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CPA CHARTERED PROFESSIONAL ACCOUNTANTS BRITISH COLUMBIA

Accounting for Change:
Assessing the Impacts of Evolving Business Needs, Changing Demographics, and Emerging Technologies on BC's Accounting Sector

Contents

Acknowledgements

The Chartered Professional Accountants of British Columbia (CPABC) is the training, governing, and regulatory body for more than 36,000 Chartered Professional Accountant (CPA) members and almost 6,000 CPA students and candidates. CPABC is responsible for the training and certification of CPA students, the regulation and professional development of its members, and the protection of the public through its ethical standards and discipline processes.

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The views and opinions expressed in this report are those of its author(s) and not the official policy or position of the Government of British Columbia.

1. Introduction

STUDY BACKGROUND

Over 89,000 individuals occupy accounting and accounting-related positions in British Columbia. These individuals work across all sectors, business types and industries in the economy.[1] With technological change, increasing demand for advisory services and other disruptors, the role of today's accountant is changing. Understanding demand for accountants moving forward – the ultimate goal of this study – will enable the profession to continue attracting and developing talent to meet the needs of businesses, non-profits and governments alike.

The Chartered Professional Accountants of British Columbia (CPABC) is one of BC's largest professional organizations. CPABC is responsible for the protection of the public through the regulation of its members who are required to comply with professional and ethical standards, and is charged with the training and certification of CPA students and ensuring members maintain the knowledge, skill and proficiency to meet market needs.

This is the first labour market research project undertaken by CPABC under the Ministry of Advanced Education, Skills and Training's (AEST) Sector Labour Market Partnership (SLMP) program. The study builds on labour demand forecasts for the BC accounting sector produced in the BC Labour Market Outlook (LMO), as well as a labour market study completed by CPABC in 2014, with the aim of providing additional insights into the factors driving demand for accountants.

CPABC is the only regulator and educator of designated accountants and understanding and meeting market needs is critical to supporting BC's economy and financial infrastructure. CPABC recognizes that undesignated accountants[2] also play a role in delivering unregulated accounting services. Understanding the needs of business and the role that all accountants play in BC's economy will inform future recruitment and training strategies that will benefit the entire sector.

STUDY OBJECTIVES

This study examines in detail the demographics of the accounting sector in BC, where designated and undesignated accountants work and at what level, and their career progression. It develops an occupational demand forecast over a 10-year horizon, with consideration of demand for both designated and undesignated accountants and accounting positions by career-level. The study also considers the potential impacts of technology trends that could have a positive or negative influence on demand in the sector over the next decade. Forecasting the supply of accountants is outside the study scope.

To summarize, this labour market information study has three main objectives:

1. Better understand the demographics of the BC accounting sector, including the industries and regions in which accountants work and their typical progression;

2. Forecast labour demand by occupation over a 10-year horizon, based on demographics, career lifecycle and general economic growth; and,

3. Explore the potential impact of trends that may shape the future of the profession, such as technological advancement.

[1] Statistics Canada. Census 2016. Custom Request.
[2] Undesignated accountants refer to accountants that do not have a Chartered Professional Accountant (CPA) designation and designated accountants refer to CPA holders.

APPROACH OVERVIEW

The study was completed via a six-step approach, consistent with the guidelines set out by the SLMP program:

1. WORK PLAN AND RESEARCH METHODOLOGY

This activity focused on developing the project Work Plan and Research Methodology to fulfill the study objectives. The Work Plan and Research Methodology aligned with the requirements outlined in AEST's Sector LMP Program Guidelines.

2. LABOUR MARKET INFORMATION (LMI) RESEARCH AND RESEARCH TOOLS

This activity focused on developing the research tools necessary to fulfill all project activities, as outlined in the Work Plan and Research Methodology. The research tools were designed to obtain labour market information on accountants, leveraging both primary and secondary data collection. The key research tools included stakeholder interview guides and an employer survey questionnaire, which can be found in Appendix 2.

3. SECTOR INTERVIEW AND WORKSHOP ON EMPLOYMENT DEMAND ISSUES AND TRENDS

To better understand key employment demand issues and trends, 10 one-on-one interviews were conducted with accounting sector stakeholders, including representatives from accounting firms, business organizations and academia. Additionally, a two-hour stakeholder workshop was held to discuss the interview results.

The findings from the stakeholder interviews and workshop informed the employer survey questionnaire. A summary of the results can be found in Section 4 of this report. See Appendix 2 for a complete list of interview and workshop participants.

4. EMPLOYER SURVEY DEVELOPMENT AND ANALYSIS

An online survey was executed to collect further information on identified recruitment and retention issues, automation technologies, and the drivers of labour demand for accountants. The employer survey was administered to over 1,800 senior-level CPAs in BC representing roughly 1,500 companies in over 90 cities across the Province. The survey was administered by Asking Canadians between April 12, 2019 and May 6, 2019. In addition to being used to augment the labour demand model built in step five, all survey findings are summarized in Section 4 of this report.

5. LABOUR DEMAND MODELING AND TRENDS ANALYSIS

This activity involved the development of a custom labour demand model for accounting occupations. This demand-side model provides an outlook for hiring requirements, including employment expansion and replacement demand (i.e., exit from the labour force due to death and retirement). The model was developed for a 10-year time horizon and considers the potential differences in demand for undesignated and designated accountants, as well as the potential impact of automation technologies on employment demand.

6. REPORT DEVELOPMENT, REVIEW AND REVISION

The final report (this document) integrates all findings from the research and analysis completed over the course of the study. The report has been reviewed by the Ministry of Advanced Education, Skills and Training to ensure compliance with the standards of the SLMP program as well as by the project Steering Committee, including representatives from various parts of the BC Accounting Sector (see Appendix 5 for the list of committee members).

REPORT STRUCTURE

The report is divided into seven sections, including the introduction, as follows:

Sector Definition

This section profiles the accounting sector by occupation and by industry, provides an overview of designated and undesignated accountants, and the various accounting sector career paths.

Accounting Sector Profile

This section analyzes Canada and BC's accounting sectors, providing information on the sector's overall economic size, labour force statistics, gender breakdown, and regional composition.

Employment Demand Issues and Trends

This section summarizes the findings from the stakeholder interviews, workshops and survey undertaken as part of this study. It details findings on employment demand drivers, talent recruitment and retention, the skill profile of accountants, and automation and disruptive technologies.

Current Labour Market Conditions

This section describes the current labour market conditions and historical and forecasted trends in macro-economic variables that are the basis for the sector expansion and replacement demand forecast.

Accounting Sector Labour Demand Forecast

This section presents the labour demand forecast results, including the estimates of employment in BC's accounting sector over a 10-year period. Additionally, this section provides an analysis of demand by career-level and designation, and examines the potential impact of technology on accounting sector labour demand.

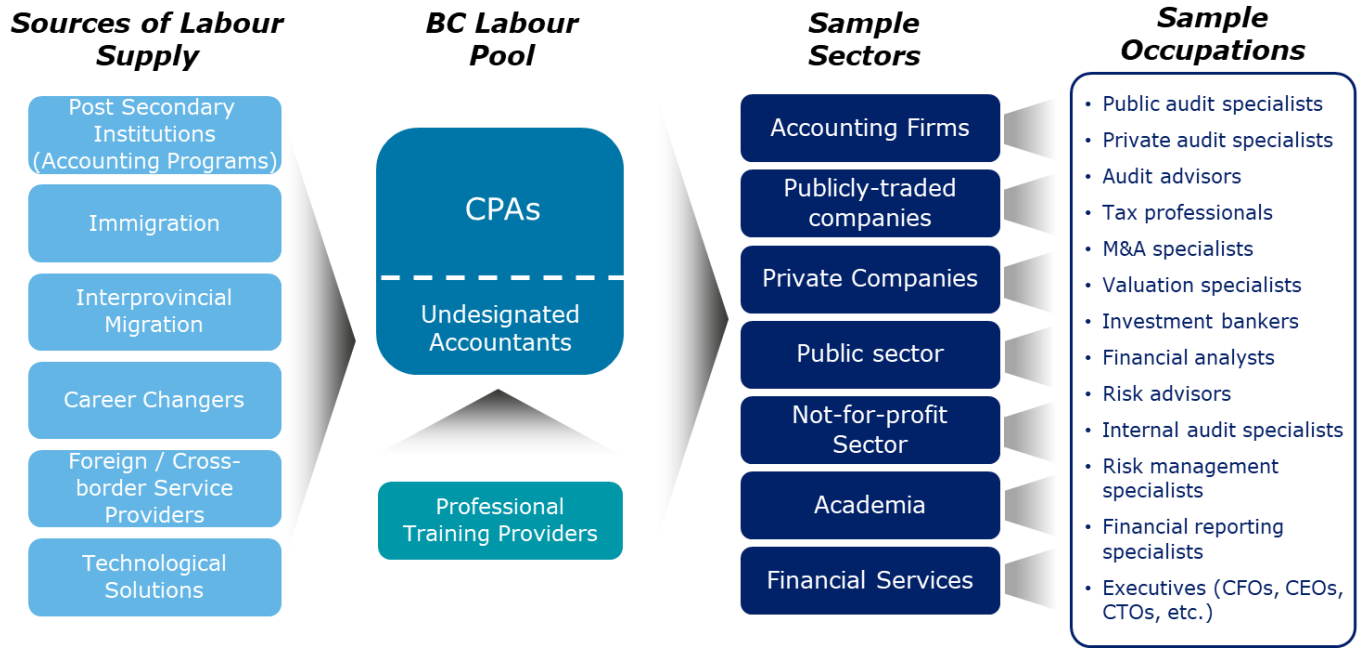
Conclusions and Recommendations

This section summarizes the key findings and recommendations for the identified employment demand issues facing BC's accounting sector.

2. Sector Definition

The accounting sector is comprised of designated and undesignated accountants and spans a wide range of business sizes and industries, including the private, public, and not-for-profit sectors, as well as academia. The following diagram provides a high-level illustration of the ecosystem for individuals with accounting training:

Figure 1: Accounting Sector Ecosystem



DEFINING THE ACCOUNTING SECTOR BY OCCUPATION AND INDUSTRY

For the purposes of this study, we developed an industry and occupational definition of the accounting sector, which includes a subset of North American Industry Classification System (NAICS) and National Occupational Classification (NOC) categories. This classification divides the accounting profession into primary and secondary NAICS/NOC segments, depending on whether the category is exclusively or mostly accounting focused. Additionally, there are several occupations where accounting is a material focus of the work performed by individuals in that occupation. See Appendix 1 for a list of these tertiary occupations that are outside the scope of this study.

The industry definition (Table 1) is used in this study when discussing the economic size (i.e., gross domestic product) and number of businesses in accounting. The industry view, however, is only partial as it does not capture all accountants working in the economy. When discussing employment in the sector, we use employment data for all accounting occupations (Table 2). The occupational view is more comprehensive in that it captures all accounting occupations. The labour demand forecast was developed for all accounting occupations.

These NAICS and NOCS codes were selected following a dedicated workshop with senior accounting leaders; while accounting skills are used across a breadth of occupations, these occupations are believed to account for the majority of the industries and occupations requiring accounting training.

Table 1: Accounting Industry (Sector Definition by NAICS Code)

NAICS Code	Subsector
Primary	
5412	Accounting, tax preparation, bookkeeping and payroll services
Secondary	
522	Credit intermediation and related activities
523	Securities, commodity contracts, and other financial investment and related services
524	Insurance carriers and related activities
526	Funds and other financial vehicles
55	Management of companies and enterprises
Tertiary	
521	Monetary authorities - central bank

Table 2: Accountant Definition (Sector Definition By NOC Code)

NOC Code	Occupation
Primary	
1111	Financial auditors and accountants
1311	Accounting technicians and bookkeepers
Secondary	
0111	Financial managers
0113	Purchasing managers
0122	Banking, credit and other investment managers
1112	Financial and investment analysts
1113	Securities agents, investment dealers and brokers
1114	Other financial officers

Notwithstanding the above definitions, it should be noted that accounting is critical to all industries and accounting professionals occupy a wide variety of roles in the BC economy (e.g., entrepreneurs). The sector interviews, stakeholder workshop and employer survey examined demand for accounting professionals across a wide range of industries and business types (e.g., small, mid-sized and large enterprises).

UNDESIGNATED AND DESIGNATED ACCOUNTANTS

Approximately 89,000 individuals in BC worked as accountants (defined by the NOC codes in Table 2) across all industries in 2016[3], including undesignated and designated accountants. Roughly 31,000 individuals in BC hold a CPA designation and are therefore designated accountants (sometimes referred to as professional accountants).[4] Obtaining a CPA can provide individuals with accounting training and experience with greater employment options and career paths. Still, undesignated accountants represent a sizeable portion of the accounting workforce in BC and fill important roles across the economy as well.

THE PATH TO CPA DESIGNATION

While there are opportunities in the accounting sector for undesignated and designated accountants alike, a CPA is often required to advance to more senior accounting roles, such as those requiring an auditor to sign-off on work. CPA members are also regulated, meaning CPAs in BC are governed by the *Chartered Professional Accountants Act*, the CPABC Code of Professional Conduct and CPABC Bylaws and Regulations. In order to obtain a CPA, a candidate must fulfill certain educational and work experience requirements, as outlined below.

[3] Statistics Canada. Census 2016. Custom Request.
[4] The remainder of CPABC's 36,000 members work in other Canadian provinces or abroad.

Educational Requirements

A candidate's academic background will define their path to designation. All candidates must complete the CPA Professional Educational Program (CPA PEP) before taking the CFE (common final examination). In order to qualify for the CPA PEP, a candidate must have an undergraduate degree and have completed prerequisite courses covering ten subject areas, such as financial accounting, economics, and information technology.

If a candidate has an undergraduate degree in a subject that is unrelated to accounting, is missing some of the prerequisite courses required for the CPA PEP, or has an international degree and is missing some of the prerequisite courses specific to Canada, then the candidate must enroll in CPA Prerequisite Educational Program (CPA PREP) or obtain these prerequisites through another qualifying program (e.g., UBC's Diploma in Accounting program). CPA PREP offers modules in the subject areas listed above to equip candidates with the necessary subject area coverage for CPA PEP. If a candidate has an undergraduate degree in an accounting-related subject and has taken the necessary prerequisite courses for the CPA PEP, they can enroll directly in the CPA PEP.

The CPA PEP offers modules aligned with the CPA competency map and are designed to prepare future CPAs for adding value and applying their knowledge and ethics in the professional world. Candidates are instructed to take six graduate-level modules from CPA PEP before taking the CFE (common final examination) to earn their CPA designation. These modules are available through an online education program or through Masters of Professional Accounting programs offered at a few Canadian Universities.

Work Experience Requirements

The CPA program requires candidates to gain a minimum of 30 months of relevant and recognized practical experience before taking the CFE. The candidate can either fulfill this requirement by completing their work experience in a pre-approved training position, or the candidate can gain practical experience at an employer of their choice as long as they can demonstrate relevant experience. During their term of practical experience, a candidate must have a CPA mentor who tracks their progress against key CPA competencies.

Ongoing Membership Requirements

After completing the CFE and obtaining their designation, there are ongoing professional requirements for CPAs (Continuing Professional Development (CPD)). To maintain public trust, and ensure the reputation of the CPA designation, CPAs are required to complete 120 hours of professional development over a three-year rolling cycle, with an annual minimum of 20 hours. CPAs must file an annual CPD report.

OTHER CERTIFICATIONS

Undesignated accountants may obtain other certifications, such as the Certified Professional Bookkeeper (CPB) certification.

The CPB certification allows bookkeepers to signal their competency in carrying out key bookkeeping functions. The program requires a minimum of two years of bookkeeping work experience and the passing of the Tier 4 CPB exam. To maintain certification, CPBs are required to obtain 20 continuing education (CE) credits each year.

Aside from the CPB certification, most post-secondary institutions offer accounting diploma programs which are designed to provide students with accounting skills that are suited to the needs of the market in this space. Examples in BC include the Accounting Technician Diploma program from Thompson Rivers University or the Accounting Diploma offered at BCIT.

Aside from the abovementioned certifications, there are also accounting software certifications for programs such as QuickBooks, FreshBooks and Xero. There are many different variations of accounting software certifications – for example, the Xero Advisor Certification – signaling the growing importance of technology in the accounting profession. Accountants may also choose to obtain other related certifications such as the Chartered Financial Analyst (CFA) accreditation or a securities license.

Ultimately, individuals working in accounting positions have a wide range of educational backgrounds and certifications that reflect the variety of roles performed by accountants. These duties and certification requirements are explored further in the section on *Accounting Occupations: A Deeper Look.*

ACCOUNTANT CAREER-PATH(S)

There are many possible career paths for both undesignated and designated accountants – a characteristic born from the fact that accountants work in all sectors of the economy and have transferable skills that can be applied across a range of roles.

Broadly, accountants can choose to work in industry, public practice, government, or academia. Public practice accountants work with a range of clients and provide a variety of services – largely concerned with the preparation and management of financial documents.[5] A CPA is required for the provision of certain public practice services such as audits and reviews. Accountants working in industry are part of a company's internal team and may carry out budgeting, internal auditing, or financial information analysis functions. At a more senior level, CPAs working in industry oversee the stewardship of financial and other resources. Aside from these career paths, accountants may also choose to provide services in specialized areas, such as IT management, risk advisory, forensic accounting, international accounting or other specialized roles. Finally, accountants may also choose to work in government accounting or the not-for-profit sector. Keeping in mind the significant variation in career path and advancement options for accountants, below is a high-level summary of typical career paths.

PUBLIC ACCOUNTING

Accountants working in public practice perform a variety of financial tasks for third-party clients, related to submitting tax returns, staying up-to-date on changing regulations and risks, auditing financial records, and general advisory services. Below are examples and requirements of entry level, mid-level, and senior-level accounting positions in public practice. As abovementioned, a CPA designation is required to issue audits and reviews. In addition to a CPA, accountants providing regulated services (e.g., auditing) are required to obtain a public practice license for the area in which they will be practicing or offering services.

Entry-level

The career trajectory in public practice accommodates the CPA program's structure, where CPA candidates can gain their practical experience in public practice firms as a staff accountant. Other junior-level associate positions are available to recent accounting graduates. Aside from CPA candidates, there are entry-level opportunities for undesignated accountants in public practice, who occupy positions such as clerks or bookkeepers.

Mid-level

With roughly 5 to 10 years of accounting experience, public practice accountants can rise to senior accounting positions or managerial roles in positions such as senior accountant, tax manager or senior auditor. Recent CPA graduates (with roughly 3 years of experience), may also hold mid-level roles or other roles that are beyond entry-level accounting roles.

Senior-level

The most senior positions in public practice accounting are associate partners or partners. These positions are often associated with at least 10 years of accounting related experience and require strong leadership and management skills.

ACCOUNTANTS IN INDUSTRY

Accountants working in industry are part of a company's internal team and perform tasks such as budgeting, cost control, and the submission of tax returns. Accountants work for companies in all industries and sizes (i.e., from small to large businesses). Accountants working in industry do not require a CPA designation, however, a designation may be required to advance to senior-level positions.

Entry-level

Entry-level positions for accountants working in industry often include staff accountants, clerks or tax preparers. Undesignated accountants such as accounting technicians and bookkeepers may fall into this category.

Mid-level

Mid-level industry accounting roles include positions such as senior accountant or accounting managers. These positions have a greater emphasis on managerial skills and generally require 5 years or more of accounting experience.

[5] Public practice firms are defined here as firms in accounting and tax preparation as well as firms in audit and advisory services. All other industries (e.g., manufacturing, credit intermediation, etc.) make up the 'industry' category.

Senior-level

Senior-level industry accountants may be controllers, heads of finance or Chief Financial Officers (CFOs). A CPA designation and/or MBA is beneficial for advancement to these roles, as a deep understanding of business, finance and operations is required.

ACCOUNTANTS IN GOVERNMENT AND NOT-FOR-PROFIT

Accountants also work in government or the not-for-profit sector. In government, accountants manage financial records of government agencies and perform a variety of audits for government agencies (e.g., performance, financial, or compliance auditing). Government accountants can work at the local, provincial and federal levels. They may work as school secretary-treasurers or hospital accountants, or in the Office of the Auditor General, as examples.

The career path for accountants working in the not-for-profit sector is less defined than in other sectors. Accountants in the not-for-profit sector can be in charge of setting up internal control systems, managing budgets and fundraising, and solving tax problems. Entry-level positions include financial accounting and auditing roles working under a senior accountant or auditor. As in industry, senior-level positions include Chief Accounting Executives and CFOs.

ACCOUNTING OCCUPATIONS: A DEEPER LOOK

Within the eight primary and secondary occupations explored in this study, there are numerous roles, tasks, and duties performed. Using data from Human Resources and Skills Development Canada and Statistics Canada's NOC 2016 classification system, the following section describes each occupation, including example roles, duties, and training requirements. Notably, there is some degree of overlap in the skills required and tasks performed across the occupations.

FINANCIAL AUDITORS AND ACCOUNTANTS

Financial auditors and accountants are responsible for examining financial records for individuals and companies to ensure accuracy and compliance with accounting standards. These individuals may be employed by the private or public sectors, or they may be self-employed.

Example Roles	Example Duties	Example Training Requirements
• Accountant • Chief accountant • Financial auditor • Income tax expert	• Plan, set up and administer accounting systems • Prepare management statements • Examine and analyze journal and ledger entries, bank statements, tax returns, etc. • Conduct field audits of businesses to ensure compliance	• A CPA designation which requires an undergraduate degree • A license issued from the Provincial or territorial CPA body can be required for accountants in public accounting

Source: Human Resources and Skills Development Canada and Statistics Canada. National Occupational Classification (NOC) 2016 Version 1.2.

ACCOUNTING TECHNICIANS AND BOOKKEEPERS

Accounting technicians and bookkeepers work with the maintenance of financial records, preparation of tax returns, and development of other accounting reports. They work across different industries in the private and public sectors, and can be self-employed.

Example Roles	Example Duties	Example Training Requirements
• Accounting bookkeeper • Accounting technician	• Maintain general ledgers and prepare financial statements • Balance various accounts using bookkeeping systems • Calculate and prepare cheques for payrolls, and for utility, tax, and other bills • Prepare tax returns and perform other personal bookkeeping services	• Secondary school completion • Completion of a college program in accounting, bookkeeping or a related field may be required

Source: Human Resources and Skills Development Canada and Statistics Canada. National Occupational Classification (NOC) 2016 Version 1.2.

FINANCIAL MANAGERS

Financial managers are in charge of overseeing the operations of financial and accounting departments. They develop implementation policies, establish financial policies and performance standards, and prepare financial reports for senior management. They work in the finance departments of companies, not for profit organizations, and the public sector.

Example Roles	Example Duties	Example Training Requirements
• Finance director • Director of accounting • Financial administer • Treasurer • Internal audit services manager	• Recruitment and training of personnel • Analyze and present trends to senior management that are affecting financial performance • Plan, organize, and evaluate the operation of the financial department of a company • Manage financial planning and budgets	• Several years of experience in accounting, auditing, financial planning or other financial activities • Typically at least a bachelor's degree in business administration or a related field • An accounting designation may be required

Source: Human Resources and Skills Development Canada and Statistics Canada. National Occupational Classification (NOC) 2016 Version 1.2.

PURCHASING MANAGERS

Purchasing managers oversee the activities of the purchasing department of an establishment. They are employed across the public and private sectors.

Example Roles	Example Duties	Example Training Requirements
• Procurement director • Material manager • Supply chain logistics manager • Purchasing contracts manager	• Implement the purchasing policies of a business • Identify vendors and equipment and evaluate the cost and quality of the goods • Recruitment and training of staff • Oversee the negotiation of purchase contracts	• A post-secondary degree or diploma in business administration or a related field • The Supply Chain Management Professional designation may be a requirement • Several years of experience in the purchasing department of a business

Source: Human Resources and Skills Development Canada and Statistics Canada. National Occupational Classification (NOC) 2016 Version 1.2.

BANKING, CREDIT AND OTHER INVESTMENT MANAGERS

Banking, credit, and other investment managers are involved in the planning, organization, and evaluation of activities of financial establishments, or departments within these establishments. They are tasked with overall management of operations, and ensuring that performance is aligned with overarching initiatives and policies.

Example Roles	Example Duties	Example Training Requirements
• Credit manager • Bank manager • Commercial banking manager • Corporate banking centre manager	• Monitor performance of personnel • Recruitment and training of personnel • Personal financial advisory • Approve or reject credit applications • Prepare credit and loan reports	• Post-secondary education in business administration or a related field • Company-specific training or other management training programs

Source: Human Resources and Skills Development Canada and Statistics Canada. National Occupational Classification (NOC) 2016 Version 1.2.

FINANCIAL AND INVESTMENT ANALYSTS

Financial and investment analysts are tasked with the analysis of financial information, such as stocks, trading volumes, economic activity, company performance and more. They can be employed in either the public, or private sector and their analysis can be used for a variety of purposes, such as the evaluation of mergers and acquisitions.

Example Roles	Example Duties	Example Training Requirements
• Financial analyst • Portfolio manager • Investment analyst • Senior investment officer	• Conduct market analysis • Provide investment advice to clients • Prepare company outlooks and analytical reports • Evaluate investment projects	• A bachelor's degree in a finance related subject • A master's degree in business administration • A Chartered Financial Analyst (CFA) designation may be required

Source: Human Resources and Skills Development Canada and Statistics Canada. National Occupational Classification (NOC) 2016 Version 1.2.

SECURITIES AGENTS, INVESTMENT DEALERS AND BROKERS

Securities agents, investment dealers and brokers are responsible for the buying and selling of securities, including bonds, stocks, mutual funds and others for a variety of different establishments. They are employed by stock brokerage firms, exchanges, and other securities firms in the industry.

