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by Tomasz Handler, Aneta Bonikowska and Marc Frenette

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# ***Pathways of Black, Latin American and other population groups in bachelor's degree programs***

by Tomasz Handler, Aneta Bonikowska and Marc Frenette

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## **Abstract**

It is well documented that earnings vary considerably by population group (White, Black, Latin American, etc.). One of the possible reasons may be the fact that educational attainment also varies considerably by population group. While earlier research examined the factors behind population group differences in high school completion and postsecondary access, there is a lack of information on the educational pathways of individuals from various population groups who began a postsecondary education program. This article fills this gap by documenting various aspects of the postsecondary experience of different population groups with regard to bachelor's degree programs. The findings suggest that different population groups registered very dissimilar experiences. For example, Chinese students ranked near the top in bachelor's degree enrolment rates; graduation rates; enrolment in math-intensive science, technology, engineering and mathematics (STEM) programs; and (among students who initially enrolled in STEM) STEM graduation rates. By contrast, Black students consistently ranked near the bottom and trailed Chinese students by a considerable margin on all of these measures. Latin American students also ranked fairly low in most measures. Meanwhile, other groups had varied experiences depending on the outcome. While White students ranked low in terms of bachelor's degree enrolment rates, they ranked high in terms of graduation rates. White students also ranked low in math-intensive STEM enrolment rates, but among students who initially enrolled in STEM, their STEM graduation rates were among the highest. By contrast, Korean students were among the most likely to enrol in a bachelor's degree program, but once in these programs, their graduation rates and math-intensive STEM enrolment rates were about average. These results are important as they point to specific stages in the pursuit of higher education where choices and outcomes diverge across population groups, which could contribute to understanding the differences in labour market outcomes that exist across population groups. Understanding *why* certain population groups are less likely to graduate from a bachelor's degree program would require information on the reasons for dropping out or switching programs. These may include academic difficulties, financial constraints or even favourable labour market opportunities.

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## Introduction

Education is not only a key driver of success in the labour market, but also a policy-amenable lever that can potentially be used to address inequities in earnings across target groups. For example, Qiu and Schellenberg (2022) documented significant weekly earnings differences across various population groups, noting in particular that among men born in Canada, earnings were lowest among Black and Latin American individuals—the two groups least likely to have a bachelor's degree or above. They also found that educational attainment, full- and part-time status, and occupation accounted for important shares of the earnings gaps across population groups. Since education may itself influence full- and part-time work status and occupational attainment, the total (direct plus indirect) effect of educational differences on the earnings gaps may be even greater. Thus, it is important to understand the challenges faced by different groups as they progress through the educational system—this may play a key role in their future labour market success.

To begin informing this issue, Bonikowska et al. (2024) use the British Columbia kindergarten to Grade 12 (BC-K12) dataset, the Postsecondary Student Information System (PSIS), the 2016 Census of Population and T1 Family File (T1FF) tax data to follow several cohorts of Grade 9 students in British Columbia. They document differences that exist between population groups in the probability and timing of high school graduation and enrolment in academic postsecondary programs. They also assess the extent to which differences in high school course marks (Grade 10 English, science and math) and other factors such as parental income and immigrant status account for differences in these outcomes between population groups. They find that on-time high school graduation rates varied by upwards of 10 percentage points across population groups for each gender, with lower rates registered by Latin American, Black and West Asian students and higher rates registered by Japanese, Korean, Chinese and South Asian students. Given an extra year, the graduation rate increased among all groups, most notably among Black boys. For boys and girls, enrolment rates in postsecondary programs were lowest among Latin American, Black and White youth and highest among Chinese, Korean and South Asian students. Differences in Grade 10 course marks explained a substantial share of the gaps in education outcomes between many of the population groups and White students. By contrast, parental income differences explained smaller shares of the gaps than differences in course marks in most cases.

To further inform discussions about inequalities in educational attainment across population groups, this article offers a follow-up to the Bonikowska et al. (2024) study. Specifically, it sheds light on the educational pathways of individuals who began a bachelor's degree program (as full-time students) by population group.<sup>1</sup> The sample is limited to individuals who were either born in Canada or immigrants who arrived before age 15 and who enrolled full time in the first year of a Canadian bachelor's degree program from 2010 to 2013, when they were 17 to 21 years old.

