Employment and Social Development Canada | Emploi et Développement social Canada

Service Canada

Canadian Occupational Projection System 2019 Projections

Industrial Outlook 2019-2028

NOTE: The current COPS projections were completed in 2019, well before the 2020 COVID-19 outbreak that resulted in exceptional and abrupt economic and labour market disruptions in Canada as well as abroad. However, the focus of the COPS projections is on long-term trends in industrial and occupational labour markets, not on short-term developments. At the moment, these long-term trends are not expected to be affected markedly by the COVID-19 outbreak as its impacts are generally foreseen to be temporary.

Outline

- Historical and Projected Trends in Real GDP, Employment and Productivity by Aggregate Sector*
- Projections for Real GDP, Employment and Productivity in the Primary, Manufacturing and Services Industries*
- Comparisons of Employment Projections across Industries

**NOTE: The four aggregate sectors of the economy are the primary, construction, manufacturing and services sectors. The construction sector is covered in the first and last sections of the presentation.*

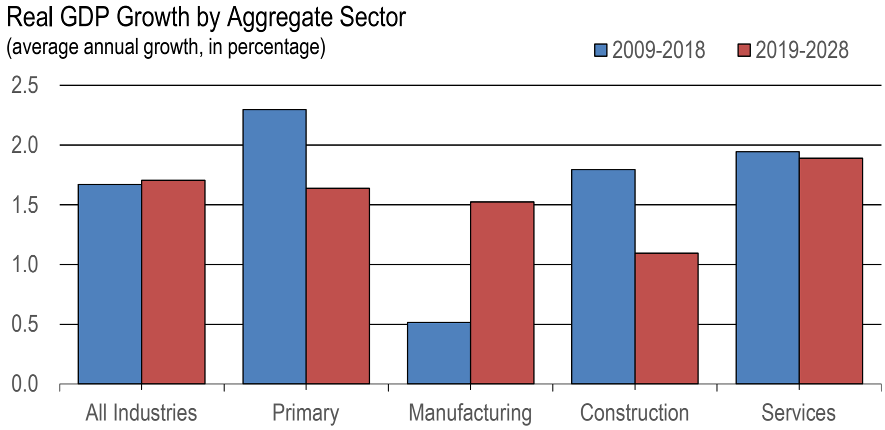
Introduction

Changes in external and domestic drivers of aggregate demand are projected to lead to changes in the pace of growth of industrial output and employment, which in turn will affect occupational labour demand over the period 2019-2028.

See presentation titled: Macroeconomic Outlook 2019-2028

Historical and Projected Trends in Real GDP, Employment and Productivity by Aggregate Sector

Over the period 2019-2028, real GDP growth is projected to slow in the primary and construction sectors, accelerate in manufacturing and remain essentially unchanged in services, resulting in similar growth in total GDP relative to the period 2009-2018.



Sources: Statistics Canada (historical data) and ESDC 2019 COPS industrial projections.

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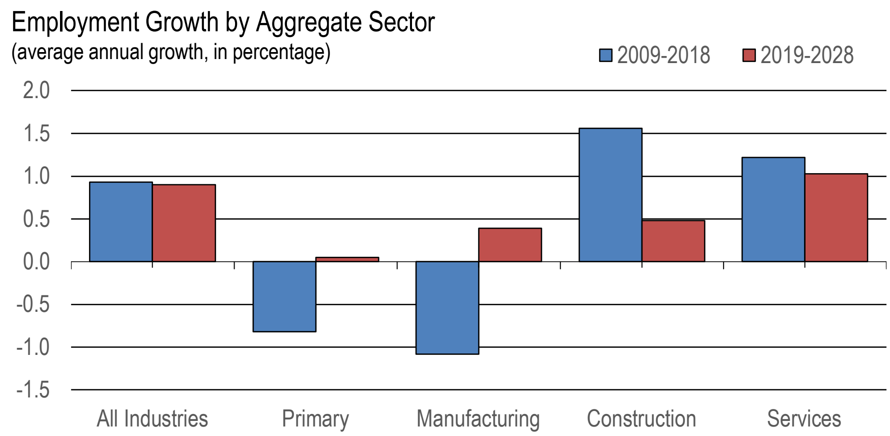
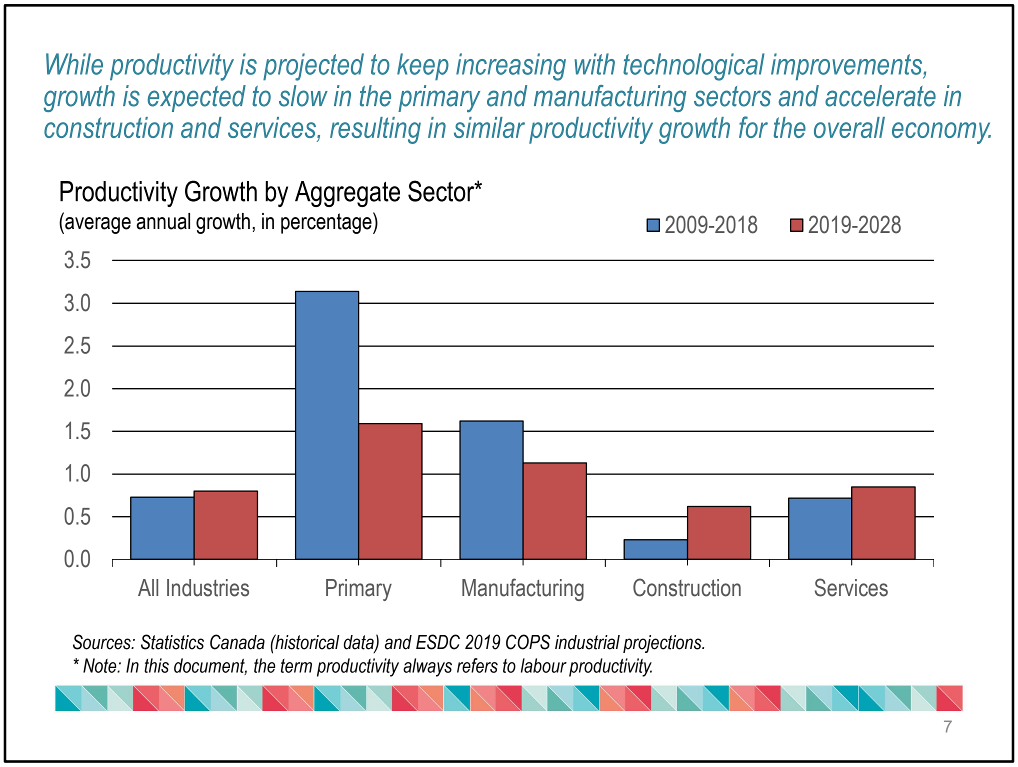
- Average annual growth in total real GDP over the period 2019-2028 is projected to be similar to the period 2009-2018, as output growth is expected to slow in the primary and construction sectors, accelerate in the manufacturing sector and remain essentially unchanged in the services sector.
- In the primary sector, the slowdown projected in output growth is primarily driven by the weaker pace of growth expected in oil and gas extraction, as uncertainties surrounding future crude oil prices are refraining producers to invest in additional capacity, limiting further increases in production. Anaemic growth in forestry's output, mainly due to the gradual slowdown anticipated in residential investment in North America, is an additional factor expected to weigh on real GDP growth in the primary sector. Output growth in mining is also projected to weaken somewhat relative to the previous ten years.
- The faster pace of growth projected in manufacturing GDP essentially reflects the fact that this sector was severely affected by the global recession of 2008-2009. Canadian production of manufacturing products plunged by 13% in 2009, before increasing at an average annual rate of 2.1% from 2010 to 2018. The resulting pace of growth for the full period 2009-2018 was 0.5% annually, while it is projected to average 1.5% over the period 2019-2028. The new Canada-U.S.-Mexico Agreement (CUSMA) represents a positive development for Canadian manufacturers, reducing trade and investment uncertainties. The relatively low value of the Canadian dollar and better access to European markets through the Comprehensive Economic Trade Agreement (CETA) are also expected to support Canada's exports of manufactured products over the projection period.
- Output growth in the construction sector is projected to weaken relative to the past ten years, reflecting the slower pace of growth anticipated in residential and non-residential investment. The gradual decline in household formation and potential increases in mortgage rates are expected to restrain investment in new housing, while renovation spending and ownership transfer costs are projected to increase at a slower pace due to a softer resale market. Weaker growth in non-residential investment essentially reflects anemic growth in investment related to engineering structures from the resources extraction industries. In contrast, investment growth in commercial, industrial and institutional building construction is expected to accelerate.
- Output in the services sector is projected to increase at the same pace as in the past ten years. Growth is expected to be primarily driven by business services and health care, and by the fact that population aging is expected to increase the share of services and lower the share of goods in consumer spending.

Employment growth in Canada is also projected to remain similar to the period 2009-2018, as the modest rebound anticipated in primary and manufacturing jobs is expected to be accompanied by slower job creation in construction and services.

