REGIONAL AUTOMOTIVE MANUFACTURING PROFILE
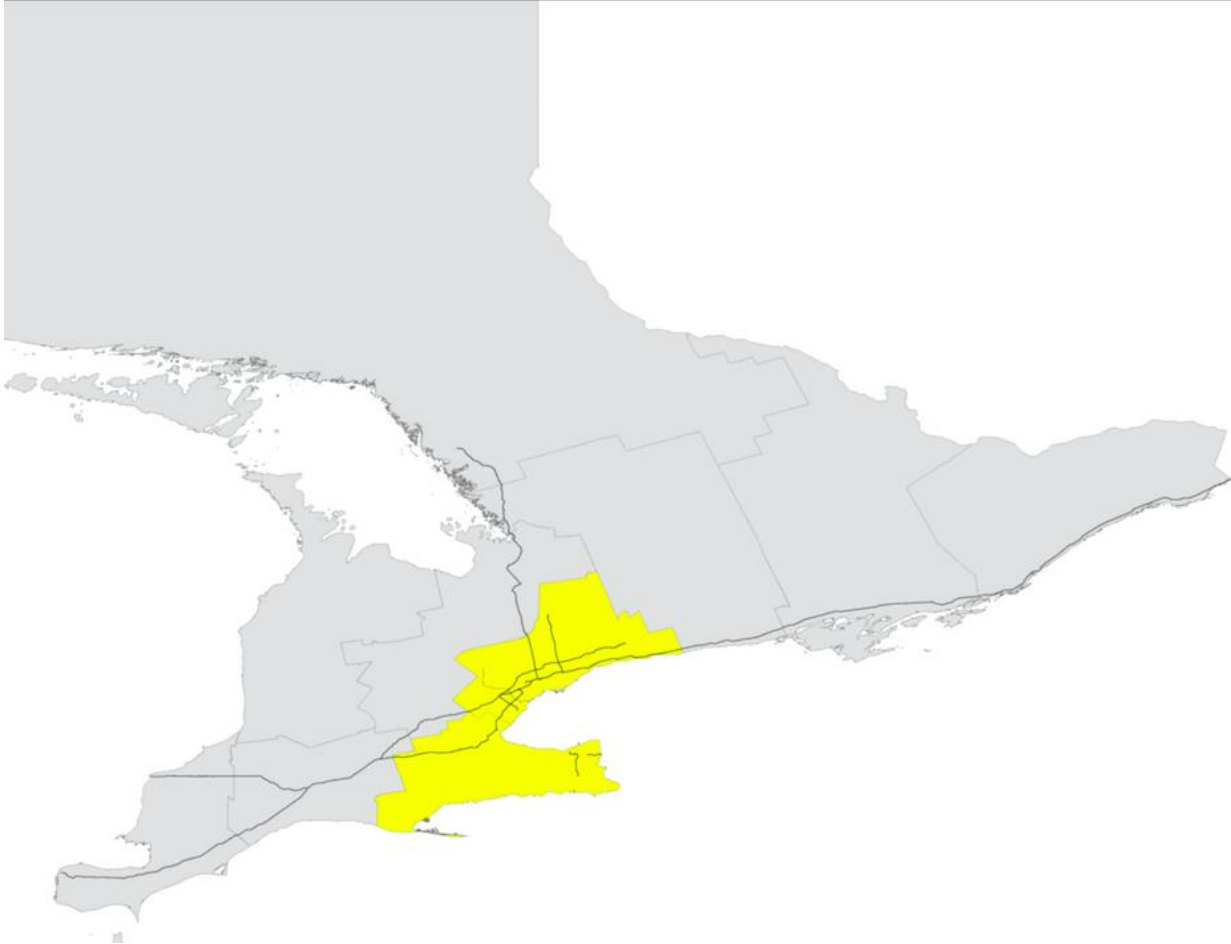
Golden Horseshoe Region

May 2019

CSTEC CANADIAN SKILLS TRAINING & EMPLOYMENT COALITION

APRC Automotive Policy Research Centre

Executive Summary

The Golden Horseshoe region is comprised of two Economics Regions (ERs) as defined by Statistics Canada: Toronto and Hamilton-Niagara Peninsula. The region's GDP was an estimated $442.5 billion in 2018, 12% of which was generated by the manufacturing sector. Manufacturing is also a major employer in the region, accounting for 10% of the total labour force, including 1% from automotive manufacturing. The region has a positive economic outlook, with annual GDP growth of at least 2.0% projected through 2029. However, the region's manufacturing sector is expected to see its GDP growth slow in the coming years.

The Golden Horseshoe region's population was an estimated 8.2 million in 2018. Healthy population growth is expected in the region through 2025 before slowing in the latter half of the next decade. Population growth will likely be driven primarily by migration into the region as a declining birth rate resulting in slowed natural population change. The region is expected to see an aging trend in its population, with the share of the population aged 65 years and over projected to increase from 15% in 2016 to 21% by 2030. The region is also expected to see its unemployment fall from 7.0% in 2016 to 6.4% by 2020 before stabilizing over the coming decade.

The Golden Horseshoe region's automotive manufacturing industry employed an estimated 49,100 workers across 205 businesses in 2018, based on findings from industry contacts, company websites, industry literature and other sources of publicly available data. Employment in the five years prior is

estimated to have ranged from a low of 48,206 in 2013 to its peak in 2018. The region is home to three assembly plants that employed an estimated 12,100 workers in 2018. A total 172 parts suppliers located in the Toronto ER employed nearly 32,300 workers while remaining suppliers in the Hamilton-Niagara Peninsula ER employed an additional 4,700. The region's largest automotive manufacturing employers include Magna International, GM, Ford, and FCA.

Project Background

The automotive industry is critically important to Canada's economic well-being. Despite a declining trend over the past decade, Canada still produced over 2 million vehicles in 2018. Furthermore, vehicle assembly plants have the capacity to build over 2.3 million vehicles annually. The industry directly accounted for over 8% of Canada's manufacturing GDP and 17% of Ontario's manufacturing GDP in 2017. The industry also contributes to Canada's economy through expenditures on capital, which totaled $1.7 billion as of 2017, and research & development, where businesses spent an additional $265 million in 2018. However, expenditure levels in both cases have dropped off since the early to mid-2000s. Finally, Canada's automotive industry is deeply tied to the global market through foreign trade. The majority of vehicles produced in Canada are exported, mostly to the United States. The U.S. is also the top export destination for automotive parts and components manufactured domestically. Canada also imports vehicles and parts, mainly from the U.S. and Mexico but also from Japan, Germany, Korea and China. Although Canada has historically maintained a trade surplus in vehicles despite a trade deficit in parts it faced a deficit in both sectors in 2018, leading to a total automotive trade deficit of $24.6 billion.

The automotive industry is one of the key drivers of innovation in the advanced manufacturing sector and it increasingly drives innovation across a wide range of industries. In addition to developing new manufacturing technologies and production systems that will increase productivity and competitiveness, the industry is developing innovative solutions to challenges in vehicle connectivity and advanced driver assistance systems and is breaking new ground in vehicle light-weighting and alternative propulsion to reduce GHG emissions. A recent automotive advisory report outlined how the industry can achieve its future goals. It identified talent and skills development as key to industry's success going forward and recommended a detailed analysis of the industry's workforce[1]. Similarly, the Canadian Automotive Partnership Council (CAPC) encouraged industry to work with government and its agencies to invest in both current and future workforces in its most recent "Call for Action" report[2].

Since talent and skills will be a driving force in enabling this innovation and facilitating the industry's future prosperity, it is important to undertake a comprehensive analysis of the workforce required to design and build the new technology intensive vehicles, parts, and systems of today and tomorrow. Accordingly, the Canadian Skills Training and Employment Coalition (CSTEC) and the Automotive Policy Research Centre (APRC) are undertaking a comprehensive labour market analysis of the automotive industry and its supply chain. The project is funded by the Government of Canada's Sectoral Initiatives Program (SIP) and will be completed over a three-year period.

