

## Exploring BC Post-Secondary Students' Interprovincial Mobility with Statistics Canada Data

Prepared for BCCAT by Iain Wilson, Tiffany MacLennan and Alex Usher, Higher Education Strategy Associates (HESA)



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## **Summary**

Responding to the BCCAT call to explore availability and reliability of Statistics Canada data for assessing interprovincial student mobility, HESA was commissioned to define a data request to Statistics Canada. We requested data on students who enrolled <u>full-time for the first time</u> at post-secondary institutions in British Columbia in the 2015/16 cohort. Statistics Canada flagged all records of students who still appeared in the Postsecondary Student Information System (PSIS) database in consequent years. This reflected students who started their journeys at a public college or university in British Columbia (BC) and then transferred to another province or left the system.

Statistics Canada can provide robust data on outflows of students from British Columbia to other Provinces and Territories. Extracting the data took some time but the process could be repeated more quickly in the future as the data structure has been set up.

The data analysed included students who were enrolled full-time at a British Columbian public college or university and later enrolled at a post-secondary institution in another province. Our analysis shows that relatively few BC students in the defined 2015/16 cohort moved to colleges or universities in other provinces. Of 21,111 students, 384 students appeared in Postsecondary Student Information System (PSIS) in another province after four years. They overwhelmingly went to Alberta and Ontario.

Not all of these were 'transfer' students as such. The available data does not allow us to distinguish which of these students received transfer credit when they moved, and we do not have details on what kind of studies they pursued in the destination province. The dataset may contain students who dropped out of full-time study and pursued casual education (for example, they began as undergraduates in British Columbia, moved to a non-graduate job in Ontario and started taking a single book-keeping course in the evening). The way in which the data was compiled may also mean students in apprenticeship programs and students who did not enrol at conventional times in the Fall semester were not included.

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## Method

Statistics Canada Postsecondary Student Information System (PSIS) database provides an annual snapshot of students enrolled in Canada's colleges and universities. HESA submitted a request to Statistics Canada for aggregate data on domestic students from British Columbia (BC) post-secondary institutions in the PSIS database. The students were enrolled full-time for the first time at post-secondary institutions in British Columbia in the 2015/16 academic year. The cohort included students in programs up to the bachelor level.

We requested to follow the most recent cohort with data available for four years. We received data on all of the students, but focused on domestic students (Canadian citizens and permanent residents) who moved to institutions in other provinces or territories in line with the project scope. Domestic or international status of student in Canada was defined at the end of the winter term, during the first year of enrolment. Students with missing status of student in Canada information in the year of enrolment are excluded from this analysis.

The breakdown variables provided were

- Institution type, at enrolment
- Field of study, at enrolment
- Institution type, 1-4 years after
- Institution province, 1-4 years after
- Field of study, 1-4 years after. Field of study is classified using the Variant of the Classification of Instructional Programs (CIP) Canada 2021 Version 1.0 for Alternative primary groupings (<a href="https://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=1486506">https://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=1486506</a>).
- Age group, at enrolment
- Gender
- Pathway, 1-4 years after:
  - Enrolled: A student is considered "enrolled" if they are enrolled full time or part time in the fall term of the year of measurement.
  - Graduated: A student is considered "graduated" if they have completed the requirements for graduation by the end of the calendar year of the year of measurement. Once a student has "graduated" status, the last valid values for institution type, institution province, and field of study are retained for the remainder of the period.
  - · Not enrolled: Otherwise, the students were defined as not enrolled and excluded from the analysis.

#### **LIMITATIONS**

The data provided by Statistics Canada appears to be robust. There were however limitations to be aware of when analysing the data.

#### Indirect data collection

The data in PSIS were reported by post-secondary institutions so cannot be controlled by us or Statistics Canada.

#### Transfer credit awarded

Statistics Canada does collect data on credits awarded to transfer students from colleges and universities, but the variable was not available for analysis due to completeness concerns. Thus, we cannot definitively say that the students included in the analysis below are 'transfer' students. Rather, we can say that they first enrolled a Canadian postsecondary institution in British Columbia in the 2015/16 academic year and that they subsequently appeared in the database at a college or university in another province. They may or may not have received any transfer credit.