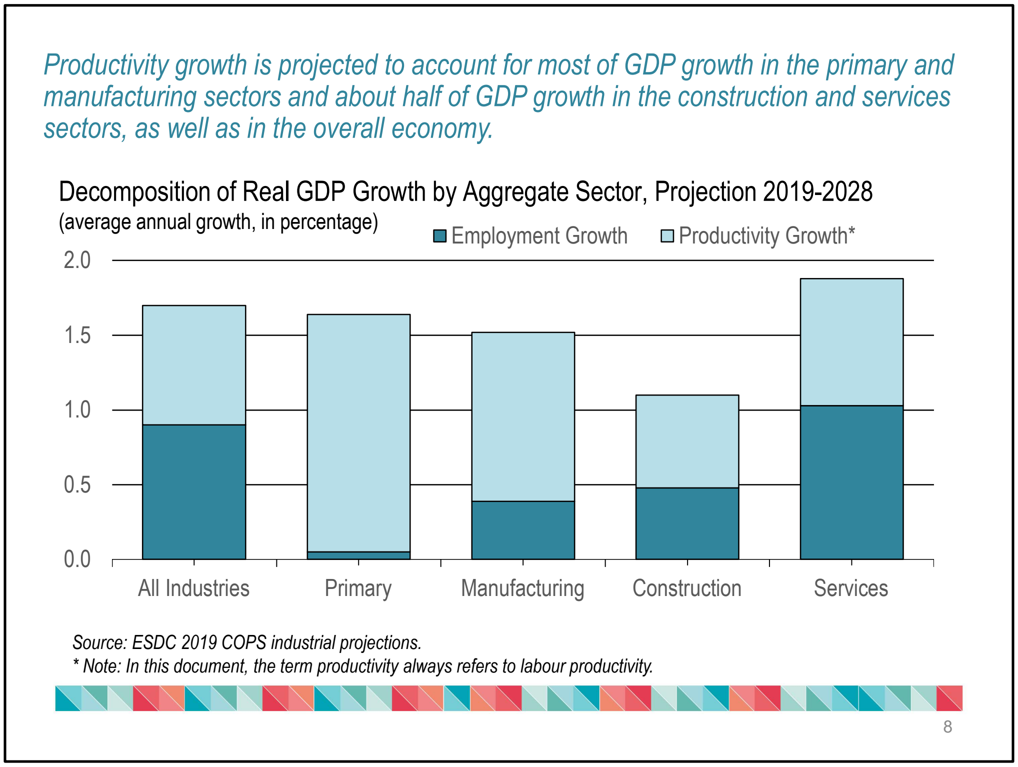


Sources: Statistics Canada (historical data) and ESDC 2019 COPS industrial projections.

- Over the period 2019-2028, employment is expected to stabilize in the primary sector, rebound modestly in manufacturing, and keep growing in construction and services, albeit at slower pace than during the period 2009-2018. The resulting rate of growth in total employment is projected to be similar to the previous ten years, averaging 0.9% annually.
- After contracting at an average rate of 0.8% annually during the period 2009-2018, employment in the primary sector is expected to stabilize over the projection period, despite the weaker pace of growth anticipated in output. This situation primarily reflects the notable slowdown projected in productivity growth for the oil and gas extraction industry (see next chart for more detail). Following massive job losses resulting from the sharp fall in crude oil prices, employment in support activities related to mining, oil and gas extraction is also projected to rebound modestly due to renewed growth in output. At the same time, employment is expected to decline less severely in agriculture, fishing and forestry. Net job creation for the entire primary sector is projected to be marginal, averaging 0.1% annually.
- Employment in the manufacturing sector fell markedly from 2004 to 2010 and remained relatively stable thereafter, resulting in an average decline of 1.1% annually over the period 2009-2018. While the acceleration anticipated in output growth is expected to result in a modest rebound in employment, job creation in this sector will continue to be constrained by automation and the desire of manufacturers to improve their competitiveness on foreign and domestic markets in response to increased international competition, particularly from China. Manufacturing employment is projected to advance at an average annual rate of 0.4% over the period 2019-2028, remaining well below its historical peak of 2004.
- Employment in the construction sector increased steadily during the period 2009-2018, recording an average growth rate of 1.6% per year. However, employment growth in this sector is expected to weaken substantially, averaging 0.5% annually, as a result of slower output growth and faster productivity growth.
- Employment growth is also projected to weaken in the services sector, despite the fact that output growth is expected to remain similar to the previous ten years. This situation reflects the need to strengthen productivity growth in response to demographic pressures on overall labour force growth. Indeed, with the gradual tightening of the labour market in Canada, employers are expected to replace labour by capital wherever possible. As a result, employment in services is projected to increase at an average pace of 1.0% annually, down from 1.2% over the period 2009-2018.



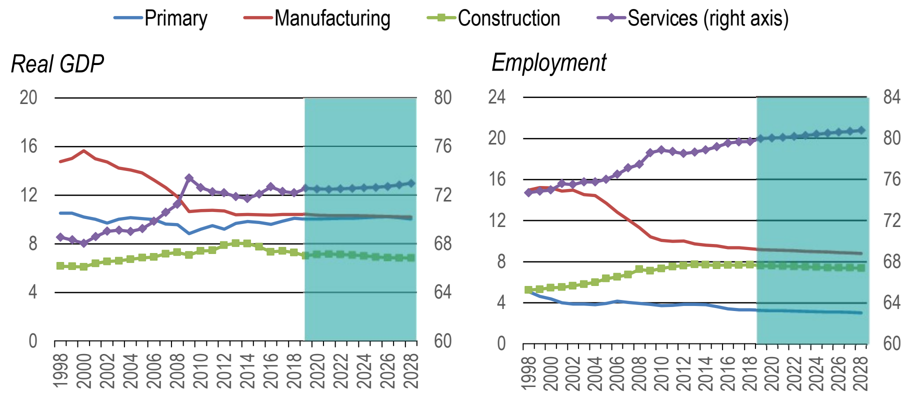
- In the projection, productivity for the overall economy is increasing at a similar pace than the past ten years, as faster productivity growth in the construction and services sectors is expected to be accompanied by slower productivity growth in the primary and manufacturing sectors. While productivity will be primarily driven by the sharp straightening anticipated in investment related to machinery and equipment (as described in the macroeconomic outlook), there are reasons to believe that productivity will not be overly strong. The current level of M&E investment still remains below the levels observed prior to the recession of 2008-2009 and it will take time for the Canadian economy to recover to the point where it will lead to stronger productivity growth. Also, the adoption of new applications enabled by technological progress usually requires a period of adjustment before translating into stronger operational efficiencies.
- The significant slowdown anticipated in productivity growth for the primary sector mainly reflects low investment from the oil and gas extraction industry (due to uncertainties surrounding future crude oil prices) and the ongoing transition towards non-conventional production methods (oil sands are more labour intensive). That said, the primary sector is still expected to post the strongest growth in productivity across the economy, driven by the increasing use of technological innovations in agriculture, forestry and mining.
- The slowdown anticipated in productivity growth for the manufacturing sector can be explained by the fact that a large part of the production process has already been automated in the past decades, leaving less room for further improvement in productivity. Nevertheless, productivity growth should continue to be solid, driven by additional developments in robotics, 3D printing and augmented reality applications.
- Most of the acceleration anticipated in productivity growth for the construction sector is projected to come from the residential component. Indeed, population aging is expected to lead to a shift in the composition of housing starts from single-unit homes to multiple-dwellings (apartments and condominiums). Because multiple-dwellings are more capital intensive and require less labour by unit of output, productivity is projected to grow at a faster pace in construction.
- In the services sector, the slight acceleration anticipated in productivity growth is driven by rapid advances in digital and cognitive technologies, such as mobile applications, smart systems, machine learning, artificial intelligence and autonomous transportation. Those technologies are expected to boost productivity and increase the number of tasks that could potentially be automated across a wide range of occupations, including human-centric jobs or those requesting a higher level of education.



- Productivity growth is expected to account for 97% of real GDP growth in the primary sector over the period 2019-2028, compared to 74% in manufacturing, 56% in construction and 45% in services. For the overall economy, this ratio is expected to be 47%.
- The large shares of GDP growth attributable to productivity in the primary and manufacturing sectors reflect the fact those two sectors are generally more capital intensive and strongly exposed to international competition and globalization. Productivity allows firms to lower production costs and improve competitiveness on foreign and domestic markets.
- Inversely, the lower shares of GDP growth attributable to productivity in the construction and services sectors reflect the fact those two sectors are generally more labour intensive. They are also largely oriented towards the domestic market and less exposed to international competition and import penetration.

Long-term shifts in the industrial structure are projected to continue over the period 2019-2028, albeit at a much slower pace than in the past.

Distribution of Real GDP and Employment by Aggregate Sector
(in percentage of total real GDP and employment)



Sources: Statistics Canada (historical data) and ESDC 2019 COPS industrial projections. Shaded area = projections.

- Long-term shifts in the industrial structure of the Canadian economy are projected to continue over the period 2019-2028, albeit at a much slower pace than during the previous two decades.
- In terms of real GDP and employment, the relative importance of the services sector is expected to increase marginally, with average growth rates in real output and employment slightly exceeding those of the overall economy. By 2028, the services sector is projected to account for 73% of total production and 81% of overall employment.
- The remaining three sectors (primary, construction and manufacturing) would account for 27% of total output and 19% of overall employment by the end of the projection period.
  - The relative importance of the primary and construction sectors is projected to decline marginally in terms of both production and employment.
  - The relative importance of the manufacturing sector in production and employment is expected to keep declining, albeit at a much slower pace than the previous ten years. Smaller declines reflect the acceleration projected in output growth and a modest rebound in the number of manufacturing workers.

