase 7, N=280), effectively converting the project into a longitudinal study of education, work, and life pathways for a generation that has seen massive change in Canada's economy and society.

Our analysis relies on all seven waves of the Class of '73 dataset. The Class of '73 project began in the spring of 1973 with an initial sample of 2,555 Grade 12 students that were enrolled in 97 secondary schools across Ontario. This wave covered such topics as school performance, background, educational aspirations and plans for the future. Based on this wave of the longitudinal study, we identified key demographic characteristics of those included in this

analysis of student transfer. A second wave was conducted in the fall of 1973, consisting of 2,156 respondents, which followed up on students' plans stated in the previous survey and identified how their plans had changed in the short term. The third wave was conducted a year later in 1974. This wave yielded a sample of 2,163 respondents, and identified mostly "direct entry" students who attended post-secondary institutions directly out of high school. It also compared their earlier career aspirations with their actual employment. Five years after conducting the original survey, a fourth wave of data was collected from a sample of 1,522 respondents. By this time many respondents had completed post-secondary education, and/or had transferred to other post-secondary institutions since the previous wave. This fourth wave explored the educational pathways and labour market outcomes of respondents and assessed how these varied based on background characteristics, including sex, region and socioeconomic status. The fifth wave of data was collected from a sample of 1,129 respondents and consisted of a simple update of information about education and occupation as well as marital status and children. In early 1995, the sixth wave of data was collected from 788 respondents. It greatly expanded upon the previous surveys to cover such topics as school to work transitions, marriage, children, education, career attainment, and work satisfaction. The seventh and final wave of data was collected in 2019, consisting of a sample of 280 respondents. This wave expands on previous waves, covering such topics as grandchildren, health, plans for retirement and retirement planning/experiences.

Dependent Variables

Our analysis of student transfer primarily relies on data from waves 2, 3, 4, 5, and 6 (the analysis of income includes wave 7). A particularly strong feature of this longitudinal data set is its attention to detail with respect to information collected on students' post-secondary enrollments.

The data contain information about the type of institution in which respondents enrolled as well as their educational attainment up to that point.

The first step in preparing the data for an analysis of student transfer is to identify what kind of education each respondent had achieved both in terms of credential attainment and attendance. In every wave from 2 through 6, each respondent is classified as ‘College or Equivalent’, ‘University’, ‘College and University’, or ‘No Post-secondary’ based on their attainment to date and current attendance.

Between Wave Transfers: Our first transfer variable(s) identify those respondents who experienced a change in the above classification between each pair of waves; 2 to 3, 3 to 4, 4 to 5, and 5 to 6. This produces a second classification for each pair of waves that includes the categories: ‘CAAT only’, ‘University only’, ‘Transfer CAAT to Univ’, ‘Transfer Univ to CAAT’, ‘Transfer other’, and ‘No Post-Sec’. Most categories are self-explanatory. However, ‘Transfer other’ refers to individuals who transferred in a direction that we cannot identify or clearly classify. An example would be respondents that are classified as having ‘No post-secondary’ in one wave and then being classified as attending ‘College and University’ in a subsequent wave.

Total Transfer: This variable is a summary of each individual’s experience with transfer across all waves from 2 through 6. Each category in this variable classifies each respondent into one of the four between wave transfer types if they experienced that form of transfer at least once in any of the pairs of waves.¹

¹ There were two respondents who experienced both types of transfer in different pairs of waves. These were classified as Transfer others in the Total transfer variable.

Blishen (Occupational Status): Blishen scores are a socioeconomic index for occupations created by Bernard Blishen based primarily on education and income.² Blishen values have been added to the Class of '73 data in waves 3, 4, 5, and 6 by linking the values to detailed occupation identifiers found in each of these waves. One thing to note is that the Blishen scale has not been updated since 1981 so it is possible that the status of certain occupations has changed since then. This may result in some of the Blishen index values being slightly inaccurate, particularly, the values in wave 6 (1994). However, these inaccuracies are relatively minor and should not impact the validity of our analysis.

Income: Income is included as an ordinal variable in the Class of '73 data for waves 4, 6, and 7. In each wave it is coded with slightly different categories. This required some minor recodes so that the dollar values associated with each category matched across all three waves. These recodes result in a 14-category ordinal variable where the bottom category includes those with no income, the next two categories include a span of \$5,000 each from \$0 to \$10,000, and the remaining categories correspond to a \$20,000 range of values from \$10,000 to \$300,000 and up.

Job Satisfaction: Job satisfaction is measured in waves 3, 4, 6, and 7 (1974, 1978, 1995, and 2019 respectively). It is measured using a 5 category Likert scale using the categories 'very dissatisfied', 'somewhat satisfied', 'neither satisfied nor dissatisfied', 'somewhat satisfied', and 'very satisfied'.

² See Blishen, Carroll, and Moore (1987) "The 1981 socioeconomic index for occupations in Canada" for more details.

Independent Variables

Our analysis employs three socio-demographic variables as primary independent variables.

These are drawn from wave 1 of the Class of '73 data.

Sex: This is a simple binary variable consisting of male and female and was not altered for this analysis.

Socio-economic status: Socio-economic status, for our analysis, specifically refers to the status of the respondent's family in 1973 (wave 1) and consists of a four- item scale variable which summarizes the respondent's socio-economic status based on their mother's and father's education, and occupational status (Blisshen Score) as well as parents' combined income. The scale categorizes respondents into high, medium high, medium low, and low SES. For this analysis the two medium categories were collapsed resulting in a three-item scale of high, medium, and low SES.

Region: Region is a four-category variable that describes what kind of rural or urban setting a respondent lived in when the survey was first conducted in 1973. The categories include Big City (referring specifically to the GTA), Small city (i.e., Hamilton, Ottawa), Town, and Smaller Area (mostly rural settings).

Grades in Grade 12: Grades is a five-category ordinal variable based on the question of what final grades respondents expected to obtain (in wave 1). The bottom and top two categories were collapsed to produce a three-category version of the variable consisting of "Mostly under 60%", "Mostly 60 to 69%", and "Mostly 70% or higher".

Analytic Strategy

Our analysis consists of three components. The first is an exploration of descriptive statistics intended to introduce the reader to the key characteristics of our sample. The second is a bivariate analysis of ‘between wave’ transfer and ‘total’ transfer, which will provide a description of the prevalence of different kinds of transfer among respondents participating in waves 1 through 6. This analysis will provide us with a basic impression of how certain background characteristics (e.g., sex, SES) relate to the experience of student transfer. Finally, we conduct a multivariate analysis in two parts. In part one, we use multinomial logit models of ‘between’ wave and ‘total’ transfer with our socio-demographic variables as independent predictors. These models allow us to analyze the extent to which certain background characteristics affect the probability of an individual transferring between types of post-secondary education (i.e., are women more likely to transfer than men). These models are also useful in that they allow us to control for the effect of other variables included in the model. This, for example, allows us to rule out the possibility that a difference in the probability of transferring between those with high grades versus those with low grades is actually due to a difference in SES that itself, is correlated with grades. The assessment of the actual effect of grades in these models is estimated by holding the effect of SES constant. The second part of our multivariate analysis employs growth curve models to describe how certain labour market outcomes like income and occupational status change over time in our sample, and to explain how the pattern of change differs in relation to our independent variables.

Descriptive Statistics

Transfer: Table 1 reveals that, all together, transfers made up only 24% of the total of educational pathways across waves 2 to 6, indicating that transfer students comprised a minority

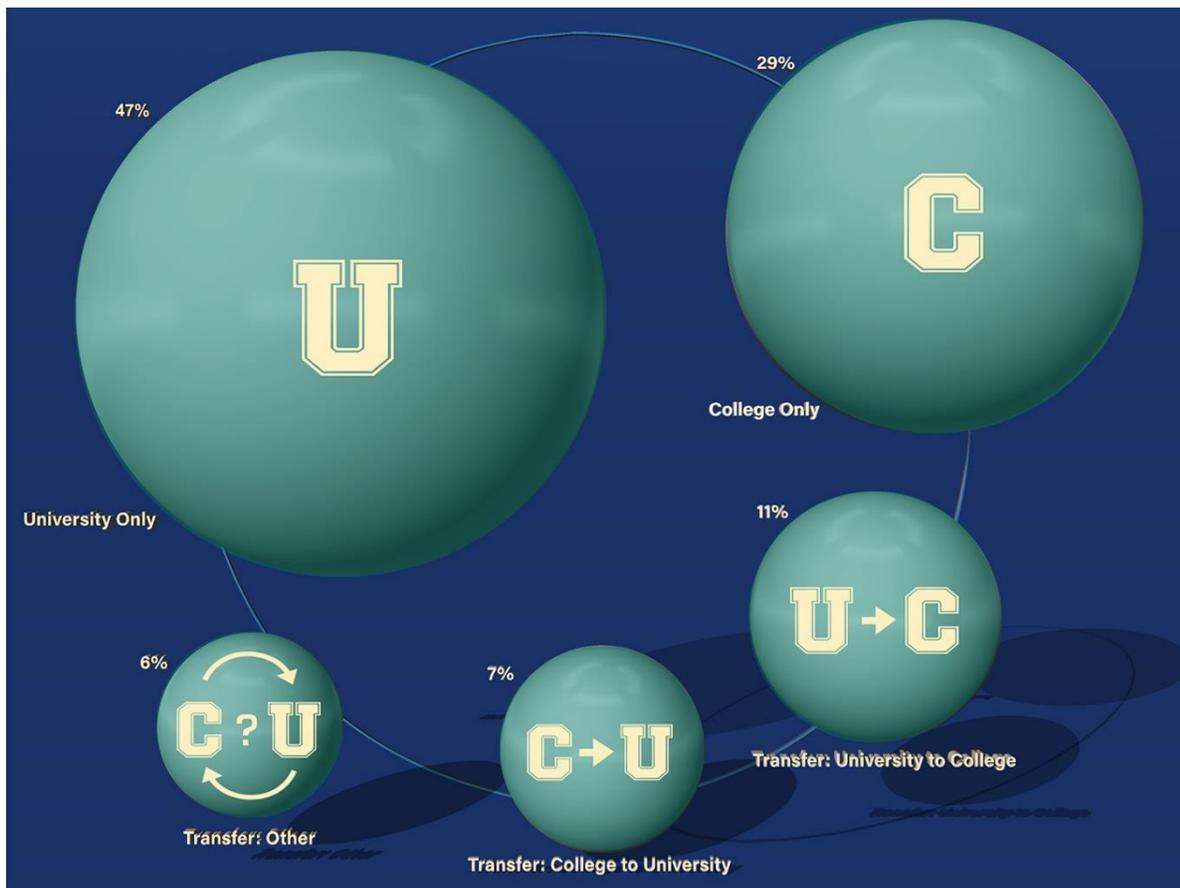
of all respondents in our sample. Within this small minority, it is also clear that University to CAAT transfers are the most common type of transfer overall.

