

Employment in selected Niagara Industries 1991–2021

This paper reports on employment in selected industries in Niagara from 1991 to 2021¹. The industries are parts of six sectors: agribusiness; manufacturing; marine transportation; electricity generation, transmission, and distribution; tourism; and information and communications technology.

Simple headcounts of the number of people employed in the establishments within each industry are reported along with some disaggregation by gender, the percentage self-employed, and the industry's share of total employment in Niagara. The headcounts are rounded to multiples of five and withheld if there are fewer than 10 to ensure confidentiality. The employment data are compiled from the long-form census samples collected every five years and reported on the Statistics Canada website.

A person is considered employed (and reported here) if, during the reference period:

- they did any paid work within the context of an employer/employee relationship,
- they were self-employed,
- they did unpaid family work (i.e. unpaid work contributing directly to the operation of a farm, business or professional practice owned and operated by a related member of the same household), or
- they had a job (or were self-employed) but did not work during the reference period due to factors such as their own illness or disability, personal or family responsibilities, vacation or a labour dispute.

Persons not at work because they were on layoff, between casual jobs, or waiting to start a job at a future date are not included.



Photo courtesy Chateau des Charmes

The data cover only the St. Catharines-Niagara Census Metropolitan Area (CMA), so Grimsby and West Lincoln are excluded. For simplicity, any reference to “Niagara” throughout this analysis should be understood as the specific CMA.

The North American Industry Classification System (NAICS) is used to define and delimit the industries for the 2021, 2016, 2011, and 2006 census data. The 1980 Standard Industrial Classification (SIC) is used for the 2001, 1996, and 1991 census data. Every effort is made to ensure that the definitions of industries are consistent across the two classification systems and their revisions. But some changes in the activities included or excluded from the industry categories, across the two systems and their revisions, were inevitable.

Table A1 in the Appendix shows the NAICS and SIC classifications used to define the industries over the period studied. Note that the census was replaced by a voluntary “National Household Survey” in 2011 so the 2011 data should be treated with more caution than the data for the other years.

¹Employment, measured here as the number of people working in an industry, is an extremely important measure of the significance and contribution of the industry to Niagara, and so it is well worth reporting. But it does not provide reliable measures of other very important (and overlapping) characteristics of the industries such as the overall level of economic activity; the value added; or the amount of revenue, income, or wealth generated by the industry. Levels of employment tell us even less about other, more difficult to measure, characteristics such as the industry's contribution to the region's social fabric, (in)equality, or environmental sustainability.

This section reports employment (and a few of its characteristics) in selected industries in the agribusiness sector. The agribusiness sector includes farms and other industries not usually classified as part of agriculture. These additional industries are wholesale distributors of farm supplies, wholesale distributors of farm products (outputs), “Food manufacturing,” and “Beverage manufacturing”. Other industries in the agribusiness sector, such as support/ services supplied directly to farms, are not included because it was too difficult to construct consistent employment time series across the industrial classification system revisions. Employment in other agribusiness industries such as forestry, hunting or fishing was small and declined to very low levels over the 30 years considered here.

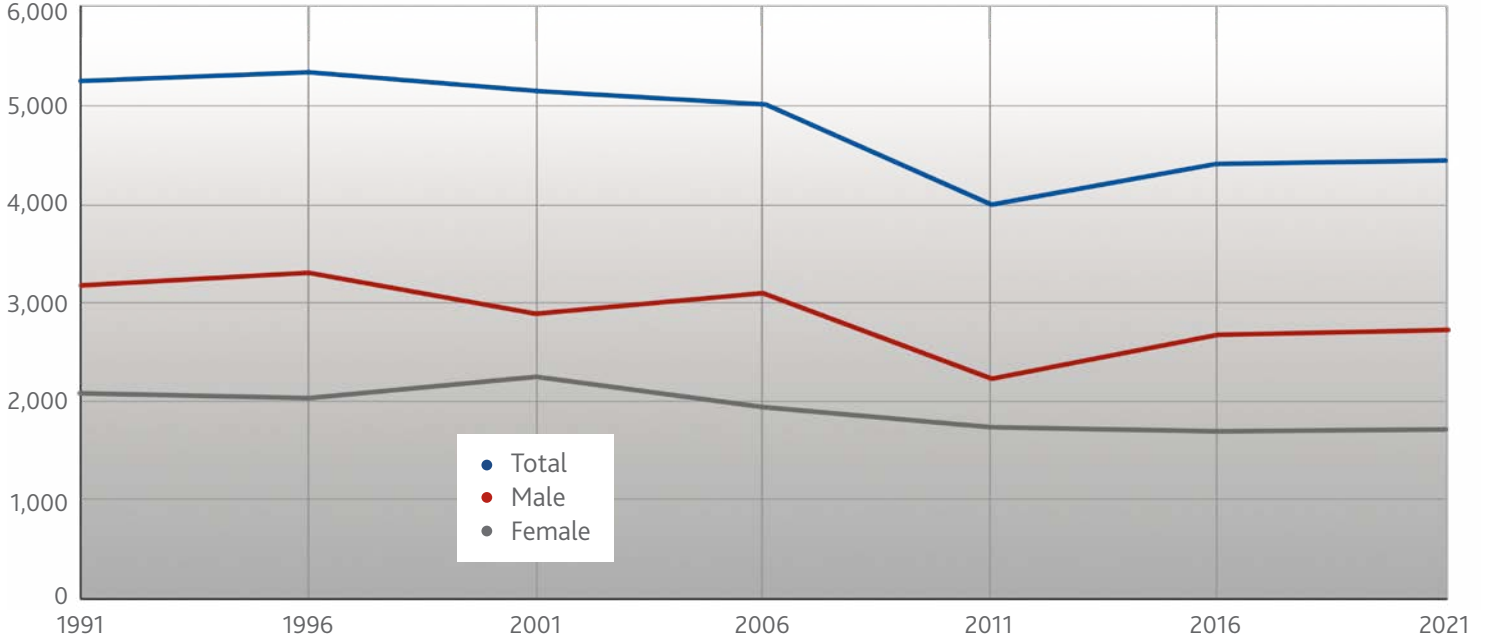
Farms

The farm industry includes establishments primarily engaged in growing crops (including greenhouses) and raising animals.² Figures A1, A2, and A3 report on employment in those farm categories.

In 1991, 5,260 people were employed on farms in the St. Catharines-Niagara CMA, representing 2.9 per cent of Niagara’s total employment. Employment increased (by 65) in 1996 to a high of 5,325 but then decreased, albeit slowly, over the next decade. The 2011 National Household Survey showed a large decrease in employment in 2011 (-1,040) leaving a low of 3,980 employed in 2011. A small rebound followed, with employment increasing by 420 to 4,400 in 2016, and increasing by 40 to 4,440 in 2021. In 2021, farms accounted for 2.5 per cent of total employment in Niagara.

Employment in the farm categories is not male-dominated. Women made up around 40 per cent of employment over the 30 years shown. Self-employment is very common in the industry, accounting for 36.2 per cent of total employment in farms in 1991, the highest among the industries considered in this report. The percentage decreased rather strongly over the period, falling to 22.75 per cent in 2021, but that is still a very high percentage compared to other industries in the region.

Figure A1: Employment in Farms



² For the purpose of our research, farms include the NAICS categories of crop production (code 111) and animal production/aquaculture (code 112).

Figure A2: Farms' Percentage of Total Niagara Employment

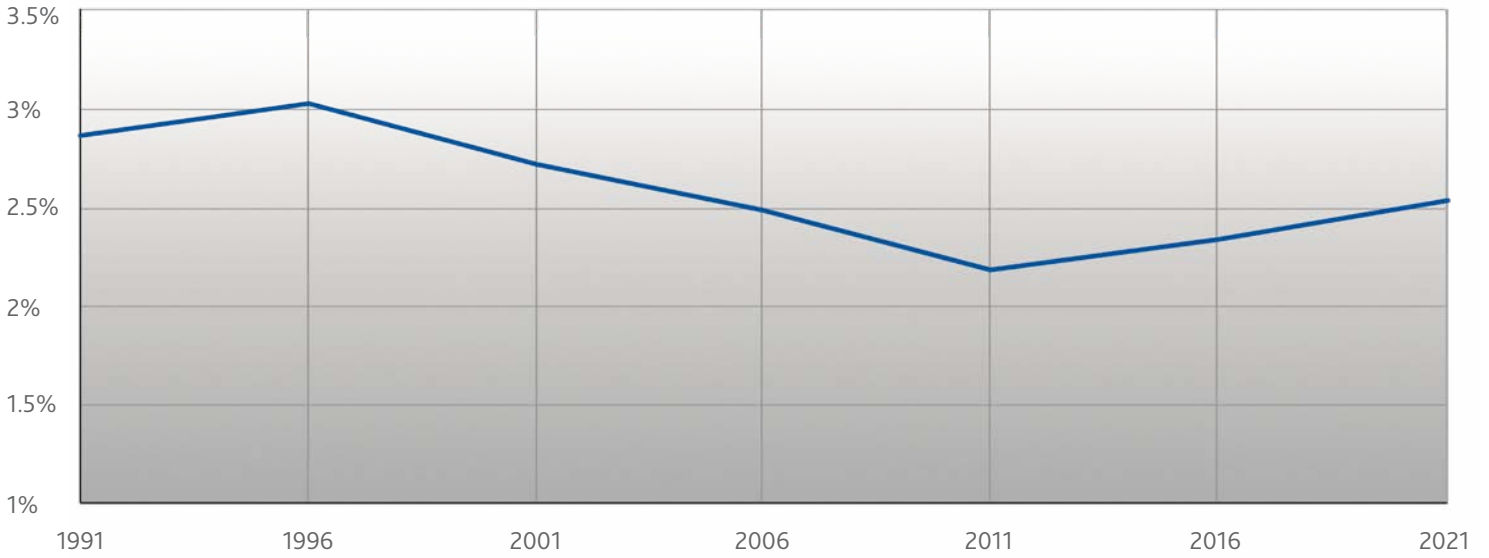
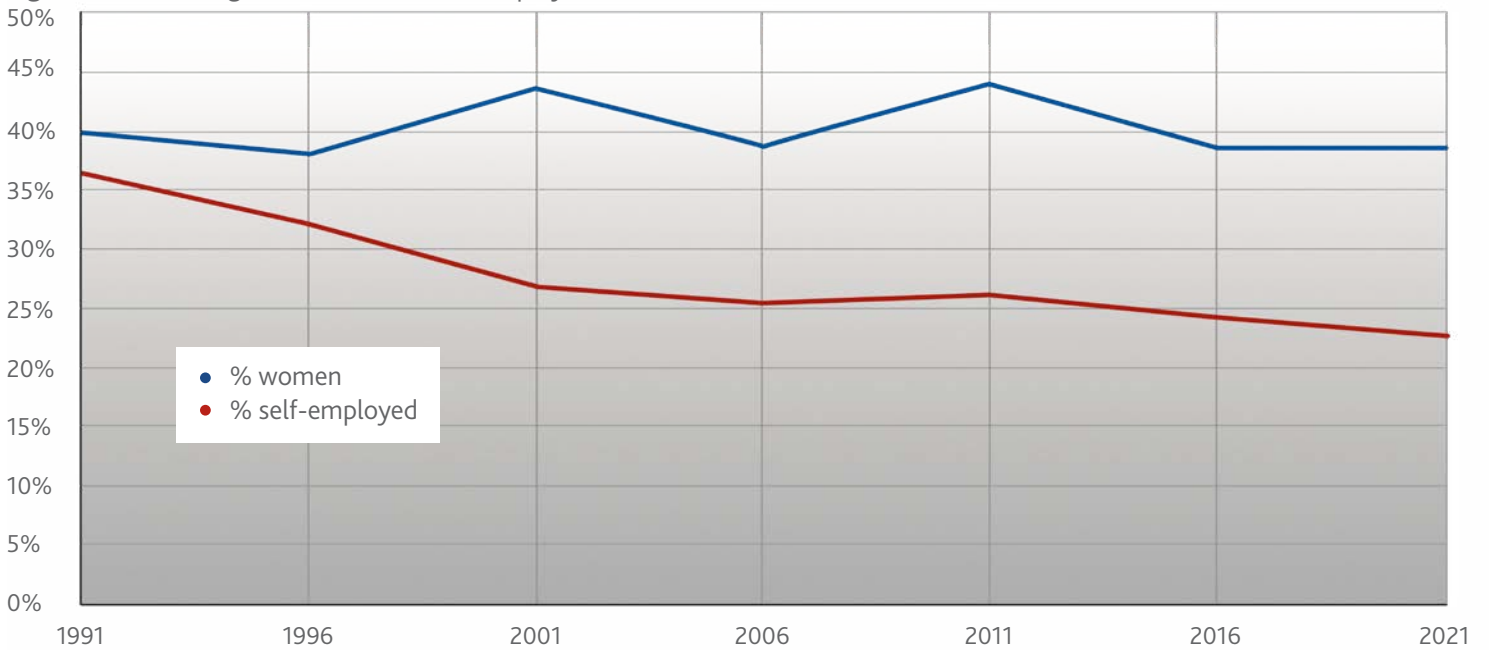


Figure A3: Percentage of Women and Self-Employed in Farms



Wholesale Distributors of Farm Supplies and Products

This section reports employment for two wholesaler industries: wholesale distributors of farm supplies and wholesale distributors of farm products. Farm supply wholesalers sell products such as animal feeds, seeds and processed seeds, fertilizers and other agricultural chemicals, and other farm supplies to farmers. Farm product wholesalers buy products such as livestock, grain, fruits and vegetables, and other farm products from farmers and sell them to other distributors or manufacturers.