Using the North American Industry Classification System (NAICS), automotive manufacturing is traditionally defined as being comprised of two main sectors: motor vehicle assembly (NAICS 3361),

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[1] Tanguay, "Drive to Win"
[2] Canadian Automotive Partnership Council (CAPC), "A Call for Action: II

which includes chassis manufacturing, and motor vehicle parts manufacturing (NAICS 3363). Together, these sectors directly employed approximately 125,000 Canadians as of 2016. However, this definition of the industry understates the workforce because it excludes establishments that have been misclassified by Statistics Canada as belonging to a non-automotive NAICS code. Misclassification occurs because many of these establishments dedicate only a portion of their output to automotive-related activities and are not always present within the automotive supply chain[3]. A 2017 report by the APRC profiling the automotive manufacturing industry in Canada identified over 200 automotive parts manufacturing establishments that were assigned a NAICS industry code other than 3361 or 3363[4]. The APRC's estimates of automotive manufacturing employment, which supplemented Statistics Canada data with establishment-level estimates for businesses that have been misclassified, placed the industry's workforce at over 140,000 people as of 2016.

Rather than limiting automotive manufacturing to Statistics Canada's two main automotive manufacturing NAICS codes, this project will instead broaden the definition of the industry to include producers in the supply chain that have been classified in non-automotive industries. This broader definition of automotive manufacturing will include establishments in the following categories:

1. **OEM Vehicle Assembly** – Car and light-duty truck assembly plants owned by Original Equipment Manufacturers (OEMs) including Ford, Fiat Chrysler Automobiles (FCA), Toyota, Honda and General Motors.
2. **OEM Parts Suppliers** - Motor vehicle parts and components manufacturing plants owned by OEMs. These include facilities that produce internal combustion engines, transmissions, cast wheels and other structural metal components, and plastic or composite interior or exterior trim and mouldings.
3. **Primary Independent Parts Suppliers** – Establishments whose primary purpose is to supply parts and components or provide value-added services (e.g. sub-assembly, sequencing) to the supply chain of OEMs.
4. **Diversified Independent Parts Suppliers** – Establishments that supply OEMs or primary parts suppliers but who also supply a number of other industries.
5. **Automotive Tooling and Automation** – Establishments that provide machine tools, dies, moulds and/or automation equipment (e.g. welding cells, presses, complete assembly lines) to OEMs and parts suppliers.
6. **Bus and Heavy Truck** – Establishments that manufacture buses, medium-duty trucks and/or heavy-duty trucks, or whose primary purpose is to supply parts and components to busy and heavy truck manufacturers.
7. **Automotive Technology** – Establishments that build or develop automotive technologies, including those that are included in the vehicle (e.g. embedded software), in the production process (e.g. systems that monitor the assembly line) and/or in infrastructure (e.g. electric vehicle charging stations).
8. **Raw Materials** – Establishments that are primarily engaged in the production and processing of raw materials (e.g. steel, rubber, glass) used in automotive manufacturing.

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[3] Sweeney & Mordue, "The Restructuring of Canada's Automotive Industry, 2005-2014"
[4] Sweeney, "A Profile of the Automotive Manufacturing Industry in Canada, 2012-2016"

It should be noted that while some establishments could be included within more than one of these categories, they are ultimately assigned to only one. Their assignment is based on the research and expertise of the project team.

Moving beyond the traditional definition of the automotive manufacturing industry requires a database of establishment-level data for producers that are involved in the automotive supply chain. Industry contacts, company websites, industry literature and other sources of publicly available data will be used to identify establishments not classified in the two main automotive manufacturing NAICS codes and collect key information about them, namely employment estimates. Establishments that should be included as automotive manufacturers may instead be associated with a wide range of non-automotive NAICS codes, including but not limited to:

- Plastic product manufacturing (NAICS 3261)
- Glass and glass product manufacturing (NAICS 3272)

- Architectural and structural metals manufacturing (NAICS 3323)
- Computer systems design and related services (NAICS 5415)
- Software publishers (NAICS 5112)

- Navigational, measuring, medical and control instruments manufacturing (NAICS 3345)
- Foundries (NAICS 3315)
- Rubber product manufacturing (NAICS 3262)
- Alumina and aluminum production and processing (NAICS 3313)
- Forging and stamping (NAICS 3321)

- Steel product manufacturing from purchased steel (NAICS 3312)
- Machine shops; turned products; and screw, nut, and bolt manufacturing (NAICS 3327)
- Coating, engraving, heat treating, and allied activities (NAICS 3328)
- Basic chemical manufacturing (NAICS 3251)
- Printing and related support activities (NAICS 3231)
- Aerospace product and parts manufacturing (NAICS 3364)

- Warehousing and storage (NAICS 4931)
- Electrical equipment manufacturing (NAICS 3353)
- Computer and peripheral equipment manufacturing (NAICS 3341)
- Architectural, engineering and related services (NAICS 5413)

These industries are part of a preliminary list of 40 non-automotive NAICS codes that include establishments with ties to the automotive supply chain. Together these additional industries represented a workforce of over 1.3 million people as of 2016. Other key components of the industry include companies working on alternative propulsion, new drivetrain technologies, energy storage and other advanced or future-focused technologies.

One of the central challenges of this project will be to understand the links between companies in these industries and those included in the primary automotive NAICS codes. A two-pronged approach will be used to ensure the broader definition of the sector closely reflects the true profile of the Canadian automotive industry. The establishment-level database will identify individual producers that are

involved in the automotive supply chain. Additionally, Statistics Canada's input-output tables, which track inter-industry transactions, will be used to better understand the contributions to employment and output that establishments from non-automotive NAICS codes make to the automotive industry.

Introduction

The Golden Horseshoe region is an aggregate region comprised of two Economic Regions (ERs) as defined by Statistics Canada: Toronto and Hamilton-Niagara Peninsula. The Toronto ER is the larger of the two regions and includes the cities of Toronto, Oshawa, and Oakville. The Niagara-Hamilton Peninsula includes the cities Burlington, Hamilton, and St. Catharines. Taken together they are home to approximately 31% of Ontario's population and cover a land area of nearly 14,086 square kilometers. The region includes Highways QEW, 400, 401, 403, 404, 406, and 407. Additionally, there are various routes to the United States through Niagara Falls and Fort Erie.

This regional profile includes three main sections. First, a discussion of the regional economy, including outlooks for GDP. Next, a section outlining trends in the region's population, demographic characteristics and overall workforce. Finally, an overview of the region's automotive manufacturing industry, including key employers and occupations.

All regional data presented in this profile are aggregates (or weighted averages where appropriate) of ER-level data for the Golden Horseshoe Region. Except where noted, data on the automotive manufacturing industry refers to Statistics Canada's two main industry codes for motor vehicle assembly (NAICS 3361) and parts manufacturing (NAICS 3363).

Regional Economy

The Golden Horseshoe region's GDP totaled an estimated $442.5 billion dollars in 2018. Real estate was the largest single contributor to the region's GDP of any sector, accounting for nearly 15% or approximately $65.3 billion. The next largest sector, finance and insurance and manufacturing accounted for 23% of the regional economy. Other major sectors in the region include wholesale trade (8% of GDP), professional, scientific, and technical services (8%), and health care and social services (8%).