Example Roles	Example Duties	Example Training Requirements
• Mutual fund broker • Commodity broker • Stockbroker • Investment dealer • Securities trader	• Prepare and execute client-specific investment strategies • Conduct market and company-specific research to identify potential investments • Monitor client's portfolios and ensure compliance to industry regulations • Develop trading strategies	• At least a bachelor's degree in economics, business, finance or a related field • Brokers require completion of the Canadian securities course • A license is required from the provincial securities commission

Source: Human Resources and Skills Development Canada and Statistics Canada. National Occupational Classification (NOC) 2016 Version 1.2.

OTHER FINANCIAL OFFICERS

Other financial officers encompasses occupations that were not elsewhere classified, such as financial managers, financial investigators, mortgage brokers and trust officers. They work across different sectors, and can work at banks, investment firms, government or be self-employed.

Example Roles	Example Duties	Example Training Requirements
• Mortgage broker • Trust officer • Financial planner • Credit adjudicator	• Prepare personalized financial plans for clients • Underwrite new issues of stocks and bonds • Develop financial strategies for clients • Administer charitable, estate, and personal trusts	• A bachelor's degree in business administration or a related field • Some training programs and courses may be a requirement, from organizations such as the Canadian Securities Institute, Investment Funds Institute, or Institute of Chartered Financial Analysts

Source: Human Resources and Skills Development Canada and Statistics Canada. National Occupational Classification (NOC) 2016 Version 1.2.

3. Accounting Sector Profile

The following sections outline the profile of BC's accounting sector with respect to key demographic, economic, and business indicators. It presents comparative data for Canada, and covers regional trends in BC to provide a holistic view of the accounting sector. The purpose of this section is to analyze the economic size and labour market conditions of BC's accounting sector, to better understand who accountants are, where they work, and what they contribute to the economy. The sector definitions outlined in the previous section apply as follows: all employment-specific indicators are generated using the accounting sector NOC codes and include employment across all industries. All economic size indicators are produced from the accounting sector NAICS codes and are for all occupations.

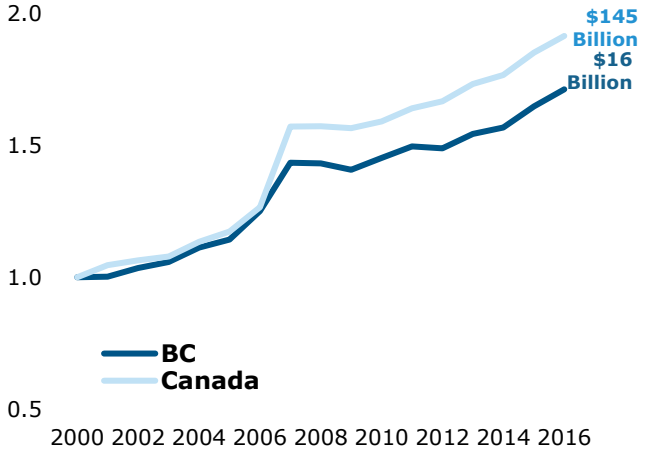
This section is organized as follows: first, the accounting sector snapshot presents a summary of Canada and BC's accounting sectors; second, the accounting sector's economic size is quantified; lastly, the accounting workforce overview outlines key statistics and analyses vis-à-vis BC and Canada's accounting sector labour forces.

The Sector Profile is primarily based on custom Census 2016 data from Statistics Canada, with the exception of the Accounting Sector Economic Size section, which uses data from Statistics Canada's Gross Domestic Product (GDP) by industry and Statistics Canada's Business Register for the years up to 2018. Census data was used to provide an overview of the sector at the detailed occupational level, which is not available via other sources.

ACCOUNTING SECTOR SNAPSHOT

	Accounting Sector Share of GDP	Accounting Sector Labour Force	Accounting Sector Median Wage	Accounting Sector Unemployment Rate
Canada	7.9%	676,750	$33.03/hr (All occupations: $22.62)	2.8% (All occupations: 7.7%)
BC	7.1%	91,705	$29.12/hr (All occupations: $23)	2.6% (All occupations: 6.7%)

Figure 2: Accounting Sector GDP Growth
(Index 2000 = 1)



Source: Statistics Canada. Table 36-10-0402-01 Gross domestic product (GDP) at basic prices in chained (2012) dollars, by industry, provinces and territories (x 1,000,000).
Note: There was a break in the GDP data post 2007. GDP data for the 'Accounting, tax preparation, bookkeeping and payroll services' industry was unavailable for both BC and Canada between 2000 and 2007. Data for the 'Management of companies and enterprises' industry was unavailable at the Canadian level between 2000 and 2007.

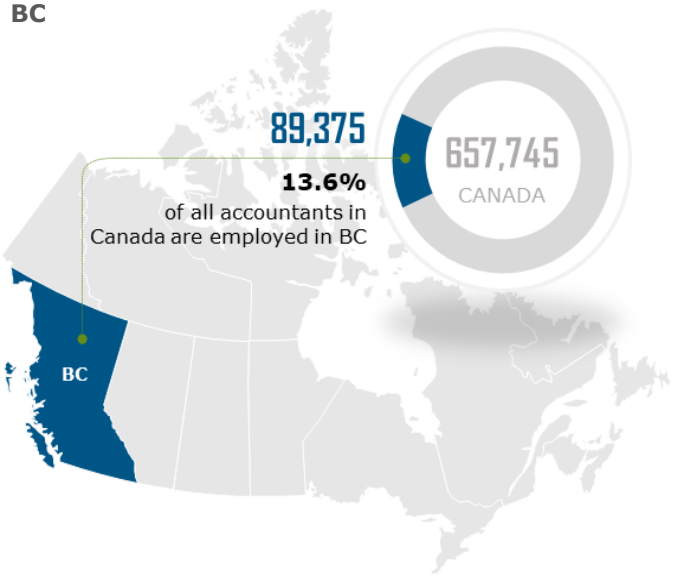
Key findings:

BC's accounting sector GDP (calculated using accounting sector NAICS codes) was **$16 billion in 2016*,** in chained 2012 dollars, representing 11% of Canada's accounting sector as a whole. As seen in Figure 2, Canada's accounting sector GDP has grown at a faster rate compared to BC. This difference could be attributed to stronger growth in other Canadian regions, such as Ontario, which has a dynamic financial sector.

BC's accounting sector **represents a smaller share of the economy compared to Canada's accounting sector** - BC's accounting sector accounts for 7.1% of BC's GDP compared to Canada's 7.9%. Similar to the finding above, this could be due to the fact that finance-related industries are concentrated in Toronto.

* Although more recent GDP data is available, 2016 is the year comparable to the demographic statistics.

Figure 3: Accounting Employment in Canada and BC



Source: Statistics Canada. Census 2016. Custom Request.

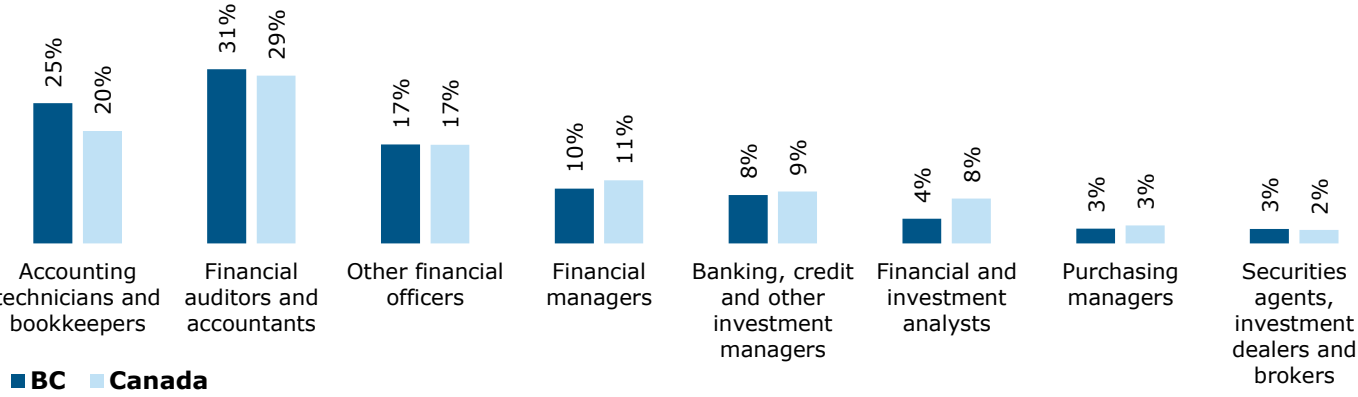
Key findings:

Accountants in BC represent **3.9% of employment in the Province** and 13.6% of accounting employment **across Canada.** This is similar to BC's share of Canada's employment, which is 13.4%.

The median wage for BC's accounting sector **is lower than in Canada's accounting sector**, despite the fact that the median wage for all occupations in BC is higher than in Canada. This may be driven by the occupational mix of accountants in BC versus elsewhere in Canada and the concentration of head offices and the finance sector in Ontario. Overall, the median wage for accounting occupations is significantly higher than the median wage for all occupations.

The **unemployment rate for accounting occupations is significantly lower** than the unemployment rate for all occupations in both Canada and BC. The unemployment rate is lower in BC compared to Canada, a trend that holds in 2019, where BC has the lowest unemployment rate in the country.

Figure 4: Accounting Employment in BC and Canada by Occupation (2016)



Source: Statistics Canada. Census 2016. Custom Request.

Key findings:

Roughly **56% of accountants in BC are employed in primary accounting roles.** In BC, there is a higher share of employment in the accounting technicians and bookkeepers occupation compared to Canada, at 25% compared to 20% in Canada. On the other hand, roughly 8% of accountants in Canada are employed in the financial and investment analysts occupation, compared to 4% in BC. This could be driving the differences in accounting sector wages in Canada and BC, as the median wage for accounting technicians and bookkeepers is the lowest among the accounting occupations.

ACCOUNTING SECTOR ECONOMIC SIZE

To gain an understanding of the economic size of the accounting sector in BC, it is necessary to observe data on gross domestic product (GDP) by industry. Given the nature of accounting sector employment, this is somewhat difficult to achieve. That is, accountants work across the entire economy and therefore looking at the number of businesses where the primary activity performed is accounting or tax preparation services will inherently exclude much of the accounting sector workforce.

Nonetheless, the seven NAICS codes where accounting and accounting-related services are the primary business activity provide a good proxy for the number of businesses and economic activity generated by the sector. Together, these seven industries account for roughly 52% of employment in the accounting sector. By this definition, over 11,000 businesses in BC are in the accounting sector and they represent 7.1% of BC's economic size.

Table 3 shows the top three-digit NAICS codes for accounting sector employment in BC and illustrates the fact that many accountants are employed in industries where accounting services are not the primary business activity, such as the real estate industry. Therefore, when forecasting demand for accountants in BC, consideration needs to be given to the growth forecast for all industries, not simply industries classified as primarily accounting focused.

Table 3: BC Accounting Occupation Employment by Industry (2016)
Blue shaded rows represent accounting sector industries used in this study

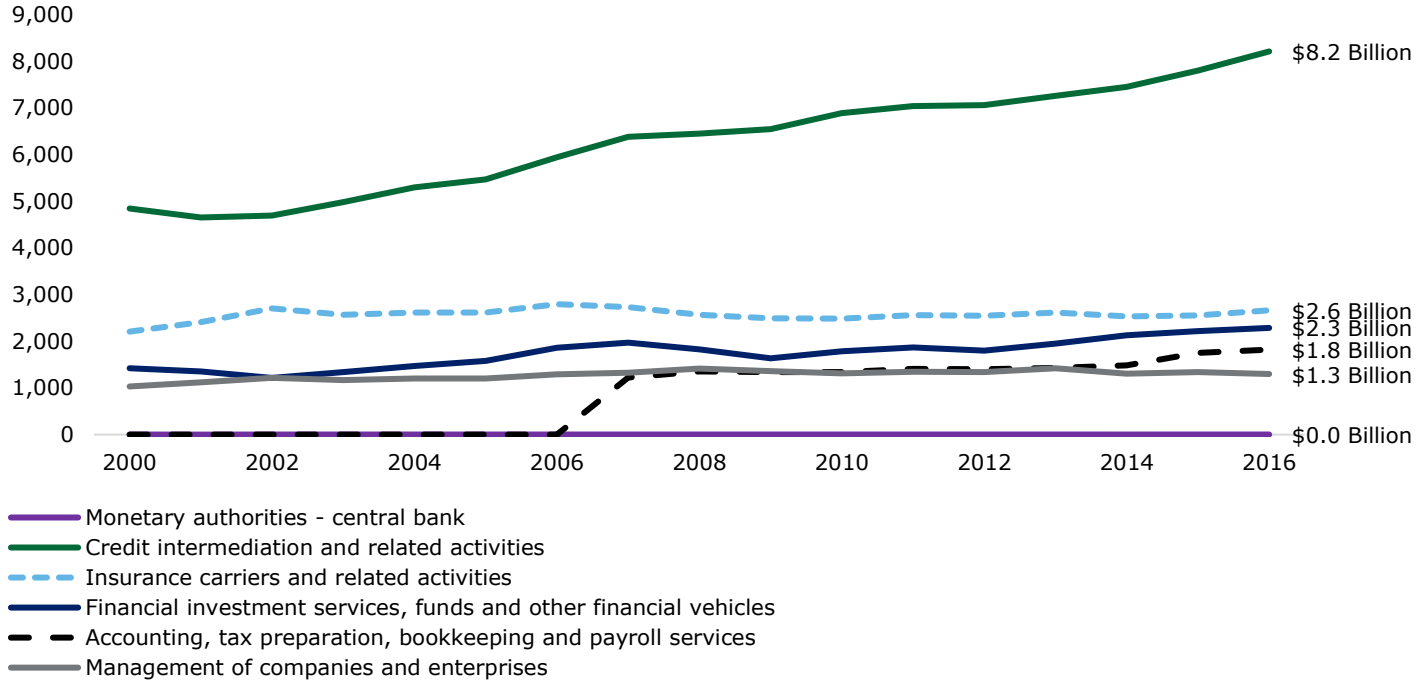
Industry	Accounting Occupation Employment	Share of Accounting Occupation Employment
Professional, scientific and technical services (541)	23,400	26%
Of which: Accounting, tax preparation, bookkeeping and payroll services (5412)	*18,435*	*21%*
Credit intermediation and related activities (522)	14,815	17%
Securities, commodity contracts, and other financial investment and related activities (523)	9,515	11%
Insurance carriers and related activities (524)	2,640	3%
Real estate (531)	2,525	3%
Federal government public administration (911)	2,105	2%
Specialty trade contractors (238)	2,095	2%
Provincial and territorial public administration (912)	1,705	2%
Administrative and support services (561)	1,640	2%
Educational services (611)	1,490	2%
Subtotal (sum of 3-digit NAICS above)	**61,930**	**69%**
All Other Industries:	**27,520**	**31%**
Of which:		
Management of companies and enterprises (55)	*605*	*0.7%*
Funds and other financial vehicles (526)	*130*	*0.1%*
Monetary authorities- central bank (521)	*0*	*0%*
Total	**89,450**	**100%**

Source: Statistics Canada. Census 2016. Custom Request.

Focusing only on accounting industries, Figure 5 illustrates that the credit intermediation and related activities industry is the largest accounting-focused industry in BC, contributing $8.2 billion to BC's economy in 2016.[6] The monetary authorities industry has the lowest share of BC's accounting sector GDP, attributable to the fact that most central bank activities are concentrated in Ottawa.

[6] We use 2016 GDP data to align with the 2016 Census data used to describe the accounting sector labour force. According to Statistics Canada, BC's accounting sector GDP totaled approximately $16.8 billion in 2017, and $17.2 billion in 2018.

Figure 5: BC Accounting Sector NAICS[1] GDP Growth (2000-2016)

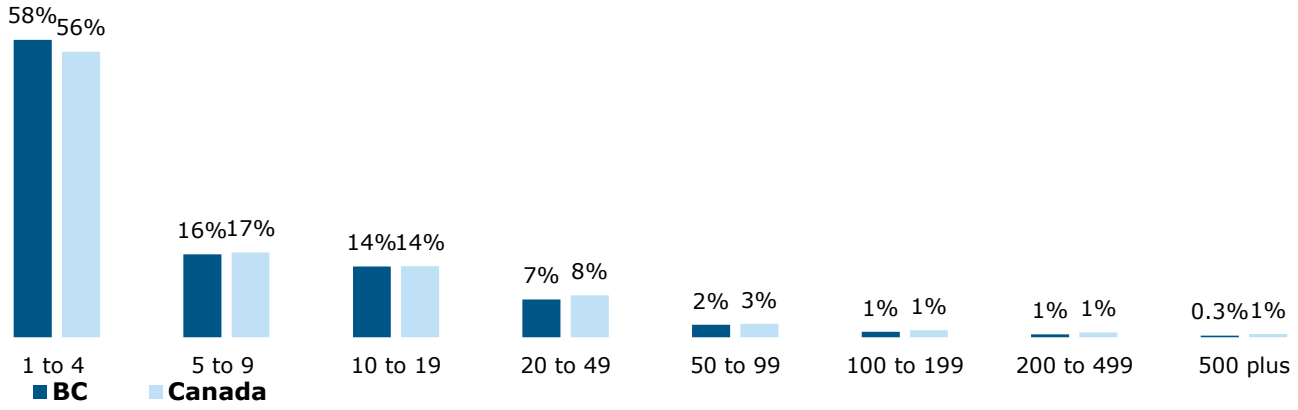


Source: Statistics Canada. Table 36-10-0402-01 Gross domestic product (GDP) at basic prices, by industry, provinces and territories (Chained 2012 Dollars, x 1,000,000). https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610040201

[1] Financial investment services, funds and other financial vehicles (NAICS 52A) includes NAICS codes 523 and 526.

Figure 6 depicts the number of accounting sector businesses by employee size in BC. The majority of BC's accounting sector businesses are classified as small businesses – where 58% of accounting businesses have 1 to 4 employees. This is similar to BC's business size profile overall, where 56% of businesses have between 1 and 4 employees.

Figure 6: Distribution of BC Accounting Sector Businesses[1] by Employee Size[2] (2018)



Source: Statistics Canada. Table 33-10-0092-01 Canadian Business Counts, with employees, June 2018.

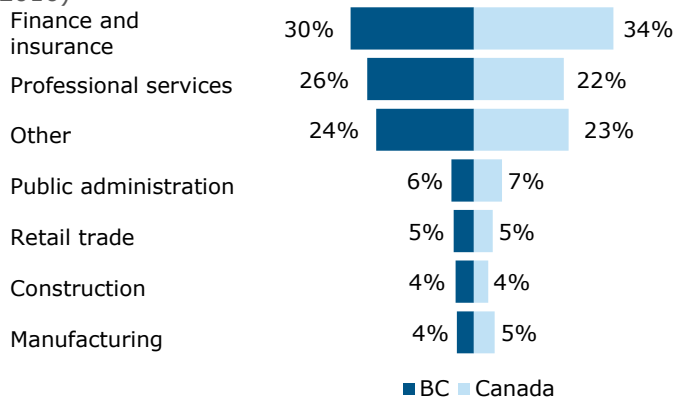
[1]Included in the Business Register are all Canadian businesses which meet at least one of the three following criteria: 1) Have an employee workforce for which they submit payroll remittances to CRA; or 2) Have a minimum of $30,000 in annual revenue; or 3) Are incorporated under a federal or provincial act and have filed a federal corporate income tax form within the past 3 years

[2]These figures do not include businesses without employees.

ACCOUNTING WORKFORCE OVERVIEW: CANADA AND BC[7]

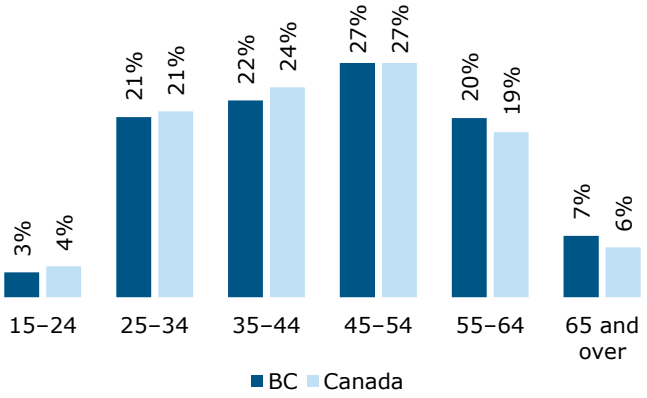
	Accounting Sector Labour Force	**Participation Rate** (all occupations)	**Unemployment Rate**	**Accounting Sector Median Wage**	**Share of Accountants under 45**	**Immigration Share[8]** (accounting occupations)
Canada	676,750	65.6%	2.8%	$33.03/hr (all occupations: $22.62)	49%	30%
BC	91,705	64.5%	2.6%	$29.12/hr (all occupations: $23)	46%	37%

Figure 7: BC Accounting Employment by Industry (2016)



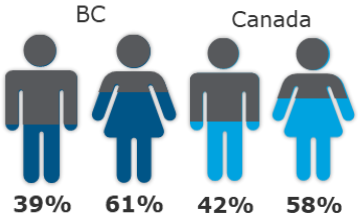
Finance and insurance and professional services make up **over half** of BC and Canada's accounting

Figure 8: Accounting Employment by Age Cohort (2016)



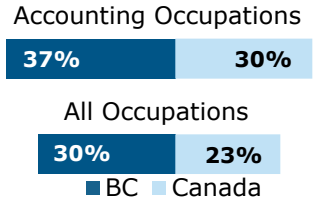
The largest age cohort employed in accounting occupations is **45-54 years** in BC and Canada

Figure 9: BC Accounting Employment by Gender (2016)



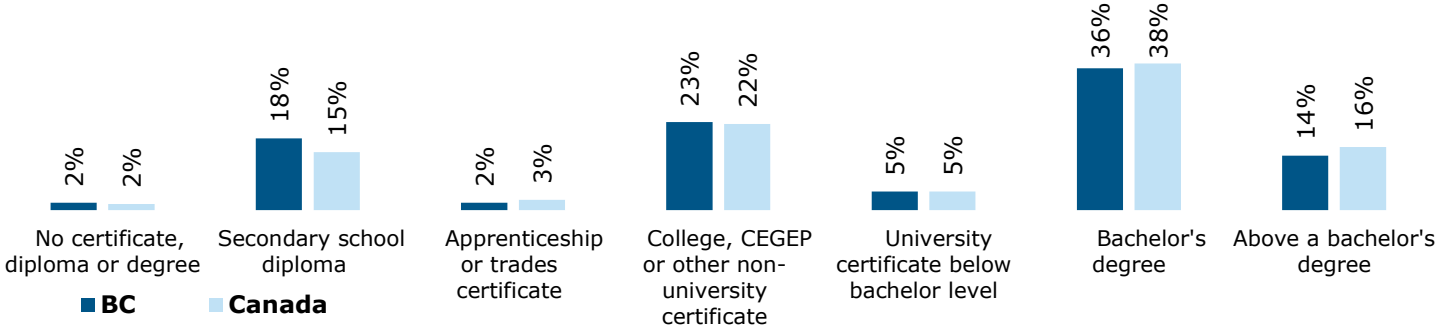
Roughly **61%** of employees in BC's accounting sector are **female**

Figure 10: Immigration Share of Accounting Sector Population (2016)



Immigrants account for **37% of BC's accounting sector population** (i.e., employed, unemployed, and those not in the labour force)

Figure 11: Accounting Employment by Education Level (2016)



[7] All figures in the Accounting Workforce Overview are generated from Statistics Canada Census 2016 Custom Request.
[8] Immigrants' refer to those who are, or who have ever been permanent residents or landed immigrants. Immigrants who have received Canadian citizenship by naturalization are included in this category.

ACCOUNTING EMPLOYMENT BY OCCUPATION

The majority of accounting employment in Canada and BC is within the primary occupations, where positions are exclusively accounting focused;

Financial auditors and accountants, and accounting technicians and bookkeepers make up roughly 50% of accounting employment in Canada, and roughly 55% of accounting employment in BC (see Figure 4). While the distribution of occupations in the accounting sector is relatively consistent between BC and Canada, some notable differences exist. Firstly, there are relatively more accounting technicians and bookkeepers in BC, accounting for 25% of employment compared to 20% of employment in Canada. Additionally, financial and investment analysts are underrepresented in BC compared to Canada, accounting for 4% of accounting employment in BC and 8% of accounting employment in Canada. Similar to the findings in the industry analysis, this is likely driven by the concentration of the financial services industry in Toronto.

The Lower Mainland stands out compared to other BC regions as accounting employment is more diversified by occupation;

As the Lower Mainland/Southwest region accounts for 69% of BC's total accounting employment, the occupational distribution of accounting occupations is skewed by this region. To illustrate, in Thompson-Okanagan, Kootenay, Cariboo, North Coast, Nechako and the Northeast, over 50% of accountants are technicians and bookkeepers. Comparatively, only 29% of accountants are technicians and bookkeepers in the Lower Mainland. The Lower Mainland also has the highest share of financial auditors and accountants out of all the regions, where 33% of accounting employment is attributed to the occupation. Overall, the higher percentage of accounting technicians and bookkeepers in the regions outside the Lower Mainland points to the trend that more specialized services, such as financial auditors and accountants, and financial and investment analysts are found in major metropolitan areas.

ACCOUNTING EMPLOYMENT BY INDUSTRY

Over 50% of accountants across Canada and BC are employed in the finance and insurance, and professional services industries;

Accountants work across all industries, but are concentrated in the finance and insurance, and professional services industries (see Table 4). Together, these industries account for 56% of accounting employment in BC, and 57% of accounting employment in Canada. The industry spread of accountants is relatively consistent across BC and Canada, with Canada only having a somewhat higher share of accountants in finance and insurance (34% in Canada compared to 30% in BC).

Table 4: Accounting Employment by Industry (2016)

BC		Canada	
Finance and insurance	30%	Finance and insurance	34%
Professional services	26%	Professional services	22%
Public administration	6%	Public administration	7%
Retail trade	5%	Manufacturing	5%
Construction	4%	Retail trade	5%
Manufacturing	4%	Construction	4%
Other	24%	Other	23%

Source: Statistics Canada. Census 2016. Custom Request.