Like Bonikowska et al. (2024), the PSIS and 2016 Census of Population are used.<sup>2</sup> The main outcomes examined are graduation from a bachelor's degree program (within four or six years), enrolment in a graduate or professional degree program within six years, field of study choice in the first year and field

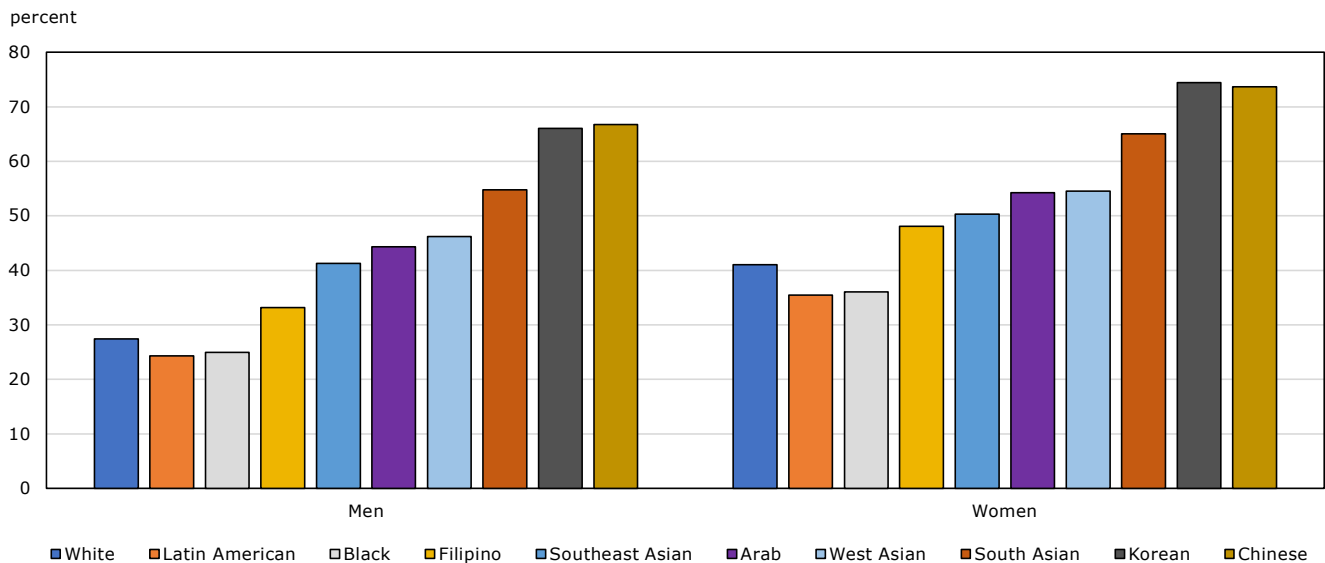
1. The 2016 Census of Population asked, "Is this person:" followed by a list of options, among which more than one could be selected. The categories examined in this article include White, Latin American, Black, West Asian, Southeast Asian, Filipino, South Asian, Chinese, Korean and Arab (Japanese was also an option, but this group was dropped from the analysis because of low sample sizes). Each population group other than White consists of individuals who reported belonging only to that population group or who reported belonging to that population group and being White. Individuals who reported belonging to two population groups other than White, to any three or more population groups, or to population groups identified only as "other—specify" were excluded from the analysis. Indigenous people were also excluded from this analysis.
2. Bonikowska et al. (2024) endeavour to explain differences in high school graduation and postsecondary enrolment by population group with the help of the BC-K12 data (e.g., high school marks) and the T1FF (e.g., parental income). However, the samples in the BC-K12 data are too small for many population groups to conduct further analysis such as on field of study choice. Thus, this study focuses on establishing the differences in outcomes, which does not require the BC-K12 data and the T1FF.

of study transitions within six years. To bridge the gap between the Bonikowska et al. (2024) study, which is based on youth who attended high schools in British Columbia, and the current article, which pertains to individuals who attended a high school anywhere in Canada (or even outside Canada), this article begins by examining the share of youth who enrolled in a bachelor's degree program on a full-time basis. As in the Bonikowska et al. (2024) study, this article also presents results by gender and population group. Unless otherwise stated, all differences discussed in this article are statistically significant at 10%.

## Sizable differences in bachelor's degree enrolment rates across population groups

As Bonikowska et al. (2024) note for youth from British Columbia, this article finds substantial variation in enrolment rates in full-time bachelor's degree programs at the national level (Chart 1).<sup>3,4</sup> The population groups least likely to enrol in a full-time bachelor's degree program for both young men and young women were Latin American and Black individuals, followed by White youth.

**Chart 1**  
Full-time bachelor's degree enrolment rate by gender and population group



Sources: Statistics Canada, Postsecondary Student Information System and Census of Population, 2016.

At the opposite end of the spectrum were Chinese and Korean youth, whose enrolment rates were highest among both men and women. In fact, the enrolment rates for young Chinese and Korean men and women were more than twice as high as those for their Latin American and Black counterparts. For both men and women, the next grouping (based on enrolment rates) after Latin American, Black and White youth included Filipino, Southeast Asian, Arab and West Asian youth. South Asian youth registered the third-highest enrolment rates for both young men and women, behind Chinese and Korean youth.