Table 1: Frequency and Percent of Total Transfers

| | # | % |
|------------------------------|-----|------|
| CAAT only | 223 | 29% |
| University Only | 367 | 47% |
| Transfer CAAT to Univ | 55 | 7% |
| Transfer Univ to CAAT | 86 | 11% |
| Transfer Other | 45 | 6% |
| Total | 776 | 100% |

The results from Table 1 are also displayed as in Illustration 2 to assist the reader with understanding the breakdown of transfer-types in our data.

Illustration 2 Breakdown of Transfer Types in the Data



Looking at Table 2, we can see that all together transfers make up at most 28% of all those with post-secondary education and this occurred in wave 4 to 5 which would have been between 1978 and 1987-88. This is the longest period of time between two waves (excluding wave 6 to 7) which partially explains why these transfer numbers are the highest. In addition, this is also the time period when members of the Class of '73 most actively pursued their PSE and were, as a consequence, most likely to transfer. Conversely, it is clear from the lack of transfers in the first pair of waves, that a mere half year to a year after the initial survey was conducted in 1973 was too short a time for most members to have transferred. While we should keep in mind the effects of sample attrition when looking at between wave transfers, these numbers suggest that transfer occurred predominantly later in the life course. In contrast, those that persisted in University or CAAT appeared to do so earlier (though it is possible that those that transferred were more likely to drop out of the study).

Table 2: Frequency and Percent by Post-secondary Education

| Type | Wave 2 to 3 | | Wave 3 to 4 | | Wave 4 to 5 | | Wave 5 to 6 | |
|------------------------------|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|----------|
| | # | % | # | % | # | % | # | % |
| CAAT only | 503 | 44% | 501 | 39% | 66 | 24% | 101 | 42% |
| University Only | 640 | 56% | 662 | 51% | 132 | 48% | 96 | 40% |
| Transfer CAAT to Univ | 6 | 1% | 31 | 2% | 20 | 7% | 3 | 1% |
| Transfer Univ to CAAT | 0 | 0% | 62 | 5% | 28 | 10% | 2 | 1% |
| Transfer Other* | 0 | 0% | 38 | 3% | 29 | 11% | 39 | 16% |
| Total | 1149 | 100% | 1294 | 100% | 275 | 100% | 241 | 100% |

*Note: Transfer Other refers to transfers for which we do not know the direction of transfer

Independent Variables: Our sample consists of 691 males and 720 females out of a total of 1411 (the number of people who are non-missing for each education variable in each wave from 1 through 6). This equates to 49% and 51% respectively and indicates that our sample has remained balanced by sex over the six waves of data used in this analysis. Looking at Table 3

we can see the distribution of our sample in terms of socio-economic status. Our sample is predominantly middle class with 46% in the medium category, while the remaining portion is fairly evenly distributed between high and low, with high being a slightly larger percentage. Overall, it appears that our sample is somewhat balanced in its distribution by SES, and the size of the medium group may reflect the fact that two categories were collapsed to form it.

Table 3: Socioeconomic Status-Frequency and Percent

| | # | % |
|---------------|------|------|
| Low | 326 | 23% |
| Medium | 652 | 46% |
| High | 433 | 31% |
| Total | 1411 | 100% |

The distribution of grades however, clearly favours the higher end of the scale. Over 50% of the sample reported grades in Grade 12 of 70% or higher, while 40% reported 60% to 69% and only 9% appeared in the under 60% group. This suggests that our surviving sample consists predominantly of those with high academic ability, though it could also reflect a self-reporting bias.

Table 4: Grades-Frequency and Percent

| | # | % |
|-----------------------------|------|------|
| Mostly under 60% | 127 | 9% |
| Mostly 60 to 69% | 561 | 40% |
| Mostly 70% or Higher | 723 | 51% |
| Total | 1411 | 100% |

Finally, in terms of where members of our sample reported living while attending secondary schools in 1973, this appears to be remarkably evenly distributed across the four regional categories. Each region type represents close to one quarter of the sample, with those having resided in rural areas being slightly higher than the other regional categories. This indicates that

our sample consists of a relatively even distribution of respondents in terms of the type of community they lived in while attending secondary schools in Ontario.

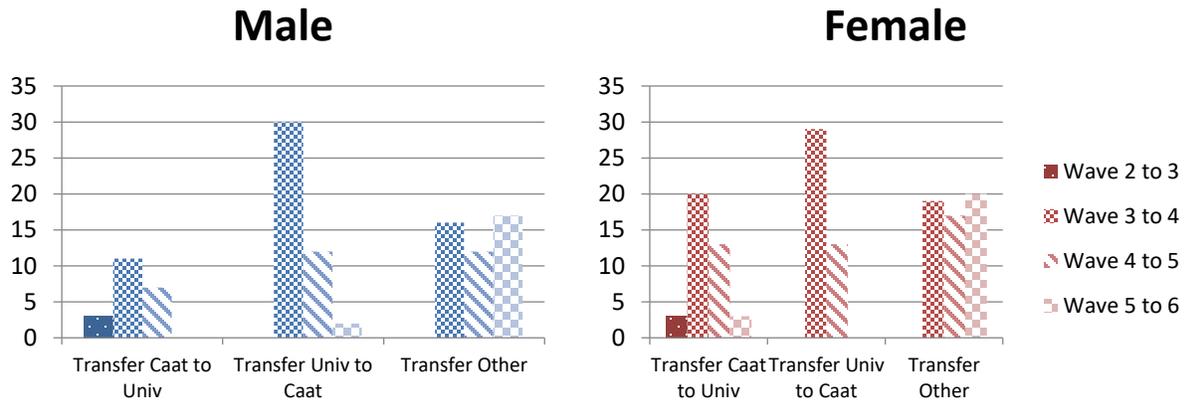
| | # | % |
|---------------------------|------|------|
| Big City (Toronto) | 320 | 23% |
| Small City | 322 | 23% |
| Town | 358 | 25% |
| Smaller Area/Rural | 411 | 29% |
| Total | 1411 | 100% |

Bivariate Analysis

Sex: Overall, differences in post-secondary education by sex are limited. Women appeared to transfer in larger numbers across all waves of the study during their postsecondary careers.

Figure 1 shows that, with respect to the first three pairs of waves, there are limited sex differences in between wave transfers. However, women modestly outnumbered men in all of the transfer categories especially in CAAT to University. This suggests that the women in our cohort study commonly appeared to take a different path into university than men--namely by transferring from CAAT to University. By the final pair of waves, the number of transfers dropped significantly and sex differences became trivial. However, men continued to outnumber women, suggesting that men in this cohort continued to acquire education later in life in larger numbers than women.

Figure 1-Between Wave Transfers by Sex



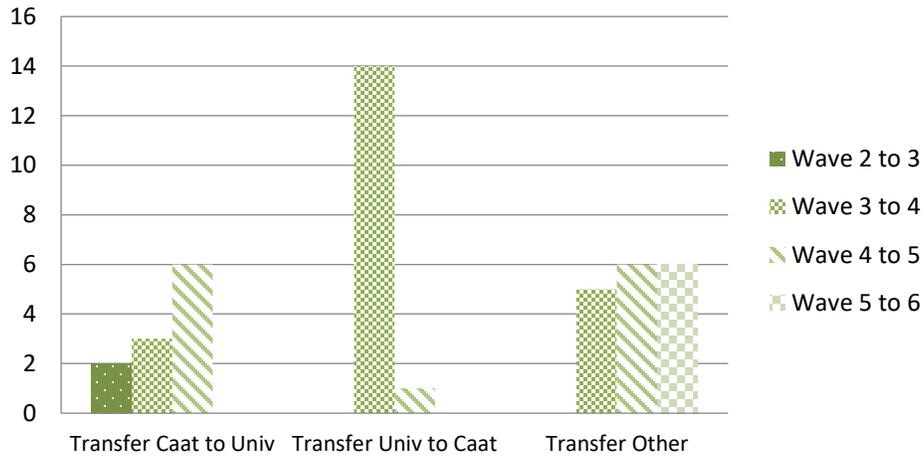
An examination of total transfers in Table 6 reveals that when all of the waves are combined, it serves to conceal some of the sex differences we noted when examining the different pairs of waves. While women did still outnumber men in total transfers, these data suggest that many of the sex differences observed are dependent on time.

Table 6: Total Transfers Among Men and Women

| | Male | | Female | | Total |
|------------------------------|------|------|--------|------|-------|
| | # | % | # | % | |
| CAAT only | 79 | 23% | 128 | 32% | 207 |
| University Only | 191 | 55% | 170 | 43% | 361 |
| Transfer CAAT to Univ | 21 | 6% | 34 | 9% | 55 |
| Transfer Univ to CAAT | 43 | 12% | 37 | 9% | 80 |
| Transfer Other | 16 | 5% | 26 | 7% | 42 |
| Total | 350 | 100% | 395 | 100% | 745 |

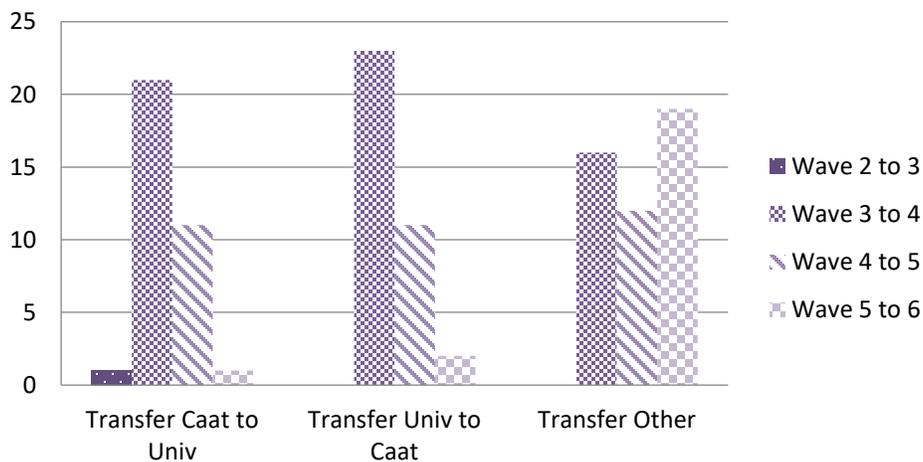
Socio-economic Status: Beginning with between wave transfers, those of high SES were less likely to attend a CAAT or to transfer across different types of PSE institutions; this pattern persisted through all waves.

