



Sectoral Profile

Machinery Manufacturing

Ontario

2017-2019



Sectoral Profiles provide an overview of recent labour market developments and outlooks for some of the key industries in various regions of the country

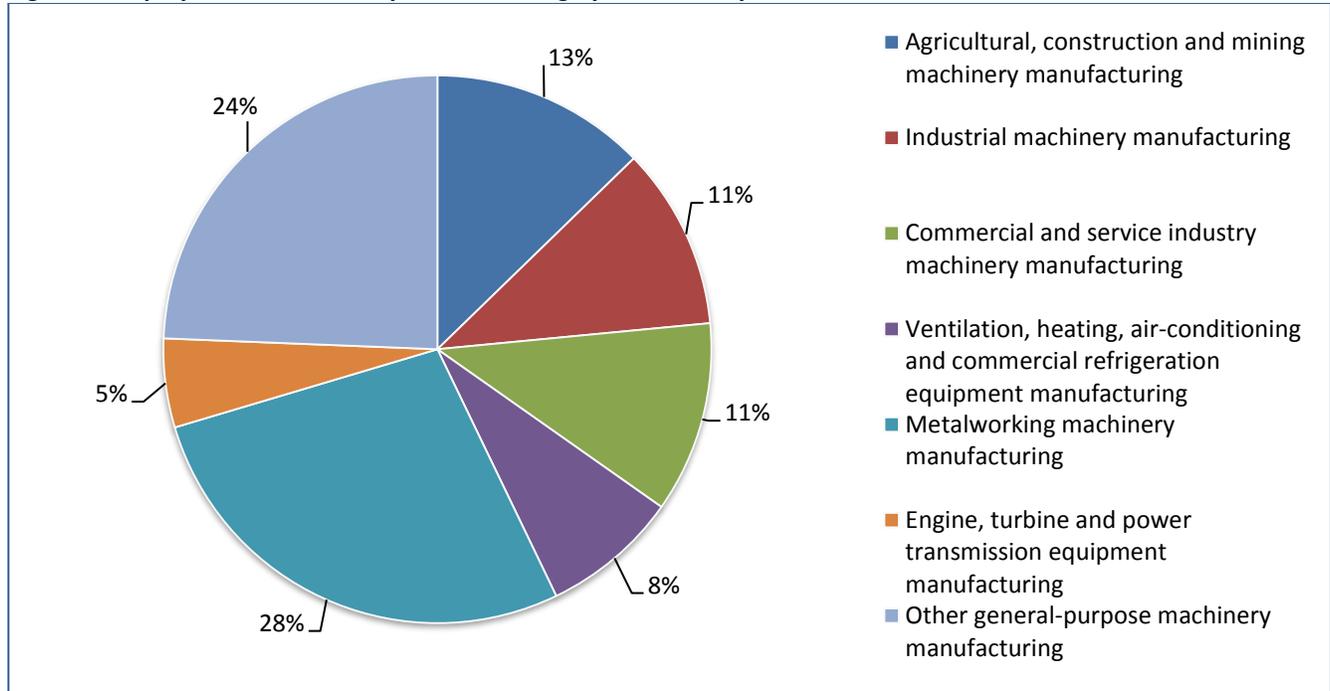
GREATER INDUSTRIAL ACTIVITY HELPS SPUR MACHINERY MANUFACTURING IN ONTARIO

- Improved global demand, particularly from the United States, will boost machinery exports
- Uptick in industrial activity in Ontario will support machinery manufacturing
- Technology will play a larger role in machinery functions in the coming years
- Labour market conditions should be favourable for the machinery manufacturing industry over the 2017 to 2019 period

Machinery manufacturing is a core part of the industrial base in Ontario. The industry produces a vast range of goods that support manufacturing output, as well as activities in construction, agriculture, power, resource-based industries, and commercial services. More than 45.0% of all machinery manufacturers in the country are in Ontario, including several of the largest industry players.¹ The province is home to about 48.4% of the machinery-manufacturing workforce in Canada.² The industry is broken down into seven groups based on the type of goods produced. Metalworking and other general-purpose machinery manufacturing employ just over one-half of all workers in Ontario (See Figure 1).³ Meanwhile, engine, turbine and power transmission equipment, and ventilation, heating, air-conditioning and commercial refrigeration equipment manufacturing have the fewest number of employees. In 2016, machinery manufacturing made up 8.1% of the manufacturing industry's total gross domestic product in the province.⁴