3. The sample for Chart 1 is the same as described in the introduction, except that individuals who did not enroll in a full-time bachelor's degree program were also included.  
 4. White youth (the largest group) appear at the farthest left in the chart, because they serve as the comparison group. All other population groups are sorted in ascending order from left to right based on enrolment rates among the pooled sample of men and women. This ordering based on enrolment rates is used throughout the article regardless of the outcome examined.

These results point to sizable differences in full-time bachelor's degree enrolment rates by population group. However, they do not paint a complete picture of the educational pathways of youth since they say nothing about the level of success achieved once registered in the program. The remainder of this article examines this dynamic by following youth from the point of initial registration onwards.

## More moderate differences in graduation rates across population groups, but notable gaps remain

Among youth who began a full-time bachelor's degree program, graduation rates were not substantially different across most population groups. Moreover, some of the groups shown to have low enrolment rates did not fare so poorly in terms of graduation rates.

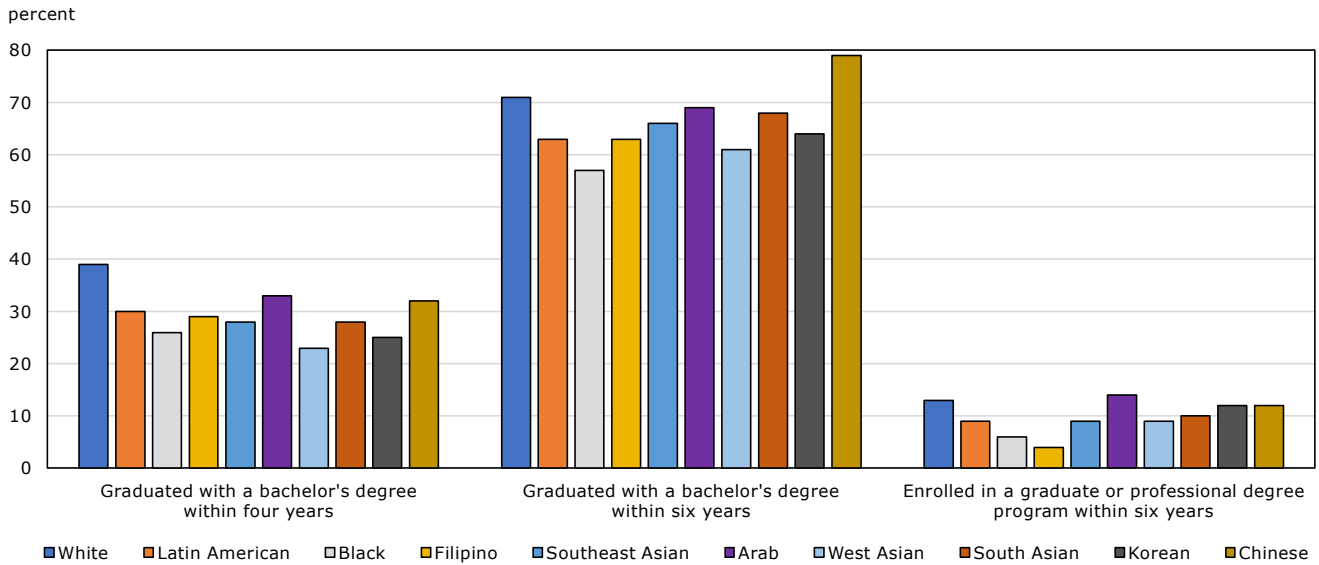
For example, White men (Chart 2) and White women (Chart 3) ranked first in four-year graduation rates (39% and 54%, respectively), well ahead of all other groups. By comparison, they ranked 8th out of 10 in enrolment rates for both men and women (Chart 1). The four-year graduation rates for the remaining population groups ranged from 23% to 33% for men and from 36% to 47% for women. Notably, Latin American men (who ranked last, along with Black men, in enrolment rates), were surpassed only by White and Arab men in terms of four-year graduation rates.<sup>5</sup> The picture at the top did not change substantially when a six-year graduation window was considered, although Chinese students were the most likely to graduate in this timeframe. This was true for Chinese men (79%) and women (86%).

Overall, the differences in four- and six-year graduation rates across population groups (charts 2 and 3) were smaller than the differences in enrolment rates (Chart 1). Despite this finding, some important gaps in graduation rates remained. Specifically, 57% of Black men graduated within six years (22 percentage points behind their Chinese counterparts), while 68% of Black women graduated within the same timeframe (18.5 percentage points behind their Chinese counterparts). Filipino women registered about the same six-year graduation rate as Black women (70%). Notably, Korean men and women ranked near the middle in terms of six-year graduation rates, despite placing in the top two for enrolment rates for both genders.