#### Categories of students excluded

Programs associated with apprenticeships were not included in the data.

Also, students originally enrolled in BC part-time were excluded from the cohort.

International students as well as students with missing status of student in Canada information in the year of enrolment were excluded from this analysis.

#### Census dates

PSIS works by counting students on a census date in Fall each year. This means that students who followed an unconventional academic schedule and enrolled at the institution in Winter and Summer semesters instead of Fall semester, were not included in the student numbers for that year.

#### **Counting casual students**

The data request specified that Statistics Canada draw students who were enrolled full-time in British Columbia in 2015/16 and then appeared in PSIS in subsequent years. Students who dropped out of full-time education but took some part-time education would be included in PSIS and therefore appear in this data. For example, a student who dropped out of a degree in BC, moved to Newfoundland, took a job and was studying one course at night would appear in the dataset as a continuing student.

It would be possible in principle to change the specification so that only full-time students would be included. Conversely, BCCAT could choose to include students who are part-time both on initial enrollment in BC and on leaving the province.

#### Imputed institutions

Not all colleges and universities report data to PSIS. A small minority (less than 5%) are imputed statistically. This data draw did not include students at imputed institutions. However, imputed institutions are a small minority of institutions and they tend to be small, so we expect few students to be affected.

#### Uncodable fields of study

Uncodable fields of study (12% of students in the cohort) reflect missing data on a Classification of Instructional Programs (CIP) code that could be interpreted. This category is different from 'Other', which includes programs not included in the high-level CIP codes.

## **Original Cohort**

Statistics Canada provided the number of students with each of these characteristics in the 2015/16 cohort of British Columbian students. The initial cohort contained 21,111 students who were new entrant to post-secondary and enrolled full-time in British Columbia's public colleges and universities in Fall 2015. Of these, in Year One (i.e., in 2016/17),

- The cohort had a roughly even split by gender: 10,458 students identified as men and 10,653 as women (a binary gender was recorded that year).
- Most students (14,820, or 70%) were 19 or younger on enrolment.
- 9,249 students (about 44% of the cohort) initially attended colleges in British Columbia, as opposed to 11,862 students (56%) who started at universities.

Their initial 2015 fields of study were as follows:

Field of Study	Number of students
Architecture, engineering, and related trades	3,339
Physical and life sciences and technologies	3,297
Business, management and public administration	2,700
Uncodable	2,496
Humanities	2,253
Health and related fields	1,734
Social and behavioural sciences and law	1,554
Visual and performing arts, and communications	990
technologies	
Personal, protective and transportation services	684
Mathematics, computer and information sciences	609
Other	447
Education	393
Agriculture, natural resources and conservation	381
Personal improvement and leisure	234
Total	21,111

## Findings from the 2015/2016 Cohort

The cohort included 21,111 students. By the end of four years, only 384 students had enrolled in a post-secondary program at a PSIS-reporting institution in another province or territory.

We firstly present data on students who were enrolled in another province one year (2016/2017) after their first enrolment in British Columbia and then present data on students who were enrolled in another province *four years*  The cohort included 21,111 students. By the end of four years, only 384 students had enrolled in a post-secondary program at a PSIS-reporting institution in another province or territory.

(in academic year 2019/2020) after their first enrolment. The differences indicated trends in student mobility over time. All findings were based on aggregate data, not tracking individuals, and we could not know whether the students who appeared in Year One also appeared in Year Four.

Unsurprisingly, the numbers of BC students enrolled in other provinces increased gradually over the four years (Figure 1). The vast majority went to either Alberta or Ontario. The outflow of students was steady over the four years after this cohort first enrolled in British Columbia. There were slight jumps in Year 2 and Year 4 for outflow to Alberta and Ontario, which may reflect graduation dates.