Regional GDP Shares by Sector, 2018
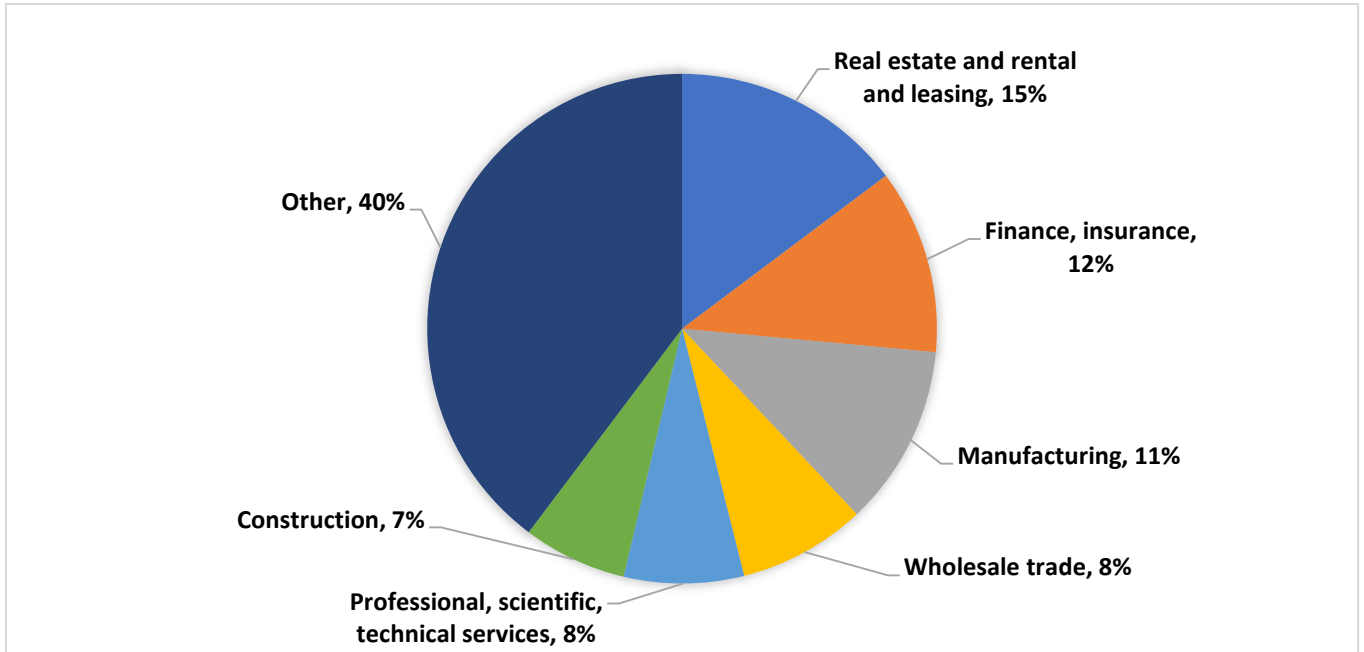
Source: Canadian Skills Training & Employment Coalition, Metro Economics

The region's largest sectors by workforce size include real estate, rental, and leasing (15% of total regional labour force), finance and insurance (12%) and manufacturing (11%). While these industries are present in both the Toronto and Hamilton-Niagara ERs, there are noticeable differences in the distribution of their workforces. The Toronto ER workforce is concentrated in services sectors such as real estate and renting, and finance and insurance, which account for 15.2% and 12.5% of the region's labour force respectively. Conversely, the workforce in the Hamilton-Niagara ER is built on sectors such as manufacturing and healthcare, which accounts for 11.5% and 9.2% of the region's labour force respectively.

Regional Labour Force Shares by Sector, 2016
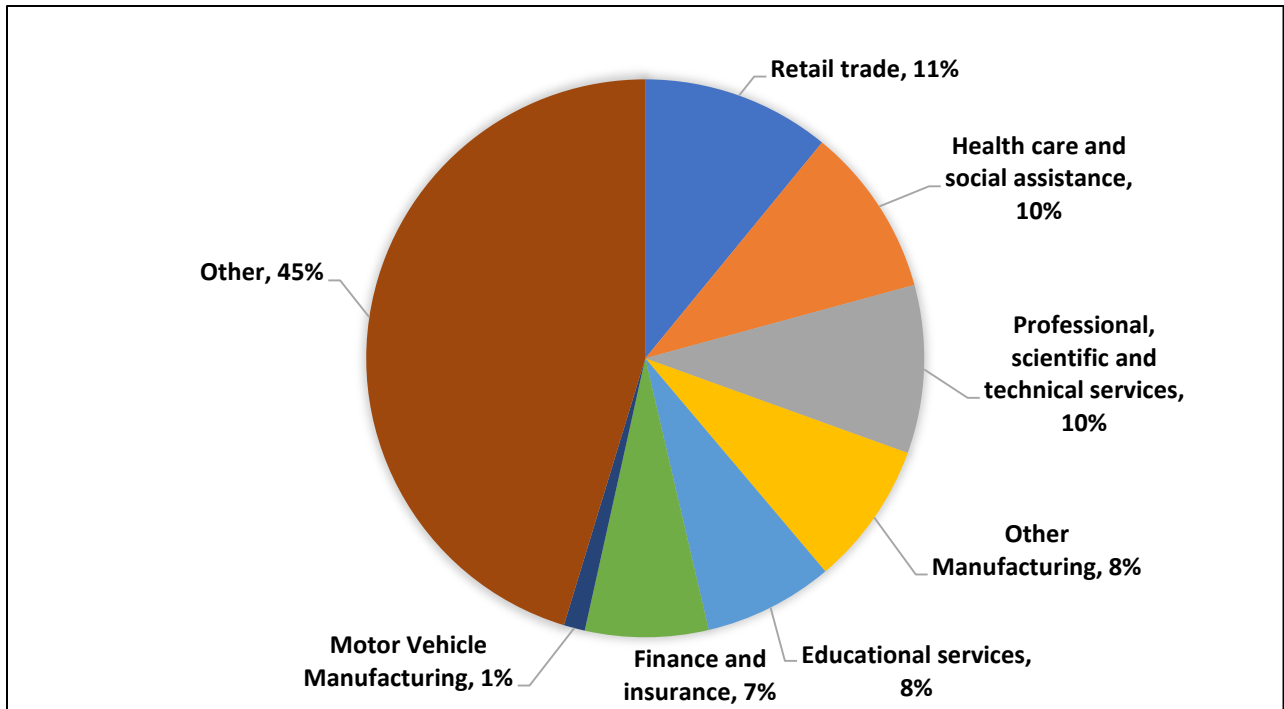
Source: Canadian Skills Training & Employment Coalition, Statistics Canada

The region's economic outlook is expected to be positive over the coming decade. Regional GDP is expected to grow 2.9% in 2019 and 2.4% in 2020, surpassing $466 billion. Furthermore, annual GDP growth of at least 2.3% is projected for every year from 2019 to 2029, surpassing $60 billion, with 2.2% growth projected in 2030.

Total Regional GDP Outlook, 2016-2030
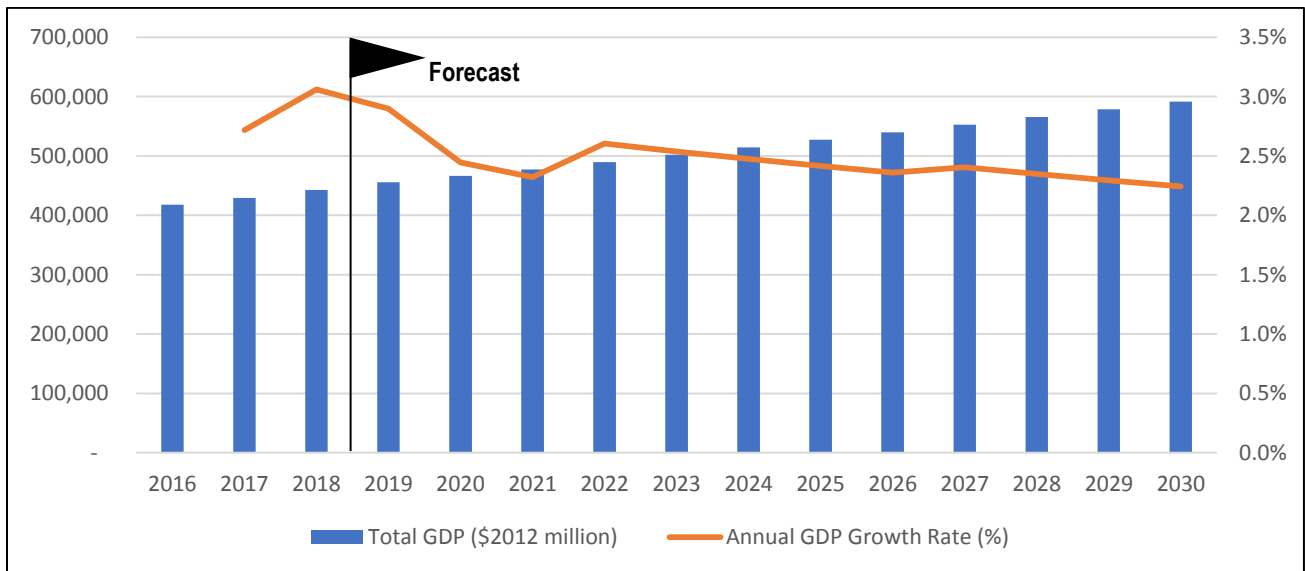
Source: Canadian Skills Training & Employment Coalition, Metro Economics

While the region's overall GDP growth outlook is healthy, projections vary by sector. In the near term, industries such as wholesale trade (4.5%), accommodation and food (3.8%), and arts and entertainment (3.6%) have experienced strong GDP growth and will continue to do so through 2020. Agriculture, forestry, fishing and hunting (4.3%) is expected to experience the strongest growth between 2021 and 2025, government services (1.1%) and information and culture (1.9%) are expected to see little growth during the same period. Both agriculture (4.1%) and accommodation (4.2%) are projected to continue their strong growth over the 2026 to 2030 period. The manufacturing sector, which includes automotive manufacturing, is expected to see its GDP growth slow in the coming years. The sector's GDP is expected to be larger in 2020 than 2016, and growth is projected to grow to 2.5% for the 2021-2025 period. Despite this growth, the sector's GDP is expected to fall to 2.4% for the 2026-2030 period.