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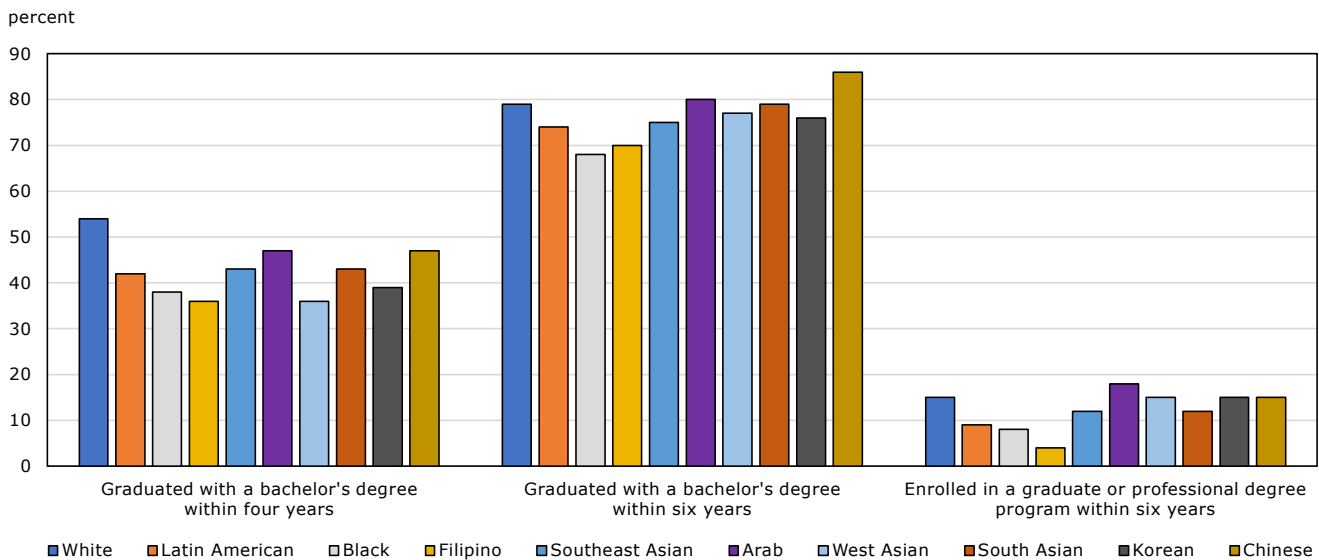
5. Chinese men registered a slightly higher four-year graduation rate (32%) than Latin American men (30%); however, this difference was not statistically significant at 10%.

**Chart 2**  
Educational attainment among male bachelor's degree enrollees by population group



Sources: Statistics Canada, Postsecondary Student Information System and Census of Population, 2016.

**Chart 3**  
Educational attainment among female bachelor's degree enrollees by population group



Sources: Statistics Canada, Postsecondary Student Information System and Census of Population, 2016.

## Filipino students far less likely than others to pursue graduate or professional degrees

While graduating from a bachelor's degree program is important for labour market prospects, obtaining a graduate degree (master's degree or doctorate) or professional degree (law, dentistry, medicine, veterinary medicine or optometry) can potentially yield further benefits over one's career.<sup>6</sup>

In particular, Filipino students were far less likely than other groups to enrol in a graduate or professional degree program within six years of enrolment in a bachelor's degree program. To some extent, this is attributable to their relatively low position in terms of bachelor's degree graduation rates (see charts 2 and 3), highlighting the importance of graduating from a first degree, as these are usually required for further studies. In fact, 4% of Filipino men enrolled in a graduate or professional degree program within six years (Chart 2). Black men registered the second-lowest graduate or professional degree enrolment rate (6%). By contrast, the rate for their Arab counterparts was 14%, which is 3.5 times higher than Filipino men. White (13%), Chinese (12%) and Korean (12%) men also fared well with regard to graduate or professional school enrolment.

Filipino women were also the least likely to enrol in a graduate or professional program (Chart 3). As with their male counterparts, 4% enrolled in one of these programs. They were followed by Black (8%) and Latin American (9%) women. Like their male counterparts, Arab women topped the list, at 18% (4.5 times higher than Filipino women), followed by White, West Asian, Chinese and Korean women, at 15%.<sup>7</sup>

## Among men, Black students least likely to take math-intensive STEM programs

There is a lot of recognition of the importance of science, technology, engineering and mathematics (STEM) fields in policy circles. STEM graduates may contribute positively to the economy and society by making new scientific discoveries or fostering the development of new and innovative production processes. But when it comes to graduate earnings, not all STEM programs are the same (Frenette and Handler 2020). Specifically, math-intensive STEM graduates tend to earn considerably more than other STEM graduates. Math-intensive STEM fields include engineering, computer science, mathematics, physics and chemistry, among others, whereas other STEM fields largely centre around biology-related disciplines. As Frenette and Handler (2020) showed, engineering (especially), computer science and mathematics programs are associated with the highest pay among STEM programs, followed by physics and chemistry. Biology-related disciplines, by contrast, generally rank quite low on the graduate earnings scale, even when compared with non-STEM fields.