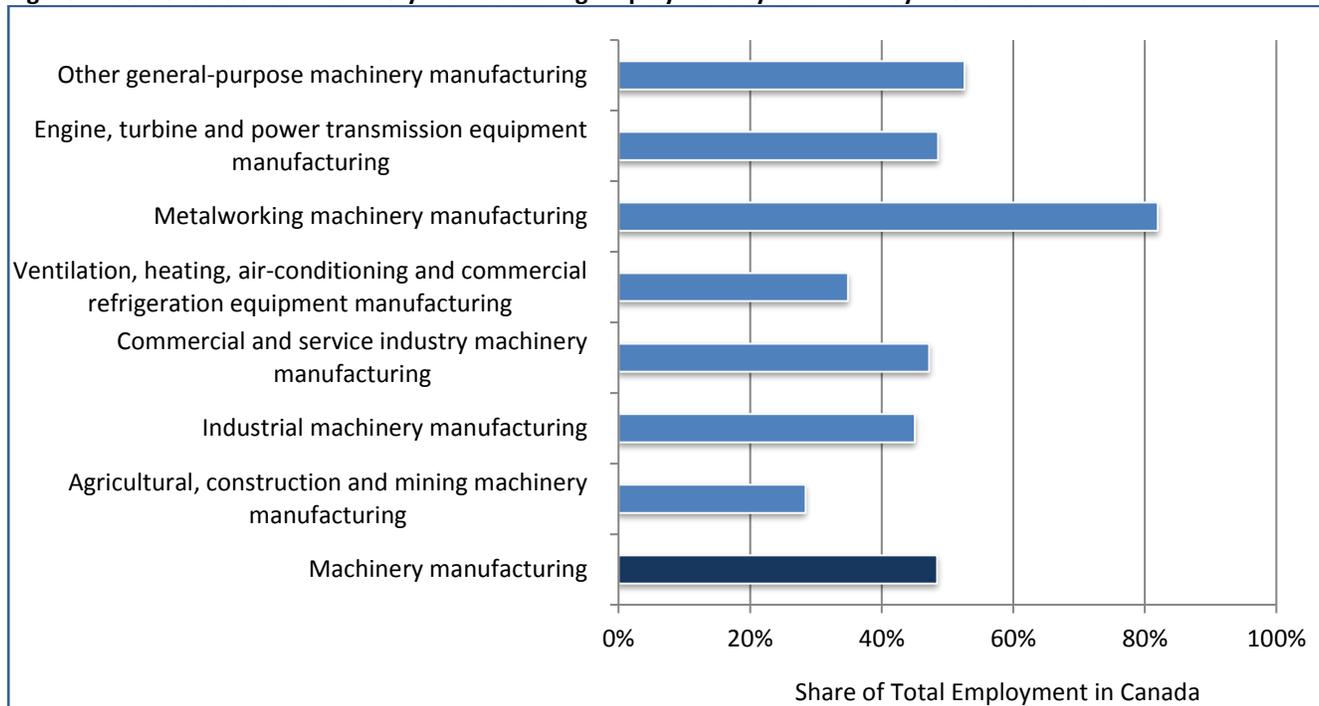
Employment in machinery manufacturing increased to 61,685 in Ontario in 2016.⁵ This was the third consecutive annual gain. The majority of companies in machinery manufacturing are small to medium-sized with fewer than 50 employees and specialize in a particular product or market.⁶ Ontario has the highest concentration of employment in metalworking machinery manufacturing in Canada (See Figure 2). This likely stems from the large automotive industry in Ontario and its long-standing ties with the American market. The province is also a leader in construction machinery manufacturing.⁷ Machinery produced in Ontario mainly serves global markets as well as local needs. Canada has a deep footing in machinery expertise because of the high presence of capital-intensive industries across the country.⁸

Figure 1: Employment in Machinery Manufacturing by Sub-Industry in Ontario in 2016



Source: Statistics Canada

Figure 2: Concentration of Machinery Manufacturing Employment by Sub-Industry in Ontario in 2016