Annual Average Regional GDP Growth by Sector, 2016-2030
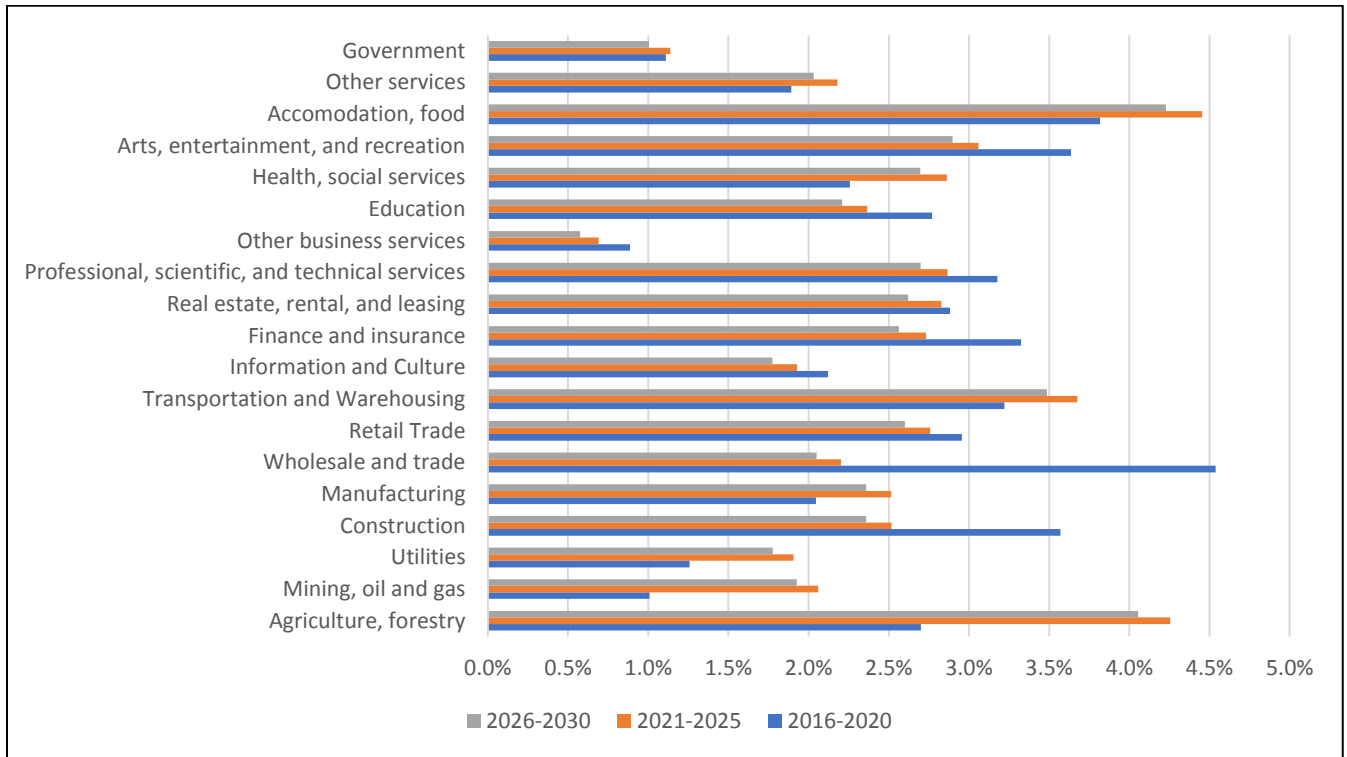
Source: Canadian Skills Training & Employment Coalition, Metro Economics

Regional Labour Considerations

Population, Age Distribution and Regional Diversity

The Golden Horseshoe region is the most populous regions in Ontario, with approximately 31% of the total provincial population residing in the region. The principal population centre of the region is the Toronto ER, which includes the cities of Toronto, Oshawa, and Oakville. The region also includes the Hamilton-Niagara Peninsula ER, which covers Hamilton, Burlington, and the Niagara Region.

The region's population was estimated at just over 8.2 million people in 2018, approximately 84% of whom reside in the Toronto ER. Looking ahead, the region's population is expected to reach 8.5 million people by 2020. The population is then expected to grow by 6.8% between 2021 and 2025 to 9.2 million. However, population growth is expected to slow to 1.5% over the latter half of the next decade, reaching 9.9 million by 2030.

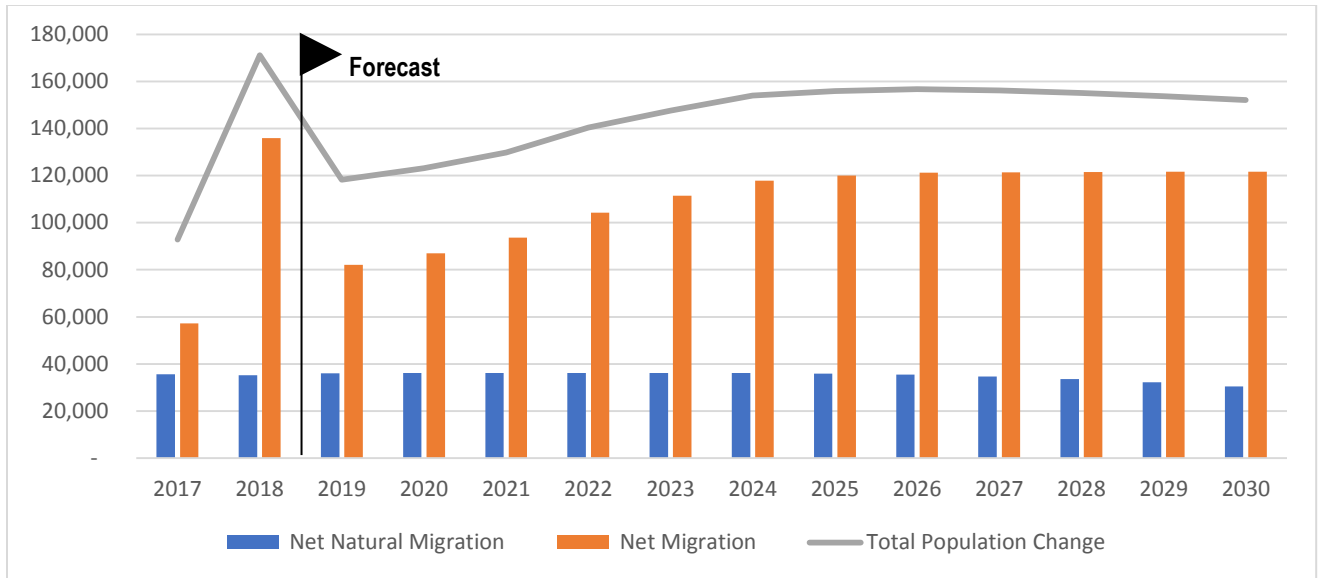**Total Regional Population Outlook, 2016-2030**
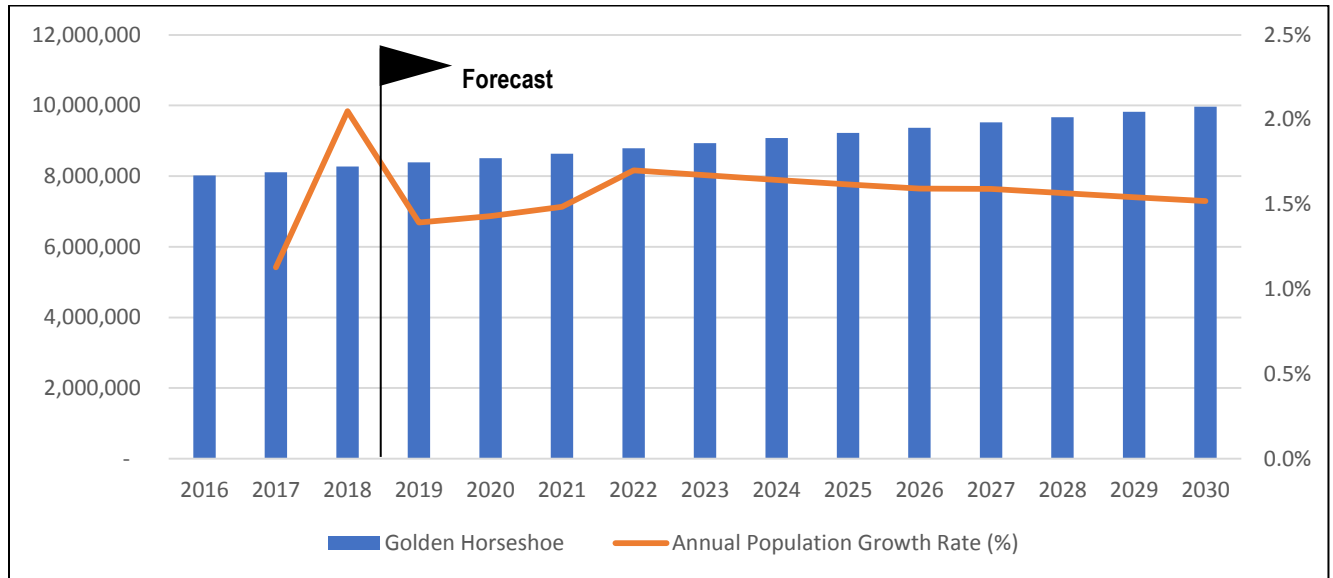
Source: Canadian Skills Training & Employment Coalition, Metro Economics

