

**Are excess credits for college-to-university transfer students a concern?**

**A case study within the Ontario context**

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### **Introduction**

Access to a flexible post-secondary education (PSE) system – one that has multiple pathways, permits student transfer between institutions and affords timely credential attainment – not only allows students to discover their strengths and interests, but empowers them to develop, adapt and enhance their knowledge and/or skills as required. An accessible PSE system is particularly important during periods of economic restructuring that may arise from technological innovation, global competition and environmental change. Ideally such a system enables individuals to take advantage of opportunities that may arise in a fluid economic environment. Indeed, as a recent OECD report (International Labour Office, 2011) highlighted, the collective economic prosperity of a given society not only depends on the knowledge and/or skills that its citizens possess on but how effectively their knowledge and skills are deployed. From a purely utilitarian perspective, a timely and efficient PSE system (that includes student mobility or transfer) is one where students take only those courses that are deemed necessary for credential attainment and no more. Excessive accumulation of credits, particularly for college-to-university transfer students, could be symptomatic of articulation problems in the program/degree structure, the transfer processes or both.

Regardless of whether they are college-to-university transfer students or non-transfer university students, the accumulation of excess credits may cause delays in credential attainment, and introduces extra costs through tuition and possibly delays in entering the workforce.<sup>1</sup> Excess credits also introduce additional costs for the government as well as the public who support PSE institutions because students may be taking longer than they need to attain the credential (Kinne, Blume & Roza, 2011). American research suggests that excess credits are indeed being generated by university graduates. Excess credits are seen to represent inefficiencies that result in personal and system-wide costs (Kinne, Blume, & Roza, 2013; Complete College America 2011). Consequently, it is important to note that many of the policy actions to mitigate excess credits — described later in this report— are American examples, and may not necessarily generalize to the

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<sup>1</sup> It is important to point out that excess credits are not necessarily problematic for students. Excess credits may have intrinsic value that is not easily captured or quantified in a systematic way and may reflect the natural inclination of emerging adults to explore new possibilities (Arnett, 2000, 2004).

Ontario context. As such, one of the underlying motivations for this paper is to seek evidence about whether the phenomenon of excess credits exists in the Ontario context, particularly for college-to-university transfer students, in what programs and degree types they occur, what factors generate them and what if anything should be done to mitigate them. In our scan of the literature, we found only one instance of Canadian research examining the existence of excess credits and no explicit policy actions pertaining to the mitigation of excess credits. Indeed, research from British Columbia suggests that excess credits resulting from college-to-university transfer is not an issue (Pendleton, 2010). This report found no evidence that students had to “catch-up” when transferring from one institution to another and was taken as evidence that the British Columbia<sup>2</sup> system was able to provide seamless transfer. The author found that students tended to choose all the appropriate transferrable courses and sequence all the prerequisites and requirements so that “slip-ups” were negligible. Pendleton (2010) also demonstrated that transfer students took slightly fewer courses than direct-entry students. This applies to transfer students who registered in honours programs and combined programs. In addition, transfer students also performed as well as non-transfer students in terms of grade point average (GPA). Whether there are analogous findings in the Ontario context is an open question, given the unique ways in which the higher education system has evolved across Canada and United States. (Jones, Skolnik, & Soren, 1998; Skolnik, 2010)

### **Ontario Context: A gradual transformation of the PSE system**

The present incarnation of the Ontario PSE system dates back to just over a half a century, with the establishment of two parallel sectors: Colleges of Applied Arts and Technology (CAATs) and universities (Skolnik, 2010). An ongoing challenge for Ontario is to increase the flexibility of its PSE system by transforming it from being a binary system (where high school students who were streamed into the vocationally oriented college sector were generally not expected nor permitted to transfer to the university sector and vice versa), to an articulated system that facilitates the mobility of qualified students to transfer between and within the each of the college and university sectors, so that students are able to attain the credential(s) and type of education that reflects the combination of skills and knowledge that suit their needs (Decock, McCloy, Liu, & Hu, 2011; Rae, 2004, p 19; Wilson, 2009) Articulated PSE systems, where both

sectors work to forge educational pathways between them, reflects what has historically occurred by design, in jurisdictions across Canada such as British Columbia and Alberta and elsewhere in the United States (Dennison, 2000; Gaber, 2010; Skolnik, 2010). For example, in British Columbia the college sector has a transfer function in addition to vocational training. They provide the first two years of a university education and then permit students to the students to complete the third and fourth year at the university (Dennison, 2000; Gaber, 2010). Such a system assures university accessibility, enables students to save money by studying close to the community, enabling them to reduce lodging and tuition costs compared to university.

Despite the legacy design of the Ontario PSE system, arrangements to promote student mobility between the sectors has grown, albeit gradually. In the 1990s college leaders argued that college students needed analytical, theoretical, and transferable knowledge as well as technical skills as well as to succeed in the workforce (Ontario Ministry of Colleges and Universities, 2000; Skolnik, 2008). During this period student transfer between certain colleges and universities was increasingly possible on a bilateral or multilateral basis, through articulation agreements and block transfer policies. By the 2000s co-operation between the sectors led to the creation of joint diplomas and joint degree programs and in some cases shared campuses like Seneca@York (1999) and University of Guelph-Humber (2002). In order to facilitate greater collaboration between the two sectors and support the development of both bilateral and multilateral transfer pathways, the College and University Consortium Council (CUCC) was established in 1996. CUCC also disseminated information on articulation agreements between institutions through the Ontario College University Transfer Guide (OCUTG). In 2011 the Ontario government issued a statement on credit transfer that participating colleges and universities would adopt a collegial approach in a manner that:

“Requires institutions to optimize pathways for students and minimizes barriers to their mobility by basing agreements on maximum recognition of students’ previous learning experiences, while taking into account the background and knowledge required for academic success post-transfer; recognizes student success is paramount

Awards qualifying students transferring between Ontario’s publicly assisted colleges and universities with credit for relevant learning already demonstrably completed at the appropriate level of mastery”

That same year the Ontario Council on Admissions and Transfer (ONCAT) was established to replace the CUCC. ONCAT not only supports the development of college-university articulation arrangements, but it also promotes research with a view to reducing the barriers associated with student transfer between institutions. Students can access online information about student transfer through an online portal called ONTransfer.

Over the past two decades, college-to-university transfer has become an important pathway for degree attainment for some Ontario students. College to university transfer applicants through OUAC increased from 7,059 in 1996-97 to 16,154 in 2007-08.<sup>3</sup> This represents an average of 9.7%<sup>4</sup> of all Ontario university applicants during this period. The number of university registrants with previous college experience was 2,542 in 1996-97 and increased to 5,110 in 2007-08. This represents an average of 5%<sup>5</sup> of all Ontario university registrants with some previous college attendance (Colleges Ontario, 2009). More recent data based on publicly accessible multi-year accountability agreement (MYAA) reports for Ontario universities suggest that between 2009 and 2013 the average proportion of college-to-university transfer students was approximately 4.2%<sup>6</sup> out of an average total of 85,715 registered students.

The ongoing development of a robust college-to-university transfer system partially supports two related government goals: First, to improve access to university, particularly those who are in under-represented groups such as students with disabilities, aboriginal students (Ogilvie & Eggleton, 2011) and first generation students (Clark, Moran, Skolnik, & Trick, 2009). Colleges have a disproportionate number of students from these groups (Colleges Ontario, 2011)

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<sup>3</sup> OUAC totals understate the total number of transfer students because some of these applicants apply directly to universities.

<sup>4</sup> Between 2003-04 and 2007-08 this percentage was closer to 11.7%. This period includes the double cohort. Grade 13 was abolished in spring 2003 and 2003-04 represented the first year where students in grade 12 and grade 13’s would enter post-secondary education at the same time.

<sup>5</sup> Between 2003-04 and 2007-08 this percentage was closer to 5.4%

<sup>6</sup> Note that this figure is a conservative estimate because it only accounts for students who used the Ontario University Application Center.

and college-to-university transfer represents an opportunity to enable such groups to have access to a university baccalaureate. Second, to increase capacity of the university system to meet the needs of future enrolment growth associated with population growth, particularly in the Greater Toronto Area (GTA), while at the same time constrain costs (Clark, Moran, Skolnik, & Trick, 2009). Developing a seamless college-to-university transfer system enables students to attain their credentials in a timely manner (without excess credits) and ensures that the PSE system is graduating the maximum number of students relative to the financial resources invested both by the student and the government/public alike. In other words, finding efficiencies will incrementally increase the capacity of the system and constrain costs.<sup>7</sup>

### **Conceptions of excess credits: Three perspectives**

In discussing excess credits, it is important to consider three distinct perspectives:

**Student perspective.** Students perceive excess credits through their full experience in PSE, regardless of whether it occurred in one institution or more than one institution. In this context excess credits may be based on any course that the student is required to take to attain their degree, but is nonetheless perceived to be duplicate learning by the student (whether it is indeed the case). For example, in some cases the student may be required to repeat courses because they did not receive a high enough grade or took courses that did not contain sufficient academic content. Excess credits may also include transfer credits that are unallocated within the student's degree program because any remaining slots within the program (i.e. electives) have already been allocated.

**Institutional perspective.** Institutions might operationally define excess credit as any amount of credit that is greater than the required number of credits that is necessary to obtain the credential that is sought. (As will be seen from American examples below, the definition of "greater" can be expressed as an arbitrary percentage of the overall degree program). Such a definition does not necessarily track the full life cycle of the student, and may only include an

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<sup>7</sup> Furthermore costs of the PSE system are also constrained if the first two of years of a university education occur at the colleges and the final year two years are at the university (Trick, 2013). However, such a proposal is controversial: A substantial proportion of funding received by Ontario universities is based on enrolment. A "two plus two" design would represent a reduction of funding to universities (See Clark, Trick, & Van Loon, 2011; .

accounting of the number of credits attempted, repeated and/or earned at a specific institution (and if transfer is involved, accounts for the total number of credits required at the receiving institution for credential attainment).

**Pan-Institutional perspective.** In terms of a pan-institutional perspective, the conception of excess credits rests on the assumption that baccalaureate credential attainment requires a certain number of credits. This perspective involves a full accounting of all credits attempted, repeated and/or earned from across all PSE institutions that the student attended (i.e., colleges and universities) across Ontario. Such an accounting requires that a system is in place for capturing such data.

Due to limitations in our ability to capture data at a pan-institutional level, for the purposes of the present investigation we define excess credits from the perspective of the institution.

### **How are excess credits generated?**

American research (Kinne et al., 2013) finds that excess credits are generated when university students (presumably including transfer students):

- Enter university with an undecided major or change their major. Also see (Pendleton, 2010).
- Enrol in programs that have highly prescribed curricula or enrol in double majors. In such instances it can be difficult to allocate transfer credits because there is no space to allocate them within the degree program.
- Study abroad in programs whose credits do not fulfill degree requirements.
- Are unable to access required courses yet need to keep taking classes to remain enrolled at a certain level so that they may access financial aid.
- Face unclear degree requirements. (Also see Pendleton, 2010).

Based on our experiences of working with students, these reasons are applicable to our own institution. Additionally, based on anecdotal evidence, excess credits may be generated if students take more credits than necessary out of interest, want to improve their grade point average or they may take credits in block sizes that do not fit into the degree program.

## **Policy Actions to Mitigate Excess Credits**

**Canadian Context.** At present, the phenomenon of excess credits in both transfer and non-transfer students has received little attention amongst researchers and policy-makers within Canadian provincial jurisdictions. As indicated earlier, empirical evidence from the sole Canadian study suggests excess credits are not a concern – at least within British Columbia (e.g., Pendleton, 2010). However, without research from different provinces, it is not clear whether generation of excess credits is a problem elsewhere in Canada.