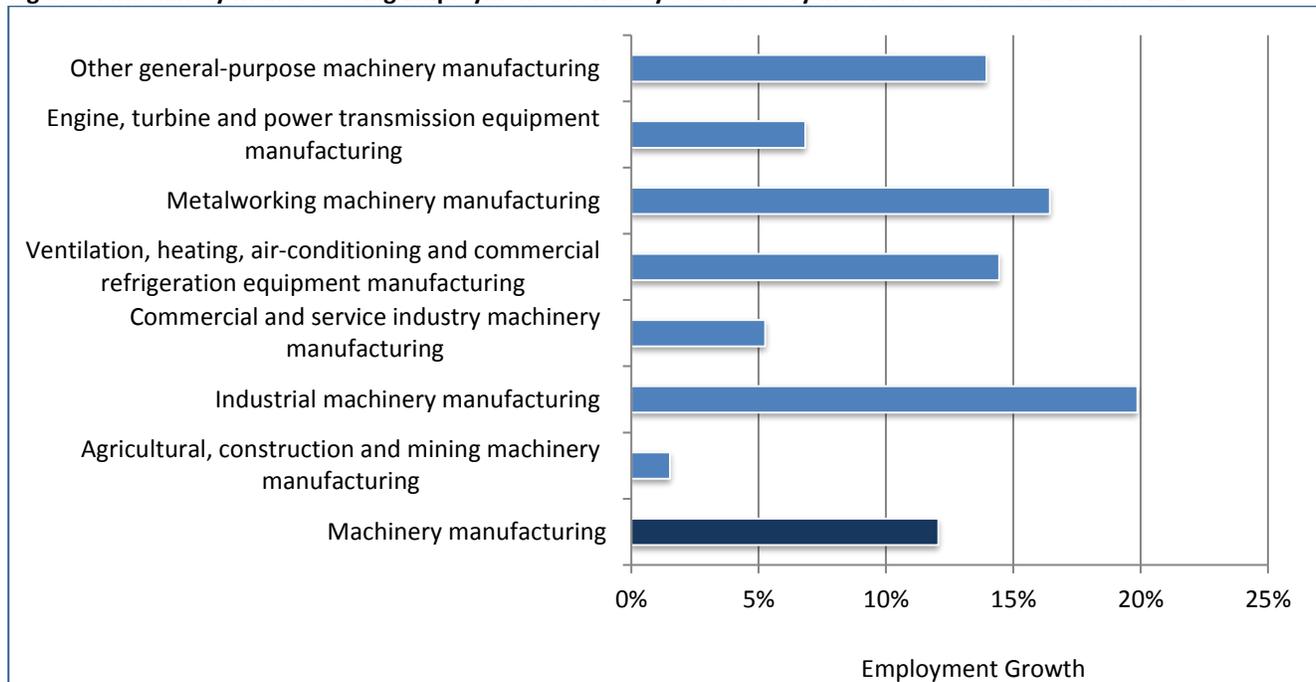


Source: Statistics Canada

Machinery Manufacturing Employment Performs Well

The machinery manufacturing industry should see steady labour market conditions in Ontario over the 2017 to 2019 period. Employment reached its highest level in 2016 since the last recession. Job growth took place in all of the machinery manufacturing sub-industries between 2011 and 2016 (See Figure 3).

Figure 3: Machinery Manufacturing Employment Growth by Sub-Industry in Ontario between 2011 and 2016



Source: Statistics Canada

Companies in machinery manufacturing require higher-skilled labour to meet the shift towards advanced manufacturing practices. Manufacturers now use more computer-controlled machinery to produce goods and custom products. As a result, workers often require knowledge of numerical tools, robotics and manufacturing software. Industry reports suggest that companies currently face challenges to recruit workers especially in manufacturing-related trades in machining and metal forming. The industry's workforce is also aging, which has put more pressure on companies. Results from a recent survey by the Ontario Skilled Trades Alliance suggest that 41.0% of companies would increase hiring if qualified candidates were available.⁹ Increasing the supply of skilled workers in the years ahead will be essential to fill retirement needs and meet demand for custom and high-valued machinery.

Some of the key occupations in machinery manufacturing in Ontario include:

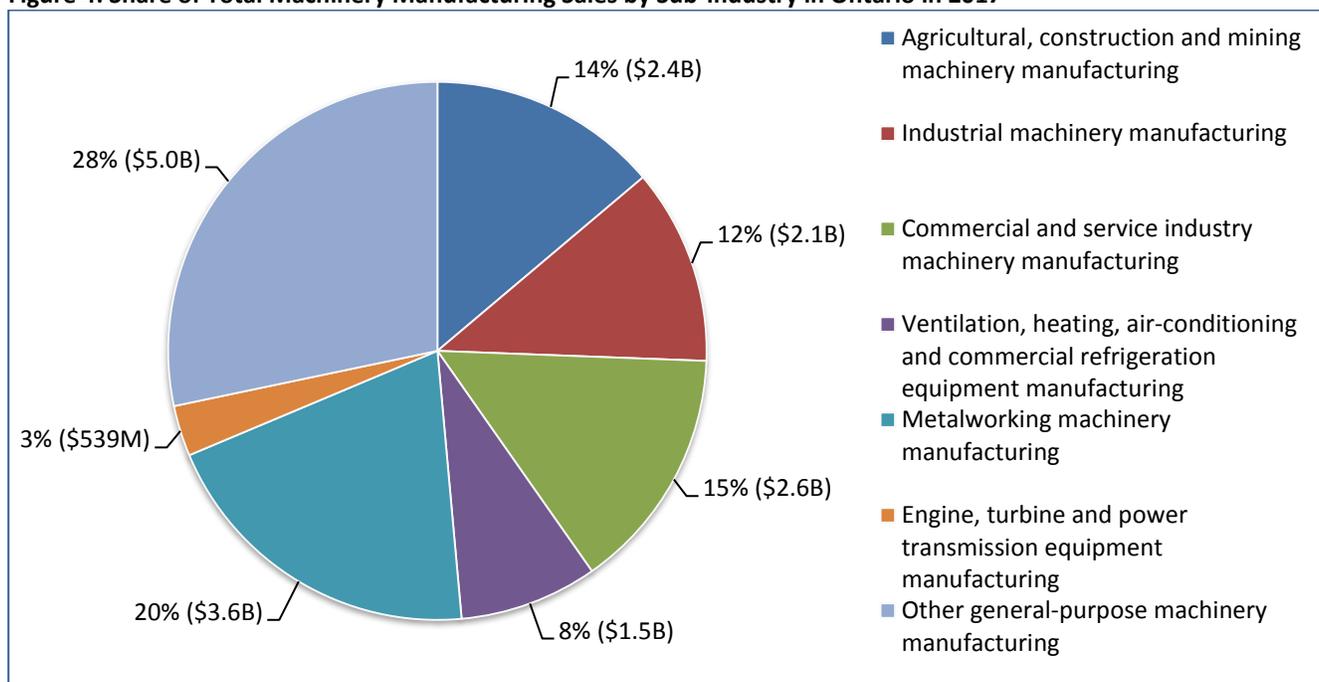
- Manufacturing managers (NOC 0911)
- Mechanical engineers (NOC 2132)
- Mechanical engineering technologists and technicians (NOC 2232)
- Machinist and machining and tooling inspectors (NOC 7231)
- Tool and die makers (NOC 7232)
- Welders and related machine operators (NOC 7237)
- Construction millwrights and industrial mechanics (NOC 7311)
- Mechanical assemblers and inspectors (NOC 9526)

Outlook for Machinery Manufacturing Looks Upbeat

The outlook for machinery manufacturing depends on the demand from downstream markets. Although Ontario exports most of the machinery produced, many of the key factors that drive demand are similar both abroad and locally. The manufacturing industry is the largest end user of industrial machinery.¹⁰ During periods of higher economic activity and business confidence, the level of industrial production tends to rise to meet elevated demand. This can spur investments in Machinery and Equipment (M&E) to boost production and meet orders. Other industries in the goods-producing sector such as resource extraction, construction, and power generation, tend to play a larger role in machinery output as well.