Figure 2: Between Wave Transfers: Low SES



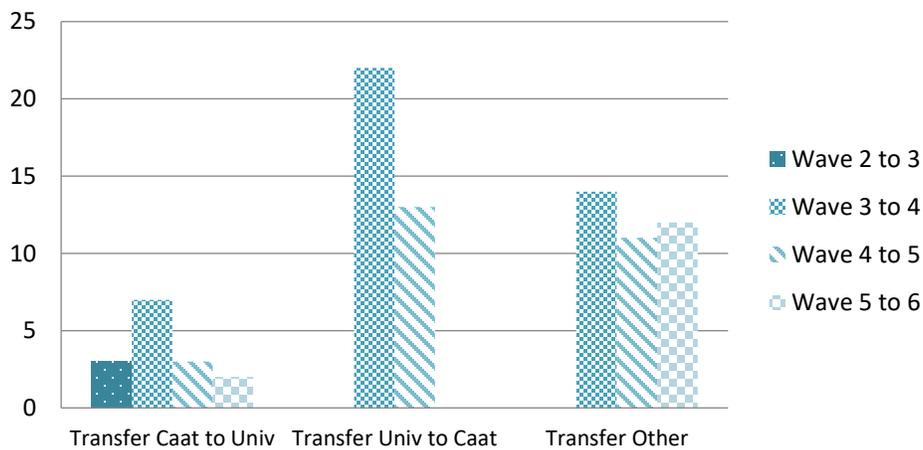
Transfers rarely occurred among all SES groups in the first set of waves. However, by wave 3 to 4 there appeared to be spikes in University to CAAT transfers in each SES group. This pattern became inverted by wave 4 to 5 for those in the low SES group (Figure 2), indicating that low SES individuals were transferring less from University to CAAT and also not transferring out of university later in their life course. It seems likely that low SES individuals acquired their PSE shortly after high school and did not choose to pursue further education later in their life course.

Figure 3: Between Wave Transfers: Medium SES



Among the medium SES group (Figure 3), the distribution of respondents remains even across transfer types until wave 5 to 6 when almost all of those who transferred are classified as ‘other transfers’.

Figure 4: Between Wave Transfers: High SES



Meanwhile the high SES (Figure 4) group shared the spike in University to CAAT transfers in wave 3 to 4 that we noted for the low SES group; this pattern persisted into wave 4 to 5. Finally, in wave 5 to 6 the high SES group consisted mostly of other transfers. Overall, it is clear that there is a decline in transfers over time that appears mostly unrelated to SES (the only exception being that transfers in the low SES group appear to decline earlier). Additionally, an unexpected slightly higher percentage of transfers appears to occur in the two higher SES groups. This may reflect a general tendency among those from higher SES backgrounds towards more educational attainment in general in both transfer and non-transfer pathways.

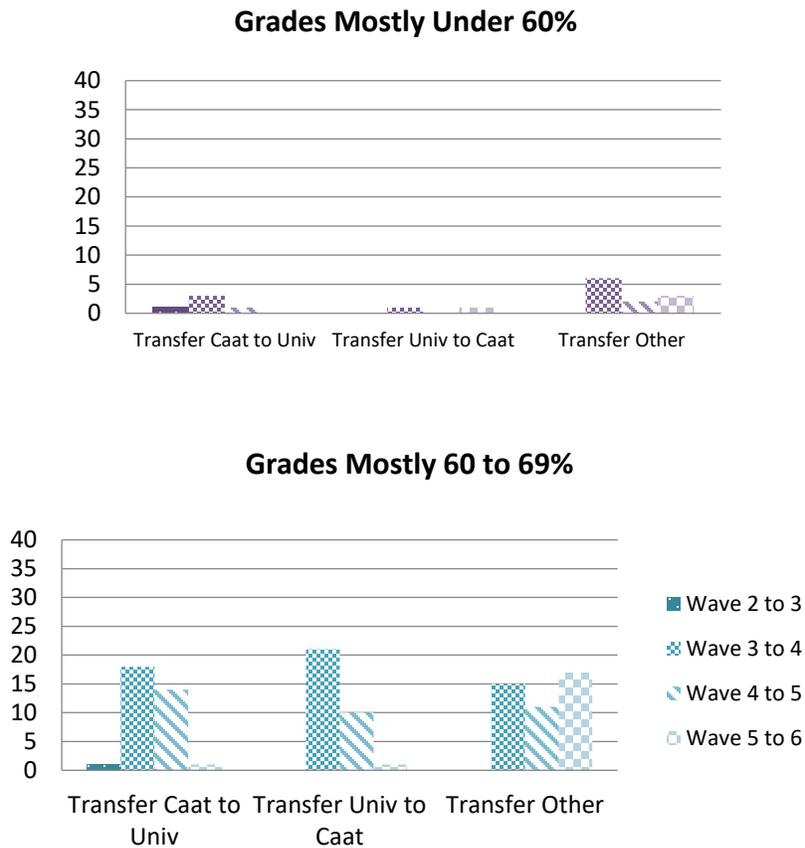
In the case of total transfers (Table 7), the collapsing of the different waves reinforces the conclusion that transfer is somewhat more common within the higher SES groups. Also, of those respondents that transferred in the low SES group, a large portion transferred out of university. Also, it is clear that there are very few differences overall between medium and high SES groups in terms of the distribution of transfer students.

Table 7: Total Transfers by Socioeconomic Status (in grade 12)

| | Low SES | | Medium SES | | High SES | | Total |
|------------------------------|---------|------|------------|------|----------|------|-------|
| | # | % | # | % | # | % | |
| CAAT only | 55 | 38% | 114 | 34% | 38 | 14% | 207 |
| University Only | 59 | 41% | 133 | 40% | 169 | 63% | 361 |
| Transfer CAAT to Univ | 11 | 8% | 32 | 10% | 12 | 4% | 55 |
| Transfer Univ to CAAT | 15 | 10% | 33 | 10% | 32 | 12% | 80 |
| Transfer Other | 5 | 3% | 20 | 6% | 17 | 6% | 42 |
| Total | 145 | 100% | 332 | 100% | 268 | 100% | 745 |

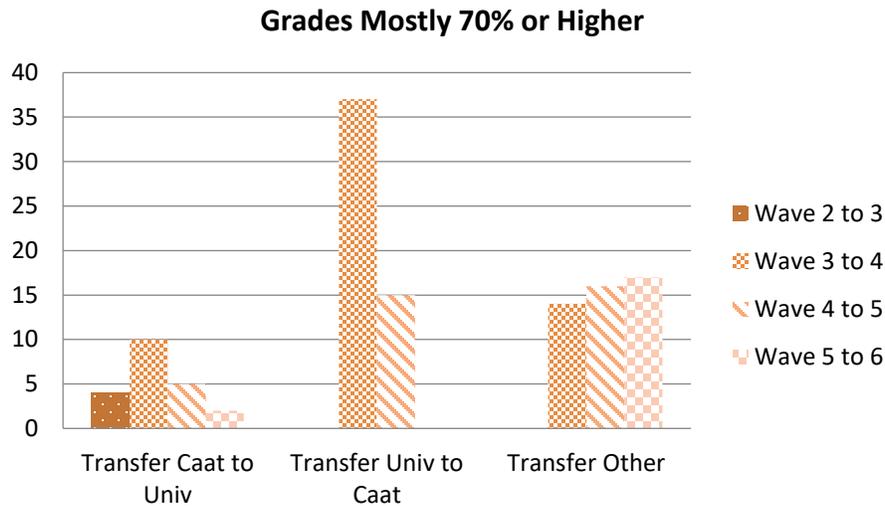
Grades: Beginning with the under 60% group, transfers were very uncommon across all pairs of waves in this group, totalling less than 20 individuals across all four groups. Looking at the 60% to 69% group (Figure 5) it is clear that most of the transfers occurred between the 3 to 4 and 4 to 5 waves but differences in the type of transfer are minimal at this time, with each category being within a few percentage points. By wave 5 to 6 transfers were more limited, and appear in the total transfer category almost exclusively.

Figure 5-1 Between Wave Transfers by Grades in High School



Within the 70% or higher group (Figure 6), transfers were less common as a percentage of that group. It is noteworthy that there were very few CAAT to University transfers in this group in any of the waves. Most of the transfers are other transfers or University to CAAT (except for wave 5 to 6 which is almost exclusively other). These differences likely reflect a difference in the kind of institution to which higher performing students applied to right out of high school.

Figure 5-2: Between Wave Transfers by Grades in High School



Looking at the total transfers displayed in Table 8, we can see that there does appear a pattern between grades and transfer. Among those with lower grades, transfers were predominantly other or CAAT to University (though with notably smaller overall numbers). Among those in the 60% to 69% group, transfers are more evenly distributed between CAAT to University and University to CAAT. This indicates that those with average grades in high school experienced more varied post-secondary educational outcomes. Finally, among those with the highest grades, transfers were predominantly from University to CAAT. This reinforces our conclusion that those with academic ability appear more likely to transfer out of university compared to other transfer types, which we note is contrary to extant literature on this topic. This suggests that those with academic ability are put on an academic track and are encouraged or expected to enter university. However, among those with high grades that enrol in university, some subsequently decide to transfer to college.

Table 8: Total Transfers by Grades (in Grade 12)

| | Mostly Under 60% | | Mostly 60 to 69% | | Mostly 70% or Higher | | Total |
|------------------------------|------------------|------|------------------|------|----------------------|------|-------|
| | # | % | # | % | # | % | |
| CAAT only | 22 | 55% | 99 | 36% | 86 | 20% | 207 |
| University Only | 5 | 13% | 92 | 34% | 264 | 61% | 361 |
| Transfer CAAT to Univ | 5 | 13% | 33 | 12% | 17 | 4% | 55 |
| Transfer Univ to CAAT | 2 | 5% | 30 | 11% | 48 | 11% | 80 |
| Transfer Other | 6 | 15% | 18 | 7% | 18 | 4% | 42 |
| Total | 40 | 100% | 272 | 100% | 433 | 100% | 745 |

Region³: Based on the data in Table 9 we can see that there are only minimal differences in the distribution of transfer types across most regions in Ontario. In Toronto, small cities, and towns, the most common transfer was university to CAAT. Meanwhile CAAT to University and University to CAAT were evenly distributed within rural areas of the province. This may reflect an underlying association between region and socio-economic status, or perhaps a slight difference in cultural attitudes, priorities, or expectations.