Within finance and insurance, 55% of accountants are employed in credit intermediation and related activities, and 35% are employed in the securities, commodity contracts, and other financial investment and related activities. Within the professional services industry, 79% of accountants in BC are employed in the accounting, tax preparation, bookkeeping and payroll services.

After finance and insurance and professional services, the next largest employer of accountants is public administration, which encompasses local and provincial government accountants and accountants working as school secretary-treasurers, as an example.

The industry distribution of accountants varies by region in BC, with some regions having a greater proportion of accountants working outside of finance and insurance and professional services;

Although the finance and insurance and professional services industries are the largest employers of accountants within BC, accounting employment varies according to the industry mix of each region (see Figure 7). For example, 13% of accountants on Vancouver Island are employed in public administration compared to 7% of accountants

overall in BC, due to Victoria being the capital of BC and the location of the provincial government. In Nechako, the construction and agriculture, forestry, fishing and hunting industries employ more accountants than the finance and insurance industry, accounting for 17% and 14% of accounting employment, respectively, compared to 13% in finance and insurance. This is due to the fact that Nechako has one of the largest forestry industries in BC, and has an expanding mining sector requiring increased construction efforts to accommodate the expansion.

The industry distribution of accountants in BC varies by occupation and their associated primary tasks;

The industry distribution of accounting occupations is consistent with the primary tasks completed by individuals in these occupations. For example, 95% of securities agents, investment dealers and brokers in BC are employed in the finance and insurance industry. Financial auditors and accountants have the highest share of employment in professional services, which accounts for 47% of employment for this occupation overall. On the other hand, financial managers and purchasing managers have the greatest spread across industries, with no single industry accounting for more than 18% of employment.

These differences are largely driven by the variety of tasks performed for each occupation. For example, securities agents are highly specialized in the trading of stocks, bonds and other financial instruments – activities that are almost entirely performed within the finance and insurance industry. In contrast, financial managers are tasked with overseeing the financial department of a company, as well as preparing financial statements and ensuring they are accurate and comply with accounting standards. These activities are required for all businesses across all industries, hence financial managers are more evenly distributed throughout the economy.

AGE DISTRIBUTION OF ACCOUNTANTS

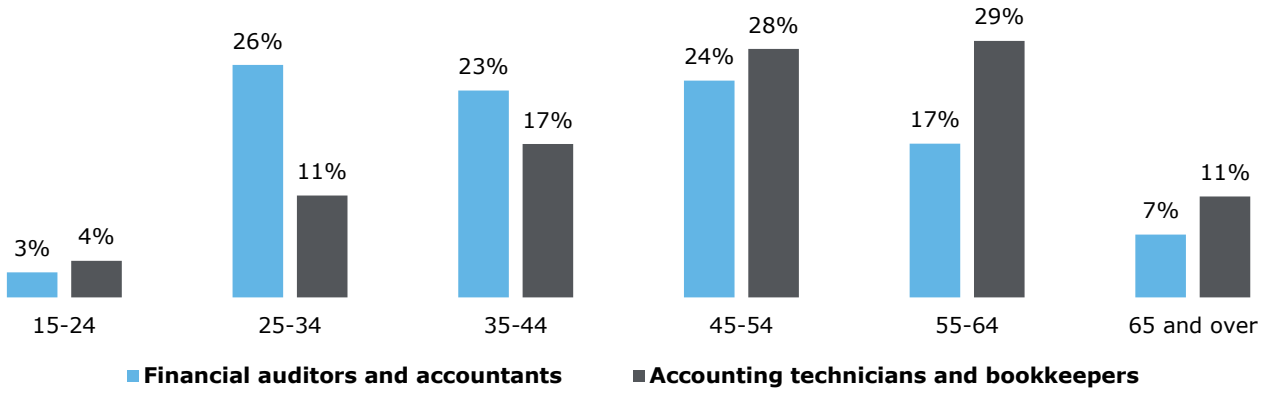
Accountants in BC are older on average compared to employment in BC overall. The largest age group employed in accounting occupations is the 45 to 54-year-old cohort;

BC's accounting sector is relatively older than Canada's, and is relatively older than BC's labour market overall. The largest age group in BC and Canada is the 45 to 54-year-old cohort, which accounts for 27% of employment in both jurisdictions. BC's accounting sector exhibits a slightly older age profile compared to Canada, with 54% of accountants over 45, compared to 51% for Canada. Further, BC's accounting sector is older than the economy's employment age profile for all occupations; only 46% of total employment in BC is over 45 years of age. This indicates that planning for retirements in accounting occupations will become a growing problem for businesses in years to come, particularly for BC.

BC's accounting occupations present marked differences in age, where accounting technicians and bookkeepers have the highest share of employment over 45 years old;

The age distribution of accountants in BC varies significantly by occupation. The largest age group for accounting technicians and bookkeepers is the 55 to 64-year-old cohort, corresponding to 29% of employment. On the other hand, the largest group for financial auditors and accountants is the 25 to 34-year-old cohort, which makes up 26% of employment. Accounting technicians and bookkeepers have the highest share of employment over 45 and financial and investment analysts have the lowest share of employment over 45, at 67% and 42%, respectively.

Figure 12: Employment in BC Primary Accounting Occupations by Age Group (2016)



Source: Statistics Canada. Census 2016. Custom Request.

The Lower Mainland/Southwest region has the youngest accounting sector age profile in BC, reflecting the trend that regions without a major metropolitan area struggle to attract young talent;

Overall, the Lower Mainland/Southwest region has the lowest share of accountants over 45 compared to BC's other regions, at 50% of employment. Vancouver Island, Thompson Okanagan, Kootenay, North Coast and Nechako are all regions where over 60% of their accountants are over 45. Several factors may be contributing to these differences, including that more headquarters are located in the major metropolitan regions, there is a different occupational mix across the regions, and there is a broader trend where areas outside major metropolitan areas have difficulty attracting young talent. The impending retirement of baby boomers will put additional pressure on the accounting sector labour market in BC, especially in regions outside the Lower Mainland.

GENDER DISTRIBUTION OF ACCOUNTANTS

The majority of accountants are female, both in BC and Canada overall;

Approximately 61% of accountants in BC are female, compared to 48% of employment in all occupations in BC. The female representation of accountants in BC is higher than in Canada, where 58% of accountants are female. Additionally, the female share of accountants in BC is higher compared to all occupations in BC where females represent roughly 48% of employment. The higher proportion of females in accounting is largely attributable to the relatively high demand for bookkeepers and accounting technicians.

Females represent roughly 71% of employment in the primary accounting occupations, compared with 48% of employment in secondary accounting occupations;

Although the majority of accountants in BC are female, this is largely driven by the accounting technicians and bookkeepers occupation, where females account for 90% of employment. For all other accounting occupations, males account for a larger share of employment. The securities agents, investment dealers and brokers occupation employs the lowest share of females, at roughly 26% of employment in the industry. A general trend in BC's accounting sector is that despite the fact that females have greater representation in the industry as a whole, some occupations, particularly those in finance-related industries, are male-dominated. This trend holds for Canada overall, where females account for 68% of employment in primary accounting occupations, compared to 49% of employment in secondary accounting occupations.

This may have important implications by virtue of the automation potential of these occupations. The accounting technicians and bookkeepers occupation has the highest expected potential for automation (see the *Potential for Task Automation in Accounting Occupations* section for a deeper discussion) due to the fact that the tasks performed in this role are largely routine and rules based. This, in conjunction with the gender profile of the occupation, suggests that automation technologies will likely have a larger effect on female employment.

However, as seen in Figure 12, the accounting technicians and bookkeepers occupation has the highest share of employment over 45 years old – indicating that the effect of automation on female employment may be reduced if

fewer young people are choosing to go into this occupation and the impact of automation is limited to those close to retirement.

IMMIGRANT STATUS OF ACCOUNTANTS

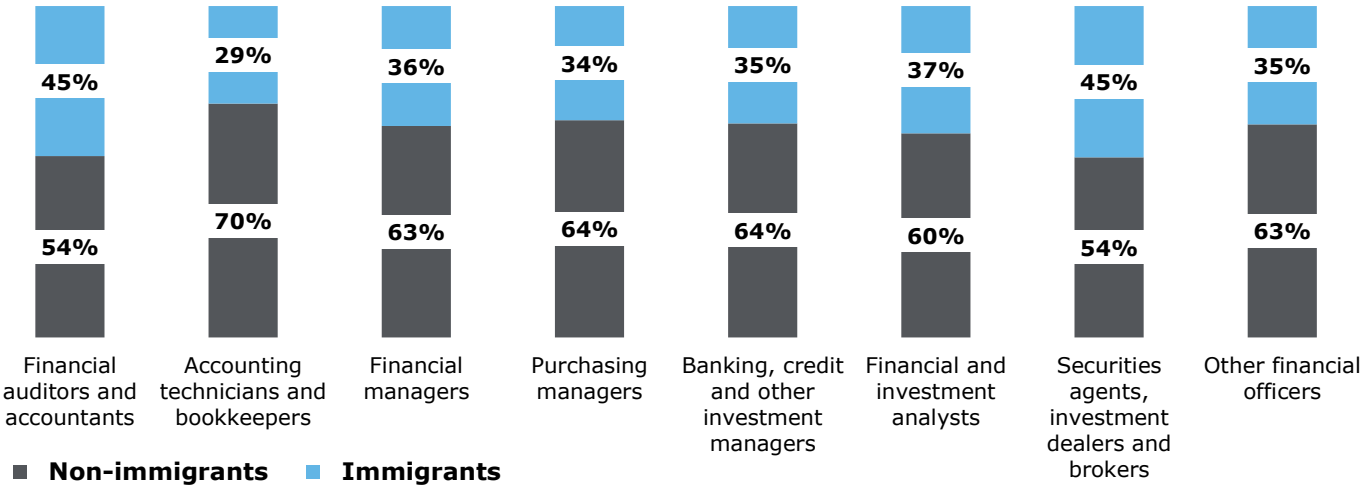
Immigrants[9] account for a higher share of accounting occupations than they do on average;

Immigrants make up roughly 37% of the accounting sector population in BC, while they account for only 30% of BC's population overall. In Canada, immigrants account for approximately 30% and 23% of the accounting and total populations, respectively.

The Lower Mainland is driving the high share of immigrants in BC's accounting sector population;

The share of immigrants in the accounting sector is highest in the Lower Mainland/Southwest region, where immigrants make up roughly 47% of the accounting sector population. This is the driving force behind the 37% of the population in accounting occupations, as the accounting sector population immigrant share in other regions is all less than 20%. Cariboo, Kootenay, and North Coast have immigration shares of 10% or less in their regional accounting sector populations. This is largely attributed to the fact that Vancouver has seen relatively high levels of immigration over the last two decades.

Figure 13: Share of Immigrants in BC's Accounting Occupations (2016)



Source: Statistics Canada. Census 2016. Table 98-400-X2016372.

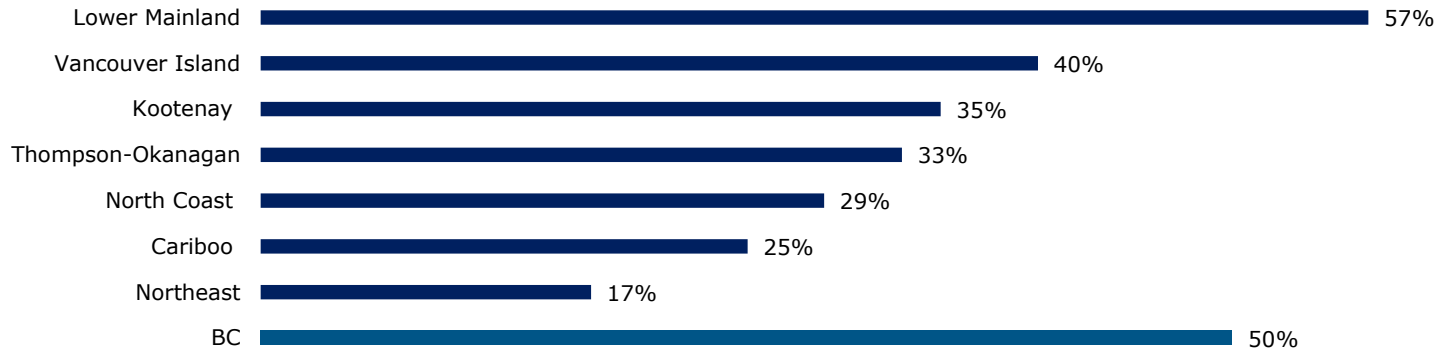
Immigrants account for a larger share of the total labour force in occupations that generally require a higher level of education;

Immigrants account for the largest share of employment among financial auditors and accountants and securities agents and investment dealers, representing roughly 45% of all employment in these occupations. The lowest share of immigrants in BC's accounting sector is in the accounting technicians and bookkeepers occupation, with immigrants accounting for approximately 29% of the labour force.

[9] 'Immigrants' refer to those who are, or who have ever been permanent residents or landed immigrants. Immigrants who have received Canadian citizenship by naturalization are included in this category.

EDUCATION LEVEL OF ACCOUNTANTS

Figure 14: Share of Accountants with a Bachelor's Degree or Above by Region in BC (2016)



Source: Statistics Canada. Census 2016. Table 98-400-X2016372.

Roughly 50% of accountants in BC have a bachelor's degree or above, but this share is lower in regions outside the Lower Mainland, reflecting the fact that remote areas struggle to recruit top-talent and accounting occupations are less specialized in these areas;

The educational profile of the accounting sector is similar in BC and Canada, where over half of accountants have at least a bachelor's degree. However, the share of accountants that have a bachelor's degree or above varies by region within BC. For example, in the Northeast roughly 17% of accountants have at least a bachelor's degree, compared to roughly 57% in Lower Mainland/Southwest. These regional trends are likely driven by the availability of talent by region and the occupational differences across regions – individuals with higher levels of education are more likely to be attracted to the major metropolitan areas. In general, more remote regions in BC have more difficulty attracting top-talent.

There are varying educational requirements across accounting occupations, approximately one-fifth of accounting technicians and bookkeepers have a bachelor's degree or above, compared to three-quarters of financial and investment analysts;

In BC, only 21% of accounting technicians and bookkeepers have a bachelor's degree or above. This is significantly lower than financial and investment analysts and financial auditors and accountants, where the corresponding shares are 75% and 71%.

The differing educational profiles of accounting occupations largely corresponds to the skills, and training requirements for each occupation. For example, financial auditors and accountants are likely to have a CPA designation, where a bachelor's degree is an eligibility criteria to sitting the CPA exam. This explains the high percentage of financial auditors and accountants that have a bachelor's degree or above.

ACCOUNTING SECTOR WAGES

BC's accounting sector compensation is lower than that of Canada's, but higher than the BC economy's compensation overall;

The median hourly wage (weighted by accounting employment shares) for accounting occupations is approximately $33.03 in Canada, compared to $29.18 in BC. Both of these rates are higher than the median wage for all occupations in Canada and BC, which are roughly $22.62 and $23.00, respectively. Interestingly, the median wage for all occupations in BC is higher than that of Canada's but the median wage for accounting occupations is lower. This is potentially due to the fact that 25% of BC's accounting employment is in the accounting technicians and bookkeepers occupation, compared to 20% of Canada's accounting employment. This is important because the accounting technician and bookkeeper's median hourly wage is the lowest of all accounting occupations, at $21.63 in Canada and $20.07 in BC. The highest median wage for both Canada and BC accounting occupations is associated with the banking, credit and other investment managers occupation, with corresponding values of $45.67 and $43.27.

According to the 2017 CPA Canada Compensation Study, the median hourly wage of CPAs in 2016 was $48.08 in BC. This is significantly higher than the median wage for BC's accounting sector overall, and BC's median wage for all occupations. The large discrepancy between median hourly wages for CPAs compared to the sector overall suggests that undesignated accountants tend to earn lower wages compared to CPAs.

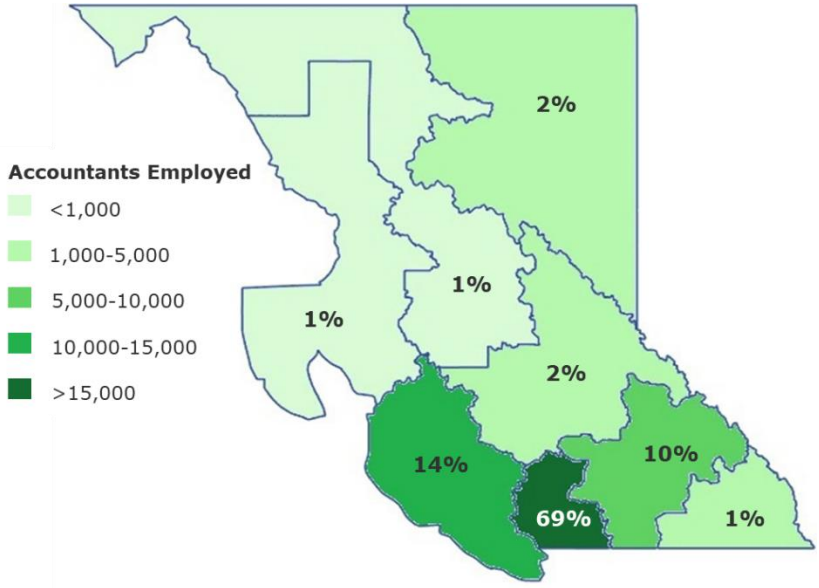
ACCOUNTING SECTOR UNEMLOYMENT RATE

The unemployment rate for accounting occupations in BC was 2.6% in 2016, compared to the unemployment rate of 6.8% across all occupations in BC. This represents an extremely tight labour market, where the 2.6% unemployment rate is essentially 'job churn' (i.e., individuals changing jobs). As BC's overall unemployment rate has since decreased from its 2016 level to 4.5% in 2019, it is likely that the unemployment rate for accounting occupations has also decreased further. Unemployment data is unavailable for our detailed occupations past 2016, however, we can derive general conclusions about the unemployment rate in the accounting sector based on high-level occupation groupings data. In particular, 2018 data suggests that the accounting sector unemployment rate was closer to 1.5-2%. This range is derived from the unemployment rate of management occupations (which encompasses financial managers and purchasing managers), which was 1.6% in 2018 as well as the unemployment rate for business, finance and administration occupations (which encompasses all other occupations), which was 2% in 2018. It is probable that the unemployment rate is closer to 1.5% for the sector, given the fact that the unemployment rate for professional occupations in business and finance, which is a more detailed grouping than the previous occupations (encapsulating financial auditors and accountants, financial and investment analysts, securities agents, investment dealers and brokers, and other financial officers) was 1.5% in 2018. Overall, unemployment in the sector is very low.

ACCOUNTING WORKFORCE OVERVIEW: BC'S ECONOMIC REGIONS

The regional distribution of accounting employment is highly imbalanced among BC's regions. The majority of accountants (83%) are employed in the Lower Mainland/Southwest and the Vancouver Island/Coast regions. The other six regions account for 17% of employment in accounting occupations.

Figure 15: Accounting Sector Employment by Economic Region (2016)



Source: Statistics Canada. Census 2016. Custom Request.

The unemployment rate for accounting occupations is between 2-3% for the majority of BC's regions, with a few exceptions. The unemployment rate is the lowest in Kootenay and Nechako, with rates of 1.2% and 0%, respectively. North Coast exhibits the highest unemployment rate for accounting occupations, with 11.7%.

As previously mentioned, the occupations in which accountants are employed vary by region. The following table outlines the regional share of accounting employment for each occupation. As is illustrated, the accounting technicians and bookkeepers occupation has the highest share of employment of accounting occupations in all regions except the Lower Mainland. Many of the head offices for the large regional employers in BC, such as those in the forestry and

mining sectors, are located in Vancouver, a factor that could be contributing to the concentration of high skilled occupations in the Lower Mainland.

Table 5: Accounting Occupation Employment Shares by BC Region (2016)

	Vancouver Island and Coast	Lower Mainland--Southwest	Thompson--Okanagan	Kootenay	Cariboo	North Coast	Nechako	Northeast
Financial auditors & accountants	**20%**	**33%**	**21%**	**15%**	**20%**	**17%**	**14%**	**14%**
Accounting technicians & bookkeepers	**44%**	**29%**	**50%**	**56%**	**51%**	**52%**	**76%**	**65%**
Financial managers	10%	10%	8%	6%	11%	13%	2%	7%
Purchasing managers	1%	2%	1%	1%	2%	0%	0%	1%
Banking, credit & other investment managers	7%	8%	8%	9%	6%	12%	2%	6%
Financial & investment analysts	5%	3%	1%	2%	1%	0%	0%	1%
Securities agents, investment dealers & brokers	1%	1%	1%	1%	1%	0%	0%	0%
Other financial officers	11%	13%	11%	10%	7%	5%	5%	7%

Legend

=< 9% | 10-19% | 20-29% | 30-49% | >= 50%

Source: Statistics Canada. Census 2016. Custom Request.

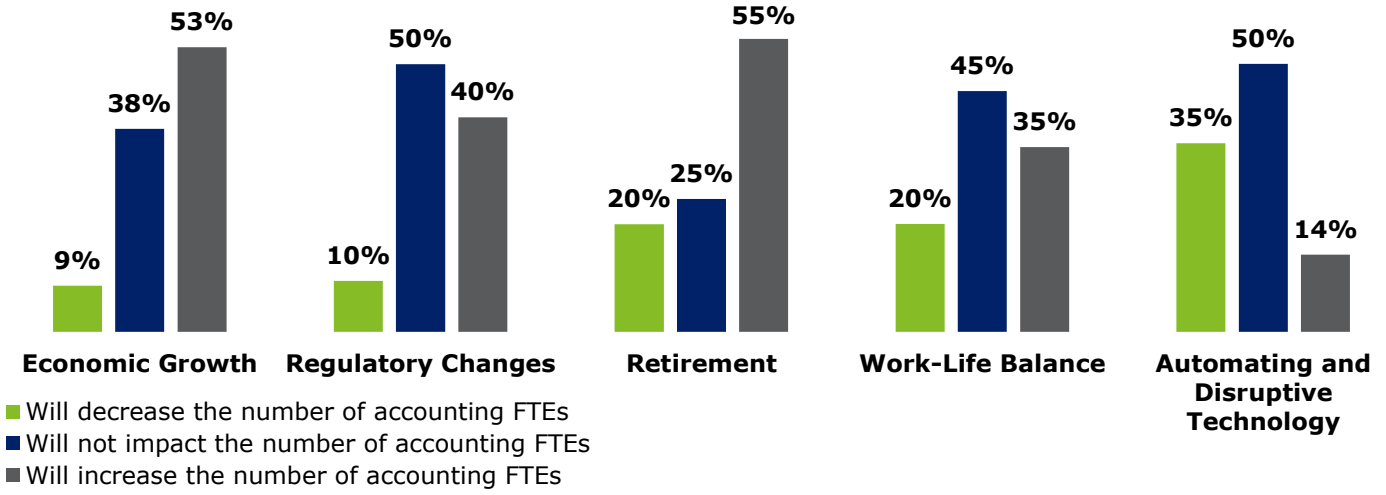
4. Employment Demand Issues and Trends

Having established a perspective on the size and demographics of the accounting sector in BC, the following section summarizes all findings from the robust stakeholder engagement exercise undertaken as part of this study. Deloitte conducted 11 stakeholder interviews with representatives from accounting firms, business organizations and academia, a stakeholder workshop to discuss interview findings, and an employer survey to over 1,800 CPAs in BC. Together, the views gathered as part of these activities provide an overview of the labour market challenges facing the accounting sector in BC. These challenges are covered in four topic areas: employment demand drivers, talent recruitment and retention, the accountant skill profile, and automation and disruptive technologies. See Appendix 2 for a full list of interview participants as well as survey participation statistics.

EMPLOYMENT DEMAND DRIVERS

Interview participants noted that economic growth, regulatory complexity and changing generational workplace needs, are all likely to increase demand for accountants over the next five years. As shown in Figure 16, survey results largely confirm these sentiments.

Figure 16: How will each of the following drivers impact demand for accountants over the next five years?



ECONOMIC GROWTH

Several stakeholders cited economic growth as a key driver of demand, largely due to the fact that accountants work across all industries, sectors, and businesses. As demand for accounting services is largely procyclical (although the industry has some buffer against economic downturns thanks to countercyclical services such as insolvency and receivership services), when the economy is growing, demand for accounting services and accountants increases. Some participants highlighted that accounting firms primarily serving private enterprises may have more procyclical accounting employment requirements than firms with public companies as clients, because private enterprise investment slows significantly during economic downturns.

In a similar vein, IBIS World identified the *number of businesses* and *corporate profit* as key factors bolstering demand for the accounting services industry in Canada. With more businesses incorporating, there is an increase in the potential clients available in the sector that will require budgeting, auditing, and other accounting services.[10] Furthermore, as corporate profit increases, there is greater potential corporate spending on accounting services. Overall, these findings are consistent with the interview findings that emphasised "economic growth" broadly as a driver of demand for accountants in BC. There is also a regional dimension to accounting employment trends, as specialized accounting roles (e.g., forensic accounting) are generally located in the larger urban areas of Vancouver and Victoria whereas employment in smaller cities and regions is more closely tied with local industry.

[10] IBIS World. 2018. *Accounting Services - Canada Market Research Report.*

From the employer survey, roughly 53% of respondents indicated that economic growth would increase the demand for full-time equivalent (FTE) accountants over the next five years. Only 9% of respondents stated that economic growth would decrease the demand for accountants over the next five years and 38% of respondents did not anticipate economic growth to affect demand for accountants. That 38% of respondents did not anticipate economic growth to affect demand is likely reflective of the fact that accountants provide overhead accounting services, which are not very sensitive to economic fluctuations. It may also reflect countercyclical services, such as bankruptcy and insolvency services. These results are largely consistent across business size and when comparing public accounting firms to businesses in industry. See Appendix 2 for the cross-tabulation of these results by business size and industry. One exception is the results on work-life balance where larger firms are somewhat more likely than smaller firms to expect an increase in the number of FTEs required because of changing work-life balance needs. Similarly, firms in industry are somewhat more likely than firms in public practice to expect no change in the number of FTEs as a result of changing work-life balance desires.[11]

REGULATORY COMPLEXITY

Given the ever-changing regulatory environment that accountants operate within, increased tax legislation complexity was cited by interview participants as a key driver of demand for accountants. IBIS World similarly cited complex regulatory and tax structures as a contributing factor to the increased demand for accounting services in Canada over the past five years.[12] However, the employer survey results indicate that roughly 50% of respondents feel regulatory changes will not impact demand for accountants while 40% believe regulatory changes will increase demand.

