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Apprenticeship in Ontario: An Exploratory Analysis

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Executive Summary

This report aims to introduce the reader to the apprenticeship sector in Ontario by providing an overview of the current state of affairs. We begin by outlining the structure and governance of apprenticeship in the province and survey the literature relevant to some of the policy debates regarding apprenticeship. The report then identifies and consolidates key data concerning the various components of this complex system, providing comparative Canadian data where relevant to identify areas of strength and weakness. The intent is for this report to provide a firm foundation from which further discussions concerning apprenticeship might proceed.

The first section of the report outlines the structure of apprenticeship in Ontario, beginning with the history of apprenticeship and the evolution of the legislation governing it. The process of becoming an apprentice is described, including pathways to apprenticeship and apprenticeable trades. The distinction between compulsory and voluntary trades is discussed, as is the Red Seal program.

The second section of the report reviews the literature on apprenticeship, with a particular focus on the purported shortage in apprentices, barriers to participation for both apprentices and employers, and barriers to persistence and completion.

The third and final section of the report presents relevant data, mainly drawing on Statistics Canada's Registered Apprenticeship Information System (RAIS). For the purposes of this summary, we highlight three areas of particular interest:

- 1) *Registrations and completions.* In 2012, there were almost 165,000 registered apprentices in Ontario. With the exception of 2011, this number has increased every year from 2000 to 2012. But while the absolute number of apprentices has increased, the rate of this increase has oscillated. Keeping in mind the many challenges with calculating apprenticeship completion rates in Ontario, we also find that completion rates have not kept pace with registrations, though they have shown improvement. After fluctuating between 30.3% and 38.8% between 2000 and 2012, completion rates for apprentices in Ontario peaked at 46.8% in 2012.
- 2) *The distribution of apprentices by trade group.* As of 2012, 16.1% of apprentices were registered in the IT user support technician group, a category of customer service agents and technicians who provide support to individuals and businesses experiencing computer issues. This trade group includes five distinct occupations. Registrations in this group grew rapidly between 2006 and 2012, due in large part to external factors – apprenticeships in information technology were only introduced in 2006 and employers were eligible for a tax credit, prompting many to register their existing customer service agents as apprentices. The automotive service trades were the second most subscribed between 2006 and 2012, with electricians ranking third and hair stylists ranking fourth. With the exception of user support technicians, all of the trades that were in the top 10 most subscribed in 2006 remained on the list in 2012.
- 3) *Females in the trades.* While Ontario saw an 11.4% increase in total female registrations from 2000 to 2012, the percentage of apprentices who are female remains low at 24.3%. Female apprentices also tend to be found in a limited selection of female-dominated trades, with 92.8% of early childhood educators, 88.4% of hairstylists and 75.6% of community and social service workers being female in 2012.

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Apprenticeship is one part of Ontario's postsecondary landscape that is often omitted from discussions, many of which tend to emphasize the role of public universities and colleges.¹ Functioning as public-private partnerships between training bodies and employers, apprenticeships provide training in the skilled trades in which practical training occurs on the job and is guided by experienced individuals such as journeypersons.² This form of work-integrated learning, for which apprentices are paid, is complemented by a comparatively short period of theoretical training offered at a college or other training delivery agent. As such, apprenticeship is often described as a win-win situation for both apprentices and employers: while employers cover most of the costs of workplace training and receive a productive employee in exchange, apprentices earn wages and gain skills relevant to future employment (Lerman, 2014; MTCU, 2007).

The general lack of emphasis on forms of vocational education and training (VET) such as apprenticeship is not unique to Ontario. The Organisation for Economic Co-operation and Development (OECD) documents several similar contexts abroad in which hands-on forms of training are overshadowed by an emphasis on academic education offered by colleges and universities. In Ontario, debates concerning apprenticeship reform have gained prominence of late largely because of apprenticeship's role as a tool to meet labour market needs in the skilled trades. A report by the Canadian Council of Chief Executives, for example, highlights the part that apprenticeship played in decreasing youth unemployment and strengthening targeted sectors of the economy in Germany and Switzerland. The CCCE suggests that a similar emphasis on apprenticeship in Ontario could help revitalize the manufacturing sector and avoid skills mismatches in the future (Lerman, 2014).³

In the aftermath of the 2009 economic downturn, OECD nations committed to promoting apprenticeship and strengthening apprenticeship quality to address high youth unemployment and to effect better school-to-work transitions (OECD, 2012). In assessing the state of affairs at the time, the OECD report lists the many challenges that apprenticeship faces around the world, including its limitation to a restricted list of 'traditional sectors' such as construction and manufacturing; the bias in favour of academic education at universities and colleges over VET; and the reluctance of employers to take part in apprenticeship. While the OECD's report was international in scope, some of these challenges apply to apprenticeship in Ontario as well.

This report aims to introduce the reader to the seldom discussed and often misunderstood apprenticeship sector in Ontario by providing an overview of the current state of affairs. We begin by outlining the structure and governance of apprenticeship in the province and survey the literature relevant to some of the policy debates regarding apprenticeship. The report then identifies and consolidates key data concerning the various components of this complex system, providing comparative Canadian data where relevant to identify areas of strength and weakness. The intent is for this report to provide a firm foundation from which further discussions concerning apprenticeship might proceed.

The History of Apprenticeship in Ontario

In contrast to many European countries, where some guilds date back to the Middle Ages, Canada does not have a long tradition of apprenticeship training. Instead, skilled labour requirements were typically filled through immigration prior to World War I. Formal apprenticeship in Ontario dates back to 1928 and Ontario was the first province with a government-regulated apprenticeship system (Stewart, 2009).

Prior to the early 1800s, apprenticeship was practiced informally in Canada by skilled tradespersons who emigrated from Europe and brought guild traditions with them. An apprentice was formally indentured to his

¹ For simplicity, this report refers to Ontario's colleges of applied arts and technology (CAATs) as 'colleges.'

² Definitions vary from one context to another, together with the breadth and structure of apprenticeship in different countries. This definition, which is appropriate for Ontario and Canada, is adapted from Stewart (2009). See also Sattler (2011) for an alternative albeit very similar definition.

³ See also Steedman (2012) for an international perspective on the link between increased apprenticeship participation and decreased youth unemployment.

master through a legal contract that documented both parties' legal rights and obligations and often resulted in highly authoritarian relationships. Apprenticeship was also used by the state as a way of placing orphans in families and ensuring that they received some form of education (Stewart & Kerr, 2010).

With the process of industrialization that occurred throughout the 19th century, many artisans moved from small rural workshops to factory production in urban centres, which in turn resulted in changes to the conditions of apprenticeship. The system shifted from one that was traditional and private to one that was institutional and public, as technical education was integrated into public schools in the late 19th century and thus largely became a responsibility of the provincial government. Around this same time, organizations in the building trades began to pressure the federal government to take action to increase the supply of skilled workers in their sector. This led to the creation of the Royal Commission on Industrial Training and Technical Education in 1910, and its work inspired the Technical Education Act in 1919, through which the federal government provided new funding for the provinces to promote technical education among secondary school students. Ontario became the first province with a government-regulated apprenticeship system when the government passed the *Ontario Apprenticeship Act* in 1928, which provided both regulation and support for apprenticeship (Stewart & Kerr, 2010).

A national conference on apprenticeship was held in 1952 and resulted in the formation of the Canadian Council of Directors of Apprenticeship, which was charged with promoting national standards in the skilled trades and labour mobility through the Red Seal Program (discussed in greater detail below). In subsequent years, the federal government also began to slowly roll back its involvement in apprenticeship, such that it now retains responsibility only for 'pan-Canadian aspects' of apprenticeship, with the remainder falling to the provinces (Stewart & Kerr, 2010).

Legislation

Until recently, apprenticeship in Ontario was regulated by the Ministry of Training, Colleges and Universities (MTCU) according to the *Trades Qualification and Apprenticeship Act, 1990* (TQAA) and the *Apprenticeship and Certification Act, 1998* (ACA). Both of these were replaced by the *Ontario College of Trades and Apprenticeship Act* (OCTAA) in 2009, which led to the creation of the Ontario College of Trades in April 2013.

The original *Ontario Apprenticeship Act, 1928* reflected the government's desire to increase training in the building trades and to legislate the training and working conditions of apprentices. Emphasizing the age of the typical apprentice at the time, it applied only to minors aged 16 to 21 (MTCU, 2007). The TQAA (1990), which was introduced in 1968 and underwent only minor modifications between then and 1990, sought to promote participation in certain construction trades by requiring the certification of new apprentices and thereby granting those trades increased status. Drafted following two years of consultations, the ACA (1998) instituted various measures to promote high standards in apprenticeship training and ensure consistency in their application. It replaced the TQAA for all trades sectors except construction, meaning that two pieces of legislation essentially governed apprenticeship in Ontario until the introduction of the OCTAA in 2009.

The Armstrong Report

In May 2007, the Minister of Training, Colleges and Universities announced his intention to consider expanding compulsory certification – the process by which apprentices in certain sectors must pass a licensing exam before they can legally practice – beyond its current scope of trades. He commissioned Tim Armstrong, a former deputy minister of labour and former chair of the Ontario Labour Relations Board, to examine the ramifications of such an expansion. In what is commonly termed the Armstrong Report (T. E. Armstrong Consulting, 2008), the author concluded that registration and completion rates both tend to be higher in compulsory trades and that, while wages also tend to rise with certification, employers' productivity gains and retention benefits also likely increase. He continues with an endorsement of compulsory certification:

Based on what I heard, especially from apprentices, it is clear to me that the status attached to a compulsory trade is on balance a significant attraction to entrants... The journeyperson's certificate in a compulsory trade is an important "badge of honour", with credential akin if not equal to a university or college degree. (T. E. Armstrong Consulting, 2008, p. 93)

The major recommendation flowing from the Armstrong review was the creation of a new governance institution – a college of trades – to oversee any expansion of Ontario's compulsory certification system by considering applications for compulsory certification, engaging in enforcement, reviewing apprenticeship ratios and raising the profile of the trades.

The Whitaker Report

Following the delivery of the Armstrong report, Kevin Whitaker, the chair of the Ontario Labour Relations Board, was asked to deliver his own set of recommendations concerning the structure and implementation of a college of trades (Whitaker, 2009). While Whitaker concluded that the notion of a college governing the trades was unique, he saw obvious parallels with similar bodies in other fields such as teaching and nursing. He recognized that inherent to the college model is a need to balance the public interest with that of the membership and suggested that a college of trades could be formed by shifting many of the responsibilities that then belonged to MTCU.

A number of key recommendations flowed from the Whitaker report. It envisioned the College of Trades as an institution that would perform regulatory functions and be responsible for promoting the trades and removing barriers to access, especially for underrepresented groups and foreign trained workers. MTCU would continue to play a role in building and maintaining the policy framework for the trades. After receiving the Whitaker report, the government passed legislation in October 2009 that enabled the creation of the Ontario College of Trades (OCOT).

The Ontario College of Trades

The *Ontario College of Trades and Apprenticeship Act, 2009* was introduced into legislature in May 2009 and given royal assent on October 27, 2009. Replacing both the TQAA and the ACA, the OCTAA also created the OCOT, which describes itself as "an industry-driven, professional regulatory body that protects the public by regulating and promoting the skilled trades."⁴

The OCOT is responsible for establishing apprenticeship programs and setting standards for training (both on-the-job and in-school), investigating infractions against the OCTAA, enacting disciplinary measures, certification, conducting research and addressing access issues.⁵ All apprentices are required to become members of the OCOT by paying annual fees.⁶

The OCOT is also charged with the trade classification review process, through which trades are designated as voluntary or compulsory. An individual working in a compulsory trade must successfully complete a certification exam at the end of their training in order to practice legally in Ontario.⁷ A trade is designated as compulsory at the end of an independent and impartial trade classification review process that is initiated by the OCOT's board of governors at the request of the trade board for a specific trade. The OCOT also performs trade equivalency assessments for those with work experience or other forms of training, such as military training in a trade, who are seeking to meet certification requirements but have not completed an apprenticeship in Ontario.

⁴ <http://www.collegeoftrades.ca/about>

⁵ The full list of the OCOT's mandated responsibilities can be found in s. 11(2) of the OCTAA.

⁶ Under the *Agreement of Labour Mobility and Recognition of Qualifications, Skills and Work Experience in the Construction Industry Between Ontario and Quebec*, Quebecers with a certification from the Commission de la construction du Québec or the Ministère de l'emploi et de la solidarité sociale in one of six construction trades are not required to join the OCOT to practice in Ontario.

⁷ See page 12 for a full discussion of compulsory and voluntary trades.

Finally, the OCOT is also charged with the establishment of apprentice-to-journeyperson ratios. Historically, ratios were established in certain trades to limit the number of apprentices that an employer could hire as a way of ensuring both safety and quality of training. There are currently 33 trades in Ontario that are subject to ratios and these values are reviewed every four years. One nuance that is often lost in debate is that the OCOT does not itself review and set ratios. Rather, the college is responsible for coordinating the process by striking an independent review panel, which then proceeds to set the ratio based on certain fixed criteria and following public and stakeholder consultations.

The Apprenticeship Process

One becomes an apprentice by selecting a trade, finding a sponsor⁸ and signing a registered training agreement (RTA) in the presence of an employment and training consultant (ETC) at a local Employment Ontario office. Some variation is possible based on pathway – for example, one can begin working toward an apprenticeship without necessarily having found a sponsor – and these differences will be explored in greater detail in a later section.

The scenario described above highlights the key role that government plays in mediating the training relationship between apprentice and sponsor. Both the apprentice and the sponsor apply to MTCU to participate in apprenticeship training. Apprentices are asked to provide proof that they are at least 16 years of age, proof of academic standing and any documentation relating to previous trades training. The sponsor provides information corroborating the date on which the apprentice began training (usually the date of hire) and the number of hours worked prior to registering the training agreement. The ETC then assesses the sponsor's capacity to train the apprentice effectively. In trades subject to ratios, the number of apprentices and journeypersons in the workplace is taken into account. The ETC also reviews the Apprenticeship Training Standard and the Curriculum Standard with both parties, provides instructions concerning record-keeping responsibilities and registers the training agreement once both parties have signed it. Finally, the ETC provides options concerning in-class training, which must be delivered by a MTCU-approved training delivery agent (TDA) such as a college, a union or other training facility.

In-class training is mainly structured in one of three ways: 'block release,' involving six to 12 weeks of full-time study; part-time study spanning either one day or two evenings per week from September to June; or online study. In-class training is divided into between two and four levels depending on the trade or occupation (Employment Ontario, 2010). Once the ETC has registered the apprentice's preferred mode of training, MTCU sends the apprentice regular offers of classroom training at least once every 12 months until all levels of training are completed (Employment Ontario, 2010).

Apprentices alternate between periods of in-class learning and on-the-job training for the duration of their program, which can last between two and five years depending on the apprenticeship.⁹ In some trades, apprentices must complete a given number of hours of training to complete their apprenticeship. Generally speaking, 90% of the training occurs on the job, while the remaining 10% takes place in the classroom. The

⁸ Individuals who hire apprentices are often called 'sponsors' to emphasize the fact that they accept responsibility for training the apprentice but not necessarily for hiring them afterward.

⁹ Because the end of an apprenticeship is signaled when the sponsor and the apprentice approach MTCU to demonstrate that the requirements of the apprenticeship have been fulfilled, an apprentice can technically retain this status for as long as he or she chooses by simply never reporting to MTCU and continuing to work with the employer. Situations like these might arise, for example, if an apprentice in a compulsory trade does not feel prepared to challenge the Certificate of Qualification exam or if an apprentice fears losing their job given their increased wages as a journeyperson. Through its monitoring activities, MTCU can also identify apprenticeships whose completion is long overdue and choose to revoke the training agreement for unwillingness to complete.

wages in some trades are set by the OCOT, are written into the training agreement and include a wage increase for each period of training completed (Black, 2009).¹⁰

Once the apprentice can demonstrate to MTCU that they have completed the required on-the-job and in-class training and once their sponsor confirms that they have learned the necessary competencies, the apprenticeship is completed and MTCU awards the apprentice a Certificate of Apprenticeship (C of A). A Certificate of Qualification (C of Q) is also available for all trades prescribed under the OCTAA. For most trades, the OCOT awards the C of Q only after the apprentice passes the trade's C of Q exam; for a few trades without an exam, the OCOT awards the C of Q once the apprentice has earned a C of A.