Stronger economic growth south of the border and in Ontario should continue to support work for machinery producers. Manufacturing sales in this industry grew by 13.9% to \$17.7B in Ontario in 2017 (See Figure 4).¹¹ Local manufacturers have also ramped up production to meet rising demand. Industrial capacity utilization rates jumped from 77.4% in the fourth quarter of 2016 to 90.2% in the fourth quarter of 2017 for machinery manufacturers across Canada.¹² This is one of the highest quarterly operating rates seen in over a decade.

Figure 4: Share of Total Machinery Manufacturing Sales by Sub-Industry in Ontario in 2017



Notes: Figures in the bracket represent the total manufacturing sales in that industry in 2017

Some figures may not sum to 100 percent because of rounding

Source: Statistics Canada

Stronger Industrial Activity in the Manufacturing Industry will lift Machinery Production

Machinery manufacturing is highly export-intensive. Industry prospects often depend on global conditions, especially in the United States. Ontario exported about 87.8% of all machinery produced in 2017 (based on domestic exports).¹³ The bulk of shipments went to the United States. Local machinery manufacturers will benefit from an upturn in world growth and business sentiment that will raise the demand for manufactured goods. This should bolster industrial production and promote capital investment in M&E. In particular, increased industrial activity in the United States may put added pressure on current operating capacity levels,

which are at highs not seen since mid-2008. The IHS Markit Composite Purchasing Managers' Index (PMI) remains well into expansion mode in the United States with solid returns in the Manufacturing PMI and the Services PMI Business Activity Index.¹⁴ Capacity restraints, a positive output gap, and new American tax reforms that are more favourable towards capital expenditures should increase the demand for Canadian-made machinery. This may be part of the reason for the jump in domestic manufacturing orders. The estimated monthly value of new orders received in machinery manufacturing rose sharply between 2016 and 2017 in Canada.¹⁵ Meanwhile, the estimated monthly value of unfilled orders in the industry increased further to raise the backlog of work for Canadian machinery producers.¹⁶ The lower Canada-United States exchange rate will also be a boon though it may weigh on the purchase price for imported equipment.¹⁷ Several analysts expect American industrial production to gain more traction in 2018.

The close linkage between the strength of the Ontario manufacturing industry and conditions in the United States may be part of the reason for strong sales in several machinery-manufacturing industries as of late. Sales for industrial machinery have been steadily climbing over the past five years, and sales for ventilation, heating, air conditioning and commercial refrigeration equipment such as industrial fans, furnaces, and cooling towers, have grown since 2010.¹⁸ Likewise, sales for other general-purpose machinery such as welding equipment, pumps, hydraulic and pneumatic components, and packaging equipment, topped \$5.0B in Ontario in 2017.

Ontario's Manufacturing Snapshot

In addition to the global market, machinery manufacturers will benefit from greater industrial activity and improved business and consumer confidence in Ontario. Capital expenditures on M&E rose by 4.8% to \$29.9B in the province based on preliminary estimates.¹⁹ Capital intentions for 2018 suggest that private and public spending on M&E will rise even further to more than \$31.3B. This should help support steady manufacturing output for machinery producers in the near term. There is also a need to update the existing stock of capital. In 2015, the estimate for the remaining useful service life of all M&E in Ontario was just 55.1%.²⁰

The uptick in the provincial manufacturing base, driven by foreign and local demand, will increase the need for M&E to maintain and raise production output across multiple industries in Ontario. The majority of manufacturing industries were operating at more than 80.0% capacity to end 2017, with a handful over the 90.0% mark in Canada.²¹ The Markit Canada Manufacturing Purchasing Managers' Index (PMI) continues to signal positive activity in the industry with higher orders and purchasing intentions across Canada.²² Forecasts suggest that the Index will stay in expansion mode during the coming year as companies expand capacity and plug away at the order book. Heading into 2018, provincial manufacturers plan to increase spending on M&E to more than \$5.0B.²³

Although all areas of the manufacturing industry invest rather heavily in machinery, the transportation equipment, primary and fabricated metal product, electrical equipment, appliance and component, and food manufacturing industries are some of the largest end markets in Ontario.²⁴ The province has a vast automotive industry that spans across much of southern Ontario and supplies markets throughout the continent. This creates ongoing demand for a range of metalworking machinery such as industrial moulds, machine tools, and die-casting equipment. Several motor vehicle manufacturers and parts suppliers announced plans to retool or invest in new equipment, which will increase work for machinery manufacturers that supply these markets. In particular, sales in the metalworking machinery manufacturing industry reached \$3.6B in 2017, the highest tally since 2008 (See Figure 4).²⁵ The large volume of unfilled orders in the aerospace industry in Canada and the United States will also support work across the metalworking machinery chain. Outside of transportation, the primary metal and fabricated metal product manufacturing industries may see fairer conditions in the near term because of improved demand for steel, fasteners, and structural metal parts throughout the economy. Growth for high-valued, electrical devices and the need to invest in capital to expand opportunities in food

production²⁶ may spur investments for equipment such as metal casting, electroplating, chip placement, and food grading, cleaning and sorting machines.