Employment, and selected characteristics of employment, are shown in Figures A4, A5, and A6. Figure A4 shows that both industries are small. At its highest, farm product wholesalers employed close to 500 people from 2001 to 2011, while farm supply wholesalers' maximum employment was 260 people in 2006. At their highest, farm product wholesalers accounted for 0.26 per cent of Niagara employment while farm supplies wholesalers accounted for 0.13 per cent.

Employment in farm supply wholesalers increased from 125 in 1991 to 260 in 2006. Employment declined to just 85 people by 2016, but then increased again to 140 in 2021, accounting for just 0.08 per cent of Niagara employment. Women accounted for more than 60 per cent of the workforce for all but one census year from 1991 to 2011, but the percentage declined thereafter, ending up at 53.6 per cent in 2021. Wholesale farm suppliers had very few self-employed workers, including no self-employed reported for several census years. Note that Statistics Canada withholds the number if it is too small to ensure confidentiality.

The wholesale farm products industry displayed stronger employment growth, increasing from 150 in 1991 to 485 in 2006 and maintaining (almost) that high level in 2011. Employment fell to 290 in 2016 but increased to 315 in 2021, representing 0.18 per cent of total Niagara employment. The percentage of women employed varied between 40 per cent and 48 per cent, and trended upwards slightly, over the 30-year period. In 2021, women comprised 46 per cent of employment. The percentage of self-employed in the industry trended down, although not monotonically, from 16.7 per cent in 1991 to 9.5 per cent in 2021.

Figure A4: Employment in Wholesale Distributors of Farm Supplies and Products

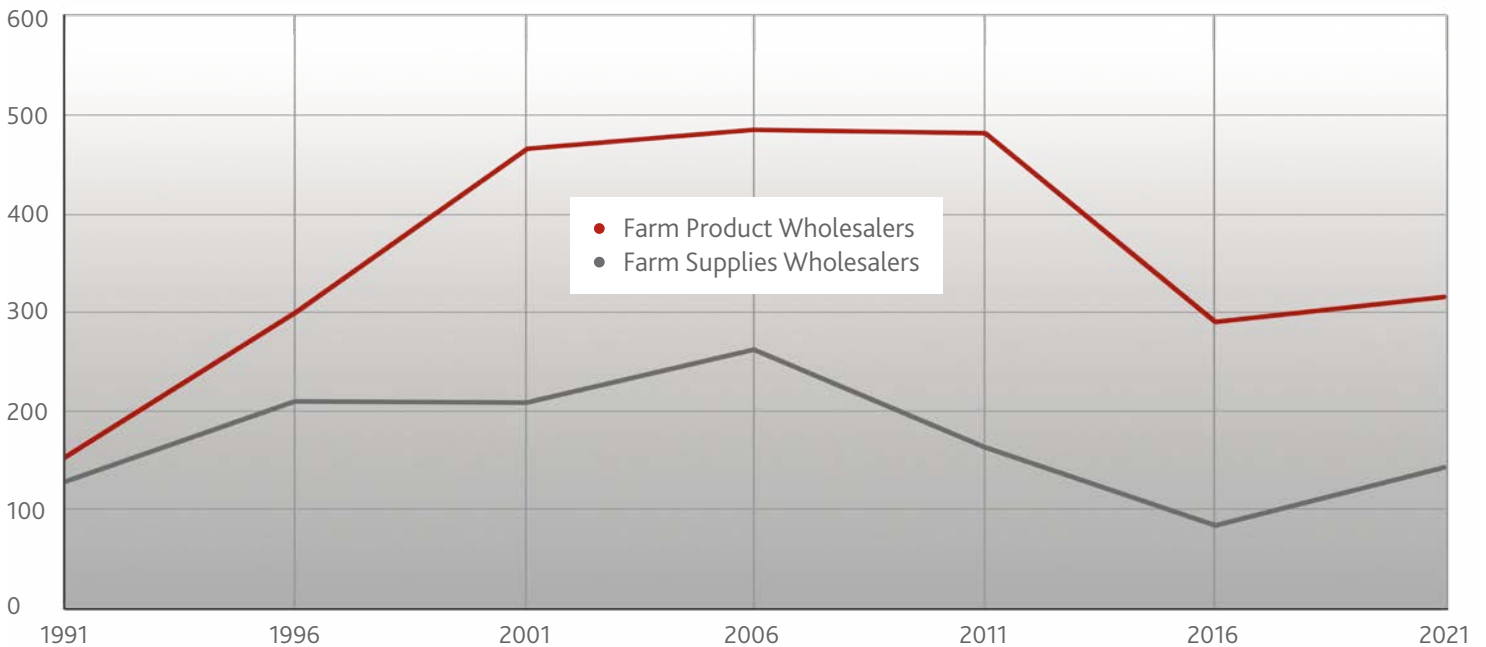


Figure A5: Percentage of Women in Wholesale Distributors of Farm Supplies and Products

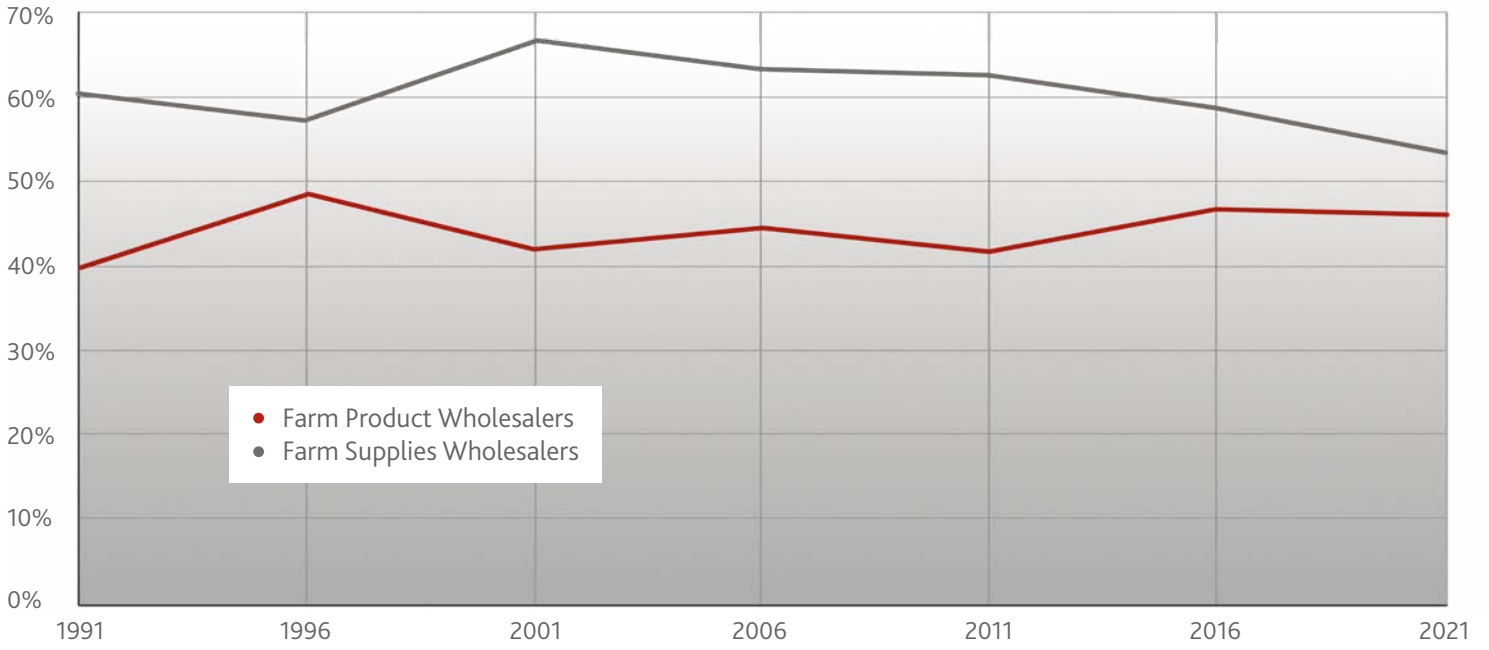
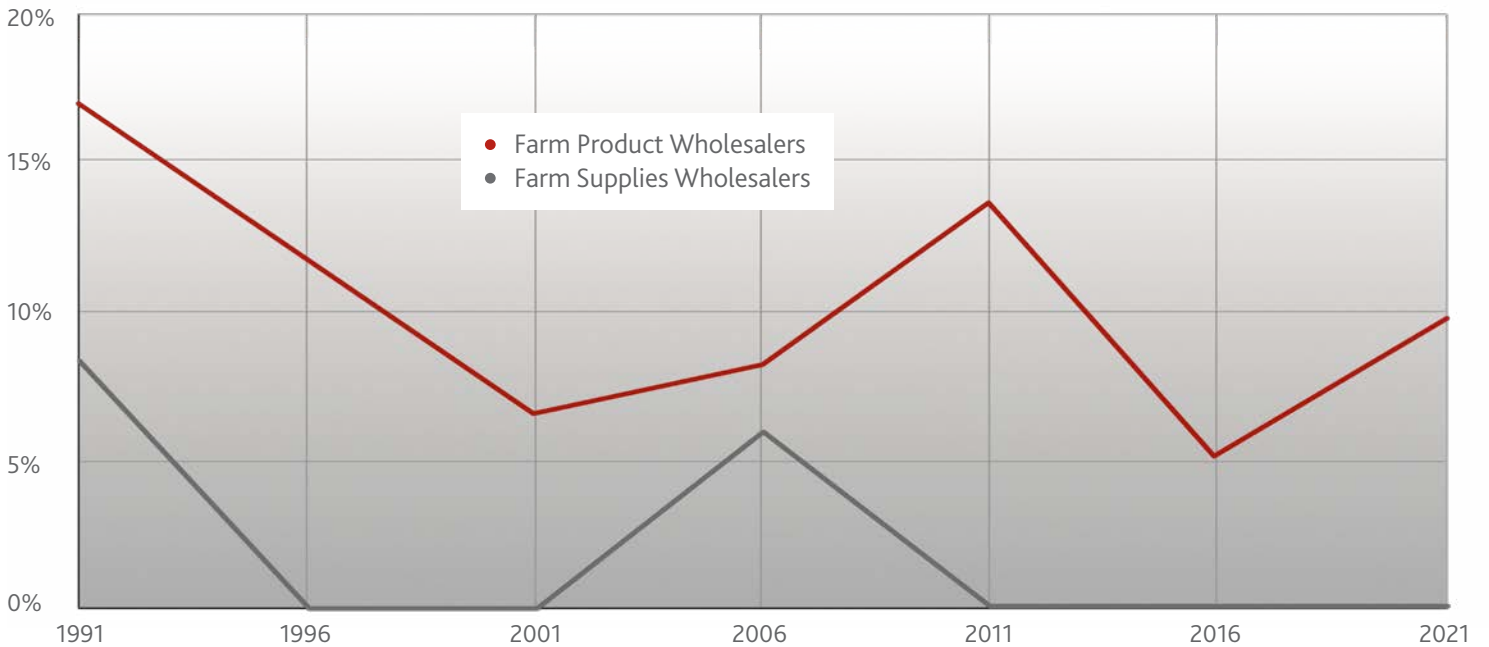


Figure A6: Percentage of Self-Employed in Wholesale Distributors of Farm Supplies and Products



Food and Beverage Manufacturing Industries

Food and beverage manufacturing industries consist of all establishments producing food and beverages for human or animal consumption, mostly from inputs produced on farms. For foods, these include products such as animal foods, grain and oilseed milling, sugar and confectionery products, dairy and meat products, bakeries and tortilla manufacturing, snack foods, and seasonings and dressings. For beverages, these include breweries, wineries, distilleries, and soft drink and ice manufacturers.