The employment distribution is projected to shift somewhat further towards the services sector, which is expected to account for 92% of total job creation from 2018 to 2028.

Employment by Aggregate Sector
(in thousands, percentage share of total employment in brackets)

Sectors	1998	2008	2018	2028 (Projection)	Change 2018-2028
Primary	713.9 *(5.1%)*	671.5 *(3.9%)*	618.3 *(3.3%)*	621.4 *(3.0%)*	+3.1 *(0.2%)*
Manufacturing	2,103.3 *(15.0%)*	1,927.2 *(11.3%)*	1,728.4 *(9.3%)*	1,797.0 *(8.8%)*	+68.6 *(3.9%)*
Construction	736.0 *(5.2%)*	1,232.4 *(7.2%)*	1,438.9 *(7.7%)*	1,508.8 *(7.4%)*	+69.9 *(4.0%)*
Services	10,494.0 *(74.7%)*	13,176.2 *(77.5%)*	14,871.9 *(79.7%)*	16,474.1 *(80.8%)*	+1,602.2 *(91.9%)*
Total	14,047.0 *(100.0%)*	17,007.2 *(100.0%)*	18,657.5 *(100.0%)*	20,401.3 *(100.0%)*	+1,743.8 *(100.0%)*

Sources: Statistics Canada (historical data) and ESDC 2019 COPS industrial projections.

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- The sectoral distribution of employment is projected to shift somewhat further towards the services.
    - Employment in the services sector is projected to increase by 1.6 million between 2018 and 2028, slightly less than during the previous ten years (+1.7 million). With 16.5 million workers by the end of the projection period, this sector is expected to account for 80.8% of total employment, up from 79.7% in 2018.
    - In the construction sector, employment is projected to expand by about 70,000 between 2018 and 2028, compared to 207,000 in the previous ten years. The sector is expected to employ more than 1.5 million workers by 2028, accounting for 7.4% of overall employment, down from 7.7% in 2018.
    - After falling by 199,000 between 2008 and 2018, employment in the manufacturing sector is projected to rebound modestly (+69,000) over the projection period. With slightly less than 1.8 million workers in 2028, this sector is expected to account for 8.8% of total employment, its lowest share on record since labour force data were first published in 1976.
    - In the primary sector, employment is projected to pick up marginally (+3,000) between 2018 and 2028, following a decrease of 53,000 between 2008 and 2018, with most of the losses recorded after the oil price shock of 2014. The sector is expected to employ about 621,000 workers by the end of the projection period, accounting for 3.0% of overall employment in 2028, down from 3.3% in 2018.
    - The services sector is projected to account for 92% of total job creation between 2018 and 2028, followed distantly by construction (4.0%), manufacturing (3.9%), and the primary sector (0.2%).

Only small shifts are projected in the employment distribution at the detailed industry level.

Top- and Bottom-Three Industries in terms of Employment Size
(in thousands, percentage share of total employment in brackets)

COPS industrial classification is composed of 42 industries.

	2008		2018		2028 (Projection)	
Top-Three Industries	Retail Trade	2,052 *(12.1%)*	Retail Trade	2,138 *(11.5%)*	Health Care	2,368 *(11.6%)*
	Health Care	1,450 *(8.5%)*	Health Care	1,903 *(10.2%)*	Retail Trade	2,234 *(10.9%)*
	Construction	1,232 *(7.2%)*	Construction	1,439 *(7.7%)*	Construction	1,508 *(7.4%)*
Bottom-Three Industries	Fishing, Hunting and Trapping	22 *(0.1%)*	Fishing, Hunting and Trapping	16 *(0.1%)*	Fishing, Hunting and Trapping	13 *(0.1%)*
	Forestry and Logging	54 *(0.3%)*	Forestry and Logging	52 *(0.3%)*	Forestry and Logging	50 *(0.2%)*
	Mining	75 *(0.4%)*	Paper Manufacturing	60 *(0.3%)*	Paper Manufacturing	52 *(0.3%)*

Sources: Statistics Canada (historical data) and ESDC 2019 COPS industrial projections.

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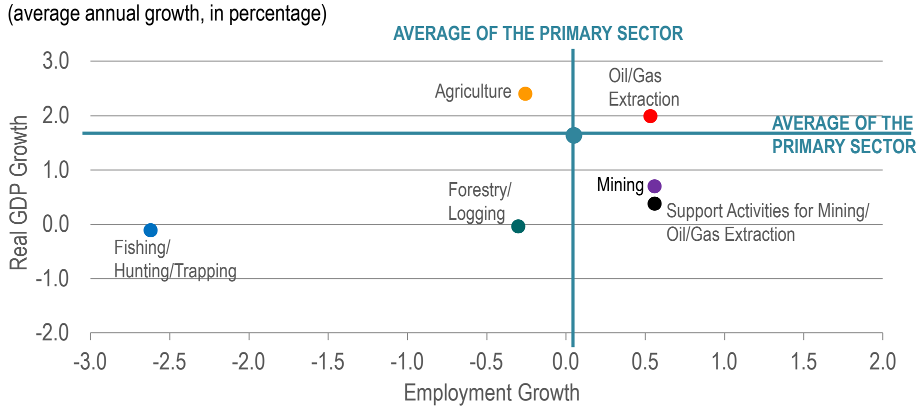
- The distribution of employment among the 42 industries covered by COPS is projected to be little changed between 2018 and 2028.
- The three largest employers are projected to remain the same, although the first and second positions are expected to be reversed:
    - Health care is projected to become the largest employer with close to 2.4 million workers by 2028, surpassing retail trade by 134,000 workers. Construction is expected to remain in third position with 1.5 million workers.
    - With a total of 6.1 million workers by the end of the projection period, those three industries are expected to account for 30% of overall employment.
- The smallest employers are also projected to remain unchanged, with fishing, hunting and trapping; forestry and logging; and paper manufacturing as the bottom-three industries:
    - By 2028, those three industries are expected to account for only 0.6% of total employment with 52,000 workers in paper manufacturing, 50,000 in forestry and logging, and 13,000 in fishing, hunting and trapping.

Projections for Real GDP, Employment and Productivity in the Primary, Manufacturing and Services Industries

In the primary sector, oil and gas extraction is projected to post above average growth in real GDP and employment. Output is expected to grow modestly in mining and support activities, while employment is projected to decline further in agriculture, forestry, fishing.

Real GDP and Employment Growth: Primary Industries, Projection 2019-2028
(average annual growth, in percentage)



Source: ESDC 2019 COPS industrial projections.

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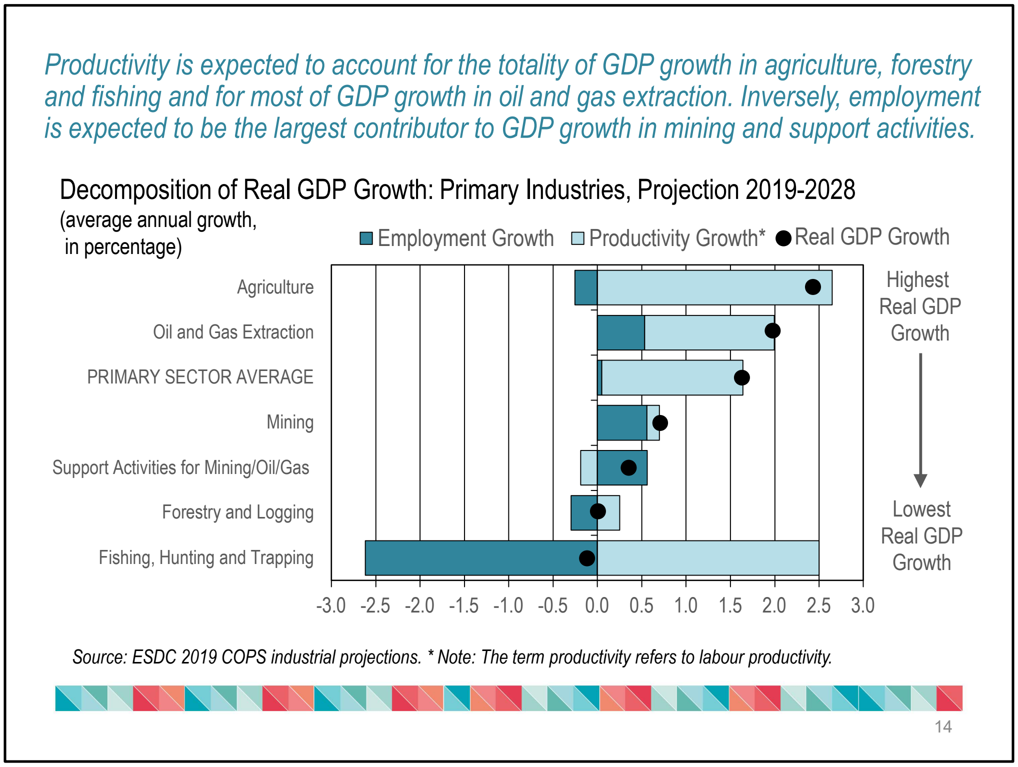
- Despite a notable slowdown in output growth relative to the past ten years, oil and gas extraction is projected to experience among the strongest rates of growth in real GDP and employment within the primary sector over the period 2019-2028. Most of the growth in output is expected to come from the oil sands and the production of liquefied natural gas (LNG) for shipment overseas, starting in the second half of the projection period. However, in the short-to-medium term, the slowdown anticipated in global economic growth, soaring U.S. shale production, and the lack of adequate pipeline capacity will continue to weigh on prices, investment and output in the industry. Further gains in productivity are also expected to restrain employment growth.
- After being negatively affected by major investment cutbacks in the energy sector in recent years due to the sharp decline in crude oil prices, production and employment in support activities for mining, oil and gas extraction are projected to stabilize and experience very limited growth over the next decade, primarily reflecting a tepid outlook for crude oil prices and for investment in new oil sands projects. Recent increases in the prices of metals, such as gold and copper, and rising global demand for fertilizers, such as potash, should also result in moderate growth in mining activity. Employment growth in support activities and mining is projected to be similar to that of oil and gas extraction.
- Anaemic growth projected in fishing and forestry's output is expected to be accompanied by further declines in employment. Growth in the forestry industry will be constrained by the gradual slowdown anticipated in residential investment across North America, reduced supply of merchantable timber and difficulties in the paper manufacturing industry. In the fishing industry, supply constraints resulting from various quotas and moratorium imposed on different fish species are the main factors expected to restrain production. The declines projected in forestry and fishing's employment reflect additional gains in productivity and the difficulty to attract new workers due to youth out-migration from rural and coastal communities.
- Employment in agriculture is also expected to keep declining, although output growth is projected to exceed the primary sector's average, largely driven by additional demand for global food consumption and the growing use of biofuels. Difficulties to attract domestic workers due to the seasonal nature of the industry, its rural location, low wages and long hours have resulted in greater utilization of foreign temporary workers in agriculture activities.