Goods-Producing Sector Increases Machinery Demand

Construction is one of the largest downstream markets for industrial machinery after the manufacturing industry.²⁷ Sales in the construction machinery manufacturing industry remain elevated after a sharp jump in 2012 that coincided with robust building activity in the province and the start of the housing market recovery in the United States.²⁸ Current trends in the construction industry suggest that building starts and spending will be solid into 2018 in the United States across the residential, commercial and industrial markets. Higher construction activity will raise the demand for industrial and material handling machinery such as cranes, tractors and excavators, aerial work platforms, and elevators. In Ontario, construction companies increased spending on M&E in 2017 and plan to invest a similar level in 2018.²⁹ Though residential construction may moderate into 2018, there are several multi-unit projects like condominiums, student residences, and retirement complexes in the works. Investments in infrastructure projects such as transit and roadwork, commercial developments, and a pickup in industrial building will also sustain the need for construction equipment. On both sides of the border, the wholesale market is an important buyer of construction-related M&E since a fair number of companies rent or lease building equipment from these establishments.

The local utilities industry will be a major driver of machinery production in the province in the coming years. Companies within the utilities industry increased capital expenditures on M&E by 35.1% in 2017, which was the highest gain among all industries in the province.³⁰ Some of this spending push is likely because of multibillion-dollar investments to refurbish nuclear reactors at two generating facilities in Ontario during the next decade. This should keep capital needs high as companies in the utilities industry plan to increase spending by an additional 11.7% in 2018.³¹ Meanwhile, sales for engine, turbine and power transmission equipment have been weaker over the past few years, but conditions may moderate to meet renewable power, resource-extraction, and transportation needs (excluding motor vehicle and aircraft).

Though most of the domestic machinery produced for extractive industries in the country comes from western Canada, Ontario still manufactures a sizeable amount of equipment for the mining and oil and gas industries. An improvement in crude oil prices and ongoing drilling and hydraulic fracturing in the United States may revive some demand for boring or sinking machinery and related parts.³² Resource projects in other countries have also been a source of growth for mining and oil and gas field equipment in recent years. Ontario exports industrial machinery to other provinces as well, most notably Alberta.³³ While the spike in drilling activity and oil production in Alberta in 2017 may moderate a bit, oilsand expansions and pipeline projects will continue. This may help kick-start orders for oil-related equipment in western Canada.

On the local front, Ontario is a key part of the metallic and non-metallic mining base in Canada.³⁴ Lower prices for base metals over the past few years have curbed exploration and investment activity but the outlook appears to be brightening. A few mining projects are currently moving forward in northern Ontario such as Vale's Copper Cliff Deep Project, Glencore's Onaping Depth Project, and Harte Gold's Sugar Zone Project. Capital expenditures on M&E are set to rise to more than \$633M in the provincial industry in 2018.³⁵ This is the highest figure observed since 2012. Increased mining activity may also raise the need for material handling equipment such as mine conveyors and hoists. After weak growth over the past few years, sales for mining and oil and gas field machinery improved by 15.5% in the province in 2017 on the heels of higher industry optimism.³⁶

Machinery to meet the needs of larger and more capital-intensive farms in both the United States and Canada will support the demand for industry-related equipment. Sales in agricultural implement manufacturing rose

during the past three years to \$608M in Ontario in 2017. Farms may also rely on more capital to increase yields and cope with labour shortfalls in some regions. Going forward, capital spending within agriculture, forestry, fishing and hunting is pegged for \$663M in Ontario in 2018.³⁷