There is very little explicit policy pertaining to the mitigation of excess credits. Rather, provincial policy focuses upon ensuring student mobility between college and university sectors, and supporting efforts to mitigate barriers that lead to timely credential acquisition. A number of provincial articulation councils and governments have asserted the importance of recognizing students' prior relevant work so that students do not repeat prior work that is of an equivalent level. For example, in February 2011, the Ontario Ministry of Training, Colleges and Universities released its Policy Statement for Ontario's Credit Transfer System announcing changes to publicly funded colleges and universities over a five year period. The Policy Statement outlines a vision for the province as follows:

“Ontario will have a comprehensive, transparent and consistently applied credit transfer system that will improve pathways and mobility, support student success and make Ontario a postsecondary education destination of choice. The credit transfer system will assist qualified students to move between postsecondary institutions or programs without repeating prior, relevant learning.”(Ontario Ministry of Training, Colleges and Universities, 2011)

While there is no specific reference to ‘excess credits’, the Policy Statement suggests a desire on the part of government, to reduce and/or eliminate the accumulation of excess credits suggesting the potential costs to students and the system associated with an inefficient transfer system or institutional processes. Specifically, the Policy Statement views an improved transfer system as one that offers “cost savings for students and their families, government and the public through the elimination of credit duplication”(Ontario Ministry of Training, Colleges and Universities, 2011). The Policy Statement also includes language or terminology that signals the government's interest in improving consistency across the system, providing accurate

information for students, maximizing recognition of prior learning and reducing costs through timely completion of credentials. In its annual Estimates Briefing Book 2015-16, the Ontario Ministry of Training, Colleges and Universities reaffirms its commitment to ensuring “students do not have to unnecessarily repeat prior relevant learning and know in advance how much credit they can expect to receive when transferring institutions – saving students’ time and money”(Ontario Ministry of Training, Colleges and Universities, 2011)

The Ontario Government’s policy statement echoes what a number of provincial articulation councils have asserted in terms of the recognition of students’ prior relevant work that is of an equivalent level, thereby mitigating extra work on the part of the student. For example, the British Columbia Council on Articulation and Transfer indicated that

“Students should not be required to retake courses successfully completed elsewhere, nor should they expect to receive duplicate credit for equivalent courses.”(British Columbia Council on Articulation and Transfer, 2010)

Similarly, the Alberta Council on Articulation at Transfer also indicated:

“Barriers to student mobility shall be minimized. The integrity of educational programs and certification must, however, be maintained. A student should not be required to repeat previous learning experiences in which competence has been demonstrated nor should more transfer credit be granted than previous learning experiences would warrant for successful completion of the program.” (Alberta Council on Articulation and Transfer, 2009)

Viewed through the lens of minimizing excess credits at the pan-institutional level (accounting for credit accumulation throughout the student life cycle across both college and university sectors), these statements can be characterized as the preservation of college credits in the college-to-university transfer process (c.f. Roksa & Keith, 2008) and ensuring open pathways to student mobility.

***Financial levers to improve articulation.*** Another method used by government to leverage system transformation or institutional change is the use of funding incentives where government monies either through special grants or enveloped funding is tied to articulated

policy goals. For example, in Ontario, within the same year as the release of its Policy Statement on Ontario's Credit Transfer System, the government launched the Credit Transfer Institutional Grant. The funding program is \$9.8M in total and is distributed among colleges and universities<sup>8</sup> based on each institution's provincial share of transfer students (excluding internal transfer students). The funding program's stated objective is to "enhance credit transfer for students in the publicly assisted postsecondary education system across the Province by: improving transparency and access to information about pathways and credit transfer; supporting student success for transfer students; and expanding and improving student transfer pathways that respond to student demand." (Ontario Ministry of Training, Colleges and Universities, 2015). While again there is no specific reference to 'excess credits', the funding program allows colleges and universities to undertake activities that facilitate transfer and support students under the same principles as outlined in the Policy Statement, including the "elimination of credit duplication".

**American Context.** Concern about excess credits in the United States has a higher profile relative to Canada. In recent years, a number of research (Kinne et al., 2013; Zeidenberg, 2012)<sup>9</sup> and advocacy papers (Campaign for College Opportunity, 2014; Complete College America, 2011; Lumina Foundation, 2011 ) have highlighted the cost of excess credits to students both in terms of time and money and to governments and tax payers who support PSE systems. Although some states do not have an explicit excess credits policy, others have acted by ensuring that students have access to improved counselling and awareness of degree requirements and by and limiting degrees to 120 credits or its equivalent (Kinne et al., 2013). In an era of fiscal restraint and heightened public scrutiny about public finances, some states have sought to mitigate the cost of excess credits by shifting the burden to students by charging student extra tuition for taking credits beyond a certain threshold. Table 1 lists a number of states who have adopted policies to apply a tuition surcharge on credits beyond a certain threshold (calculated as a percentage of a 120 credit baccalaureate degree). In addition, Table 1 lists the year the policy was implemented, updated or changed and websites where this information can be obtained. The effectiveness of such policy actions in curbing excess credits is unclear. Where information is publicly accessible (e.g. Grove, 2007), the policy of student

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<sup>8</sup> For universities in 2015-16 it is \$5.88m (the same amount as in 2014-15).

<sup>9</sup> Zeidenberg's (2012) research focuses upon excess credits within community colleges.

tuition surcharges on excess credits has worked in some states in terms of reducing excess credits but not in others. In 2014, Florida began to penalize institutions a proportion of their funding (State University System of Florida Board of Governors, 2015). The effectiveness of such a policy remains to be seen.

### **Present Investigation**

No prior research within the Ontario context has been conducted to evaluate whether graduating with excess credits exists as a phenomenon for university graduates. Using a case-study approach – with York University as an example – the present investigation seeks to assess the extent to which college-to-university transfer students are able to graduate without excess credits compared to students who entered the university system directly from high school. York University has been at the forefront of credit transfer with a history of working with Ontario’s community colleges dating back to the 1970s. Between 2011 and 2013, an estimate of at least 3000 college-to-university transfer students graduated from in York University’s undergraduate programs. York University offers multiple options for transfer across many academic disciplines through block credit policies, articulated transfer pathways and joint/collaborative programs with colleges.<sup>10</sup>

### **Research Questions**

Using York University as a case study, we investigate the phenomenon of excess credits at an institutional level using the following research questions:

1. What is the extent of excess credits between college-to-university transfer students and non-transfer students?
2. What factors are contributing to the accumulation of excess credits?

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<sup>10</sup> In 1991 York University established a block credit transfer policy (Decock, Lacoste, & Pitt, 2014) that enables students to obtain credit or course waivers based on college courses with a grade of 70% or greater, subject to space availability (see Trick, 2013 p. 20). The policy allows for the transfer of a predetermined number of university credits based on a number of factors such as the alignment of the college program with the university program and the duration of the college program (Craney, 2012). The block transfer policy does not require the student to make a special application to the university. For example, a student with a liberal arts diploma from college would be able to obtain transfer credits toward a York University Bachelor of Arts degree. It should also be noted that while credits are transferred as a block, there are courses within the block that can be specified to be deemed as having the equivalent level of content and consequently these courses map one to one to courses at university.

### 3. What are the top programs where excess credits are generated?

#### **Method**

This study used institutional data of York University to assess the extent to which “excess credits”, defined as earned credits greater than 120,<sup>11</sup> were accumulated by transfer and non-transfer students upon graduation from 2011 to 2013. Quantitative analysis was performed to examine demographic characteristics as well as academic features that may have contributed to the accumulation of excess credits. The analysis also focused on the difference between transfer and non-transfer students within a group of certain feature. The impacts of programs or program groupings, previous post-secondary education (PSE) experience and transfer credits awarded were of particular interest.

#### **Developing the analytical sample**

The analytical sample primarily consisted of graduates who attained their first Honours Bachelor’s degrees from York University between calendar year 2011 and 2013, inclusive. Capturing the students on graduation provided a means to evaluate their earned credits at a fixed state as the credits could vary any time prior to completion of the program. The choice of the first Honours Bachelor’s degree was to ensure that 120 credits were required to obtain the credential.

Following this line of logic, the following cases were excluded from the sample:

- where the students had already attained another Honours Bachelor’s degree (internationally or domestically from another university, if reported);
- where the degree captured between 2011 and 2013 was a second-entry degree: consecutive Bachelor of Education (BED), Juris Doctor (JD) and Bachelor of Laws (LLB);

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<sup>11</sup> Students must successfully complete 120 credits with a specified minimum GPA to attain a four-year baccalaureate degree at York University. A full year course is typically weighted at 6 credits and a half year course is typically weighted at 3 credits. Based on these weightings, 120 credits are the equivalent of 20 full-year courses.

- where the degree captured between 2011 and 2013 required more than 120 earned credits to graduate
- where the students graduated with double major, or with certificate(s) (also required more than 120 earned credits);
- where students were in a nursing program.<sup>12</sup>

### **Determining students' transfer status**

Transfer status was defined by whether at least one unspecified<sup>13</sup> additional credit from an institution other than York University was granted. Students who indicated that they had attended other PSE institutions prior to coming to York University but received no transfer credits for previous studies were excluded from the study.

We arrived at a final sample of 11,402 students, 3686 (32.3%) of whom were considered transfer students.

### **Defining “excess credits”**

In order to assess the magnitude of excess credits accumulated upon graduation, we focused on the number of earned credits. Earned credits incorporated transfer credits into credits attempted (i.e. credits taken) at York University after subtracting credits failed and credits repeated.<sup>14</sup> Based on whether the earned credits were equal to or greater than 120 upon graduation, the sample was divided into two groups for the likelihood of exceeding 120 to be quantitatively evaluated.

Out of the total sample, 4659 (40.9%) students graduated with more than 120 earned credits.

### **Analyses**

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<sup>12</sup> Collaborative nursing students are not considered to be transfer students because their studies at the College are degree level courses approved by York. The second entry and internationally educated nurses programs have specialized requirements due to accreditation requirements

<sup>13</sup> An unspecified credit represents a credit that can be flexibly allocated to the receiving program. At point of graduation these credits may be counted towards the 120 credits that are required for a four-year degree.

<sup>14</sup> Earned credits = credits attempted (i.e. taken) at York University – credits attempted with failed grade – credits repeated for grade improvement + unspecified additional credits granted for PSE experiences from other institutions.

We employed three types of analyses to examine and compare distributions of earned credits between different sub-groups: (1) first, odds<sup>15</sup> were computed to determine how likely a sub-group was to exceed 120 against not; (2) secondly, odds ratios<sup>16</sup> were developed between transfer and non-transfer students to gauge the specific impact of being a transfer student in a given sub-group; (3) lastly, means and medians and standard deviations were compared to describe the distributions in terms of centre and spread.

The analyses were conducted across a wide range of selected demographic characteristics and academic features.<sup>17</sup>

### **Demographic characteristics**

Demographic characteristics presented in the paper included gender, age, immigration status, mother tongue, and commuter status. Age, immigration status and commuter status were associated with the enrolment record of the first year at York. Commuter status was derived from local residential postal codes which were matched against those of on-campus residences.

### **Academic Features**

Academic features encompass whether the student graduated with a concurrent Bachelor of Education (BEd), whether the student changed faculty, degree type or program between the first year of registration and graduation, whether the student graduated with distinction, number of repeated courses, degree type, program or program grouping, previous PSE experience, transfer credits awarded, final grade point average (GPA) and time-to-completion. All academic variables were based on final or last known results.

**Repeated courses.** Repeated courses would occur if and when a student who had completed a course with a passing grade decided to take it again for grade improvement. The grade of the more recent attempt would replace the old grade, resulting in more credits taken, but the same earned credits. Although the number of repeated courses did not affect the number of

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<sup>15</sup>  $Odds_x = \frac{\text{number of students who earned more than 120 credits}}{\text{number of those who earned exactly 120 credits}}$ , within subgroup x.

<sup>16</sup>  $Odds\ ratio_x = \frac{odds_{transfer}}{odds_{non-transfer}}$ , within subgroup x.

<sup>17</sup> For a full list of variables and corresponding frequency distributions, refer to Appendix.

earned credits, it could have an indirect effect via the trait that might be linked to tendency to pursue perfection, academic curiosity or perseverance.

**Degree type.** A total of 13 types of degrees appeared in the sample: BA (Bachelor of Arts), BAS (Bachelor of Administrative Studies), BDEM (Bachelor of Disaster and Emergency Management), BDes (Bachelor of Design), BES (Bachelor of Environmental Studies), BFA (Bachelor of Fine Arts), BHRM (Bachelor of Human Resources Management), BHS (Bachelor of Health Studies), BPA (Bachelor of Public Administration), BSc (Bachelor of Science), BSW (Bachelor of Social Work), iBA (International Bachelor of Arts), and iBSc (International Bachelor of Science).

**Program or program grouping.** Individual programs, represented by majors, were assigned specialization major (SPEMAJ) codes as defined by the Ministry of Training, Colleges and Universities (MTCU) in the University Statistical Enrolment Report (USER). The codes served as a standard categorization tool to sort programs into 10 main groups, each represented by the first digit of SPEMAJ: general arts and science and interdisciplinary studies (0), education, physical education, sports, recreation and leisure (1), fine and applied arts (2), humanities and related (3), social sciences and related (4), agricultural and biological sciences (5), engineering and applied sciences (6), health professions and occupations (7), mathematics and physical sciences (8), and not applicable or not reported (9). We kept sizable individual majors separate to conserve the individuality of the programs while grouping the others into their respective SPEMAJ groupings to complete the categorization. The stand-alone majors were: kinesiology (KINE), design (DESN), music (MUSI), visual arts (VISA), communication studies (COMN), English (EN), history (HIST), administrative studies (ADMS), criminology (CRIM), economics (ECON), environmental studies (ENST), law and society (LASO), psychology (PSYC), sociology (SOCl), and social work (SOWK).

**Previous PSE experience.** We compiled all previous institutions reported on students' application files and extracted information on institutional types. Four categories of previous PSE experience were constructed as follows: previously attended colleges only, previously attend universities only, previously attended other types of institutions only (any other types of

PSE institutions including but not limited to CEGEP<sup>18</sup>, foreign post-secondary institutions, teacher's colleges, bible colleges, food safety schools, flight academies), and previously attended multiple types of institutions.