- Productivity growth is expected to account for the totality of GDP growth in agriculture over the period 2019-2028. In forestry and fishing, the decreases anticipated in employment are projected to be accompanied and offset by equivalent increases in productivity, allowing these two industries to maintain their respective level of production relatively constant from 2019 to 2028 (anaemic or slightly negative growth in real GDP).
- In agriculture, forestry and fishing, productivity is expected to be driven by further consolidation, mechanization and computerization of operations. Technological innovations include the use of drones to monitor crops and land area, driverless tractors guided by geo-positioning satellite devices, automated systems for pest management, data-intensive applications for optimal seeding and fertilization, self-learning milking machines, biometric sensors to examine animals, nautical and hydraulic lifting equipment, advanced vessels and gear designs, and better fish detection equipment using computer-aided methods. The development of new wood-based products, such as biofuels, biochemicals and biopolymers, is also expected to increase the value added and boost productivity in the forestry industry.
- Productivity growth is expected to account for most of GDP growth in oil and gas extraction, primarily reflecting the fact that the production capacity in oil sands is increasing while becoming less labour intensive. Technological innovations have boosted productivity in this industry due to major developments in hydraulic fracturing and horizontal directional drilling techniques, GPS surveying, three-dimensional data maps, airborne technologies, remote-operated equipment, automated loading and transportation systems, robotics and seismic mapping and imaging. According to Suncor, the company's operation costs per barrel of oil have declined by about 20% from 2012 to 2018 *(Suncor, Report to Shareholders for the Fourth Quarter of 2018).*
- Productivity is projected to grow modestly in mining and to decline in support activities. As a result, employment is expected to be the largest contributor to GDP growth in mining and the sole contributor to GDP growth in support activities. The marginal or negative contribution of productivity to output growth reflects the fact that, in recent years, GDP growth was often similar to or below employment growth in mining and support activities. This trend is projected to continue over the projection period.

The three industries related to mining, oil and gas extraction are projected to account for the totality of net job creation in the primary sector.

Projected Change in Employment: Primary Industries
(in thousands)

Rank	Industry	Employment 2018	Employment 2028	Average Annual Growth	Cumulative Change
1	Support Activities for Mining/Oil/Gas	91.7	97.0	+0.6%	+5.3
2	Mining	88.5	93.6	+0.6%	+5.1
3	Oil and Gas Extraction	92.0	97.0	+0.5%	+5.0
4	Forestry and Logging	51.9	50.4	-0.3%	-1.5
5	Fishing, Hunting and Trapping	16.4	12.6	-2.6%	-3.8
6	Agriculture	277.7	270.7	-0.3%	-7.0
	TOTAL - PRIMARY SECTOR	618.3	621.4	+0.1%	+3.1

Source: ESDC 2019 COPS industrial projections.

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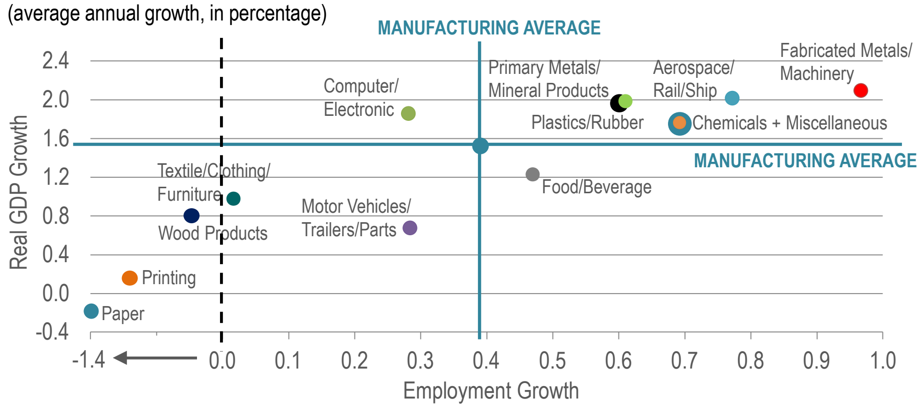
- In the primary sector, employment gains in industries related to mining, oil and gas extraction are projected to be largely offset by additional losses in forestry, fishing and agriculture, resulting in a net job creation of only 3,100 between 2018 and 2028.
- Support activities for mining, oil and gas are expected to experience the largest gains in employment, up by 5,300, followed closely by mining (+5,100) and oil and gas extraction (+5,000).
- Employment in support activities for mining, oil and gas is expected, however, to remain significantly below its historical peak of 126,000 workers recorded in 2013 (i.e. prior to the oil price shock of 2014-2015).
- Agriculture is expected to experience the largest decline in employment, down by 7,000, followed by fishing (-3,800) and forestry (-1,500).

In manufacturing, fabricated metals and machinery are projected to post the strongest growth in real GDP and employment over the period 2019-2028, followed by aerospace, rail, ship and other transportation equipment.

Real GDP and Employment Growth: Manufacturing Industries, Projection 2019-2028
(average annual growth, in percentage)



Source: ESDC 2019 COPS industrial projections.

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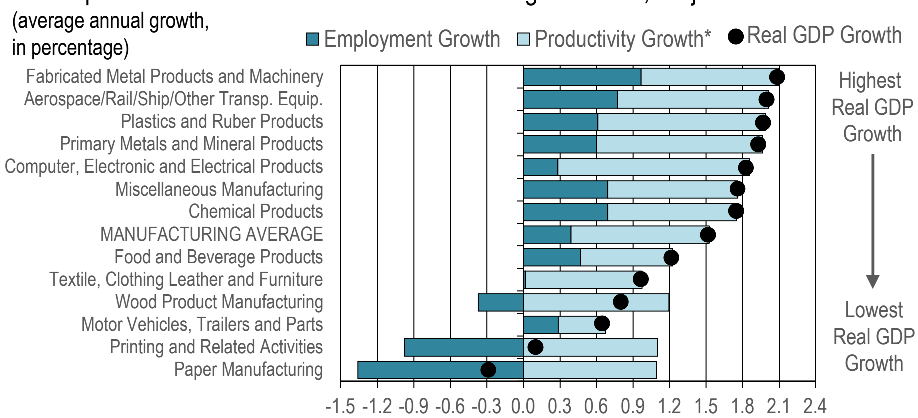
- Most of Canada's manufacturing industries rely on exports and are exposed to international competition. Consequently, global and U.S. economic conditions, exchange rates, trade agreements, import penetration and globalisation strongly influence the performance of those industries.
- Fabricated metals and machinery are projected to post the strongest growth in real GDP and employment over the period 2019-2028, primarily driven by the sharp straightening anticipated in investment related to machinery and equipment (M&E) in Canada and a positive outlook for exports.
- Aerospace, rail, ship and other transportation equipment is also projected to post solid growth in output and employment. This industry is expected to benefit from rising global demand for commercial and business aircraft, particularly from the emerging markets. Increased road congestion and environmental concerns are also expected to sustain world demand for public transit systems, including rail.
- Primary metals and minerals products (such as bricks, glass, iron and steel), plastics and rubber products, and chemical products are all projected to post above average growth in production and employment, partly reflecting the acceleration anticipated in manufacturing activity and the construction of commercial, industrial and institutional buildings in Canada, as well as a positive outlook for exports.
- Paper manufacturing and printing activities are projected to post the weakest growth in output and employment, primarily because the increasing use of electronic media should continue to restrain demand for paper and printed materials. Additional job losses are expected in these two industries.
- Production and employment growth in textiles, clothing, leather and furniture is expected to be constrained by the intensification of foreign competition and the shift in production to low-cost producers, while growth in wood products is expected to be constrained by the gradual slowdown anticipated in residential investment in North America.
- In computer and electronic products, renewed growth in output and employment is expected to be primarily driven by rising demand for high-end control, navigational and measuring devices.
- Modest growth projected in output and employment for motor vehicles, trailers and parts partly reflects slower growth anticipated in vehicle sales in Canada and the United States relative to the past decade.
- In food and beverage products, healthy growth in foreign demand is expected to offset some of the weakness anticipated in domestic demand due to demographic factors.