Levels and selected characteristics of employment in the food and beverage industries are presented in Tables A7, A8, A9, A10.

Both industries are relatively large, and food is the larger of the two. In 1991, "Food manufacturing" employed 2,365 people representing 1.3 per cent of total Niagara employment. Employment increased by 325 to its high of 2,690 in 1996, accounting for 1.5 per cent of total Niagara employment. It then decreased from 1996 to 2011, albeit with an uptick in 2006, to its low of 1,740 people in 2011. Employment increased slightly in 2016, and then by 190 people in 2021, yielding employment of 1,945 in 2021 or 1.1 per cent of total employment in Niagara.

Women comprised 32.4 per cent of employment in the "Food manufacturing" industry in 1991. The percentage of women increased to over 40 per cent from 1991 to 2001, and then remained between 35 and 40 per cent to 2021. In 2021, 37.5 per cent of employment in "Food manufacturing" were women. In 1991, 2.1 per cent of the

people working in "Food manufacturing" were self-employed, increasing slightly (with fluctuations) from 1996 to 2011, but then increasing sharply in 2016. In 2021, 3.86 per cent of food-manufacturing employees were self-employed.

The Niagara "Beverage manufacturing" industry was very small in 1991, employing only 400 people and accounting for only 0.22 per cent of total Niagara employment. It grew rapidly from 1991 to 2011, however, with employment reaching a high of 1,245 in 2011 and 0.68 per cent of Niagara's total employment. The number of people employed in the industry fell between 2011 and 2016, but then rebounded in 2021 when 1,050 people worked in Niagara's "Beverage manufacturing", representing 0.6 per cent of the CMA's total employment. All told, employment increased by 650 (or 163 per cent) from 1991 to 2021.

The percentage of women employed in "Beverage manufacturing" increased rapidly in the early years of the industry's growth, going from 26 per cent in 1991 to a high of 49 per cent in 2001. It trended down slightly after 2001. In 2021 women comprised 43 per cent of the workforce in "Beverage manufacturing".

Self-employment is more common in "Beverage manufacturing" than in food. Self-employment in beverages varied a lot over the 1991 to 2021 period, reaching highs of 7.8 per cent and 8.3 per cent in 2001 and 2016, respectively, and a low of 3.3 per cent in 2006. Overall, it trended upwards over the period. The percentage of self-employed increased from 3.75 per cent in 1991 to 5.24 per cent in 2021.

Figure A7: Employment in the Food and Beverage Manufacturing Industries

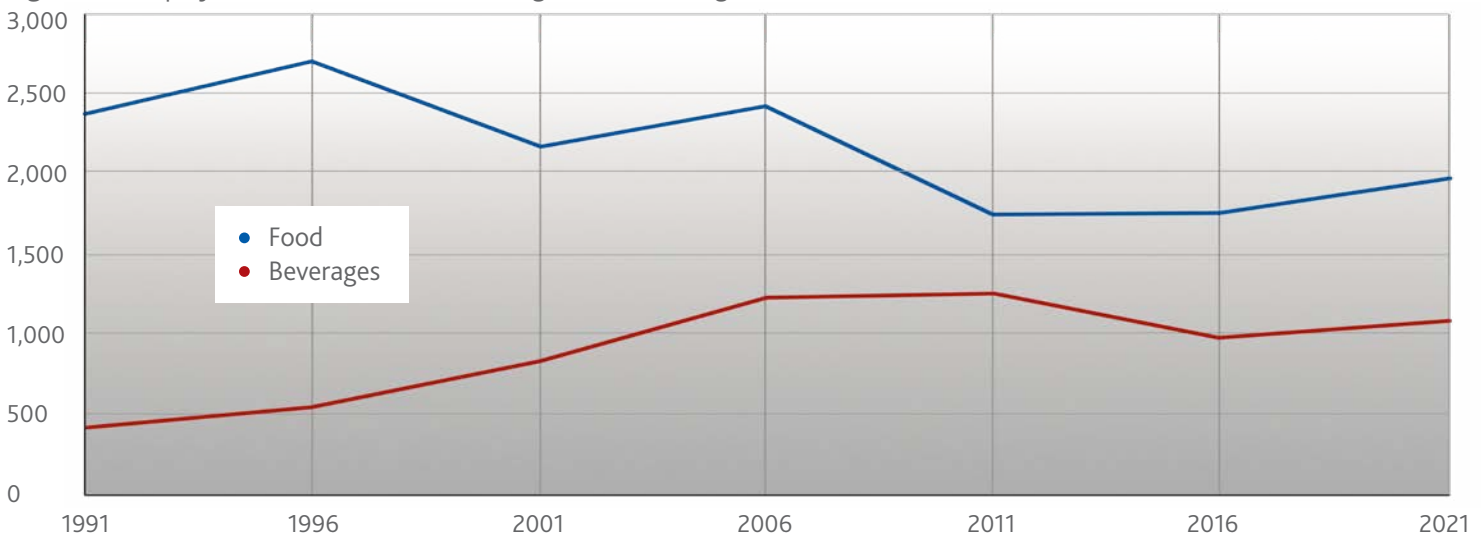


Figure A8: Percentage of Total Niagara Employment in the Food and Beverage Manufacturing Industries

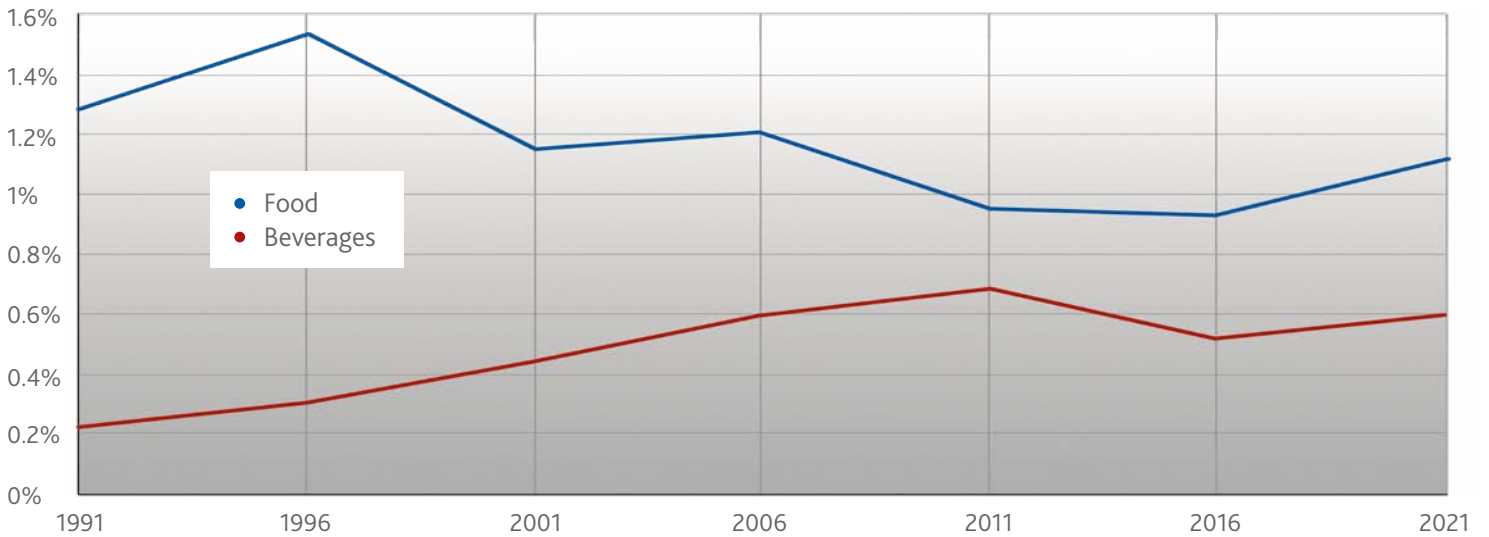


Figure A9: Percentage of Women Employed in the Food and Beverage Manufacturing Industries

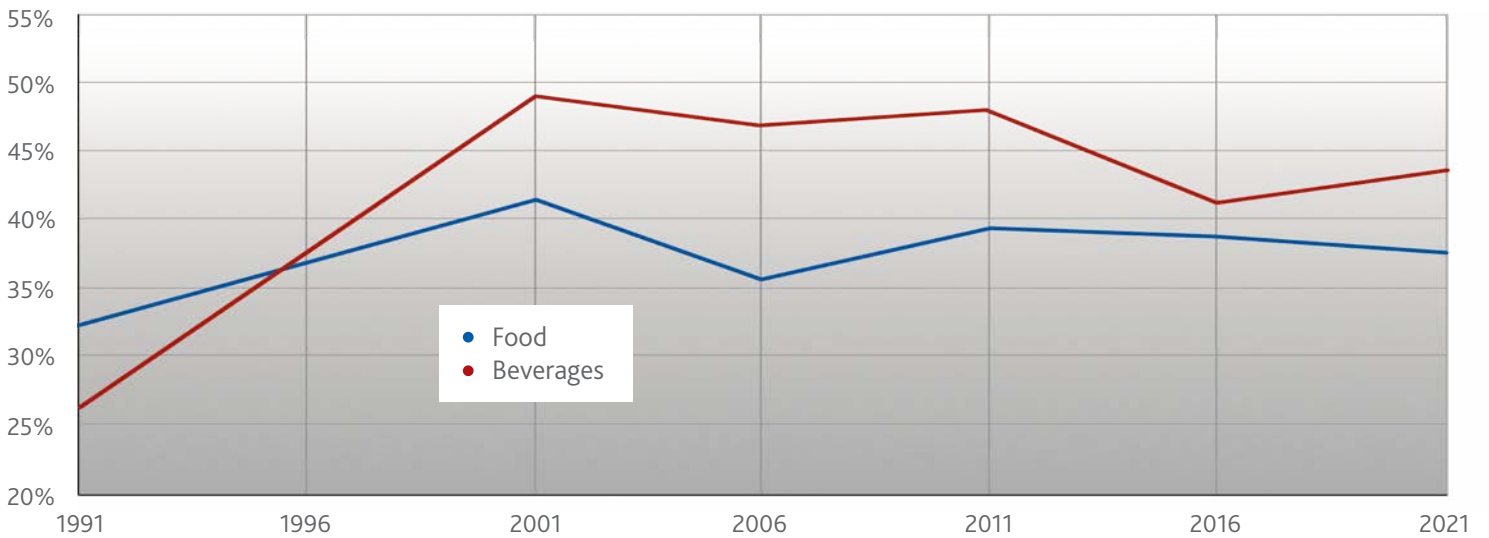
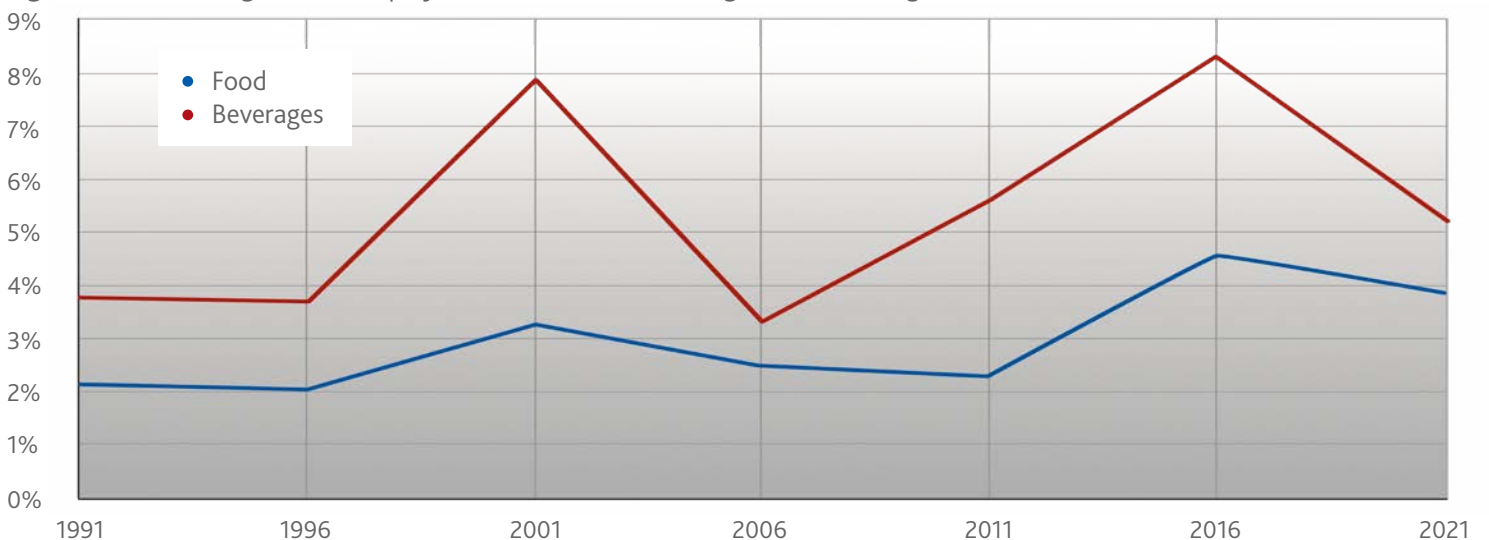