Commercial and Service Market for Machinery Grows

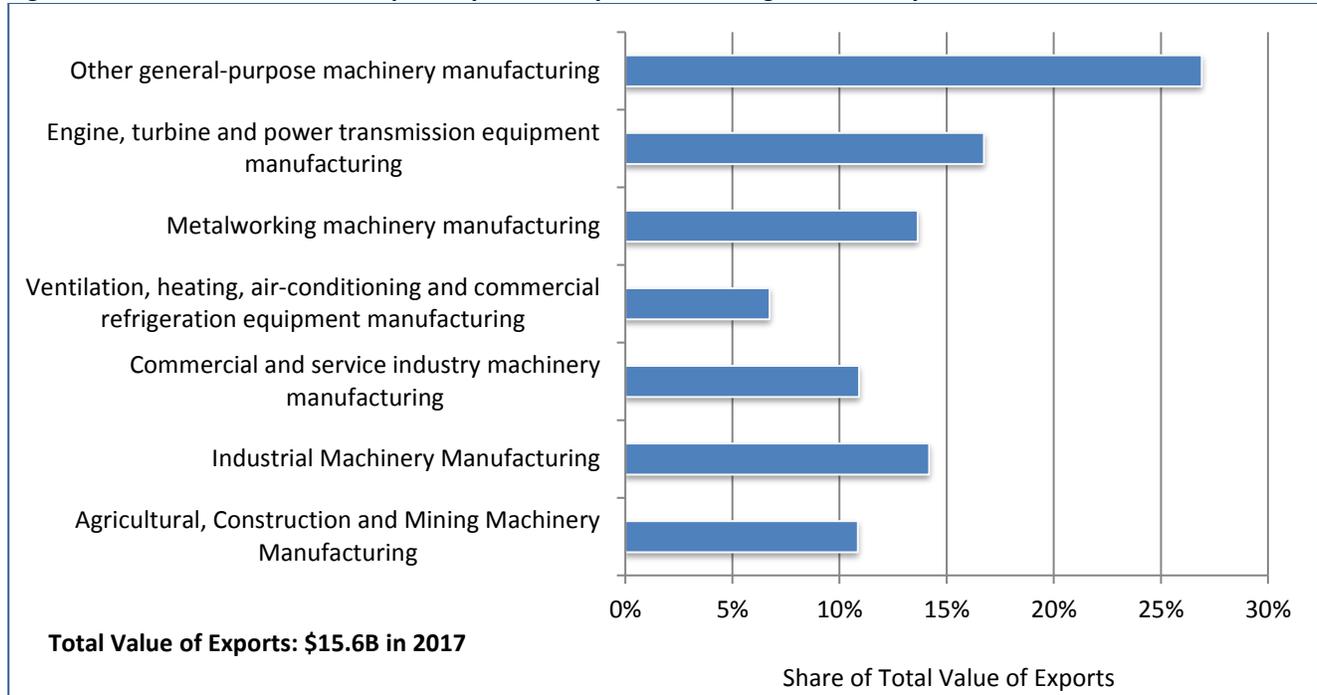
The commercial and service machinery manufacturing industry produces a wide range of goods that serve multiple business lines. Machinery produced in this industry includes commercial cooking equipment, optical instruments, photographic equipment, commercial cleaning and laundry-related machinery, and some types of office equipment. Greater business confidence to expand operations, the move to a more service-oriented economy, and the development of advanced products that use digital and optical applications may lead to steady demand for these machinery manufacturers in the global and domestic market. One area that is expected to grow in the coming decade is the retail automated market. This includes high-end vending machines that will offer consumers a wider range of goods at their convenience.³⁸ Manufacturing sales in this industry increased each year since 2015 and reached almost \$2.6B in Ontario in 2017.³⁹

Machinery Manufacturing Trade Landscape

The total value of machinery exported from Ontario grew by 48.6% between 2011 and 2017. There were large gains in the metalworking, ventilation, heating, air-conditioning and commercial refrigeration, and other general-purpose machinery manufacturing industries during this span. The large rise in the value of metalworking machinery exports could be because of stronger activity in the motor vehicle market south of the border. Although smaller in terms of value, Ontario is now the top exporter of agricultural implement equipment in Canada after surpassing Manitoba in 2015. In 2017, other general-purpose machinery manufacturing made up the largest value of shipments from Ontario (See Figure 5).

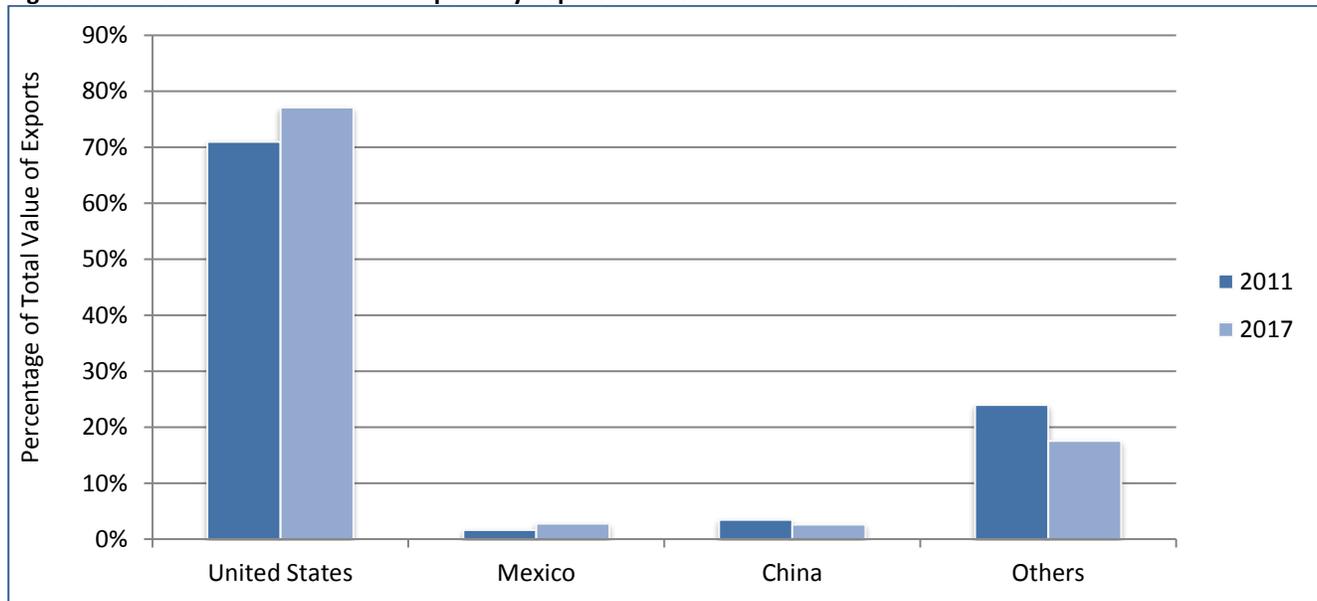
A larger share of all machinery produced in Ontario headed to the United States over the past few years based on the total value of shipments (See Figure 6). There has also been a gain in the Mexican market with 2.8% of the total value of exports destined for Mexico. The value of shipments to Mexico has more than doubled between 2011 and 2017. This growth may continue as Mexico builds its manufacturing base and requires more capital equipment. Barring any major disruptions on the trade front in the near term, Ontario's machinery manufacturing industry will continue to see favourable demand especially from the strengthening United States economy. While Ontario exports a small share of goods to European and Asian countries, recent trade agreements such as the Canada-Korea Free Trade Agreement (CKFTA), the Comprehensive Economic and Trade Agreement (CETA), and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) may open new doors. CKFTA will provide duty-free access for certain industrial manufactured goods such as power generating machinery.⁴⁰ CETA will eliminate all European Union tariffs on machinery and equipment.⁴¹ Business investment spending and Purchasing Managers' Indices from some of the larger countries in the Eurozone such as Germany, France, and Italy are in positive mode, which may bode well for Ontario-made machinery. Meanwhile, CPTPP will eliminate tariffs on certain industrial goods such as pumps for liquids, taps, cocks and valves for pipes and boilers, and moulds and machinery for manufacturing rubber or plastics.⁴² The conditions on tariff reductions vary between member nations and CPTPP may not come into force until late 2018 or early 2019.