Productivity is expected to account for the totality of GDP growth in four (out of 13) manufacturing industries, and the largest part of GDP growth in all other manufacturing industries, restraining job creation significantly in the sector.

Decomposition of Real GDP Growth: Manufacturing Industries, Projection 2019-2028



*Source: ESDC 2019 COPS industrial projections. * Note: The term productivity refers to labour productivity.*

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- Productivity growth is expected to account for the totality or the largest part of GDP growth in all manufacturing industries over the period 2019-2028. This reflects the fact that employment in those industries is largely composed of routine tasks that can be increasingly automated with new applications enabled by technological progress. The solid pace of growth anticipated in machinery and equipment (M&E) investment is expected to increase the amount of capital and technology available per worker, boosting productivity.
- Some of the most innovative technologies that are expected to transform manufacturing operations and improve productivity over the projection period are:
    - Advanced robotics: the introduction of sophisticated sensors and highly adaptable functional robotic equipment in order to improve human and machine interaction to make complex parts of the assembly process faster, easier and safer.
    - Augmented reality: the introduction of text, graphic, audio and other virtual instructions superimposed onto goggles, allowing operators to perform complex tasks step-by-step and improve the accuracy and timing of these tasks, while being notified of quality risks or shortcomings of present-day devices on the assembly line.
    - 3D printing: the production of solid objects from digital designs in a precisely determined shape using multiple layers of plastic, resin or other materials in order to develop prototypes, reduce the design-to-production cycle and lower operating costs.
    - Internet of Things (IoT): the power of the Internet to link machines, sensors, computers and humans and develop new ways of collecting, processing and analyzing information to deliver higher-quality, more durable and reliable products.

Metal fabrication and machinery along with food and beverage products are expected to account for 61% of net job creation in the manufacturing sector.

Projected Change in Employment: Manufacturing Industries
(in thousands)

Rank	Industry	Employment		Average Annual Growth	Cumulative Change
		2018	2028		
1	Fabricated Metal Products and Machinery	269.7	296.9	+1.0%	+27.2
2	Food and Beverage Products	299.0	313.3	+0.5%	+14.4
3	Miscellaneous Manufacturing	116.7	125.0	+0.7%	+8.3
4	Primary Metals and Mineral Products	125.0	132.7	+0.6%	+7.7
5	Chemical Products	102.8	110.1	+0.7%	+7.3
6	Aerospace, Rail, Ship and Other Transp. Equip.	84.7	91.5	+0.8%	+6.8
7	Plastics and Rubber Products	98.6	104.8	+0.6%	+6.2
8	Motor Vehicles, Trailers and Parts	163.8	168.5	+0.3%	+4.7
9	Computer, Electronic and Electrical Products	111.2	114.4	+0.3%	+3.2
10	Textiles, Clothing, Leather and Furniture	128.6	128.8	0.0%	+0.2
11	Wood Product Manufacturing	106.4	102.6	-0.4%	-3.9
12	Printing and Related Activities	61.6	55.9	-1.0%	-5.8
13	Paper Manufacturing	60.1	52.5	-1.4%	-7.7
	TOTAL – MANUFACTURING SECTOR	1,728.4	1,797.1	+0.4%	+68.7

Source: ESDC 2019 COPS industrial projections.

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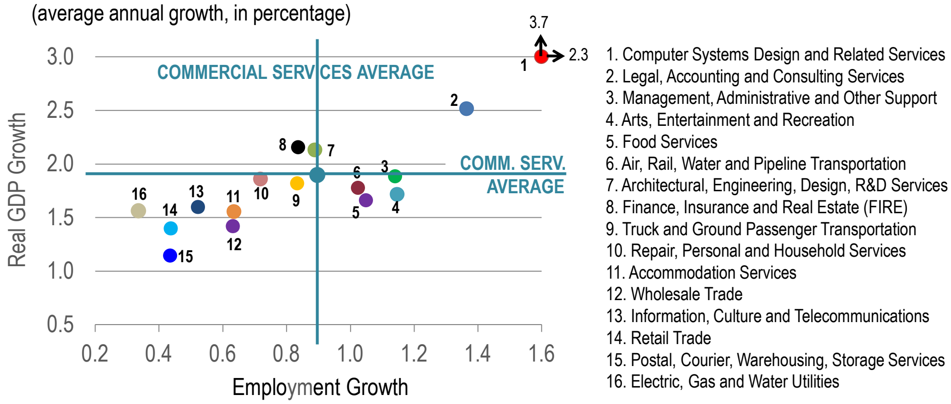
- Among the thirteen manufacturing industries, employment is projected to increase in ten industries and to decline in three industries, resulting in a net job creation of about 69,000 in the overall manufacturing sector between 2018 and 2028.
- Industries expected to experience the largest gains in employment (in terms of number) are not necessarily those expected to show the strongest growth rates in employment (in terms of percentage). This is because the size of employment differs significantly across the industrial breakdown, with industries having a much larger number of workers than others.
- As a result, fabricated metals and machinery along with food and beverage products are expected to account for 61% of net job creation in the manufacturing sector.
- Total employment in the sector is projected, however, to remain well below its historical peak of 2.3 million workers recorded in 2004, resulting in a deficit of about 500,000 jobs by 2028.

In commercial services, computer systems design is projected to post the strongest growth in real GDP and employment over the period 2019-2028, followed by legal, accounting and consulting services.

Real GDP and Employment Growth: Commercial Services, Projection 2019-2028
(average annual growth, in percentage)



Source: ESDC 2019 COPS industrial projections.

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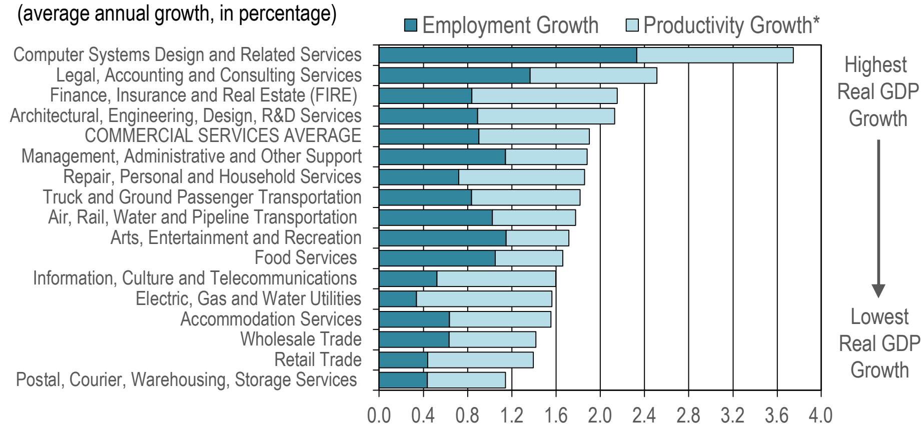
- Most of Canada's commercial services industries rely on the domestic market, with consumer spending and business activity as the main drivers of demand for such services. Tourism activity is also a key driver for some specific services (transportation, accommodation, food, entertainment).
- Computer systems design and related services are projected to post the strongest growth in output and employment over the period 2019-2028. This industry is expected to benefit from rapid technological innovations and the need for firms across a wide range of sectors to continually upgrade their IT infrastructure to remain competitive. Cyber security, cloud-based platforms, big data, Internet of Things, 5G network implementation, video game development, virtual and augmented reality, machine learning and artificial intelligence, fintech/insurtech and blockchains represent a multitude of growth opportunities.
- Legal, accounting and consulting services are also projected to post above average growth in production and employment, benefiting from the increasing trend in business-to-business outsourcing and growing demand for professional advice on planning, logistics, mergers, acquisitions, environmental regulations and implementation of new technologies.
- Above average output growth in architectural, engineering, design, and research and development (R&D) services reflects faster growth projected in non-residential building investment and the sharp straightening anticipated in business investment related to machinery and equipment as well as intellectual property (including R&D). Finance, insurance and real estate are also expected to post significant growth in output, although the pace of growth is projected to weaken relative to the past decade due the gradual slowdown anticipated in final domestic demand, particularly in residential investment and consumer spending.
- Above average employment growth in management, administrative and other support services; arts, entertainment and recreation; food services; and air, rail, water and pipeline transportation reflects higher labour intensity in those industries relative to most other commercial services industries.
- The remaining industries are projected to post below average growth in output and employment. Postal, courier, warehousing and storage services are expected to post the weakest growth in output and among the lowest growth in employment, as this industry will continue to be affected by the extensive use of e-mail, electronic billing and online advertising. However, the growing demand for parcel delivery and warehousing services resulting from the increased adoption of e-commerce by households and businesses should help to support continued expansion in the industry.