Figure A10: Percentage of Self-Employed in the Food and Beverage Manufacturing Industries



This section reports employment in the manufacturing sector. This includes total employment (and a few of its characteristics) in all manufacturing industries and a few selected manufacturing industries; namely, primary metals, fabricated metal products, transportation equipment, machinery production, and paper and allied products. Employment in other manufacturing industries is presented in the sections describing the sector to which they are also assigned. For example, employment in the food and beverage industries is presented in the agribusiness section. Similarly, employment in ship and boat building and repair is presented in the marine transportation section.

Total Manufacturing

The “Manufacturing” sector comprises establishments primarily engaged in the chemical, mechanical or physical transformation of materials or substances into new products, which may be finished and ready for use or consumption or may be an input for another production process. Some transformation processes are not classified as manufacturing. For example, some post-harvest activities such as crop drying are included in “Agriculture”; refining mineral ores is included in “Mining”; the production of structures by construction establishments is included in “Construction”; and various activities conducted by retailers or wholesalers, such as meat cutting, packaging, or assembly of products—for example bicycles or computers—are assigned to their respective retail or wholesale industries.

Figures M1, M2, and M3 report employment, and a few of its characteristics, for manufacturing in the St. Catharines-Niagara CMA, 1991 to 2021.

“Manufacturing” is a very important sector for Niagara, but it was much more important in 1991 than it was in 2021. Total employment in manufacturing fell from 1991 to 2001 and then the decline accelerated with much larger decreases from 2002 to 2011. In 1991 there were 38,410 people employed in manufacturing in the St. Catharines-Niagara CMA, accounting for more than one out of every five jobs (21 per cent of total employment) in Niagara. By 2001, employment had fallen to 34,115 or 18.1 per cent of the CMA’s employment. From 2001 to 2011, employment decreased rapidly by a further 16,120 (or 47.3 per cent) to a low of 17,995 and just 9.9 per cent of total Niagara employment. Employment continued to decrease, but much more slowly after 2011, reaching a low of 16,665 or 9.5 per cent of Niagara’s total employment in 2021. So, manufacturing employment fell from slightly over one in every five jobs in Niagara in 1991 to slightly fewer than one in every 10 jobs in 2021.

From 1991 to 2021, total manufacturing employment in Niagara decreased by 21,745 people or 56.6 per cent of the 1991 total. The decline fell a little harder on male employees. Employment of women in the industry also fell, but by a smaller amount. Consequently, the percentage of women employed in the industry increased from 18.9 per cent to 22.65 per cent from 1991 to 2021.

The percentage of self-employed trended up strongly over the period, more than doubling from 2.1 per cent in 1991 to 4.8 per cent in 2021.

Figure M1: Employment in Manufacturing

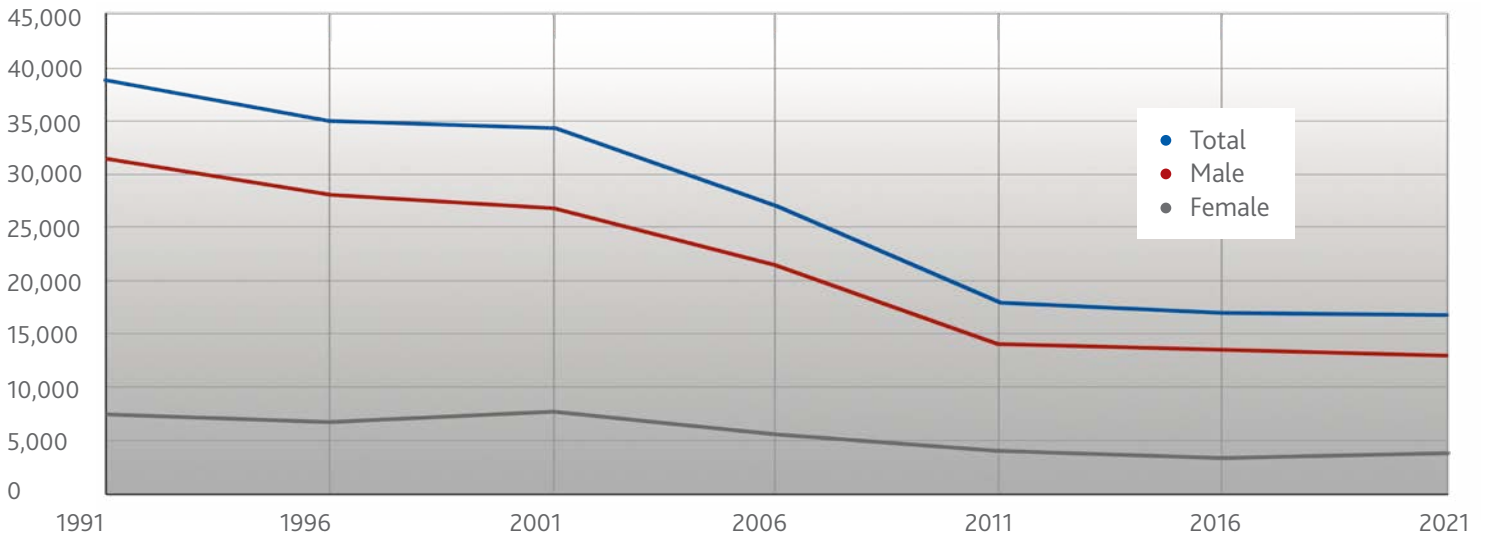


Figure M2: Percentage of Total Niagara Employment in Manufacturing

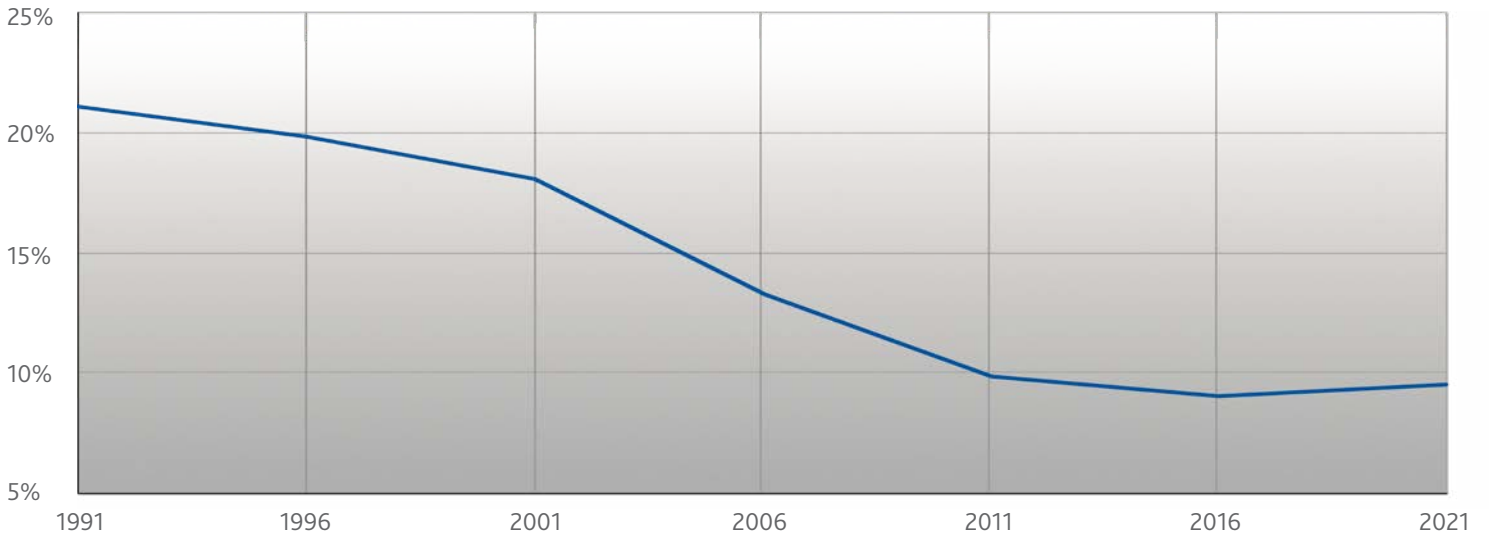
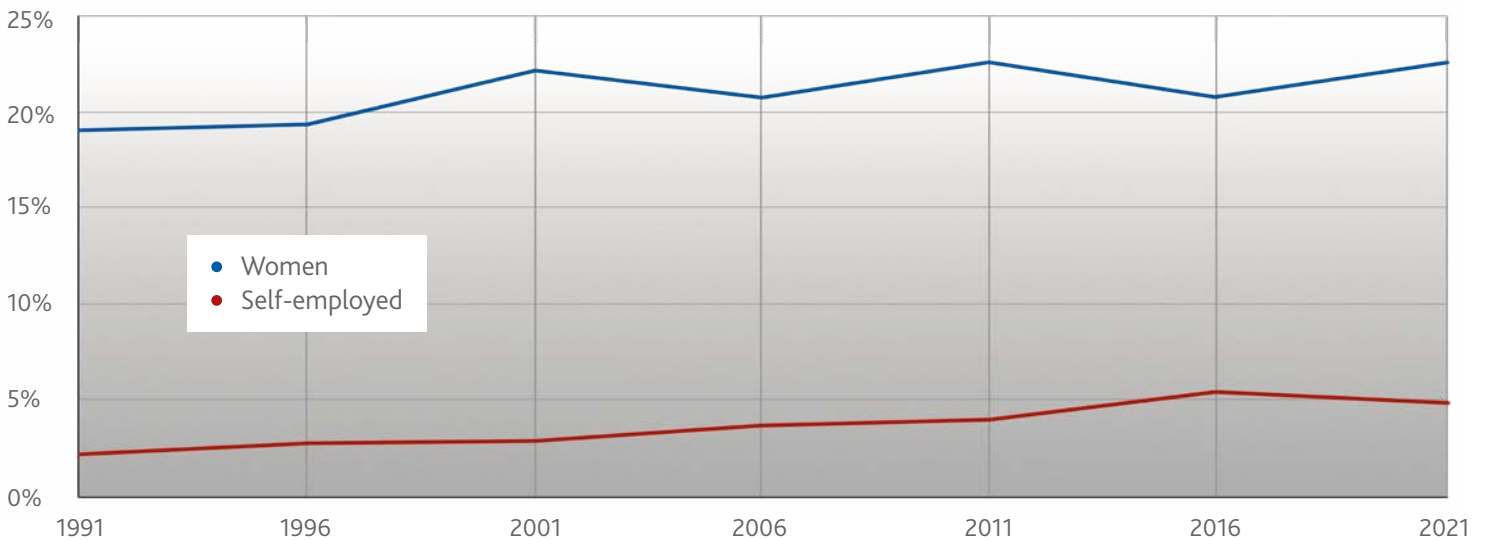


Figure M3: Percentage of Women and Self-Employed in Manufacturing Employment



Transportation Equipment Manufacturing

“Transportation equipment manufacturing” includes establishments primarily engaged in manufacturing or rebuilding equipment and parts for transporting people and goods by road, rail, air, and water. The marine parts of transportation equipment (i.e. “Ship and boat building” and repair) are included in the employment data here. They are also reported separately in the marine transportation section below. Employment in the transportation equipment industry, and a few of its characteristics, are reported in Figures M4, M5, and M6.