Non-STEM fields are referred to as BHASE (business, humanities, health, arts, social science and education) fields. These are important, especially in a world of rising artificial intelligence use, where humans are increasingly specializing in the type of job tasks that robots and computer algorithms are not yet very proficient in (communicating, negotiating, mediating, etc.). BHASE fields are also important in the context of the aging population (health), the need to develop young minds (education) and many other facets of life. As was the case with STEM fields, notable earnings differences have been registered by BHASE graduates (Frenette and Handler 2020). In particular, graduates of business and related fields tend to earn the most among BHASE graduates, followed by health care graduates. Other BHASE graduates, including arts, humanities and education graduates, tend to earn the least.

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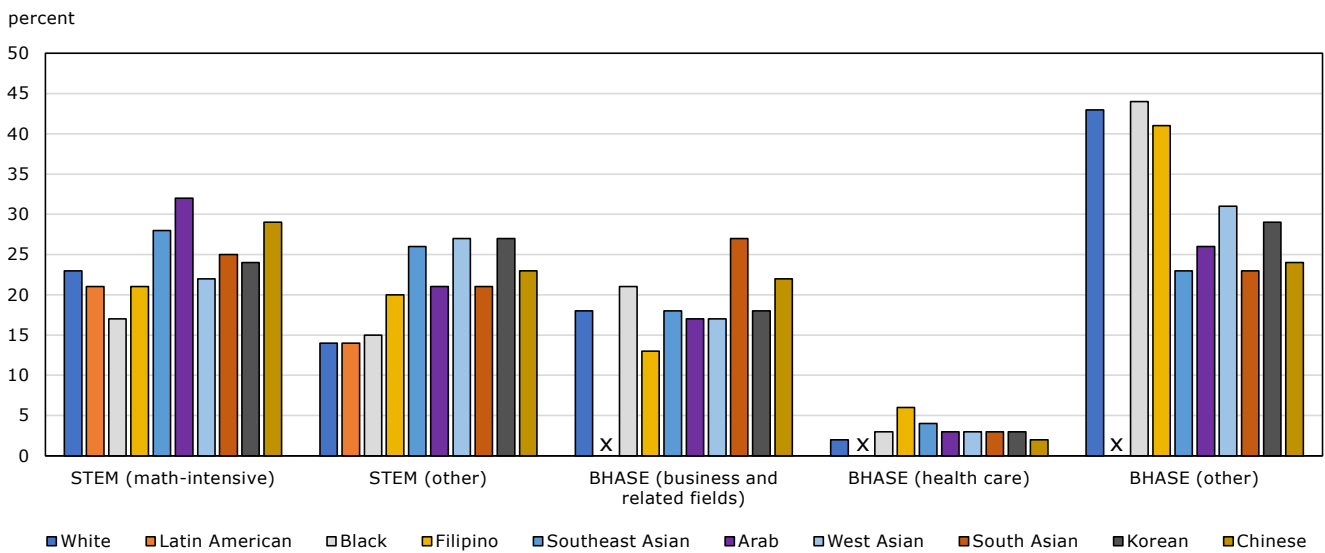
6. For evidence on graduate degrees, see Frenette (2019). Since many professionals are incorporated, it is more challenging to gauge the returns to their education. Nevertheless, among those with employment income, their annual earnings are generally on par with those of graduate degree holders (see Statistics Canada Table [37-10-0156-01](#)).

7. The difference between Arab and West Asian women was not statistically significant at 10%.



Chart 4 indicates that among men, Black students were the least likely to select math-intensive STEM programs in the first year of their bachelor's degree program (17%), followed by Latin American (21%), Filipino (21%), West Asian (22%) and White (23%) students.<sup>8</sup> By contrast, 32% of Arab, 29% of Chinese and 28% of Southeast Asian men chose math-intensive STEM programs. White, Latin American and Black men also ranked low in terms of other STEM enrolment (14% to 15%), occupying the bottom three spots. However, Black men were one of the most likely groups to select business and related fields, at 21%, which are associated with relatively well-paying jobs. Also, Filipino men were the most likely group to select health care (another broad field associated with relatively well-paying jobs), although overall, very few men enrolled in these programs (nursing, physiotherapy, etc.)—6% of Filipino men registered in these programs, compared with 2% to 4% for all other groups.<sup>9</sup> Finally, Black (44%), White (43%) and Filipino (41%) men were, by far, the most likely to enrol in other BHASE programs.

