

Post-Secondary Education Skills for a Prosperous British Columbia—2016

Prepared for:

RUCBC, BCAIU, BC Colleges

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EXECUTIVE SUMMARY

At a Glance

- The Conference Board of Canada estimates that skills gaps cost the British Columbia economy up to \$7.9 billion in foregone GDP and over \$1.8 billion in lost tax receipts annually.
- The B.C. labour market and the provincial economy are heavily reliant on skilled workers with post-secondary education. Today, approximately 70 per cent of all jobs in B.C. are held by workers with post-secondary education.
- Reliance on workers with post-secondary education has mounted in recent decades. As recently as 1991/1992, the share of jobs held by individuals with post-secondary education and those without was evenly split at 50/50.
- The province-wide drive towards higher levels of skilled labour is expected to continue. By 2025, an estimated 77 per cent of B.C. jobs will be held by individuals with a post-secondary education.
- B.C.'s education system will produce 421,000 future workers over the next decade—leaving a potential shortfall of 514,000 skilled workers. At the same time, other sources of labour supply are failing to meet this rising pressure, so that the demand for PSE-educated workers is outpacing the growth in supply.
- B.C. employers have strong concerns about the future availability of skilled workers in the face of an aging population and rising retirement rates.
- PSE institutions have a vital role to play in providing skilled graduates to fill the majority of the 935,000 projected job openings through 2024.

This report presents findings from original economic and labour market analysis using the Conference Board's proprietary macro-economic model; a survey of more than 300 B.C. employers; interviews with employers and experts in four major economic sectors in B.C.

accounting for more than 50 per cent of the economy: (1) finance, insurance, real estate; (2) technology; (3) natural resources and LNG; and (4) transportation and warehousing; and a review of relevant literature and current data.

It identifies:

- the skills and educational credentials B.C. employers need in their employees today and in the future;
- the impact of skills gaps on the B.C. economy; and
- the actions PSE institutions, employers, governments, and individuals can take to ensure that B.C. has a highly educated, productive, and skilled workforce.

Skills, PSE, and B.C.'s Labour Market

B.C.'s labour force relies heavily on PSE-educated workers. As of March 2016, 70 per cent of B.C.'s jobs were filled by workers with post-secondary education, while the remaining 30 per cent were filled by medium- and low-skilled individuals without post-secondary education. This was not always the case. As recently as 1991, the share was evenly split, 50/50. Since then, British Columbia has emerged as a hub for knowledge-, technology-, and culture-based industries as well as major infrastructure and natural resource projects, and the demand for skilled, PSE-educated labour has grown strongly.

Since the early 1990s the demand for post-secondary education for most jobs in B.C. has been rising at an annual rate of 1.75 per cent, steadily displacing jobs not requiring post-secondary education. This “conversion rate” has outpaced the growth of jobs, which was 0.98 per cent annually over the same period; low-skilled positions also saw negative annual growth, at a rate of -0.6 per cent per annum. As a result—and in step with population growth—the number of employed individuals in B.C. with post-secondary education has almost tripled since 1985, increasing from about 564,000 to more than 1.6 million in 2015.

Labour Outlook

The Government of British Columbia's British Columbia 2024 Labour Market Outlook estimates that as many as 935,000 jobs will open up in the province from 2014-2024 through retirements and new creation. While improved job prospects is good news, the challenge lies in how the province will go about filling these positions. Significantly, the province's latest labour market outlook report notes that over three-quarters of the job openings to 2024 will require post-secondary education.

The Conference Board's own projections show that the proportion of jobs in the B.C. labour market that will be filled by PSE-educated workers will continue to rise. (See Chart A.) Over the next 10 years, the current share of 70 per cent will rise to about 77 per cent. Our model predicts that between 71-84 per cent of jobs in B.C. will be filled by PSE-educated individuals by 2025.

Chart A: Projected Share of PSE-educated/Skilled Occupations, 2006-2025 (Per cent)

[Insert chart from Conference Board report](#)

Consistent with the overarching, long-term shift towards high-skilled, PSE credentialed workers, B.C. employers have noted that they will continue to rely on PSE institutions to produce the talent needed in the workplace. B.C. employers overwhelmingly identify colleges, institutes, and universities as the sources of talent and credentials needed in the jobs comprising much of the B.C. labour force.

Over 60 per cent of employers we surveyed say that they require workers with university degrees and approximately one-half of employers note that post-secondary professional designations are also needed to meet their occupational requirements. There is also considerable demand for PSE certificates, diplomas, trades, and applied degrees with 31, 29, 26, and 24 per cent of B.C. employers acknowledging as much, respectively. (See Chart B.)