In 1991, transportation equipment was a very important industry in Niagara, employing 14,525 people which accounted for 7.9 per cent of total employment in Niagara. It fell dramatically over the next 20 years and then continued its decline in 2016 and 2021, though at a slower rate.

In 2021, employment hit its low of 2,930 or 1.66 per cent of total Niagara employment. Altogether,

employment dropped 80 per cent with 11,595 fewer workers employed by the industry in 2021 compared to 1991. In spite of its dramatic declines, transportation equipment remains an important industry in Niagara. In 2021, it still employed more people than the food and beverage industries combined (including the much-publicised wine industry) and roughly three times the number employed in “Electricity power generation, transmission and distribution”.

Although it is difficult to see in Figure M4, men suffered a disproportionately large share of the fall in employment. From 1991 to 2021, male employment fell 81 per cent while female employment fell 69 per cent. As a result, the percentage of women employed in the industry increased from 11 per cent to 16.6 per cent, though the industry remained male-dominated in 2021. There are very few self-employed in the transportation equipment industry, although the percentage did almost double from 0.52 per cent in 1991 to 1.02 per cent in 2021.

Figure M4: Employment in the Transportation Equipment Industry

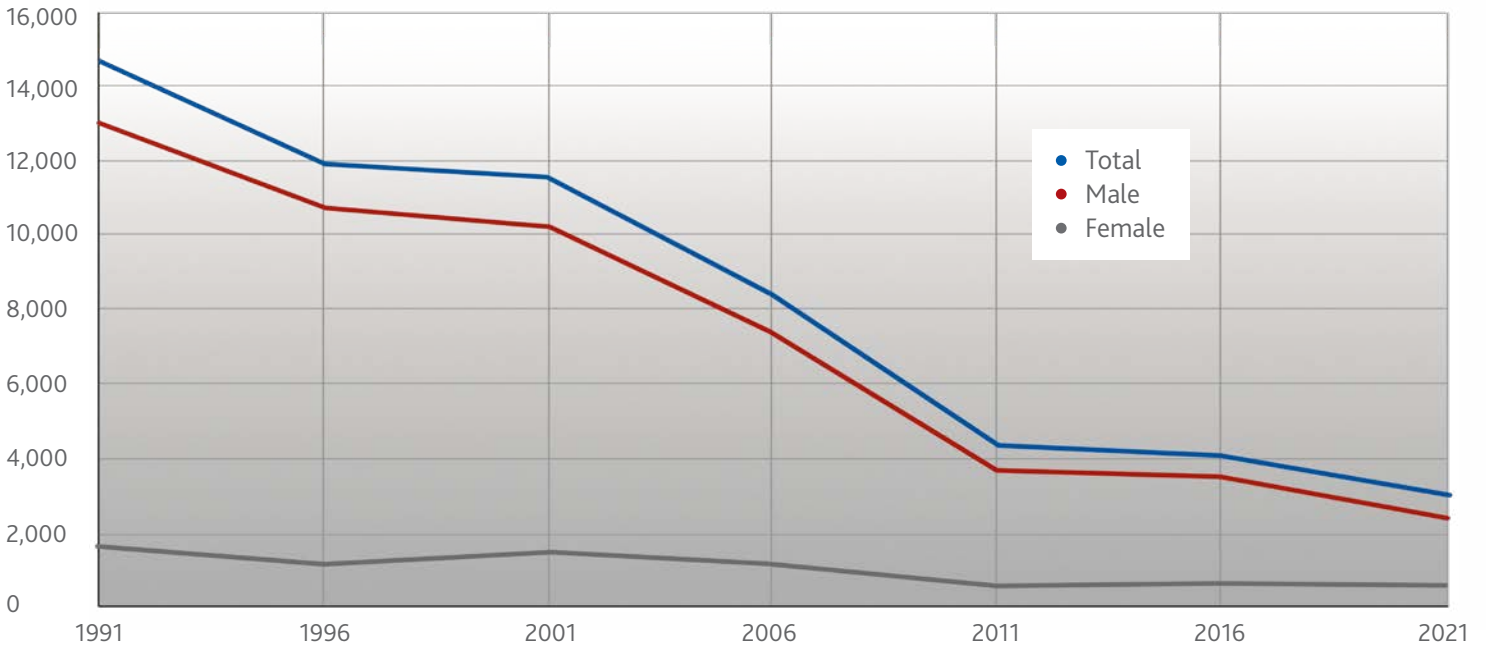


Figure M5: Percentage of Total Niagara Employment in Transportation Equipment

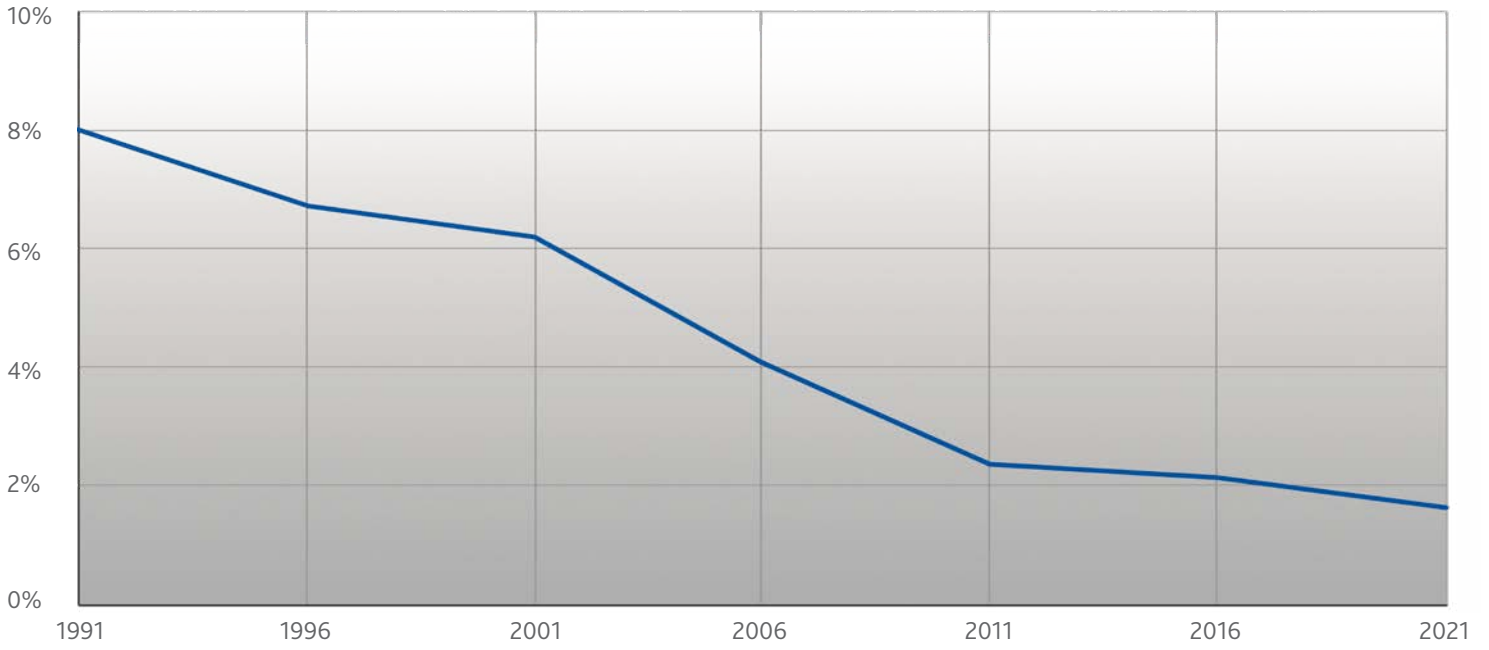
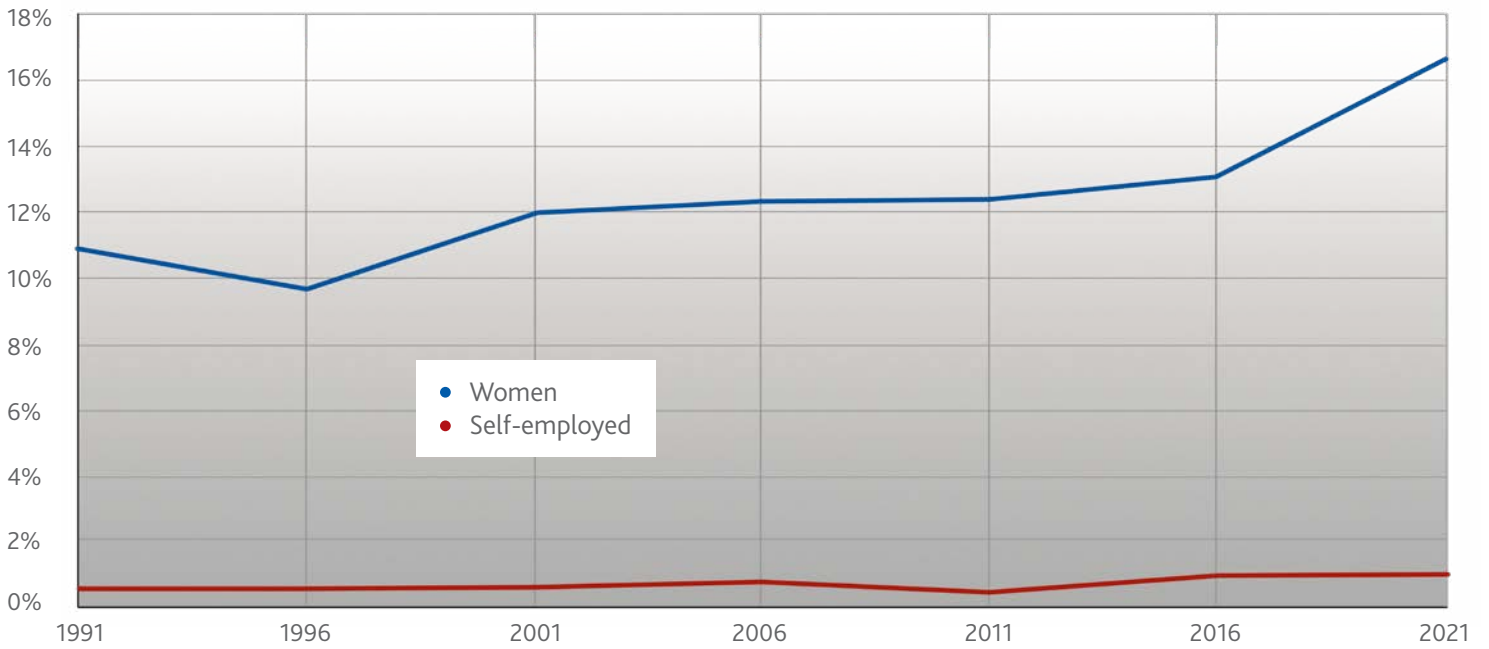


Figure M6: Percentage of Women and Self-Employed in Transportation Equipment



Primary Metals and Fabricated Metal Products Manufacturing

“Primary metal manufacturing” comprises establishments primarily engaged in smelting and refining ferrous and non-ferrous metals from ore, pig, or scrap in blast or electric furnaces. “Fabricated metal product manufacturing” includes establishments primarily engaged in forging, stamping, forming, turning, and joining manufacturing processes to produce ferrous and non-ferrous metal products. Employment, percentage of Niagara employment, percentage of women employed, and percentage self-employed in these two industries are shown in Figures M7, M8, M9, and M10 respectively.

Both industries are large employers in Niagara. Primary metals’ highest employment occurred in 1991 with 4,635 employed, comprising 2.5 per cent of Niagara’s total employment. Employment fell rapidly over the next 20 years and by 2011, employment was reduced to 1,410, less than one third of its former peak, and it accounted for just 0.77 per cent of Niagara employment. Employment recovered slightly after 2011, increasing to 1,610 in 2016 and then increasing slightly again in 2021. In 2021, primary metals employed 1,680 people or 0.95 per cent of Niagara’s total employment.