Productivity is expected to account for a large part of GDP growth in many commercial services industries. This excludes, however, industries that are more labour intensive such as food services and arts, entertainment and recreation services.

Decomposition of Real GDP Growth: Commercial Services, Projection 2019-2028

(average annual growth, in percentage)



*Source: ESDC 2019 COPS industrial projections. * Note: The term productivity refers to labour productivity.*

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- Productivity growth is expected to account for a large part of GDP growth in many commercial services industries over the period 2019-2028. Because those industries are the largest employers of the Canadian economy, the weaker pace of growth anticipated in the working-age population will force businesses to strengthen productivity and eventually replace labour with capital in response to the gradual tightening of the labour market.
- Rapid advances in digital and cognitive technologies are expected to support productivity and alleviate some of the labour market pressures resulting from demographic factors. Major developments in online and mobile applications, smart systems, artificial intelligence, machine learning and autonomous transportation are expected to increase the number of tasks that could potentially be performed or complemented by technology across a wide range of services occupations, including human-centric jobs or those requesting a higher level of education.
- For example, e-commerce, e-banking, and online insurance and housing services have improved productivity and restrained labour demand in retail trade and finance, insurance and real estate over the past decade. This trend is expected to amplify over the projection period with new applications arisen from advanced technologies, such as inventory software, warehouse robotics, self-serve kiosks, automated online customer support (chatbots), smart price tags (that can be changed in real time), indoor positioning and detection systems (beacon technology), fintech, insurtech, blockchain transactions, artificial and virtual agents, etc.
- The advent of digital platforms supporting the on-demand economy such as Airbnb and Uber, and the growing use of streaming platforms such as Netflix and Spotify, are also transforming the ways services are provided. Those platforms are challenging the traditional ways of delivering services, particularly in the accommodation, transportation and cultural industries.
- A number of commercial services industries remain, however, less subject to technological disruptions as they are generally more labour intensive. Food services and arts, entertainment and recreation services are characterized by a large number of human-centric jobs that are unlikely to be performed or complemented by technology. Head cooks, artists and professional athletes are relevant examples.

Food services are expected to create the largest number of jobs in commercial services, followed by computer systems design and finance, insurance and real estate.

Projected Change in Employment: Commercial Services (in thousands)

Rank	Industry	Employment		Average Annual Growth	Cumulative Change
		2018	2028		
1	Food Services	1,045.7	1,160.7	+1.0%	+115.0
2	Computer Systems Design and Related Services	409.1	515.0	+2.3%	+105.9
3	Finance, Insurance and Real Estate (FIRE)	1,173.9	1,275.9	+0.8%	+102.0
4	Legal, Accounting and Consulting Services	673.6	771.4	+1.4%	+97.8
5	Retail Trade	2,138.3	2,133.9	+0.4%	+95.6
6	Management, Administrative and Other Support	777.1	870.4	+1.1%	+93.3
7	Repair, Personal and Household Services	802.9	862.5	+0.7%	+59.6
8	Arts, Entertainment and Recreation	444.5	498.2	+1.1%	+53.7
9	Truck and Ground Passenger Transportation	516.1	560.8	+0.8%	+44.7
10	Wholesale Trade	656.3	699.0	+0.6%	+42.7
11	Architectural, Engineering, Design, R&D Services	384.2	419.7	+0.9%	+35.6
12	Air, Rail, Water and Pipeline Transportation	264.6	293.0	+1.0%	+28.4
13	Information, Culture and Telecommunications	342.4	360.8	+0.5%	+18.3
14	Accommodation Services	189.3	201.6	+0.6%	+12.4
15	Postal, Courier, Warehousing, Storage Services	210.2	219.5	+0.4%	+9.3
16	Electric, Gas and Water Utilities	144.8	149.7	+0.3%	+4.9
	TOTAL - COMMERCIAL SERVICES	10,172.0	11,092.3	+0.9%	+920.3

Source: ESDC 2019 COPS industrial projections.

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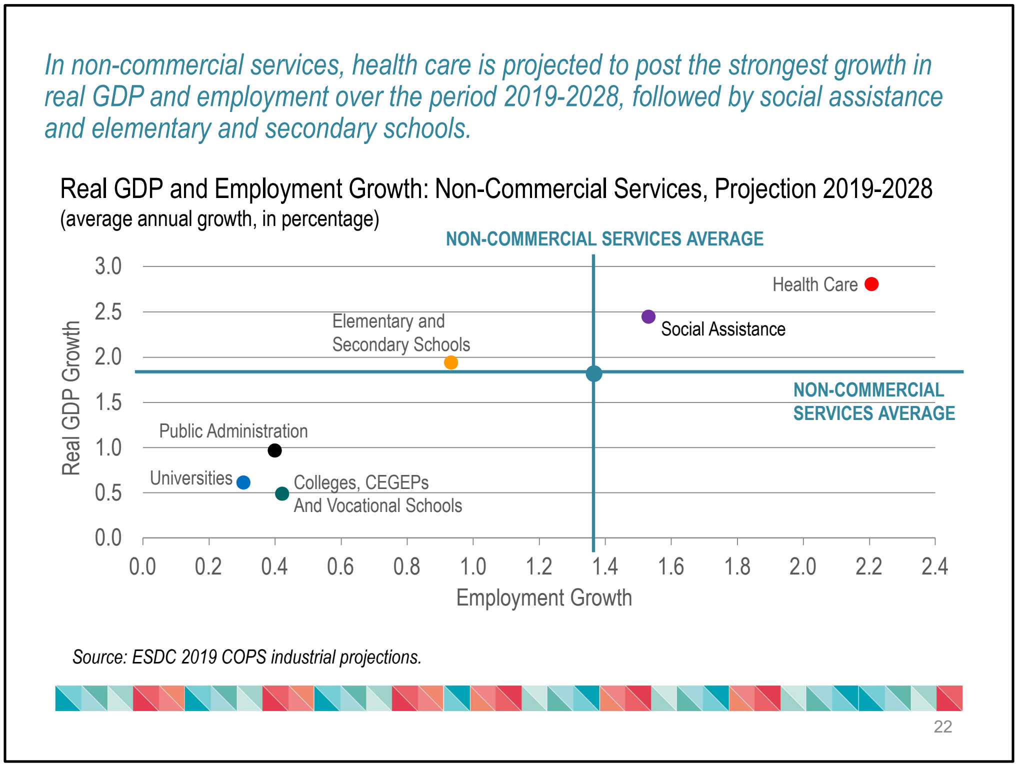
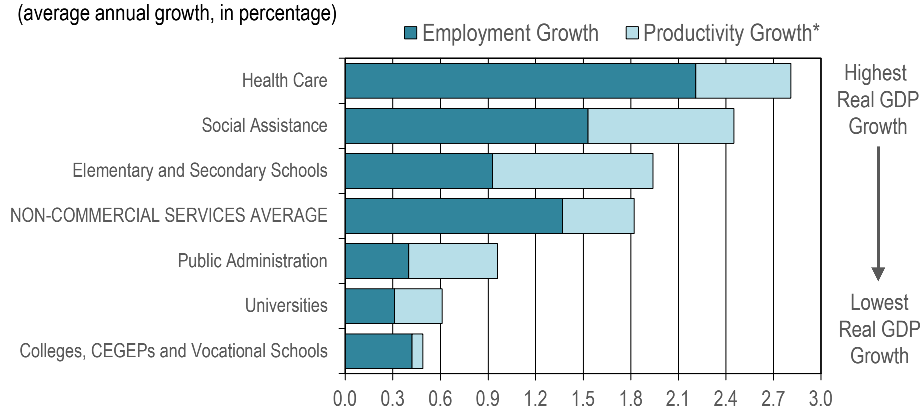
- Employment is projected to increase in all sixteen commercial services industries between 2018 and 2028, resulting in the creation of about 920,000 jobs.
- Industries expected to experience the largest gains in employment (in terms of number) are not necessarily those expected to show the strongest growth rates in employment (in terms of percentage). This is because the size of employment differs significantly across the industrial breakdown, with industries having a much larger number of workers than others.
- As a result, food services are expected to create the highest number of jobs, followed by computer systems design and related services, and finance, insurance and real estate. Those three industries alone are projected to account for more than one third (35%) of total job creation in commercial services by 2028.
- It is also worth noting that the computer systems design and related services industry, which is relatively small in terms of employment size, is expected to create more jobs than the very large retail trade industry.