DEMOGRAPHIC CHANGES

Demographic changes, coupled with changing generational workplace needs were consistently raised during interviews as central drivers of demand for accountants. Many interview participants cited the retirement of baby boomers as a key concern going forward, which is likely to significantly increase demand for accountants. This is especially salient outside of the two major metropolitans in BC, where access to talent is even more constrained – as discussed below.

Further exacerbating the impact of the impending retirement of baby boomers is a shift in generational attitudes towards work and the growing importance of work-life balance. Interview participants highlighted that younger generations have different expectations when it comes to their work, and often prioritize flexibility over compensation. This could be linked to the fact that younger generations are striving for careers with a greater sense of purpose, and that are intrinsically rewarding rather than strictly financially rewarding. Some participants suggested that this emphasis on work-life balance will result in a greater number of younger workers needed to replace retiring workers.

The highest share of survey respondents selected "retirement" as the driver that will increase demand for accountants, with 55% of respondents anticipating that retirement will increase the number of accounting FTEs during the next five years. Despite repeatedly hearing that work-life balance is an important consideration for the next generation of accountants and workers in general, only 35% of respondents anticipate that the desire for work-life balance will increase the number of accounting FTEs over the next five years.

Finding/Issue 1: As baby boomers retire, more accounting positions will need to be filled by younger generations who place higher value on work-life balance.

RECRUITMENT AND RETENTION ISSUES

Talent recruitment and retention continues to challenge many employers but certain regions and firms have more difficulty than others. Nearly 60% of survey respondents indicated that they agree or strongly agree with the statement: "over the past year, we experienced difficulty recruiting qualified accountants, to the point that vacant positions went unfilled." As Table 6 illustrates, there were some differences in recruitment challenges across regions, with respondents from the Lower Mainland being somewhat less likely to agree with this statement.

[11] Public practice firms are defined here as firms in accounting and tax preparation as well as firms in audit and advisory services. Survey participants self-selected their company's industry. All other industries (e.g., manufacturing, credit intermediation, etc.) make up the 'industry' category.

[12] IBIS World. 2018. *Accounting Services - Canada Market Research Report.*

Table 6: Over the past year, we experienced difficulty recruiting qualified accountants (both designated and undesignated), to the point that vacant positions went unfilled.

	Cariboo	Kootenay	Mainland/ Southwest	North Coast/ Nechako	Northeast	Thompson Okanagan	Vancouver Island/ Coast
Disagree or Strongly Disagree	20%	0%	32%	20%	0%	22%	21%
Neutral	0%	0%	13%	0%	33%	22%	21%
Agree or Strongly Agree	80%	100%	55%	80%	67%	56%	57%
# of Respondents	5	2	113	5	3	18	42

These are consistent with findings from CPABC's membership surveys conducted over the past several years. In 2018, nearly three-quarters (73%) of respondents indicated that their business experiences recruitment challenges.[13] Interestingly, 66% of survey respondents indicated that they do not anticipate automation and disruptive technologies will help with their talent recruitment challenges.

66% of survey respondents indicated that implementing **automation technologies will not help them address the labour market challenges facing their organization**

Interview participants indicated that housing affordability and stagnant wages were two of the primary reasons they were unable to attract talent. Indeed, for several years in a row, CPABC's membership surveys have found that housing prices are a challenge to business success. In 2018, approximately 85% of survey respondents considered housing prices to be a challenge to success and 58% of respondents considered housing prices to be a major challenge.[14] Representatives from firms outside the Vancouver and Victoria areas also emphasized that attracting talent, especially experienced talent, was especially challenging. One participant even indicated that their firm offers approximately $10,000 above salaries in Vancouver to attract accountants to their firm.

Finding/Issue 2: Employers cannot fill accounting positions.

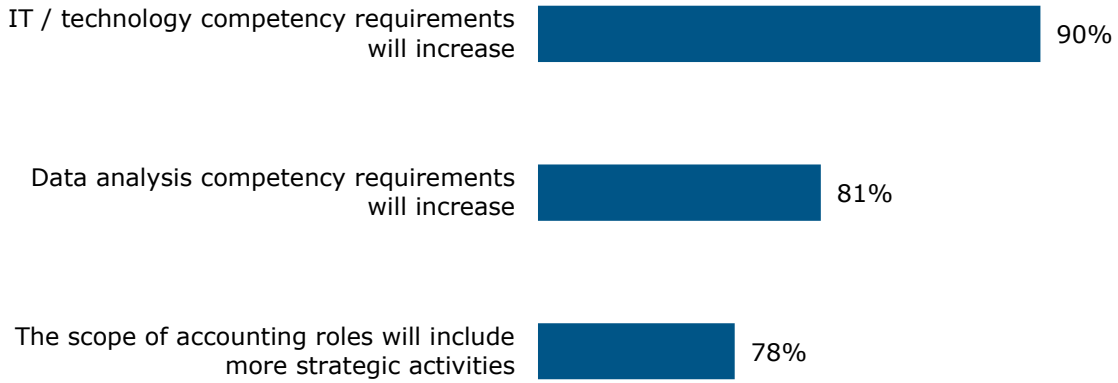
ACCOUNTING SKILLS

The skill profile of accountants continues to change, with critical thinking and communication skills increasingly demanded – a trend that is likely to be intertwined with evolving technologies in the profession. Several interview respondents anticipate that technology would affect the skills required of accountants – as technology automates more routine and standardized tasks there will be greater emphasis placed on critical thinking, data analysis, leadership and management skills.

This finding was confirmed by the employer survey, where respondents agreed that, as a result of automation technologies, the IT competency requirements of accountants will increase, the data analysis competency of accountants will increase, and the scope of accounting roles will include more strategic activities (see Figure 17). Although many respondents agreed that technology will impact the accounting skills required, Figure 16 shows that 50% of employers do not appear to think that automation technologies will affect the number of accounting FTEs.

[13] NRG Research Group. 2018. CPABC Business Outlook Survey.
[14] Ibid.

Figure 17: Share of Survey Respondents who Agreed that Technology will Impact Accounting Skills



Interview participants expected that accountants will need to have a greater understanding of information and communication technology, especially with evolving privacy legislation. With a move towards cloud-based technology in the accounting sector, the importance of protecting data is becoming more and more salient and will require accountants to comprehend how to navigate this complex intersection of technology and privacy. Several stakeholders indicated that the entry and junior-level talent they are hiring do not have the desired technology and leadership skills that they seek. Roughly 34% of survey respondents indicated that a lack of required skills in their organization was a barrier to their company adopting automation technologies.

It will be important for the changing skill profile of accountants to be captured in CPA's Competency Map[15] – a framework that outlines the knowledge, skills, and proficiencies required to be a Canadian CPA. Currently, the map distinguishes between technical and enabling competencies. Technical competencies include abilities required to be a professional accountant, such as financial reporting, management accounting, taxation, and strategy and governance. Enabling competencies are the personal attributes required of CPAs, such as teamwork and leadership, problem-solving and decision-making, and professional and ethical behaviour.

The 2019 CPA Competency Map was the first major revision to the 2013 Competency Map, and one of the main differences is the addition of data analytics and information systems (DAIS) competencies. This reflects the growing importance of technology in the profession, and that the competency map is able to adapt to changing skill requirements of accountants. One interview participant argued that the enabling competencies of CPAs will become increasingly important with the rise of automation technologies, and emphasized that project management skills should be highlighted in the map to reflect the nature of workflow for accountants.

With the constant need to re-skill or up-skill in many occupations, including accounting, one interview participant noted that designated accountants may be at an advantage as they are required to complete professional development hours each year. This gives CPABC the opportunity to ensure the skillset of CPAs continues to stay relevant.

Finding/Issue 3: Accountants are increasingly required to perform tasks that are strategic in nature, especially as automation technologies are adopted in the sector.

Finding/Issue 4: Graduates lack critical technological and leadership skills.

[15] CPA Canada. 2019. *The CPA Competency Map: Qualifications for the Canadian CPA designation.*

AUTOMATION AND DISRUPTIVE TECHNOLOGIES

There is much discussion around automation and disruptive technologies and their potential impact on labour demand. While there exists the fear that automation technologies will replace jobs, more often than not, the implementation of new technologies also creates jobs in their support of economic growth and creation of new tasks. For example, the use of Big Data technologies generates opportunities for data interpretation work.

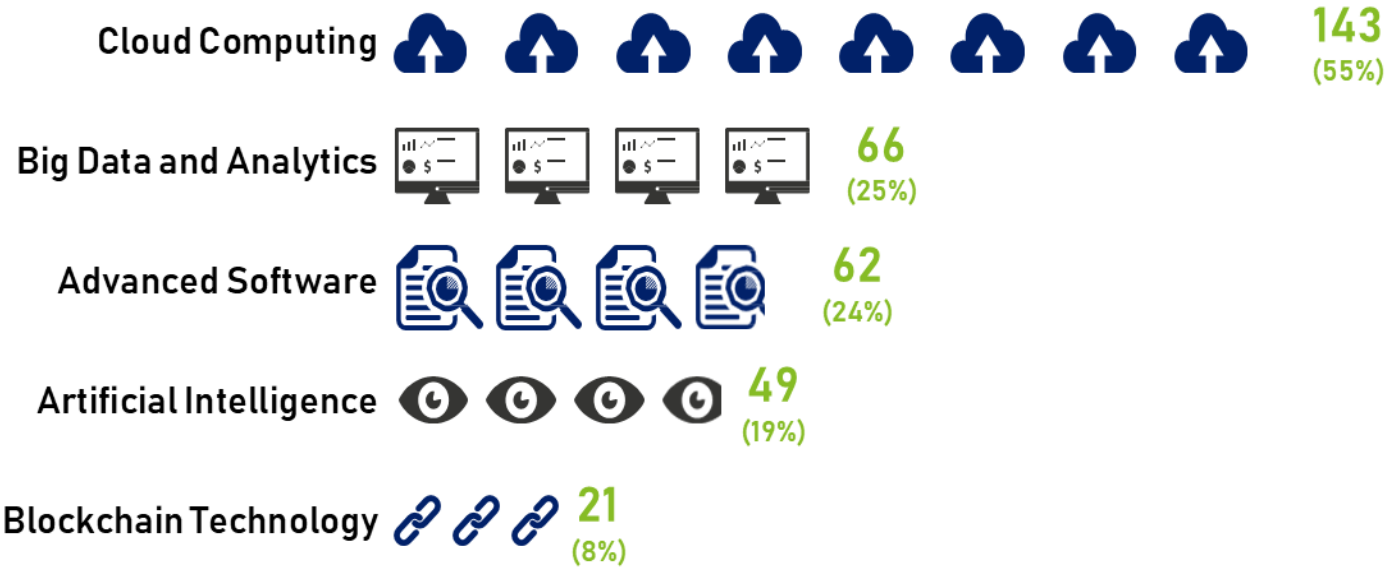
This section overviews stakeholder feedback on the adoption of automation technologies in the accounting sector as well as the potential impact of these technologies on labour demand. A discussion of the potential magnitude of impact from an increase in the adoption of new technologies is deferred until the *Accounting Sector Labour Demand Forecast* section.

THE ADOPTION OF AUTOMATION AND DISRUPTIVE TECHNOLOGIES

When discussing automation technologies with interview participants, several indicated that they were aware of accounting firms or that they represented accounting firms that employ various cloud computing or advanced software technologies. For instance, technologies such as QuickBooks and SharePoint seem to be nearly universally adopted in the accounting sector. Interview participants, however, were less familiar with applications of more advanced technologies such as artificial intelligence (AI) or Blockchain. While all participants had heard of these, few indicated that their organization was implementing them in their practice.

The employer survey largely confirmed feedback from interview participants. Over half of survey participants indicated that their organization uses or seeks to use cloud computing technologies but less than 25% of respondents indicated that they use other types of automation technologies (Figure 18). Overall, only 62% of participants indicated that their organization uses or seeks to use at least one of the listed automation technologies, with only 42% using or seeking to use technologies other than cloud computing.

Figure 18: Organizations that Use or Seek to Use Automation Technologies



The technology adoption results are largely consistent across public practice firms and industry.[16] However, there are some differences across firm size. Larger companies are somewhat more likely to use automation technologies compared to smaller companies, with the exception of advanced software technologies (Table 7).

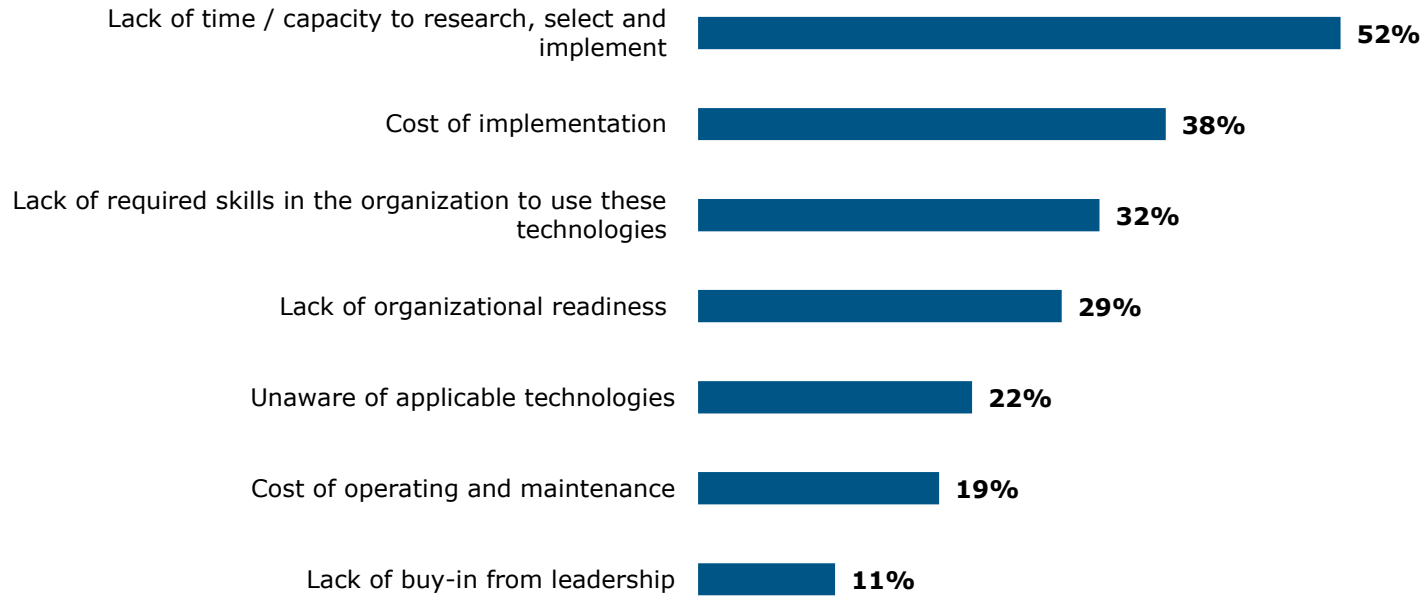
[16] Public practice firms are defined here as firms in accounting and tax preparation as well as firms in audit and advisory services. Survey participants self-selected their company's industry. All other industries (e.g., manufacturing, credit intermediation, etc.) make up the 'industry' category.

Table 7: Adoption of Automation Technologies

	Cloud computing	Artificial Intelligence	Blockchain technology	Big data and advanced analytics	Advanced software
Public Practice vs. Industry					
Accounting, tax preparation, bookkeeping and payroll services firms	59%	21%	8%	17%	36%
Industry	53%	18%	8%	28%	19%
Employment Size					
1 to 9 employees	44%	7%	7%	16%	26%
10 to 49 employees	45%	16%	7%	18%	31%
50 to 199 employees	53%	17%	7%	25%	18%
200+ employees	79%	35%	11%	44%	16%

When asked about barriers preventing the implementation of automation technologies (cloud computing, artificial intelligence, blockchain technology, big data/analytics and advanced software), over half of survey participants indicated that they lacked the time and capacity to research, select and implement technologies (Figure 19). This may imply that with an increased understanding of automation technologies and capacity to implement, companies will begin to adopt these technologies at an accelerated pace.

Figure 19: Barriers Preventing the Adoption of Automation Technologies (% of respondents)



IMPACT OF AUTOMATION TECHNOLOGIES ON THE WORKFORCE

There was some uncertainty surrounding the impact of technology on demand for accountants among interview participants. Disruptive technology trends are increasingly perceived as having a potential impact on the sector, but the timing of technological change and its associated impacts on labour demand is unclear – several stakeholders said they are not seeing a direct impact of advanced technology on their business today.

Figure 20: The Impact of the Implementation of Automation Technologies[1]

This technology will…	Cloud Computing	Big Data and Analytics	Blockchain Technology	Artificial Intelligence	Advanced Software
Decrease overall **hiring** requirements (e.g., FTE count)	13%	15%	14%	41%	18%
Increase overall **hiring** requirements (e.g., FTE count)	9%	18%	10%	16%	15%
Have **no impact** on **hiring** requirements	65%	39%	48%	26%	44%

1. *Shares in Figure 20 do not sum to 100% as respondents were allowed to respond "I don't know".*

The stakeholder interview results also suggested that the effect of technology on demand for accountants is partially dependent on location, as accountants in remote areas may rely more heavily on local engagement. Accountants in remote areas may rely more on building relationships with clients, which is not easily replaceable by technology. The impact of disruptive technologies may also be more pronounced in public practice, compared to industry, where the emphasis is less on financial accounting and more on managerial accounting. This is due to the fact that managerial accounting has a greater emphasis on problem-solving, whereas financial accounting is largely concerned with the compliance of accounting standards and financial reporting. Interview participants indicated that there is more uncertainty with regards to automation in public practice because technology may have a greater impact on financial accounting where the conformity to strict standards could potentially be automated.

The survey results indicate that individual perceptions of the effect of automating and disruptive technology on the demand for accountants over the next five years vary. Overall, half of respondents selected that automating and disruptive technology would have no impact on the number of accounting FTEs, whereas 35% of respondents indicated the automating and disruptive technology would decrease the number of accounting FTEs. This diversity is further demonstrated by a member survey administered by NRG on behalf of CPABC in 2019, where half (49%) of respondents perceive that their work is impacted by emerging technologies. As noted above, automation technologies may have an impact on the work conducted by accountants without necessarily decreasing employment. Moreover, the impact on employment will vary depending on the automation technology being implemented.

Finding/Issue 5: There is a lack of understanding regarding automation technologies (e.g., artificial intelligence, blockchain) in the sector due to the absence of time and capacity of employers to investment in these technologies. Organizations may not understand the overall cost/benefit of investing.

Finding/Issue 6: The timing and the potential impact of automation technologies on the accounting sector is largely uncertain.

OTHER TRENDS

GLOBALIZATION

As technology facilitates an increasingly interconnected world, the accounting sector may experience changes to how and where accountants work. In particular, interview respondents spoke to the growing practice of offshoring – where various accounting tasks are sent to remote workers and businesses can benefit from potential differences in time zones.

78 survey respondents (30%) agreed with the statement **"more accounting tasks will be outsourced to external service providers"**

Large public practice firms have already started the trend of offshoring segments of their accounting and advisory services and smaller firms are likely to follow suit. One interview participant from a remote region noted that offshoring was not an option for their firm, as clients wanted work to be performed by local resources; however, as the cost of offshoring continues to decrease and it becomes increasingly harder to find accountants to hire, they indicated that offshoring is something their firm would consider.

THE ROLE OF GENDER IN ACCOUNTING

The *Accounting Workforce Overview* illustrated that females represent the majority of employment in BC and Canada's accounting sectors. Additionally, females have a higher concentration in accounting occupations where the potential for automation is higher (i.e., accounting technicians and bookkeepers). The CPA profession, however, is gender balanced, as the occupational mix of CPAs is different from the total population of accountants. Overall, it is conceivable that automation technologies may have a more pronounced effect on labour demand for female accountants. This trend will likely be mitigated by the fact that accounting technicians and bookkeepers exhibit the oldest age profile of accounting occupations, with 67% of employment over 45 years old. A higher number of retirements in the accounting technician and bookkeepers occupation may entail that automation technologies reduce the number of positions needing to be filled.

Nonetheless, it is possible that without intervention or purposeful reskilling by female accountants in the lower skilled accounting occupations, the sector may become more gender-balanced. While gender rebalancing of the sector is not inherently concerning, reskilling of these positions is important from the perspective of female labour force participation and their overall economic well-being.

Furthermore, the occupations where females represent a larger share of employment also correspond with lower median wages. For example, the median wage in BC for accounting technicians and bookkeepers is $20.07/hr, compared to purchasing managers, where the median wage is $41.37/hr. Consequently, the impact of automation technologies on the accounting sector may disproportionately affect female accountants who are already concentrated in accounting occupations with lower earning potential. The ability of female accountants in lower-skilled occupations to upskill will be important for them to stay relevant in the labour market.

5. Current and Forecasted Labour Market Conditions

A key component of this study is developing a custom model to forecast the employment demand in the BC accounting sector over a 10-year period. The model provides an outlook for hiring requirements, which include employment expansion and replacement, which accounts for exits from the labour force due to death and retirement. This section describes trends in the key input variables used in the labour demand model. For expansion demand, these include employment, gross domestic product (GDP), and labour productivity. For replacement demand, key inputs include labour force participation and workforce demographic factors.

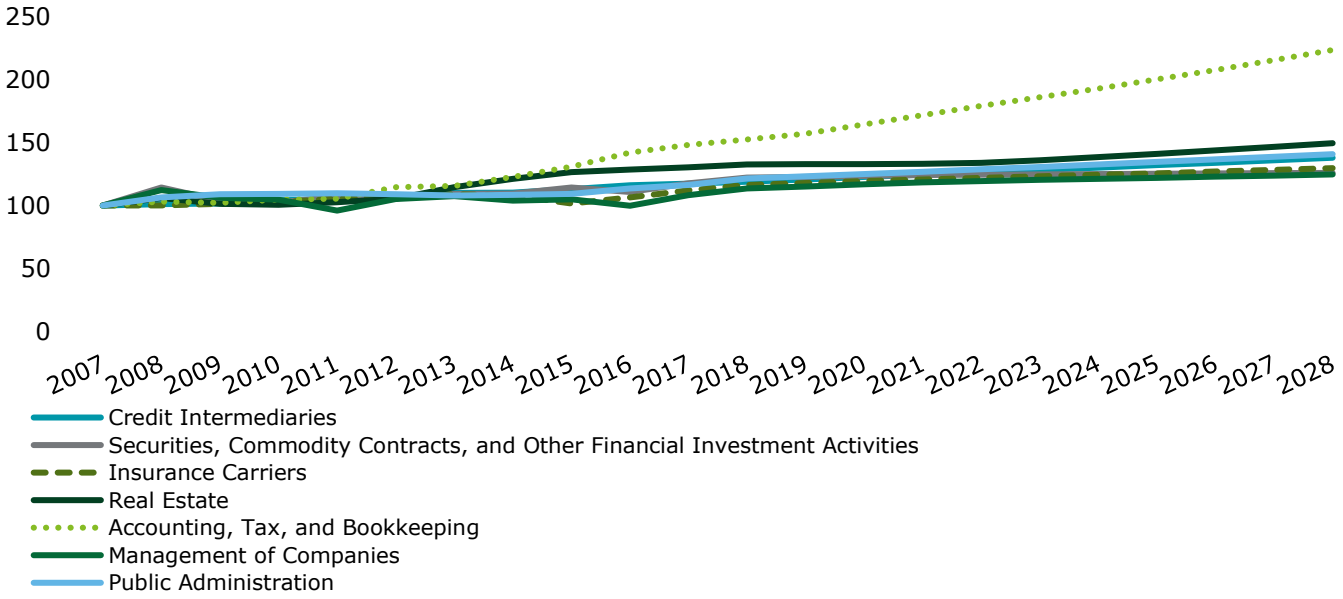
EXPANSION DEMAND DRIVERS

EMPLOYMENT

A core assumption of the labour demand forecast model is that accounting employment will follow the growth rate within an industry and each occupation will keep its overall share of total sector employment. Together, the seven accounting-specific industries identified represent just over 50% of employment across the primary and secondary accounting occupations (see Table 3). The remaining 50% of employment in these occupations is spread across all industries in the economy. In addition to the seven accounting-specific industries, forecasts were also developed for the public administration and real estate industries as they represent roughly 6% and 3% of employment in the identified accounting occupations, respectively. Overall, these nine industries represent 60% of accounting employment. The remainder of employment is spread across a wide range of the industries and is expected to follow overall employment growth in those industries.

Total employment within these nine industries grew at an average annual rate of roughly 1.6% between 2007 and 2016 (the baseline year for the forecast). Between 2019 and 2028 (the forecast period) employment in these industries is projected to grow at a slightly slower rate, with average annual growth equal to roughly 1.5%. As Figure 21 illustrates, both the accounting, tax and bookkeeping and the real estate industries grew significantly faster than average, posting an average annual growth of 4.0% and 2.8%, respectively.