Changes in total population occur through net natural population change (i.e. the difference between the number of births and deaths in a region) and net migration (i.e. the difference between the number of people moving in and out of a region). Categorizing a region's total population change based on these components can be useful in identifying whether its future population growth will be driven by natural means or through drawing people in from outside the region.

In the case of the Golden Horseshoe region population change is predominantly a result of net migration, which was responsible for nearly 69% of the region's population growth in 2018. This share is expected to increase over the next decade as natural population change shrinks. The annual growth rate in the number of births in the region is projected to decline and be outpaced by the growth rate of deaths. Net migration is expected to increase annually over the next several years before beginning to decline over the latter half of the next decade. Overall, the region is expected to add an average of nearly 138,500 people to its population annually through 2030.

Total Regional Population Change Outlook, 2016-2030

Source: Canadian Skills Training & Employment Coalition, Metro Economics

The Golden Horseshoe region's age distribution is also expected to shift in the coming years. In 2016, an estimated 15% of the region's population were 65 years of age or older. This proportion is expected to rise to 21% by 2030. The region's population shares of the 45-54 and 55-64 age cohorts will remain consistent between 2016 - 2030. Among younger age cohorts, the population share of the 15-24, 15-24, and 25-34 is also projected to remain relatively stable between 2016 and 2030.

**Regional Population Outlook by Age Distribution, 2016-2030**
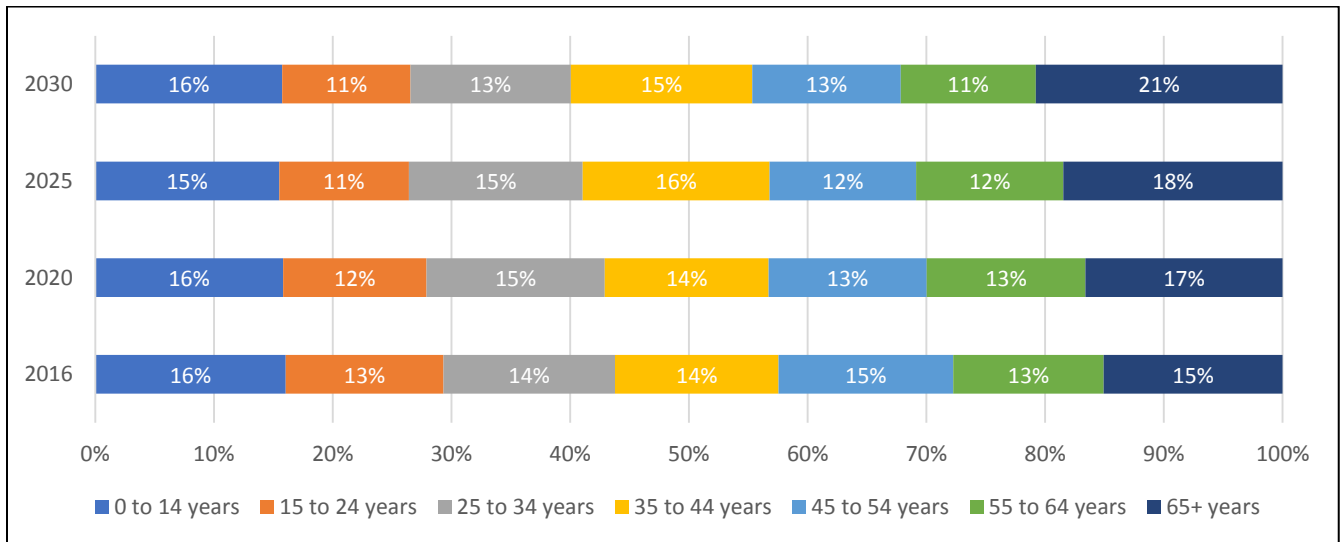
Source: Canadian Skills Training & Employment Coalition, Metro Economics

Some portions of society are likely underrepresented in the automotive manufacturing workforce. Examining their population shares in the region's total population can illustrate the magnitude of the

untapped potential for the industry. The shares of these groups in the Golden Horseshoe region's population are generally on par with those of Ontario as a whole. The region had similar shares of Indigenous peoples, youth and women as the provincial population as of 2016. One notable exception is in the share of the population who are immigrants. In the Golden Horseshoe region, this share was 40%, which is substantially higher than the province (29%).

Regional and Provincial Population Diversity, 2016
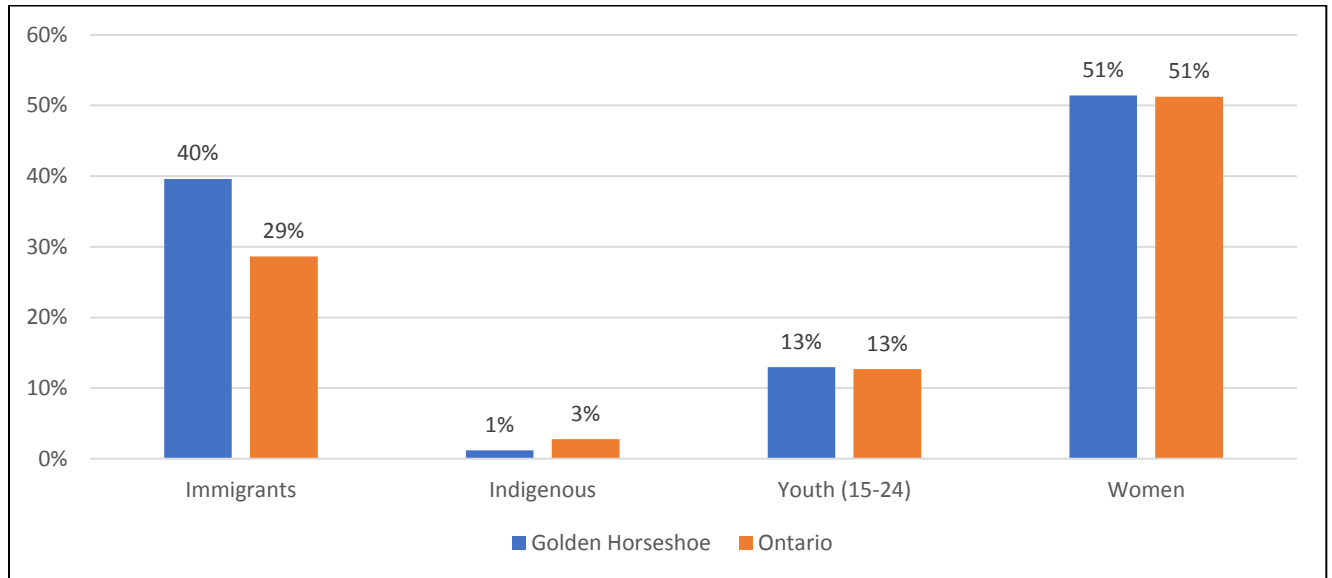
Source: Canadian Skills Training & Employment Coalition, Statistics Canada

Educational Attainment

Educational attainment among the population aged 15 years and over provides important insights into workforce qualifications and potential labour supply for the automotive industry. Comparing regional educational attainment rates to provincial averages can help identify what skills the region needs to cultivate internally or attract externally.