Table 9: Total Transfers by Region (in Grade 12)

| | Big City (Toronto) | | Small City | | Town | | Smaller Area/Rural | | Total |
|------------------------------|--------------------|------|------------|------|------|------|--------------------|------|-------|
| | # | % | # | % | # | % | # | % | |
| CAAT only | 35 | 22% | 43 | 24% | 52 | 26% | 77 | 37% | 207 |
| University Only | 87 | 55% | 89 | 49% | 106 | 53% | 79 | 38% | 361 |
| Transfer CAAT to Univ | 10 | 6% | 16 | 9% | 7 | 4% | 22 | 11% | 55 |
| Transfer Univ to CAAT | 17 | 11% | 23 | 13% | 20 | 10% | 20 | 10% | 80 |
| Transfer Other | 9 | 6% | 9 | 5% | 14 | 7% | 10 | 5% | 42 |
| Total | 158 | 100% | 180 | 100% | 199 | 100% | 208 | 100% | 745 |

³ Between wave transfers are not included due to a lack of differences in the distribution of transfers across region types.

Multivariate Models

We now move on to multivariate analyses of the association between transfers and later-life employment outcomes. While the bivariate analyses above can give us insight into relationships between two variables, in multivariate analyses we can examine such relationships while accounting for the effects of other variables in the model. In other words, we can avoid overstating the association between transfers and our later-life outcomes of interest because we also account for other characteristics in the models. We use both multinomial logistic regression and growth curve models to explore our hypotheses.

Multinomial Logistic Regression

One of our research questions concerned the characteristics of individuals who transferred. The use of a multivariate model allows us to analyse this question and measure how background characteristics shape educational experiences while controlling for the influence of other characteristics that also shape those experiences. In this analysis, our outcome (or dependent) variable (type of transfer) is a non-ordered categorical variable. In order to regress this outcome on a set of independent variables we need to use a multinomial logit model which will estimate a set of coefficients which correspond to each outcome. However, these coefficients can only be estimated relative to a base category in the dependent variable, in this case, University only. The coefficients estimated in the model measure the change in the probability of one outcome relative to the base group⁴, giving us a ratio consisting of the probability of outcome-2 relative to the base category of 1. This is commonly called a relative risk ratio. These estimated coefficients

⁴ The coefficients are displayed in exponent form, so a relative risk ratio takes the following form: $e^{X\beta(2)} = \frac{\Pr(y=2)}{\Pr(y=1)}$

also allow us to estimate a simple probability⁵ for each outcome and it is these probabilities that we have used in graphs to describe the results of our multinomial models.

Results

The results of the multinomial logistic regression predicting transfer type is reported in Table 10 and visualized in Illustration 3. For transfer from college-to-university, we found that females were more likely to report this type of transfer, that high SES individuals were less likely to report this type of transfer, and that those with higher grades were less likely to report this type of transfer. Admittedly confusing, multinomial logits with categorical variables are always interpreted relative to the omitted category on the dependent variable (university-only attendance) and the reference categories of their independent variables. In terms of transfer from university-to-college, we find no sex or SES effects, but a negative odds ratio associated with high grades (relative to average grades). Thus, in both types of transfer, we see that having high grades in high school were less likely to be associated with a postsecondary transfer. We see this also with the less clear “transfer other” group, where being female and having lower grades is again associated with this category, relative to being in a university-only pathway, although we must be cautious with interpretation as we do not know the direction of transfer.

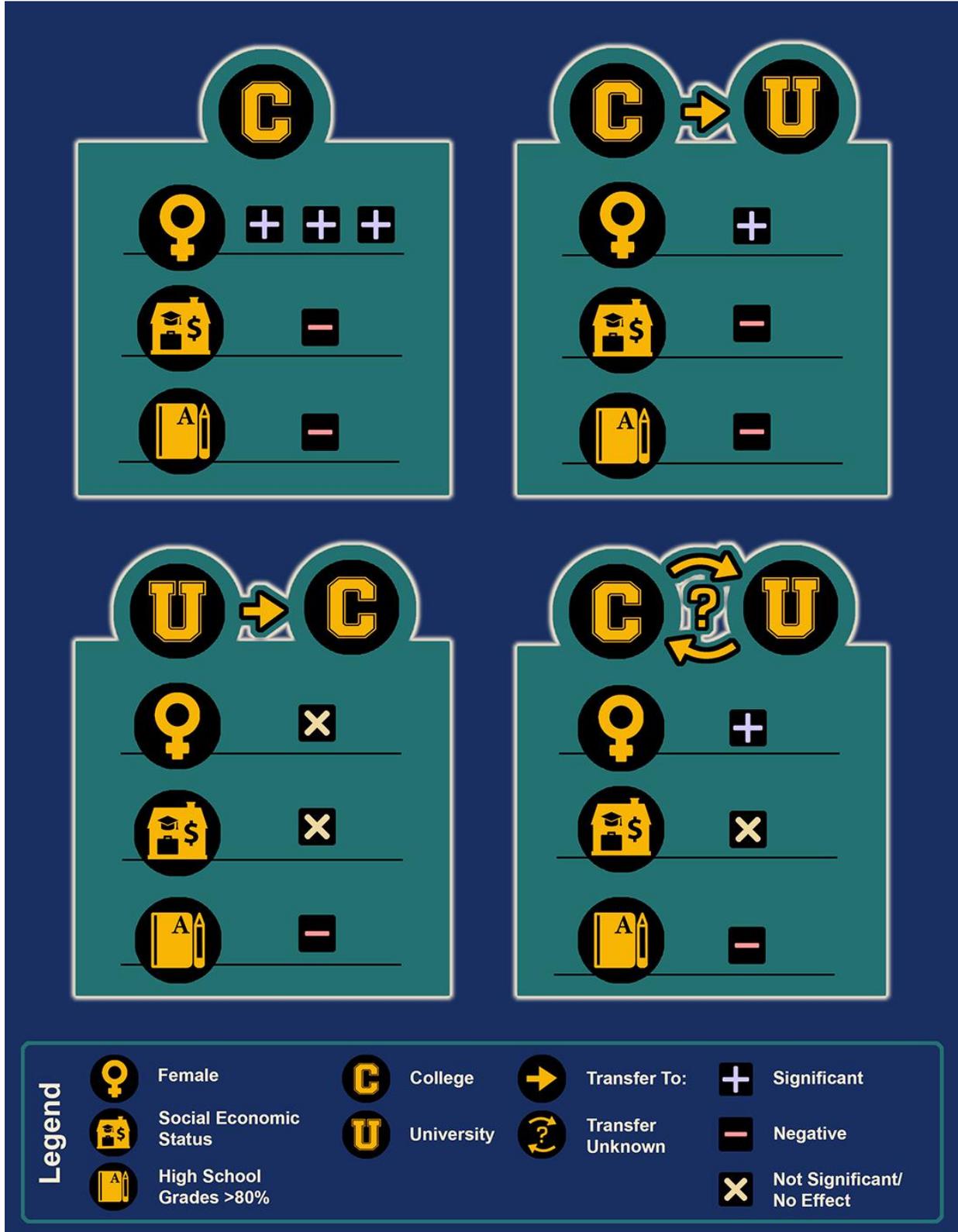
⁵ The coefficients in the multinomial model are also used in the following equation to estimate the probability of each

$$\text{outcome: } \Pr(y=1) = \frac{1}{1+e^{X\beta(2)}+e^{X\beta(3)}}$$

Table 10: Type of Transfer Multinomial Model Logistic Regression (Base Category: University Only)

| | Exp(B) | SE |
|--|----------|---------|
| CAAT Only | | |
| Female | 2.516*** | (0.504) |
| SES: Low | 0.823 | (0.201) |
| SES: High | 0.227*** | (0.064) |
| Grades: Mostly 50-59% | 4.668** | (2.488) |
| Grades: Mostly 70-79% | 0.312*** | (0.067) |
| Grades: Mostly =>80% | 0.148*** | (0.049) |
| Constant | 1.231 | (0.323) |
| Transfer CAAT to Univ | | |
| Female | 2.756** | (0.890) |
| SES: Low | 1.062 | (0.429) |
| SES: High | 0.350* | (0.162) |
| Grades: Mostly 50-59% | 3.235 | (2.194) |
| Grades: Mostly 70-79% | 0.190*** | (0.067) |
| Grades: Mostly =>80% | 0.029*** | (0.030) |
| Constant | 0.306** | (0.130) |
| Transfer Univ to CAAT | | |
| Female | 1.085 | (0.275) |
| SES: Low | 0.928 | (0.327) |
| Sashing | 0.784 | (0.277) |
| Grades: Mostly 50-59% | 1.231 | (1.064) |
| Grades: Mostly 70-79% | 0.715 | (0.197) |
| Grades: Mostly =>80% | 0.241** | (0.108) |
| Constant | 0.364** | (0.132) |
| Transfer Other | | |
| Female | 2.506** | (0.881) |
| SES: Low | 1.600 | (0.851) |
| Sashing | 1.106 | (0.599) |
| Grades: Mostly 50-59% | 7.125** | (4.755) |
| Grades: Mostly 70-79% | 0.350** | (0.137) |
| Grades: Mostly =>80% | 0.254* | (0.136) |
| Constant | 0.098*** | (0.054) |
| N | 738 | |
| Note: base categories SES=Medium, Grades=Mostly 60-69% | | |
| * $p < 0.05$, ** $p < 0.001$, *** $p < 0.001$ | | |

Illustration 3. Predictors of Type of Transfer



Growth Curve Models

A second goal of our analysis is to explore how transfer affected labour market outcomes later in life. The Class of '73 dataset provided repeat measures of income and occupational status across multiple waves and these labour market outcome measures can be considered to be 'nested' inside individuals. This presents an opportunity to employ a type of hierarchical model to study the pattern and predictors of growth or change over time in these two variables.

A basic growth curve model consists of two 'levels', one that describes the pattern of change over time (i.e., linear or curvilinear). The second level of the model contains the characteristics of individuals that relate to growth in some way (i.e., men may experience faster growth in income than women). This kind of model has the advantage over other approaches in that it has the flexibility to deal with data that are unequally spaced in time or missing at different points in time across individuals (Raudenbush & Bryk, 2002; Snijders & Bosker, 1999).

The basic structure of a growth curve model is similar to other hierarchical models. The outcome, denoted as Y_{ti} , represents the observed value of the dependent variable for individual i at time t . Level one of the model consists of two sets of parameters⁶. One describes the overall average value of the dependent variable at time=0 and is equivalent to an intercept. The other is a representation of the rate and pattern of change in the dependent variable over time and this is equivalent to a slope.