Figure 21: Employment Growth in Top Accounting Employment Industries (Index 2007=100)[1]



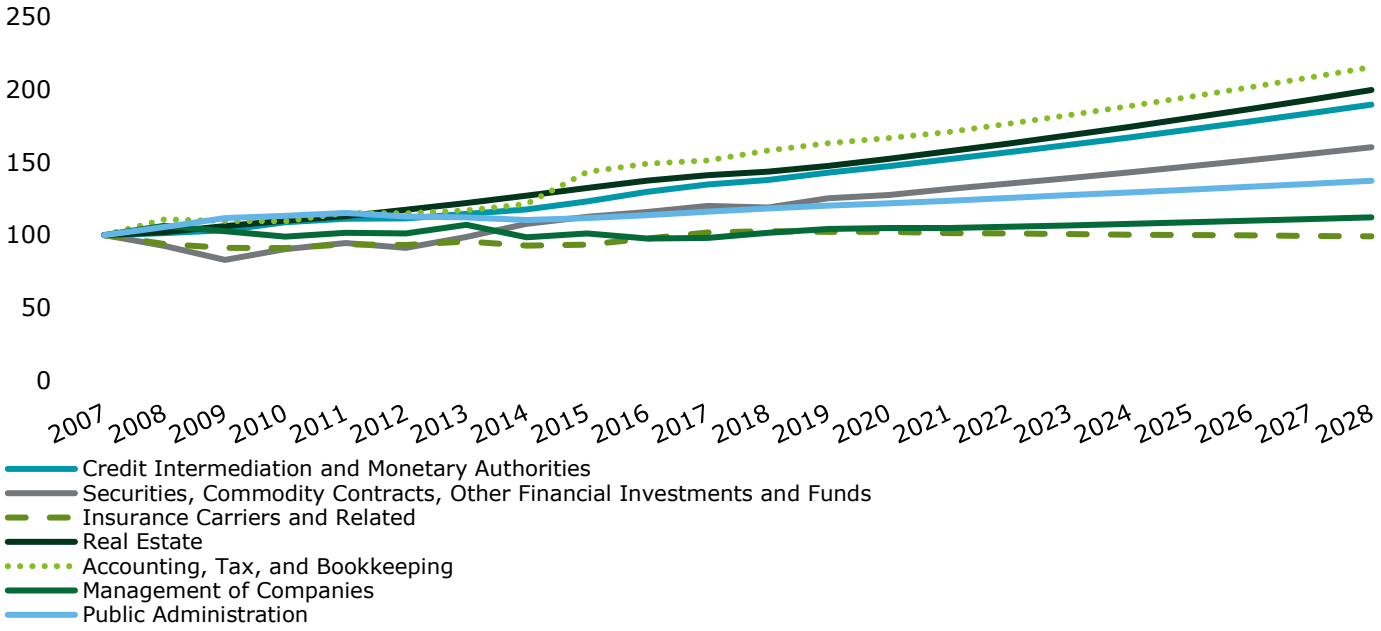
Source: Historical Data: Statistics Canada, Survey of Earnings, Payroll, and Hours. Deloitte forecasts.

1. Industries 521 (Monetary Authorities) and 526 (Funds and Financial Vehicles) are not shown as they represent less than 1% of employment in the nine industries selected; employment growth in these industries is high but largely insignificant given its overall size. There are no accountants working in monetary authorities in BC.

GDP BY INDUSTRY

Figure 22 shows the historical and projected economic growth in the seven accounting-specific industries as well as the growth forecasts for public administration and real estate. Between 2007 and 2016, accounting, tax preparation and bookkeeping was the fastest growing industry, posting an annual average GDP growth of roughly 4.5%. Management of companies contracted by approximately 0.3% during the same period. Together, GDP in these nine industries grew at an average annual rate of roughly 2.8% between 2007 and 2016.

Figure 22: GDP Growth in Top Accounting Employment Industries, Actuals and Forecast (Index 2007=100)

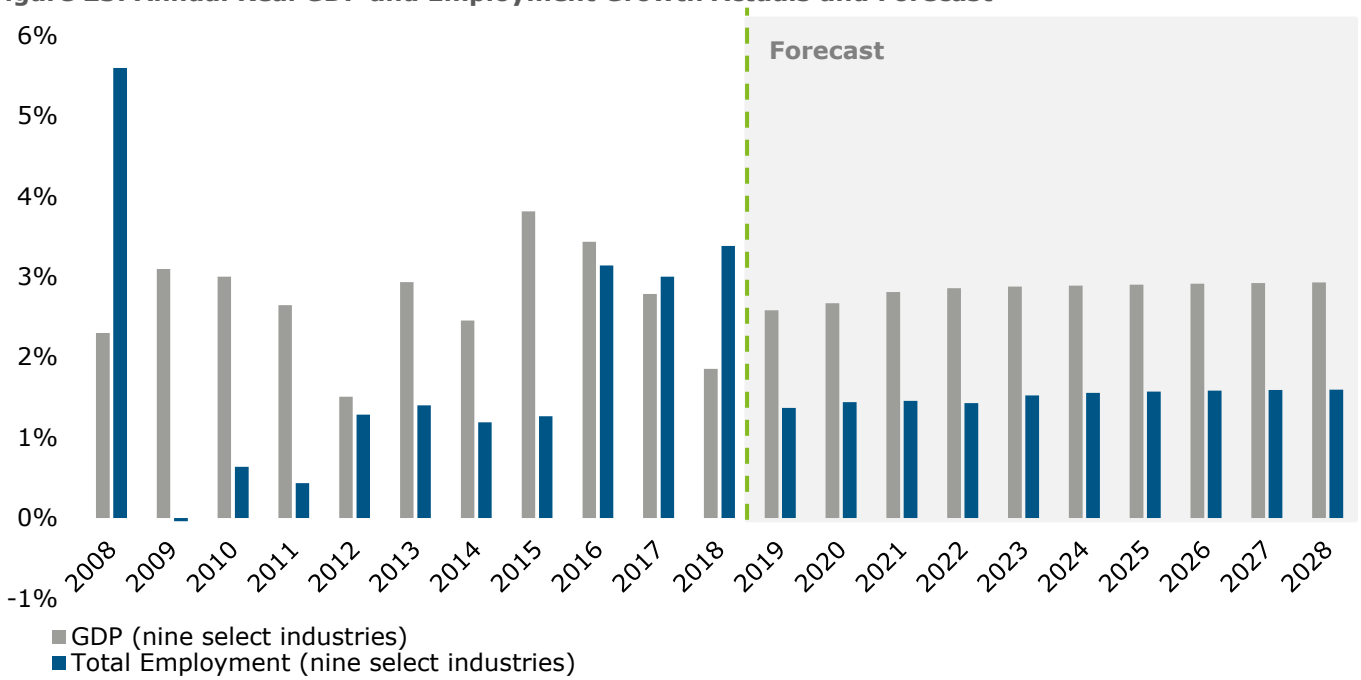


Source: Historical Data: Statistics Canada, Table 36-10-0402-01. Deloitte forecasts.

Over the forecast period, 2019 to 2028, these nine industries are projected to grow at an average annual rate of approximately 2.9%, somewhat faster than historical growth. The faster growth is driven by faster growth in credit intermediation and related activities as well as faster growth in public administration. The credit intermediation industry is projected to grow at an average annual rate of 3.2% between 2019 and 2028, compared to 2.9% between 2007 and 2016. Despite the recent downturn in the BC real estate sector, it is still projected to be the fastest growing sector during the forecast horizon, growing at an average annual rate of roughly 3.4%. This is largely driven by the expectation that the current downturn is transitionary and growth over the medium term will be boosted by a rebound from past declines as well as by an expectation that the sector will continue to be supported by an environment of relatively low interest rates. The accounting, tax and bookkeeping sector, the largest employer of accountants, is forecasted to grow at an average annual rate of approximately 3.1%.

LABOUR PRODUCTIVITY

Figure 23: Annual Real GDP and Employment Growth Actuals and Forecast



Source: Historical Data: Statistics Canada, Table 36-10-0402-01 and Survey of Earnings, Payroll, and Hours. Deloitte forecasts.

Differences in GDP and employment growth represent shifts in labour productivity over time. Figure 23 depicts annual GDP and employment growth for the nine select industries (i.e., seven accounting-specific industries plus public administration and real estate). As shown, labour productivity in these industries significantly increased during the financial crisis (i.e., because employment growth halted) and slowly rebounded over the following years. In 2017 and 2018, labour productivity decreased as employment growth outpaced GDP growth.

During the forecast horizon, labour productivity is expected to remain somewhat stable but there are fluctuations within each industry. For example, labour productivity in real estate is forecasted to increase but productivity in accounting, tax and bookkeeping is projected to marginally decrease. Forecasted average yearly labour productivity is approximately 1.3% between 2019 and 2028. The model uses recent dynamics and historical trends to develop the productivity forecast. Therefore, the labour productivity projections implicitly capture historical increases in technology adoption as they capture long-run trends in productivity.

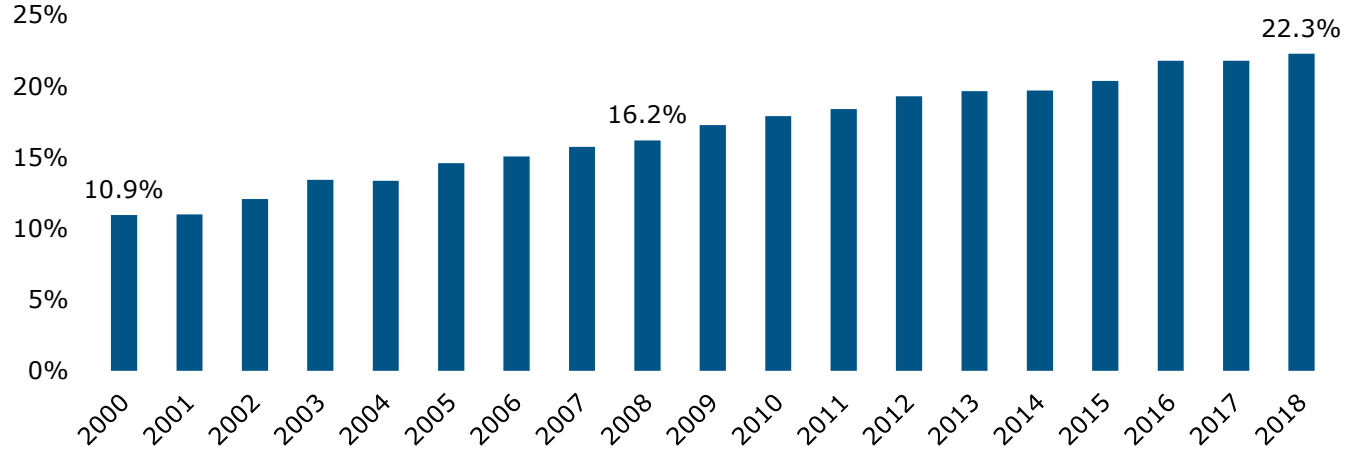
REPLACEMENT DEMAND DRIVERS

Replacement demand is the second component of labour demand and is the hiring requirements needed to fill positions of workers leaving the accounting sector as a result of retirements, death, or other forms of exit. Replacement demand is based on assumptions regarding labour force participation and population mortality rates, as well as the age profile of accountants. To estimate replacement demand a demographic model is developed for each selected accounting occupation that takes into account the age-specific labour force participation rates and mortality rates; these rates are applied to the labour force in each selected occupation in 2016 to estimate the annual exits from the labour force over the forecast period.

LABOUR FORCE PARTICIPATION AND DEMOGRAPHICS

The next decade will be a challenging time for employers to replace exiting experienced workers. Figure 24 demonstrates aging trends in BC's workforce; the share of workers who are 55 years or older has more than doubled since 2000. In 2018, over 22% of the labour force were 55 years or older. This trend is expected to continue given the expected higher compound annual growth rate of 2% among the 55 year and older population relative to the anticipated growth rate of the overall working age population at 1% annually until 2028.

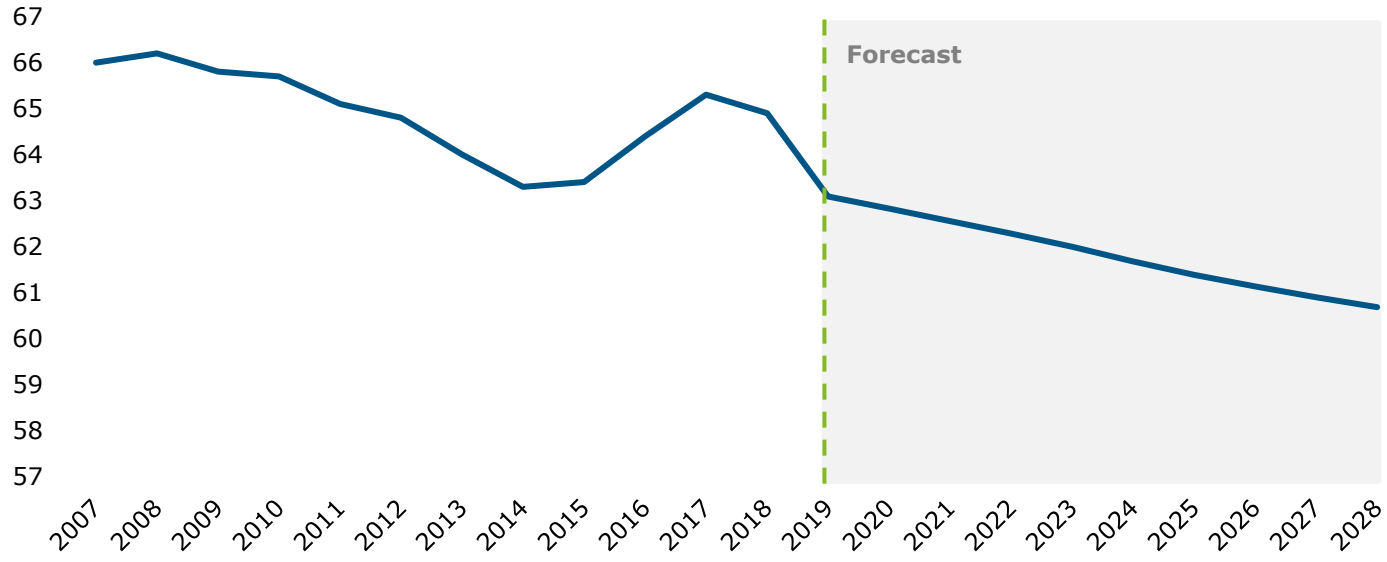
Figure 24: Share of 55+ Age Cohort in BC Labour Force



Source: Statistics Canada. Table 14-10-0327-01.

An aging workforce leads to lower levels of participation in the labour force. The participation rate among BC's labour force has been on a downward trend since 2008; BC Stats projects this trend to continue over the next decade (Figure 25).

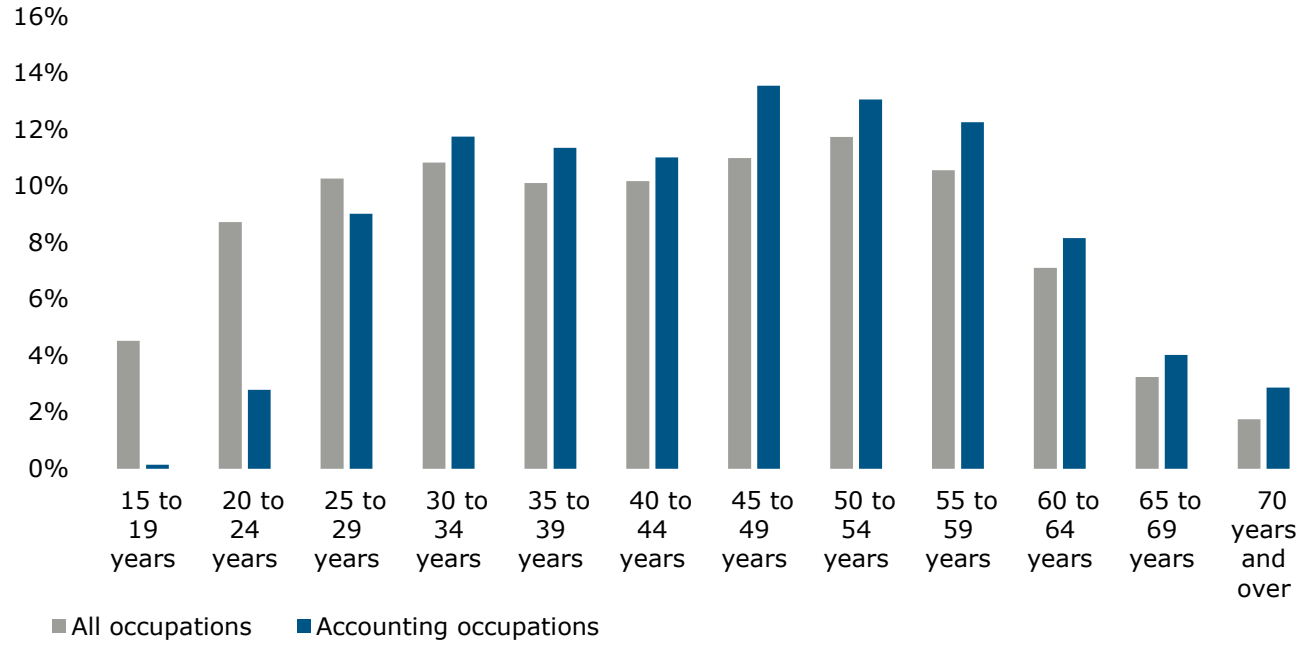
Figure 25: BC Labour Force Participation Rates (15 years +)



Source: Historical data from Statistics Canada Table 14-10-0327-01. Forecast from BC Stats. March 2013. Updated B.C. and Regional Labour Force Participation Rate Projections: 2014-2033.

Accounting occupations in BC are comprised of older workers relative to all occupations. An age distribution of labour force in accounting occupations is illustrated in the figure below. In 2016, over 27% of accountants were 55 years or older, while this share was 23% in all occupations.

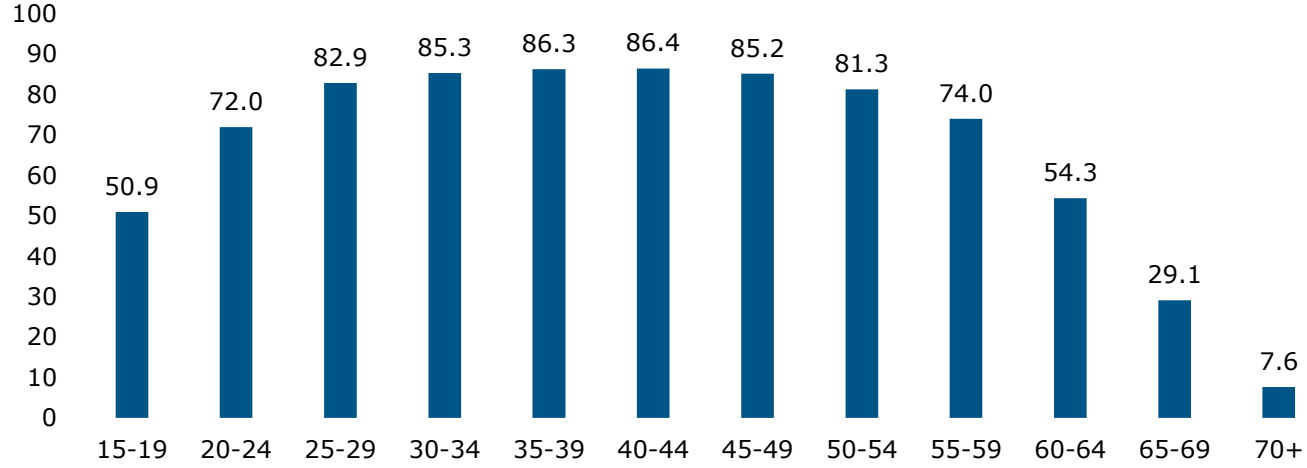
Figure 26: Accounting Labour Force by Age Group Compared to All Occupations (2016)



Source: Statistics Canada. 2016 Census. Custom Tabulation.

As workers approach retirement age, their participation rate declines. The participation rate of workers 55 years and older is significantly lower than the rest of the workforce. This is a primary factor in estimating the number of exiting workers and the resulting replacement demand. The figure below presents the participation rate by age cohort in BC in 2018.

Figure 27: 2018 BC Labour Force Participation Rate (%)



Source: Statistics Canada. Table 14-10-0327-01.

Finally, the all-cause mortality rate is another factor considered in estimating replacement demand. A five-year average growth rate is estimated to project mortality rates over the forecast period. Mortality rates are fairly stable over time and generally only see large shifts in periods of significant health advancements; hence the model assumes a constant rate over the forecast horizon.

The factors discussed in this section are the main drivers of hiring requirements for the accounting occupations over the forecast period. Projected expansion and replacement demands are presented at an occupational level in the next section of this report.

6. Accounting Sector Labour Demand Forecast

OVERVIEW OF FORECASTING APPROACH

This section presents a baseline forecast of employment demand in the BC accounting sector over a 10-year period. It is developed based on custom demand modeling, including employment expansion and replacement demand, which accounts for exits from the labour force due to death and retirement.

The forecast is developed in two steps. In the first step, an economic model was used to develop macroeconomic and industry forecasts for the main sectors that hire accountants (i.e., seven accounting-specific industries, as well as public administration and real estate). Appendix 4 provides an overview of the macroeconomic model used to develop the forecasts. We then translate the sector forecasts into occupational forecasts based on Statistics Canada's 2016 Census. The occupational share of expansion growth is assumed to be constant over the forecast horizon. This provides an estimate of expansion demand; that is, the number of accountants required to meet demand driven by economic growth.

To forecast replacement demand by occupation, a demographic model specific to each occupation was developed that relies on the age distribution of the workforce by occupation, the participation rate by age, and the mortality rate by age. This model estimates year-over-year replacement demand due to retirement and mortality.

ACCOUNTING EMPLOYMENT DEMAND: 10-YEAR FORECAST

Over the 10-year period between 2019 and 2028, the forecasted hiring requirements for accounting positions in BC are expected to approximate to over **43 thousand**. Roughly **25 thousand** positions (58% of total demand) are required to replace retiring workers and **18 thousand** positions (42% of total demand) are required to meet expansion demand.

Table 8: Accounting Hiring Requirements in BC 2019-2028 (# of positions)

	2019-2023	2024-2028	Total
Replacement Demand	12,624	12,445	**25,069**
Expansion Demand	9,094	9,253	**18,347**
Hiring Requirements	21,718	21,698	**43,416**

Figure 28 illustrates projected hiring requirements for each accounting occupation over the 10-year forecast period. The primary accounting sector occupations represent roughly 64% of hiring requirements in the sector between 2019 and 2028 (Table 9). Financial auditors and accountants represent approximately 31% of employment in the BC accounting sector in 2016 and are projected to account for 33% of hiring requirements between 2019 and 2028. Accounting technicians and bookkeepers account for roughly 25% of employment in the accounting sector and are projected to account for roughly 31% of job openings. The primary occupations capture a larger share of accounting sector hiring requirements over the 10-year period. These occupations are mainly concentrated in the accounting, tax preparation and booking keeping industry where economic growth is expected at a faster average annual rate compared to other industries. Additionally, a relatively higher share of bookkeepers and technicians are expected to retire over the 10-year period (i.e., compared to financial auditors and accountants); therefore, replacement demand requirements are driving up the share of total hiring requirements needed for this occupation.

Figure 28: Accounting Sector Hiring Requirements in BC by Occupation 2019-2028 (# of positions)

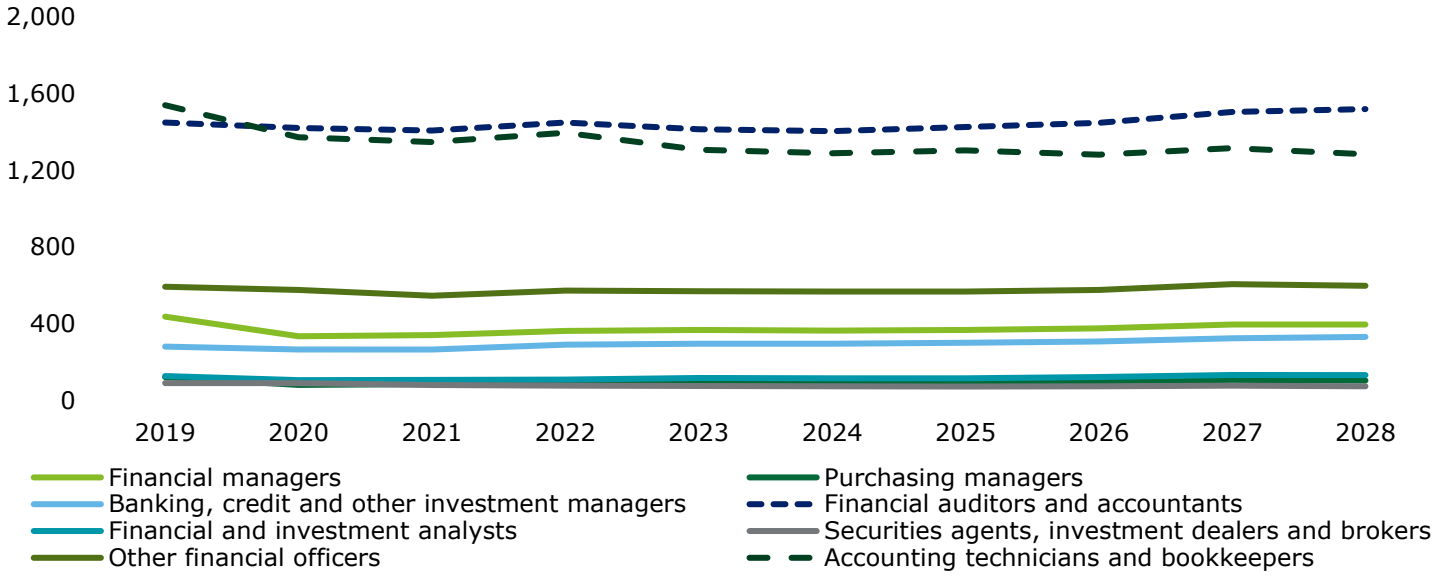


Table 9: Share of Total Hiring Requirements by Occupation 2019-2028

	Share of Total Hiring Requirements (%)
Primary Occupations	
Financial auditors and accountants	33%
Accounting technicians and bookkeepers	31%
Secondary Occupations	
Financial managers	9%
Purchasing managers	2%
Banking, credit and other investment managers	7%
Financial and investment analysts	3%
Securities agents, investment dealers and brokers	2%
Other financial officers	13%

DEMAND BY CAREER-LEVEL AND DESIGNATION

The accounting workforce is comprised of individuals with a range of skills, experience, and education. To understand demand across career-level and designation, the employer survey conducted as part of this study asked participants to estimate the number of positions they expect to hire over the next five years by seniority level and by designation.