Chart B: PSE Credentials Needed by BC Employers (per cent of respondents)

[Insert chart from Conference Board report](#)

Employers are clear on the need for PSE credentialed workers, but they are also clear when it comes to particular subject areas of PSE graduates. Business and management is the most preferred subject matter by B.C. employers. The second-most sought after subject area is computer and information services, which is followed by engineering and electronics, communications, and sciences. These disciplines are closely followed in popularity by mechanical studies and the social sciences.

Employers in B.C. indicate that the ambit of skills they will need is evolving. About 6 in 10 believe that a more expansive aptitude is needed among workers, not just a focus or specialization in one subject. Indeed, nearly 60 per cent of B.C. employers surveyed for this project indicated that an emerging need among their workforce is the ability to work across multiple subjects. In addition, approximately 50 per cent of employers also indicated that social intelligence is an emerging skill-set that workers will need, in addition to the ability for novel and adaptive thinking. More specific abilities that were highlighted included new media literacy, cross-cultural competency, virtual collaboration, and computational thinking: nearly 40 per cent of respondents affirm each of these will be needed in their workplaces in the near term.

Meeting the Increasing Demand for PSE-Educated Workers

Demand for PSE-educated workers in the B.C. labour force is rising, quickly and continuously. While the number of jobs filled by low-skilled workers fell by 2 per cent over the last 15 years, the number of jobs held by PSE-educated workers rose sharply by 32 per cent. Because of demographic constraints, however, B.C.'s education system will only produce 421,000 future workers over the next decade—leaving a potential shortfall of 514,000 skilled workers in the

province. At the same time, other sources of labour supply are failing to meet this rising pressure, meaning that the rate of growth in demand for PSE-educated workers is outpacing the growth in supply.

B.C. received nearly 36,000 immigrants as permanent residents in 2015, but this total is down 20 per cent from 2005 when the province welcomed about 45,000 permanent residents. While this should ease some of the province's skills deficits and human resource challenges, it will not be enough to close the gap between supply and demand for PSE-educated workers. It is crucial that B.C.'s PSE institutions continue to develop and grow skilled and knowledgeable individuals who, in turn, will contribute to a prosperous B.C.

Employers in B.C. will continue to transition towards higher skilled workforces. In the next 3 to 5 years, 9 out of 10 B.C. employers will undertake up-skilling in their places of business. Without intensifying their up-skilling efforts, B.C. employers worry that productivity and revenue will fall, costs will rise, and innovation will decrease. But up-skilling alone is not enough. In order to meet all their talent and skills needs, B.C. employers are looking for significantly more workers who have acquired PSE skills and credentials, including degrees, diplomas, certificates, and professional designations.

B.C. employers describe a wide range of consequences that would ensue in the case of a skills shortage or if they could not find enough employees with the right skills. Over half of the B.C. employers that we surveyed indicate that productivity would decline. Similarly, nearly the same number of employers reveal that sales would diminish or there would be a loss of new opportunities. Respondents suggest several other related outcomes, namely reduced profitability (38 per cent), less innovation (30 per cent), and increased costs (29 per cent).

B.C. employers want to fill the jobs of today and those of the future with PSE graduates from a range of backgrounds, including universities, colleges, institutes and polytechnics. Given demographic shortages and rising skills needs, leaders in education, business, and government are understandably concerned that B.C. will not have enough people with the right education, expertise, knowledge and skills to seize and support new opportunities and find new markets. In the next decade, competition for skilled workers will intensify among sectors of the B.C. economy due to shortages in the future labour supply and because of the steady shift towards a knowledge, innovation, digital and green/clean tech economy.

The Impact of Skills Gaps in B.C.

The business case for more PSE lies in the fact that the gap between jobs filled by PSE-educated individuals and low-skilled, lower-educated workers has greatly widened over the last 30 years. At an annualized rate, this gap is expanding by 1.7 percentage points per year, on average. In other words, B.C.'s employers are converting from lower-skilled labour to a higher-skilled workforce at a rate of 1.7 per cent per year.

PSE-educated workers accounted for 100 per cent of the 217,000 new jobs created in B.C. between 2006 and 2016. In fact, from March 2006 to March 2016, B.C. employers added approximately 266,350 jobs that were filled by PSE-educated individuals, but shed about 41,750 jobs that were previously occupied by workers with high school education or less education. Because those with PSE credentials are more likely to be in the labour force and are more likely to be working when they are in the labour force, the probability of a person contributing to provincial GDP increases if they graduate with PSE credentials.

Based on 2015 data, The Conference Board of Canada estimates that skills deficits will cost the province upwards of \$7.9 billion in foregone GDP and over \$1.8 billion in lost tax receipts, split roughly equally between the federal and provincial governments.