⁶ One of the simplest forms that growth curve model can take is analogous to a simple random intercept model, structured as follows (Raudenbush & Bryk, 2002, pp. 162-163):

$$Y_{ti} = \pi_{0i} + \pi_{1i}a_{ti} + e_{ti},$$

Where a_{ti} represents time, π_{0i} is the intercept (or in this case the value of Y_{ti} at time=0), and π_{1i} represents the slope, or in this model, the rate of change in Y_{ti} over time, and in this case it is a simple linear effect.

Both of these parameters can vary between individuals as a function of individual characteristics; thus, we can try to explain variability in the ‘growth curve’ by including a variable in the 2nd level⁷ of the model. The coefficients at this level of the model describe differences in the ‘intercept’ or ‘slope’ as a function of the corresponding individual characteristic. So, the coefficient for sex represents the average difference in the dependent variable between men and women, effectively indicating that they have a different intercept/starting value of Y_{ti} . The coefficient for the interaction of sex and time however represents a difference in the rate of change in the dependent variable, that is, it represents a difference of slopes.

Using this model, we can describe how income and occupational status changes over time in our sample by specifying a_{ti} as a simple linear function (as it appears in this example) or it could be modelled as curvilinear (quadratic, cubic etc.). Secondly, we can describe how growth patterns differ based on individual characteristics like sex and SES (the X_{qi} in our example). Thus, the growth curve model presents a convenient and adaptable method for the analysis of longitudinal data like that of the Class of ’73.

Occupational Status (Blishen)

The first growth curve models we estimated were for occupational status and are displayed in

Table 11.

⁷ The second level of the model appears as follows:

$$\pi_{0i} = \beta_{00} + \sum \beta_{0q}X_{qi} + r_{0i}$$

The β_{00} in this equation represents the ‘grand’ intercept, that is, the overall average value of Y_{ti} at time=0. The $\beta_{0q}X_{qi}$ term represent the difference in the value of Y_{ti} at time=0 as a function of X_{qi} , so if X_{qi} were sex β_{0q} would describe the difference of average income or occupational status between men and women at time=0. Finally, the r_{0i} is an individual level error term and its variance describes any variation in the intercept (or Y_{ti} at time=0) that remains unexplained. These principles extend directly to the coefficient representing the rate of change or slope (π_1).

Table 11. Blishen Score Growth Curve Model

| | (1) | (2) | (3) | (4) | (5) | (6) |
|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Initial status | 47.511*** | 42.205*** | 40.359*** | 36.300*** | 37.204*** | 35.993*** |
| | (0.301) | (0.338) | (0.392) | (0.601) | (0.612) | (0.642) |
| CAAT only | | | | 3.229*** | 1.883* | 1.744 |
| | | | | (0.709) | (0.892) | (0.891) |
| University only | | | | 7.589*** | 4.058*** | 4.086*** |
| | | | | (0.702) | (0.910) | (0.908) |
| Transfer CAAT to Univ | | | | 2.046 | -1.505 | -1.650 |
| | | | | (1.366) | (1.791) | (1.789) |
| Transfer Univ to CAAT | | | | 4.628*** | -1.366 | -1.044 |
| | | | | (1.121) | (1.553) | (1.551) |
| Transfer other | | | | 1.365 | -0.152 | -0.290 |
| | | | | (1.424) | (1.887) | (1.883) |
| Female | | | | 3.136*** | 3.143*** | 5.524*** |
| | | | | (0.500) | (0.497) | (0.631) |
| Low SES | | | | -2.014*** | -2.010*** | -2.049*** |
| | | | | (0.581) | (0.577) | (0.573) |
| High SES | | | | 0.971 | 0.989 | 1.019 |
| | | | | (0.637) | (0.632) | (0.627) |
| Mostly under 60% | | | | -0.255 | -0.233 | -0.156 |
| | | | | (0.814) | (0.809) | (0.804) |
| Mostly 70% or Higher | | | | 1.677** | 1.711** | 1.700** |
| | | | | (0.544) | (0.540) | (0.537) |
| Time | | 0.574*** | 1.341*** | 1.246*** | 1.176*** | 1.336*** |
| | | (0.029) | (0.091) | (0.092) | (0.092) | (0.095) |
| CAAT only # time | | | | | 0.221** | 0.242** |
| | | | | | (0.077) | (0.076) |
| University only # time | | | | | 0.454*** | 0.445*** |
| | | | | | (0.071) | (0.070) |
| Transfer CAAT to Univ # time | | | | | 0.496*** | 0.522*** |
| | | | | | (0.148) | (0.147) |
| Transfer Univ to CAAT # time | | | | | 0.725*** | 0.672*** |
| | | | | | (0.122) | (0.121) |
| Transfer other # time | | | | | 0.238 | 0.261 |
| | | | | | (0.161) | (0.159) |
| Female # time | | | | | | -0.331*** |
| | | | | | | (0.054) |

| | | | | | | |
|---------------------|-----------|----------|-----------|-----------|-----------|-----------|
| time2 | | | -0.039*** | -0.036*** | -0.043*** | -0.043*** |
| | | | (0.004) | (0.004) | (0.004) | (0.004) |
| sd(time) | | 0.427*** | 0.442*** | 0.386*** | 0.368*** | 0.350*** |
| | | (0.030) | (0.029) | (0.029) | (0.028) | (0.029) |
| sd (within person) | 10.322*** | 8.971*** | 8.792*** | 8.917*** | 8.831*** | 8.817*** |
| | (0.166) | (0.164) | (0.161) | (0.161) | (0.157) | (0.156) |
| sd (initial status) | 7.622*** | 6.226*** | 6.150*** | 4.827*** | 4.870*** | 4.869*** |
| | (0.290) | (0.312) | (0.308) | (0.319) | (0.313) | (0.310) |
| Observations | 3008 | 3008 | 3008 | 3008 | 3008 | 3008 |

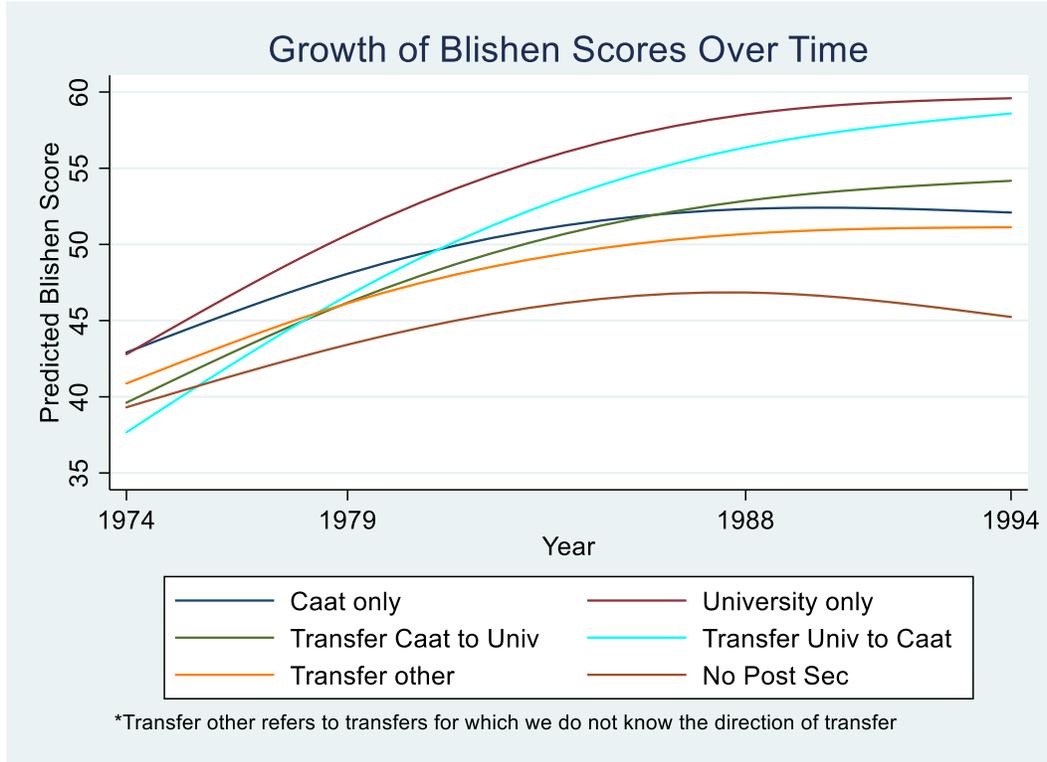
Standard errors in parentheses

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

While this table contains a lot of information, for the purposes of our research question, there are a few main findings that are particularly noteworthy. The main effects of type of educational trajectory all generally decrease over time. In terms of transferring from university to CAAT, we see an initial large effect, but this effect decreases over time. When we model this with time, we can see that the transfer from university to CAAT remains significant and positive over time, but that the effect diminishes.

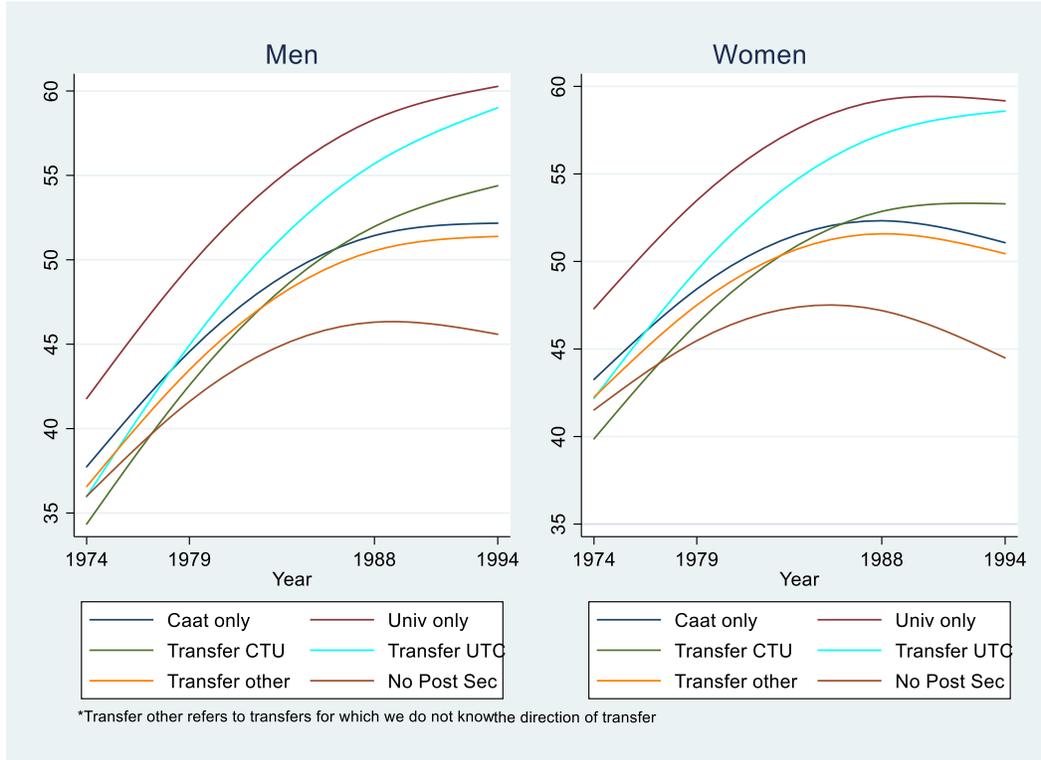
Illustrations are particularly useful for interpreting and simplifying the complex output produced in growth curve analysis. Figure 6 illustrates how the transfer from university to CAAT had an association with later-life Blisshen scores that was comparable to a university-only trajectory. In contrast, the pathway of CAAT to university also showed a positive growth over time, but demonstrated a gap in later life of around 5 Blisshen points compared to “reverse transfer” and university-only students. CAAT only rose quicker in earlier waves, but flattened by 1988.