Funding for Apprenticeship

Funding for apprenticeship comes from a variety of sources, including apprentices, sponsors and government. Apprentices contribute to the funding of the system through the fees they pay to their training delivery agents for the in-class portion of their training. Sponsors, for their part, pay wages to apprentices while they undergo the on-the-job portion of their training.

The sponsor also gains access to a host of both federal and provincial government programs designed to incentivize participation in and completion of apprenticeships. For example, the Government of Canada offers an Apprenticeship Job Creation Tax Credit of up to \$2,000 per year for each of the first two years of an eligible workers' apprenticeship in a Red Seal trade, while the Government of Ontario offers an employer signing bonus of \$2,000 to register apprentices in high-demand areas and an Apprenticeship Training Tax Credit that allows employers to claim between 35 and 45% of an apprentice's wages and benefits, up to a maximum of \$10,000 per year for four years.¹¹ The Ontario Apprenticeship Employer Bonus, valued at \$1,000, is also available to employers for each of their apprentices who completes a C of A or a C of Q. In Ontario, both the federal and the provincial government contribute directly to the cost of classroom training through payments to the training delivery agents for each apprentice who attends class.

Government supports are also available to apprentices. For example, the Government of Canada provides an Apprenticeship Incentive Grant of up to \$2,000 for apprentices who complete levels 1 and 2 of a program in one of the Red Seal¹² trades, as well as an Apprenticeship Completion Grant of \$2,000 upon completion of an apprenticeship in a Red Seal trade. A similar completion grant is available from the Government of Ontario for apprentices in non-Red Seal trades. Those apprentices who are participating in full-time, block release training may also be eligible for Employment Insurance (EI) during the in-class portion of their training if they have worked a sufficient number of hours, and the Government of Ontario provides up to \$1,500 of taxable support for apprentices who are not eligible for EI. Beginning in January 2015, the Canada Apprenticeship Loan will also allow apprentices in Red Seal trades to apply for interest-free loans of up to \$4,000 per period of in-class training. Interest charges and loan repayments will be deferred until after the apprentice has completed or terminated their training program.

Pathways to Apprenticeship

While apprenticeship in Ontario is open to everyone who meets the age requirements, participants tend to come from certain age groups in the population. In contrast to European countries like Germany, Austria and Switzerland, where apprenticeship is more directly tied to streaming in secondary school, apprenticeship in Canada primarily attracts adults, with roughly half of apprentices in their 20s and more than 30% who are 30 or older (Lerman, 2014). As a result, one of the primary benefits of apprenticeship – its ability to help youth transition from formal education to the labour market – does not apply to many apprentices in Ontario, who

¹⁰ Wages in 27 of the 33 trades in the construction sector are set by the OCOT. These are expressed as percentage wage rates that the apprentice is guaranteed.

¹¹ A full list of provincial supports for both employers and apprentices can be found at <http://www.tcu.gov.on.ca/eng/employmentontario/training/financial.html>

¹² See below for a full explanation of the Red Seal program.

instead often pursue apprenticeship having already had some work or postsecondary experience. It also means that many apprentices must balance their training with family and other obligations, and often have less financial support from their families than might be expected of younger apprentices (Dooley & Payne, 2013).

A number of pathways are available to those who wish to pursue apprenticeship, each appealing to a different segment of the population. The most “traditional” pathway (Dooley & Payne, 2013) is the one outlined earlier in this section: an individual wishing to become an apprentice finds a sponsor and both sign a training agreement, which is then registered with MTCU. The apprentice then moves through each level of his or her program, alternating between on-the-job training and coursework with a training delivery agent.

Pre-Apprenticeship Programs

Alternatives to the traditional pathway do exist. For example, an individual might choose to register in a MTCU-funded pre-apprenticeship training program at a college, a community agency or another training delivery agent. These programs can last up to 52 weeks and are designed to help “potential entrants to the apprenticeship system develop their job skills and trade readiness so that they will be prepared to find work as apprentices” (Employment Ontario, 2013), essentially preparing them for the traditional pathway described above. Pre-apprenticeship training in an apprenticeable trade might include academic upgrading, safety training, level 1 in-class training, or even a two- to three-month placement. Pre-apprenticeship programs, which are open to a wide range of individuals¹³, are offered without cost to approved participants and include textbooks, safety equipment and tools.

Ontario Youth Apprenticeship Program (OYAP)

High school students interested in apprenticeship might choose the Ontario Youth Apprenticeship Program (OYAP), a school-to-work transition program offered through high schools to full-time grade 11 and grade 12 students who are at least 16 years of age and have completed at least 16 high school credits. OYAP allows students to meet the requirements of their Ontario Secondary School Diploma (OSSD) by earning cooperative education credits while also participating in an apprenticeable trade (Ministry of Education, 2000). In some cases, OYAP students can also receive level 1 in-school apprenticeship training for a trade. These students may be formally registered as apprentices while attending high school. Those who are registered can count their work hours toward the completion of their apprenticeship (Ontario Youth Apprenticeship Program, 2014; Ministry of Education, 2000).

Interested students access OYAP through teachers or guidance counsellors at their school. The school is responsible for interviewing and counselling all potential participants before they enter OYAP to ensure that they possess the required educational background and maturity level, and that the program aligns with their goals. OYAP credits are linked to a curriculum course that the student either has taken or will take concurrently with the placement and which functions as the equivalent to the in-class portion of the training. The student will also develop a Personalized Placement Learning Plan, outlining the learning objectives of the placement and the ways in which these correspond to the associated course (York Regional District School Board, n.d.). This helps ensure that the OYAP experience is differentiated from part-time employment and that the emphasis is placed on the educational value of the placement (Ontario Ministry of Education, 2000).

The Personalized Placement Learning Plan is developed in collaboration with the student’s supervisor in the training environment, who is also responsible for evaluating the student’s work. In the case of a trade, the supervisor must be a certified journey person or another MTCU-approved equivalent and the student’s work must reflect the training standards normally expected of any other apprentice.

¹³ Employment Ontario (2013) lists those eligible for pre-apprenticeship programs to include high school graduates, early school leavers, unemployed or underemployed youths and adults, aboriginal peoples and newcomers to Canada, among others.

Co-operative Diploma Apprenticeship (CODA) Programs

Co-operative diploma apprenticeship (CODA) programs allow individuals to complete all levels of the in-school training component of their apprenticeship program and a minimum of four months of on-the-job training in a specific trade while also studying full-time for a college diploma in an area related to their trade (MTCU, 2013). Students are registered as apprentices when they begin their work placement and are paid as apprentices while working. CODA programs can be particularly appealing options for those who want a credential in addition to their apprenticeship training or for those who are having difficulty finding an employer to sponsor their apprenticeship (MTCU, 2013). CODA program participants must meet the entry requirements of both the college program and the apprenticeship training program. Each college advertises the CODA programs that it offers and prospective students must apply to them through the college.

As a college offering, the structure of CODA programs is governed by MTCU guidelines. Programs should last no more than four full-time semesters, with most of the in-class training delivered in the first two semesters of the program. Interestingly, CODA programs must also include at least two business or entrepreneurship courses that teach an understanding of how to start up a small business (MTCU, 2013).

Apprenticeable Trades

There are 156 apprenticeable skilled trades in Ontario, which are divided into four sectors: Construction, including brick and stone masons, roofers, electricians, plumbers and sheet metal workers; Industrial, including cabinetmakers and welders; Motive Power, including a host of automotive and other vehicle-related trades; and Service, including cooks, bakers and hairstylists.¹⁴

A variety of different credentials relate to apprenticeship. An apprentice who completes his or her program in any trade receives a Certificate of Apprenticeship (C of A) from MTCU, which recognizes their completion of the program. In many trades, the journey will end there. Twenty-two trades in Ontario are designated as “compulsory,” meaning that only individuals who are registered apprentices or who have completed an apprenticeship and passed an exam to obtain a Certification of Qualification (C of Q) are allowed to practice that trade (Employment Ontario, 2010).¹⁵ In these trades, apprentices who have received their C of A are granted “journeyman candidate” status and given one year to pass the C of Q exam (Employment Ontario, 2010). Only apprentices who pass the C of Q exam will gain the full legal right to practice as a journeyman. Apprentices in 54 voluntary trades¹⁶ can also receive a C of Q by applying for membership in the OCOT and passing the certification exam for their trade.

Finally, Ontario also has 47 Red Seal trades, some of which are compulsory. Individuals who pass the Red Seal exam in their trade are authorized to work anywhere in Canada without further assessment or testing. For Red Seal trades, the Red Seal exam is the only exam individuals need to pass in order to earn both their C of Q and the Red Seal endorsement.

Compulsory and Voluntary Trades

Compulsory certification was first introduced in 1944 for motor vehicle repair at the request of industry representatives. The number of compulsory trades then grew rapidly, with hairdressing becoming compulsory in 1958, barber in 1963 and a host of construction trades in 1964 and 1965. The pace has slowed, however, and only a few more compulsory trades have been added since then (MTCU, 2007).

¹⁴ A comprehensive list of trades recognized in Ontario, sorted by sector and with compulsory status designated where applicable, can be found at <http://www.collegeoftrades.ca/about/trades-in-ontario>

¹⁵ Exceptions include journeyman candidates, those with provisional certificates and those participating in OYAP.

¹⁶ See http://www.collegeoftrades.ca/wp-content/uploads/tradesOntarioTradesCodes_En.pdf for a full list.

The reasons for making a trade compulsory might relate to worker safety, quality assurance or protection of the public interest. Prior to the creation of the OCOT, there were no explicit criteria to explain how a trade might qualify as compulsory. The OCOT's trade classification review process has helped increase transparency and consistency in this regard, though the determination of compulsory trades remains a point of controversy.

Each province chooses the trades that it wants to regulate, including which should be made compulsory. As a result, trades that are compulsory in one province may not be in another (Black, 2009). Ontario has the highest number of compulsory trades in Canada, though some provinces hold certain trades to be compulsory that are voluntary in Ontario and vice versa (T. E. Armstrong Consulting, 2008). Ultimately, as defined by MTCU (2007):

Compulsory certification means that a person must hold a valid certificate of qualification or be registered as an apprentice in a given trade to work or be employed in that trade. Conversely, voluntary certification means that a person does not have to hold a certificate of qualification or be registered as an apprentice in order to work or be employed in the trade.¹⁷

The content of the C of Q exam reflects the Apprenticeship Training Standards and the Curriculum Standards, which are contained in a document available on the OCOT's website for trades that it regulates. For Red Seal trades, the National Occupational Analysis informs the exam as well. Each trade, be it compulsory or not, has a set of standards which contains, for example, the range of competencies that the apprentice is expected to have mastered. The C of Q exam is a written, multiple choice exam that covers the practical material that apprentices are expected to learn on the job.¹⁸ The passing grade is 70%.

Individuals who do not pass the C of Q exam in a compulsory trade on their first attempt may rewrite it one more time before being asked to upgrade their skills. Some might choose to train in another trade or to switch to a voluntary trade whose skills overlap with their own apprenticeship training. In either case, options exist for these individuals to continue working in related areas.

Red Seal

The Red Seal program was created in 1952 to help harmonize training and certification requirements in select trades across Canada (Red Seal, 2014). The program sets common standards against which the skills of workers in the trades can be assessed. As a result, trades workers who have attained the Red Seal designation benefit from increased recognition of their skills. While the Agreement on Internal Trade now requires provinces to accept as valid trade certificates from other provinces in certain occupations, the Red Seal remains the industry standard of excellence in the trades. Apprentices who pass a Red Seal exam in Ontario receive a C of Q with a Red Seal endorsement (Employment Ontario, 2010).

The scope of the Red Seal program is considerable. There are currently 57 designated Red Seal trades across Canada.¹⁹ In 2009, Red Seal trades represented 90% of registered apprentices in Canada (Black, 2009), though not all of them attained the Red Seal designation, which is ultimately optional for many voluntary trades.

The Red Seal program involves collaboration between the Canadian Council of Directors of Apprenticeship (CCDA), which includes a representative from each provincial and territorial jurisdiction with responsibility for apprenticeship; the Interprovincial Alliance of Apprenticeship (IAA), which is made up of the chairs of provincial or territorial apprenticeship boards or commissions; and Employment and Social Development Canada (ESDC), which also sits two members (Black, 2009). The program thus requires collaboration

¹⁷ For the relevant legislation, see *OCTAA, 2009*, s. 2-3.

¹⁸ Some trades have begun experimenting with practical components to the exam as well.

¹⁹ A full list can be found at <http://www.red-seal.ca/about/pr.4gr.1m@-eng.jsp>

between the various provincial, territorial and federal bodies charged with apprenticeship and also involves considerable input from industry representatives.

Any trade that exists in five or more jurisdictions in Canada can be designated as Red Seal at the request of any province that carries the trade if that province can demonstrate that certain conditions exist, such as national industry demand for the trade, commonality in the trade's scope across jurisdictions, similarity in the length of time required for training, and evidence of employer and employee support for designation (Black, 2009). Once a trade has been designated as Red Seal, a National Occupational Analysis (NOA) is developed to identify the scope of the trade in each province and the elements of the trade that are common to each. Playing a role similar to the apprenticeship training standard mentioned earlier, the NOA then becomes the basis upon which the Red Seal exam is constructed (Black, 2009). Challengers are given four hours to write the exam, which consists of between 100 and 150 multiple choice questions. The passing mark is set at 70% (Red Seal, 2014).

The Literature on Apprenticeship

While the previous section sought to lay out the structure and governance of apprenticeship in Ontario and to clear up any confusion concerning terminology, this section will consider some of the current policy debates relevant to apprenticeship. It is not meant to be extensive but rather to provide some context through which the reader might better understand the data discussed in the final section of the report.

Generally speaking, there is a lack of research on the topic of apprenticeship when compared to other areas of the postsecondary sector. Stewart (2009) identifies several gaps in the literature that does exist, including a lack of province-specific data; little consideration of the barriers to apprenticeship training; a need to understand the changing demand for apprentices in Ontario relative to the health of the manufacturing sector; a lack of comparative data with other jurisdictions; and a lack of province-specific quantitative work, such as apprentice or employer surveys.

This is not to suggest that there is no literature on apprenticeship. The Canadian Apprenticeship Forum has conducted extensive national consultation on barriers to apprenticeship with different stakeholder groups, in addition to reporting on barriers at the individual level. Surveys have also been conducted at the national level, such as the National Apprenticeship Survey (2007) led by Statistics Canada, which allow for some provincial comparison. The provinces and territories also collect data, some of which is used to inform the Registered Apprenticeship Information System (RAIS) managed by Statistics Canada.

Finally, Stewart also describes a number of issues related to the performance of Ontario's apprenticeship system that are identified in the literature, including an inability to expand apprenticeship beyond a set of traditional skilled trades, many of which are in decline; the inflexibility of program delivery, particularly with respect to the 'block release' system of in-class training, which can act as a disincentive for employers; the often poor essential skills of apprentices, which can act as a barrier to apprenticeship completion; and the low completion rates of apprentices. Debates also surround returns on apprenticeship participation for employers and the value of certification. Many of these issues will resurface in the following discussion.