**Final GPA.** Cumulative overall final GPA upon graduation was converted from a grade scale to a numerical point-value scale using the following assignment: A+ equals 9, A equals 8, B+ equals 7, B equals 6, C+ equals 5, C equals 4, D+ equals 3, D equals 2, E equals 1, and F equals 0.

**Time-to-completion.** Time-to-completion, measured in years, was calculated as the calendar years elapsed between the first year of registration and the year of degree conferral, notwithstanding academic activities or registration status in between. Since the standard program lengths for all programs in this study are four years, the difference can be attributed to partial workloads, stop-outs, and transfer credits awarded.

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<sup>18</sup> CEGEP stands for *Collège d'enseignement général et professionnel*.

## Results

### **What is the extent of excess credits between college-to-university transfer students and non-transfer students?**

Table 2 describes the total number of earned credits by the sample of students at graduation. As can be seen, 59.14% of the credits are earned by students who graduate with 120 credits and 40.86% of the credits are earned by students who have excess credits. Overall, the odds of students graduating with excess credits are .69, regardless of transfer status.

When the total number of earned credits is further broken down by transfer status (non-transfer vs transfer), one can see a striking pattern. The odds of a non-transfer student accumulating excess credits by the time they graduate are .57, which is lower than the overall odds of .69. By contrast, the odds for transfer students to accumulate transfer credits are 1.00. In other words, transfer students have greater odds for accumulating excess credits.

To understand the range and magnitude of excess credits that transfer students and non-transfer students earned for a 120 credit degree, it is useful to examine Figure 1. This figure displays the distribution of earned credits by both groups at the time of graduation. As can be seen from the histogram, both groups earn a range of total credits by the time they graduate (from 120 to 200 credits), with most students earning approximately 120 credits. Note that the distribution is skewed, and as such, when describing the summary statistics it is important to consider both the mean and the median. The median is not influenced by extreme values.

It is clear from Table 2 that by the time students graduated, transfer students earned an average of 126.22 credits and a median of 121 credits, and non-transfer students earned 123.05 and a median of 120 credits. These values indicate that the amount of excess credit in transfer students appears to be relatively small: 6.22 credits above 120 or 5.2 % in excess and 1 credit above 120 when considering the median or .83 % in excess. Non-transfer students also earned excess credits, but to a smaller extent: 3.05 credits above 120 or 2.54 % in excess. When considering the median, there is no evidence of excess credits in non-transfer students as a group. Thus, the magnitude of excess credits for both groups is quite small relative to American reports (Campaign for College Opportunity, 2014; Complete College America, 2011; Florida Department of Education, 2005; Kinne et al., 2013; Zeidenberg, 2012).

## **What factors potentially contribute to the accumulation of excess credits? By how much do they contribute?**

**Demographic Characteristics.** According to Table 3 when considering the entire sample – regardless of transfer status, an examination of the odds of accumulating earned excess credits or not – students who are male, 20 years or older, permanent residents on a visa, and students whose mother tongue was not English or lived in residence had greater odds for excess credits. When considering transfer status, an examination of the odds ratio indicates that being a transfer student *and*: being either a male, older — over 26 years of age,<sup>19</sup> a permanent resident, had a mother tongue other than English, living in residence one had greater odds for accumulating excess credits.

Across the demographic characteristics presented in Table 3, it can be seen that on average transfer students earned between 4.28 (19 years old) and 9.29 (permanent residents) excess credits and a median of between 0 and 3 excess credits.<sup>20</sup> Non-transfer students earned on average earned 2.51 (18 years old) and 5.62 (23 years old) excess credits and a median between 0 and 1.5 credits. On balance it appears that transfer students accumulate slightly more excess credits than non-transfer students when examining the students across these demographic characteristics.

**Academic Features.** According to Table 4 when considering the entire sample – regardless of transfer status – students have higher odds of accumulating excess credits if they: changed Faculty, degree type or program; graduated with distinction, or repeated two or more courses. They also have higher odds if they completed a Bachelor of Administrative Studies, Bachelor of Fine Arts or Bachelor of Science degree.<sup>21</sup> Transfer students with these characteristics have even higher odds ratios.<sup>22</sup> Transfer students pursuing either of these three

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<sup>19</sup>While it does indicate that those 18 or younger have greater odds for excess credits, this finding needs to be interpreted with caution due to the low frequency counts that are used to calculate the ratios.

<sup>20</sup> Excluding variables with low cell counts

<sup>21</sup> While it does indicate that having a Bachelor of Public Administration or International BA is associated with excess credits, this finding needs to be interpreted with caution due to the low frequency counts that are generating the ratios.

<sup>22</sup> The Bachelor of Disaster and Emergency Management, Bachelor of Public Administration, International BSc degree types appear to have ratios that would indicate that one has greater odds for accumulating excess credits, however because the cell sizes are low these findings should be interpreted with caution.

degrees have greater odds for accumulating excess credits, partly due to being enrolled in a specific program (and possibly its structure)<sup>23</sup> and partly due to the transfer process.<sup>24</sup> The data also indicate that transfer students pursuing Bachelor of Arts or Bachelor of Health Studies degrees have greater odds for accumulating excess credits and that this effect, which could be attributed to the transfer process rather than the degree structure.<sup>25</sup>

Table 4 shows that when students made a change in Faculty, degree type or degree program, transfer students earned an average of between 5.44 to 10.66 excess credits and a median range of between 0 and 6 excess credits. In contrast non-transfer students earned an average of between 3.99 and 5.38 excess credits and a median range of between 0 and 1 excess credits. For students who repeated courses, transfer students earned an average of between 7.44 and 9.79 excess credits and a median range of between 3 and 6 excess credits while non-transfer students earned an average of 3.4 and 5.17 excess credits and a median range of between 0 and 1 excess credits. Across degree types transfer students earned an average of between 2.96 to 12.27 excess credits and a median range of 0 and 8 excess credits.<sup>26</sup> Thus it is apparent that when students made changes in their programs or repeated courses, they were apt to accumulate excess credits. Transfer students were less likely to make changes or repeat courses but when they did, the odds of accumulating of excess credits were compounded. Students who graduated with distinction had greater odds for accumulating excess credits and this effect was compounded if they were transfer students. Note however the magnitude of the excess is relatively small as seen in Table 4.

### **Are excess credits a concern? Amount of credits taken, failed, final GPA and time to completion.**

When examining the efficiency of credential attainment as well as student performance it is important to note the amount of credits taken and failed, and students' final GPA and time to completion (see Table 5). If credits accumulated also include those passed, failed or repeated,

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<sup>23</sup> This is evidenced by the fact that the *odds* in Table 4 are greater than the threshold of .69

<sup>24</sup> This is evidenced by the fact that the *odds ratios* in Table 4 are greater than the threshold of 1.75

<sup>25</sup> This is evidenced by the fact that the *odds* in Table 4 for each of the degrees are below the threshold value of .69 but the *odds ratio* in Table 4 is above the threshold of 1.75.

<sup>26</sup> This range excludes Bachelor of Human Resource Management and International Bachelor of Science, because the data contributing to the means and medians contain low cell frequencies.

then the median for the full sample is 6.64 excess credits and the median is 3. For students who graduate in excess of 120 credits, transfer students graduate with an average 14.93 excess credits and a median of 12 credits. However, it is important to note students that non-transfer students who graduate with more than 120 credits accumulate an average excess of 12.4 credits and a median of 9 credits. Indeed, the difference between the two groups is 3 credits — based on the median.

In terms of academic performance, it appears that on average students fail .59 credits regardless of transfer status. Transfer students fare better than non-transfer students: transfer students fail below the average (.41 credits) and non-transfer students fail above the average (.67 credits). Furthermore, transfer students have higher GPAs compared to non-transfer students (i.e., a median GPA of 6.55 vs 6.34 on a 9 point scale). Students who graduated with excess credits had slightly higher GPAs compared to students who did not (i.e., 6.44 vs 6.38).<sup>27</sup>

In terms of the number of credits granted to transfer students, students who graduate with excess credits also receive more transfer credits (i.e., an average of 37.53 vs 30.77 for those who graduate do not graduate with excess credits).

Finally, in terms of time to completion, students who accumulate excess credits took longer to complete their degrees, compared to students who did not (i.e., a median of 6 vs 5 calendar years). Transfer students took less time to complete their degrees compared to non-transfer students (i.e., a median of 5 vs 6 calendar years). It is also interesting to note that transfer students received a median of 30 credits – which is the equivalent of 5 full-year courses and which would take a full time student one academic year to complete. This would account for why a transfer student would complete one year less than a non-transfer student.

### **What are the top programs where excess credits are generated?**

According to Table 6 – when considering the entire sample and regardless of transfer status – the programs that have greater odds for excess credits for students, based on the odds are: kinesiology, music, other subjects in the fine and applied arts program group, English, administrative studies, agriculture and biology, and math and physics. Based on the odds ratio,

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<sup>27</sup> It should be noted that transfer students also take fewer university credits, and therefore have fewer opportunities to perform poorly or 'fail' their courses.

the following programs are where transfer students accumulate a greater number of excess credits: kinesiology, other subjects in the social sciences program group, English, administrative studies, and agriculture and biology. It is important to note that music and math and physics are examples of programs where excess credits are likely generated due to the program but not the transfer process — that is, transfer students do not have any greater odds for excess credits compared to non-transfer students. In contrast, environmental studies, law and society and other subjects in the social sciences area are programs that on the whole are not at risk for generating excess credits, however when comparing transfer students to non-transfer students, transfer students have greater odds for generating excess credits. The magnitude of excess credits for the aforementioned programs is graphically depicted in Figure 2.

**Does previous type of PSE and number of transfer credits have an impact on excess credits, final GPA and time to completion for transfer students?**

According to Table 7, it is clear that the odds of accumulating excess credits are greater when transfer students have a previous university credential or multiple credentials from a combination of colleges and universities, compared to a previous college credential. This is likely due to the fact that those with prior university or multiple credentials obtain a greater number transfer credits (as seen in the table) that are not allocated into their degree programs. Indeed, the bottom panel of Table 7 reveals that students who receive more than 31 transfer credits have greater odds of accumulating excess credits by the time they graduate.

In terms of final GPA, transfer students with a prior university credential, multiple credentials or other only credential have a median GPA that is greater than the overall median. Transfer students who completed college credential have a lower median GPA. A similar trend appears for the mean GPAs for each of the prior credential types, with the exception of those who have multiple credentials. As seen from the lower panel of Table 7, final GPA is also related to the number of transfer credits granted – the greater the number of transfer credits, the higher the mean and median GPA.

In terms of time-to-completion, transfer students with a previous university credential, complete faster than the overall average and median time. Furthermore, the more transfer credits are granted, the faster the student will complete their credential, but the more likely he or she will accumulate excess credits.



## Discussion

It is reasonable to question whether college-to-university transfer students within Ontario accumulate excess credits by the time they graduate, given the fact that PSE continues to undergo a gradual transformation from a binary system to an increasingly complex articulated system. To ensure student mobility between sectors and institutions, the students' prior relevant learning experiences are recognized at the receiving institution where students receive "transfer credit". Whether students are able to have their transfer credit allocated to their degree program is central to the issue of whether college-to-university transfer students are graduating with excess credits, particularly in the context of block transfer. The accumulation of excess credits could be seen to be symptomatic of problems that may depend on the structure of the receiving program or the transfer process itself. Identifying the locus of articulation problems is an important first step toward developing a more seamless transfer system. The present investigation is the first within Ontario to examine whether the phenomenon of excess credits exists amongst transfer and non-transfer students, what its magnitude is, what factors are associated with them, in what degree types and programs they occur and whether anything should be done to mitigate their occurrence. As indicated earlier, this research was conducted at the institution level rather than the PSE system level and utilized York University as a case study. It does not examine the full PSE experience. It also focuses exclusively on block transfer as it is the most common form of transfer at York University.<sup>28</sup>

### **Does the phenomenon of excess credits exist? If so, how much excess?**

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<sup>28</sup> Other models of transfer at York University include the dual credential model where students are able to obtain a credential from both institutions sequentially. For example, Seneca College students in the civil engineering technology advanced diploma program can obtain an honours bachelor's degree in environmental studies with two additional years of study at York University. A second model of transfer includes collaborative and joint programs. For example, students in nursing will enrol in the first two years of their program at college and complete the last two years at York University. Collaborative programs such as nursing are designed to meet the requirements of an external accreditation body. Joint programs allow the student to follow a three or four-year university degree program and then add an extra year to obtain practical experience while earning a college certificate. Examples include the joint program in psychology and rehabilitation services.