Figure 6.



Because the main model illustrated in Table 11 also reported a statistically significant interaction of sex with time, we also provide contrasting Blishen graphs by sex to illustrate how transfer was associated with later-life occupational prestige for men and women. Figure 7 illustrates that although women tended to start higher on the occupational prestige score at Time 1, over time males caught up and had steeper rates of increase in their occupational prestige over time. In terms of transfer, there appeared to be somewhat higher rates of return for college-to-university transfer for males compared to females, although university-to-college returns appeared to be quite similar.

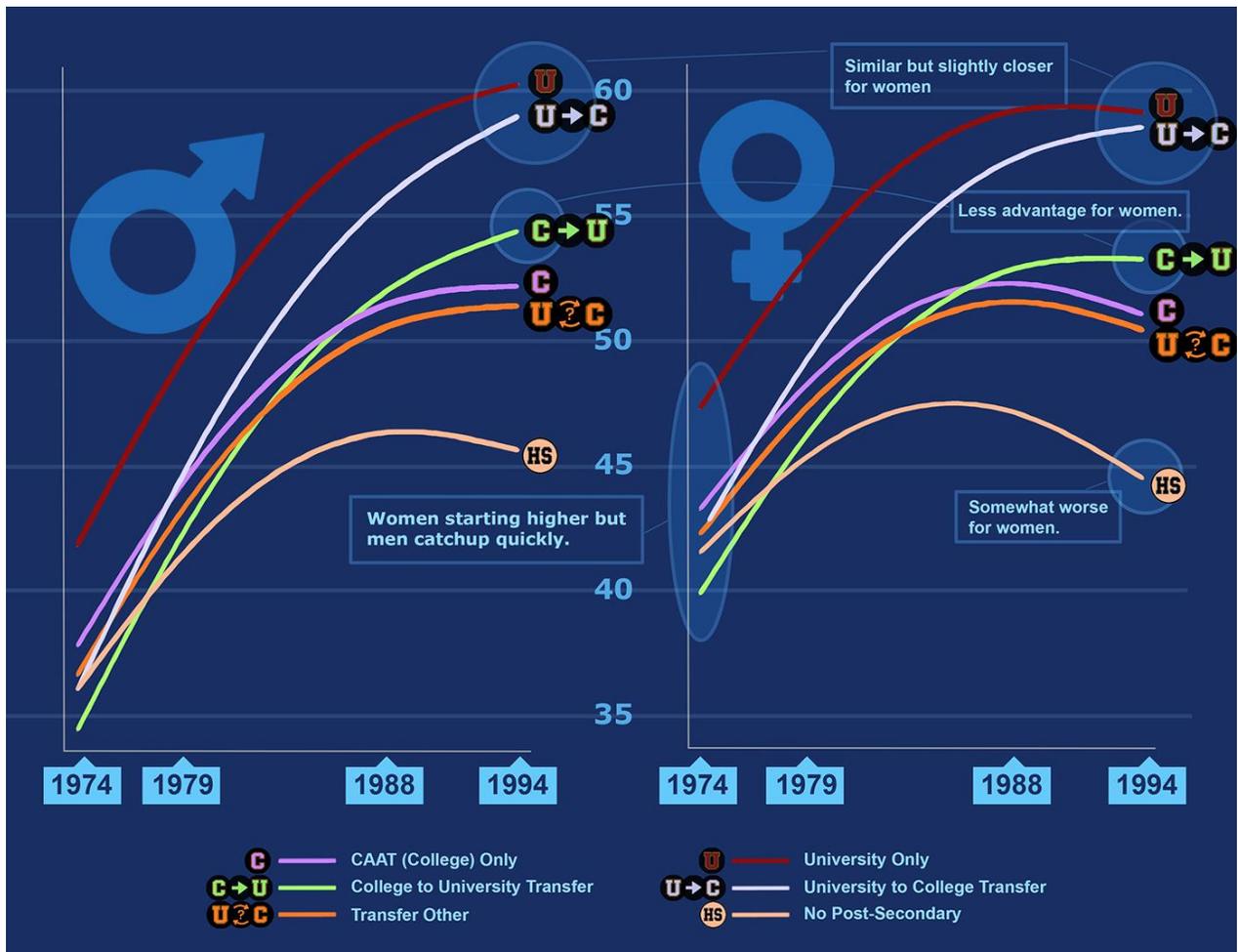
Figure 7. Growth of Blishen Scores over Time by Sex



We further simplify the results of the growth curve model predicting Blishen scores in Illustration 4, which highlights our key findings. In terms of the substantive meaning of Blishen scores, it is necessary to step back and consider the meaning of the Blishen scale. Originally crafted by Bernard Blishen using the 1951 census of occupations, he created rankings of occupations based on their income and average years of schooling (Goyder and Frank, 2008). Updated in 1981, Blishen, Carroll and Moore (1987) argued for an adjustment of the scores to account for gender, noting the problem of “female invisibility” in stratification research. Some examples of occupations that had scores of around 60 in 1981 include “official and Administrators unique to government”, “financial management occupations”, and “system analysts in computer programming.” The differences between occupations at 60 and, say, 58 (as illustrated in the above graph) are negligible. For instance, “mathematicians, statisticians and

actuaries” had a score of 61.91 while “teacher of exceptional students” received a 58.09. Thus, there is very little difference in the end points of the trajectories of university and the college-to-university transfer students in reference to their later-life occupational status. However, students with no post-secondary with scores in the low 40s would have jobs such as secretaries, banking clerks, or equipment operators. When the lines are quite close together, however (i.e. within 5 points of each other), there is arguably not much qualitative difference in terms of the “status” of the job. It is only gaps of around 10 or more where one would start to see considerable occupational differences with regard to status (which, is ostensibly, a composite measure of income and years of education).

Illustration 4 Blishen Scores by Sex



Income

Results for the income growth curve model are shown in Table 12. In terms of the effect of time on transfer type, we again observe that university-to-college transfer was statistically significant in the model.

Table 12. Income Growth Curve Model

| | (1) | (2) | (3) | (4) | (5) | (6) |
|-----------------------|----------|----------|----------|-----------|-----------|-----------|
| Initial status | 3.169*** | 2.241*** | 2.179*** | 2.576*** | 2.719*** | 2.642*** |
| | (0.046) | (0.036) | (0.038) | (0.077) | (0.078) | (0.079) |
| CAAT only | | | | 0.341*** | 0.337*** | 0.326*** |
| | | | | (0.086) | (0.095) | (0.094) |
| University only | | | | -0.059 | -0.418*** | -0.415*** |
| | | | | (0.081) | (0.088) | (0.087) |
| Transfer CAAT to Univ | | | | -0.197 | -0.306 | -0.333 |
| | | | | (0.158) | (0.177) | (0.175) |
| Transfer Univ to CAAT | | | | -0.136 | -0.459*** | -0.437** |
| | | | | (0.124) | (0.138) | (0.137) |
| Transfer other | | | | -0.281 | -0.241 | -0.269 |
| | | | | (0.183) | (0.208) | (0.205) |
| Female | | | | -0.698*** | -0.707*** | -0.556*** |
| | | | | (0.061) | (0.059) | (0.067) |
| Low SES | | | | -0.108 | -0.113 | -0.113 |
| | | | | (0.073) | (0.071) | (0.070) |
| High SES | | | | -0.113 | -0.107 | -0.109 |
| | | | | (0.077) | (0.074) | (0.074) |
| Mostly under 60% | | | | -0.032 | -0.035 | -0.035 |
| | | | | (0.105) | (0.102) | (0.101) |
| Mostly 70% or Higher | | | | 0.032 | 0.032 | 0.031 |
| | | | | (0.066) | (0.064) | (0.063) |
| time | | 0.085*** | 0.112*** | 0.112*** | 0.080*** | 0.097*** |
| | | (0.004) | (0.006) | (0.006) | (0.007) | (0.008) |
| CAAT only # time | | | | | 0.000 | 0.002 |
| | | | | | (0.010) | (0.010) |

| | | | | | | |
|----------------------------|----------|----------|-----------|-----------|-----------|-----------|
| University only # time | | | | | 0.080*** | 0.079*** |
| | | | | | (0.008) | (0.008) |
| Transfer CAAT to Univ # ti | | | | | 0.024 | 0.030 |
| | | | | | (0.018) | (0.018) |
| Transfer Univ to CAAT # ti | | | | | 0.071*** | 0.067*** |
| | | | | | (0.014) | (0.014) |
| Transfer other # time | | | | | -0.009 | -0.003 |
| | | | | | (0.022) | (0.022) |
| Female # time | | | | | | -0.032*** |
| | | | | | | (0.007) |
| time2 | | | -0.001*** | -0.001*** | -0.001*** | -0.001*** |
| | | | (0.000) | (0.000) | (0.000) | (0.000) |
| sd (time) | | 0.068*** | 0.067*** | 0.064*** | 0.059*** | 0.059*** |
| | | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) |
| sd (within person) | 1.720*** | 0.940 | 0.925* | 0.895*** | 0.877*** | 0.868*** |
| | (0.033) | (0.033) | (0.033) | (0.025) | (0.023) | (0.023) |
| sd (initial status) | 0.000*** | 0.188* | 0.227** | 0.000 | 0.000 | 0.000 |
| | (0.000) | (0.131) | (0.107) | (0.000) | (0.000) | (0.000) |
| Observations | 1398 | 1398 | 1398 | 1398 | 1398 | 1398 |

Standard errors in parentheses
 *p<0.05, **p>0.01, ***p<0.001

Figure 8 illustrates the predicted incomes of the various postsecondary pathways over time. The steepest curve is observed in university only pathways, but is very closely followed by respondents who reported university-to-college transfers. The college-to-university transfer pathway shows the greatest returns in later life, where earnings were slightly above those with only college, but considerably lower than university only or university-to-college transfer.