Figure 5: Share of Total Value of Exports by Machinery Manufacturing Sub-Industry in Ontario in 2017



Source: Government of Canada, Trade Data

Figure 6: Share of the Total Value of Exports by Top Destination in Ontario between 2011 and 2017



Source: Government of Canada, Trade Data

Technology Leads New Areas of Growth for Machinery Manufacturers

The move to more digital technologies will present opportunities for machinery producers. Manufacturers may see greater demand for 3D printers to serve a variety of markets such as transportation, healthcare, and fabrication. There are also ongoing developments to allow equipment to perform quality checks, continuous monitoring, performance measures, and pull data through the use of analytic technologies. The use of sensors and tracking and location systems in machinery may assist industries such as mining and construction as well. To help bridge the gap between production and digitization, increased collaboration between manufacturers and software and technology companies may become more common.

Sub-Regional Trends: Ontario's Machinery Manufacturing Hubs

The machinery manufacturing industry plays a major role to support activities throughout the province. Many plants are in close distance to manufacturing hubs, resource-based economies, or agricultural or utilities operations. The manufacturing heartland of southern Ontario employs the majority of workers in this industry. Labour market activity created by machinery manufacturers helps drive local economies through demand for input materials, transportation needs, and wholesale and distribution opportunities.

Ottawa and Kingston–Pembroke Economic Regions

Although Eastern Ontario has a smaller machinery manufacturing industry compared to other parts of the province, there are still a fair number of producers including a few large companies. This region saw multiple expansion announcements in the machinery manufacturing industry in recent years. In 2016, Cancoil Thermal Corporation moved to a larger facility in Kingston to meet growing demand. Direct Coil Inc. announced that it would invest \$2.7M to expand its manufacturing line, which will create up to 20 jobs at its Kingston plant by 2020. Lastly, DRS Technologies Canada Ltd. announced that it would invest about \$5.2M to purchase equipment and expand operations at its Ottawa facility in 2017.

Toronto Economic Region

The Toronto region has the largest machinery-manufacturing workforce in Ontario and has several of the top equipment producers. The Greater Toronto Area has a large manufacturing industry that includes automotive, aerospace, and food producers. The region also has a robust construction industry, as well as a high share of commercial services and utilities providers. Several developments are underway in the region to expand capacity. One of the larger metalworking machinery producers in the province has been ramping up production over the past few years. Tycos Tool & Die, a division of Magna International Inc., is in the midst of a capital spending plan at its Concord plant. This will help increase production, and meet future business needs through technologies such as 3D printing. Meanwhile, Tronoplast Technologies Inc. opened an expanded facility in Brampton in 2016 to support production of its polymer film extrusion equipment. Minus Forty Technologies Corporation recently invested in new technologies at its Georgetown facility to raise production of its commercial freezers and cooler systems. Work on the Darlington Nuclear Generating Station is creating orders for local producers as well. Oakville-based Promation Nuclear Ltd. delivered its first tooling system to Ontario Power Generation at the end of 2016. Promation is actively working on other machinery to meet long-term refurbishment plans.

Kitchener–Waterloo–Barrie Economic Region

The Kitchener–Waterloo–Barrie region has a strong machinery manufacturing industry that includes several big producers. The region has a large and diverse manufacturing base, a vast agricultural industry, and a growing population. There were several positive developments in the local machinery manufacturing industry as of late. Industrial Filter Manufacturing Ltd. expanded production space at its Penetanguishene plant in the fall of 2017

to keep up with new orders. DESCH Canada Ltd. announced that it would invest \$12.6M in its Cambridge plant to increase operations, which will lead to as many as 30 jobs by 2021. Innovative Automation Inc. announced that it would invest \$10.8M in new engineering, software and production equipment at its Barrie plant. The project will create up to 29 jobs and finish in 2020. Prodomax Automation Ltd. will invest about \$2.9M to expand its Barrie facility. The project will generate up to 20 jobs by 2020. Further, Weber Manufacturing Technologies Inc. is in the middle of an \$8M investment to expand production capabilities at its Midland plant. Refurbishment work at the Bruce Power Nuclear Generating Station will create opportunities for local producers as well. In 2016, Bruce Power signed a multi-year agreement with Automation Tooling Systems Inc. in Cambridge. Initial orders are valued at \$40M with the potential for more work as the project progresses. In 2015, Cambridge-based BWXT Canada Ltd. also secured an order for the design and manufacture of 32 steam generators for the Bruce site. The long-term agreement is worth up to \$500M.