As outlined previously, the costs associated with excess credits are manifold and therefore the mitigation of excess credits along with potential gains in efficiencies could lead to a range of possible benefits.<sup>29</sup> All of the aforementioned possibilities depend on the existence of excess credits and its magnitude. Our investigation reveals that excess credits do indeed exist for both college-to-university transfer students and non-transfer students, though the magnitude of excess credits is not particularly large — especially, if we compare it to that reported in the American literature (e.g., Campaign for College Opportunity, 2014; Complete College America, 2011; Florida Department of Education, 2005; Kinne, Blume, & Roza, 2013; Zeidenberg, 2012). In the American literature the average reported excess credits ranges between 13.5 to 16 excess credits based on a 120 credit four-year degree program (Complete College America, 2011; Kinne et al., 2013). In the present investigation, the average magnitude of excess credits for transfer students is approximately 6.22, which is approximately the equivalent of one full year course. Note that this average includes the entire distribution, depicted in Figure 1 and includes relatively infrequent, extreme cases. However, if we consider the median – which is not affected by extreme cases, the magnitude of excess credit for transfer students drops to only 1 credit. For non-transfer students the magnitude of excess credits is 3.05 credits on average – this is roughly equivalent to one half-year course. When we consider the median, then as a group, the magnitude of excess credits drops to zero for non-transfer students. In other words, individuals from both groups can accumulate a small amount of excess credits, with transfer students likely to accumulate a bit more excess credits. The question of whether this magnitude of excess credits represents a need for policy action is explored further below.

### **Factors that are associated with excess credits**

The demographic characteristics of students and the academic features that are associated with the accumulation of excess credits provide a context that informs the development of potential policy actions to minimize excess credits, should they be required. Furthermore, it also

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<sup>29</sup> Indeed, by minimizing excess credits, one could potentially decrease students' time to completion, reduce delays from students entering the workforce, reduce tuition costs to students, reduce costs to governments and tax payers who support the PSE system and incrementally increase the capacity of the system by freeing new seats for the next cohort of students.

informs decision makers in terms of which students are likely to require support so that they may complete their degree program in a timely fashion.

**Demographic Characteristics.** While there is growing evidence from Ontario to suggest that female students are more likely than male students to engage in college-to-university transfer (Confederation College, 2012; Drewes, Maki, Lew, Wilson, & Stringham, 2012; Kerr, McCloy, & Liu, 2010; Smith, Deacock, Lin, Sidhu, & McCloy, in press.; Stuart & Martinello, 2012) the current investigation shows that male transfer students have greater odds of accumulating excess credits than female transfer students. This finding is consistent with research examining transfer students in British Columbia (Pendleton, 2010).<sup>30</sup> Age is also an important: research focusing college-to-university transfer students in Ontario suggests that age is negatively related with time to completion and probability of credential attainment (Smith et al., in press). The present investigation adds that older transfer students who reach the point of graduation have greater odds of accumulating excess credits.<sup>31</sup> With the exception of visa students, demographic characteristics that do not describe the majority, such as permanent residents (versus Canadian citizens), having a mother tongue other than English and living in residence (versus those who commute) are also associated with the accumulation of excess credits in transfer students. It is also worth noting that all of the aforementioned characteristics are associated with the accumulation of excess credits in non-transfer students as well, but to a lesser extent. Visa students on the other hand, do not accumulate excess credits, possibly because they may face pressures to complete their degree program within a certain time frame.

**Academic features.** Prior research has identified that students who change their program of study will likely accumulate excess credits (Kinne et al., 2013; Pendleton, 2010). The current investigation confirms these findings by demonstrating that when both transfer or non-transfer students make any sort of change to their faculty, degree type or program they have greater odds

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<sup>30</sup> One untested hypothesis could be that transfer patterns are gendered. For example, males may transfer into male dominated fields such as the STEM (science, technology engineering or math) fields. Some of these areas of study are precisely where students accumulate excess credits, regardless of transfer status (See Table 4 & 6). Future research is required to test this hypothesis fully. As discussed later in this paper, excess credits could also have something to do with the program structure.

<sup>31</sup> This may be due to the fact that age is confounded with the number of previous credits earned. Older students are likely to have earned more transfer credits in the past, however as will be discussed later in this paper, these credits cannot be allocated to the degree program because there is not enough space to accommodate them and therefore they become excess credits.

in accumulating excess credits. Additionally, transfer students have greater odds in accumulating excess credits compared to non-transfer student for these variables. The effect of changing Faculties is complex. Transfer students are less likely to change Faculty after transfer, but have greater odds of accumulating excess credits if they do. Students often change academic paths, particularly at transition points. Previous research revealed that up to 49% of transfer students changed their majors at some point during their time at university (Smith et al., in press).<sup>32</sup> Such changes can lead to more time spent at the receiving institution. This pattern of change is consistent with the Arnett's notion of "emerging adulthood" which occurs between the late teens to the mid-twenties: the age group we are investigating. Emerging adulthood is marked by personal experimentation and exploration as individuals discover their authentic identities (Arnett, 2000, 2004).

The present investigation also revealed that students who graduate with distinction — those with high grades— accumulate more excess credits. Untested explanations could be that students with higher grades may be more curious, have an intrinsic motivation to accumulate excess credits for their own edification, or add credits to improve their chance of success in graduate or professional school. Our data shows that non-transfer students are more likely repeat courses. However, if transfer students choose to do so, then they have greater odds of accumulating excess credits.

### **Locus of excess credits: Program/degree structure, Transfer process or both?**

Given that there is evidence that some transfer and non-transfer students accumulate excess credit, it is useful to examine whether the locus of the excess credit generation is within the structures of degrees or programs at the receiving institution or within student mobility processes. If excess credits generated by the (receiving) program or degree structure, certain programs and degree types should have greater odds of accumulating excess credits than the overall average of all programs, regardless of transfer status. If the transfer process is solely responsible for the accumulation of excess credits, the transfer population should generate more excess credits than the non-transfer population but the program itself should not generate more excess credits on average than all the others. If both program structure and transfer process are

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<sup>32</sup> Defined as a college major that was different from their university major based on SPEMAJ coding

implicated in the accumulation of excess credits, one would be able to detect differences in terms of specific programs relative to excess credits across all programs combined, and also detect differences between transfer and non-transfer students. Despite the relatively low levels of excess credits reported in this study, understanding the extent of excess credits, and knowing where they are being generated, gives us insight in terms of where to focus in efforts to mitigate them.

**Program/Degree structure.** The locus of excess credits was not found in degree structure *per se* (as seen in Figure 6.). However, if we focused at the level of individual programs (and program groups) it was clear that students who enrolled in music, agriculture & biology area or the math & physics area had greater odds in accumulating excess credits (see Figure 5). Both transfer and non-transfer students accumulated excess credits, though transfer students earned slightly more. The differences between the transfer and non-transfer groups are reported in Figure 5 with the differences between the groups ranging between 3 and 8 credits based on the median, and 5.08 and 8.29 credits based on the mean. However, it is important to emphasize that the odds of accumulating excess credits were not greater for transfers students versus non transfers students in these programs (as reported under “odds ratio”, Table 6) which bolsters the claim that the locus of excess credits from the program/degree structure and not the transfer process. These findings suggest that certain programs have curricula that are prone to the slight accumulation of excess credits. We can only speculate why this may be the case. Anecdotally, it may be that music students are taking extra courses out of interest, gaining skill or they may be delaying their entry in to the labour market. Students who change programs and opt for music may be required to take additional courses to make up for required background skills that are lacking. Students in the math and physics area may be taking extra courses to increase their averages in order to gain admission to graduate school. Additional research is required to fulsomely understand why excess credits are found in these programs/program areas.

**Transfer process.** At least two programs served as examples of where the locus of excess credits could be traced to some aspect of the transfer process, though the evidence pertaining to excess credits was not strong. As seen in Figure 5, the history program and the law and society program had excess credits, where the odds of students accumulating excess credits

differed according to transfer status.<sup>33</sup> In these programs the level of excess credits varied as a function of transfer status. That is, transfer students had greater odds of accumulating excess credits compared to non-transfer students. However, these programs overall (i.e., ignoring transfer status) did not have greater odds than all the programs combined in the accumulation of excess credits. The differences between transfer and non-transfer students was between 2.24 and 2.57 excess credits based on averages. However, based on medians, these differences dropped to zero credits between the groups. A cautious interpretation would suggest one could investigate whether something systematic is indeed occurring in the transfer process that results in a small amount of excess credits for some transfer students. However, on balance, the cause for concern appears minor.

When focusing on degree structure, a similar pattern appears for the BA degree. As seen on Figure 6, there is a difference of 2.36 excess credits between transfer and non-transfer students based on means. However, this difference drops to zero excess credits if medians are considered. Again, a cautious interpretation would warrant further attention to the transfer process, to investigate the source of excess credits in some transfer students.

**Both Transfer process and Program/Degree Structure.** According to Figure 5, kinesiology, English and administrative studies were programs where the odds of excess credits were greater than all the programs combined, regardless of transfer status. These programs also had greater odds for transfer students accumulating excess credits relative to non-transfer students. The differences between transfer and non-transfer students in terms of average excess credits ranged from 3.02 credits to 5.02 credits. If medians were considered, then the difference between the groups would be 3 credits.

At the level of degree program, the Bachelor of Administrative Studies (BAS), Bachelor of Fine Arts (BFA) and Bachelor of Science (BSc) are degree programs with greater odds of excess credit accumulation compared to all other degree types combined. In addition, transfer students also have greater odds than non-transfer students in accumulating excess credits. As seen in Figure 6, the difference between transfer students and non-transfer students ranges

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<sup>33</sup> The Design program also showed a similar pattern, but because there were fewer than 30 transfer students in some of the cells used to compute the odds ratio, the results were not considered to be reliable had to be treated with caution.

between 4.98 to 6.88 excess credits on average. If medians are considered, then the difference between the groups is between 3 and 6 credits. Given this pattern of results, one would have to investigate both the program structure and the transfer process to further uncover the source the excess credits.

### **How do transfer students fare?**

The academic success of transfer students and the number of transfer credits they receive play an important role in ensuring that college-to-university students have a good chance of attaining a baccalaureate credential in a timely and efficient manner. However, research about how college-to-university transfer students perform academically is mixed. A review paper by ONCAT (2013) reports that college-to-university transfer students have higher cumulative GPAs than non-transfer students, particularly if the program discipline is related what they studied in college and students receive a substantial block of transfer credits (ONCAT, 2013). Trick (2013) indicates that once at university, transfer students have GPAs that are equal to or slightly lower than those of non-transfer students. Stuart & Martinello (2012) found no differences between transfer and non-transfer students in terms of first-year GPA. The present investigation revealed that transfer students who had a previous university credential, or a combination of college and university credentials, had better GPAs than the median of all transfer students at graduation. However, transfer students who had college as a previous credential had a lower GPA than the median.

Baccalaureate credential attainment in a timely fashion is more likely for students who receive block credit transfer or large amounts of credit because it leaves students with fewer credits remaining to complete their program. Ontario research has revealed that college-to-university transfer students who received advanced standing or block transfer outperformed direct-entry students in terms of GPA in the first semester of university (Brown, 2012; Drewes et al., 2012).

## **Can the recognition of “too many” transfer credits be the source of excess credits? Are excess credits an artefact of the block transfer process?**

The present investigation confirms that students who received a large block of credits, completed their credentials faster, with a median time of 4 years.<sup>34</sup> However, receiving a large block of credits also increased the odds that transfer students would accumulate excess credits. This may be due to the fact that students do not have any space left to allocate the transfer credits within their chosen degree programs, because they have more transfer credits than can be allocated. This is an artefact of the block transfer process. If a student received 40 transfer credits and only 30 credits could be allocated to his 120 credit degree program, he would have 10 unallocated “excess” transfer credits but would not necessarily attain his credential any faster. He would still need to complete 90 credits at the receiving institution. Another student who received 30 transfer credits and is transferring into the same program would also need to complete 90 credits at the receiving institution. Both students could spend the same amount of time at the receiving institution but the latter student would end up with no excess credits from an institutional perspective. This phenomenon is evident in the present investigation. Figure 4 shows that the more transfer credits students receive above 30 transfer credits, the more excess credit they tend to accumulate. Maximal recognition of prior work that cannot be accommodated into a prospective degree program can be a source of excess credits.

### **Are excess credits a concern?**

Even if the block credit system is predisposed to generating excess credits, the present investigation suggests that at York the magnitude of excess credits is small and localized. Continual monitoring of excess credits is still warranted to inform decision makers about why the excess credits are being generated.

The strength of a block-credit policy is that it offers a simplified set of rules that allow for a large volume of students records to be processed. Students do not need to apply to receive credits. These credits are allocated to areas outside of the core degree program (i.e., electives), and occasionally to core degree courses where there is a substantial overlap of course content at

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<sup>34</sup> This includes students who had a prior university credential or a combination of university and college credentials.

the same level of study.<sup>35</sup> Due to its inherent flexibility the block transfer system is efficient and sustainable, even when programs or courses change at the sending institution. In addition, block transfer affords the following advantages at the receiving institution:

- Block transfer facilitates the recognition of college level course work where there is no direct one to one equivalent content mapping between college courses and university courses. However, groups of college courses may map to specific university courses. In other words, credit transfer assessment is based on the program and not necessarily individual course review.
- Block credit allows for the flexibility in that it can easily accommodate program changes which occur on a relatively high level of frequency (See Smith et al., in press). Transfer credits that were previously assessed to satisfy a specific major are converted to satisfy the elective requirements of the new program. Credits are not removed but re-assigned.