Figure 8. Growth Curve of Income over Time

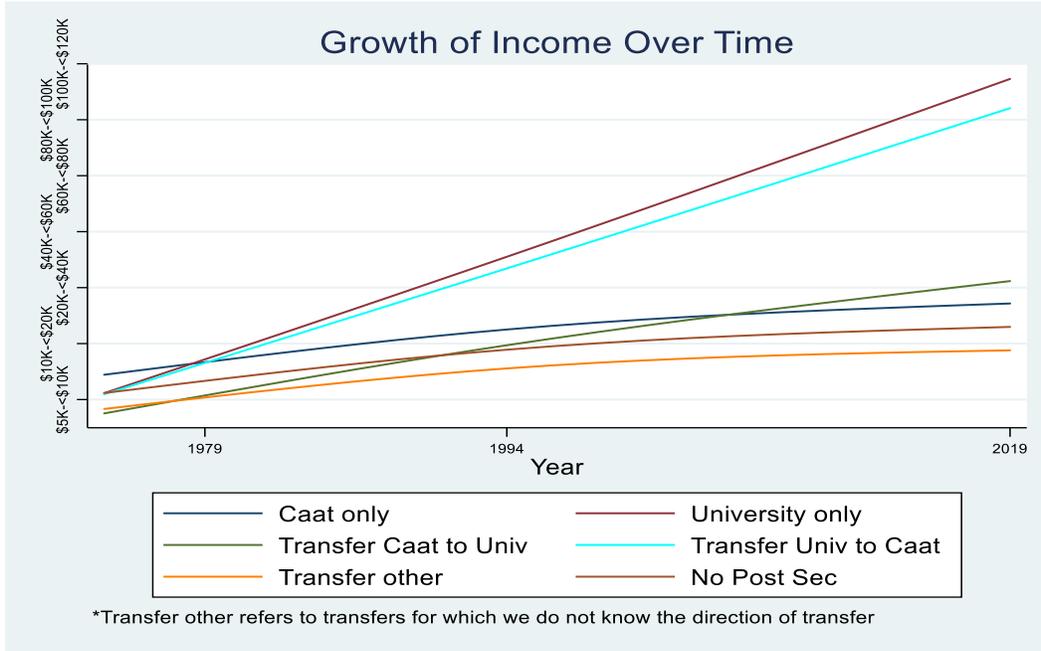
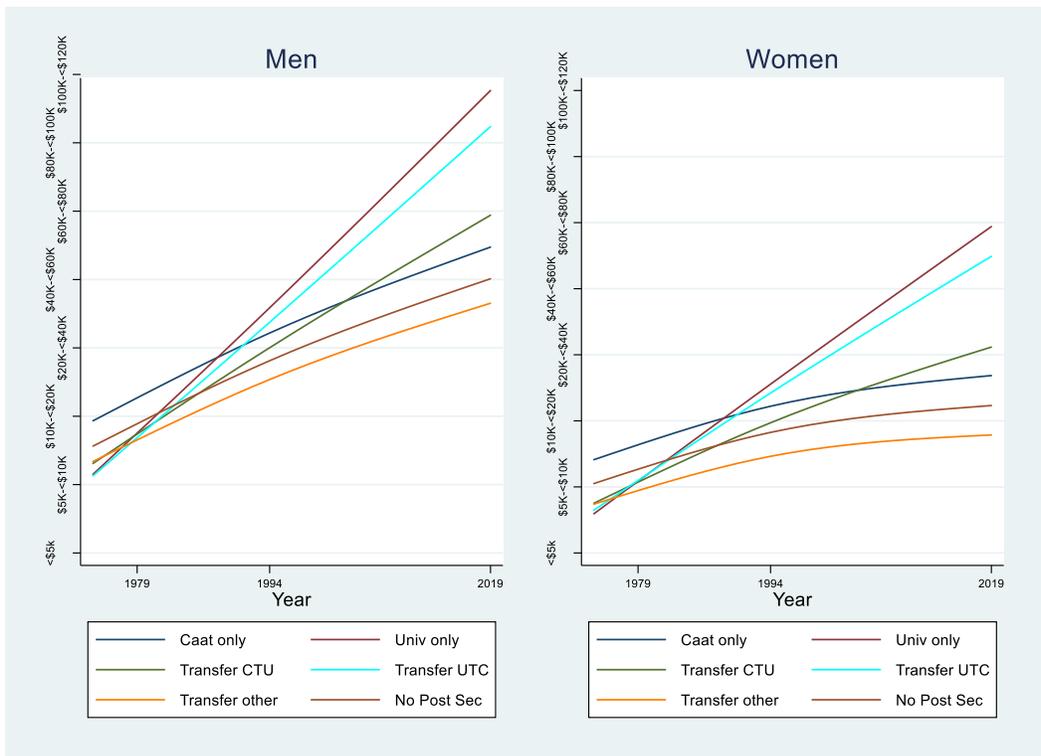
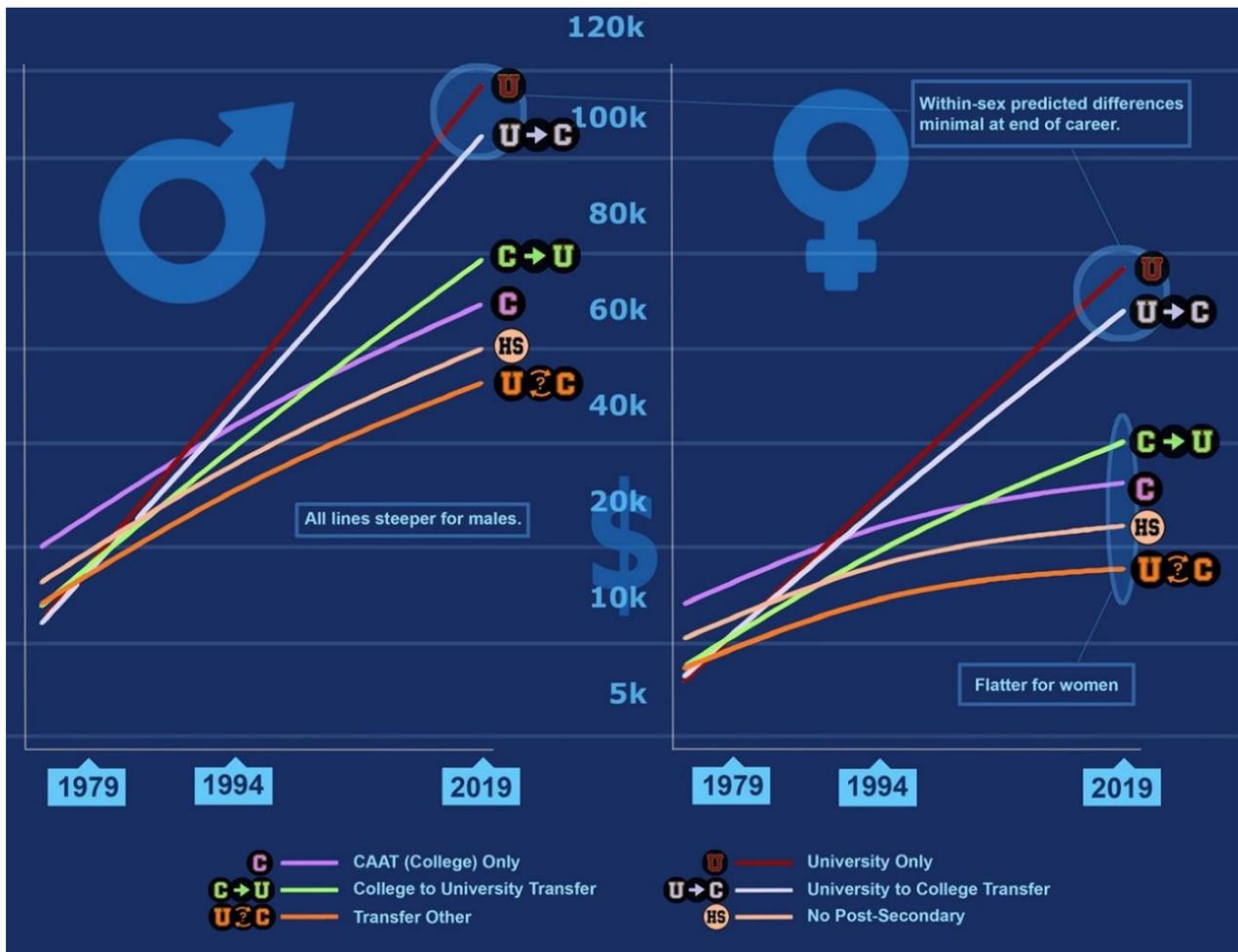


Figure 9. Income Growth Curves by Sex



Because the interaction between sex and time was significant in Table 12, we also provide separate graphs for income for men and women in Figure 9. What is immediately obvious are the completely different income trajectories by sex, a finding that is not terribly surprising given the time span of these data and known income disparities between men and women. However, the main relationships between transfer type and predicted earnings are generally the same for men and women, even though women earned consistently less in each category. In both cases, the university-to-college transfer pathway was associated with similar earnings projections to that of university-only pathways. Illustration 5 provides a simplified data visualization of the income growth curves by sex.

Illustration 5. Income Growth Curves by Sex



Job Satisfaction

The final job-related outcome that we examined was job satisfaction. The results for the growth curve estimations are displayed in Table 13.