Hamilton–Niagara Peninsula Economic Region

The Hamilton–Niagara Peninsula region has a sizeable machinery manufacturing industry that includes several large and mid-sized companies. The region has a vast manufacturing base that includes metal, transportation, and food production, and a rich agricultural hub. The local machinery manufacturing industry received a major boost in 2016. General Electric Canada announced that it would build its first Canadian ‘Brilliant Factory’ worth \$265M in Welland. The plant will produce power generation machinery to supply the world market. The investment will create up to 220 jobs and the plant should be at full operation by the end of 2018. Further, Allied Marine & Industrial Inc. opened a new plant in Port Colborne in the summer of 2017, leading to as many as 16 jobs. J.P. Bowman Precision Tooling announced that it would invest about \$7.6M in new technologies at its Brantford plant. The expansion work will create as many as 16 jobs and finish in 2021. Tigercat Industries Inc. also announced at the end of 2017 that it would consolidate most of its industrial cab production in Ontario to its Brantford site.

London Economic Region

The London region is part of the manufacturing centre in southwestern Ontario. The area has a higher share of transportation, food, and metal product manufacturers. There were a couple of recent developments in the local machinery manufacturing industry. In 2017, Fluid Power House (FPH) Group Inc. announced that it would upgrade equipment at its London plant to grow its export potential, leading to as many as 14 jobs. Aarkel Tool and Die Inc. will invest \$10.3M to redesign production space and increase product offerings at its Wallaceburg plant. The project will create up to 15 jobs and wrap up at the end of 2019. On the downside, Siemens Wind Power Ltd. announced that it would shutter its wind turbine production plant in Tillsonburg in early 2018, affecting 340 workers.

Windsor–Sarnia Economic Region

The Windsor–Sarnia region has a strong machinery manufacturing industry that stems from its core automotive base and connection to producers in the northeastern United States. The region is a buzz with activity recently. Sellick Equipment Limited opened a new \$21M plant to manufacture rough-terrain forklifts in Harrow in February 2018. CenterLine (Windsor) Ltd. announced that it would expand its facility in LaSalle to meet growing demand. Reko International announced that it would invest over \$15.0M to expand its facility in Lakeshore. The project will create up to 30 jobs and finish in the summer of 2021. Jahn Engineering Ltd. will invest about \$6.6M to increase capacity at its Oldcastle facility, which will lead to as many as 80 jobs by 2021. Windsor Industrial Services will invest close to \$1.9M to boost capacity and expand its market base, creating up to 15 jobs by 2022. Technicut Tool Inc. will invest about \$4.4M to purchase new equipment. This will help generate 10 jobs by 2021. Ramstar Carbide Tool Inc. announced that it would invest about \$6.6M to modify its facility for new equipment, which will create as many as 11 jobs by 2022. Lastly, Cavalier Tool & Manufacturing Ltd. announced that it would invest \$6.0M to expand its facility in 2016 to keep up with demand.

Northeast Economic Region

The region has a large mining supply and services industry to support the array of exploration and extraction projects across Northern Ontario. There has been quite a bit of activity in the mining machinery manufacturing industry to increase efficiency and meet local and international needs. The Bucket Shop opened an expanded facility in Timmins worth \$15M in 2017. The company manufactures custom heavy equipment buckets for the mining and construction industries. Several companies in Sudbury and Timmins received funding through the Northern Ontario Heritage Fund Corporation to test new products and expand operations in 2016 and 2017. The largest projects include a \$1.37M investment in Boart Longyear Canada to develop technology for mineral exploration rigs, and an \$800,000 investment in Rock-Tech to help construct a new facility to boost production. There were additional investments in BESTECH to develop a Blast Gas Clearance Module, Conveyors Plus Inc. to test a new conveyor system, and Precision Boring to purchase equipment and expand its facility. Further, Hardrock-Vertex moved into a new, purpose-built facility in Val Caron in the spring of 2016 and Kropf Industrial Inc. expanded its production facility in Parry Sound in 2017. Kropf Industrial produces machinery for the marine sector, as well as material handling equipment for the mining and construction industries.

Favourable Prospects in the Machinery Manufacturing Industry in Ontario

The machinery manufacturing industry has a vital role in our economy. The industry produces goods that feed into several markets such as manufacturing, construction, commercial services, agriculture, and extractive industries. Greater industrial activity and business investment in the United States and Ontario will increase the need for machinery to raise production capacity and fulfill orders. Opportunities also exist for companies to incorporate new technologies and build expertise in innovative products. Employment in machinery manufacturing will likely remain steady in the near term as companies seek a skilled workforce, especially for trades in metal fabrication.

Note: In preparing this document, the authors have taken care to provide clients with labour market information that is timely and accurate at the time of publication. Since labour market conditions are dynamic, some of the information presented here may have changed since this document was published. Users are encouraged to also refer to other sources for additional information on the local economy and labour market. Information contained in this document does not necessarily reflect official policies of Employment and Social Development Canada.

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