### **Excess credits: A positive aspect?**

Although it is beyond of the scope the present investigation, it is important to consider the positive aspects of excess credits from a student-centric, life-course perspective. One could argue that the generation of excess credit may be evidence that a student has found the program appropriate to his inclination and ability. Excess credits may reflect the student's attempt to acquire additional skills or knowledge that couldn't otherwise be gained inside a program. A history student might take an accounting course to gain useful knowledge for life post-graduation, or an accounting student might want to take a history course to round out his knowledge. The age group of the students examined in the present investigation largely correspond to the period of emerging adulthood (Arnett, 2000, 2004). This period is characterised by exploration and change. Our previous research can confirm that college-to-university transfer students do indeed make program changes at relatively high rates by the time they graduate (Smith et al., in press), which is consistent with Arnett's notion of exploration during emerging adulthood (2000, 2004).

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<sup>35</sup> It is probably more accurate to describe the transfer policy as a hybrid between course-by-course and block transfer. Within the block of credits, courses that have both equivalent content and level can be transferred on a course-by-course basis.

### **Limitations of the present investigation and directions for future research**

The results of the present investigation are not necessarily generalizable to other university institutions within the province because they do not all have a block transfer system. However, they may be inform those institutions who may be considering the adoption of a block transfer policy as a complement to their existing transfer polices as the volume of transfer students grows. A full investigation of the phenomenon of excess credits is warranted at the pan-institutional level but will not be possible until there is a means and process for sharing institutional data among institutions.

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Table 1.

*A list of American states who charge students for excess credits in an effort to mitigate them.*

<u>State</u>	<u>Excess Credit Threshold (as of 2015)</u>	<u>Student penalties</u>	<u>Legislative Authority</u>	<u>Year Implemented</u>	<u>Examples of Institutions</u>	<u>Website</u>
Arizona	greater than 145 credit hours (i.e. > 145/120 or greater than 120%)	Tuition surcharge  \$135 per credit hour up to 945 for 7 or more credits \$207 per credit hour up to \$2,484 for 12 or more credits	Arizona State Legislature (A.R.S. § 15-1626)	2005	Arizona State University	<a href="https://students.asu.edu/tuitionsurcharge">https://students.asu.edu/tuitionsurcharge</a>
Florida	greater than 120% (2009)  greater than 115% (between Fall 2011 and Summer 2012) greater than 110% (Since Fall 2012)	50% Tuition surcharge  100% tuition surcharge  100% tuition surcharge	Florida State Legislature § 1009.286, Florida Statutes	2009	Florida State University	<a href="http://registrar.fsu.edu/excess_hours/">http://registrar.fsu.edu/excess_hours/</a>

Table 1. *Continued...*

<u>State</u>	<u>Excess Credit Threshold (as of 2015)</u>	<u>Student penalties</u>	<u>Legislative Authority</u>	<u>Year Implemented</u>	<u>Examples of Institutions</u>	<u>Website</u>
Massachusetts	greater than 118%		Massachusetts Board of Higher Education		University of Massachusetts , Boston	<a href="https://www.umb.edu/bursar/tuition_and_fees">https://www.umb.edu/bursar/tuition_and_fees</a>
North Carolina	greater than 140 credits (116%)	50% Tuition surcharge	North Carolina General Assembly (code § 116-143.7) , State Board of Governors	2012		<a href="http://www.ncga.state.nc.us/enactedlegislation/statutes/pdf/bysection/chapter_116/gs_116-143.7.pdf">http://www.ncga.state.nc.us/enactedlegislation/statutes/pdf/bysection/chapter_116/gs_116-143.7.pdf</a>
					North Carolina State University	<a href="https://policies.ncsu.edu/regulation/reg-02-65-05">https://policies.ncsu.edu/regulation/reg-02-65-05</a>
Texas	in excess of 45 credit hours (Fall 1999 to summer 2006)	not to exceed the non-resident rate	Texas Legislature — Texas Education Code § 54.014	1999		Texas education code: <a href="http://www.statutes.legis.state.tx.us/Docs/ED/htm/ED.54.htm">http://www.statutes.legis.state.tx.us/Docs/ED/htm/ED.54.htm</a>
	in excess of 30 credit hours (Since fall 2006)	not to exceed the non-resident rate		2006	University of Texas, Dallas	<a href="https://www.utdallas.edu/registrar/legislative-policies/excessive-hours/">https://www.utdallas.edu/registrar/legislative-policies/excessive-hours/</a>

Table 1. *Continued.*

<u>State</u>	<u>Excess Credit Threshold (as of 2015)</u>	<u>Student penalties</u>	<u>Legislative Authority</u>	<u>Year Implemented</u>	<u>Examples of Institutions</u>	<u>Website</u>
Virginia	greater than 125%	Tuition surcharge (the difference between in-state and out of state fees)	Code of Virginia § 23-7.4:F	2006		<a href="http://law.lis.virginia.gov/vacode/23-7.4/">http://law.lis.virginia.gov/vacode/23-7.4/</a>
Wisconsin	greater than 165 credits (137.5%)	100% tuition surcharge		2004	University of Wisconsin-Madison	<a href="https://registrar.wisc.edu/excess_cumulative_credits.htm">https://registrar.wisc.edu/excess_cumulative_credits.htm</a>
Utah	greater than 135% (2003)	Tuition surcharge	Utah State Board of Regents	2003	Utah State University	<a href="http://www.usu.edu/registrar/htm/tuition/payment/surcharge">http://www.usu.edu/registrar/htm/tuition/payment/surcharge</a>
	greater than 125% (2013)	out of state fees		2013		<a href="https://advising.usu.edu/advisors/news/surcharge">https://advising.usu.edu/advisors/news/surcharge</a>

Table 2. Total number of earned credits at graduation: Total and by transfer status.

	Total Freq.		By Transfer Status	
	<i>N</i>	%	Non-Trans	Transfer
<b>Over 120 Earned credits</b>				
= 120	6743	59.14	4902	1841
> 120	4659	40.86	2814	1845
Total	11402	100.00	7716	3686
Odds (>120 / =120)		.69	.57	1.00
<b>Earned Credits</b>				
Mean		124.07	123.05	126.22
Median		120	120	121

Note. Freq. = frequency, Trans = Transfer

Table 3. Total, mean and median number of earned credits at graduation as a function of excess credits (or not) and transfer status for various demographic variables.

	Earned Credits			Odds (>120 / =120)	By Transfer Status & Earned Credits				Odds Ratio (>120 / =120) <sub>trans</sub> / (>120 / =120) <sub>non-trans</sub>	Mean of Earned Credits			Median of Earned Credits		
	=120	>120			Non-Transfer		Transfer			Non Transfer	Transfer	Total	Non Transfer	Transfer	Total
					=120	>120	=120	>120							
<b>Gender</b>															
Female	4489	2826		.63	3271	1721	1218	1105	1.72	122.80	<b><u>126.04</u></b>	123.83	120	120	120
Male	2254	1833		<b>.81</b>	1631	1093	623	740	<b><u>1.77</u></b>	123.50	<b><u>126.52</u></b>	124.51	120	<b><u>123</u></b>	120
Total	6743	4659		.69	4902	2814	1841	1845	1.75	123.05	126.22	124.07	120	121	120
<b>Age upon Entry</b>															
<=17	44	22		.50	42	17	2	5	<b><u>6.18</u></b>	121.58	123.00	121.73	120	<b><u>123</u></b>	120
18	3131	1511		.48	3057	1434	74	77	<b><u>2.22</u></b>	122.51	<b><u>125.17</u></b>	122.59	120	<b><u>121</u></b>	120
19	1243	846		.68	990	617	253	229	1.45	123.11	<b><u>124.28</u></b>	123.38	120	120	120
20	695	593		<b>.85</b>	316	287	379	306	.89	124.47	<b><u>125.23</u></b>	124.88	120	120	120
21	466	458		<b>.98</b>	173	190	293	268	.83	125.08	<b><u>125.65</u></b>	125.42	121	120	120
22	295	292		<b>.99</b>	99	91	196	201	1.12	125.06	<b><u>126.18</u></b>	125.82	120	<b><u>122</u></b>	120
23	223	224		<b>1.00</b>	67	62	156	162	1.12	125.62	<b><u>126.32</u></b>	126.12	120	<b><u>121</u></b>	121
24	147	142		<b>.97</b>	39	27	108	115	1.54	124.44	<b><u>126.47</u></b>	126.01	120	<b><u>123</u></b>	120
25	105	121		<b>1.15</b>	19	19	86	102	1.19	123.71	<b><u>127.56</u></b>	126.91	<b><u>121.5</u></b>	<b><u>123</u></b>	123
>=26	386	436		<b>1.13</b>	94	64	292	372	<b><u>1.87</u></b>	122.99	<b><u>128.84</u></b>	127.71	120	<b><u>123</u></b>	123
Total	6735	4645		.69	4896	2808	1839	1837	1.74	123.05	126.21	124.07	120	120	120
<b>Immigration Status</b>															
Canadian Citizen	5932	3874		.65	4497	2513	1435	1361	1.70	123.01	<b><u>125.72</u></b>	123.78	120	120	120
Permanent Resident	528	562		<b>1.06</b>	314	252	214	310	<b><u>1.80</u></b>	123.59	<b><u>129.29</u></b>	126.33	120	<b><u>123</u></b>	121
Visa - other	24	18		<b>.75</b>	10	6	14	12	1.43	122.75	<b><u>125.27</u></b>	124.31	120	120	120
Visa - student	259	205		<b>.79</b>	81	43	178	162	1.71	122.85	<b><u>125.68</u></b>	124.92	120	120	120
Total	6743	4659		.69	4902	2814	1841	1845	1.75	123.05	126.22	124.07	120	121	120
<b>Mother Tongue</b>															
English (and other)	5090	3236		.64	3746	2014	1344	1222	1.69	122.92	<b><u>125.51</u></b>	123.72	120	120	120
Other lang only	1653	1423		<b>.86</b>	1156	800	497	623	<b><u>1.81</u></b>	123.41	<b><u>127.84</u></b>	125.02	120	<b><u>123</u></b>	120
Total	6743	4659		.69	4902	2814	1841	1845	1.75	123.05	126.22	124.07	120	121	120
<b>Commute / Residence (1st year)</b>															
Commuter	6173	4249		.69	4458	2553	1715	1696	1.73	123.05	<b><u>126.14</u></b>	124.06	120	120	120
In Residence	570	410		<b>.72</b>	444	261	126	149	<b><u>2.01</u></b>	123.05	<b><u>127.22</u></b>	124.22	120	<b><u>123</u></b>	120
Total	6743	4659		.69	4902	2814	1841	1845	1.75	123.05	126.22	124.07	120	121	120

Note. Odds, odds ratios and means that underlined have values greater the overall total corresponding value. Bolded and underlined values are derived from cells that are greater than 30. Trans. = Transfer; lang = language.

Table 4. Total, mean and median number of earned credits at graduation as a function of excess credits (or not) and transfer status for various academic features

	Earned Credits		Odds (>120 / =120)	By Transfer Status & Earned Credits				Odds Ratio (>120 / =120) <sub>trans</sub> / (>120 / =120) <sub>non-trans</sub>	Mean of Earned Credits			Median of Earned Credits		
	=120	>120		Non-Transfer		Transfer			Non Transfer	Transfer	Total	Non Transfer	Transfer	Total
				=120	>120	=120	>120							
<b>Changed faculty</b>														
NO	6110	3835	.63	4400	2250	1710	1585	<u>1.81</u>	122.67	<u>125.67</u>	123.67	120	120	120
YES	633	824	<u>1.30</u>	502	564	131	260	<u>1.77</u>	125.38	<u>130.83</u>	126.84	<u>121</u>	<u>126</u>	123
Total	6743	4659	.69	4902	2814	1841	1845	1.75	123.05	126.22	124.07	120	121	120
<b>Changed degree type</b>														
NO	5938	3665	.62	4281	2187	1657	1478	1.75	122.72	<u>125.44</u>	123.61	120	120	120
YES	805	994	<u>1.23</u>	621	627	184	367	<u>1.98</u>	<u>124.74</u>	<u>130.66</u>	126.55	121	<u>126</u>	123
Total	6743	4659	.69	4902	2814	1841	1845	1.75	123.05	126.22	124.07	120	121	120
<b>Changed program</b>														
NO	4686	2875	.61	3303	1663	1383	1212	1.74	122.52	<u>125.52</u>	123.55	120	120	120
YES	2057	1784	<u>.87</u>	1599	1151	458	633	<u>1.92</u>	123.99	<u>127.88</u>	125.09	120	<u>123</u>	120
Total	6743	4659	.69	4902	2814	1841	1845	1.75	123.05	126.22	124.07	120	121	120
<b>Graduated with Distinction</b>														
NO	4769	3238	.68	3533	2024	1236	1214	1.71	122.98	<u>125.82</u>	123.85	120	120	120
YES	1974	1421	<u>.72</u>	1369	790	605	631	<u>1.81</u>	123.22	<u>127.01</u>	124.60	120	<u>122</u>	120
Total	6743	4659	.69	4902	2814	1841	1845	1.75	123.05	126.22	124.07	120	121	120
<b>Repeated COURSES</b>														
No repeats	4844	2967	.61	3431	1713	1413	1254	<u>1.78</u>	122.63	<u>125.53</u>	123.62	120	120	120
1	1243	949	.76	974	597	269	352	<u>2.13</u>	123.40	<u>127.98</u>	124.70	120	<u>123</u>	120
2	336	379	<u>1.13</u>	255	254	81	125	1.55	<u>124.72</u>	<u>127.44</u>	125.50	120	<u>123</u>	122
>=3	268	343	<u>1.28</u>	214	238	54	105	1.75	<u>125.17</u>	<u>129.79</u>	126.37	<u>121</u>	<u>126</u>	123
Total	6691	4638	.69	4874	2802	1817	1836	1.76	123.07	126.24	124.10	120	121	120

Note. Odds, odds ratios and means that underlined have values greater the overall total corresponding value. Bolded and underlined values are derived from cells that are greater than 30.