**Chart 4**  
Initial field of study among male bachelor's degree enrollees by population group



**Notes:** x = suppressed to meet the confidentiality requirements of the *Statistics Act*. STEM stands for science, technology, engineering, and mathematics, while BHASE stands for business, humanities, health, arts, social science, and education.

**Sources:** Statistics Canada, Postsecondary Student Information System and Census of Population, 2016.

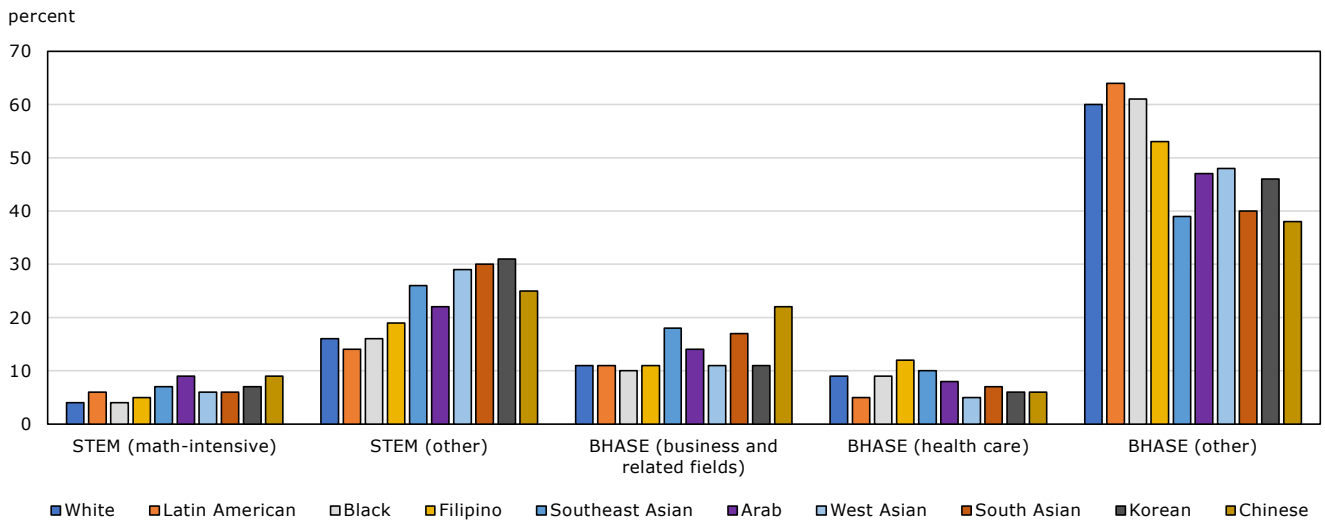
While first-year male STEM students were somewhat more likely to take math-intensive programs over other STEM programs, their female STEM counterparts were far more likely to take other STEM programs, which are largely biology-related. Among the most likely groups of women to take other STEM programs were Korean (31%), Chinese (30%) and West Asian (29%) women, while Latin American (14%), White (16%), Black (16%) and Filipino (19%) women were among the least likely. Three groups of women stood out in terms of enrolment in business and related fields. They included Chinese (22%), Southeast Asian (18%) and South Asian (17%) women. Enrolment in business and related fields was from 10% to 11% for all other groups, with the exception of Arab women (14%). As was the case with Filipino men, Filipino women were the most likely group to enrol in health care programs (12%).<sup>10</sup> Latin American (64%), Black (61%) and White (60%) women were the most likely groups to enrol in other BHASE programs.

8. The difference between Black and West Asian men was not statistically significant at 10%.

9. Southeast Asian men ranked second, at 4%, and the difference between them and Filipino men was not statistically significant at 10%.

10. Again, Southeast Asian women ranked second, at 10%, and the difference between them and Filipino women was not statistically significant at 10%.

**Chart 5**  
Initial field of study among female bachelor's degree enrollees by population group



**Notes:** STEM stands for science, technology, engineering, and mathematics, while BHASE stands for business, humanities, health, arts, social science, and education.