Employment in fabricated metal products increased from 3,355 in 1991 to a high of 4,010 in 2001 when it

accounted for 2.1 per cent of Niagara’s employment. It fell sharply from 2001 to 2011, then more gently from 2011 to 2016, and it remained unchanged from 2016 to 2021. Some 2,195 people were employed in the fabricated metal products industry in 2021, representing 1.25 per cent of total employment in Niagara. From 1991 to 2021, employment in fabricated metal products decreased by a much smaller amount (1,160 jobs or 35 per cent) than the primary metals industry (2,955 jobs or 64 per cent).

Both industries are male-dominated but the percentage of women employed is, on average, 5.8 percentage points higher in fabricated metal products. The percentage of women in primary metals fluctuated between seven and 12 per cent and trended upwards slightly. In 2021, 8.9 per cent of employees in primary metals were women. Women’s share of employment in fabricated metal products fell sharply from a high of 18.2 per cent in 1991 to a low of 11.9 per cent in 1996, but it trended upwards thereafter and by 2021 women accounted for 14.8 per cent of fabricated metal product workers.

Both industries have low levels of self-employment. In primary metals, the percentage of self-employed varied between 2.6 and zero per cent from 1991 to 2021. Self-employment was more prevalent in fabricated metal products, and the percentage of self-employed trended upwards from 3.4 per cent in 1991 to 5.5 per cent in 2021.

Figure M7: Employment

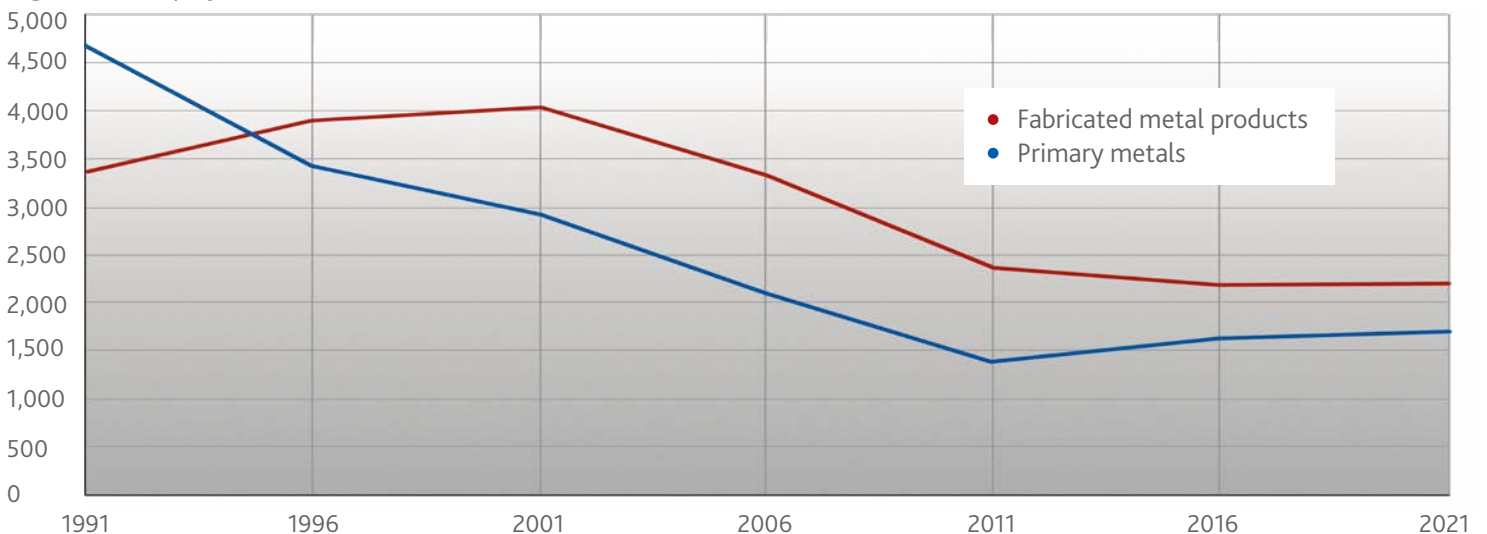


Figure M8: Percentage of Total Niagara Employment

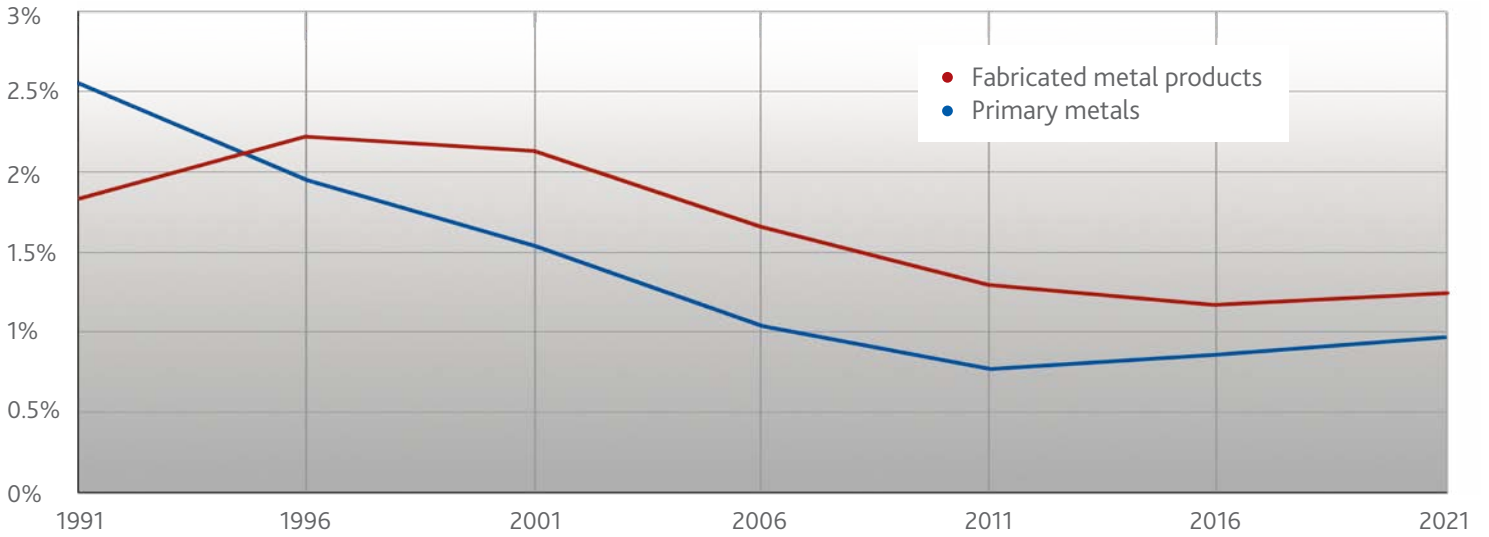


Figure M9: Percentage of Women Employed

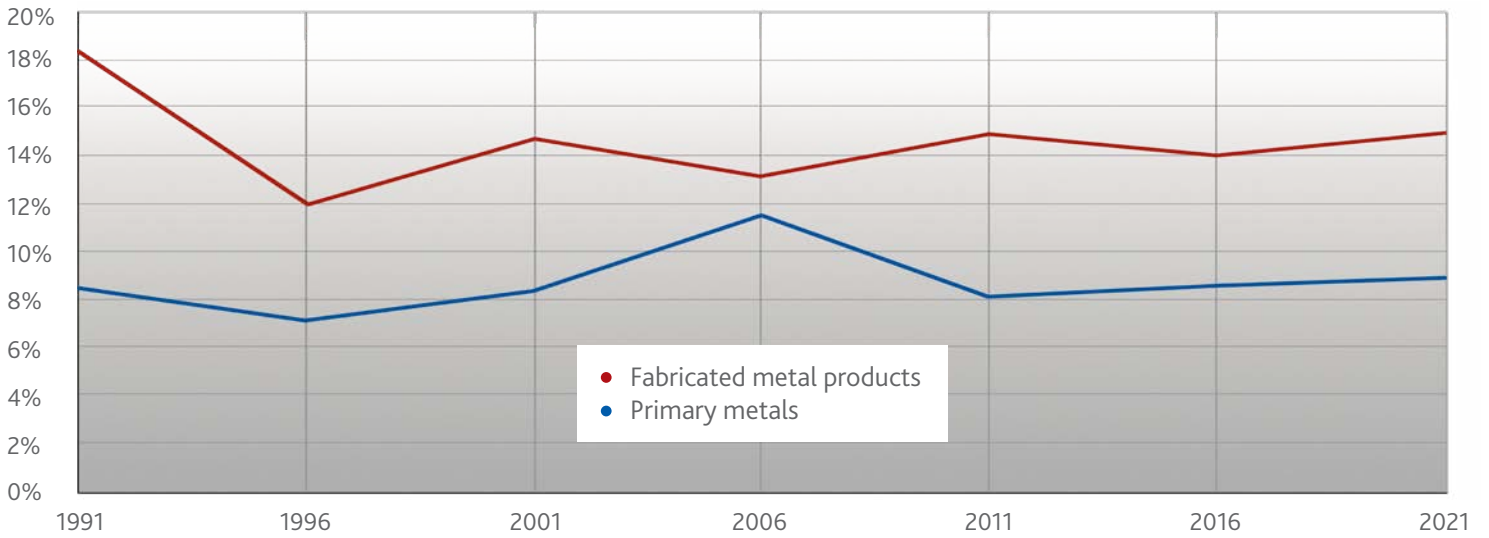
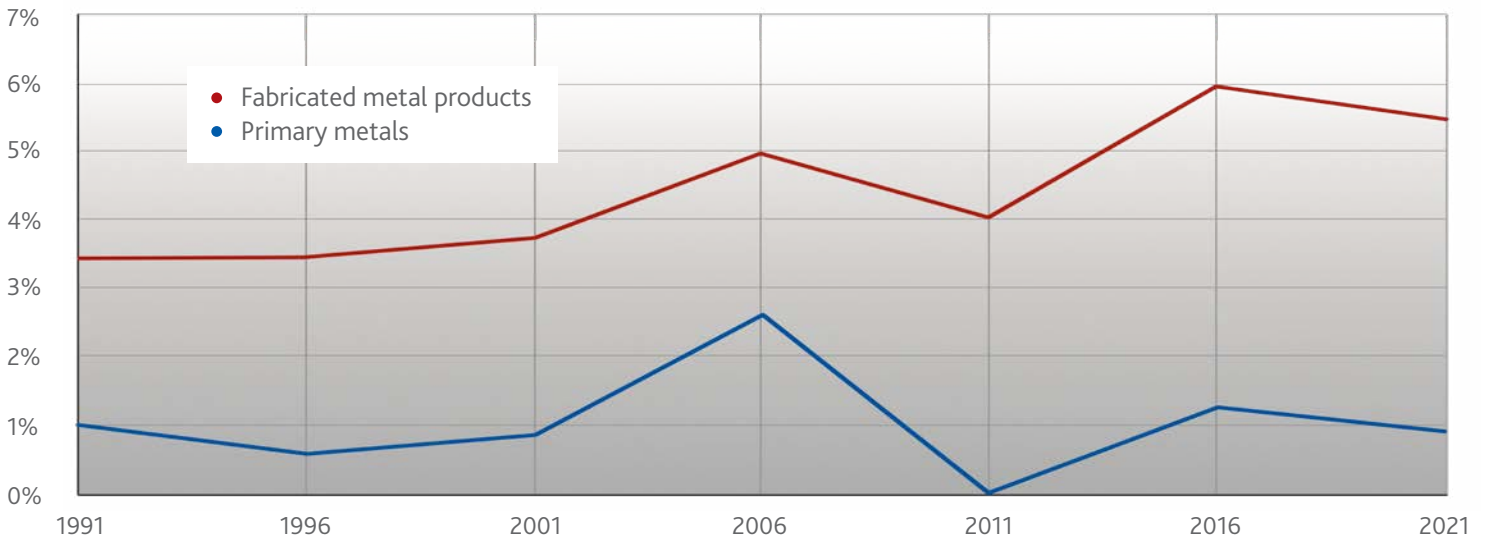


Figure M10: Percentage Self-Employed



Paper and Machinery Manufacturing

"Paper manufacturing" comprises establishments primarily engaged in manufacturing pulp, paper, paperboard, and paper products from wood, recycled used paper, or other sources of fibre. Converted paper products such as paperboard and corrugated cardboard containers, paper bags, coated or treated paper products, stationery products, and other converted paper products are also included in this industry.