Table 4. Continued...

Degree type	Earned Credits		Odds (>120 / =120)	By Transfer Status & Earned Credits				s Odds Ratio (>120 / =120) <sub>trans</sub> / (>120 / =120) <sub>non-trans</sub>	Mean of Earned Credits			Median of Earned Credits		
	=120	>120		Non-Transfer		Transfer			Non Transfer	Transfer	Total	Non Transfer	Transfer	Total
				=120	>120	=120	>120							
BA	4537	2293	.51	3230	1295	1307	998	<b><u>1.90</u></b>	122.32	<u>124.68</u>	123.11	120	120	120
BAS	582	511	<b><u>.88</u></b>	371	207	211	304	<b><u>2.58</u></b>	123.02	<b><u>128.00</u></b>	125.37	120	<b><u>123</u></b>	120
BDEM	3	1	.33			3	1		.	<u>123.00</u>	123.00	.	120	120
BDES	155	87	.56	141	64	14	23	<u>3.62</u>	122.00	<u>125.92</u>	122.60	120	<u>123</u>	120
BES	158	51	.32	114	27	44	24	<u>2.30</u>	121.21	123.90	122.08	120	120	120
BFA	409	445	<b><u>1.09</u></b>	353	345	56	100	<b><u>1.83</u></b>	124.89	<b><u>130.45</u></b>	125.90	120	<b><u>126</u></b>	123
BHRM	96	87	.91	94	46	2	41	<u>41.89</u>	122.44	<u>136.47</u>	125.73	120	<u>135</u>	120
BHS	99	61	.62	68	31	31	30	<b><u>2.12</u></b>	122.49	<b><u>128.97</u></b>	124.96	120	120	120
BPA	4	10	<u>2.50</u>	1	6	3	4	.22	124.29	123.86	124.07	<u>123</u>	<u>123</u>	123
BSc	491	1037	<b><u>2.11</u></b>	437	761	54	276	<b><u>2.94</u></b>	125.39	<b><u>132.27</u></b>	126.88	<b><u>122</u></b>	<b><u>128</u></b>	123
BSW	206	67	.33	91	26	115	41	1.25	121.21	122.96	122.21	120	120	120
IBA	3	6	<u>2.00</u>	2	4	1	2	1.00	125.50	<u>130.00</u>	127.00	<u>126</u>	<u>126</u>	126
IBSc		3			2		1		128.50	<u>181.00</u>	146.00	<u>128.5</u>	<u>181</u>	136
Total	6743	4659	.69	4902	2814	1841	1845	1.75	123.05	126.22	124.07	120	121	120

Note. Odds, odds ratios and means that underlined have values greater the overall total corresponding value. Bolded and underlined values are derived from cells that are greater than 30. Trans. = Transfer; BA = Bachelor of Arts; BAS = Bachelor of Administrative studies; BDEM = Bachelor of Disaster and Emergency Management; BDES = Bachelor of Design; BES = Bachelor of Environmental Studies; BFA = Bachelor of Fine Arts; BED = Bachelor of Education ; cons = concurrent; BHRM = Bachelor of Human Resource Management; BHS = Bachelor of Health Studies; BPA = Bachelor of Public Administration; BSc = Bachelor of Science; BSW = Bachelor of Social Work; IBA = International Bachelor of Arts; IBSc =International Bachelor of Science.

Table 5. Mean and median number of credits taken, failed, transfer credits granted, final GPA and time to completion as a function of graduating with excess credits or not.

	Credits Taken			Credits Failed			Trans. Cred.	Final GPA			Time to completion		
	Non Transfer	Transfer	Total	Non Transfer	Transfer	Total	Transfer	Non Transfer	Transfer	Total	Non Transfer	Transfer	Total
<b>Mean</b>													
Earned credits =120	122.20	121.36	121.97	.54	.27	.47	30.77	6.43	<b>6.60</b>	6.48	<b>5.68</b>	4.72	5.42
Earned credits >120	<b>132.40</b>	<b>134.93</b>	133.40	<b>.89</b>	.54	.75	37.53	6.42	<b>6.65</b>	6.51	<b>6.01</b>	4.96	5.59
Total	125.92	128.15	126.64	.67	.41	.59	34.15	6.43	6.62	6.49	5.80	4.84	5.49
<b>Median</b>													
Earned credits =120	120	120	120	0	0	0	30	6.35	<b>6.5</b>	6.38	<b>6</b>	5	5
Earned credits >120	<b>129</b>	<b>132</b>	129	0	0	0	30	6.33	<b>6.6</b>	6.44	<b>6</b>	5	6
Total	123	123	123	0	0	0	30	6.34	6.55	6.4	6	5	5

Note. Bolded and underlined means or medians have values that are greater the overall total corresponding value. Trans. Cred. = Transfer Credits Received; GPA = Grade Point Average

Table 6. Total, mean and median number of earned credits at graduation as a function of excess credits (or not) and transfer status for various program groups & detailed programs.

	Earned Credits			By Transfer Status & Earned Credits					Mean of Earned Credits			Median of Earned Credits		
	=120	>120	Odds (>120 / =120)	Non-Transfer		Transfer		Odds Ratio (>120 / =120) <sub>trans</sub> / (>120 / =120) <sub>non-trans</sub>	Non Transfer	Transfer	Total	Non Transfer	Transfer	Total
				=120	>120	=120	>120							
<b>Detailed Programs</b>														
0-Gen A&S, Mult	15	22	<u>1.47</u>	10	15	5	7	.93	122.72	<b><u>124.25</u></b>	123.22	<b><u>121</u></b>	<b><u>123</u></b>	121
1-KINE	683	484	<u>.71</u>	589	372	94	112	<b><u>1.89</u></b>	123.21	<b><u>126.73</u></b>	123.83	120	<b><u>123</u></b>	120
2-DESN	155	87	.56	141	64	14	23	<u>3.62</u>	122.00	<b><u>125.92</u></b>	122.60	120	<b><u>123</u></b>	120
2-MUSI	87	178	<b><u>2.05</u></b>	72	137	15	41	1.44	<b><u>128.41</u></b>	<b><u>133.49</u></b>	129.48	<b><u>126</u></b>	<b><u>129</u></b>	126
2-VISA	217	128	.59	189	103	28	25	1.64	123.22	<b><u>129.00</u></b>	124.10	120	120	120
2-x-Other	291	242	<b><u>.83</u></b>	248	174	43	68	<b><u>2.25</u></b>	123.06	<b><u>129.07</u></b>	124.31	120	<b><u>123</u></b>	120
3-COMN	184	95	.52	104	43	80	52	1.57	122.28	123.82	123.01	120	120	120
3-EN	296	221	<u>.75</u>	239	138	57	83	<b><u>2.52</u></b>	123.15	<b><u>126.84</u></b>	124.15	120	<b><u>123</u></b>	120
3-HIST	254	154	.61	202	105	52	49	<b><u>1.81</u></b>	122.66	125.23	123.30	120	120	120
3-x-Other	439	298	.68	299	169	140	129	1.63	122.94	124.89	123.65	120	120	120
4-ADMS	552	494	<b><u>.89</u></b>	348	200	204	294	<b><u>2.51</u></b>	<b><u>123.08</u></b>	<b><u>128.10</u></b>	125.47	120	<b><u>123</u></b>	120
4-CRIM	212	82	.39	160	57	52	25	1.35	122.05	122.96	122.29	120	120	120
4-ECON	135	69	.51	60	24	75	45	1.50	122.61	123.37	123.05	120	120	120
4-ENST	158	51	.32	114	27	44	24	<u>2.30</u>	121.21	123.90	122.08	120	120	120
4-LASO	260	98	.38	198	54	62	44	<b><u>2.60</u></b>	121.67	123.91	122.34	120	120	120
4-PSYC	738	425	.58	525	258	213	167	1.60	122.66	<u>124.76</u>	123.34	120	120	120
4-SOCI	588	178	.30	398	100	190	78	1.63	121.68	122.51	121.97	120	120	120
4-SOWK	206	67	.33	91	26	115	41	1.25	121.21	122.96	122.21	120	120	120
4-x-Other	1073	660	.62	759	337	314	323	<b><u>2.32</u></b>	122.51	<b><u>126.84</u></b>	124.10	120	<b><u>123</u></b>	120
5-Agri & Biol	73	347	<b><u>4.75</u></b>	69	266	4	81	<u>5.25</u>	<u>127.20</u>	<u>135.49</u>	128.88	<u>123</u>	<u>131</u>	125
8-Math & Phys	99	264	<b><u>2.67</u></b>	65	140	34	124	1.69	<b><u>124.97</u></b>	<b><u>130.59</u></b>	127.42	<b><u>122</u></b>	<b><u>126</u></b>	123
9-Other	28	15	.54	22	5	6	10	<u>7.33</u>	121.44	<b><u>125.63</u></b>	123.00	120	<b><u>123</u></b>	120
Total	6743	4659	.69	4902	2814	1841	1845	1.75	123.05	126.22	124.07	120	121	120

Note. Odds, odds ratios and means that underlined have values greater the overall total corresponding value. Bolded and underlined values are derived from cells that are greater than 30. SPEMAJ = Speciality Major; Gen A&S = General Arts & Sciences; Edu. (Kine.) = Education (Kinesiology); Sci. = Science; Agri. & Biol.= Agriculture & Biology; Math. & Phys.= Mathematics & Physics; Multi = Multidisciplinary, KINE = Kinesiology; DESN = Design; MUSI = Music; VISA = Visual Arts; COMN = Communications; EN = English; HIST = History; ADMS = Administrative Studies; CRIM = Criminology; ECON = Economics; ENST = Environmental Studies; LASO = Law and Society; PSYC = Psychology; SOCI= Sociology; SOWK = Social Work SPEMAJ Codes: 0 = general arts and science and interdisciplinary studies; 1 = education, physical education, sports, recreation and leisure; 2 = fine and applied arts; 3 = humanities and related; 4 =social sciences and related; 5 = agricultural and biological sciences ; 6 = engineering and applied sciences; 7 = health professions and occupations; 8 = mathematics and physical sciences ; 9 = and not applicable or not reported; x – specific subjects that are part of the program area that have been collapsed together.

Table 7. Total, mean and median number of earned credits, transfer credits, final GPA and time to completion as a function of previous post-secondary education and number of transfer credits granted for transfer students only.

	Earned Credits		Odds	Earned Credits		Transfer Credits		Final GPA		Time to completion	
	=120	>120	(>120 / =120)	Mean	Median	Mean	Median	Mean	Median	Mean	Median
<b>Previous PSE</b>											
1.Colleges only	800	576	.72	123.87	120	28.93	30	6.40	6.32	<b>4.93</b>	5.00
2.Universities only	446	488	<b>1.09</b>	<b>127.06</b>	<b>123</b>	<b>41.05</b>	<b>36</b>	<b>6.79</b>	<b>6.84</b>	4.56	4.00
3.Other	231	360	<b>1.56</b>	<b>129.18</b>	<b>123</b>	34.88	30	<b>6.84</b>	<b>6.85</b>	<b>4.82</b>	5.00
4.Multiple	210	272	<b>1.30</b>	<b>127.88</b>	<b>123</b>	<b>41.71</b>	<b>39</b>	6.61	<b>6.58</b>	4.71	4.00
Total	1687	1696	1.01	126.25	121	35.14	30	6.62	6.54	4.78	5.00
<b>Transfer Credits</b>											
1 - 14	355	344	.97	<b>124.89</b>	120	--	--	6.54	6.48	<b>5.53</b>	5.00
15 - 29	367	270	.74	123.71	120	--	--	6.54	6.41	<b>5.19</b>	5.00
30	585	380	.65	123.82	120	--	--	6.53	6.42	<b>4.87</b>	5.00
31 - 45	259	329	<b>1.27</b>	<b>126.24</b>	<b>123</b>	--	--	6.56	6.47	4.71	4.00
46 - 60	216	283	<b>1.31</b>	<b>127.56</b>	<b>123</b>	--	--	<b>6.84</b>	<b>6.86</b>	4.00	4.00
61 - 90	59	238	<b>4.03</b>	<b>140.23</b>	<b>138</b>	--	--	<b>7.07</b>	<b>7.14</b>	4.06	4.00
Total	1841	1844	1.00	126.22	121	35.14	30	6.62	6.55	4.84	5.00

Note. – Bolded and underlined means or medians have values that are greater the overall total corresponding value.