As Table 10 illustrates, the survey results suggest that employers anticipate to seek entry-level accountants more than senior-level accountants as they grow their business. To replace retiring workers, employers expect to hire a relatively higher share of senior-level staff and augment this with staff at other levels of experience. Some retiring workers may be replaced by promotion within an organization, as such employers will still require additional junior-staff to fill these roles.

Table 10: Anticipated Hiring Requirements Over the Next Five Years by Career-Level (% of hires)

	Business Expansion	**Retirements**
Entry-level accountants (i.e., under three (3) years of experience or CPA candidate)	42%	36%
Junior to mid-level accountants (e.g., three (3) or more years of experience but below middle-management)	26%	25%
Middle-management level accountants	20%	17%
Senior management and above	11%	22%

The survey results also suggest that there is little difference in demand for undesignated and designated accountants amongst employers (Table 11). Respondents expect to fill 54% of their hiring requirements resulting from business expansion with undesignated accountants and 46% of these roles with designated accountants. To replace retiring workers, employers anticipate needing slightly more designated workers (56% versus 44%).

Table 11: Anticipated Hiring Requirements Over the Next Five Years by Designation (% of hires)

	Business Expansion	Retirements
Undesignated Accountants	54%	44%
Designated Accountants	46%	56%

There may be multiple factors driving the balanced demand for designated and undesignated accountants. For example, several stakeholders indicated that they were indifferent between hiring designated and undesignated accountants so long as they had the necessary technical skills and a willingness to learn. While CPAs often have the skill-set that employers find desirable (e.g., critical thinking, integrity), these skills can be found in individuals with different educational backgrounds (e.g., CFAs, MBAs, etc.). In a sense, since accountants are increasingly being asked to perform tasks outside of traditional accounting competencies, it may be easier for employers to fill accounting-related roles with high-skilled undesignated accountants. CPAs will still be required to fill public accounting roles and sign-off on audits but risk assessments, financial statement analysis, and various other forms of analytical tasks do not necessarily require a CPA. Likewise, some of the lower-level tasks related to payroll, tax preparation, and the like, can be filled by undesignated accountants (although these tasks have a higher potential for automation). Location also plays a role in driving this trend, as employers outside the Lower Mainland have reported difficulties in hiring CPAs and noted a focus on demonstrated accounting skills as opposed to designation.

Several stakeholders indicated that they see the CPA designation as a signal of the technical ability, work ethic, and trustworthiness of a job applicant but that the CPA is not strictly required for the roles they are looking to fill.

POTENTIAL IMPACT OF AUTOMATION TECHNOLOGIES

In this section we consider the potential impact of automation technologies on the baseline employment forecast presented above. The stakeholder engagement activities and secondary research conducted as part of this study suggest that the potential impact of automation technologies to the sector is still largely unknown. There are ongoing discussions around emerging technologies such as artificial intelligence (AI) and Big Data but little evidence that these are significantly disrupting labour markets today or that they will in the short-term.

To provide further insight into this question, this section is separated into three discussions. First, we discuss the potential for task automation in accounting sector occupations. Second, we provide an alternative to the baseline forecast under the assumption that technology adoption will result in significantly higher employee productivity in the accounting sector. Finally, we review the trends in technology adoption in Canada and BC to give a sense of the likelihood that technology adoption will be a significant factor over the short to medium, term.

POTENTIAL FOR TASK AUTOMATION IN ACCOUNTING OCCUPATIONS

Emerging technologies create opportunities and challenges for all occupations— accountants are no different. On the one hand, new technologies automate some tasks, making people redundant. On the other hand, automation frees people from routine tasks and provides them with the capacity and tools to add more value.

There is much angst that machines will do away with the need for humans. Yet the evidence of the last 20 years suggests that technology has not reduced topline labour demand. BC's employment rate for people aged 15 and over has been largely stable for 20 years, at around 60%.[17] The main impact of technology has been distributional. Higher skilled people have achieved better labour market outcomes (e.g., higher wages) than unskilled people because they disproportionately benefit from productivity-enhancing technology.

For people to be successful in the labour market, they must focus on doing the things that humans do better than machines, such as judgement, interpersonal communication, and establishing trust. Higher skill people are complimented by new technology. New technologies call forth new demands for thinking skills. Technology helps

[17] Statistics Canada, Table 14-10-0020-01.

skilled employees solve problems. Data collecting technologies that drive Big Data require analytical skills. When these analytical skills require core knowledge of accounting and financial systems then demand for accountants increases. Lower skilled people may not be able to benefit in the same way, so they tend to migrate into jobs where machines are less capable than people.

A study of the United States and United Kingdom on the future of work provides some idea of the likely impact of technology. The study projected the workforce in 2030 and found that about a fifth of current occupations were likely to shrink due to technological innovation.[18] Meanwhile, about one tenth of current occupations were likely to grow. For the vast majority of current occupations (7 out of 10), the net effect of technology was indeterminate as technology would have both labour displacing and growth effects.

Research from the Business Council of British Columbia provides one perspective on the potential for automation in the identified accounting occupations. As shown in Table 12, less than 50% of tasks in the identified accounting occupations can be automated today. Of note, and consistent with stakeholder feedback, tasks performed by bookkeepers and technicians are highly automatable today. Tasks performed in the primary occupations have a high potential for automation as they are routine or rules-based. It is likely that the engineering bottlenecks preventing automation of these tasks today will be resolved in the next 10 to 20 years. That said, there are still over 21 thousand accounting technicians and bookkeepers employed in BC today. These jobs are not going to disappear overnight – as many survey participants indicated, they anticipate no impact on jobs resulting from automation technologies in the short term. Conversely, certain occupations, such as securities agents, perform a variety of tasks, some of which can be automated today and are routine or repetitive, while others require creative intelligence or perception skills that are unlikely to be automated in the next 10 to 20 years.

Table 12: The Automation Potential of Accounting Occupations

Occupation related to accounting	Risk of Automation Over The Next 10-20 Years *(Frey and Osbourne)*	% of Tasks Technically Automatable Today *(McKinsey & Co.)*
Primary occupations		
Financial auditors and accountants	94%	12%
Accounting technicians and bookkeepers	98%	86%
Secondary occupations		
Other financial officers	33%	1%
Financial managers	7%	34%
Banking, credit and other investment managers	7%	34%
Financial and investment analysts	23%	11%
Purchasing managers	3%	36%
Securities agents, investment dealers and brokers	2%	46%

Source: Business Council of British Columbia. 2018. The Automation Potential of the British Columbia Labour Market.

Importantly, the potential for automation of an occupation today does not translate directly to a change in total employment within that occupation. The tasks performed by individuals within an occupation may change. Indeed, one of the primary findings from the stakeholder engagement activities of this study is that accountants are increasingly expected to provide services outside their traditional roles. Several stakeholders indicated that accountants need to be able to be forward looking and assess risk, drive business insights and provide advisory services. This implies that accountants may increasingly work in different occupations than they do today (e.g., database analysts or architects or data processing consultants) or that accountants could fill entirely new occupations, such as a data compliance regulator.

Furthermore, in order for technology to have an impact on the labour market for accountants there needs to be both the potential for automation of skills, as well as the actual adoption of labour-augmenting technologies by employers. This latter criteria is not well-established in BC as further explored in the last chapter of this section.

[18] Bakhshi, H., Downing, J., Osborne, M. and Schneider, P. The Future of Skills: Employment in 2030. London: Pearson and Nesta, 2017.

POTENTIAL TECHNOLOGY IMPACT ON ACCOUNTING EMPLOYMENT

The baseline employment forecast presented above projects growing demand for all accounting occupations, through a combination of replacement and growth. It is based on the assumption that labour markets will gradually adjust to new technology over time and that the demand for labour will be driven by a combination of retirements and economic growth. Certainly, over the next decade, BC is likely to see considerable labour market tightening due to retirements. A high rate of replacement demand means that even occupations that are more exposed to technological innovation are still likely to grow over the next decade.

In this section, we present an alternative scenario to the baseline forecast, which explores the impact of a significant increase in labour productivity for accountants due to a rapid adoption of technology. It should be stressed that technological change and the impact of raising productivity is already factored into the baseline forecast. What is being assessed in this scenario is the potential impact on labour demand for accountants if labour productivity is even greater than what is assumed in the base case. Therefore this scenario presents the downside possibility of technological adoption reducing demand for accountants.

There are two factors that interplay in the alternative scenario. One is the degree to which new technology can address demand for accounting services without the need for people (hence depressing labour demand growth). The second is the extent to which technology creates new demands for people with core competency in accounting systems (hence moderating the replacement of people due to technology).

To model the scenario, a projection is developed under the assumption that labour productivity in the sectors of interest increases by a factor of half a standard deviation of their historical labour productivity growth. Forecasted average yearly labour productivity in this scenario is approximately 2.6% between 2019 and 2028. Table 13 illustrates the impact of this change on the sector hiring requirements across primary and secondary occupations.

Table 13: Accounting Sector Hiring Requirements Forecast - Productivity Impacts 2019-2028

	Baseline Forecast	Increased Labour Productivity	Baseline Forecast	Increased Labour Productivity
Primary Occupations	**Hiring Requirements**		**Share of Hiring Requirements**	
Financial auditors and accountants	14,434	9,862	33%	30%
Accounting technicians and bookkeepers	13,433	10,919	31%	34%
Secondary Occupations				
Financial managers	3,758	3,273	9%	10%
Purchasing managers	1,009	1,003	2%	3%
Banking, credit and other investment managers	2,977	1,839	7%	6%
Financial and investment analysts	1,208	923	3%	3%
Securities agents, investment dealers and brokers	811	589	2%	2%
Other financial officers	5,785	3,935	13%	12%
All accounting occupations	**43,416**	**32,344**	**100%**	**100%**

As Table 13 illustrates, if productivity increases in the nine industries of interest, hiring requirements decrease for all occupations compared to the baseline forecast. With fewer workers required to meet expansion demand, replacement demand accounts for a larger share of the increase in hiring requirements. In the baseline forecast, replacement demand accounted for 58% of hiring requirements compared to 78% of hiring requirements under the high-productivity scenario.

Importantly, in the alternative scenario, employment demand is still increasing across occupations but at a much slower rate. As such, the share of accounting technicians and bookkeepers increases because replacement demand now accounts for a larger share of the overall hiring requirements and workers in this occupation are older on average.

These results are indicative of the potential order of magnitude of impact on accounting employment if productivity were to increase in the nine sectors of interest. It should be noted, however, that if one assumes a more broad-based

technological shock that lifts overall provincial economic growth, demand for accountants would be lifted back towards the base case projection, and could be even higher under extreme scenarios.

RATES OF TECHNOLOGY ADOPTION IN CANADA AND BC

The effect of technology may be less dramatic in BC because of its relatively lower level of technology adoption compared to Canada and other countries. A number of studies have found that Canadian organizations, in general, are slower to adopt new technology relative to our developed country peers. For example, a 2014 Statistics Canada survey of advanced technology use in business found a rather small percentage of businesses that planned to use fairly established technologies (Table 14).

Table 14: Adoption of Advanced Business Intelligence Technologies in Canada (2014)

Technology	Share of Businesses Planning to Use Technology in the Next 2 Years (%)
Executive dashboards for analytics or decision-making	13.7
Software for large-scale data processing (for example, Hadoop)	5.3
Live stream processing technology or real-time monitoring	6.0
Software as a service (SaaS) (for example, cloud computing - software)	12.6
Infrastructure as a service (IaaS) (for example, cloud computing - hardware)	11.1

Statistics Canada. "Number of advanced technologies used, by industry and enterprise size." 2014. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=2710027601 (accessed May 15, 2019).

In 2017, the International Telecommunication Union ranked Canada 29th in terms of information communication technology adoption.[19] Canada's ranking fell three places from the previous year and placed behind countries such as Estonia, Malta and Cyprus. Similarly, in 2017, Gross Domestic Expenditure on R&D (GERD) in Canada was equivalent to only 1.6% of GDP, below the OECD average of 2.4% and further behind key competitors such as the US (2.8%), and Germany (3.0%).[20]

Although Canadian businesses may be cognizant of the need to invest in technology, they are often overly optimistic of their own behaviors. For example, a Deloitte survey of 1,200 Canadian companies found that while 44% believe that they are courageous businesses (i.e., they are proactive and challenge the status quo, they start with their own business, they take calculated risks, do what's right and have inclusive organizations) only about 11% of businesses are actually making investment and business decisions that will drive growth.[21]

BC in particular tends to lag other jurisdictions in technological adoption. The Conference Board of Canada's ranking of Canada and its provinces and territories gives Canada a "C" grade and BC a "D" grade for investment in information and communication technology when compared to international jurisdictions.[22] This may, in part, be driven by the significant share of small businesses in the BC economy, which is higher than in Canada on average.[23] Small businesses are less likely to invest in technologies because they do not have the scale to make these investments economical. Results from the employer survey suggest that few businesses are adopting technologies. As covered in the *Employment Demand Issues and Trends Section,* only 42% of respondents indicated that their company uses or seeks to use advanced technologies beyond cloud computing.

[19] International Telecommunications Union. "International Development Index (IDI) Rank 2017." 2018. https://www.itu.int/net4/ITU-D/idi/2017/index.html (accessed May 19, 2019).
[20] OECD (2019), Gross domestic spending on R&D (indicator). doi: 10.1787/d8b068b4-en (Accessed on 20 May 2019).
[21] Deloitte. 2017. The Future Belongs to the Bold. https://www2.deloitte.com/content/dam/Deloitte/ca/Documents/insights-and-issues/ca_Deloitte_Courage_report2016_online_v31_AODA.pdf
[22] The Conference Board of Canada. How Canada Performs: Provincial and Territorial Ranking: Innovation. 2016. https://www.conferenceboard.ca/hcp/provincial/innovation.aspx (accessed May 22, 2019).
[23] Statistics Canada, Table 33-10-0105-01.

Taken together, the above observations suggest that the baseline forecast is a moderate view of the potential increase in hiring requirements for accountants. Given the uncertainty around the timing of technological adoption, as well as the off-setting effects of labour displacing technology adoption and economic growth that results from increases in technology adoption, it seems unlikely that technology will have a significant impact on the number of accountants required to meet demand over the short to medium term. Thus, the identified challenges that are facing employers, such as the difficulty of finding workers and the desire for higher-order skills, will continue to be pertinent issues for the sector.

7. Conclusions and Recommendations

Between 2019 and 2028, hiring requirements for accountants in BC are projected to total approximately 43,000 positions. The composition of occupations within the sector as well as the competencies required of accountants are projected to change significantly. Some changes, such as the shift to providing advisory and risk management services, have already begun, while others, such as the potential increase in the application of AI, have yet to materialize. This section summarizes all report findings and provides a set of recommendations in relation to the identified employment demand issues and trends.

STUDY FINDINGS

Objective 1: Better understand the demographics of the BC accounting sector, including the industries and regions in which accountants work and their typical career progression.

To study the demographic characteristics of the sector, we first identified the main accounting occupations. Sector representatives identified eight occupations where the work performed was exclusively (primary occupations) or mostly (secondary occupations) accounting focused. Although individuals with accounting training, including CPAs, work in a variety of occupations, we only focus on these eight accounting-specific roles:

Primary Occupations
Financial auditors and accountants
Accounting technicians and bookkeepers
Secondary Occupations
Financial managers
Purchasing managers
Banking, credit and other investment managers
Financial and investment analysts
Securities agents, investment dealers and brokers
Other financial officers

Accounting for roughly 3.9% of overall employment, the accounting sector represents a significant share of BC's employment. Roughly 89,000 individuals were employed in accounting occupations in BC in 2016. The following provides an overview of key employment characteristics:

- The majority of accountants (83%) are employed in the Lower Mainland/Southwest and the Vancouver Island/Coast regions.
- Over 50% of accountants across Canada and BC are employed in the finance and insurance, and professional services industries.
- Accountants in BC are older on average compared to employment in BC overall.
- The Lower Mainland/Southwest region has the youngest accounting sector age profile in BC.
- The majority of accountants are female.
- Roughly 50% of accountants in BC have a bachelor's degree or above, but this share is lower in regions outside the Lower Mainland.

Objective 2: Forecast labour demand by occupation over a 10-year horizon, based on demographics, career lifecycle and general economic growth.

Using a custom employment-demand model that considers the primary drivers of both expansion and replacement demand, we estimate that hiring requirements for accountants in BC will equate to roughly 43,000 positions over the next 10 years. Approximately 58% of these positions are required to replace retiring workers while the remaining 42% of positions are required to fill new positions created by economic growth.

- Roughly 64% of hiring requirements will be in the primary accounting occupations (i.e., financial accountants and auditors and bookkeepers and technicians).
- Over the next five years, employers expect to fill positions with both designated and undesignated accountants.
- The majority of hiring requirements will be for entry-level and junior positions.

Objective 3: Explore the potential impact of trends that may shape the future of the profession, such as technological advancement.

To assess the potential impact of automation technologies on employment, we developed an alternative employment forecast for a high-productivity growth scenario that could feasibly result from a significant increase in technology in industries that employ the largest number of accountants. Based on historically high periods of growth in each individual sector forecasted, the average annual productivity growth used in this model was roughly 2.6%, compared to 1.3% in the baseline forecast. Under this scenario, hiring requirements for the accounting sector overall are expected to increase by 32,344 positions between 2019 and 2028. This is equivalent to roughly 1,100 fewer positions each year compared to the baseline forecast. However, even in a high-productivity growth scenario, hiring requirements for accounting occupations are projected to increase. Without strong evidence to suggest productivity growth will accelerate beyond long-run historical levels, we believe the baseline forecast is a better estimate of potential employment growth over the next 10 years.

The lack of evidence in support of a significant increase in productivity growth from technological change was reinforced by the employer survey. The results of the survey indicated that technology uptake and awareness in the sector was low. Less than two-thirds of survey participants specified that their organization uses or seeks to use at least one type of automation technology, with only 42% using or seeking to use technologies other than cloud computing software. Additionally, many participants did not believe that the listed automation technologies would impact the number of full-time equivalent positions needed by their organization.

With regards to general trends that may shape the future of the accounting sector, the employment demand trends uncovered in this study can be summarized into three broad findings. First, employment demand is increasing and employers find it difficult to fill accounting roles. Second, employers are demanding more of accountants in terms of critical thinking and data analysis skills. Lastly, automation technologies have the potential to slow employment growth, but it is unclear as to when this may occur. We provide further details on these findings in the recommendations section below.

SECTOR RECOMMENDATIONS

To respond to the identified employment demand issues, we developed seven recommendations for the sector to consider.

A. Continue to attract talent to meet demand

Finding/Issue: Employment demand for accounting sector occupations is forecasted to increase over both the five and 10-year periods. Even if technology adoption is robust, employment in the sector is still expected to grow overall. Currently, employers face significant difficulty when trying to fill accounting positions.

A.1. The sector needs to communicate that demand for accountants is robust and counter the narrative that technology will replace all accounting positions.

A.2. The sector should continue to promote accounting employment, through campaigns such as CPABC's ongoing marketing.

B. Address work-life balance needs

Finding/Issue: Interview participants as well as 35% of survey respondents felt that employees desire for work-life balance will increase employment needs in the sector. Regardless of its impact on total employment, there is a general trend of younger generations wanting improved work-life balance.

B.1. To stay competitive and retain and attract talent, employers should continue assessing ways to improve the flexibility of their work environments.

B.2. Consideration should be given to working from home options, flexible work hours, or reduced schedule options.

B.3. To improve the attractiveness of the occupation, advances in flexibility options need to be communicated to those considering working in the field.

C. Foster a culture around reskilling, with particular emphasis on developing technology and data analysis skills

Finding/Issue: Employers increasingly need accountants to have strong technology and data analysis competencies. Furthermore, a significant portion of tasks in the primary accounting occupations are currently automatable, which suggests that overtime employers are going to have less need for the traditional accounting skills.

C.1. The sector should make active strides towards embracing the reskilling of accountants.
C.2. Communication initiatives organized by stakeholders should disseminate both the 'why' and 'how' of re-skilling, and ensure everyone is aware of the opportunities for accountants to continuing providing value-added services in the face of automation.
C.3. Infrastructure to support a culture of reskilling should be maintained over the long-run as the sector continues to adjust to new technologies.

D. Increase training for critical thinking and leadership skills

Finding/Issue: Roughly 78% of survey respondents indicated that over the next five years the scope of accounting roles will include more strategic activities. Sector stakeholders explained that accountants are required to go beyond financial report and due diligence into areas such as risk assessments, financial forecasting, and strategic planning.

D.1. Education and training providers should continue to incorporate the development of critical thinking, management, and leadership skills into accounting training programs.
D.2. Initiatives should focus on training students who will need these skills earlier in their career compared to previous generations.
D.3. In conjunction with reskilling efforts, training in critical thinking and leadership skills should be made available for experienced accountants looking to advance their careers.

E. Adopt a regional lens when addressing accounting sector needs

Finding/Issue: There are significant differences in the accounting sector composition in Vancouver and Victoria compared to the rest of the province. The employer survey results also suggest that employers outside of major metropolitans have greater difficulty finding talent. Additionally, these regions may be more exposed to the potential impacts of technology adoption as accounting roles in these areas are more likely to be in occupations with a high potential for automation (i.e., bookkeepers and technicians).

E.1. Sector stakeholders should apply a regional lens to their programs and policies going forward to address the specific needs of accountants and employers in BC's regions.

F. Develop information on and awareness of automation technologies

Finding/Issue: There is a lack of understanding regarding automation technologies (e.g., artificial intelligence, blockchain) in the sector due to the absence of time and capacity of employers to investment in these technologies. Organizations may not understand the overall cost/benefit of investing.

F.1. Sector representatives should consider developing reviews and educational materials on enabling technologies.
F.2. Reviews should focus on new Blockchain, AI, and Data Analytics tools as employers are less familiar with these technologies and their capabilities.
F.3. To support these initiatives, the sector should consider how to identify technology leaders among BC accounting professionals to help implement accounting solutions.
F.4. Awareness of information technologies needs to be addressed at all talent levels, from students of accounting to senior-level leaders.

G. Monitor technology adoption

Finding/Issue: A significant amount of uncertainty regarding the potential impact on automation technologies in the sector persists. The employer survey suggests that a low level of technology adoption exists in the sector and that many of the already adopted technologies (e.g., cloud computing) have not significantly impacted employment demand. There is a general perception that automation technologies (e.g., AI, blockchain) have the potential to disrupt the sector but when this change will occur and its impact on employment is uncertain.

G.1. The sector should continue to monitor, via surveys and other sector consultations, the use of automation technologies by employers.

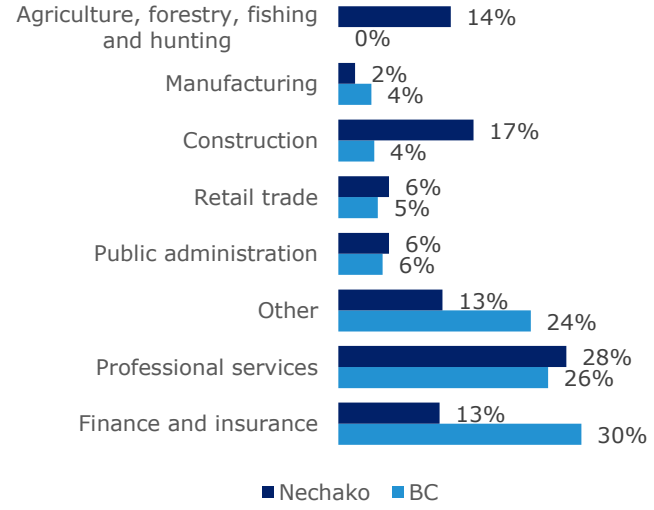
G.2. Monitoring technology adoption on a regular basis will allow the sector to respond faster to changes in employment demand that may result from technology adoption.