Skills Mismatches and the Lack of Apprentices

The question of whether Canada in general and Ontario in particular is currently suffering from a skills mismatch has occupied considerable space in the media since the 2009 economic downturn. Many employers suggest that they are having difficulty finding individuals with the skills they want to fill openings in their companies, and positions in the skilled trades are frequently mentioned as being among those that employers cannot staff. Others suggest that the skills mismatch is a local problem – if it indeed exists at all –

that is limited to the resource sectors in Alberta and Saskatchewan. The debate is considered in greater detail below.²⁰

A skills mismatch occurs when an economy has a shortage of workers in certain areas but no individuals with the right training to fill these positions. The result is a high unemployment rate coupled with a high job vacancy rate (Tal & Exarhos, 2014; Sorensen, 2013). At its best, the debate leads economists on both sides to consider the details of the Canadian labour market in an effort to identify the sectors of the economy and the geographical regions of the country in which skills shortages exist. At its worst, the debate degenerates into crude suggestions that students need to stop studying the arts and humanities and register in a trade instead.

CIBC economist Benjamin Tal (2012) produced a list of 25 occupations that show signs of a labour shortage in Canada, including engineers, a variety of health professionals and supervisory/managerial positions in apprentice-heavy industries such as construction and resource extraction. His list of 20 occupations that show signs of a labour surplus similarly includes several apprenticeable trades, such as butchers, bakers and labourers in the manufacturing sector.

The Conference Board of Canada (2013) and the Ontario Chamber of Commerce (2005) considered the skills shortage in relation to apprentices in Ontario. Of the employers that the Conference Board surveyed, 57% reported needing graduates with two- or three-year college degrees, 44% needed graduates with four-year university degrees and 41% needed employees with trades training. Employers in the Toronto area were more likely to need university graduates and less likely to need tradespeople, as were large companies of 500 employees or more. The Chamber of Commerce, for its part, predicts a shortage of 100,000 skilled workers in Ontario's manufacturing sector alone in the next 15 years, while Sarah Watts-Rynard (2014) of the Canadian Apprenticeship Forum echoes concerns about the effects of retirement on the future of industries that rely heavily on the trades.

A number of voices also speak against what they consider to be the "mirage" of a skills shortage (Goar, 2013). After analyzing wage and vacancy rates for 140 occupations, the economists at TD Bank identify some evidence of a skills gap in certain occupations and provinces but cannot conclude that the situation is any worse than it has been in years past (TD Economics, 2013). TD focuses its analysis on wage rates – in a tight labour market, one would expect to see wages rise in occupations that are in shortage in recognition of the scarcity of the skills being sought. Since they do not observe such a wage increase to the extent that they expect, leaving some of the obvious levers to resolve the situation unused, they conclude that the skills gap may be less of a problem than employers suggest.

Part of the confusion surrounding skills gap data may arise from their roots in employer surveys, which sometimes reveal employer tendencies to blend what they *want* in an employee and what they actually *need*. Usher (2013) points to a rhetorical confusion between "skilled workers" and "workers in the skilled trades." The former is used to refer to individuals with university credentials but is often conflated with tradespeople. With this clarification in mind, Usher returns to Tal's (2012) list of shortage areas and identifies only five that might require apprenticeship, while the rest are university-level jobs. Finally, Lefebvre, Simonova and Wang (2012) point to the poor quality of the data on labour shortages and mismatches that make them particularly difficult to observe and measure. From the data that do exist, however, the authors conclude that those labour shortages that have occurred over the past ten years have been both short and sporadic. They also determine that the labour profile of the trades is more favourable than many have argued, with a better age distribution than many other occupations and programs in place to encourage labour mobility.

²⁰ An extensive discussion of the skills gap debate can be found in Borwein (2014).

Participation in Apprenticeship and Barriers to Entry

The literature identifies a range of factors that act as barriers to apprenticeship for both individuals and employers, including:

- negative attitudes toward apprenticeship and the perception of careers in the trades as dead-end opportunities with no possibility of advancement
- a lack of information and awareness about apprenticeship on the part of students, parents and employers
- a perception among employers that sponsoring apprentices carries high costs and little return
- concerns among apprentices that careers in the skilled trades lack security and are highly susceptible to external economic factors
- a lack of resources to support both apprentices and their employers
- poor essential skills, including literacy and numeracy, among prospective apprentices (Stewart, 2009; Canadian Apprenticeship Forum, 2004; Conference Board of Canada, 2002)

The poor reputation of the trades among parents and students surfaces repeatedly in the literature's discussion of barriers to apprenticeship participation. One recent survey by the Canadian Apprenticeship Forum (2013) contacted 873 Canadian students aged 15 to 17 in the spring of 2013 and compared results to a parallel survey conducted in 2004. While youth in 2013 were more aware of the apprenticeship option and had a greater understanding of the process, youth today were less likely than in 2004 to believe that tradespeople would always be in demand and they still identified university as their first-choice option for postsecondary education. In both 2004 and 2013, most youth reported that no parents, friends or guidance counselors had encouraged them to consider the trades.

These perceptions can be contrasted with the little literature that exists on the returns to apprenticeship in Canada, much of which is recent and relies heavily on the 2006 Census, the first round of census data that specifically included information on those who have an apprenticeship certification. Gunderson and Krashinsky (2012) find that males with apprenticeship training earn 24% more annually than those whose highest level of education is high school, and even slightly more (2%) than college graduates. The picture differs for females, however, with females with apprenticeship training earning less than even high school graduates, in part due to the preponderance of females in the lower-paying food and service apprenticeship areas.²¹ Most importantly, Gunderson and Krashinsky suggest that most data sets,²² which do not differentiate between apprenticeship and other forms of VET, underestimate the returns to apprenticeship based on their results.

Persistence and Completion

It has often been suggested that Ontario's real challenge with respect to the trades is not registering more apprentices but rather increasing completion rates (e.g., Jobs & Prosperity Council, 2012). Because Canada's apprentices tend to register later in life, sometimes with a family and often with previous work experience, they face a number of different barriers compared to the average PSE student. Laporte and Mueller (2010) list a number of factors that they find to be negatively correlated with apprenticeship completion in Canada, including Aboriginal or minority status, number of children, having a disability and lower levels of education. Apprentices registered in a trade that is in low demand on the labour market often reconsider the value of completing their credential as well.

Circumstantial barriers to completion may also exist. In certain situations, apprentices who complete their apprenticeship and gain the increased status and salary that comes with journeyman status may risk losing their jobs if their employers can no longer afford their services. The higher an apprentice progresses, the

²¹ Looking at the 2006 Census and the 2007 National Apprenticeship Survey, Boothby and Drewes (2010) find that while 80% of males enter a construction trade, one-third of females enter a personal service or food trade.

²² They include here a number of commonly used data sources, such as the Survey of Labour and Income Dynamics (SLID), the Labour Force Survey (LFS), the National Graduate Survey (NGS) and the Youth in Transition Survey (YITS), among others.

more limited the number of positions can be. Because there is no formal completion date for Ontario's apprenticeship programs, some apprentices choose to remain apprentices long after they have completed both their on-the-job and their in-class training because there may be more jobs available for senior apprentices than there are for junior journeypersons. Various employers and unions are beginning to negotiate provisions to address these issues in new collective bargaining agreements.

Coe (2011) examines national apprenticeship completion²³ rates and observes that trades with a higher fraction of females tend to have higher completion rates, as do trades with younger apprentices. High unemployment in a trade similarly acts as a barrier to completion. Interestingly, Coe also finds no correlation between apprenticeship program length and completion rate, suggesting that apprentices who engage in longer programs are no less likely to complete than those in shorter programs.

Cadieux (2010) similarly looks at data from the 2007 National Apprenticeship Survey to conduct a related investigation of time to completion in apprenticeship programs. He finds that the most important factors affecting time to completion include grades in high school, education level and prior technical training. Apprentices who stayed with the same employer throughout the apprenticeship completed faster, as did those who were not union members. Age at the start of apprenticeship was also a factor; while older apprentices were less likely to complete, those who did generally did so in a shorter time than the younger apprentices. Females completed faster than males and apprentices who were married or who had dependents took longer. The main reason former apprentices cited for not completing was that they could not afford it.

In one of the few studies that focuses exclusively on apprenticeship in Ontario, Dooley and Payne (2013) analyze apprentice registration data at Mohawk College from 2000 to 2012 to develop an understanding of the factors affecting academic success. They consider individuals who come to apprenticeship through one of three pathways: OYAP, CODA or the "traditional" pathway. Traditional apprentices were less likely to fail a course in their in-class training and had higher completion rates. While most apprentices took more than the minimum time required to complete, with 64% of entrants taking their final level of courses within five years of entry, there was little to suggest that this was due to academic challenges. Instead, changes in employment seemed to be responsible in many cases.

Quality of Apprenticeship

The quality of learning in apprenticeship, much like in other areas of PSE, is a perennial point of discussion. The situation differs with respect to apprenticeship, however, since the overwhelming majority of the training is delivered not by a college or private institution but rather by the sponsor. The sponsor's level of skill and dedication in delivering training will inevitably vary. As Stewart and Kerr (2010) emphasize, it is crucial that learning quality remain at the forefront of the apprenticeship experience if the apprentice is to be prepared properly to respond to the evolving demands of the labour market.

According to the OECD (2010), there is an important role for government to play here in preventing workplace opportunities from degenerating into cheap labour. Left to their own devices, employers may not produce well-rounded trainees who possess strong transferable skills and are comfortable executing a range of tasks outside those required in the immediate work environment (OECD, 2010). The role of government then is to balance the needs of apprentices with those of employers. At the same time, many employers are committed to quality training as a way to enhance their business performance. Government can act as a conduit to help share best practices in these cases as well.

A government's response to the issue of quality will also depend on the type of apprenticeship system it wishes to foster. Stewart and Kerr (2010) make a distinction between a "skills needs" perspective on apprenticeship, which aims to satisfy the labour market needs of the economy, and a "school-to-work transition" perspective, which is broadly concerned with helping youth integrate the labour market. While

²³ As no national data exist on apprenticeship completion, Coe developed and applied a methodology to work with provincial and territorial data.

analysis from the former perspective is interested in outputs and in the number of apprentices who complete their program, the former focuses on access and on other barriers on the inputs side. One's chosen approach along this continuum will vary depending not only on the demographics of those who are attracted to apprenticeship but also on the response to the national debates, discussed earlier, about whether a skills shortage exists in the trades (Sharpe & Gibson, 2005).

The OECD's contribution to the quality discussion includes a number of factors that ought to be present in a quality apprenticeship, such as: training to perform a range of relevant activities on modern equipment; the ability to gain real-world experience and develop essential skills such as teamwork, communication and negotiation; a clear contractual environment to protect the apprentice from exploitation; and access to trainers familiar with the most recent working methods and technologies (OECD, 2010b). Indeed the on-the-job trainer, who in Canada is generally a journeyperson, is critical to the training process. Yet, as in so many other areas of PSE, the journeyperson is frequently a subject-matter expert without being a trained pedagogue. As apprentices relate that one of the most important factors in their success is the relationship with the journeyperson who trains them, there is a need to ensure that they in turn know how best to share their skills with the next generation of apprentices (Watts-Rynard, 2014).

Employer Participation in Apprenticeship

The literature also documents a number of challenges related to employer participation in apprenticeship. Selling employers on the value of apprenticeship seems to be no easy task. In a 2002 survey, the Conference Board of Canada identified a number of factors that kept employers from participating in apprenticeship, including difficulties attracting youth; a perceived lack of return on investments in apprenticeship training; a lack of information concerning employer participation; difficulties matching workplace schedules and in-class training schedules; and a perceived lack of apprentice loyalty to the company.

The economic cycle also plays a role: apprenticeship participation tends to vary in accordance with the health of the economy because apprentices are most often employees who are hired and paid by employers. As a result, apprenticeship registrations can be expected to increase during good economic times, as employers feel confident enough to hire new apprentices, and to decrease in a poor economy, as employers cut staff to tend to their bottom line. This trend is opposite to that observed in postsecondary education as a whole, which often sees enrolments increase during poor economic times, as individuals escape a weak labour market and choose to invest instead in further training.

The Canadian Apprenticeship Forum (2010) estimates that employers receive \$1.47 in return for every dollar spent on apprenticeship training. While the literature frequently cites this value, it pales in comparison to its counterpart from the Ontario Chamber of Commerce, which puts the return on investment in apprenticeship training at 430% (2005). In either case, the literature agrees that returns are positive.

Employers also describe being discouraged from participating in apprenticeship for fear of 'poaching,' the practice by which a partially or fully trained employee leaves for another company, thereby depriving the company that invested in his training from enjoying his services at a time when his productivity should be at its greatest. This obviously decreases the return on investment in training. While some employers suggest that poaching only occurs because there is a shortage of workers in the trades, pointing to increased training as a solution, others argue that effective training should go hand-in-hand with a good retention strategy (Ontario Chamber of Commerce, 2005). Some even propose that apprentices sign a contract committing to the company for a certain period of time following the completion of their apprenticeship. Yet the fear of poaching may also be overstated; one survey revealed that while 54% of U.S. employers participating in apprenticeship identified poaching as a problem, 85% of them would still strongly recommend apprenticeship to other companies (Lerman, Eyster & Chambers, 2009). A separate survey by the Canadian Apprenticeship Forum (2009) similarly puts the percentage of employers involved in apprenticeship who thought poaching was a serious issue at 47%.

Certification and the Ontario College of Trades

Debates concerning the value of certification have gained particular prominence in Ontario, perhaps even more so since the creation of the Ontario College of Trades, one of whose primary tasks involves consulting with stakeholders on the expansion or reduction of compulsory trades. While international organizations like the OECD, the World Bank and the International Labour Organization emphasize the central role that government must play in regulating apprenticeship and in ensuring that the system moves in the direction of the public interest, employers often perceive regulation as ‘red tape’ and can be discouraged from training as a result.

The literature on the value of certification in apprenticeship is extensive. Steedman (2012) points to a number of countries where national recognition of apprenticeship certification – as is offered through Canada’s Red Seal program, for example – clearly enhanced the value of the qualification. Coe (2011) finds that Canadian apprenticeship programs in which certification is mandatory have completion rates that are about 10% higher than those without mandatory certification. Certification also tends to drive up wages in those trades (Laporte & Mueller, 2013). Overall, evidence suggests that certification works to improve the outcomes of those apprentices who achieve it.

There is also a wide body of literature in this area, stemming primarily from the business sector, that is critical of the Ontario College of Trades and its role in apprenticeship. The Ontario Chamber of Commerce (2013) expresses concerns about the OCOT’s compulsory membership structure for some apprentices and its associated fees, and the effect that both of these are having on small and rural businesses. It also charges that the OCOT is making decisions based on poor data, is failing to properly consult its stakeholders in the business sector and is lacking transparency in its decision-making processes.

While ratios existed well before the creation of the OCOT, a variety of business sources also criticize the OCOT specifically for its role in facilitating the review of journey-person-to-apprentice ratios, which limit the number of apprentices a business can hire as a function of the number of journey persons on their roster. Not all trades are subject to ratios and those that are usually have two ratios, one that applies for the first apprentice hired and another that applies for each subsequent apprentice thereafter. Businesses point out that these ratios can limit both the pool of skilled tradespeople and businesses’ ability to grow (Brydon & Dachis, 2013; Ontario Chamber of Commerce, 2013). They also invoke data demonstrating that ratios in Ontario are among the most demanding in Canada (Brydon & Dachis, 2013; Ontario Chamber of Commerce, 2013). A report from the C. D. Howe Institute goes so far as to suggest that the efforts government is putting into encouraging people to enter the trades are being undone by policies that restrict entry into the trades (Brydon & Dachis, 2013).

The government for its part argues that these ratios play a key role in protecting apprentices from exploitation and maintaining their working conditions, as well as in ensuring the quality of the training that they receive (Brydon & Dachis, 2013). Ratios may also play a role in worker safety by ensuring that apprentices are well supervised and monitored on the job.