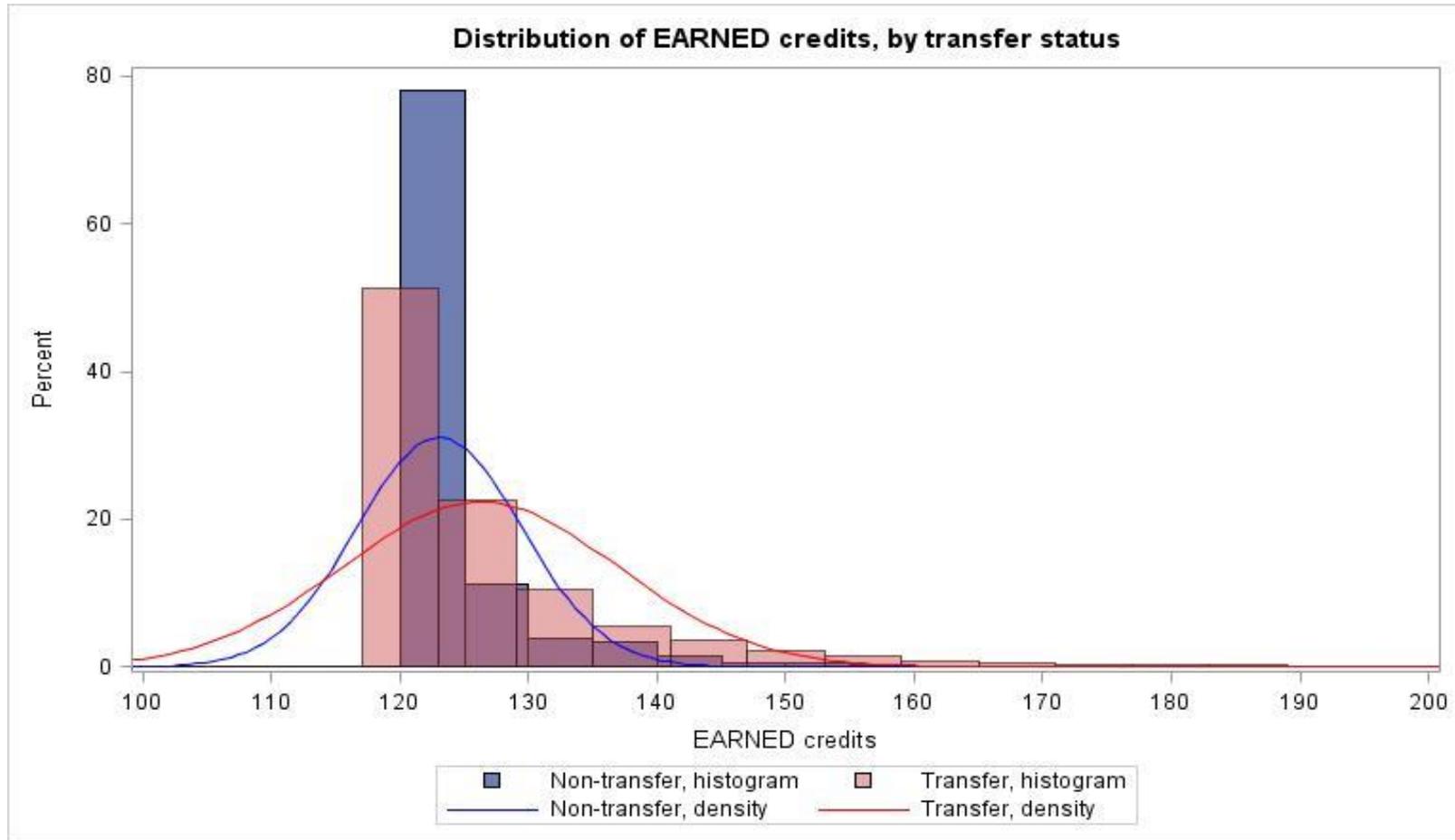


Figure 1. *Distribution of earned credits by transfer status.*

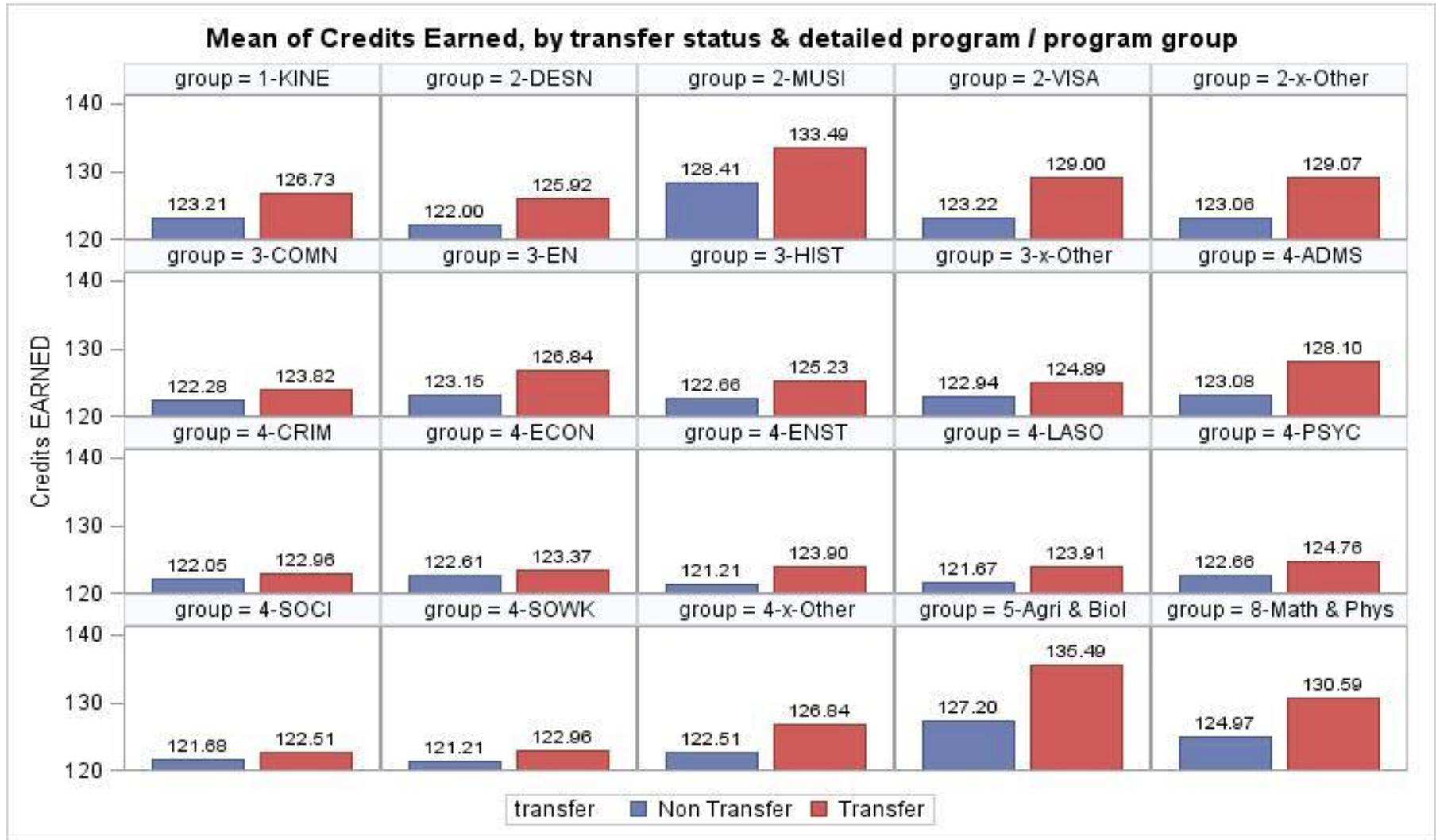


Figure 2. Mean number of credits earned at graduation as a function of transfer status and detailed program/program group.

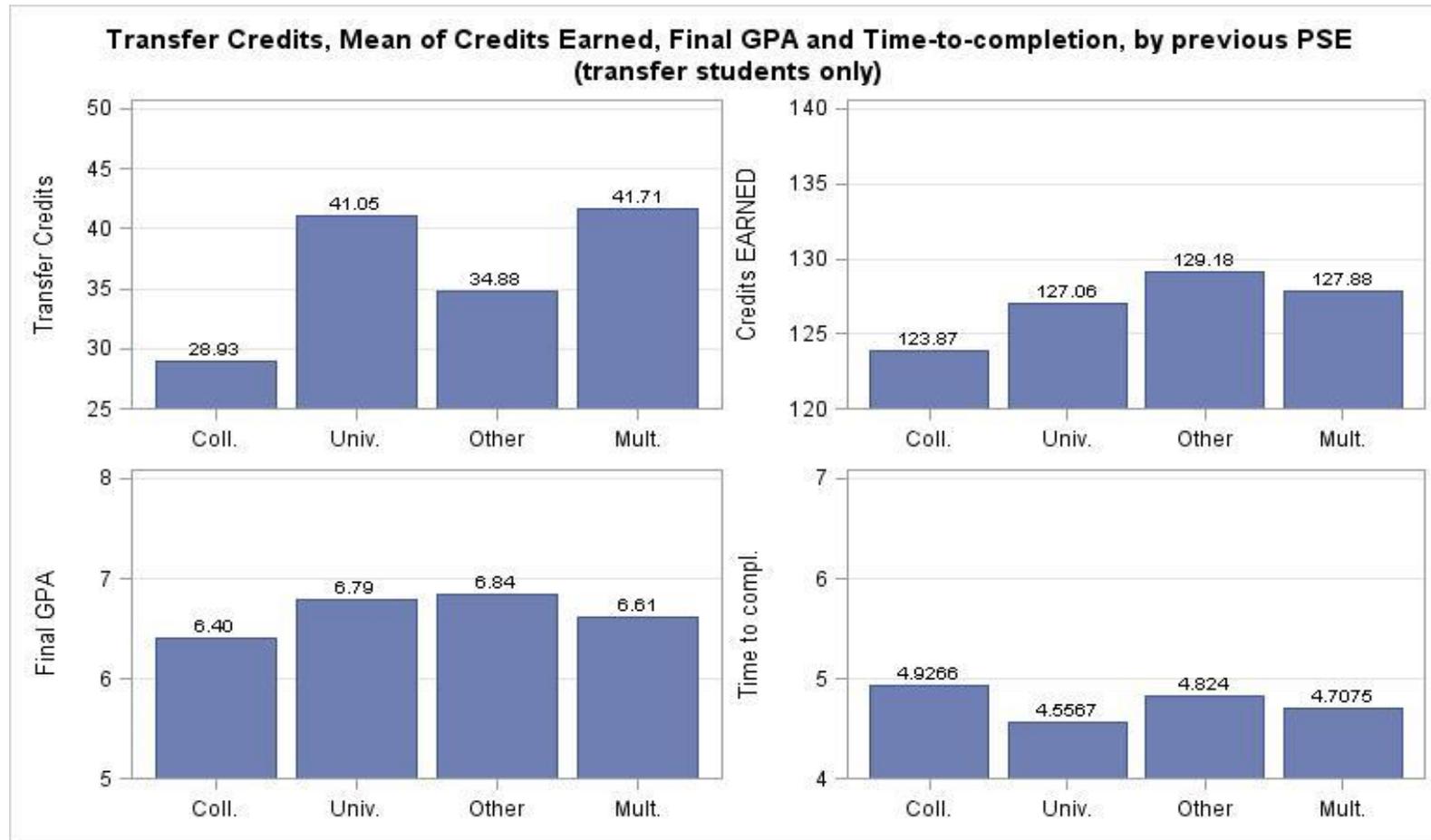


Figure 3. Total number of transfer credits, mean number of credits earned, final GPA and time to completion for transfer students as a function of previous post-secondary education.