Appendix 1: Accounting Sector Profile Supplementary Data

ACCOUNTING WORKFORCE OVERVIEW: NECHAKO (2016)[24]

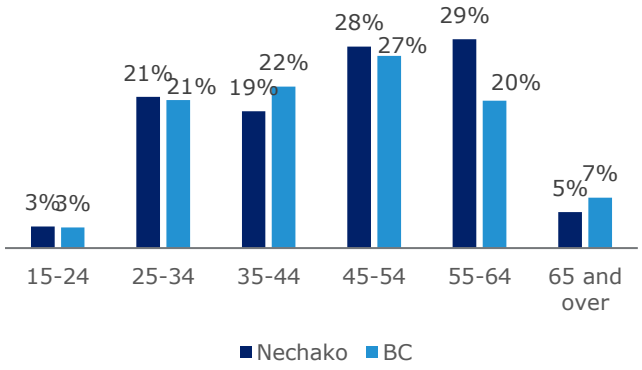
	Accounting Sector Labour Force	**Participation Rate** (all occupations)	**Unemployment Rate**	**Average Hourly Wage** (all occupations)	**Share of Accountants under 45**	**Immigration Share** (accounting occupations)
BC	99,160	64.5%	2.6%	$19.05/hr	46%	37%
Nechako	580	69.1%	0.0%	$22.00/hr	43%	-

Figure 1: Accounting Employment by Industry (2016)



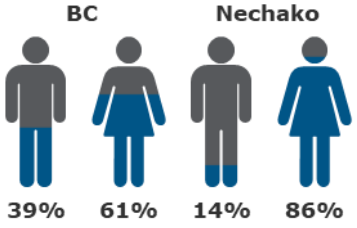
Finance and insurance and professional services make up 41% of Nechako's accounting sector

Figure 2: Accounting Employment by Age Cohort (2016)



The largest age cohort employed in accounting occupations is 45-54 years in Nechako

Figure 3: Employment by Gender (2016)



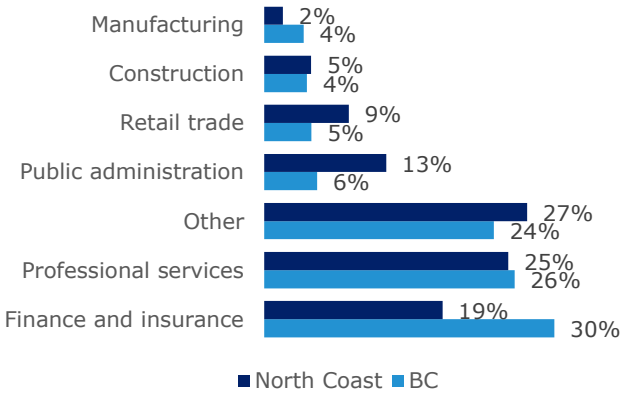
Roughly **86%** of employment in Nechako's accounting sector is **female**

[24] Due to data availability, analysis on immigration status and educational attainment is omitted for this region's accounting sector workforce overview

ACCOUNTING WORKFORCE OVERVIEW: NORTH COAST (2016)

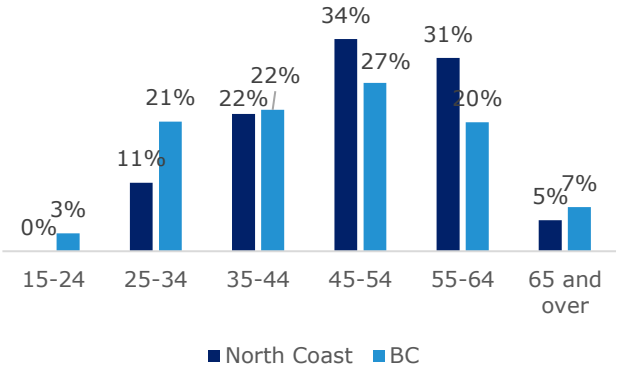
	Accounting Sector Labour Force	**Participation Rate** (all occupations)	**Unemployment Rate**	**Average Hourly Wage** (all occupations)	**Share of Accountants under 45**	**Immigration Share** (accounting occupations)
BC	99,160	64.5%	2.6%	$19.05/hr	46%	37%
North Coast	625	–	11.7%	$21.05/hr	33%	13%

Figure 4: Accounting Employment by Industry (2016)



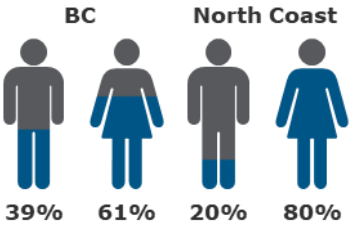
Finance and insurance and professional services make up **44%** of North Coast's accounting sector

Figure 5: Accounting Employment by Age Cohort (2016)



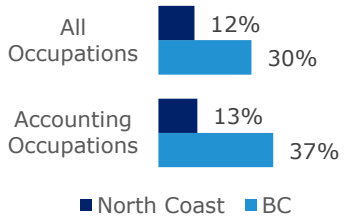
The largest age cohort employed in accounting occupations is **45-54 years** in North Coast

Figure 6: Employment by Gender (2016)



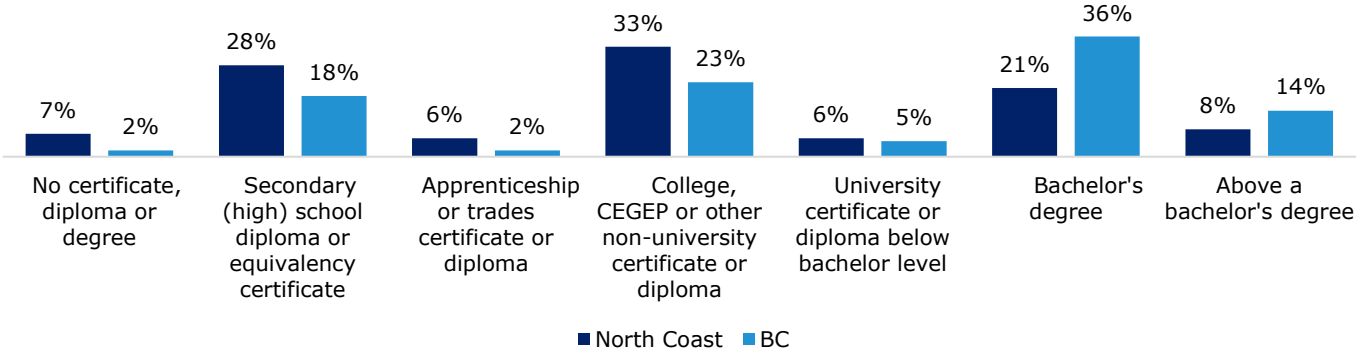
Roughly 80**%** of employment in North Coast's accounting sector is **female**

Figure 7: Immigration Share of Accounting Sector Population (2016)



Immigrants account for **13% of North Coast's accounting sector population** (i.e., employed, unemployed, and those not in the labour force)

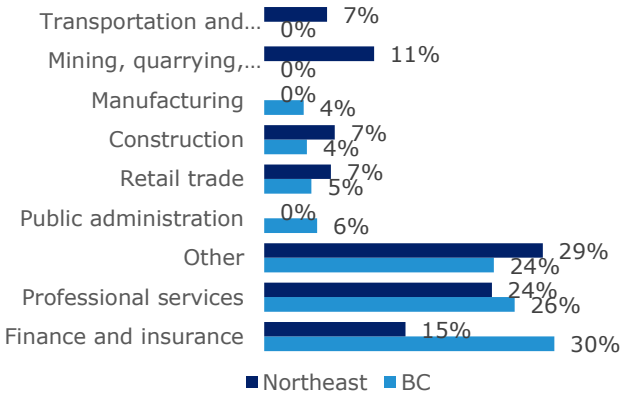
Figure 8: Accounting Employment by Education Level



ACCOUNTING WORKFORCE OVERVIEW: NORTHEAST (2016)

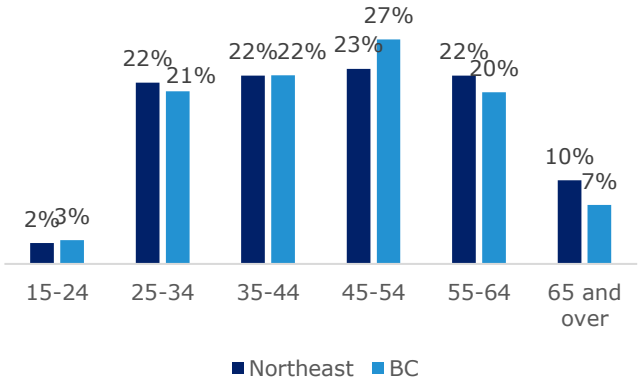
	Accounting Sector Labour Force	**Participation Rate** (all occupations)	**Unemployment Rate**	**Average Hourly Wage** (all occupations)	**Share of Accountants under 45**	**Immigration Share** (accounting occupations)
BC	99,160	64.5%	2.6%	$19.05/hr	46%	37%
Northeast	1,370	75.2%	3.2%	$22.35/hr	46%	10%

Figure 9: Accounting Employment by Industry (2016)



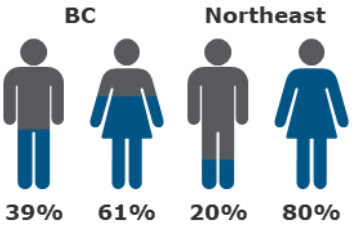
Finance and insurance and professional services make up **39%** of Northeast's accounting sector

Figure 10: Accounting Employment by Age Cohort (2016)



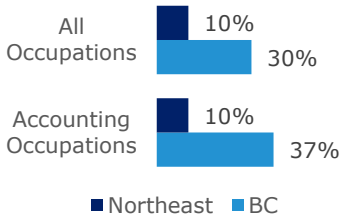
The largest age cohort employed in accounting occupations is **45-54 years** in Northeast

Figure 11: Employment by Gender (2016)



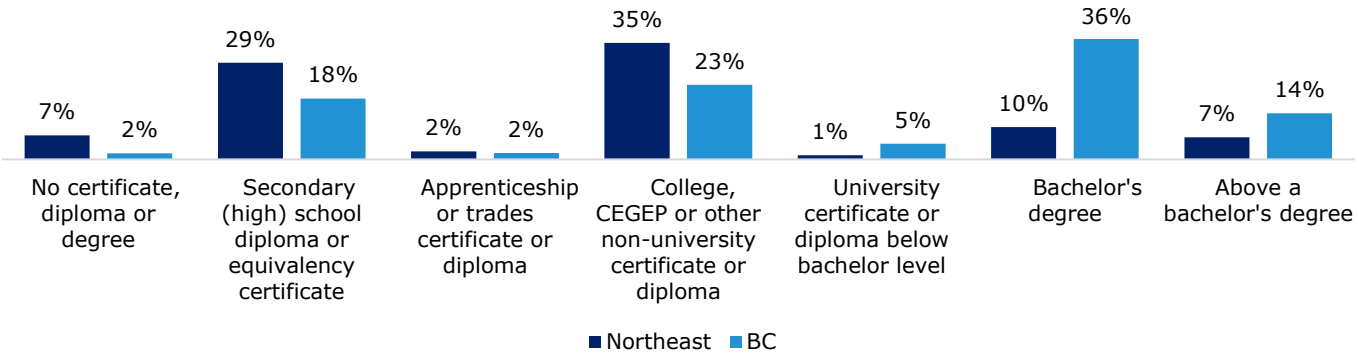
Roughly 80**%** of employment in Northeast's accounting sector is **female**

Figure 12: Immigration Share of Accounting Sector Population (2016)



Immigrants account for **10% of Northeast's accounting sector population** (i.e., employed, unemployed, and those not in the labour force)

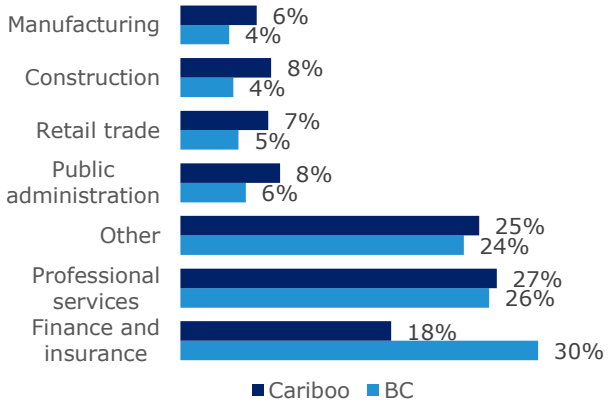
Figure 13: Accounting Employment by Education Level



ACCOUNTING WORKFORCE OVERVIEW: CARIBOO (2016)

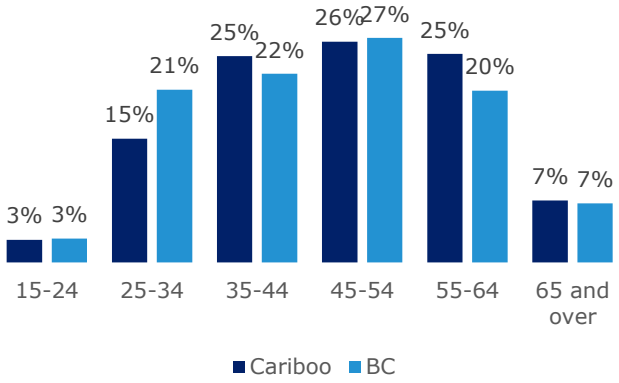
	Accounting Sector Labour Force	**Participation Rate** (all occupations)	**Unemployment Rate**	**Average Hourly Wage** (all occupations)	**Share of Accountants under 45**	**Immigration Share** (accounting occupations)
BC	99,160	64.5%	2.6%	$19.05/hr	46%	37%
Cariboo	2,330	67.3%	1.9%	$20.2/hr	42%	9%

Figure 14: Accounting Employment by Industry (2016)



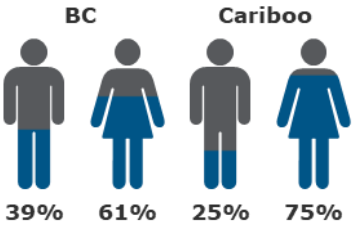
Finance and insurance and professional services make up **45%** of Cariboo's accounting sector

Figure 15: Accounting Employment by Age Cohort (2016)



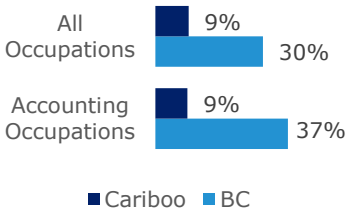
The largest age cohort employed in accounting occupations is **45-54 years** in Cariboo

Figure 16: Employment by Gender (2016)



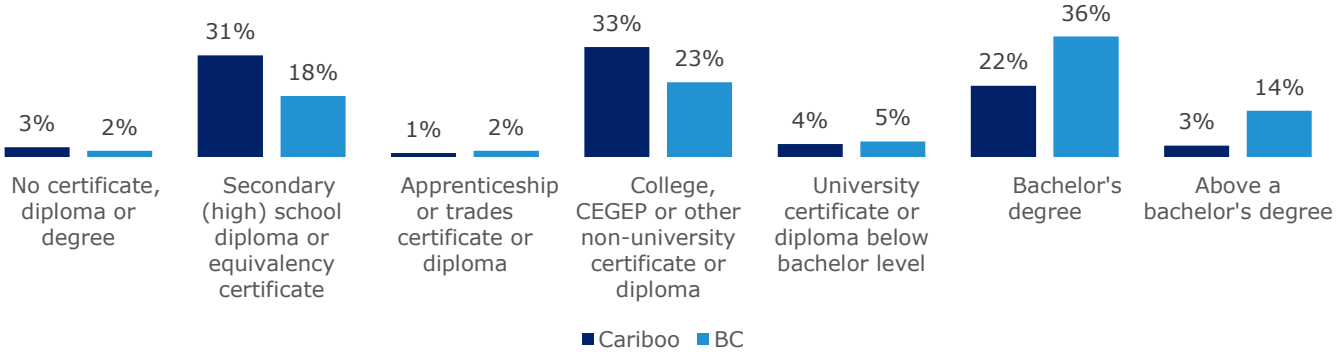
Roughly **75%** of employment in Cariboo's accounting sector is **female**

Figure 17: Immigration Share of Accounting Sector Population (2016)



Immigrants account for **9% of Cariboo's accounting sector population** (i.e., employed, unemployed, and those not in the labour force)

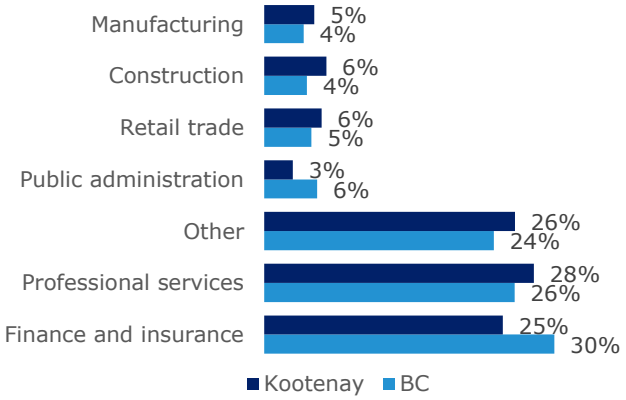
Figure 18: Accounting Employment by Education Level



ACCOUNTING WORKFORCE OVERVIEW: KOOTENAY (2016)

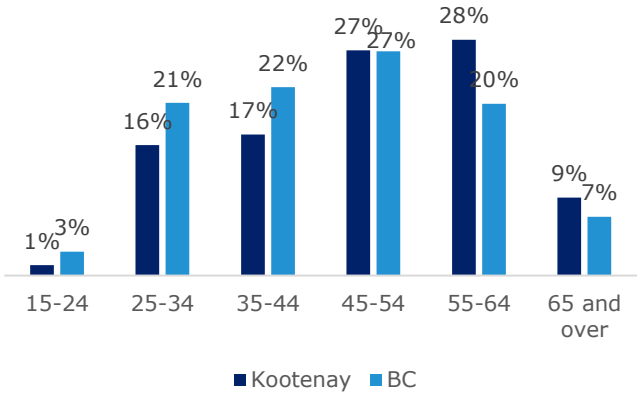
	Accounting Sector Labour Force	**Participation Rate** (all occupations)	**Unemployment Rate**	**Average Hourly Wage** (all occupations)	**Share of Accountants under 45**	**Immigration Share** (accounting occupations)
BC	99,160	64.5%	2.6%	$19.05/hr	46%	37%
Kootenay	2,300	58.30%	1.2%	$18.4/hr	34%	9%

Figure 19: Accounting Employment by Industry (2016)



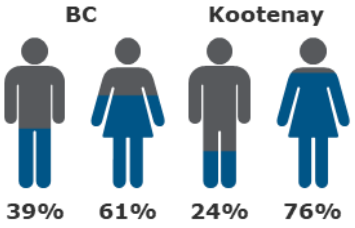
Finance and insurance and professional services make up **53%** of Kootenay's accounting sector

Figure 20: Accounting Employment by Age Cohort (2016)



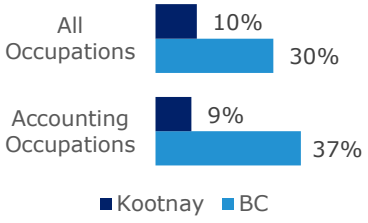
The largest age cohort employed in accounting occupations is **45-54 years** in Kootenay

Figure 21: Employment by Gender (2016)



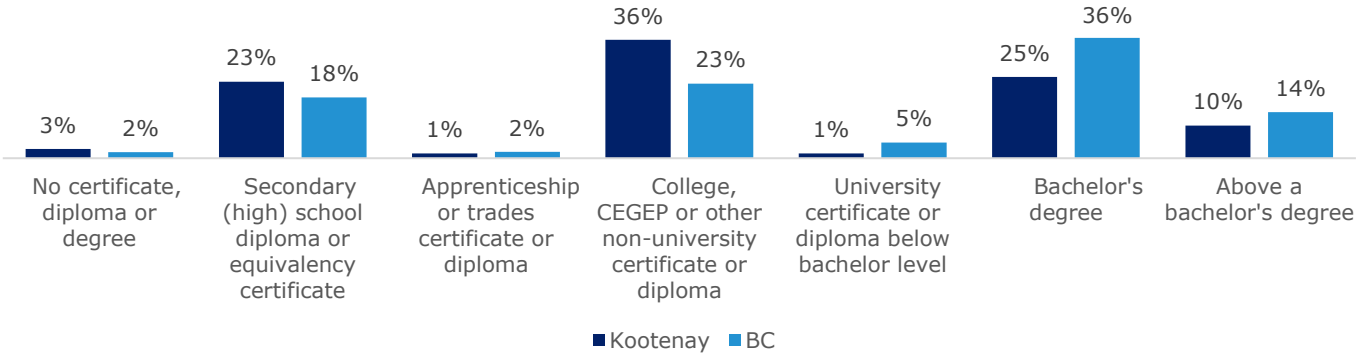
Roughly **76%** of employment in the Kootenay's accounting sector is **female**

Figure 22: Immigration Share of Accounting Sector Population (2016)



Immigrants account for **9% of Kootenay's accounting sector population** (i.e., employed, unemployed, and those not in the labour force)

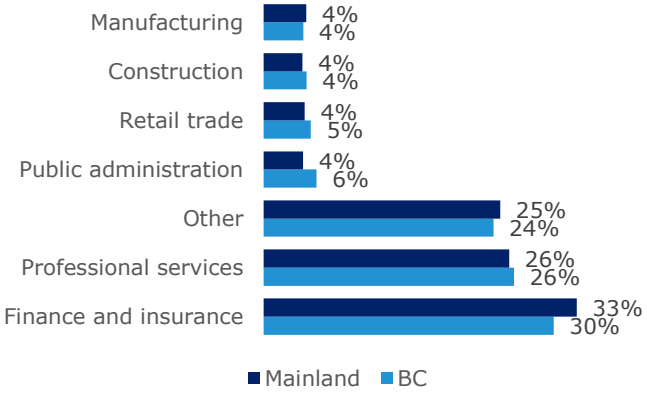
Figure 23: Accounting Employment by Education Level



ACCOUNTING WORKFORCE OVERVIEW: LOWER MAINLAND/SOUTHWEST (2016)

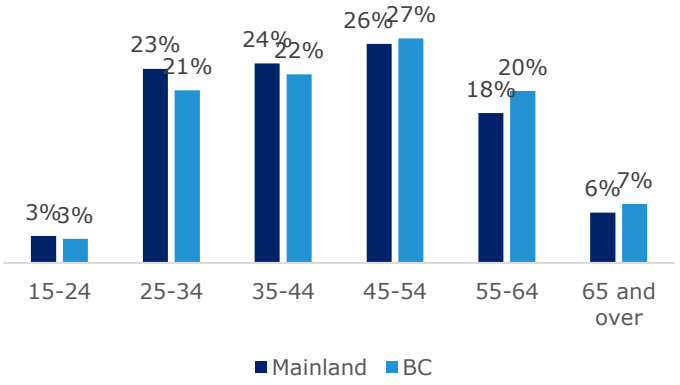
	Accounting Sector Labour Force	**Participation Rate** (all occupations)	**Unemployment Rate**	**Average Hourly Wage** (all occupations)	**Share of Accountants under 45**	**Immigration Share** (accounting occupations)
BC	99,160	64.5%	2.6%	$19.05/hr	46%	37%
Mainland	67,820	67.0%	2.5%	$19.00/hr	50%	47%

Figure 24: Accounting Employment by Industry (2016)



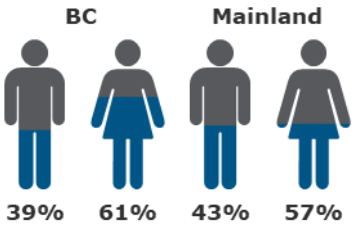
Finance and insurance and professional services make up **59%** of the Lower Mainland's accounting sector

Figure 25: Accounting Employment by Age Cohort (2016)



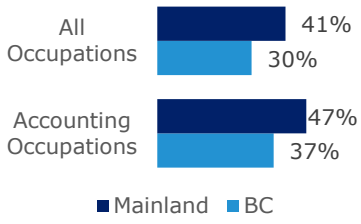
The largest age cohort employed in accounting occupations is **45-54 years** in the Lower Mainland

Figure 26: Employment by Gender (2016)



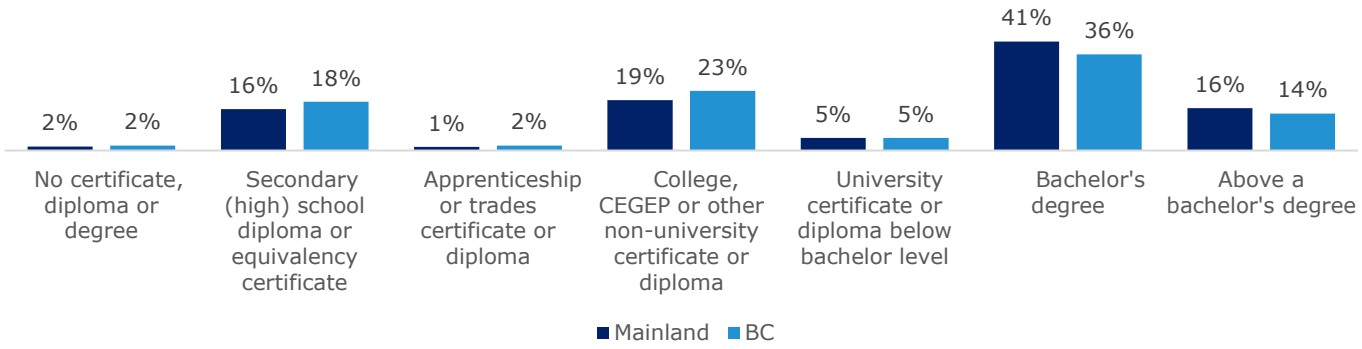
Roughly 57**%** of employment the Lower Mainland's accounting sector is **female**

Figure 27: Immigration Share of Accounting Sector Population (2016)



Immigrants account for **47% of the Lower Mainland's accounting sector population** (i.e., employed, unemployed, and those not in the labour force)

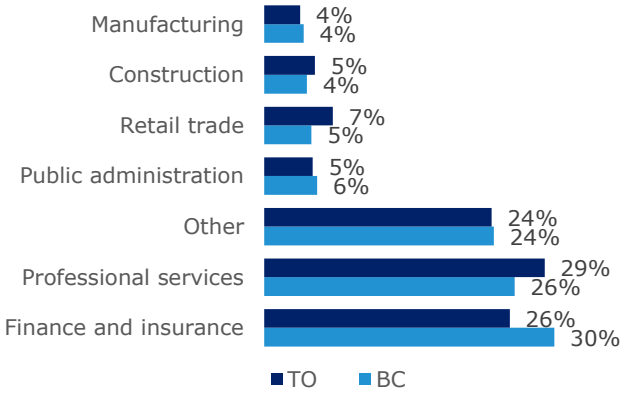
Figure 28: Accounting Employment by Education Level



ACCOUNTING WORKFORCE OVERVIEW: THOMPSON-OKANAGAN (2016)

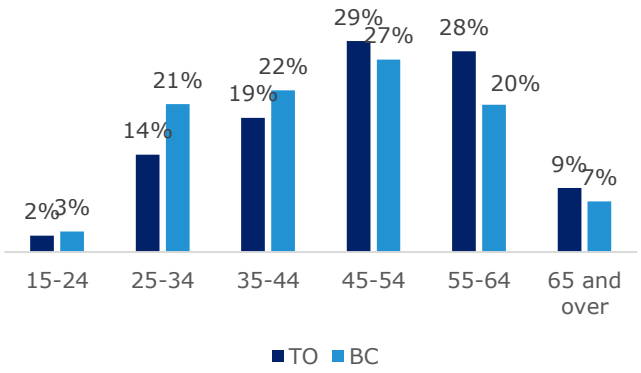
	Accounting Sector Labour Force	**Participation Rate** (all occupations)	**Unemployment Rate**	**Average Hourly Wage** (all occupations)	**Share of Accountants under 45**	**Immigration Share** (accounting occupations)
BC	99,160	64.5%	2.6%	$19.05/hr	46%	37%
Thompson-Okanagan	9,970	61.4%	2.3%	$17.6/hr	34%	13%