These estimates are a significant increase from 2013-14, when we determined that the province's skills gaps at the time could cost B.C. up to \$4.7 billion in foregone GDP and an additional \$1.39 billion in lost tax revenues annually. (Lost tax revenues include \$775 million in federal tax revenues and \$616 million in provincial tax revenues).

It is also worth noting that employers are willing to pay a substantial premium for PSE-educated labour: in 2015, the average wage for PSE-educated workers in their first 5 years in the labour market was 65 per cent higher than their lower-skilled, lower-educated counterparts. In other words, the price of PSE-educated labour—paid as wages and salaries—continues to grow: over the period of 2000-2015, real wages for this group grew by 10.4 per cent.

B.C.'s fast-growing and diversifying economy needs more individuals with advanced skills gained through post-secondary education. In their absence, B.C.'s employers will struggle to maintain and build their workforces, take advantage of economic opportunities, mitigate growing and emerging skills gaps within their businesses, and keep up with regional, national, and global demands.

What PSE Institutions Can Do

B.C. has one of the best PSE inter-institution transfer systems in the country, thereby providing students with more options and choices. It is not uncommon for students to attend a college or institute for one or two years and then transfer to a university to complete a degree or vice versa. The British Columbia Council on Admissions and Transfer (BCCAT) "facilitates admission, articulation, application, and transfer arrangements among B.C. post-secondary institutions for the benefit of students."

BCCAT numerous transfer agreements between B.C.'s colleges, universities, and institutes, including private and out-of-province institutions. An ongoing Student Transitions Project estimated in February 2015 that there were between 52,500-55,000 mobile students in the province over the previous three years.

Meanwhile, many B.C. employers would like to see the province's PSE institutions place more emphasis on work-integrated learning, including co-operative education, internships, mentoring, capstone projects, group work, and PSE based consultancy opportunities.

The Tech sector is the most likely to seek increased PSE institutional emphasis on co-ops (43 per cent, compared to 22 per cent for all other sectors), paid internships (23 per cent versus 14 per cent) and research and development collaborations (49 per cent versus 10 per cent). This suggests that the Tech sector is more engaged with post-secondary institutions than other sectors and that this engagement is spurring greater interest in collaboration.

Employers in the Natural Resources sector show a clear preference for co-op as a form of experiential learning. It is noteworthy that more employers in the Natural Resources sector use apprenticeships (25 per cent) for training than in any other sector, making the development of apprenticeship pathways in the Natural Resources sector an important PSE priority area. Work in Natural Resources and LNG is becoming more technical, involving sophisticated machinery, equipment and technology. This is creating a growing demand for university-educated forestry engineers and other forestry-related applied degrees, among other specialties. For example, the University of British Columbia offers a full suite of undergraduate and graduate forestry degrees ranging from Bachelors of Science in Conservation, Wood Sciences, and Forest Operations through to Forest Sciences, International Forestry, and Urban Forestry.

Summing Up

B.C.'s economic future will depend on a well-educated and highly-skilled workforce possessing post-secondary education. The demand for skilled labour will encompass a wide variety of industries and sectors across each of B.C.'s seven development regions.

B.C.'s PSE institutions are producing many of the educated and skilled workers that the province's businesses need. This is essential because an educated, highly-skilled workforce with the ability to adapt to changing economic and social circumstances and opportunities is key to sustaining B.C.'s economy, pursuing new opportunities, and achieving its full economic potential. Immigration and interprovincial migration are important parts of the solution, but will be insufficient in themselves to meet demands.

To address the province's ongoing skills gaps, and to ensure that employers are able to hire the right people with the right skills, B.C. must increase access to PSE—or close the access gap—so that more individuals ultimately develop the skills and acquire the knowledge and post-secondary education to meet the province's labour force needs.

By failing to address and overcome their skills shortages, B.C.'s employers could find themselves without the human capital they need to sustain and build their businesses, let alone contribute to the province's employment tax revenues. Moreover, without sufficient skills training, too many British Columbians could find themselves under or unemployed.

Recommendations for B.C. Stakeholders

For Governments

1. Ensure that PSE institutions have adequate resources to address labour market needs.
2. Fund PSE initiatives targeted at improving access and providing places for under-represented and at-risk populations.
3. Provide support—financial or otherwise—to business to increase the number of experiential opportunities offered by employers.

For PSE Institutions

4. Target improving student access and providing places in PSE programs, especially for under-represented and at-risk populations.
5. Ensure that employers have meaningful opportunities to communicate their skills needs.
6. Expand opportunities for students to acquire practical experience.

For Employers

7. Expand experiential learning opportunities for PSE students.

For Individuals

8. Supplement classroom education with practical experience wherever possible.