Provincial Data on Apprenticeship

Having outlined the apprenticeship system in Ontario as well as key issues discussed in the literature on apprenticeship, the second half of this report summarizes relevant data about this complex system. While the data are particularly focused on Ontario, comparative Canadian data are provided where appropriate. This report mainly summarizes data from 2012 (the most recent year available²⁴), but it also provides changes over time for select variables. Most of the data presented in this section were collected through the

²⁴ As a result, note that these data predate the creation of the Ontario College of Trades, which has considerably changed the landscape of apprenticeship in Ontario. While less than ideal, these remain the only data available.

Registered Apprenticeship Information System (RAIS). Additional information was also provided by MTCU and is identified accordingly.

The Registered Apprenticeship Information System (RAIS)

The RAIS is a national database that compiles information on individuals who receive training and obtain certification in apprenticeable occupations. In particular, information is collected each calendar year for all registered apprentices and trade challengers²⁵ in compulsory and voluntary trades across Canada. The database currently consists of 69 variables, of which 19 are identified as mandatory to enable Statistics Canada to calculate information on registrations, completions and certificates. Each province and territory extracts the requested information from its administrative files and provides it in individual record format to Statistics Canada²⁶, which then aggregates the data to populate the RAIS.

Pathways to Apprenticeship

As outlined previously, in Ontario individuals can enter apprenticeship through several different pathways. At the high school level, the Ontario Youth Apprenticeship Program (OYAP) provides students in grades 11 and 12 with the opportunity to meet the requirements for their secondary school diploma by earning cooperative education credits while training in an apprenticeable occupation. A subset of OYAP students are registered as apprentices, which means that they have a registered training agreement (RTA) with MTCU. These students' training hours can also count toward the number of hours required to complete an apprenticeship program.

Table 1 displays the number of students, with or without an RTA, enrolled in OYAP during the 2011-2012 and 2012-2013²⁷ school years. In 2011-2012, 19,600 students participated in OYAP and one-quarter of these participants had an RTA. During the following school year, enrolment in OYAP increased to 24,209 participants and the percentage of students with an RTA remained steady at 24%. Interestingly, the proportion of females registered in OYAP (39% in both 2011-2012 and 2012-2013) is significantly higher than the proportion of females in the general apprentice population (24% in 2012²⁸). Females are approximately 10% less likely than males to have an RTA during their participation in OYAP.

Table 1. Number of Students Enrolled in the Ontario Youth Apprenticeship Program with and without a Registered Training Agreement, 2011-2012 and 2012-2013

	Number of OYAP Participants								
	Male			Female			All Participants		
	No RTA	RTA	Total	No RTA	RTA	Total	No RTA	RTA	Total
2011-2012	8,581 (72%)	3,361 (28%)	11,942 (61%)^a	6,144 (80%)	1,514 (20%)	7,658 (39%)^a	14,725 (75%)	4,875 (25%)	19,600
2012-2013	10,812 (73%)	4,030 (27%)	14,842 (61%)^a	7,689 (82%)	1,678 (18%)	9,367 (39%)^a	18,501 (76%)	5,708 (24%)	24,209

Note: A superscript indicates that the percentage is a product of the total for all participants.
Source: Ministry of Training, Colleges and Universities

²⁵ For the purpose of this survey, trade challengers are individuals who received and successfully completed training in a trade but did not complete apprenticeship training. These may be individuals who began an apprenticeship but did not complete, who obtained trades training in another country or through the Canadian military, or who otherwise gathered sufficient experience to qualify in a trade.

²⁶ More detailed information on the RAIS can be found at <http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3154>

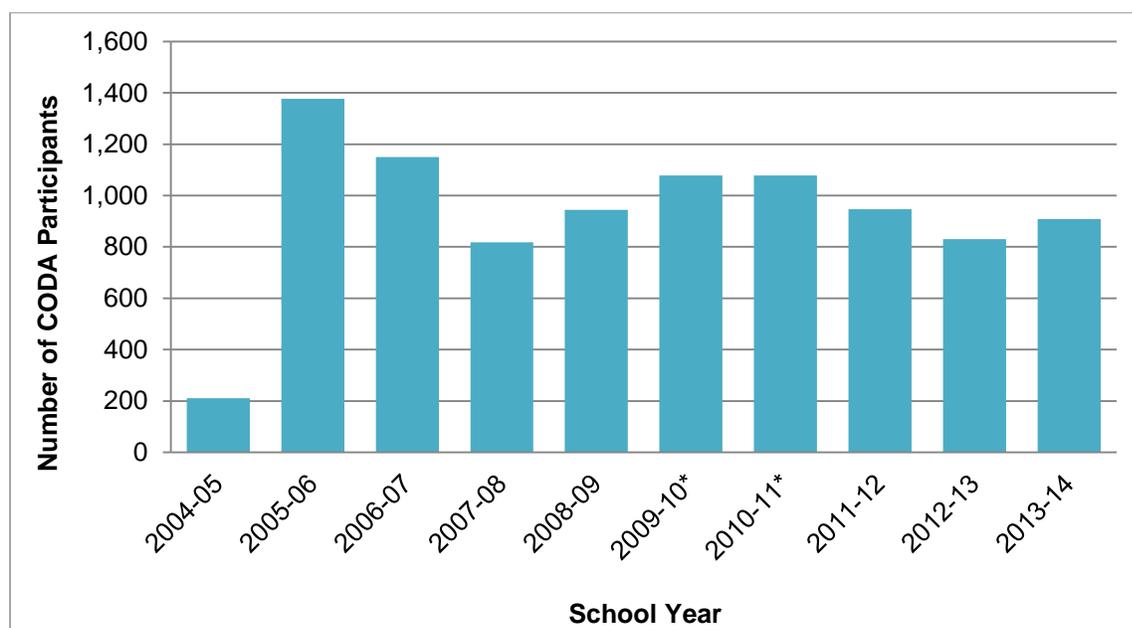
²⁷ Due to a change in data collection methodology, comparable enrolment numbers are not available prior to 2011-2012.

²⁸ Source: Statistics Canada, Registered Apprenticeship Information System

At the postsecondary level, a variety of colleges offer Co-operative Diploma Apprenticeship (CODA) programs as a pathway to apprenticeship. These full-time programs allow students to receive a postsecondary credential as well as paid on-the-job training as an apprentice in a particular trade and to complete their apprenticeship in-class training.

Each year, MTCU puts out a request for proposals for CODA programs. Since its inception, CODA has grown from 9 programs with 211 new participants in 2004-2005 to 37 programs with 908 new participants in 2013-2014 (see Figure 1). While fluctuations occur on an annual basis due to the number of proposals submitted and approved, an average of approximately 1,000 participants have started a CODA program throughout Ontario each year since the program was inaugurated.

Figure 1. Number of New Participants Enrolled in Co-operative Diploma Apprenticeship Programs in Ontario, 2004-2005 to 2013-2014



*Note: A two-year business plan was implemented for 2009-2010/2010-2011 but was subsequently discontinued. For the purposes of the figure above, the 2,156 new participants enrolled in CODA programs at this time were evenly distributed across the two years to create a more balanced visual trend.

Source: Ministry of Training, Colleges and Universities

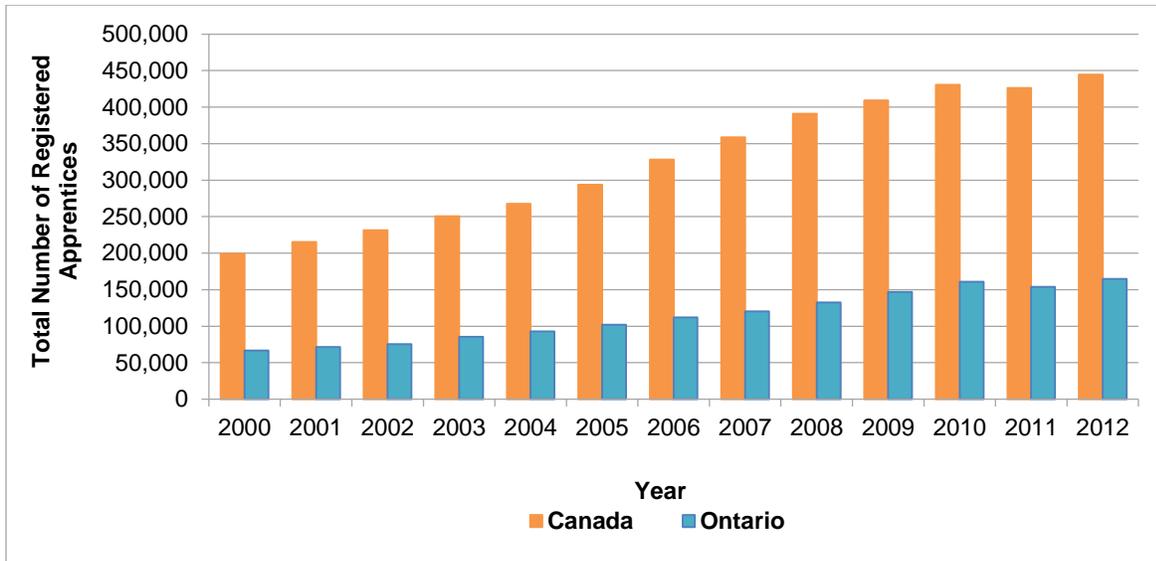
Apprenticeship Registrations

In 2012, almost 165,000 apprentices were registered in Ontario. As displayed in Figure 2a, the number of apprentices increased each year from 2000 to 2012 (with the exception of 2011) at the provincial and national levels. The extent to which apprenticeship registrations changed from year-to-year is represented in Figure 2b. It is important to note that apprenticeship participation tends to vary in accordance with the health of the economy because apprentices are most often employees who are hired and paid by employers. As a result, apprenticeship registrations can be expected to increase during good economic times, as employers feel confident enough to hire new apprentices, and to decrease in a poor economy, as employers cut staff to tend to their bottom line.

With this in mind, Canada started to experience an ongoing downward trend of year-to-year change in apprenticeship registrations in 2007. From 2006 to 2007, apprenticeship registrations in Canada increased by approximately 9%, which represented a slight decrease from the previous year's rate of change. This 9% increase was cut in half from 2008 to 2009 and from 2009 to 2010, and dipped even lower from 2010 to 2011.

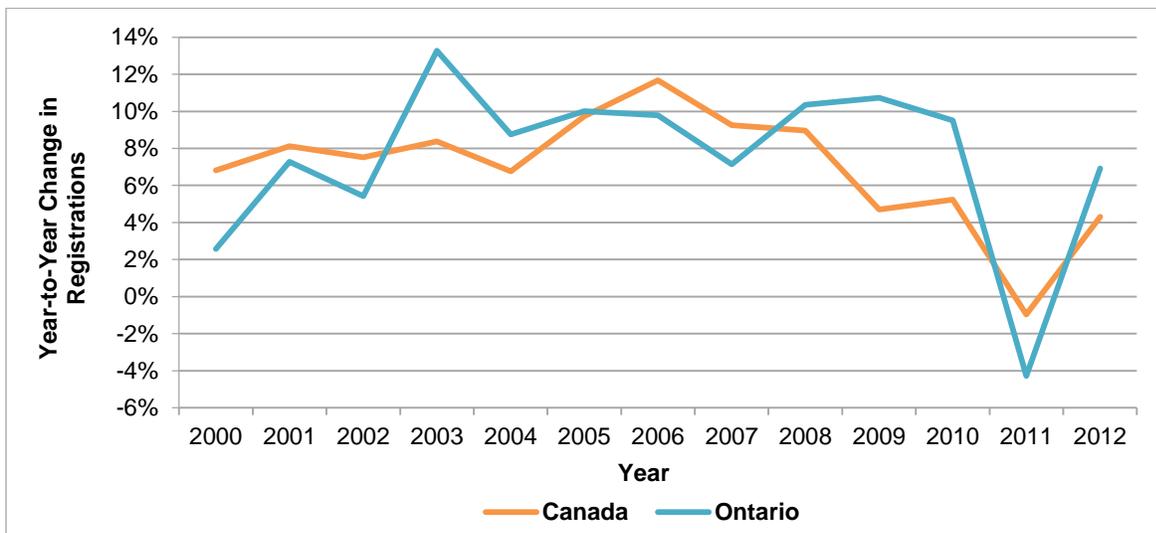
On the other hand, in Ontario, the number of registered apprentices increased by approximately 10% from 2005 to 2006, dipped to 7% from 2006 to 2007 and then rebounded to 10-11% for the next three years. The province experienced a large drop rather than a gradual decline in year-to-year change, with a 4% decrease in apprenticeship registrations from 2010 to 2011. Recovery from the economic downturn seemed to begin in 2012 as registration numbers increased from 2011, by 7% in Ontario and 4% in Canada, and surpassed all previous years. Although the number of people enrolled in an apprenticeship program in Canada has more than doubled since 2000, participation rates are still much lower when compared to other countries (e.g., Germany, Austria and Switzerland) (Department of Finance Canada, 2014).

Figure 2a. Total Number of Registered Apprentices in Ontario and Canada, 2000 to 2012



Source: Statistics Canada, Registered Apprenticeship Information System

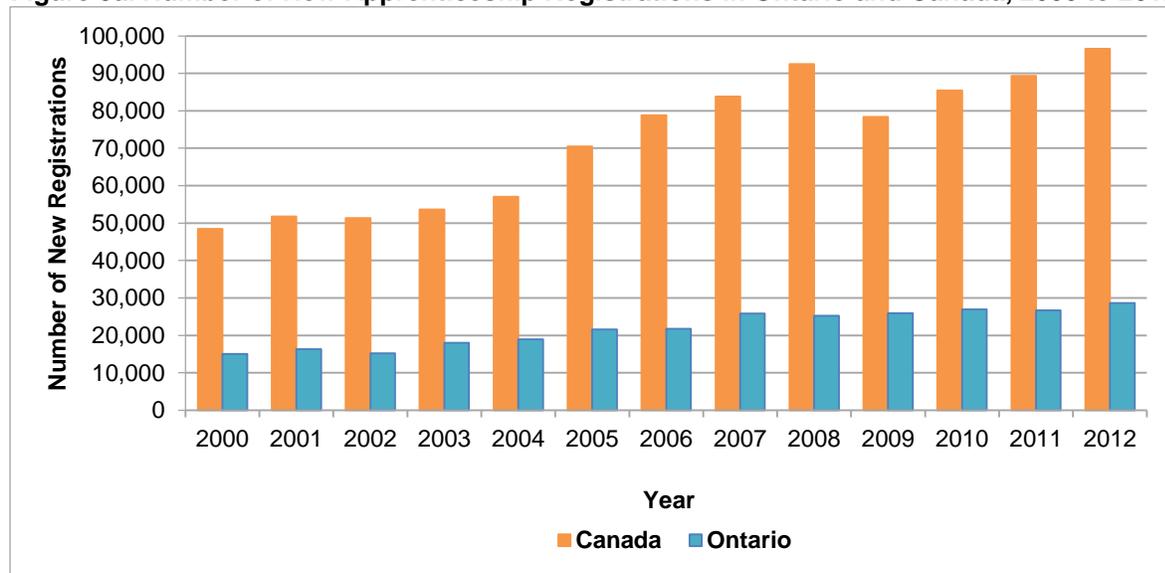
Figure 2b. Year-to-Year Change in Number of Registered Apprentices in Ontario and Canada, 2000 to 2012