The "Machinery manufacturing" industry includes establishments that manufacture or rebuild industrial and commercial machinery and their parts by assembling parts into components, subassemblies, or complete machines. Electrical equipment (e.g. electric motors, transformers, industrial control apparatus, and household appliances) are excluded from the machinery industry classification.

In 1991, the paper industry was much more important to the Niagara region than it is now. In 1991, it employed 1,580 people, accounting for 0.86 per cent of total Niagara employment. Employment fell in every census after 1991, with steep decreases from 1996 to 2011. By 2021, employment had fallen to 405 people representing just 0.23 per cent of total Niagara employment.

Altogether, the paper industry lost 1,175 jobs from 1991 to 2021, a decrease of almost 75 per cent. Put another way, almost three out of every four 1991 jobs in the paper industry had disappeared by 2021.

The machinery industry employed slightly fewer people than paper in 1991, but it followed a very different trajectory. In 1991, there were 1,455 people employed (or 0.79 per cent of total Niagara employment) in machinery establishments. Employment increased from 1991 to 2006, reaching a high of 1,870 or 0.93 per cent of total Niagara employment in 2006. Employment in the industry fell thereafter, but not by large amounts, and it rebounded slightly from 2011 to 2016. In 2021, 1,255 people were employed in the machinery industry, making up 0.71 per cent of employment in Niagara.

Both industries have male-dominated employment with the percentage of women employed below 20 per cent for most years. The percentage of women employed trended up slightly after 2001 and increased sharply in 2021 in both industries. In 2021, the paper industry reached a high of 25 per cent women and the machinery industry reached a high of 19.5 per cent.

There is little self-employment in the machinery industry and virtually none reported in paper. Self-employment accounted for 2.4 per cent of employment in machinery in 1991. The percentage declined in 1996 and again in 2001, but it increased sharply from 2001 to 2011. In 2021, self-employment made up four per cent of total employment in the machinery industry.

Figure M11: Employment in Paper and Machinery

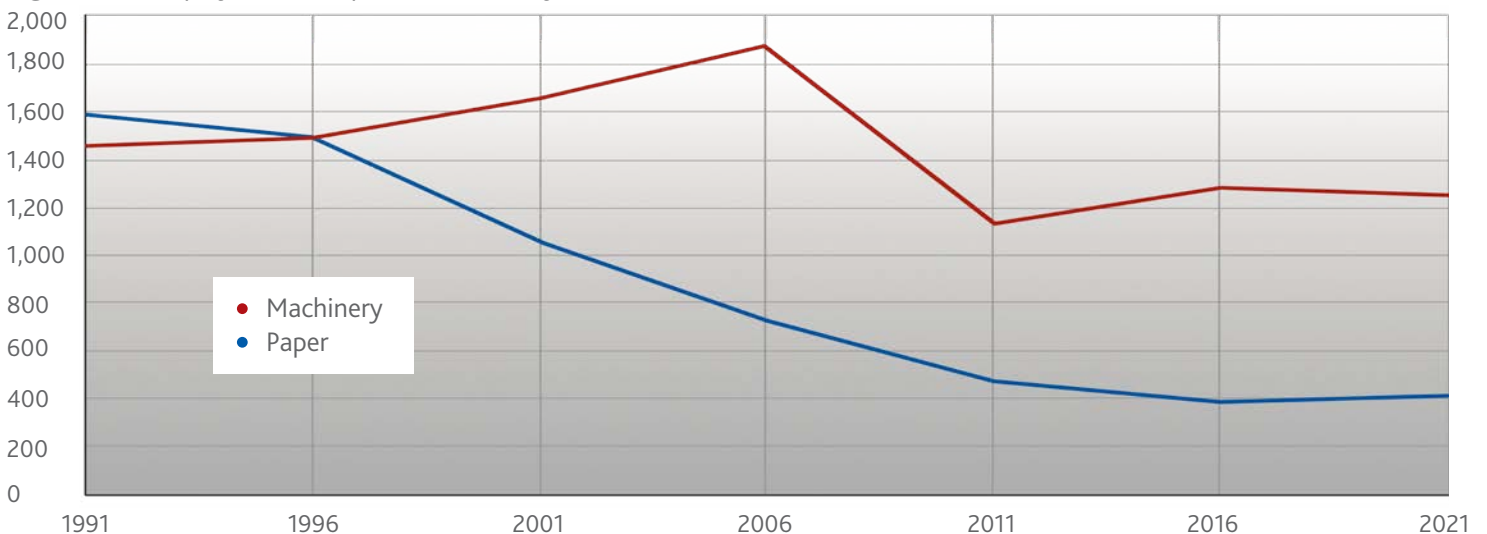


Figure M12: Percentage of Total Niagara Employment

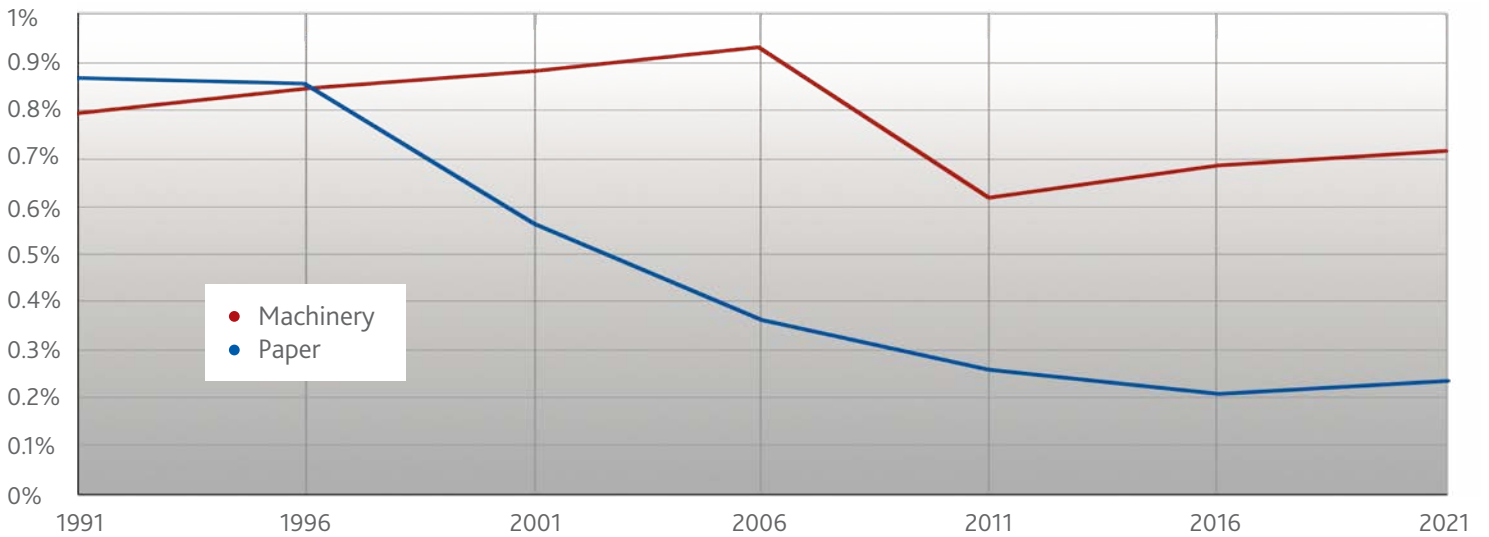


Figure M13: Percentage of Women Employed in Paper and Machinery

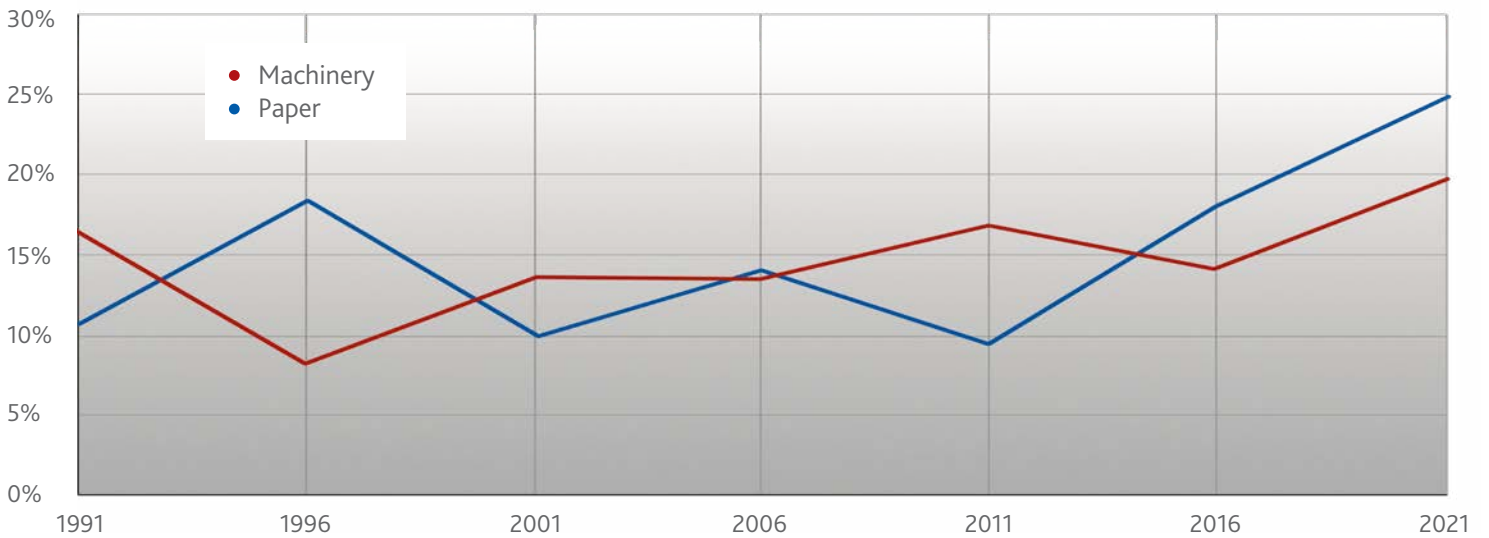


Figure M14: Percentage Self-Employed in Paper and Machinery



ELECTRIC POWER GENERATION, TRANSMISSION, AND DISTRIBUTION

This sector includes establishments primarily engaged in the generation of bulk electric power, transmission from generating facilities to distribution centres, and distribution-to-end users. All types of electricity generation (i.e. hydro, thermal, nuclear, wind, and solar) are included. However, co-generation of heat and electricity or steam and electricity, where the primary activity of the establishment is not electricity generation, is excluded. In those cases, the co-generation of electricity is assigned to the primary activity of the establishment where it occurs. Incinerators generating electricity are also excluded. They are included in “Waste Treatment and Disposal” (NAICS 562210).

Figure E1 shows employment in the electricity sector from 1991-2021. Employment refers to paid employees. There is no self-employment in the industry.

Electricity is not a large sector in Niagara if employment is the metric. In 1991, 1,035 people were employed

in the sector, representing 0.56 per cent of Niagara’s employment. After a substantial drop from 1991 to 1996, to a low of 705, employment trended upwards, although not steadily. From 1996 to 2021, the average increase in employment was greater than five per cent per year. In 2021, 975 people were employed in the industry, 60 fewer than in 1991. The sector accounted for 0.55 per cent of Niagara’s total employment in 2021. Figure E2 shows that from 1991 to 2021, the percentage of Niagara workers employed in the electricity industry remained between 0.6 per cent and 0.4 per cent, with no strong trend up or down.

Figure E1 also shows that electricity is a male-dominated sector. The percentage of women employed in the sector, however, increased from 13 per cent in 1991 to almost 22 per cent in 2006. The percentage remained around 20 per cent in the years after 2006 and was 20.5 per cent in 2021.