- Canada's non-commercial services industries largely consist of government and para-public services. Such services strongly rely on public finance and demographic factors.
- Health care is projected to experience the strongest growth in output and employment over the period 2019-2028, in response to the growing demand from an aging population as many baby-boomers will be entering in their costliest health care years. The commitments of many provinces to reduce wait times at emergency rooms and for surgical procedures and specialized treatments are also expected to boost government spending, output and job creation in health care institutions. However, labour shortages in high demand occupations represent significant challenges.
- Social assistance is also projected to post above average growth in production and employment. The gradual pick up anticipated in early childhood population (aged 1 to 4) and faster growth in youth population (aged 5 to 17) are expected to result in additional demand for child care and family services. Further increases in the dependency ratio resulting from an aging population is also expected to boost demand for elderly care services and senior citizen centres.
- Output and employment growth in elementary and secondary schools is expected to be primarily driven by stronger gains in population aged 5 to 17, resulting from additional growth among the 5 to 11 years old and renewed growth among the 12 to 17 years old. In comparison, output and employment growth is expected to be significantly weaker for colleges, CEGEPs, vocational schools and universities, largely reflecting the adverse impact of demographic factors. Population aged 18 to 24 has been stagnant since 2013 and is projected to fall significantly in 2019, before picking up gradually during the projection period. It will take, however, several years until population in this age group fully recovers, weighing on college and university attendance. That said, the growing demand for higher educated and skilled workers across the economy should continue to push up enrolment rates in post-secondary education.
- In public administration, growth in output and employment is projected to be lowered by fiscal constraints. Population aging is expected to erode the federal and provincial tax bases, while simultaneously putting further pressures on the health care system, limiting the ability to expand expenditures in government programs and public administration. In addition to the moderate pace of growth anticipated in output, the need to improve efficiency and productivity growth in the government machinery is expected to restrain job creation in public administration.

Employment is still expected to account for a large part of GDP growth in all non-commercial services, as such activities are generally more labour intensive than in most of the goods-producing and commercial services industries.

Decomposition of Real GDP Growth: Non-Commercial Services, Projection 2019-2028
(average annual growth, in percentage)



*Source: ESDC 2019 COPS industrial projections. * Note: The term productivity refers to labour productivity.*

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- Employment growth is still expected to account for a large part of GDP growth in all non-commercial services over the period 2019-2028, as such activities are generally more labour intensive than most of the goods-producing and commercial services industries.
- The measurement of output and productivity in non-commercial services also differs from the other sectors of the economy where goods and services are traded and more easily valued in monetary terms. Consequently, the term productivity in the government and para-public sectors is often associated with improved efficiency and effectiveness of an activity.
- Nevertheless, productivity (or efficiency) is projected to account for an increasing part of GDP growth in most non-commercial services. The weaker pace of growth anticipated in the working-age population, combined with fiscal constraints, will force governments and para-public institutions to improve effectiveness and implement new labour-saving ways of delivering services, particularly in health care where labour shortages are expected to persist.
- New models of services delivery include the expansion of the private sector involvement in the provision of health care services, the growing use of home care for terminally ill patients, and the consideration of permitting nurses and pharmacists to perform services that used to be provided by doctors. Technology is also playing an important role in almost all processes, including patient registration, data monitoring, lab tests and self-care tools. Smartphones and tablets are starting to replace conventional monitoring and recording systems, and people are now given the option of undergoing a full consultation in the privacy of their homes. Services are being taken out of hospital walls and integrated with user-friendly accessible devices.
- In educational services, productivity (or efficiency) can be influenced by factors such as the ratio of students per teacher, the availability of online courses and e-learning applications for post-secondary education, or the use of educational tablets, virtual labs, electronic textbooks and online resources in elementary and secondary schools.
- In public administration, fiscal challenges are the main factors expected to lead to the creation of more efficient models to improve government program management and public services delivery.

Health care alone is projected to account for more than two-thirds of job creation in non-commercial services, followed distantly by social assistance, and elementary and secondary schools.

Projected Change in Employment: Non-Commercial Services
(in thousands)

Rank	Industry	Employment		Average Annual Growth	Cumulative Change
		2018	2028		
1	Health Care	1,903.8	2,368.6	+2.2%	+464.3
2	Social Assistance	502.9	585.4	+1.5%	+82.5
3	Elementary and Secondary Schools	782.3	858.5	+0.9%	+76.2
4	Public Administration	967.0	1,006.4	+0.4%	+39.4
5	Colleges, CEGEPs and Vocational Schools	280.7	292.8	+0.4%	+12.1
6	Universities	262.3	270.5	+0.3%	+8.1
	TOTAL - NON-COMMERCIAL SERVICES	4,699.0	5,381.8	+1.4%	+682.8

Source: ESDC 2019 COPS industrial projections.

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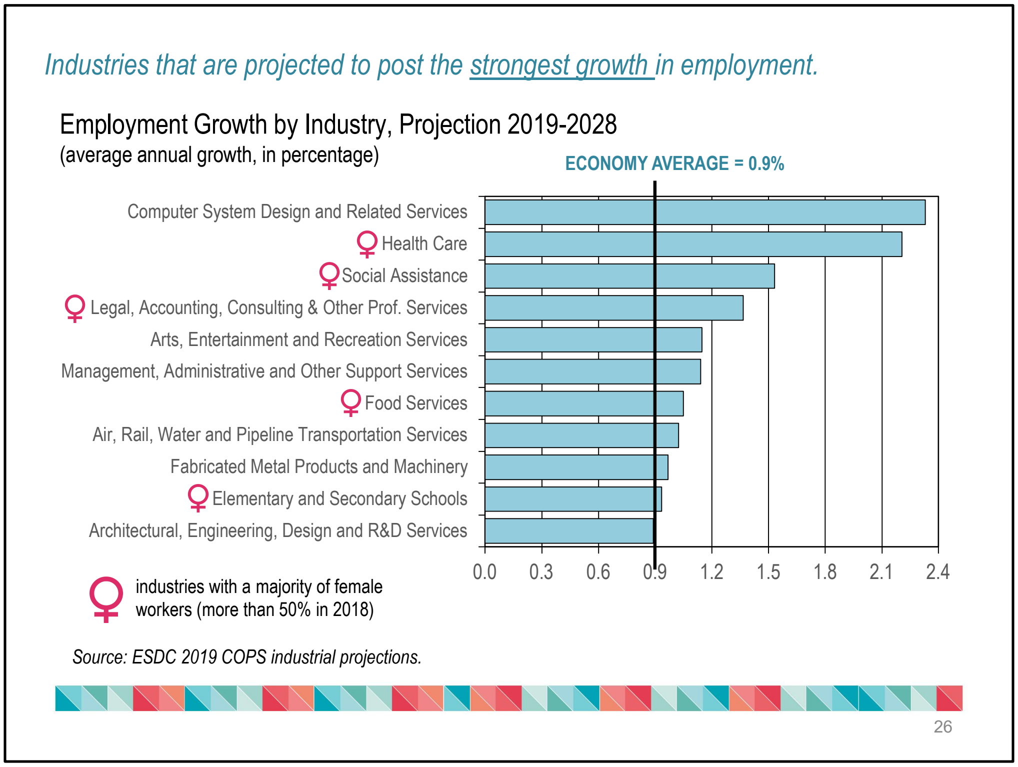
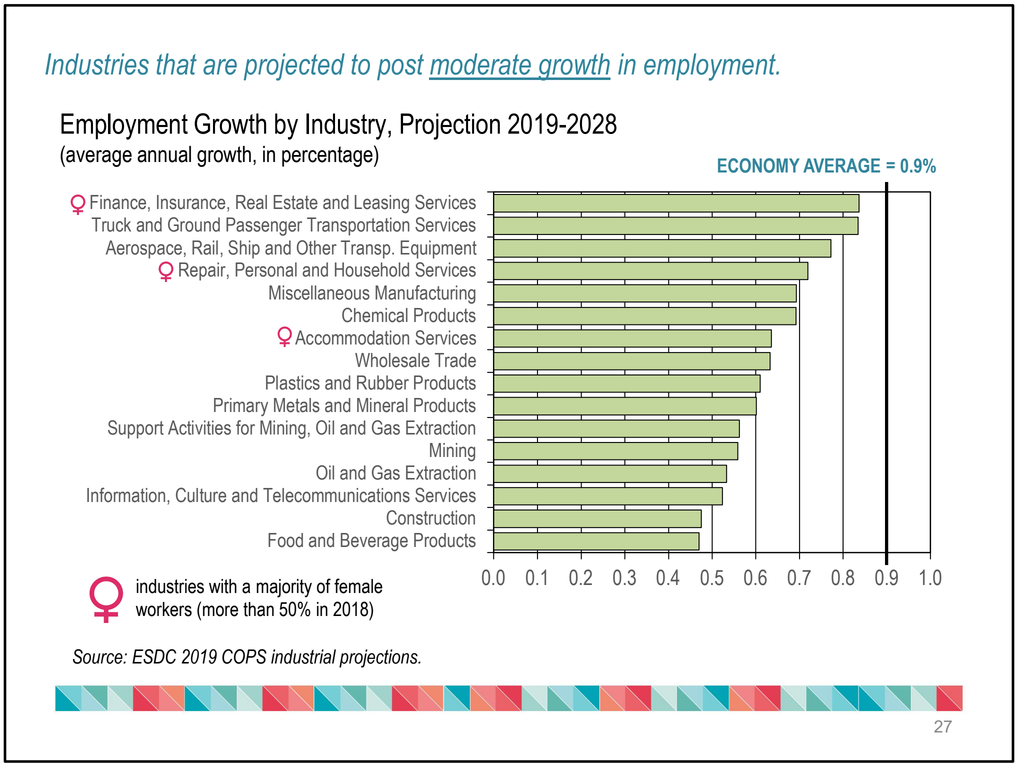
- Employment is projected to increase in all six non-commercial services industries between 2018 and 2028, resulting in the creation of about 683,000 jobs.
- Health care is expected to experience the highest growth rate (+2.2%) and the largest gains in employment (+464,000), accounting for more than two-thirds (68%) of total job creation in non-commercial services.
- Social assistance and elementary and secondary schools are expected to be distant followers, with the creation of about 83,000 and 76,000 jobs, respectively.