Source: Statistics Canada, Registered Apprenticeship Information System

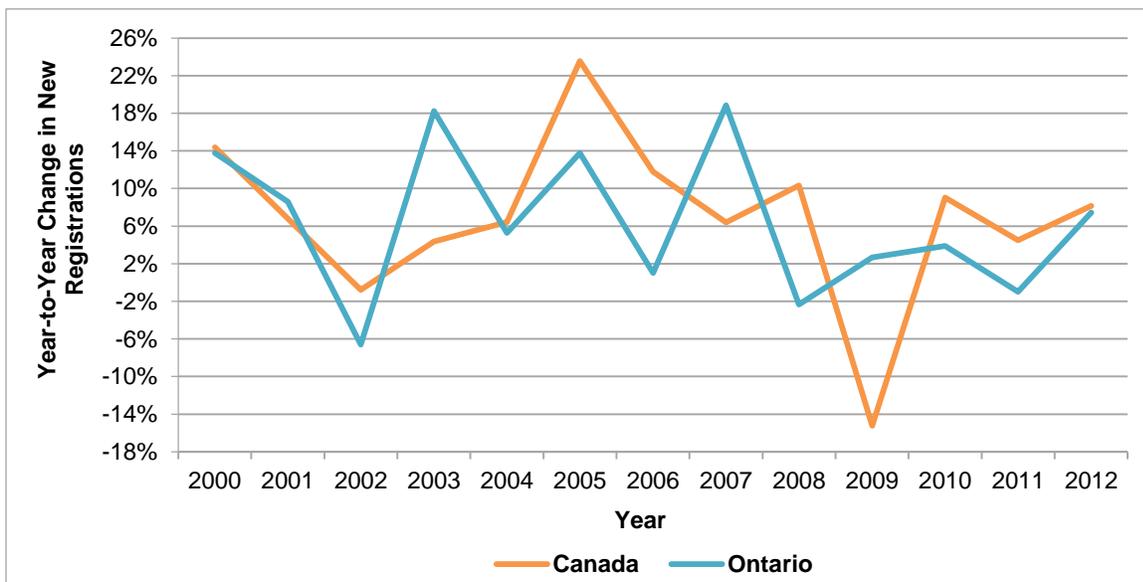
Total apprenticeship registrations take into account apprentices who are already registered in addition to new registrations and reinstatements. Because apprenticeship in Ontario has no fixed time to completion, total registrations can reflect the fact that a large number of registrants remain apprentices for many years. Thus another way to examine apprenticeship participation is to look at the change in new registrations from year to year. Figure 3a outlines the number of new apprenticeship registrations in Ontario and Canada from 2000 to 2012 and Figure 3b displays the year-to-year change in new registrations. In Canada, new registrations increased from the previous year by as much as 23.5% (from 2004 to 2005) and decreased by as much as 15.2% (from 2008 to 2009) following the start of the recession. In Ontario, year-to-year change in new registrations ranged from 18.9% (from 2006 to 2007) to -6.6% (from 2001 to 2002). The immediate impact of the 2008 recession in Ontario is much more prominent in Figure 3b than in Figure 2b – the number of new registrations decreased by 2.2% as potential apprentices likely struggled to find a sponsor. The relative plateau from 2008 to 2011 changed in 2012 when new registrations in Ontario increased by 7.4% from 2011, with 28,662 new apprentices.

Figure 3a. Number of New Apprenticeship Registrations in Ontario and Canada, 2000 to 2012



Source: Statistics Canada, Registered Apprenticeship Information System

Figure 3b. Year-to-Year Change in Number of New Apprenticeship Registrations in Ontario and Canada, 2000 to 2012



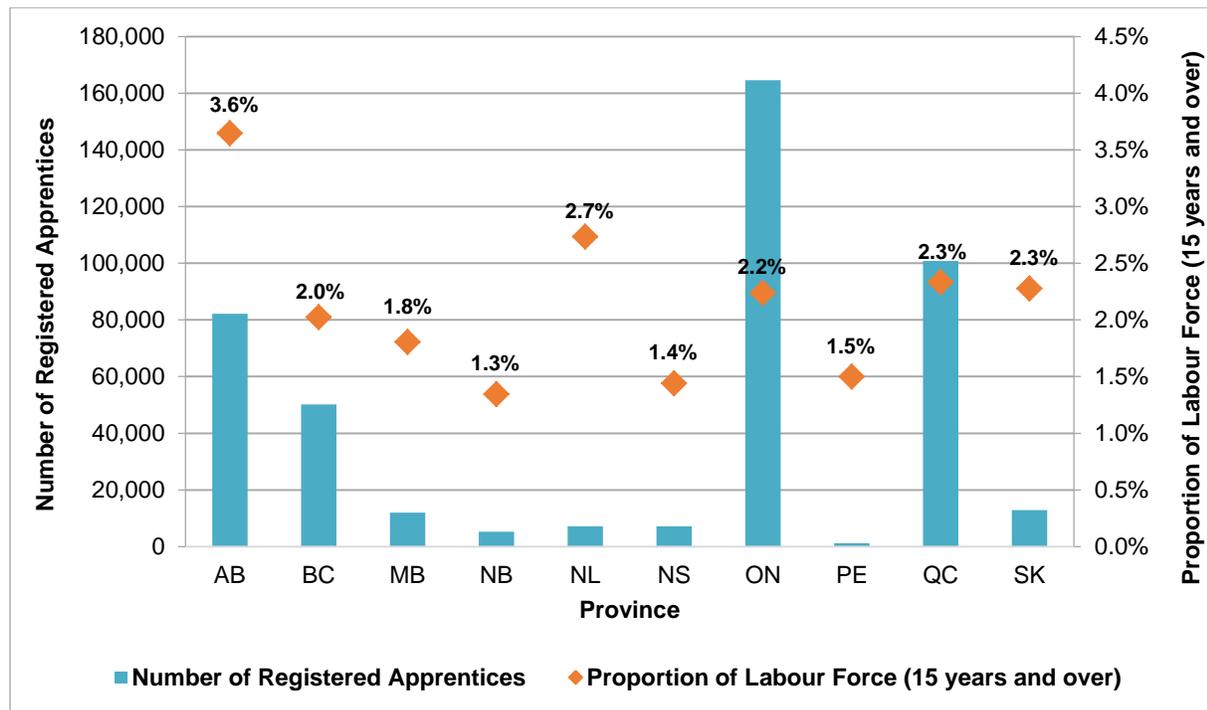
Source: Statistics Canada, Registered Apprenticeship Information System

It is also informative to contrast Ontarians' participation in the apprenticeship system with similar data from other provinces.²⁹ As shown in Figure 4, the number of apprentices in Ontario in 2012 exceeded that in all other provinces by at least 60,000; given the relative size of Ontario's population, this finding is not surprising. When apprenticeship registration numbers are considered as a proportion of the labour force³⁰ within each province, Alberta has the highest proportion of apprentices (3.6%), followed by Newfoundland and Labrador (2.7%), Quebec (2.3%), Saskatchewan (2.3%) and then Ontario (2.2%). Registered apprentices accounted for only 1.1% of Ontario's labour force in 2000 and 1.6% by 2006, meaning that apprenticeship participation increased by an average of 0.1% per year from 2000 to 2012.

²⁹ The provincial data in this paragraph are meant to provide information on the distribution of apprentices across Canada in terms of absolute numbers and proportion of the labour force. It is important to keep in mind that the number of occupations that employ apprentices differs in each province.

³⁰ The number of civilian, non-institutionalized persons 15 years of age and over who, during the reference week, were employed or unemployed.

Figure 4. Total Number of Registered Apprentices and Proportion of Labour Force by Province, 2012



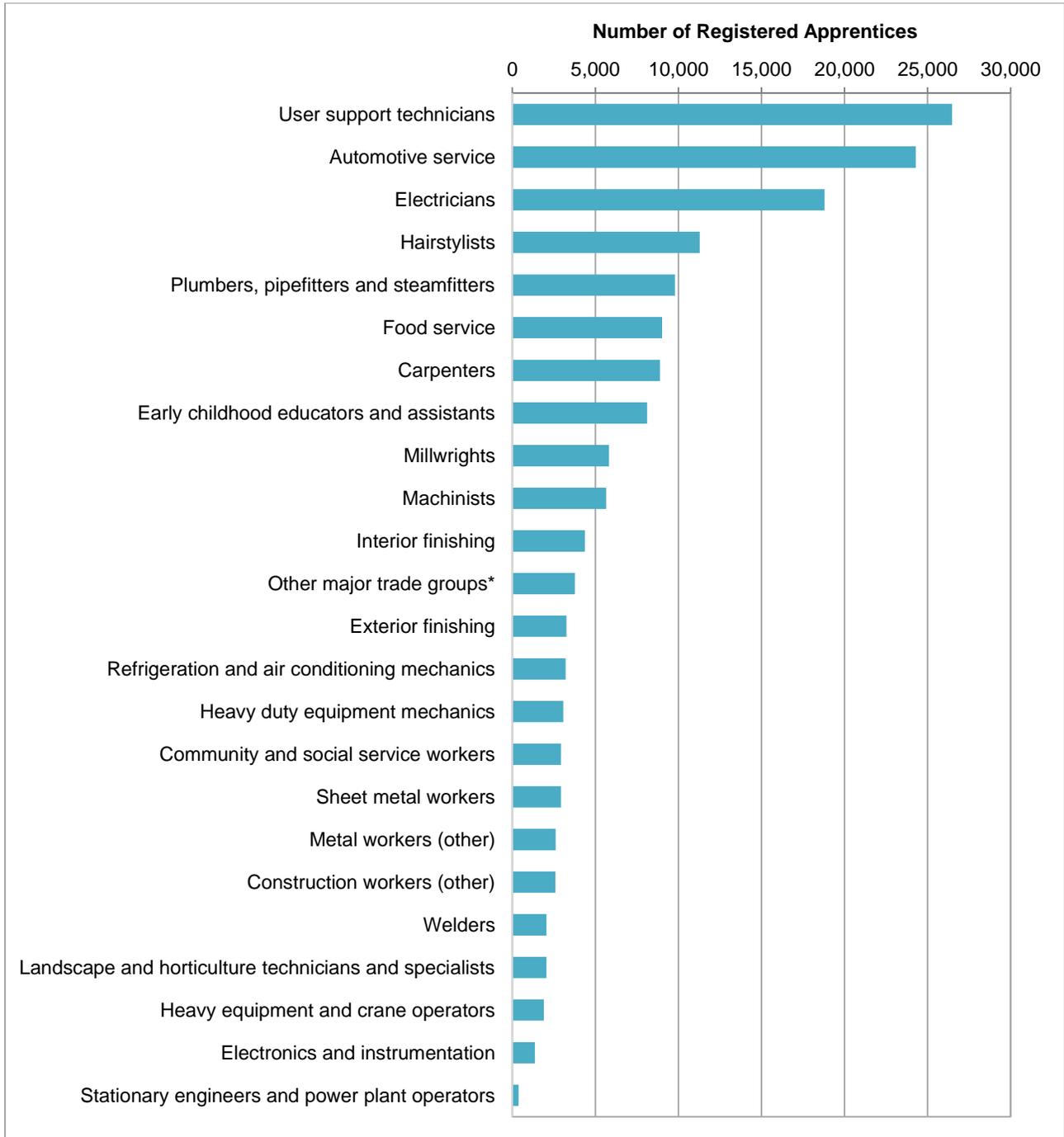
Source: Statistics Canada, Registered Apprenticeship Information System and Labour Force Survey

Figure 5 provides a visual summary of the distribution of apprentices by major trade group³¹ in Ontario in 2012 and Figure 6 displays the growth rates since 2006 in the 10 trade groups with the largest number of apprentices in Ontario. With 16.1% of apprentices registered as IT user support technicians, this major trade group makes up the largest proportion of total apprentices. User support technicians provide technical and customer service support to individuals and businesses experiencing computer issues. Apprenticeship training is available for five occupations within this trade group, including various types of contact centre agents and hardware/network technicians. From 2006 to 2012, the number of user support technician apprentices increased significantly from 2,916 to 26,481, representing a substantial growth rate of 808%. Apprenticeships in information technology were only introduced in 2006 and employers were eligible to receive the Apprenticeship Training Tax Credit until April 1, 2014. As a result, many companies may have registered a substantial portion of their customer service agents as apprentices at that time in order to qualify for this incentive, which could account for the considerable growth in registrations over the six-year period.

With 14.8% of apprentices enrolled in automotive service trades in 2012, this major trade group followed closely behind IT user support technicians. However, automotive service only experienced a 10% growth rate since 2006, at which time it was the most populated apprenticeship group in Ontario. Electricians ranked third in total apprentices, with 11.4% of registrations in 2012 (a 31% growth rate since 2006), and hairstylists ranked fourth at 6.9% of apprentices (an 8% six-year growth rate). The top 10 trades in 2012 all appeared in the top 10 trades in 2006, with the exception of user support technicians.

³¹ The major trades groups referenced in this report were coded according to the National Occupation Classification (NOC) system, which the RAIS uses. As such, the terminology often differs from that used in Ontario. For example, the major trade group categorized as 'automotive service' by the NOC includes almost all trades categorized as 'motive power' by the OCOT.

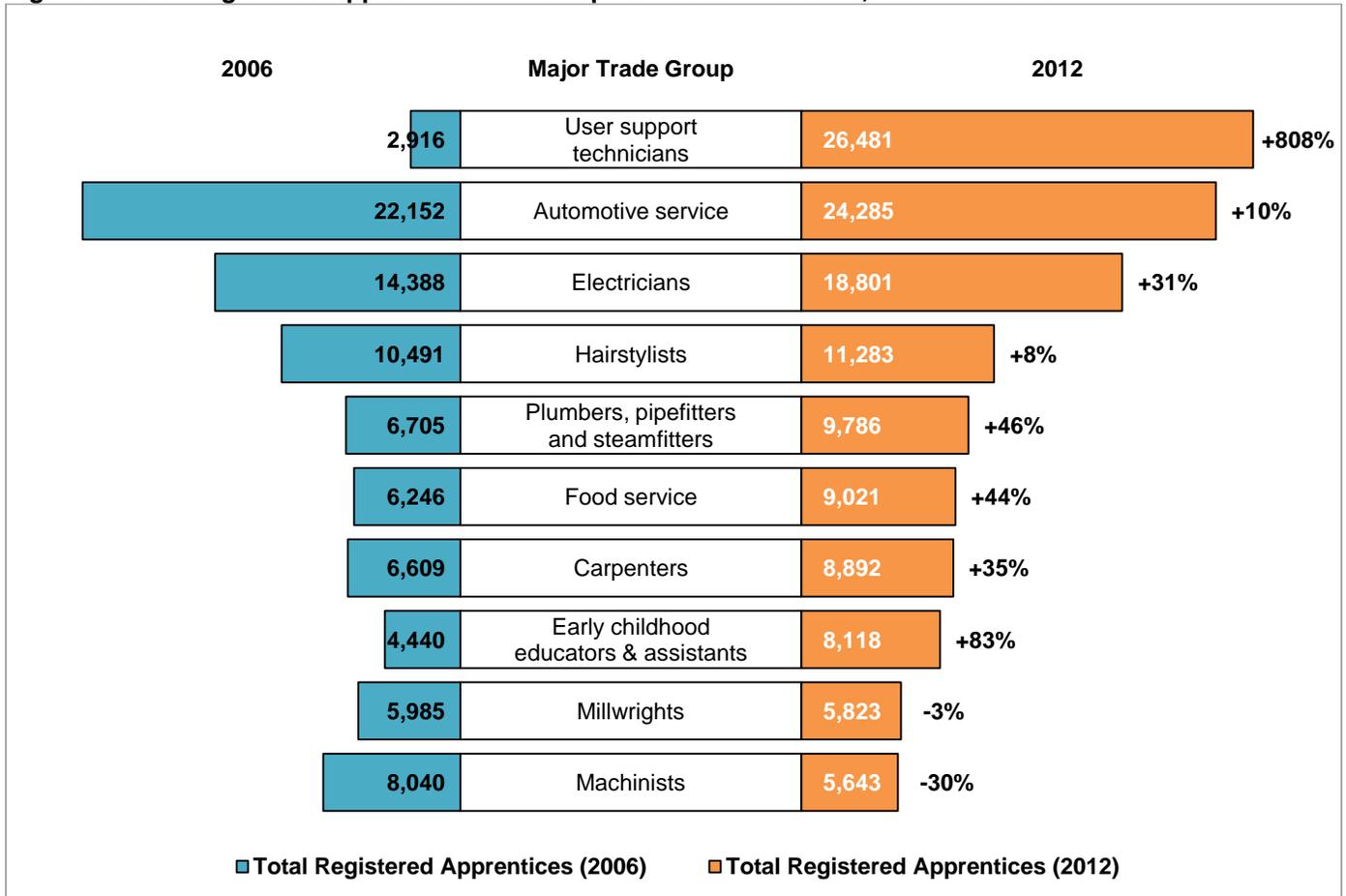
Figure 5. Distribution of Registered Apprentices by Major Trade Group in Ontario, 2012



*Note: The category “other major trade groups” consists of miscellaneous trades not classified elsewhere. Many of the apprenticeship occupations introduced after the 1990s have been placed in this category (e.g., pork production technician and several occupations related to motion picture and theatre).