Under half (42.4%) of people in the Golden Horseshoe region had either a high school diploma or no certificate, diploma or degree of any kind as of 2016. The share of the same group was 45% for Ontario as a whole. The region also had a slightly lower share of people with college degrees (17.8%) than the provincial average (20.8%). Conversely, 32.6% of the Golden Horseshoe region had a university degree at bachelor level or above, compared to 26% for Ontario.

**Regional and Provincial Educational Attainment, 2016**
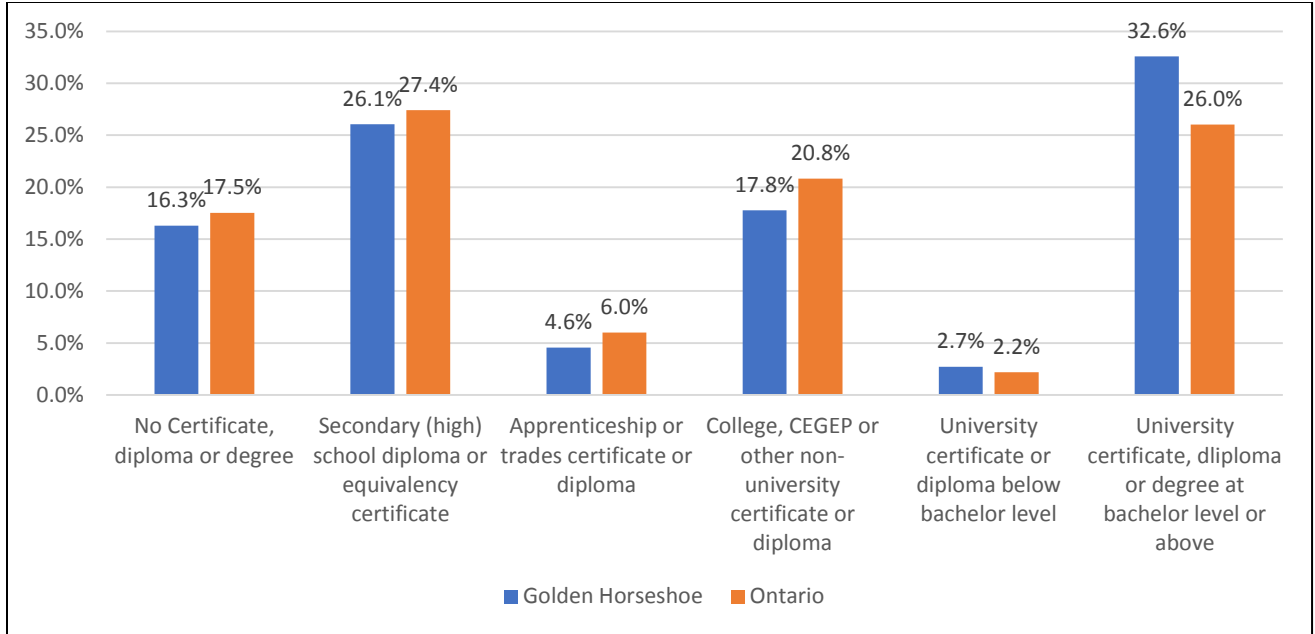
Source: Canadian Skills Training & Employment Coalition, Statistics Canada

Labour Market Activity

Total employment in the Golden Horseshoe region was an estimated 3,933,000 in 2018, while the region's labour force, including both the employed and those who are unemployed and actively seeking work, totaled 4,231,000. The unemployment rate, or the proportion of unemployed persons in the labour force, was 7.5%. This was a sharp decline from both 2017 and 2018, when the unemployment rate was 7.6% and 7.0% respectively. The region's unemployment rate is projected to continue this trend going forward, falling to 6.2% by 2020 before stabilizing over the coming decade.

Total Regional Employment Outlook, 2016-2030
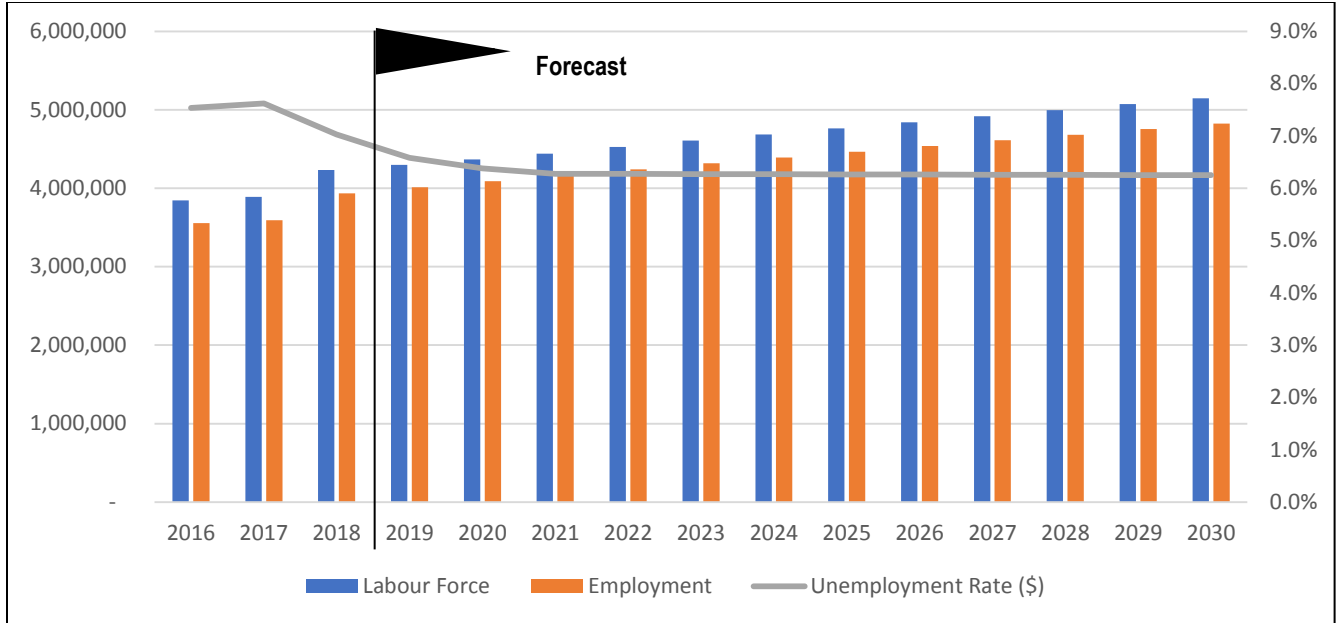
Source: Canadian Skills Training & Employment Coalition, Metro Economics