Table 13. Job Satisfaction Linear Probability Growth Curve Model (1=satisfied)

| | (1) | (2) | (3) | (4) | (5) | (6) |
|------------------------------|----------|----------|-----------|-----------|-----------|-----------|
| Initial Status | 0.785*** | 0.782*** | 0.846*** | 0.826*** | 0.826*** | 0.827*** |
| | (0.010) | (0.012) | (0.014) | (0.023) | (0.024) | (0.025) |
| CAAT only | | | | 0.013 | 0.018 | 0.018 |
| | | | | (0.026) | (0.034) | (0.034) |
| University only | | | | 0.003 | -0.003 | -0.003 |
| | | | | (0.027) | (0.036) | (0.036) |
| Transfer CAAT to Univ | | | | -0.031 | -0.058 | -0.058 |
| | | | | (0.054) | (0.072) | (0.072) |
| Transfer Univ to CAAT | | | | 0.011 | 0.041 | 0.041 |
| | | | | (0.044) | (0.062) | (0.062) |
| Transfer other | | | | -0.006 | -0.025 | -0.024 |
| | | | | (0.070) | (0.089) | (0.089) |
| Female | | | | -0.004 | -0.004 | -0.007 |
| | | | | (0.020) | (0.020) | (0.025) |
| Low SES | | | | 0.032 | 0.032 | 0.032 |
| | | | | (0.022) | (0.022) | (0.022) |
| High SES | | | | 0.036 | 0.036 | 0.035 |
| | | | | (0.026) | (0.026) | (0.026) |
| Mostly under 60% | | | | 0.006 | 0.005 | 0.005 |
| | | | | (0.032) | (0.032) | (0.032) |
| Mostly 70% or Higher | | | | 0.006 | 0.006 | 0.006 |
| | | | | (0.021) | (0.021) | (0.021) |
| time | | 0.000 | -0.016*** | -0.016*** | -0.016*** | -0.016*** |
| | | (0.001) | (0.002) | (0.002) | (0.002) | (0.002) |
| CAAT only # time | | | | | -0.000 | -0.000 |
| | | | | | (0.002) | (0.002) |
| University only # time | | | | | 0.000 | 0.000 |
| | | | | | (0.002) | (0.002) |
| Transfer CAAT to Univ # time | | | | | 0.002 | 0.002 |
| | | | | | (0.004) | (0.004) |

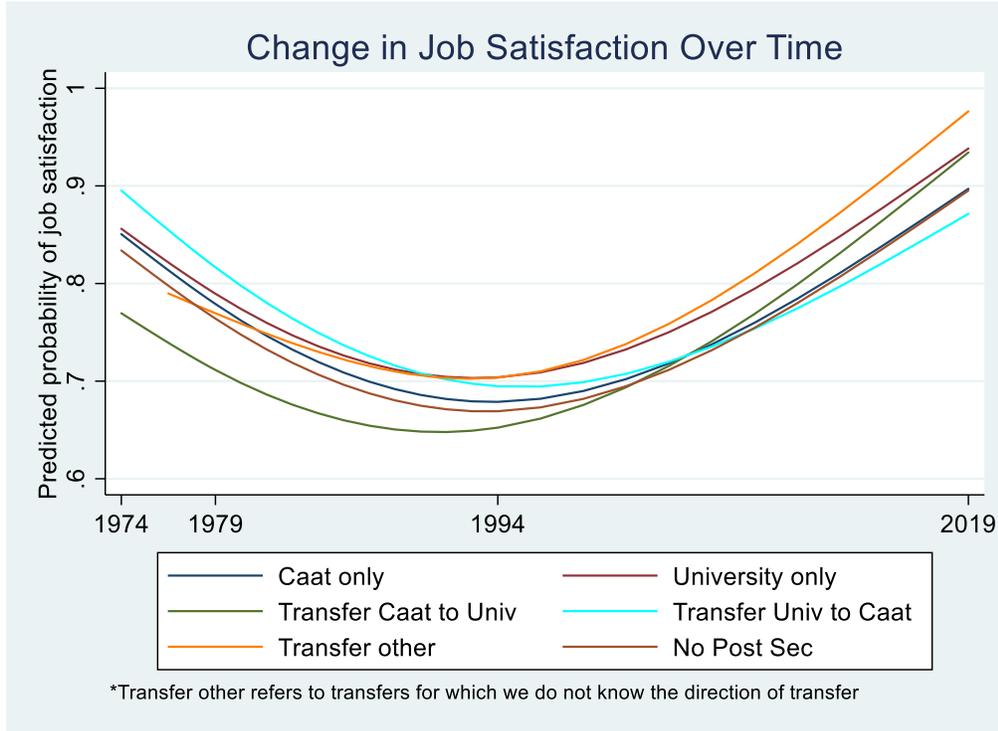
| | | | | | | |
|------------------------------|----------|----------|----------|----------|----------|----------|
| Transfer Univ to CAAT # time | | | | | -0.002 | -0.002 |
| | | | | | (0.003) | (0.003) |
| Transfer other # time | | | | | 0.002 | 0.002 |
| | | | | | (0.006) | (0.006) |
| Female # time | | | | | | 0.000 |
| | | | | | | (0.001) |
| time2 | | | 0.000*** | 0.000*** | 0.000*** | 0.000*** |
| | | | (0.000) | (0.000) | (0.000) | (0.000) |
| sd(time) | | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** |
| | | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| sd (within person) | 0.402*** | 0.402*** | 0.393*** | 0.393*** | 0.393*** | 0.393*** |
| | (0.008) | (0.008) | (0.008) | (0.008) | (0.008) | (0.008) |
| sd (initial status) | 0.083*** | 0.083*** | 0.095*** | 0.093*** | 0.092*** | 0.092*** |
| | (0.026) | (0.026) | (0.023) | (0.023) | (0.023) | (0.023) |
| | | | | | | |
| Observations | 1982 | 1982 | 1982 | 1982 | 1982 | 1982 |

Standard errors in parentheses

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

The general lack of statistical significance in this table, particularly among our transfer variables, indicates that we did not find an association between transfer and later-life job satisfaction. Figure 10 illustrates the various educational pathways examined in these analyses by predicted job satisfaction. Although the lines may appear to be different from each other, they are not statistically different.

Figure 10



Summary of Multivariate Analyses

In the multinomial analyses, when we focused on those that attended postsecondary, we found some evidence that transfers in general were negatively associated with having higher grades in high school. In terms of college-to-university transfer and “other” transfers, relative to university-only pathways, these transfer students were more likely to be female and in the case of college-to-university transfer, less likely to be high income.

In the growth curve analyses, we examined how educational trajectory type – with a focus on transfers – was associated with later-life job-related outcomes: e.g., occupational status, income, and job satisfaction. We found that university-to-college transfers had similar predicted

occupational status and income to those that had university-only trajectories. In both cases we also found that college-to-university pathways were not particularly advantageous, yielding average results that were akin to college only pathways on both of these outcomes. We also demonstrated that these trajectories were different in terms of steepness or slope of the trajectory by sex, although the overall patterns of findings did not change. We did not find any association between transfer type and predicted job satisfaction.

Discussion and Conclusions

We have taken advantage of 46 years of cohort data in Ontario to examine the later-life outcomes associated with transfer pathways in post-secondary education. This research is certainly a necessary building block in the scant literature on transfer pathways in Canada. As we have illustrated, transfer is not a new practice; rather it is a practice that cohort members in the Class of '73 engaged in during the 1970s and 80s. However, up until this point, as highlighted in the literature review, we know only of some of the associated factors of transfer, but nothing of the long-term implications. Indeed, our results have somewhat reinforced existing findings that transfer students tend to be female, with lower grades and from lower SES backgrounds.

Although the existing literature tends to emphasize the increased desirability of a college-to-university transfer pathway, we did not find that this pathway was associated with occupational status or income advantages. In fact, we found that the “reverse transfer” pathway of moving to college from university yielded predicted occupational status and income that was similar to university-only pathways (that had the highest predicted values on both of these measures). The

college-to-university pathway was more similar to college-only and “transfer other” pathways in terms of occupational status and income.

Unfortunately, it is not clear *why* this positive association with “reverse transfer” and later-life outcomes would be occurring, and we must add the proviso that our sub- samples were somewhat small – only 55 college-to-university transfers and only 80 university-to-college transfers. This may well be an artefact of that generation and a finding that would not hold in today’s economy. Indeed, as described at the beginning of the report, the 70s and 80s were characterized by a great deal of expansion in the post-secondary sector that itself would be accompanied by a lot of uncertainty about the desirability of different pathways. The advent of the college system at that time was certainly fraught with negative biases about “ability”, as indicated by the disparaging comments from elected officials. The historical framing of the transfer from university-to-college at that time would likely have been seen as an attempt to avoid the hardship of finding a good job with a liberal education. As noted by Anisef and Axelrod (1993), the period of the late 1970s and early 1980s was characterized not only by rapid post-secondary expansion, but by economic recessions. The “Sobering 70s” left many wondering if the previously guaranteed job proceeding a liberal arts degree was something of the past as new economic uncertainties were faced by graduates. As documented by Anisef et al (1986), it was also during this time that universities came under attack as professors accused students of being functionally illiterate and simultaneously refused to accept that universities themselves were no longer elite educational institutions, but now part of a much broader and accessible system of higher education. A study of secondary and post-secondary systems in Ontario (Secondary/Post-secondary Interface Study) released in 1977 (as cited in Anisef, 1986),

however, revealed that students were in fact not functionally illiterate and the claims of massive grade inflation were in fact, largely unfounded. Despite this, there was widespread sentiment among the members of the public, students, and teachers, that there was a need to improve academic standards to respond to the societal shifts that had been observed in the previous two decades.

We do not know why the students in our study chose to transfer – we can only frame the possible reasons around the current political and economic climate of the day. As such, if the prospects for “liberal education” were indeed questionable or bleak for these students, it makes a great deal of sense that transferring from university-to-college and obtaining job-specific training would result in the sorts of advantages to income and occupational status that we observed here. It is also interesting to consider the discourse of the time as noted in Anisef et al (1986) – one that is peppered with references to “grade inflation” and the accusations of professors indicating students are not prepared enough, as well as the overarching assumption that liberal education isn’t “useful”. We can indeed see these exact same claims being made recently by professors (see for example, Cote and Allahar, 2011) and by current Ontario education policy (since 2018) that has shifted focus away from “access” of underrepresented groups to “key performance indicators” for universities and colleges. While the current practices continue to favour college-to-university transfer as the natural and desirable pathway (as evidenced by many bridging programs) and the often internalized shame and feelings of failure of students who leave university to go to college (Maier and Robson, 2020), it should be noted that this latter pathway has demonstrated later-life employment outcomes in our cohort that are on-par with university-only pathways.

In addition to the limitations of our small subsamples, we are also constrained in our ability to generalize by not being able to examine the transfer trajectories by field of study. It may be the case that students transferring out of university were from specific programs that were less likely to be associated with promising employment outlooks at the time. Without more specific data, however, we can only speculate.

Our study has provided a historical baseline for the practice of post-secondary transfer in Ontario in the late 70s and early 80s, demonstrating that it is not a new practice and that there are some notable associations with transfer-type and later-life employment outcomes. Given that our current social discourses around the utility of generalized liberal education tend to be repeating themselves some 50 years later, policy makers must recognize that transfer in all its forms can have promising later-life associations. While the implied desirable pathway that is emphasized through bridging programs and the default understanding that “transfer” implies from college-to-university, we have observed the benefits of the opposite pathway that has outcomes which are comparable to a university-only trajectory. Longitudinal data on more recent graduate cohorts would be able to establish if such patterns have remained consistent or have changed. However, such resources are largely absent in the Canadian data landscape.

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