Source: Statistics Canada, Registered Apprenticeship Information System

Figure 6. Total Registered Apprentices in the Top 10 Trades in Ontario, 2006 versus 2012



Source: Statistics Canada, Registered Apprenticeship Information System

Demographics of Apprentices

The RAIS includes information on the highest level of education obtained by apprentices prior to registration in their current apprenticeship program. As outlined in Table 2, the overwhelming majority (78%) of apprentices registered in Ontario in 2012 completed high school³², while 15.1% of apprentices stopped school somewhere between grade 8 and grade 11. Just over 6% of apprentices identified their highest education level as 'other.' Individuals included in the 'other' category most likely possess some type of postsecondary credential, such as a college, technical or non-university certificate or diploma, another apprenticeship certificate or a university degree.

³² A response of either grade 12 or grade 13 was used to calculate the proportion of apprentices who completed high school.

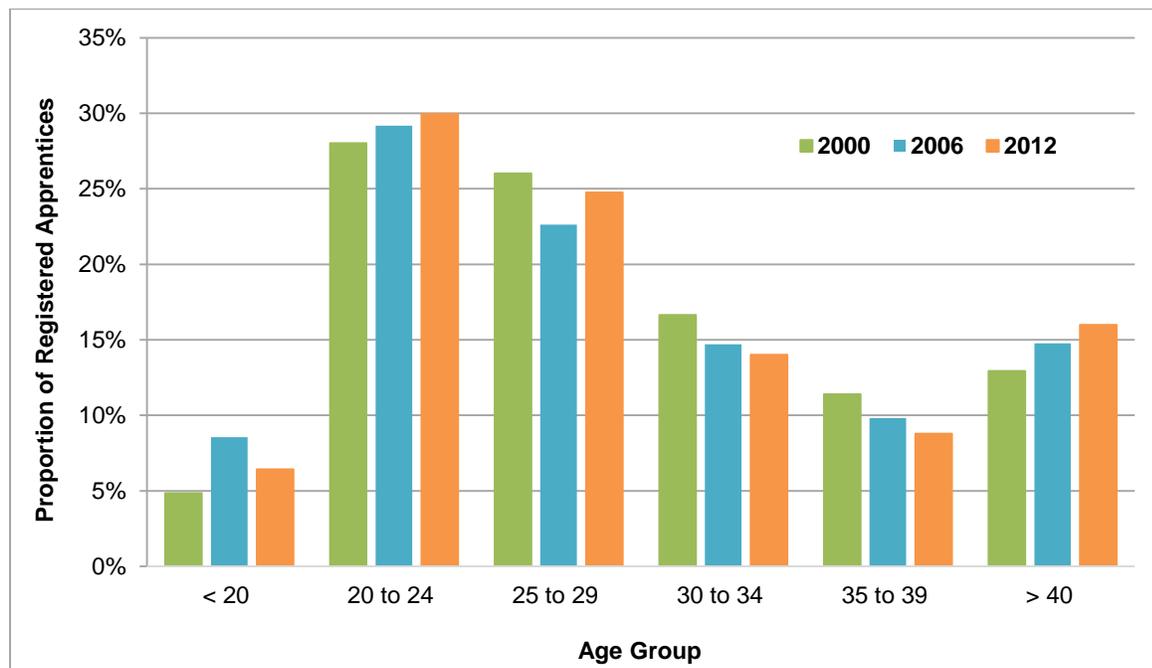
Table 2. Highest Level of Education Obtained by Registered Apprentices in Ontario, 2012

Highest Level of Education	Number of Registered Apprentices
Grade 8	87 (0.1%)
Grade 9	153 (0.1%)
Grade 10	7,902 (4.8%)
Grade 11	16,671 (10.1%)
Grade 12	127,575 (77.5%)
Grade 13	888 (0.5%)
Other	10,320 (6.3%)
Unknown	963 (0.6%)

Source: Statistics Canada, Registered Apprenticeship Information System

Although the highest level of education obtained by the majority of apprentices is a high school diploma, most individuals do not begin an apprenticeship program immediately after secondary school. As can be seen in Figure 7, 63.5% of apprentices in Ontario in 2012 were 25 years of age or older. Comparing these age group data to those from 2000 and 2006, we can see that little has changed regarding age distribution since 2000. Focusing on the oldest age group, 2012 had the largest proportion of apprentices over 40 years old (16.0% versus 14.8% and 12.9% in 2006 and 2000, respectively). Focusing on the youngest age group, 2012 had a lower proportion of apprentices under 20 years old (6.4%) than in 2006 (8.6%) but a higher proportion of apprentices under 20 compared to 2000 (4.9%).

Figure 7. Distribution of Registered Apprentices by Age Group in Ontario, 2000 vs. 2006 vs. 2012



Source: Statistics Canada, Registered Apprenticeship Information System

The age statistics in Table 3 highlight the fact that Canada's population of apprentices consists of relatively older adults rather than youth making the transition directly from school to work. The average age of an apprentice in Ontario in 2012 was 29.9 years, and this mean age was fairly consistent across the provinces and territories, with British Columbia reporting the lowest mean age (27.7) and Quebec reporting the highest mean age (35.8).

Table 3. Mean Age of Registered Apprentices by Province, 2012

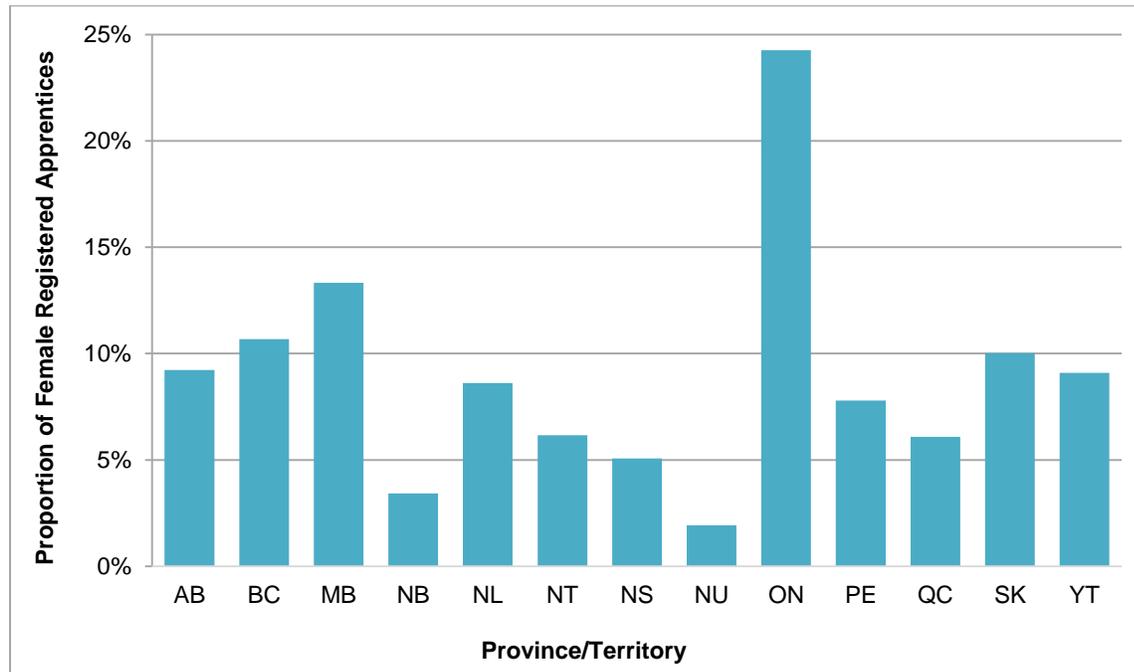
Province/Territory	Total Registered Apprentices	Mean Age
Alberta	80,877	29.1
British Columbia	48,480	27.7
Manitoba	11,541	27.8
New Brunswick	5,256	29.1
Newfoundland and Labrador	7,203	30.6
Northwest Territories	426	28.2
Nova Scotia	7,200	30.1
Nunavut	150	31.9
Ontario	163,410	29.9
Prince Edward Island	1,233	28.7
Quebec	100,671	35.8
Saskatchewan	12,822	28.1
Yukon	594	29.7
Total	439,863³³	30.8

Source: Statistics Canada, Registered Apprenticeship Information System

Another demographic point of interest is the proportion of females enrolled in apprenticeship programs, as most of the apprenticeable occupations in Ontario are in skilled trades traditionally filled by males. Figure 8 displays the percentage of female apprentices as a product of all registered apprentices across the provinces and territories in 2012. Female participation rates varied from as low as 1.9% in the Yukon to as high as 24.3% in Ontario. Although Ontario's female participation rate surpassed the rest of Canada by over 10%, the gender ratio is still quite low in absolute terms. This value is improving over time, however, and Ontario experienced an 11.4% increase in total female registrations from 2000 to 2012.

³³ Due to missing data points, this total does not include all registered apprentices in Canada.

Figure 8. Proportion of Registered Apprentices who are Female by Province/Territory, 2012

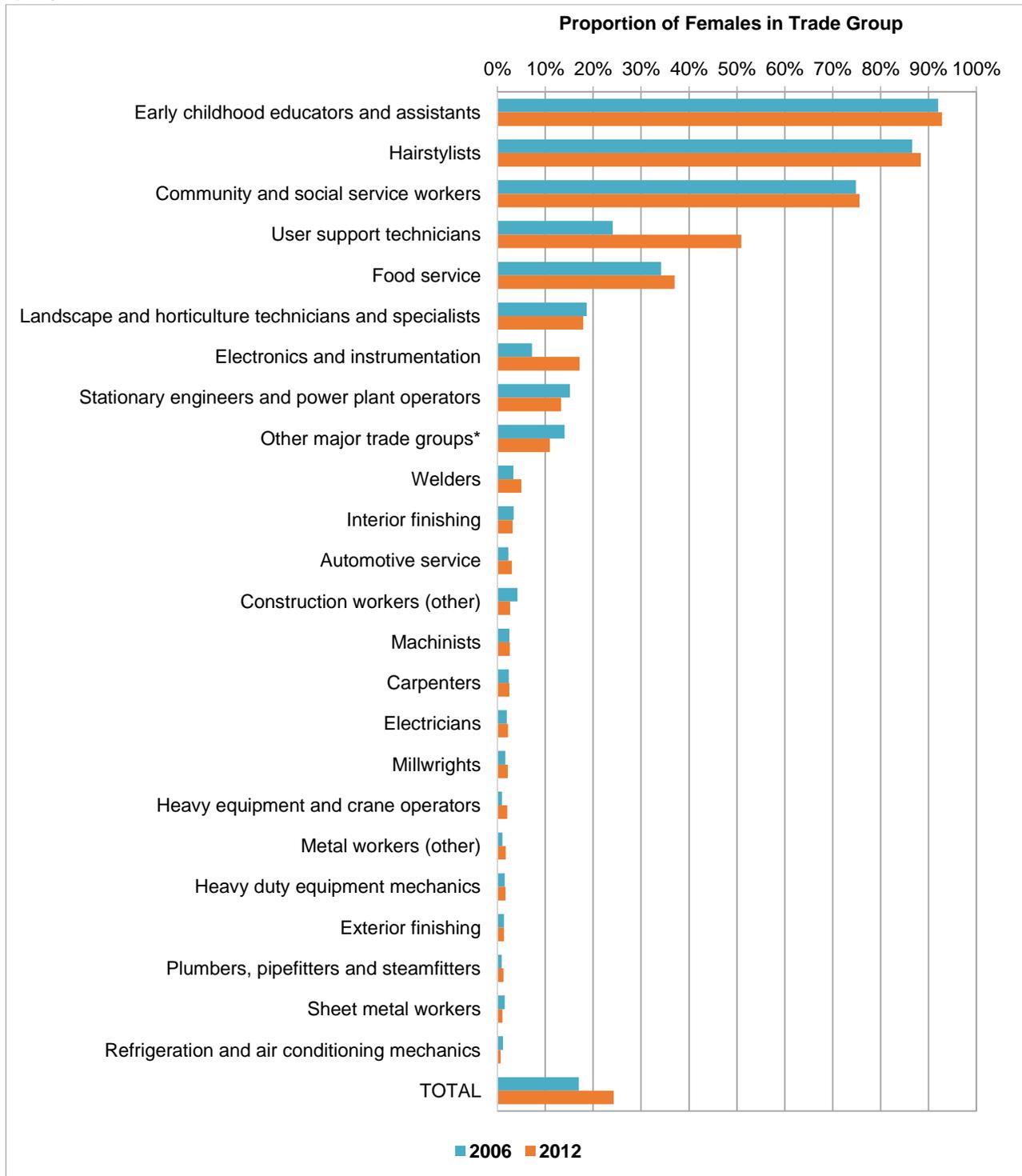


Source: Statistics Canada, Registered Apprenticeship Information System

As shown in Figure 9, females dominate the service and care sector occupations. In 2012, 92.8% of early childhood educators and assistants, 88.4% of hairstylists and 75.6% of community and social service workers were females. With the exception of IT user support technicians (50.9%) and the food service sector (37%), females made up less than 20% of apprentices within each of the remaining trade groups in 2012. When considering absolute registration numbers as opposed to proportion of participation as a function of gender, 13,488 females were registered as apprentices in the IT user support technician group in 2012, a larger number of apprentices than in any other major trade group. Hairstylists (9,975), early childhood educators and assistants (7,536), food service workers (3,336) and community and social service workers (2,214) were ranked second through fifth, respectively.

Figure 9 provides a snapshot of female participation rates by trade group in 2006 and 2012 in order to examine where the most growth has occurred. IT user support technicians experienced the largest increase in female registrations, from 24.1% in 2006 to 50.9% in 2012. The proportion of females registered as apprentices in the electronics and instrumentation trade group increased by 10% from 2006 to 2012, while the proportion of female apprentices in the food service industry increased by 2.8%, followed by hairstylists with an 1.8% increase and welders at an 1.6% increase in the female participation rate. Even though most of the major trade groups reported an increase in female registrations from 2006 to 2012, a subset of trade groups faced a decrease in the proportion of females registered as apprentices: construction workers; interior finishing; landscaping/horticulture technicians and specialists; refrigeration/air conditioning mechanics; sheet metal workers; stationary engineers and power plant operators; and trade groups categorized as 'other.' All of these occupations remain dominated by male apprentices.