Figure 29: Accounting Employment by Industry (2016)



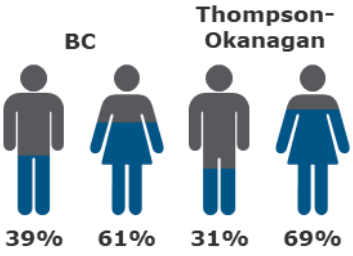
Finance and insurance and professional services make up **55%** of Thompson-Okanagan's accounting sector

Figure 30: Accounting Employment by Age Cohort (2016)



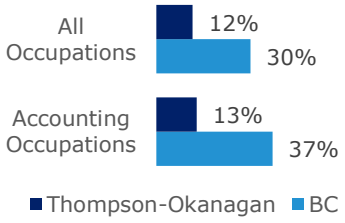
The largest age cohort employed in accounting occupations is **45-54 years** in Thompson-Okanagan

Figure 31: Employment by Gender (2016)



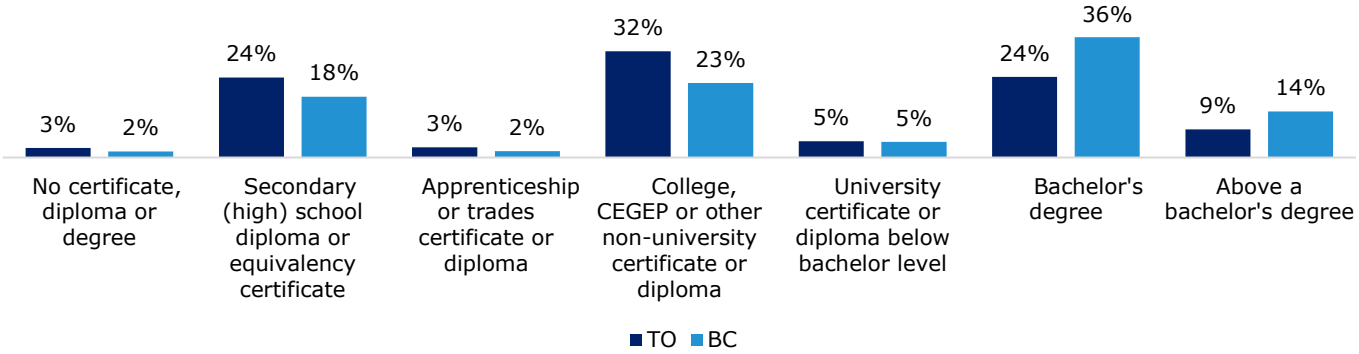
Roughly 69**%** of employment in Thompson-Okanagan accounting sector is **female**

Figure 32: Immigration Share of Accounting Sector Population (2016)



Immigrants account for **13% of Thompson-Okanagan accounting sector population** (i.e., employed, unemployed, and those not in the labour force)

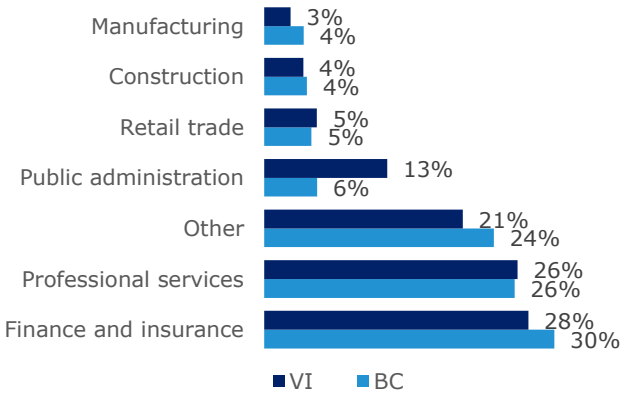
Figure 33: Accounting Employment by Education Level



ACCOUNTING WORKFORCE OVERVIEW: VANCOUVER ISLAND (2016)

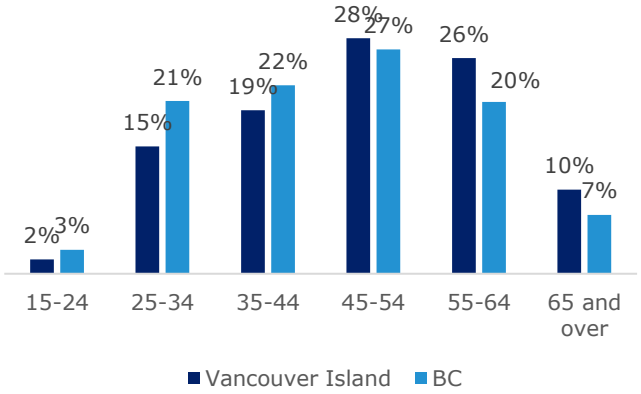
	Accounting Sector Labour Force	**Participation Rate** (all occupations)	**Unemployment Rate**	**Average Hourly Wage** (all occupations)	**Share of Accountants under 45**	**Immigration Share** (accounting occupations)
BC	99,160	64.5%	2.6%	$19.05/hr	46%	37%
Vancouver Island	14,155	59.0%	2.5%	$19.55/hr	36%	18%

Figure 34: Accounting Employment by Industry (2016)



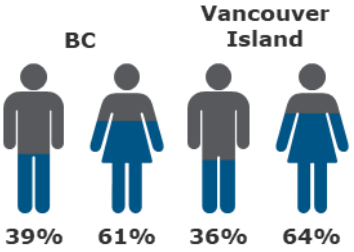
Finance and insurance and professional services make up **55%** of Vancouver Island's accounting sector

Figure 35: Accounting Employment by Age Cohort (2016)



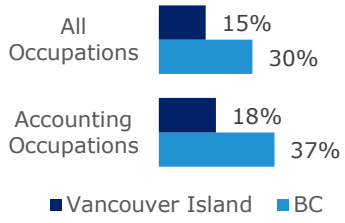
The largest age cohort employed in accounting occupations is **45-54 years** in Vancouver Island

Figure 36: Employment by Gender (2016)



Roughly 69**%** of employment in Vancouver Island's accounting sector is **female**

Figure 37: Immigration Share of Accounting Sector Population (2016)



Immigrants account for **18% of Vancouver Island's accounting sector population** (i.e., employed, unemployed, and those not in the labour force)

Figure 38: Accounting Employment by Education Level

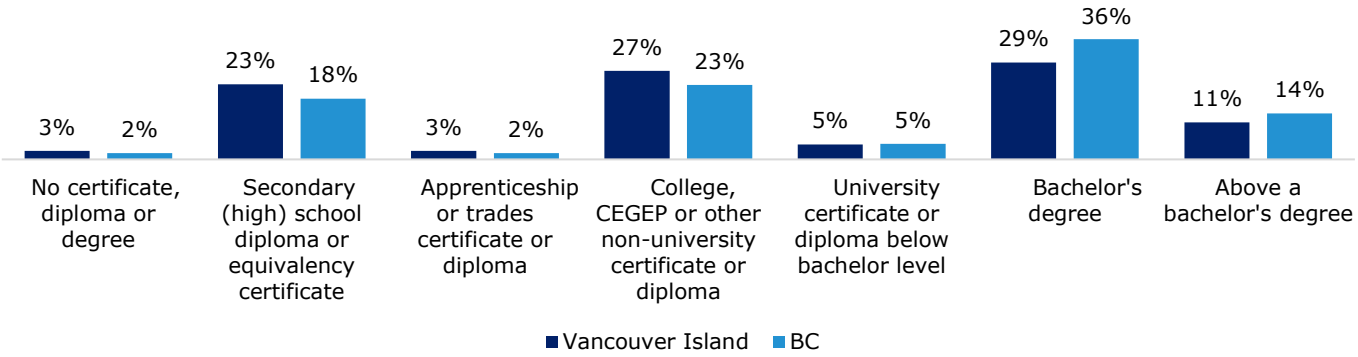


Table 1. Tertiary occupations outside the scope of this study

NOC Code	Occupation
0012	Senior government managers and officials
0013	Senior managers - financial, communications and other business services
0014	Senior managers - health, education, social and community services and membership organizations
0015	Senior managers - trade, broadcasting and other services, n.e.c.
0016	Senior managers - construction, transportation, production and utilities
0114	Other administrative services managers
0121	Insurance, real estate and financial brokerage managers
1122	Professional occupations in business management consulting
1212	Supervisors, finance and insurance office workers
1312	Insurance adjusters and claims examiners
1313	Insurance underwriters
1314	Assessors, valuators and appraisers
1315	Customs, ship and other brokers
1431	Accounting and related clerks
1432	Payroll administrators
1434	Banking, insurance and other financial clerks
1435	Collectors
2161	Mathematicians, statisticians and actuaries
4011	University professors and lecturers
4021	College and other vocational instructors
6231	Insurance agents and brokers
6235	Financial sales representatives

Appendix 2: Stakeholder Engagement Supplementary Material

STAKEHOLDER INTERVIEW PARTICIPANTS

Stakeholder Type	Organization	Participant
Accounting Firms	• MNP	• Karen Christiansen
	• Chan Nowosad Boates	• Derek Lamb
	• Neweling & Co	• Britt Lampe
Technology Solutions	• BC Tech	• Chris Malmo
	• Deloitte AI Subject Matter Experts	• Nat D'Ercole and Chris Thatcher
Public/Private Employers	• BCBC	• David Williams
	• BC Chamber of Commerce	• Val Litwin
	• Saanich School District	• Jason Reid
	• Nurse Next Door and Rosemary Rocksalt	• Ken Sim
Academic Institutions	• UBC	• Graham McIntosh
Designated Accountants	• CPABC	Executive Management Committee members: • Lori Mathison • Amy Lam • James Midgley • Jan Sampson

EMPLOYER SURVEY PARTICIPATION

Between April 12 and May 6, 262 senior-level CPAs responded to the employer survey, representing over 230 firms in BC. The survey was administered to 1,836 senior-level CPAs in BC – the total survey response rate was roughly 14.3%. Incomplete responses were excluded.

EMPLOYER SURVEY ADDITIONAL RESULTS

Table 2: How do you expect Economic Growth to impact demand for accountants over the next 5 years?

	Accounting, Tax Preparation, and Audit and Advisory Firms	Industry
Will decrease the number of accounting FTEs	8%	9%
Will not impact the number of accounting FTEs	38%	38%
Will increase the number of accounting FTEs	54%	53%

Table 3: How do you expect Regulatory Changes to impact demand for accountants over the next 5 years?

	Accounting, Tax Preparation, and Audit and Advisory Firms	Industry
Will decrease the number of accounting FTEs	12%	8%
Will not impact the number of accounting FTEs	53%	49%
Will increase the number of accounting FTEs	34%	43%

Table 4: How do you expect Retirements to impact demand for accountants over the next 5 years?

	Accounting, Tax Preparation, and Audit and Advisory Firms	Industry
Will decrease the number of accounting FTEs	24%	19%
Will not impact the number of accounting FTEs	21%	27%
Will increase the number of accounting FTEs	56%	55%

Table 5: How do you expect Work-Life Balance to impact demand for accountants over the next 5 years?

	Accounting, Tax Preparation, and Audit and Advisory Firms	Industry
Will decrease the number of accounting FTEs	35%	14%
Will not impact the number of accounting FTEs	31%	51%
Will increase the number of accounting FTEs	34%	35%

Table 6: How do you expect Automation Technologies to impact demand for accountants over the next 5 years?

	Accounting, Tax Preparation, and Audit and Advisory Firms	Industry
Will decrease the number of accounting FTEs	36%	35%
Will not impact the number of accounting FTEs	53%	49%
Will increase the number of accounting FTEs	11%	16%

Table 7: How do you expect Economic Growth to impact demand for accountants over the next 5 years?

	1 to 9 Employees	10 to 49 Employees	50 to 199 Employees	200+ Employees
Will decrease the number of accounting FTEs	7%	10%	7%	10%
Will not impact the number of accounting FTEs	38%	35%	39%	42%
Will increase the number of accounting FTEs	55%	55%	54%	48%

Table 8: How do you expect Regulatory Changes to impact demand for accountants over the next 5 years?

	1 to 9 Employees	10 to 49 Employees	50 to 199 Employees	200+ Employees
Will decrease the number of accounting FTEs	13%	9%	10%	7%
Will not impact the number of accounting FTEs	45%	57%	43%	53%
Will increase the number of accounting FTEs	42%	34%	47%	40%

Table 9: How do you expect Retirements to impact demand for accountants over the next 5 years?

	1 to 9 Employees	10 to 49 Employees	50 to 199 Employees	200+ Employees
Will decrease the number of accounting FTEs	24%	20%	22%	15%
Will not impact the number of accounting FTEs	24%	29%	22%	24%
Will increase the number of accounting FTEs	53%	51%	56%	61%

Table 10: How do you expect Work-Life Balance to impact demand for accountants over the next 5 years?

	1 to 9 Employees	10 to 49 Employees	50 to 199 Employees	200+ Employees
Will decrease the number of accounting FTEs	21%	23%	17%	18%
Will not impact the number of accounting FTEs	50%	38%	59%	36%
Will increase the number of accounting FTEs	29%	38%	24%	46%

Table 11: How do you expect Automation Technologies to impact demand for accountants over the next 5 years?

	1 to 9 Employees	10 to 49 Employees	50 to 199 Employees	200+ Employees
Will decrease the number of accounting FTEs	31%	37%	33%	40%
Will not impact the number of accounting FTEs	55%	54%	48%	43%
Will increase the number of accounting FTEs	15%	9%	19%	17%

Appendix 3: Data Sources

Data source	Description of data	Source
Labour Market Outlook (annual)	The Labour Market Outlook is produced annually by the Ministry of Advanced Education, Skills and Training's Labour Market Information Office (LMIO). The B.C. labour market forecasting model is a labour market forecasting system used to generate 10-year projections of labour demand and supply for 500 occupations for B.C. and its economic development regions.	https://www.workbc.ca/getmedia/1dce90f9-f2f9-4eca-b9e5-c19de9598f32/BC_Labour_Market_Outlook_2018_English.pdf.aspx
Guide to the Census of Population, 2016	This reference document provides an overview of the Census of Population content determination, collection, processing, data quality assessment and data dissemination.	https://www12.statcan.gc.ca/census-recensement/2016/ref/98-304/index-eng.cfm
Census Table 98-400-X2016295	Occupation - National Occupational Classification (NOC) 2016 (693A), Highest Certificate, Diploma or Degree (15), Labour Force Status (3), Age (13A) and Sex (3) for the Labour Force Aged 15 Years and Over in Private Households of Canada, Provinces and Territories, Census Metropolitan Areas and Census Agglomerations	https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=1&PID=110696&PRID=10&PTYPE=109445&S=0&SHOWALL=0&SUB=0&Temporal=2017&THEME=124&VID=0&VNAMEE=&VNAMEF=
Census Table 98-400-X2016372	First Official Language Spoken (7), Occupation - National Occupational Classification (NOC) 2016 (691), Highest Certificate, Diploma or Degree (15) and Immigrant Status and Period of Immigration (11) for the Population Aged 15 Years and Over Who Worked Since 2015, in Private Households of Canada, Provinces and Territories, Census Metropolitan Areas and Census Agglomerations, 2016 Census - 25% Sample Data	https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=1&PID=112141&PRID=10&PTYPE=109445&S=0&SHOWALL=0&SUB=0&Temporal=2017&THEME=132&VID=0&VNAMEE=&VNAMEF=
Census Table 98-400-X2016290	Industry - North American Industry Classification System (NAICS) 2012 (427A), Class of Worker (5A), Labour Force Status (3), Age (13A) and Sex (3) for the Labour Force Aged 15 Years and Over in Private Households of Canada, Provinces and Territories, Census Metropolitan Areas and Census Agglomerations, 2016 Census - 25% Sample Data	https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=1&PID=110695&PRID=10&PTYPE=109445&S=0&SHOWALL=0&SUB=0&Temporal=2017&THEME=124&VID=0&VNAMEE=&VNAMEF=
Business Register	The Business Register (BR) is Statistics Canada's continuously-maintained central repository of baseline information on businesses and institutions operating in Canada. Business count data are provided by NAICS for Canada and the provinces. Data are produced semi-annually.	https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3310009201

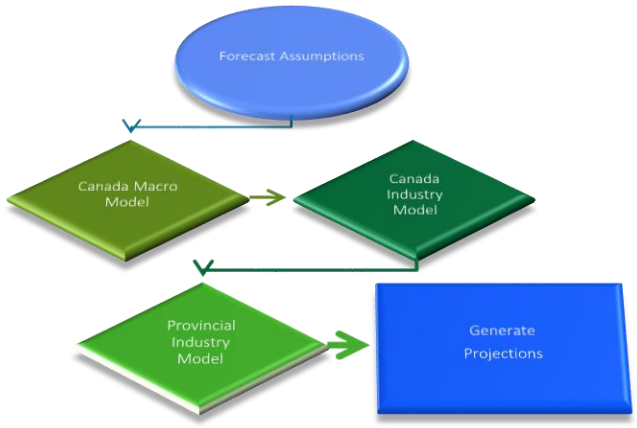
Business Register - Table 33-10-0106-01	Canadian Business Counts, without employees, December 2018, Canada and Provinces	https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3310010601
Business Register - Table 33-10-0105-01	Canadian Business Counts, with employees, December 2018	https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3310010501
Statistics Canada Table 36-10-0480-01	Labour productivity and related measures by business sector industry and by non-commercial activity consistent with the industry accounts, Canada and all provinces	https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610048001
Statistics Canada Table 36-10-0402-01	Gross domestic product (GDP) at basic prices, by industry, provinces and territories	https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610040201
Statistics Canada. Table 14-10-0293-0	Regional Participation Rate: Labour force characteristics by economic region, three-month moving average, unadjusted for seasonality, last 5 months	https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410029301
Survey of Employment, Payrolls and Hours (SEPH)	The Survey of Employment, Payrolls and Hours provides a monthly portrait of the amount of earnings, as well as the number of jobs (i.e., occupied positions) and hours worked by detailed industry at the national, provincial and territorial levels.	http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=2612
Statistics Canada. Table 14-10-0340-01	Employee wages by occupation, annual	https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410034001
Job Bank Wage Report	Wage analysis by region for all occupations	https://www.jobbank.gc.ca/trend-analysis/search-wages
Statistics Canada. Table: 17-10-0005-01	Population estimates on July 1st, by age and sex	https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000501
BC Stats Demographic Analysis	Demographic Analysis, BC Stats, Ministry of Technology, Innovation and Citizens' Services. British Columbia Development Region Migration Components	https://www2.gov.bc.ca/gov/content/data/statistics/people-population-community/population/mobility

Appendix 4: Labour Demand Forecast Methodology and Assumptions

LONG TERM FORECAST OF BC EMPLOYMENT AND GDP BY INDUSTRY

The forecasting process is comprised of several distinct steps outlined in Figure 1. The first step consists of generating a long-term macroeconomic forecast of the Canadian economy. The model is a multisector error correction model that uses the New Keynesian paradigm, with sticky wages and prices as well as rational expectations. The model has an international dimension, with the Canadian economy assumed to behave like small open economy with flexible exchange rates. The model produces projections as far as 2050 for components of expenditure-side GDP, labour market metrics, prices, as well as interest and exchange rates. Long-run dynamics assume a monetarist framework, with growth determined by supply-side factors such as population, labour force, and productivity growth. These are calibrated to the most recent research and are continuously updated.

Figure 29: Forecasting Process



The second step involves feeding the macro model outputs to the Canadian industry model. The industry model is a large vector autoregressive model with backward looking expectations. The model utilizes the relationships between industries and sectors, as well as linkages between industries (IO framework) and within industries (production function) to generate GDP, profits, wages, and employment by industry. The core model produces forecasts at the 2-digit NAICS 2017 industries, but can be expanded to 3- and 4-digit industries if needed – assuming data availability. For this project, the model was expanded to produce GDP and employment forecasts for the following:

- 521 and 522: Monetary authorities and credit intermediation
- 523: Securities, commodity contracts, and other financial investment and related activities
- 524: Insurance carriers and related activities
- 526: Funds and other financial vehicles
- 531: Real estate
- 5412: Accounting, tax preparation, bookkeeping and payroll services
- 911, 912, and 913: Federal, Provincial & Territorial, and Local Government

Finally, the third step feeding the outputs of the macro and industry models to the provincial economic model. This model utilizes historical relationships between various economic variables between and within provinces and generates a fulsome forecast of the B.C. economy. The industry forecasts are typically done at a 2-digit NAICS level, but was extended to the aforementioned 3-digit industries for this project. The provincial model also requires some assumptions regarding the long-run potential of the provincial economies. The assumption for provincial labour force was based on a demographic model of Canada and the provinces. Long-run trend productivity growth, on the other

hand, was set to its historical ratio to the national – which is set to the latest Bank of Canada view. The model's output was in turn used to generate the occupational forecast for B.C. accountants.

LABOUR DEMAND MODELLING ASSUMPTIONS

1. The mortality rate by age was assumed to be constant from 2018-2028 (as calculated by the average of the 2013-2017 mortality rates)
2. The total participation rate forecast was calculated by taking the average of male and female participation rates as forecasted by BC stats
3. The participation rate for 2017 by single age is to be used in the replacement demand forecast (even though employment demand uses 2016 as a base year)
4. To calculate the 2018 participation rate, we took the difference between our 2017 participation rates (aggregated by age group) and the 2018 participation rate from BC Stats. We then applied the growth rate between the 2017-18 values to the 2017 participation rate by single year

Appendix 5: Summary of Governance Committee Activities

GOVERNANCE COMMITTEE MEMBERSHIP

The Governance Committee membership represents a diverse set of stakeholders and perspectives from across the accounting sector.

Organization	Individual	Expertise
CPABC EMC	Amy Lam	CPABC is the only regulator and educator of professional accountants in the province; has 35,000 members and over 5,000 students
UBC-DAP	Graham McIntosh	UBC-DAP is one of the largest accounting diploma programs in the province
MNP	Karen Christiansen	MNP is a national accounting firm and one of the largest employers of designated and undesignated accountants in the province. They have offices and clients in many regions of BC.
Chan Nowosad Boates	Derek Lamb	Chan Nowosad Boates is mid-sized accounting firm with locations in Campbell River and the Comox Valley with a significant focus on supporting the community and region.
Galloway Botteselle & Company	Saskia Muller	GBCO is a mid-sized accounting firm in the Lower Mainland employing accountants and supplying accounting and financial services to businesses of all sizes.
BCBC	Ken Peacock	Represent large employers across BC
BC Chamber of Commerce	Val Litwin	Represent small and medium sized employers across BC
BC Tech	Chris Malmo	Provide insights on technology trends and their impact on BC's accounting sector, as well as BC technology providers that offer accounting solutions
Independent Advisor	Brian Krieger	Brian has 26 years of experience working for the BC government where he helped BC companies and organizations grow, helped attract job-creating foreign direct investment to BC, and supported a wide-range of domestic and international business development initiatives.

GOVERNANCE COMMITTEE ACTIVITIES

The Governance Committee met on three occasions throughout the project, in addition to providing feedback on the employer survey and Draft Report via email. Feedback from Governance Committee members was incorporated into the Draft Report. The meeting agendas for these activities are below.

GOVERNANCE COMMITTEE MARCH 7 MEETING AGENDA

Topic	Content	Timing
Introductions	• Group introductions	11:00 a.m. – 11:10 a.m.
Sector Labour Market Partnerships Program Overview	• Overview of the Sector Labour Market Partnerships (SLMP) program purpose, structure, outcomes, roles and responsibilities	11:10 a.m. – 11:15 a.m.
Project Overview	• Overview of CPABC labour market study key research questions, governance, approach and timeline	11:15 a.m. – 11:25 a.m.
Sector Definition	• Overview of the selected accounting sector definition	11:25 a.m. – 11:40 a.m.
Sector Engagement Approach	• Overview of the sector engagement activities, format, participants and outcomes	11:40 a.m. – 11:55 a.m.
Sector Interview Topics and Participants	• Discussion of sector interview topics • Confirmation of recommended interview participants	11:55 p.m. – 12:15 p.m.
Stakeholder Workshop	• Discussion of workshop agenda and confirmation of participants	12:15 p.m. – 12:30 p.m.
Employer Survey Topics	• Discussion of employer survey topics	12:30 p.m. – 12:55 p.m.
Next Steps	• Summary of next steps • Confirm next Governance Committee meeting	12:55 p.m. – 1:00 p.m.

GOVERNANCE COMMITTEE MAY 8 MEETING AGENDA

Topic	Content	Timing
Project Status	• Overview of activities completed to-date	1:30 p.m. – 1:35 p.m.
Sector Profile Overview	• Overview of the accounting sector profile and survey representativeness	1:35 p.m. – 2:00 p.m.
Employer Survey Results	• Discussion of employer survey results	2:00 p.m. – 3:15 p.m.
Draft Report Outline	• Presentation of Draft Report outline	3:15 p.m. – 3:25 p.m.
Next Steps	• Summary of next steps	3:25 p.m. – 3:30 p.m.

GOVERNANCE COMMITTEE AUGUST 1 MEETING AGENDA

Topic	Content	Timing
Project Status	• Overview of activities completed to-date	1:00 p.m. – 1:05 p.m.
Summary of Report Findings	• Overview of the report findings, including the results of the 10-year labour demand forecast	1:05 p.m. – 1:45 p.m.
Summary of Feedback from AEST	• Overview of feedback on the Draft Report received from AEST	1:45 p.m. – 2:00 p.m.
Presentation of Sector Recommendations	• Overview of sector recommendations to address identified employment demand issues	2:00 p.m. – 2:25 p.m.
Next Steps	• Summary of Next Steps	2:25 p.m. – 2:30 p.m.