**Sources:** Statistics Canada, Postsecondary Student Information System and Census of Population, 2016.

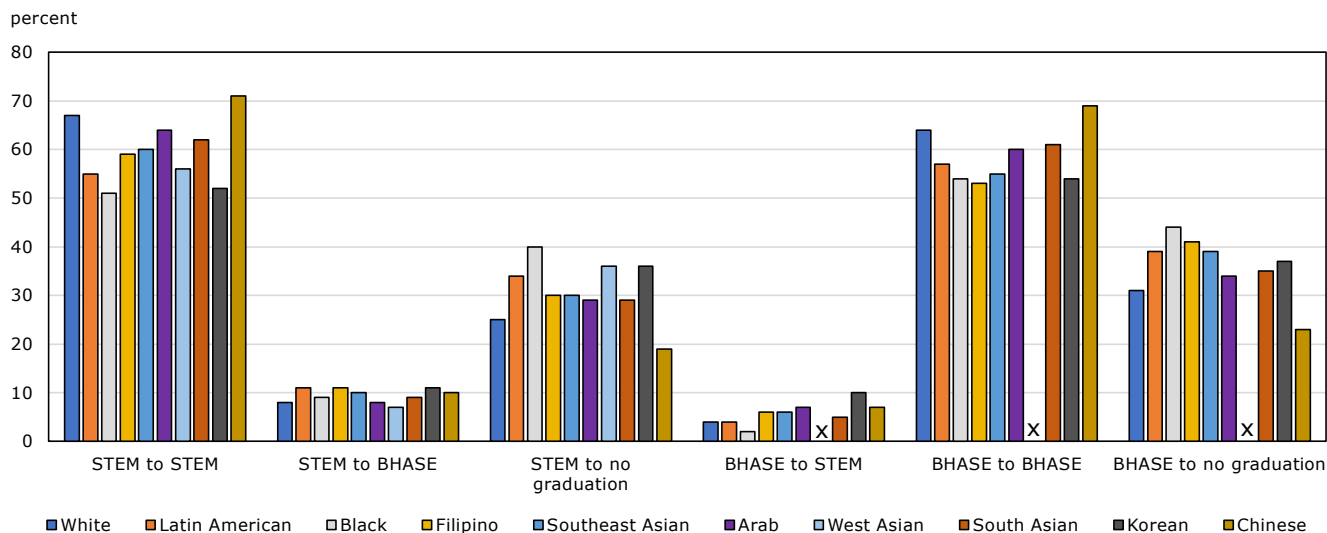
## Among first-year STEM students, Chinese students most likely to graduate from these programs

Enrolling in a program in the first year is one thing, completing the program is another altogether. Chart 6 (men) and Chart 7 (women) look at first-year STEM students (the left half of the chart) and first-year BHASE students (the right half of the chart) distributed across three states based on their situation in the sixth year: graduated from the same broad field of study (STEM or BHASE), graduated from the other broad field or not having graduated.

Among male students who enrolled in a STEM program in their first year, the most likely group to have graduated from a STEM program by the sixth year was Chinese (71%) students, followed closely by White (67%) and Arab (64%) students. Among those least likely to graduate from a STEM program by the sixth year were Black men (51%) and Korean men (52%). Thus, not only were Black male students the least likely to take math-intensive STEM programs and among the least likely to take other STEM programs in the first year, but they were also among the least likely first-year STEM students to graduate from a STEM program by the sixth year. By contrast, White male students also ranked low in terms of first-year STEM enrolment, but among those who initially enrolled in STEM, they were the second most likely group to graduate with a STEM degree. While Korean male students ranked fairly high in terms of first-year STEM enrolment (especially in other STEM programs), relatively few graduated from a STEM program by the sixth year. Korean male first-year STEM students were also among the most likely groups to not have graduated by the sixth year (36%), as were Black (40%), West Asian (36%) and Latin American (33%) men.

The shares of male BHASE students who graduated from a BHASE program were more or less similar to the shares of male STEM students who graduated from a STEM program. There were also somewhat lower transition rates of BHASE enrolment to STEM graduation than STEM enrolment to BHASE graduation.

**Chart 6**  
Field of study transitions among male bachelor's degree enrollees by population group



**Notes:** x = suppressed to meet the confidentiality requirements of the *Statistics Act*. Transitions are measured from the first to sixth years. STEM stands for science, technology, engineering, and mathematics, while BHASE stands for business, humanities, health, arts, social science, and education.