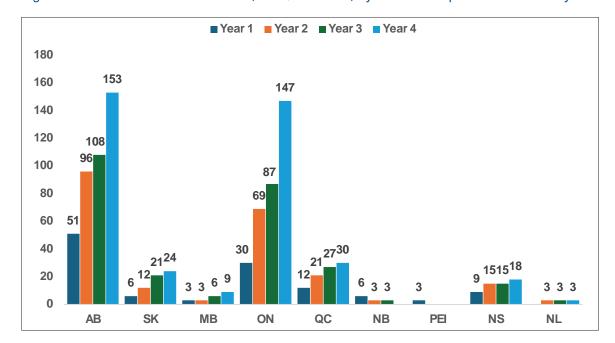


Figure 1. Number of students from BC, 2015/16 cohort, by destination province over four years

Note: Only provinces and territories with a non-zero numbers of students are shown.

### **YEAR ONE**

In Year One, the database included 120 students who had started in BC and appeared in other provinces a year later.

#### **Demographics**

The data showed there were more women than men among the students who initially enrolled in a college or university in British Columbia but went on to enroll in another province - 54 identified as men, 66 as women (**Figure 2**).

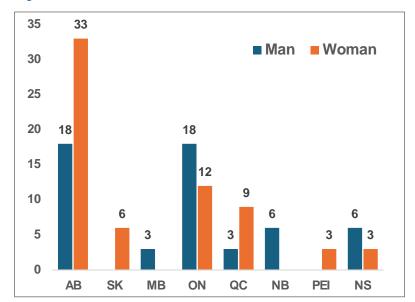


Figure 2. Number of students from BC, 2015/16 cohort, in Year One by gender

Note: PSIS used a binary gender choice for the 2015/16 cohort.

Most outbound students first enrolled in a BC college or university when they were 19 or younger, with only 30 of the 120 aged 20 or over at that point, and this is true for students going to most of the provinces (**Figure 3**).

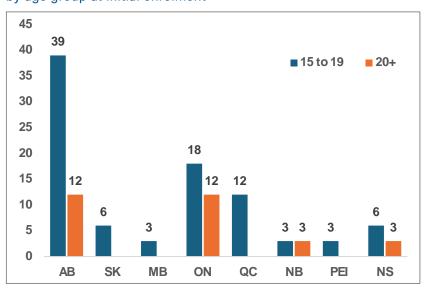


Figure 3. Number of students from BC, 2015/16 cohort, in Year One, by age group at initial enrolment

#### **Origins and Destinations**

One year after they initially enrolled in BC, the vast majority were still enrolled in college or university. Of the original cohort of 21,111 students, only 3,588 students (17%) were not enrolled in any province or territory one year later. However, only 120 students had moved to another province and enrolled in postsecondary education one year later.

For those students, Alberta was the most common destination by some distance (51 students), with Ontario in clear second place (30 students) (**Figure 4**).

A small minority (about 8% of students identified in other provinces) had graduated (e.g., with a diploma or an associate degree) and moved to another institution to pursue another program. The data did not allow us to follow any individual student to confirm if they graduated in BC or in another province.

Of the original cohort of 21,111 students, 3,588 students were not enrolled in any province or territory one year later.

Of the students who moved to other provinces, 69 had originally attended universities in British Columbia (58%) while 51 had attended colleges. Students who left BC for Alberta were more likely to have started in a BC college than a university (Figure 5). The reverse was true in Ontario. No students who left BC for Quebec had been attending a college.

Most students who left BC and then enrolled in another province (**Figure 5**) appeared in universities (80%, 96 of 120 students). Among these 120 mobile students, there was net movement from colleges to universities.

As for the field of study, there were very few students who had changed both their province and their field of study one year after their first enrolment in BC, so it is not feasible to identify policy-relevant patterns.