Regional Automotive Manufacturing Analysis

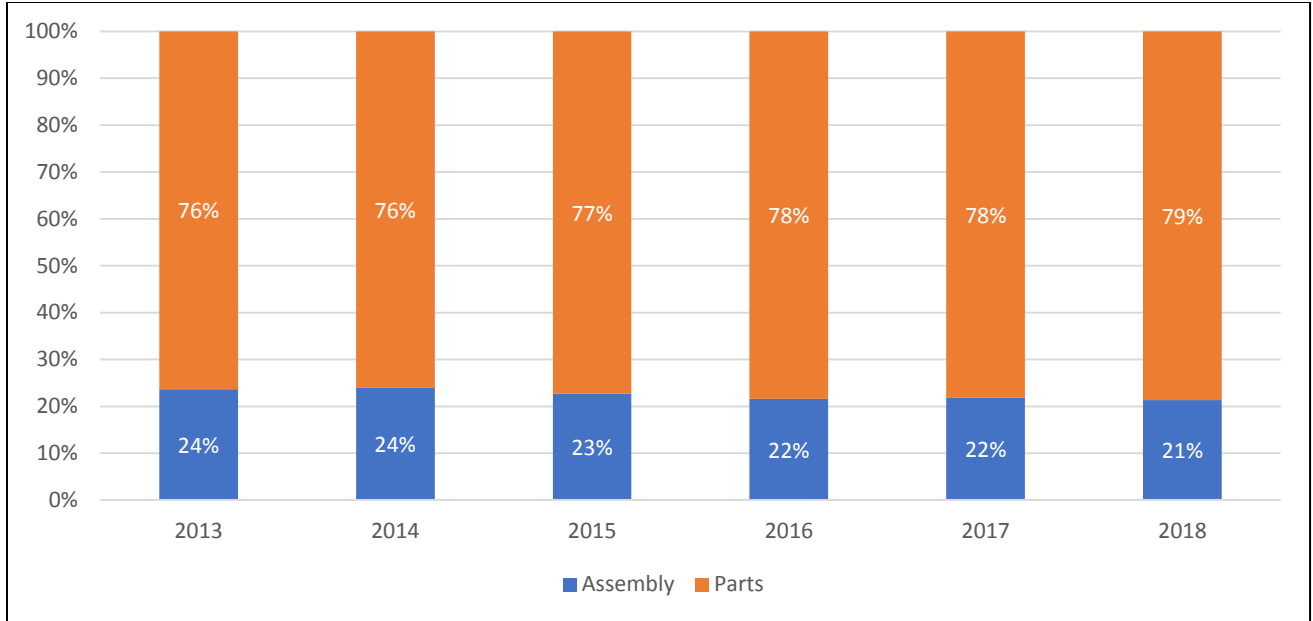### Profile of Automotive Manufacturing Employment

Total automotive manufacturing employment in the region, including Original Equipment Manufacturer (OEM) plants and parts suppliers, was an estimated 49,100 workers across 205 establishments in 2018, based on findings from industry contacts, company websites, industry literature and other sources of publicly available data. Employment in the five years prior is estimated to have ranged from a low of 48,206 in 2013 to its peak in 2018. In comparison, data from Statistics Canada's 2016 Census reports the region's automotive manufacturing employment as totaling 47,705 workers.

The Golden Horseshoe region is home to three large OEM assembly plants: a FCA (Fiat Chrysler) plant in Brampton that produces the Chrysler 300, Dodge Charger, and Dodge Challenger, a General Motors plant in Oshawa, and Ford assembly in Oakville. There are additional OEM plants located In Etobicoke which produces castings for FCA and a General Motors powertrain assembly in St. Catharines. These plants employed an estimated 12,100 workers combined in 2018. Notably, employment at OEM plants has declined in recent years, having reached as high 14,180 in 2014.

There are an estimated 184 parts suppliers in the region. Out this total, 172 of these establishments are located in the Toronto ER. Employment across all parts suppliers in the Toronto ER is estimated at nearly 32,300 in 2018. The remaining parts suppliers reside in the Hamilton-Niagara Peninsula ER where estimated employment in parts supplying is 4,700.

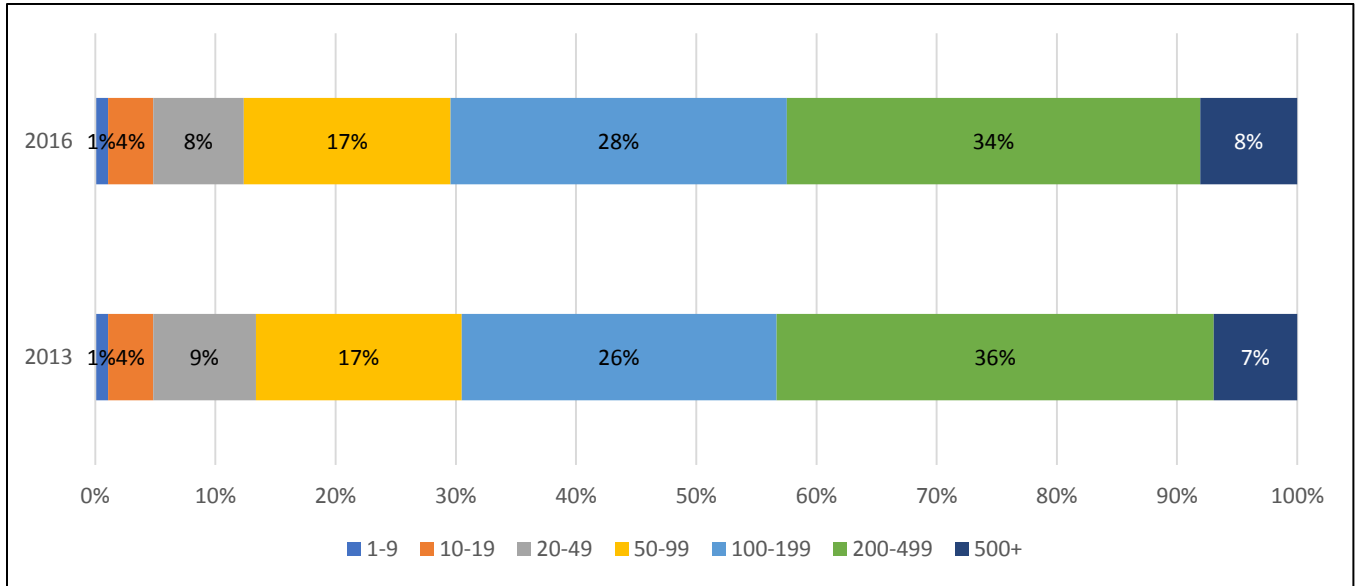**Regional Automotive Manufacturing Employment by Activity, 2013-2018**

Source: Canadian Skills Training & Employment Coalition, Automotive Policy Research Centre

Profile of Automotive Manufacturing Employers

Statistics Canada's business counts data provides insights into the mix of business types present in the Golden Horseshoe region's automotive manufacturing industry. A comparison of data from 2013 and 2016 reveals that while the proportion of small-sized automotive manufacturing establishments (i.e. 1 to 99 employees) remained stable there was no noticeable decline among small businesses. The region also saw the share of medium-sized automotive manufacturing establishments (i.e. 100 to 199 employees) increase from 26% in 2013 to 28% in 2016. However, there was a slight decline seen among employers with 200 to 499 employees.

Regional Automotive Manufacturing Establishments by Employment Size, 2013-2016

Source: Canadian Skills Training & Employment Coalition, Statistics Canada

The largest automotive manufacturing employer in the Golden Horseshoe region is Magna International with 29 plants operating in the region. OEMs are also large employers with a combined 6 plants operating in the region employing 12,100 employees. Taken together, the region's top employers employed 29,300 people in 2018, based on findings from industry contacts, company websites, industry literature and other sources of publicly available data.

Largest Regional Automotive Manufacturing Employers, 2018

Employer	Plants	Employees
Magna International	29	10,879
Ford	1	4,600
GM	3	3,800
FCA	2	3,706
Multimatic	8	1,810
Martinrea	6	1,747
ABC Group	8	1,575
Stackpole	4	1,242