Figure 9. Proportion of Registered Apprentices who are Female by Major Trade Group in Ontario, 2006 vs. 2012



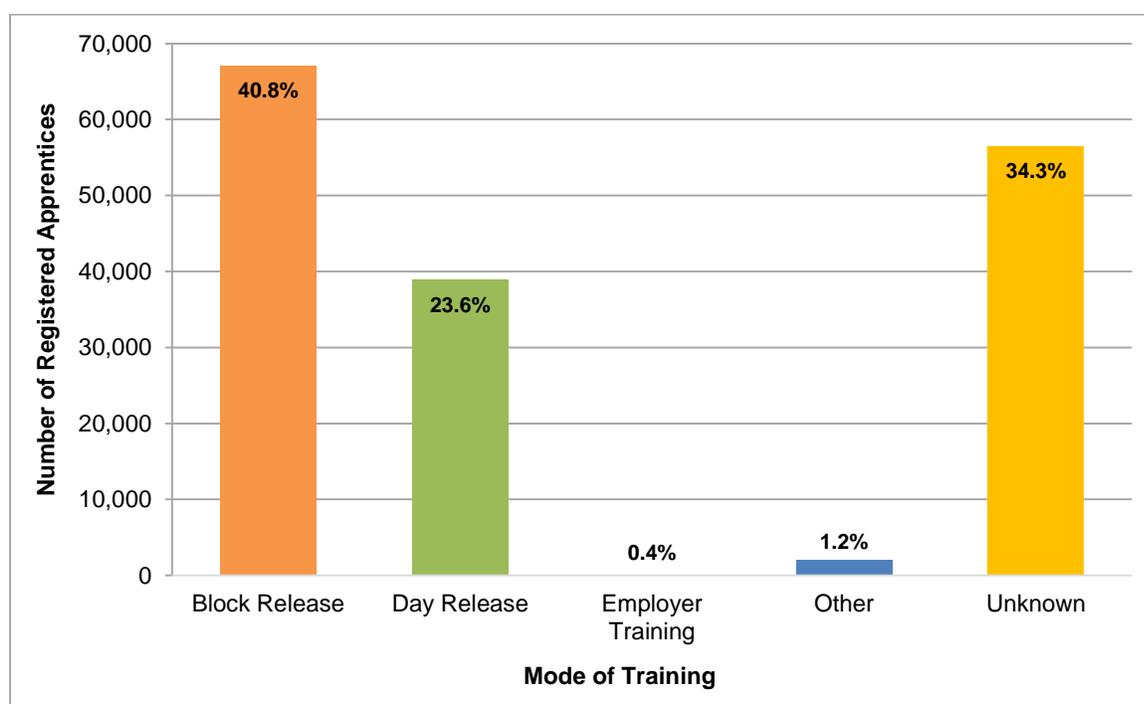
*Note: The category “other major trade groups” consists of miscellaneous trades not classified elsewhere. Many of the apprenticeship occupations introduced after the 1990s have been placed in this category (e.g., pork production technician and several occupations related to motion picture and theatre).

Source: Statistics Canada, Registered Apprenticeship Information System

Mode of Training

Apprentices spend the majority of their time learning on the job. However, another important component of their training involves classroom instruction and there are different methods through which an apprentice can obtain his or her in-class training. As shown in Figure 10, block release was the most common mode of in-class instruction for apprentices (40.8%) in Ontario in 2012. This type of training is generally delivered in three or four eight-week blocks over the course of the apprenticeship program. Day release training, which involves attending in-class instruction one day or two evenings per week from September to June, was attended by 23.6% of apprentices. With both block release and day release, training is delivered at a community college or other training delivery agent, such as a private college or a union training centre. In 2012, less than 0.5% of apprentices received technical in-class training from their sponsor and 1.2% of apprentices reported some 'other' mode of institutional training. Not being designated as a mandatory question on the RAIS, the type of training delivered to the remaining 34.3% of apprentices in 2012 is unknown.

Figure 10. Mode of In-Class Training for Registered Apprentices in Ontario, 2012



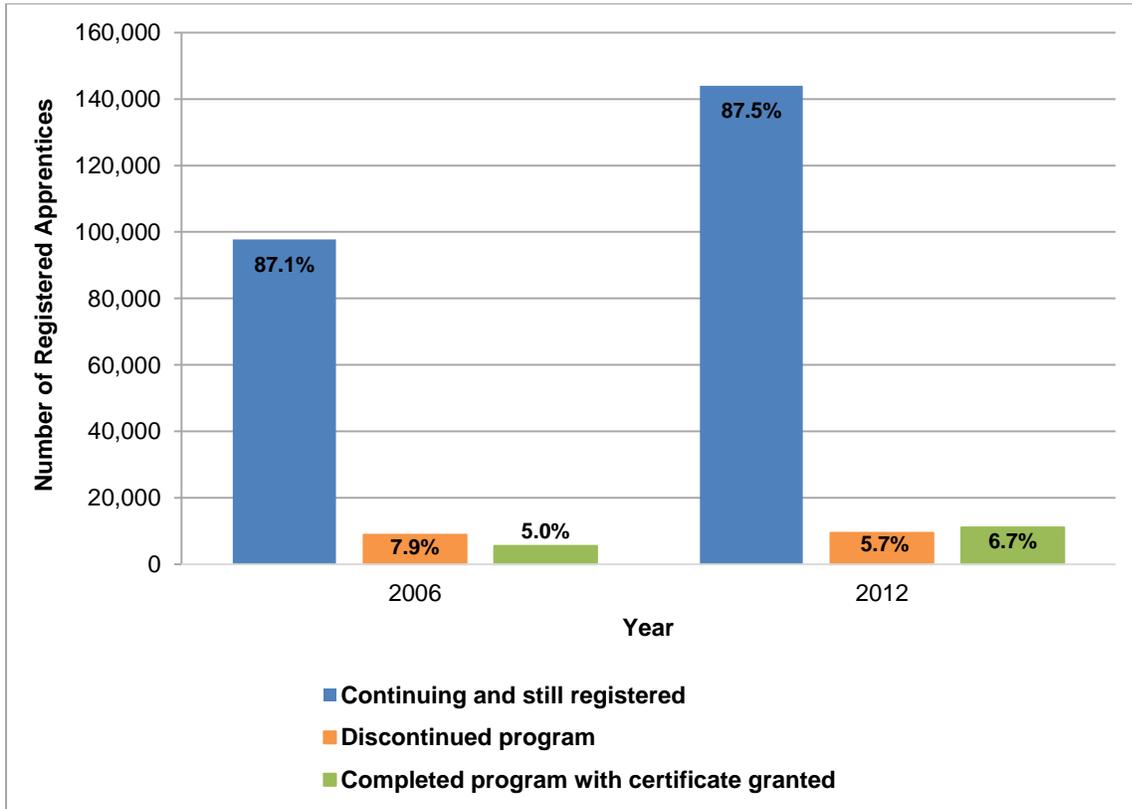
Source: Statistics Canada, Registered Apprenticeship Information System

Certificates and Completions

A final topic to examine is apprenticeship completion rates: how many apprentices fulfill the requirements of their training and what types of certificate do they obtain?

Figure 11 summarizes the status of all registered apprentices in Ontario at year end in 2006 and 2012. In 2012, 144,006 (87.5%) apprentices were still registered in and planning to continue their apprenticeship program, 11,100 (6.7%) successfully completed their program and received a certificate, and 9,459 (5.8%) discontinued their apprenticeship training. The end-of-year status in 2006 (87.1% still registered; 5.0% obtained a certificate; 7.9% discontinued) was very similar in proportion to 2012, though there was a slightly greater number of completions and fewer discontinuations in 2012.

Figure 11. End-of-Year Status for Registered Apprentices in Ontario, 2006 versus 2012



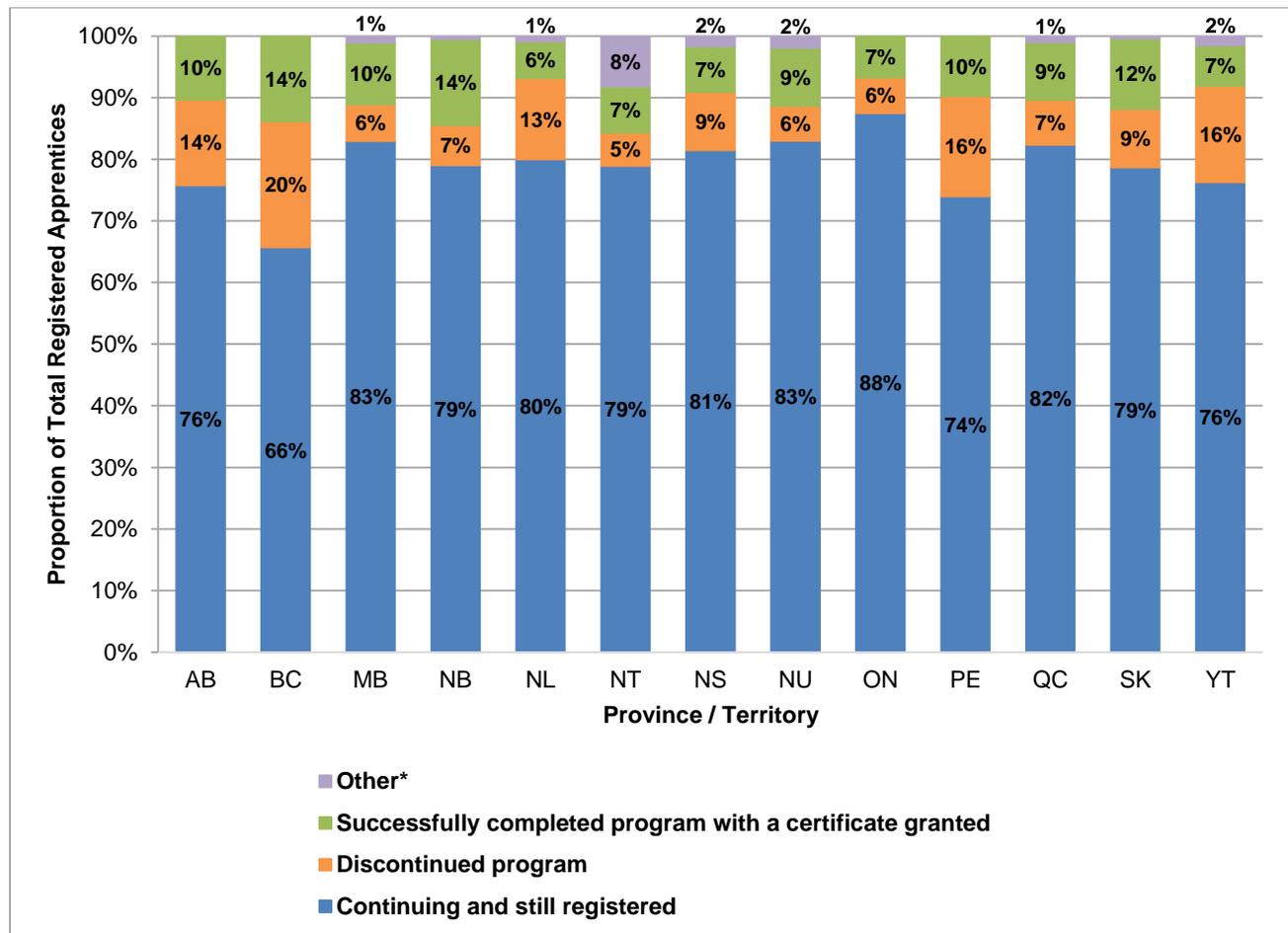
Note: Percent values reflect the proportion of apprentices in each end-of-year status category as a product of all registered apprentices in the specified year.

Source: Statistics Canada, Registered Apprenticeship Information System

Figure 12 compares the end-of-year status for apprentices in Ontario to that in the other provinces in 2012.³⁴ The proportion of apprentices continuing in their program at year end varied from 65.7% in British Columbia to 87.5% in Ontario. British Columbia had the highest rate of discontinuations (20%), whereas the Northwest Territories had the lowest (5%). Ontario, Nunavut and Manitoba followed closely behind with a discontinuation rate of 6%. British Columbia also had the largest proportion of apprentices to receive a certificate at 14%, and Newfoundland and Labrador issued the smallest proportion of certificates (6%). Compared to the other provinces, Ontario's percentage of successful completions was average.

³⁴ When comparing the provinces and territories, it is important to consider that each province and territory has its own set of designated trades, which can vary substantially across regions.

Figure 12. End-of-Year Status for Registered Apprentices across the Provinces and Territories, 2012³⁵



*Note: An end-of-year status categorized as 'other' could mean that an apprentice transferred to another program or successfully completed a *segment* of an entire program with a certificate granted, an option offered in certain programs in select provinces.
 Source: Statistics Canada, Registered Apprenticeship Information System

In total, 15,594 certificates (C of A or C of Q)³⁶ were issued in Ontario in 2012 and approximately 4,500 of these went to trade challengers.³⁷ Because RAIS data are collected and aggregated at the national level into major trade groups, it is not possible to separate Red Seal trades from non-Red Seal trades or C of As from C of Qs. For example, the major trade group designated as automotive service would include 'automotive service technician,' which has a C of Q exam with Red Seal designation, as well as 'automotive glass technician,' which does not have a C of Q exam (so a C of A would be granted). Other trades may have a C of Q exam but no Red Seal endorsement. As a result, the purpose of Figure 13 is purely descriptive – it provides greater detail on the type of certificates granted to apprentices (excluding trade challengers) with respect to major trade groups and Red Seal endorsement. Certificates were granted most often in the

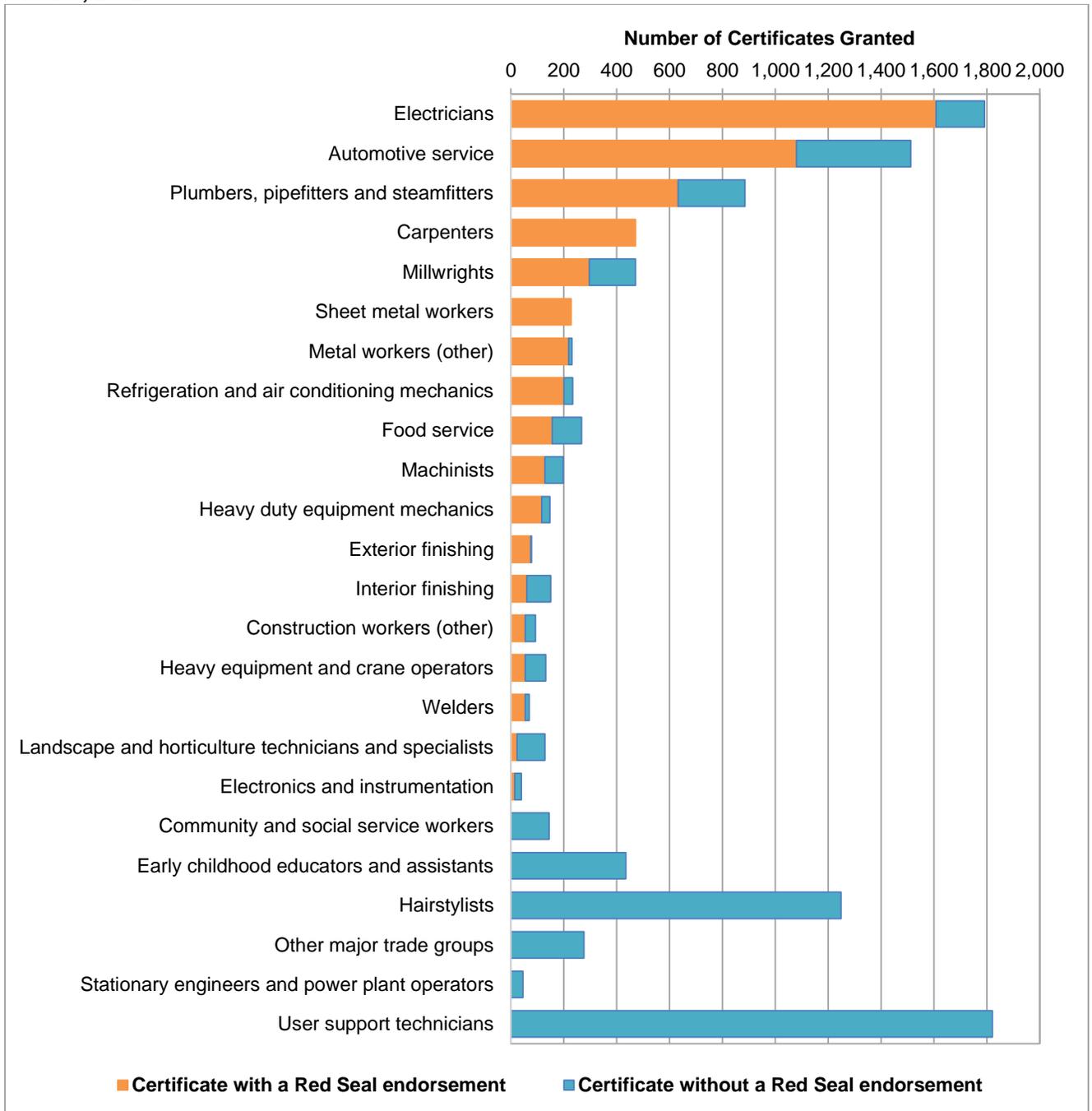
³⁵ Not all bars add up to 100% because transfers and completions of a segment of an entire program (offered within some trades) are not represented in the graph due to very small proportions.