Comparisons of Employment Projections across Industries



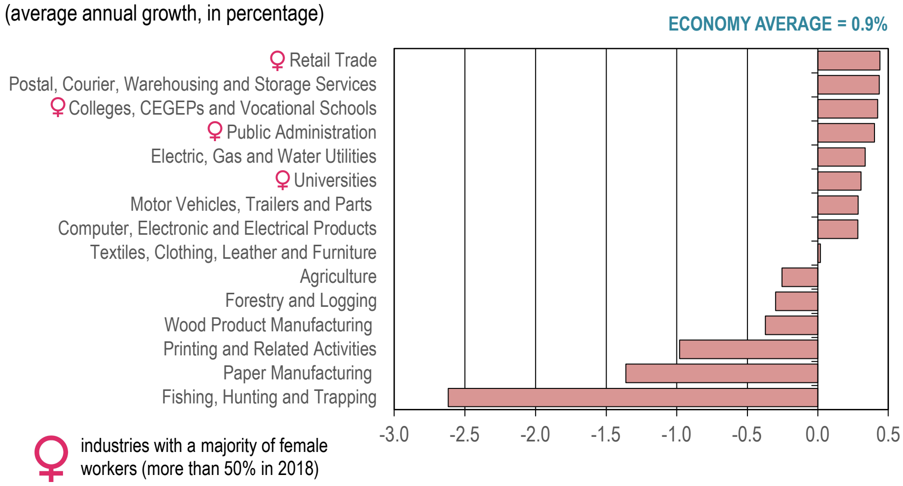
- Industries projected to post the strongest growth in employment (i.e. above or around 0.9% annually) are also those projected to post the strongest growth in production or those that are characterized by a high degree of labour intensity. Below are some of the key drivers expected to support output and job creation in those industries:
  - Rapid innovations in information and communication technologies (ICT) and the need for businesses to continuously upgrade their ICT infrastructure to remain competitive;
  - Growing demand for health care due to population aging;
  - Increased demand for social assistance, particularly child care and family services (population aged 0-17) as well as elderly care and social services for senior citizen (population aging);
  - Growing demand for professional advice on planning, logistics, mergers, acquisitions, environmental regulation and implementation of new technologies;
  - The rising number of retired baby-boomers that are expected to have more time to spend on leisure activities, including arts, entertainment and recreation services;
  - The growing number of firms across the economy that choose to outsource administrative functions in order to remain focused on their core activities and increase operation efficiency;
  - Additional demand for food services, particularly from health care institutions and tourism activity;
  - Rising demand for air travel, particularly from emerging markets in Asia, and increased demand for the transportation of merchandises by air cargo, rail or boat, in response to the intensification of international trade and globalization (exports + imports);
  - The sharp straightening anticipated in investment related to machinery and equipment (M&E) in Canada, along with the acceleration in manufacturing activity and a positive outlook for exports;
  - Faster growth projected in population aged 5 to 17, boosting demand for teachers in elementary and secondary schools;
  - Stronger growth projected in non-residential building construction as well as the sharp straightening anticipated in business investment related to machinery and equipment (M&E) and intellectual property in Canada, including spending on research and development (R&D).



- Most of the industries projected to post moderate growth in employment (i.e. below 0.9%, but above 0.4% annually) are also those projected to post moderate growth in production.
- This group includes six manufacturing industries and six commercial services industries. It also includes construction and the three industries related to oil, gas and mining extraction.
- In addition to moderate growth in production, job creation in those industries is expected to be restrained by the following factors:
  - Increased automation and rapid advances in digital and cognitive technologies;
  - The need to lower labour costs and increase productivity in manufacturing industries in response to the intensification of global competition;
  - The need to find new ways of delivering services and replace labour by capital wherever possible in response to demographic pressures on labour supply in Canada;
  - Renewed growth in productivity within the mining industry during the last five years of the projection;
  - The fact that production capacity in oil sands is increasing while becoming less labour intensive;
  - Structural changes in construction activity, more specifically the shift in the composition of housing starts from single-unit homes to multiple-dwellings (apartments and condominiums) which are more capital intensive and require less labour by unit of output.

Industries that are projected to post the weakest growth or declines in employment.

Employment Growth by Industry, Projection 2019-2028
(average annual growth, in percentage)



Source: ESDC 2019 COPS industrial projections.

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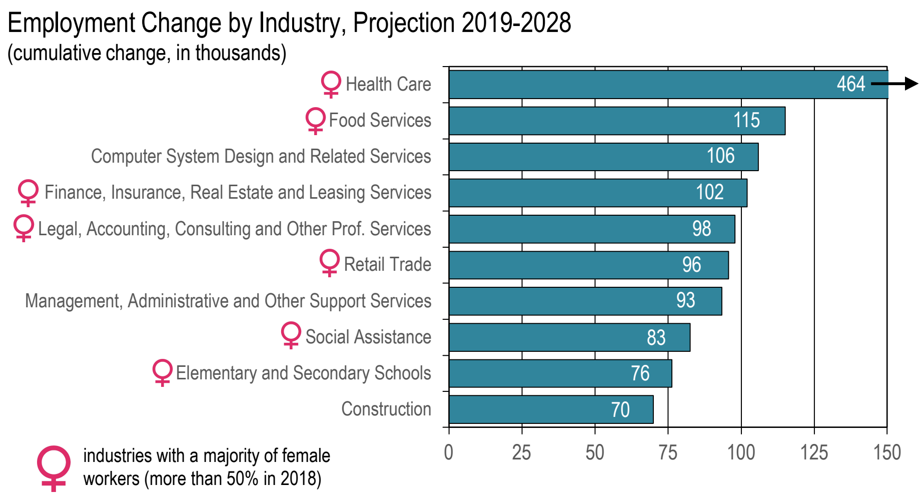
- Most of the industries projected to post the weakest growth or declines in employment (i.e. around or below 0.4% annually) are also those projected to post the weakest growth in production.
- This group is largely composed of manufacturing and primary industries that have experienced a stagnation or a declining trend in output and/or employment over the past several years, such as textiles, clothing, furniture, agriculture, forestry, wood products, printing, paper and fishing. Such industries are expected to face similar challenges than those experienced in the last decade, including:
  - The intensification of foreign competition and the shift in production to low-cost producers;
  - Lower demand for paper and printed materials due to the growing use of electronic media;
  - Timber and fish supply constraints (allowable annual cuts and quotas on fish species);
  - The return of U.S. tariffs on Canadian exports of softwood lumber;
  - Difficulties to attract workers in agriculture and out-migration from rural/fishing communities.
- Output and employment growth is also projected to be weak in a number of commercial and non-commercial services industries. The main factors expected to weigh on those industries are:
  - The slower pace of growth anticipated in the consumption of goods (retail trade);
  - The growing use of e-mail, electronic billing and online advertising (postal/courier services);
  - The slow recovery projected in population aged 18-25 (colleges and universities);
  - Additional pressures on public finance due to demographic changes (public administration).

The following ten industries account for about three quarters of total job creation projected in Canada over the period 2019-2028.



Source: ESDC 2019 COPS industrial projections.

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- Among the 42 industries covered by COPS, 10 industries account for about three quarters of total job creation projected in Canada over the period 2019-2028.
- Future changes in the level of employment by industry can be decomposed in two components:
    - The rate of growth projected in employment for the industry;
    - The current number of workers in the industry (i.e. the size of the industry).
- This means that the ten industries expected to create the largest number of jobs are not necessarily those expected to show the strongest growth rates in employment.
- For example, the retail trade industry is expected to create a significant number of jobs, despite the weak rate of growth projected in employment (page 28). This simply reflects the large size of this industry relative to other industries. The same arguments apply for finance, insurance and real estate as well as construction, which are also expected to post substantial gains in employment, despite moderate growth rates in employment (page 27).

Gender Analysis

- The projections cannot be performed by gender, but the historical data provide the distribution of men and women in industrial and occupational employment.
- The data show that female workers are mostly concentrated in services. This is because women are more likely than men to work in services-producing industries, while men are more likely than women to work in goods-producing industries.
- In 2018, 91% of female workers were operating in services, compared to 68% for male workers. Inversely, 32% of male workers were operating in the primary, manufacturing or construction industries, compared to 9% for female workers.
- Among the twelve industries with a majority of female workers, five industries are expected to post strong growth in employment (page 26), three are expected to post moderate growth in employment (page 27), and four are expected to post weak growth in employment (page 28).
- However, among the ten industries expected to create the highest number of jobs (page 29), seven industries are dominated by female workers, as women tend to operate in services industries with a large number of workers.

Industrial Summaries

For more details on the historical and future performance of the 42 industries covered by COPS, including key drivers of GDP, employment and productivity growth, please consult the Industrial Summaries available on the COPS website htpp://occupations.esdc.gc.ca/sppc-cops/