Source: Canadian Skills Training & Employment Coalition, Automotive Policy Research Centre
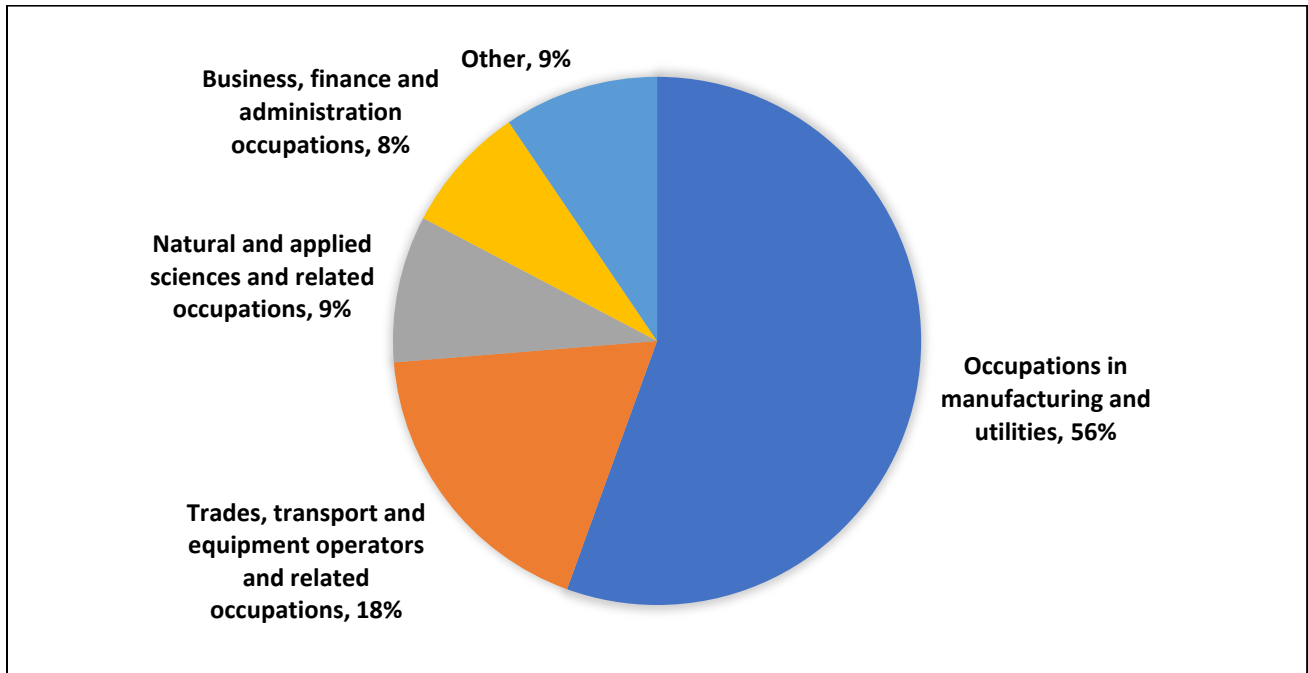
Automotive Manufacturing Labour Market

Workers in the Golden Horseshoe region's automotive manufacturing industry can be classified by job family, which indicates the broad area of work in which they are employed. Employees in each of these occupational groups play distinct roles in contributing to the industry's success.

Unsurprisingly, manufacturing and utilities occupations account for over half (56%) of the region's automotive manufacturing labour force. A further 18% is accounted for by trades, transport and

equipment operators. The remaining workers are split between business, finance and administration occupations (8%); natural and applied sciences occupations (9%); and all other occupation types (9%).

Regional Automotive Manufacturing Workforce by Job Family, 2016

Source: Canadian Skills Training & Employment Coalition, Statistics Canada

A more granular analysis of the region's automotive manufacturing workforce shows that over half (56%) of the industry's labour force are classified by Statistics Canada as motor vehicle assemblers, inspectors and testers (NOC 9522). This occupational code covers a range of activities including[5]:

- connecting cables, tubes and wires to complete assemblies and installations;
- positioning and installing parts, subassemblies and accessories such as engines, transmissions, door panels or instrument panels;
- driving and testing motor vehicles on roll testing devices to ensure proper functioning;
- and fitting and adjusting parts such as doors, hoods and trunk lids

Other key occupations in the region's automotive manufacturing workforce include motor vehicle assembling supervisors (NOC 9221), material handlers (NOC 7452), mechanical engineers (NOC 2131), and manufacturing managers (NOC 0911). The following table lists the occupations that account for at least 1.0% of the region's automotive manufacturing labour force:

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[5] http://noc.esdc.gc.ca/English/NOC/QuickSearch.aspx?ver=&val65=9522

Key Regional Automotive Manufacturing Occupations and Trades, 2016

Occupation	Automotive Manufacturing Labour Force	Share of Automotive Manufacturing Labour Force
Motor vehicle assemblers, inspectors and testers (NOC 9522)	19,520	56.0%
Supervisors, motor vehicle assembling (9221)	2,330	6.7%
Material handlers (7452)	2,120	6.1%
Mechanical engineers (2132)	1,365	3.9%
Manufacturing managers (0911)	1,315	3.8%
Tool and die makers (7232)	1,110	3.2%
Welders and related machine operators (7237)	1,060	3.0%
Construction millwrights and industrial mechanics (7311)	935	2.7%
Other labourers in processing, manufacturing, and utilities (9619)	840	2.4%
Industrial panters, coaters, and metal finishing process operators (9536)	755	2.2%
Industrial electricians (7242)	740	2.1%
Automotive service technicians, truck and bus mechanics and mechanical repairers (7321)	685	2.0%
Metalworking and forging machine operators (9416)	635	1.8%
Shippers and recievers (1521)	590	1.7%
Industrial and manufacturing engineers (2141)	495	1.4%
Mechanical assemblers and inspectors (9526)	340	1.0%

Source: Canadian Skills Training & Employment Coalition, Statistics Canada

This list of key occupations and trades reflects the region's automotive manufacturing workforce as reported by traditional industry codes (NAICS 3361 and 3363). Under a broader definition of the automotive manufacturing industry, this list would likely be revised to include occupations and trades that are prevalent in other manufacturing, technology and materials industries.

Competition from Other Industries

While the automotive manufacturing industry remains a premier employer, competing employment demands from other industries are worth analyzing for their potential impact on hiring decisions for key trades and occupations.

Overall, automotive manufacturing accounted for 4% of the London/Stratford-Bruce Peninsula region's total workforce in 2016. Among manufacturing and utilities occupations, however, the industry

accounted for 30% of the workforce. The primary competition for these occupations comes from other manufacturing employers (48%). Greater regional competition exists within other job families. For example, the construction industry accounted for 34% of region's workforce employed in trades, transport and equipment operator positions. Regional growth in this industry could impact the availability of workers in this job family for automotive manufacturing employers.

Regional Workforce Distribution by Job Family and Sector, 2016
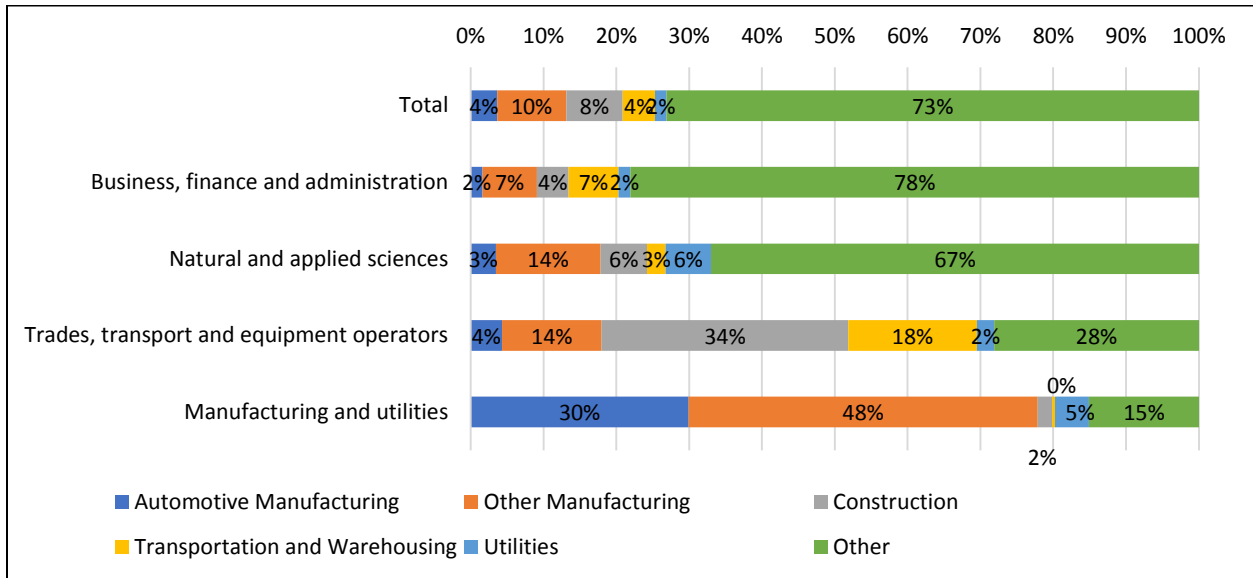
Source: Canadian Skills Training & Employment Coalition, Statistics Canada

Automotive Manufacturing Demographics

- section will be completed following receipt of Stats Can data order