Figure 4. Number of students from BC, 2015/16 cohort, in Year One by destination province and outcome

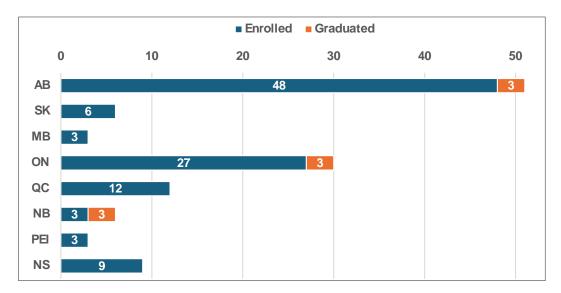
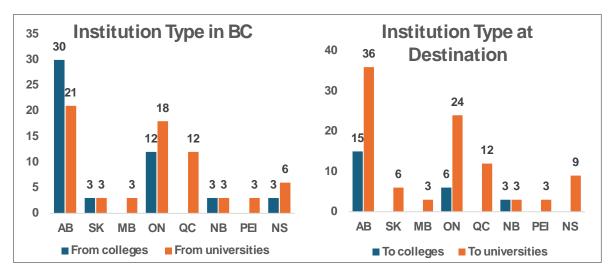


Figure 5. Number of students from BC, 2015/16 cohort, in Year One, by institution type attended in BC, and by institution type after leaving



#### **YEAR FOUR**

By the time four years had passed, some of the patterns became clearer. Four years after the cohort initially enrolled in British Columbia, there were more students who appeared in the PSIS database at a college or university in another province than in Year One. We expect these to include, but not be limited to, students who transferred credits from BC institutions to colleges or universities in other provinces.

There were **384** mobile students in the snapshot by that point. Even after four years, less than 2% of all the students who initially enrolled in BC institutions appeared at institutions in other provinces.

#### **Demographics**

Four years after they had initially enrolled in BC, most of the students who moved to another province were women (231 or 60% of interprovincially mobile students).

The gender balance differed between provinces (**Figure 6**). For the two provinces hosting the most students from BC (i.e., AB and ON), more women than men were enrolled in AB in both Year One and Year Four. For Ontario, this reverses the pattern seen in Year One when more men than women were enrolled in Year One (in that year, the numbers had been 18 men and 12 women), but by Year Four more women than men were identified as mobile students from BC (63 men and 84 women).

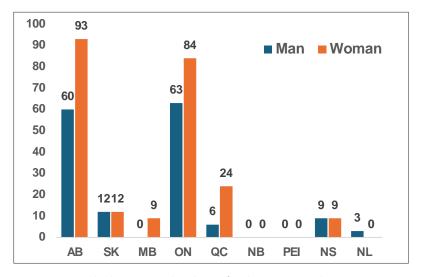


Figure 6. Number of students from BC, 2015/16 cohort, in Year Four, by gender

Note: PSIS used a binary gender choice for the 2015/16 cohort

Consistent with the pattern seen in Year One, most outbound students had been 19 or under when they first enrolled in British Columbia (303 out of 384 students). Only 81 (21%) had been 20 years old or older when they had first enrolled in BC (Figure 7).

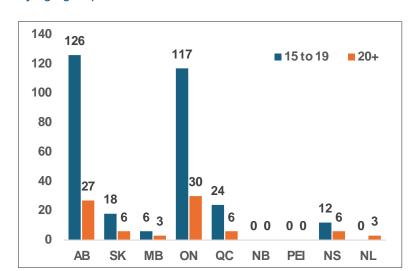


Figure 7. Number of students from BC, 2015/16 cohort, in Year Four, by age group at initial enrolment

#### **Origins and Destinations**

In Year Four, Ontario (147 students) almost matched Alberta (153 students) as a destination for students who first enrolled in BC post-secondary education and then became students in another province.

By this time, more of the outbound students originally attended a university in BC than a BC college. Of the 384 mobile students, 243 (63%) first enrolled at a BC university, a slight rise from the 58% in Year One. The majority of the outbound students (321, or 84%) went to a university in the new province (**Figure 8**).

Students who were still classified as 'enrolled' four years later were more likely to have gone to Alberta (**Figure 9**). Students who left BC for Ontario were much more likely to have graduated.

One plausible interpretation of this result may be that Alberta attracted more students from BC colleges who chose to complete a university qualification in another province. Ontario's pattern, on the other hand, with large numbers of graduated students of students from a BC university enrolling at universities in the province and a large proportion of graduated students, was consistent with moving for additional education, which might include a separate undergraduate program, graduate or professional degrees, or continuing education.