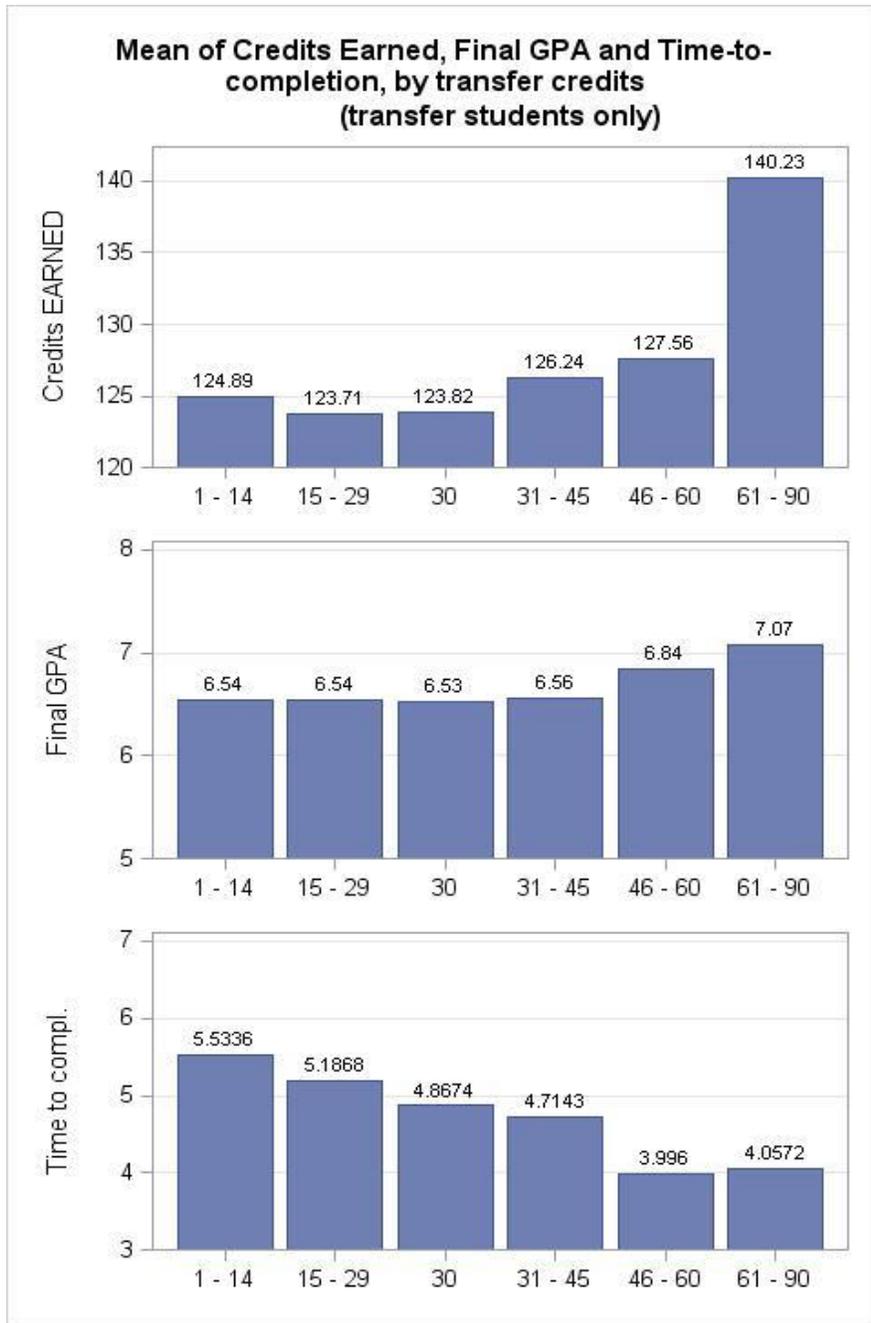


Figure 4. Mean number of credits earned, final GPA and Time-to-completion by transfer credits (transfer students only).

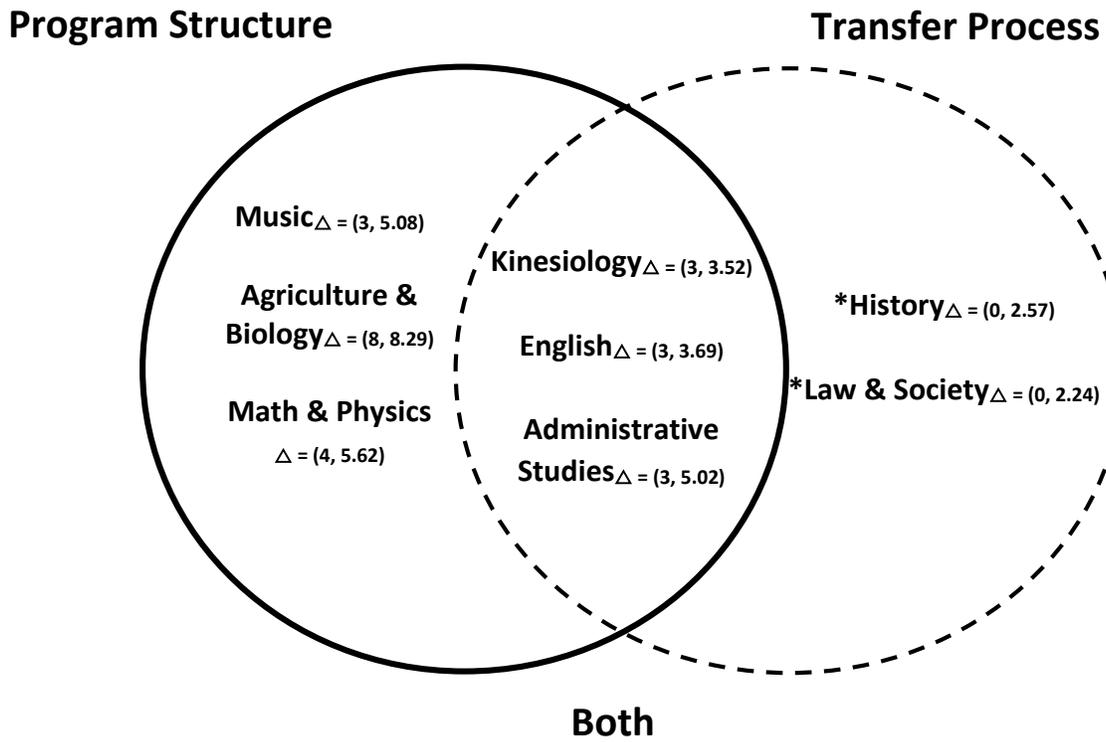


Figure 5. *Locus of excess credits: Program structure, transfer process or both?*

Note. Values in parentheses represent the difference of earned credits between transfer and non-transfer students. The first value represents the median and the second value represents the mean.

\* Based on the median value the difference is actually zero credits.

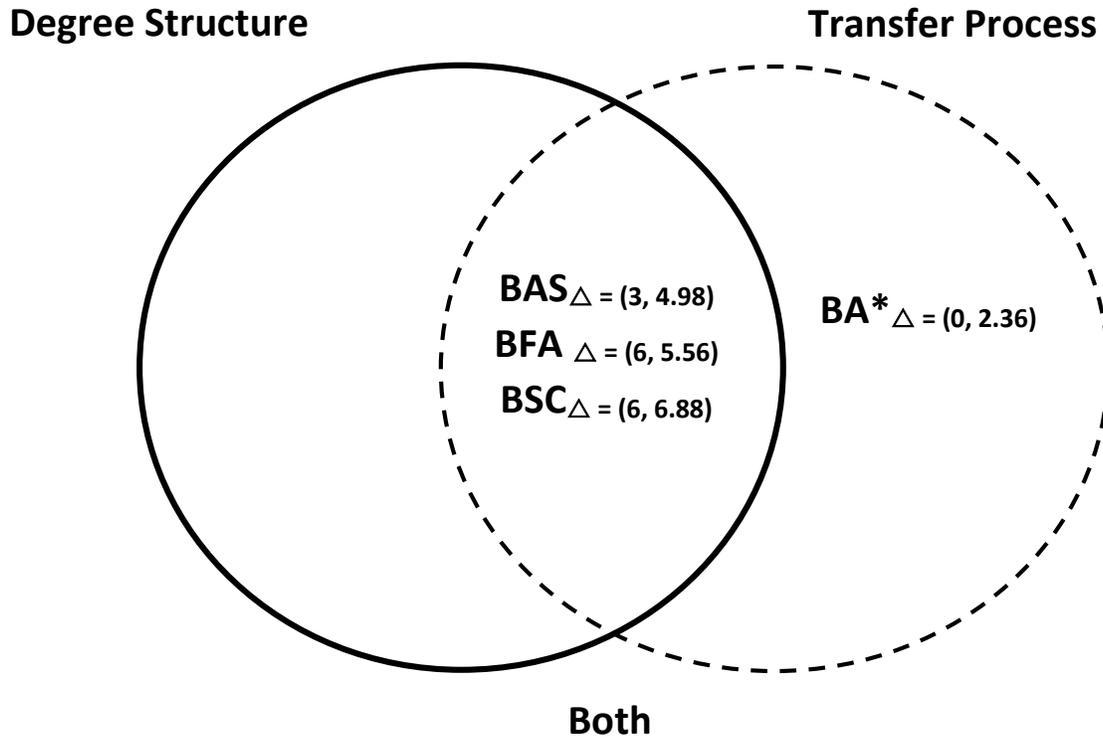


Figure 6. *Locus of excess credits: Degree structure, transfer process or both?*

*Note.* Values in parentheses represent the difference of earned credits between transfer and non-transfer students. The first value represents the median and the second value represents the mean.

\* The difference is actually zero credits if the median value is considered.

Appendix 1. Variables examined and frequency distributions

<b>Demographics</b>			<b>Academic Features</b>			<b>Academic Features</b>			<b>Previous PSE &amp; Transfer Credits</b>			
			Freq.			Freq.			Freq.			
			N	%	N	%	N	%	N	%		
<b>Gender</b>			<b>Changed faculty</b>			<b>Repeated Courses</b>			<b>Previous PSE</b>			
Female	7315	64.16	NO	9945	87.22	No repeats	7811	68.95	1.Colleges only	1376	40.67	
Male	4087	35.84	YES	1457	12.78	1	2192	19.35	2.Univ. only	934	27.61	
Total	11402	100.00	Total	11402	100.00	2	715	6.31	3.Other only	591	17.47	
<b>Age upon Entry</b>			<b>Changed degree type</b>			BPA			4.Multiple			
<=17	66	.58	NO	9603	84.22	Total	11329	100.00	Total	3383	100.00	
18	4642	40.79	YES	1799	15.78	<b>Repeated CREDITS</b>			<b>Transfer Credits</b>			
19	2089	18.36	Total	11402	100.00	No repeats	8468	74.75	1 – 14	699	18.97	
20	1288	11.32	<b>Changed program</b>			1159			15 – 29	637	17.29	
21	924	8.12	NO	7561	66.31	>5	1702	15.02	30	965	26.19	
22	587	5.16	33.69	Total			11329	100.00	31 – 45	588	15.96	
23	447	3.93	Total	11402	100.00	<b>Degree type</b>			46 – 60	499	13.54	
24	289	2.54	<b>Graduated with Distinction</b>			6830			59.90	61 – 90	297	8.06
25	226	1.99	NO	8007	70.22	BAS	1093	9.59	Total	3685	100.00	
>=26	822	7.22	YES	3395	29.78	BDEM	4	.04	<b>Detailed Programs</b>			
Total	11380	100.00	Total	11402	100.00	BDES	242	2.12	0-Gen A&S, Mult	37	.32	
<b>Immigration Status</b>						BES	209	1.83	1-KINE	1167	10.24	
Canadian Citizen	9806	86.00				BFA	854	7.49	2-DESN	242	2.12	
Permanent Resident	1090	9.56				BHRM	183	1.60	2-MUSI	265	2.32	
Visa - other	42	.37				BHS	160	1.40	2-VISA	345	3.03	
Visa - student	464	4.07				BPA	14	.12	2-x-Other	533	4.67	
Total	11402	100.00				BSc	1528	13.40	3-COMN	279	2.45	
<b>Mother Tongue</b>						BSW	273	2.39	3-EN	517	4.53	
English (and other)	8326	73.02				IBA	9	.08	3-HIST	408	3.58	
Other lang only	3076	26.98				IBSc	3	.03	3-x-Other	737	6.46	
Total	11402	100.00				Total	11402	100.00	4-ADMS	1046	9.17	
<b>Commute / Residence (1st year)</b>									4-CRIM	294	2.58	
Commuter	10422	91.41							4-ECON	204	1.79	
In Residence	980	8.59							4-ENST	209	1.83	
Total	11402	100.00							4-LASO	358	3.14	
									4-PSYC	1163	10.20	
									4-SOCI	766	6.72	
									4-SOWK	273	2.39	
									4-x-Other	1733	15.20	
									5-Agri & Biol	420	3.68	
									8-Math & Phys	363	3.18	
									9-Other	43	.38	
									Total	11402	100.00	