³⁶ If the C of A was the final certificate granted in the trade and the C of Q was not being granted, the C of A was reported in the RAIS. For example, in 2012, there were no C of Q exams for IT user support technicians in Ontario, so all certificates would have been C of A for this trade group.

³⁷ Trade challengers are individuals who received and successfully completed training in a trade but did not complete apprenticeship training. These may be individuals who began an apprenticeship but did not complete, who obtained trades training in another country or through the Canadian military, or who otherwise gathered sufficient experience to qualify in a trade.

following five trade groups: user support technicians, electricians, automotive service, hairstylists and plumbers/pipefitters/steamfitters.

Figure 13. Certificates Granted with and without a Red Seal Endorsement by Major Trade Group in Ontario, 2012³⁸

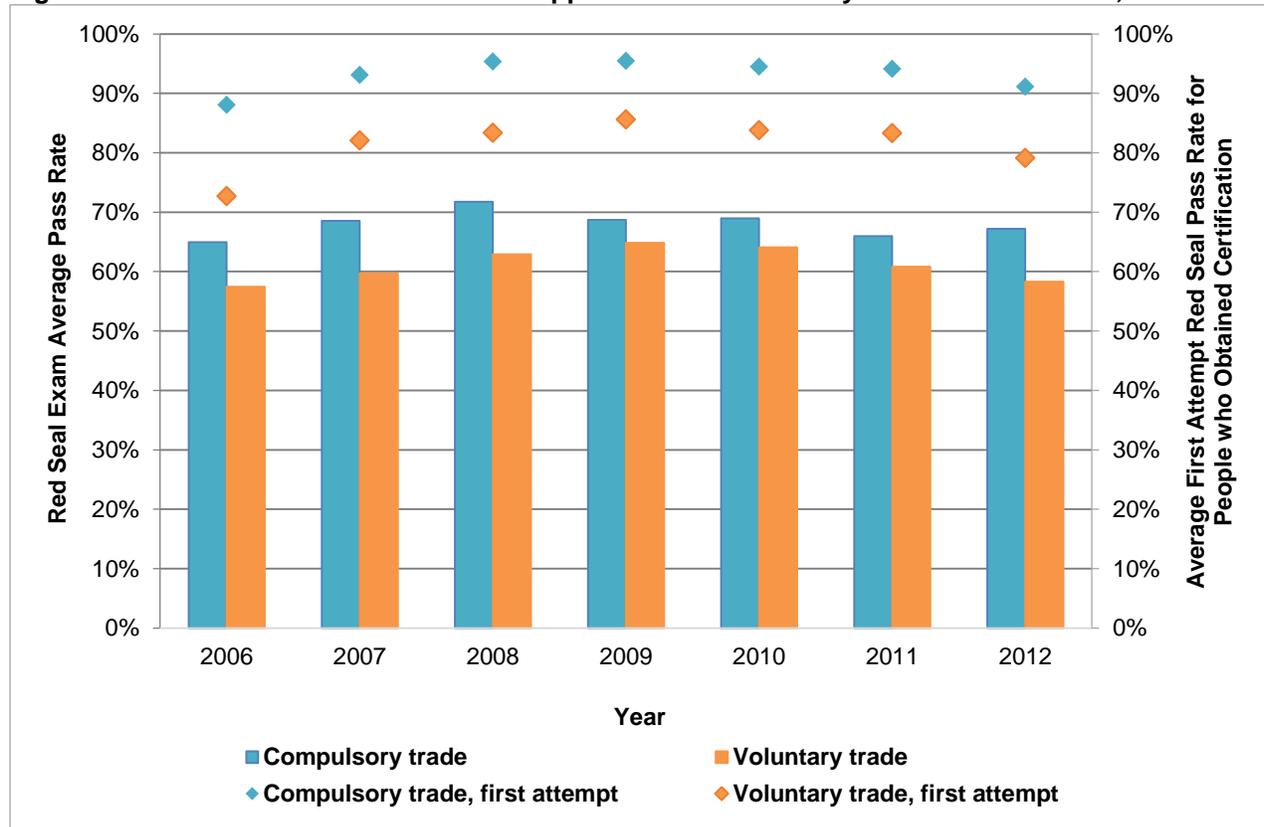


Source: Statistics Canada, Registered Apprenticeship Information System

³⁸ This table provides descriptive information on the number and type of certificates issued in 2012 in Ontario. It is important to keep in mind that some major trade groups include both compulsory and voluntary trades and that only a limited number of trades are designated as Red Seal.

As outlined in the first part of this report, exam challengers must achieve a passing grade of 70% to successfully obtain a C of Q. Figure 14 displays the average exam pass rates for 46 Red Seal trades in Ontario from 2006 through to 2012. The trades are further categorized as compulsory (14 trades) or voluntary (32 trades). An overall pass rate is provided (see the blue and orange bars). In addition, the graph also displays, out of those who successfully obtained a Red Seal certificate, the percentage of people who did so on their first attempt (see the blue and orange markers). What is particularly evident from this graph is that individuals in compulsory trades are consistently more likely than individuals in voluntary trades to pass their Red Seal exam in any given year; they are also more likely to do so on their first try. On average, 65% to 72% of test-takers in a compulsory trade obtained their C of Q with Red Seal endorsement from 2006 to 2012 (88% to 95% of these individuals did so on their first attempt), whereas an average of 57% to 65% of test-takers from a voluntary trade obtained their Red Seal C of Q during the same time frame (73% to 86% of these individuals did so on their first attempt). This discrepancy in pass rates may result from a greater incentive for apprentices in compulsory trades to become a qualified journeypersons.

Figure 14. Red Seal Exam Pass Rates for Apprentices in Ontario by Trade Classification, 2006 to 2012



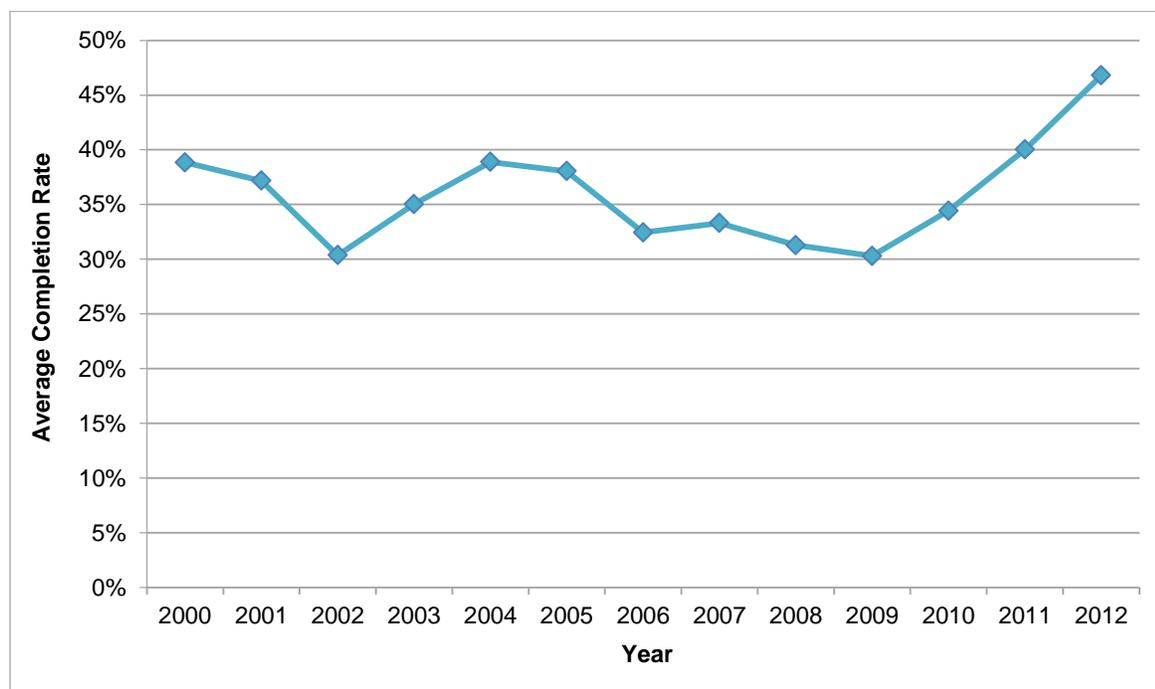
Source: Ministry of Training, Colleges and Universities

Before discussing the completion rate data, it is important to understand that information in the RAIS does not track the progress of individual apprentices from year to year, so it is not possible to calculate precise completion rates. Instead, various methods are used to approximate these rates and no single method is universally accepted. For the purposes of this report, completion rates were calculated using a formula developed by Patrick Coe, referred to as the advanced cohort proxy, which takes into account the fact that apprentices will not complete the program the first year they start and often take longer than the program duration to complete the apprenticeship. In sum, the number of apprenticeship completions in a given year and in a particular trade is divided by the average number of new registrations four, five and six years ago for a typical four-year apprenticeship program. Using a three-year rolling average for new registrations helps to

dissipate the effect of single-year fluctuations in registrations and, most importantly, provides a better approximation of completion rates.³⁹

With this information in mind, the next graph in this report (Figure 15) displays apprenticeship completion rates in Ontario from 2000 through to 2012. One completion rate is presented for each year, representing the average completion rate for all apprenticeship programs with available data on new registrations and completions for all (or most) years (67 individual apprenticeship programs in Ontario). From 2000 to 2009, the completion rate fluctuated between 30.3% and 38.8%. In 2010, the completion rate started to recover from a decline around the time of the recession and this upward trend continued until 2012, when it reached a high of 46.8%. Data are not yet available for 2013 to determine whether the pattern persists. What is most noteworthy about this graph is that apprenticeship completion rates do not reach 50%, meaning that less than half of registered apprentices in Ontario are completing the requirements of their program within two years after their expected completion date.⁴⁰ This is not the case for all apprenticeship programs, however, and completion rates vary substantially by trade. Calculating an average completion rate for 2000 to 2012, the bottom five trades had an average completion rate of less than 10%: bakers (8%), floor covering installers (7%), concrete finishers (6%), aircraft mechanics/aircraft inspectors (5%) and roofers/shinglers (4%). The top five trades had an average completion rate of 80% or higher: boilermakers (80%), steamfitters/pipefitters/sprinkler system installers (81%), early childhood educators/assistants (86%), industrial electricians (88%) and petroleum/gas/chemical process operators (121%).⁴¹

Figure 15. Average Apprenticeship Completion Rates in Ontario, 2000 to 2012



Source: Statistics Canada, Registered Apprenticeship Information System (completion rate calculations performed by Prism Economics and Analysis)

³⁹ For a full description of the completion rate calculation used in this report, see Coe (2011).

⁴⁰ One disadvantage of the advanced cohort proxy calculation is that it does not take into account apprentices who complete their program in a shorter period of time than expected.

⁴¹ Because the advanced cohort proxy calculation does not track individual apprentices but uses completions and registrations to approximate the completion rate, it is possible to obtain a completion rate that is greater than 100% if more apprentices complete a program in a given year than were accounted for in the number of registrations from previous years.

Although not directly comparable due to differences in program curriculum, duration, registration cycles, etc., Table 4 provides a summary of average apprenticeship completion rates from 2000 to 2012 across the provinces. It is important to note that, in addition to the differences already listed, the average completion rates displayed in Table 4 may vary with regard to the method used to record apprenticeship participation in each province (e.g., whether apprentices are counted upon registration or after completing their year in the program) as well as the specific programs represented in the calculation. For example, Prince Edward Island's completion rate only includes seven apprenticeship programs (varying from 44% to 63% completion), whereas British Columbia's completion rate accounts for 71 programs (varying from 6% to 91% completion). While the analyses here and elsewhere in the report are limited by the data available, it is still interesting to investigate how Ontario's completion rates compare to the rest of Canada. From 2000 to 2012, Ontario had an average completion rate of 37% – lower than any other province. Notably, Ontario's distribution of completion rates across programs was quite wide compared to many of the other provinces, ranging from 4% to 121%.

As discussed in the first half of this report, several factors are believed to affect apprenticeship completion rates, such as mandatory certification, education requirements, gender and age to entry (Coe, 2011). Other influences include susceptibility to work-related injuries, low wages, lack of employment opportunities and the cyclical nature of weather-dependent work. The influence of mandatory certification on completion was apparent with the difference in Red Seal exam pass rates presented in Figure 14. Furthermore, three of the 10 trades with the highest average completion rates from 2000 to 2012 in Ontario are compulsory, whereas all 10 trades with the lowest average completion rates are voluntary. With that said, Manitoba has the highest average completion rate (68%) compared to the rest of the provinces, but only nine of 53 designated trades are compulsory, while Alberta has a relatively low completion rate (44%) but 19 of 49 designated trades require certification. Therefore, while compulsory certification may influence apprenticeship completion rates, it is clearly not the only factor to consider.

Table 4. Average Apprenticeship Completion Rate across the Provinces, 2000 to 2012⁴²

Province	Average Apprenticeship Completion Rate (2000-2012)
Alberta	44%
British Columbia	41%
Manitoba	68%
New Brunswick	65%
Newfoundland and Labrador	42%
Nova Scotia	61%
Ontario	37%
Prince Edward Island	59%
Quebec	52%
Saskatchewan	61%

Source: Statistics Canada, Registered Apprenticeship Information System (advanced cohort proxy completion rate calculations conducted by Prism Economics and Analysis)

⁴² Completion rate data were not available for the territories.

Conclusions

As the above has demonstrated, the apprenticeship system in Ontario is complex, and considerable detail and nuance are required to understand its many intricacies. This report has sought to introduce the novice reader to these complexities and to present data concerning the system's various components. The intent is for this report to provide a firm foundation from which further discussions concerning apprenticeship might proceed.

Based on the most recent available data on apprenticeship, it is evident that participation in Ontario has increased over the past decade but that apprentices still comprise a relatively small portion of the province's labour force. Similarly, although female participation has increased, three out of four apprentices in Ontario are male. Currently, the majority of apprenticeable occupations remain in the construction, industrial and automotive sectors; however, the number of apprentices in the information technology sector (i.e., IT user support technicians) grew substantially within the past six years, making this relatively new, non-traditional trade group the most populated. In addition, although programs geared toward youth and young adults exist, apprentices in Ontario average around 30 years old – a time when family and financial responsibilities are often heightened. Lastly, perhaps the most important issue reiterated in this report is the fact that the majority of apprentices have not obtained certification within two years of their expected program duration. Even though there is initial evidence in support of a rise in completion rates in recent years, much larger gains are needed for marked improvement to occur.

In particular, further research is warranted to explore such questions as: should Ontario's apprenticeship system expand to include more occupations outside of the traditional skilled trades? How can programs attract a greater youth population, such that apprenticeships might facilitate school-to-work transitions? What can be done to increase Ontario's apprenticeship completion rates? Should additional literacy and numeracy upgrading be incorporated into classroom training to ensure higher-quality outcomes? What are the labour market outcomes for apprentices who obtain certification versus those who do not? What kinds of employers are investing in apprenticeship training and what can be done to incentivize high-quality on-the-job training?

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