**Sources:** Statistics Canada, Postsecondary Student Information System and Census of Population, 2016.

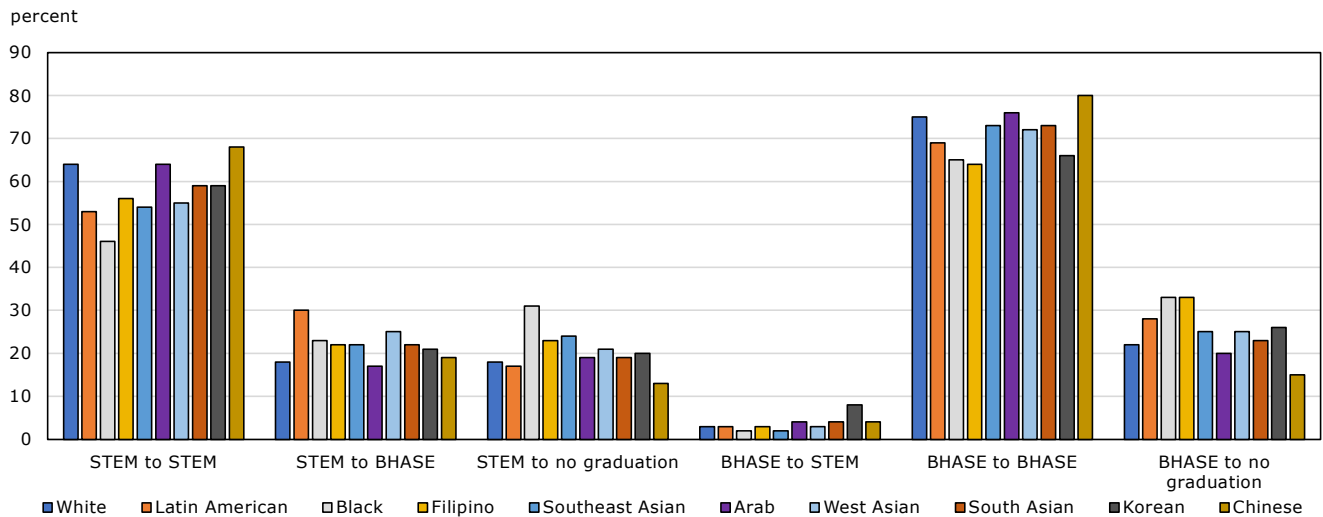
As was the case with Chinese male STEM students, Chinese women in STEM were the most likely to graduate with a STEM degree by the sixth year (68%), followed by White and Arab women (64% each).<sup>11</sup>

First-year Black female STEM students were also among the least likely to graduate with a STEM degree by the sixth year (Chart 7), as 46% did so. Black female STEM students were also the most likely not to have graduated by the sixth year (31%, well ahead of all other groups).

Notably, the shares of female BHASE students who graduated from a BHASE program were generally higher than the shares of female STEM students who graduated from a STEM program. There were also lower transition rates of BHASE enrolment to STEM graduation than STEM enrolment to BHASE graduation. In fact, female STEM students in every population group were considerably more likely than their male counterparts to graduate from a BHASE program (in particular Latin American and West Asian women).

11. Based on results that are available upon request, first-year Black male and female STEM students ranked at or near the bottom among all population groups examined in terms of STEM graduation regardless of the type of STEM program that they were initially enrolled in (math-intensive or other).

**Chart 7**  
Field of study transitions among female bachelor's degree enrollees by population group



**Notes:** Transitions are measured from the first to sixth years. STEM stands for science, technology, engineering, and mathematics, while BHASE stands for business, humanities, health, arts, social science, and education.  
**Sources:** Statistics Canada, Postsecondary Student Information System and Census of Population, 2016.

## Conclusion

The purpose of this article was to document the pathways of Black, Latin American and other population groups in bachelor's degree programs. The goal was to identify bottlenecks in the pursuit of higher education in terms of degree completion, entry into graduate or professional degree programs, initial field of study choice, and graduation from the initial field of study. Understanding how various population groups differ in their bachelor's degree experiences could inform the well-known differences that exist in labour market success.

The findings suggest that different population groups registered very dissimilar experiences. For example, Chinese students ranked near the top in bachelor's degree enrolment rates, graduation rates, enrolment in math-intensive STEM programs and (among students who initially enrolled in STEM) STEM graduation rates. By contrast, Black students consistently ranked near the bottom and trailed Chinese students by a considerable margin on all of these measures. Latin American students also ranked fairly low on most measures. Meanwhile, other groups had varied experiences depending on the outcome. While White students ranked low in terms of bachelor's degree enrolment rates, they ranked high in terms of graduation rates. White students also ranked low with regard to math-intensive STEM enrolment rates, but among students who initially enrolled in STEM, their STEM graduation rates were among the highest. By contrast, Korean students were among the most likely to enrol in a bachelor's degree program, but once in these programs, their graduation rates and math-intensive STEM enrolment rates were about average.

Future work could attempt to explain the differences highlighted in this article. Understanding why certain population groups are less likely to graduate from a bachelor's degree program would require information on the reasons for dropping out or switching programs. These may include academic difficulties, financial constraints or even favourable labour market opportunities. Data on academic performance in the postsecondary education sector are not currently available in the broader data environment used in this article, but they could be highly informative in answering a multitude of questions on the educational attainment of youth—a key driver of their future success.

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