Figure 8. Number of students from BC, 2015/16 cohort, in Year Four, by institution type attended in BC and institution type after leaving

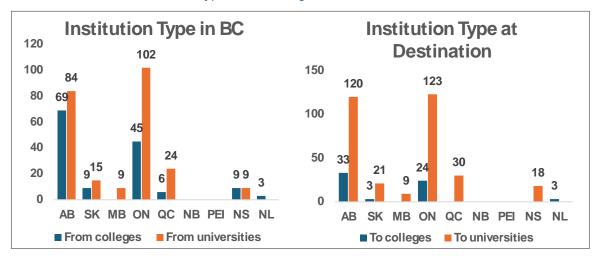
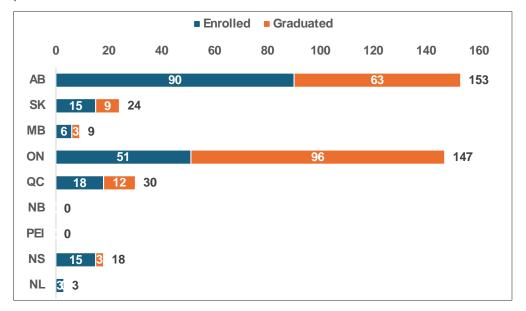
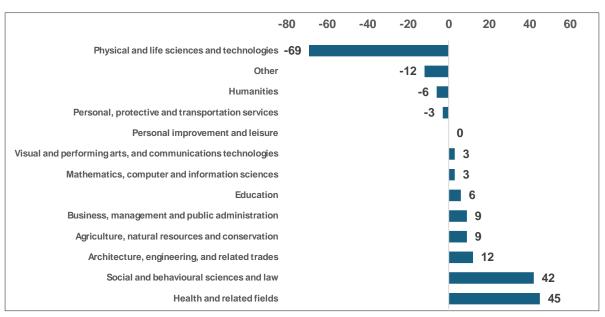


Figure 9. Number of students from BC, 2015/16 cohort in Year Four by destination province and outcome



Most fields of study see relatively little inflow or outflow of students when they leave BC. However, 69 students who had been studying 'Physical and life sciences and technologies' in British Columbia studied something else on leaving (**Figure 10**). Health and social and behavioural sciences, on the other hand, saw a net inflow of students who had previously been studying other subjects.

Figure 10. Net change in the number of students by field of study by students from BC, 2015/16 cohort, in Year Four



Note: The chart excludes students whose fields were listed as 'uncodable'.

## **Implications**

We cannot know the exact number of students moving from a BC colleges or universities to post-secondary in other provinces from this data, but we can show that the numbers must be relatively modest. Of the 21,111 students in this cohort, 384 (or less than 2%) were enrolled in another province four years later. This would include both students who transfer and students who pursue further independent qualifications. Therefore, we can infer that inter-provincial student mobility is relatively rare.

The data showed that most students who had left British Columbia moved to Alberta or Ontario. The pattern is consistent with more BC college students moving to Alberta before they graduate with a credential (and potentially transferring credit) and more students moving to Ontario for separate qualifications building on their initial education in British Columbia.

#### Further research is possible

We cannot directly know from this study whether the small numbers of mobile students reflect systemic barriers to student mobility across provincial borders, or the small numbers resulted from how the data definitions were set up (e.g., excluding part-time BC students from the original cohort). Identifying barriers would require additional research using different methods.

We confirmed with Statistics Canada that BCCAT may share the underlying dataset with member institutions. Any future request for such data, with slight adjustments to the fields, is likely to be quicker and cheaper than was the case this time.

The analysis is based on data about a single cohort, and the trends may change over time.

The dataset provided was not linked with tax or labour market data, so we do not know about the occupational outcomes for the mobile students.

BCCAT has expressed an interest in 'swirlers', students who begin their education in BC, move to another province, and then return. Studying swirlers would require individual-level data which can only be accessed through a separate arrangement with a Data Centre. However, the figures on total student mobility suggest that the number of students in this situation is likely to be very small.



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