Figure E1: Employment in Electric Generation, Transmission and Distribution

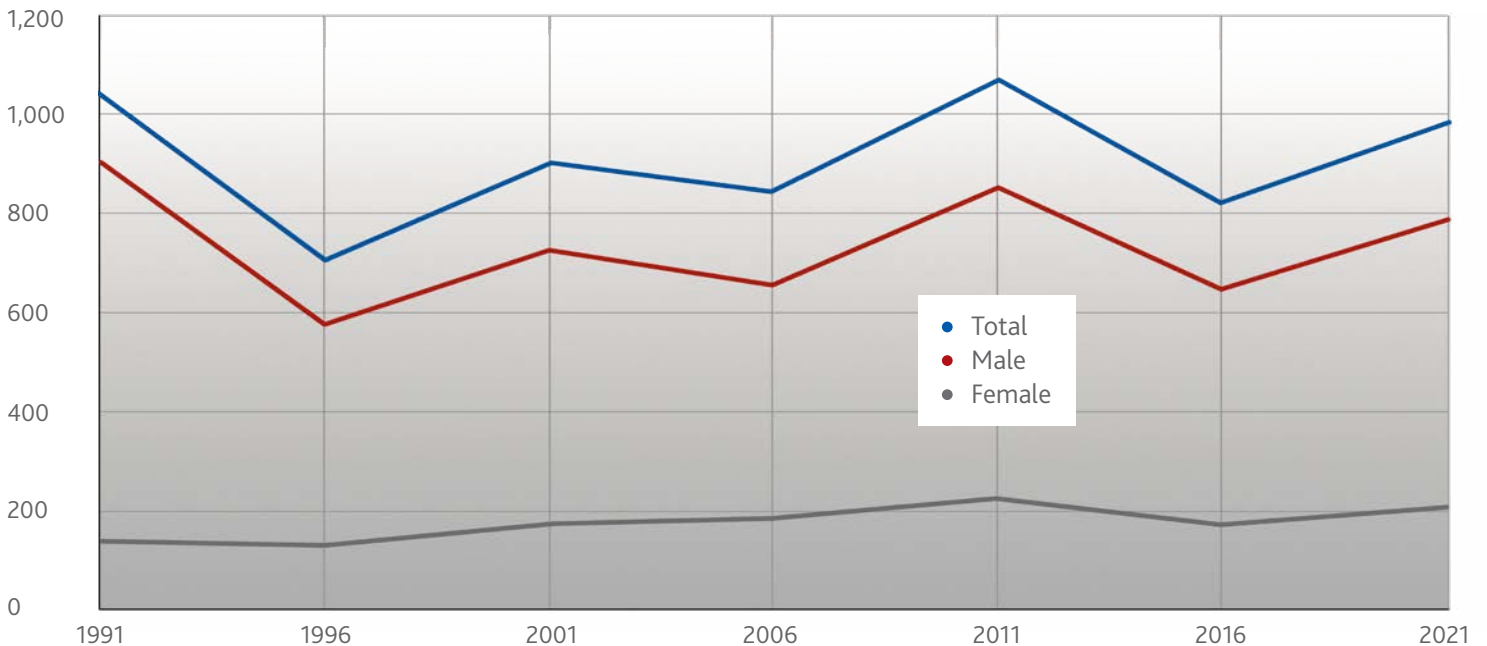
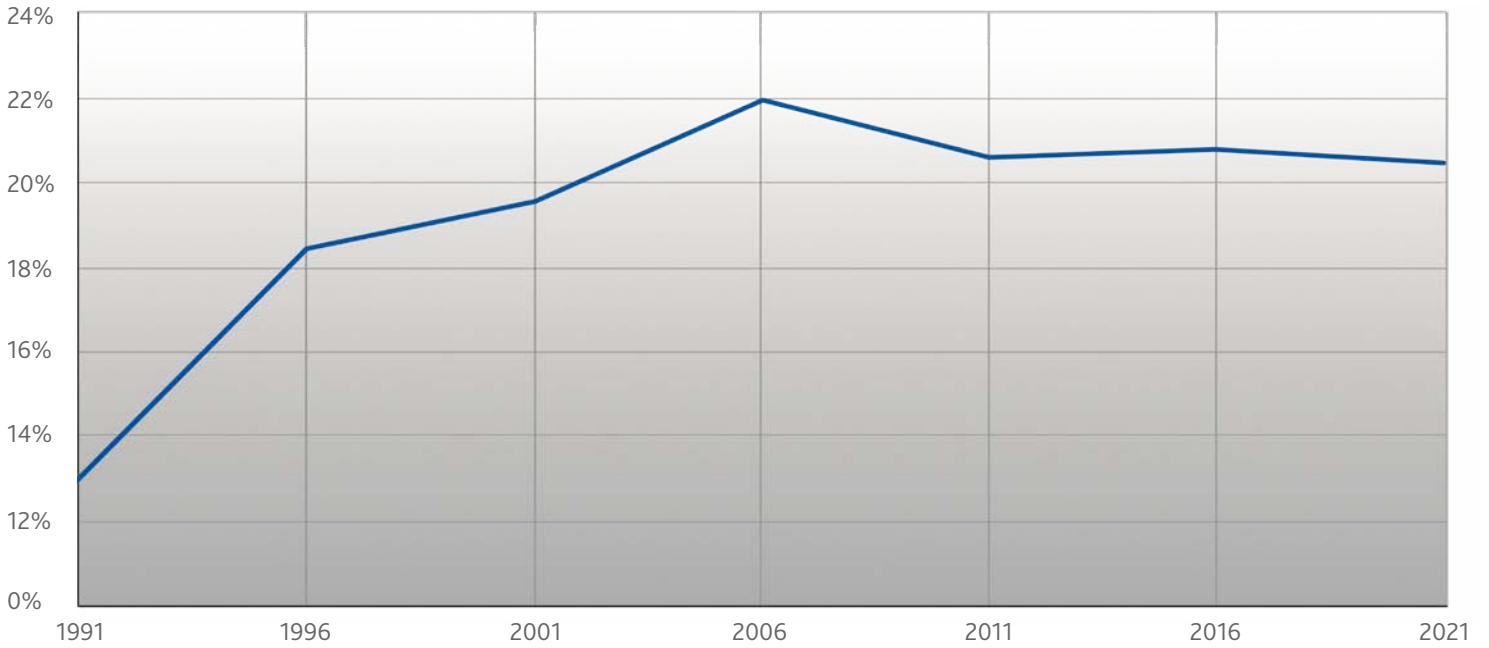


Figure E2: Percentage of Total Niagara Employment Employed in Electricity



Figure E3: Percentage of Women Employed in the Electricity Sector



MARINE TRANSPORTATION

The marine transportation sector is defined to include “Water transportation”, “Support activities for water transportation”, and “Ship and boat building”. The “Ship and boat building” industry is classified as a manufacturing industry and so its employment is also included within the total manufacturing employment data.

The “Water transportation” industry is comprised of establishments primarily engaged in the water transportation of passengers and goods, using equipment designed for those purposes. “Support activities for water transportation” includes port and harbour operations, marine cargo handling, navigational services, and other support services. “Ship and boat building” includes establishments primarily engaged in operating a shipyard or manufacturing boats. Their activities include constructing/manufacturing, repairing, maintaining, converting, or altering ships or boats.

It is very difficult to construct consistent time series of employment in these industries across the different industrial classification systems. For example, equipment rentals and unscheduled same-day return sightseeing trips and cruises are included in the 1980 SIC version of water transportation but assigned to different industries

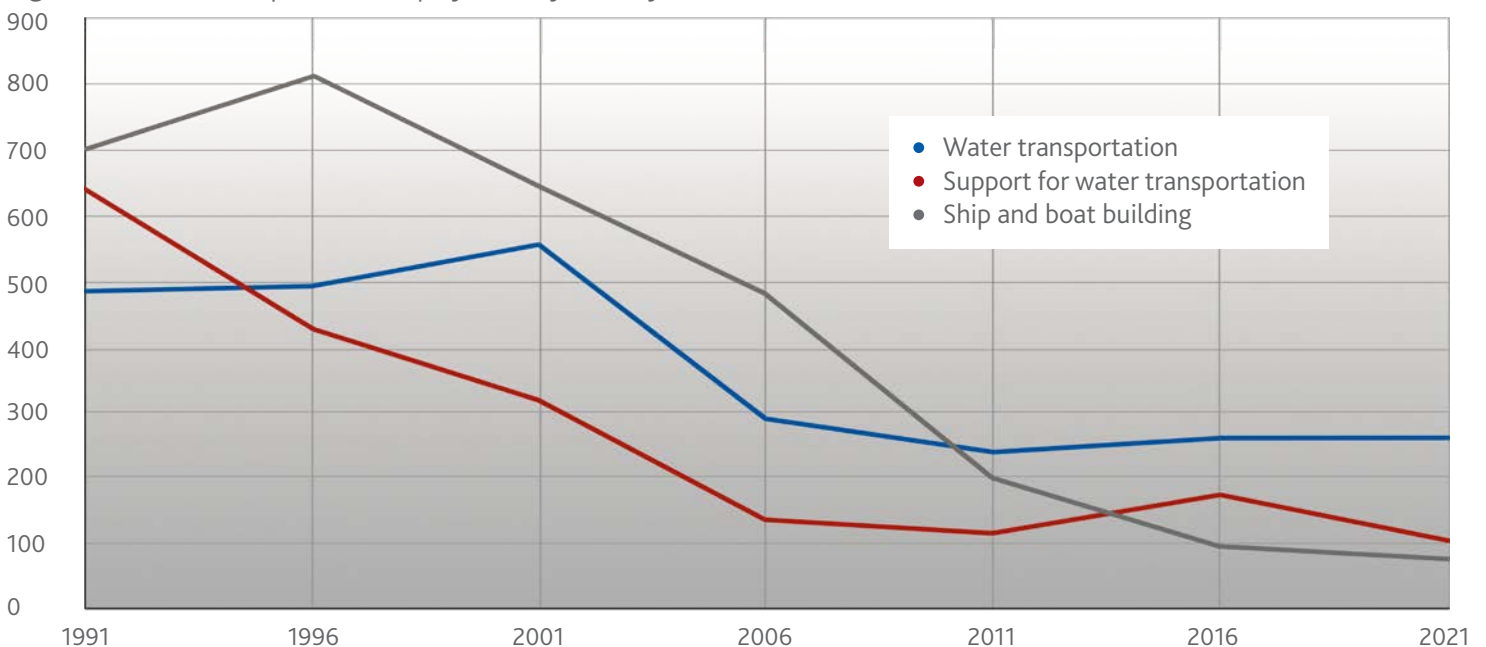
in the NAICS. “Marine shipping agencies” are another example. They were included in support activities in the SIC but assigned to a different industry in the NAICS. **Thus, employment in water transportation and its support in 2006 and later years will be underestimated compared to 1991 to 2001.**

Further, some activities were switched across the industries included here. For example, marine towing was reallocated from “Water transportation” in the 1980 SIC to its support activities in the NAICS. Ship repair and maintenance not done in a shipyard was reallocated from “Ship and boat building” in the 1980 SIC to “Support activities for water transportation” in the NAICS. These classification changes become moot if the three industries stated in our first paragraph are aggregated, and that is done below.

Figure R1 reports employment for each of the three industries included in marine transportation with the caveats noted above. The percentage of women employed in the industries is reported in Figure R2 with the same caveats.

Figure R1 shows that all three industries are small. Further, the level of employment in all three industries dropped to very low levels (i.e. less than 300 people) by 2021.

Figure R1: Marine Transportation Employment, by Industry



“Ship and boat building” started out as the largest with 700 people employed in 1991 and 800 in 1996, but it shrank to the smallest with only 75 employed in 2021. Water transportation suffered the smallest decline with around 500 people employed 1991 to 2001 (including a high of 555 in 2001) and 260 still employed in 2016 and 2021.

Figure R2 shows that all three industries are male-dominated, although the percentages reported in the graph fluctuate widely because of the small numbers involved. “Ship and boat building” generally has less than 10 per cent women employed in the industry while “Water transportation” and “Support activities for water transportation” generally employ 10 to 30 per cent women.

There is no self-employment in “Water transportation” and very low amounts of self-employment in “Ship and boat building” and “Support activities for water transportation”. Positive numbers are reported for some years in the latter two industries, but they are strongly affected by the rounding and withholding rules used by Statistics Canada to maintain confidentiality.

Figure R3 reports employment for the marine transportation sector, i.e. the sum of “Water transportation”, “Support activities for water transportation”, and “Ship and boat building” industries. As noted above, summing the three

industries mitigates some of the impacts of the change from the SIC to the NAICS on the definitions of the industries. Figures R4 and R5 show the percentage of Niagara employment and percentage of women in the aggregated marine transportation industries.

Employment in marine transportation was at its highest in 1991 with 1,820 people employed, accounting for 0.99 per cent of Niagara’s total employment. Employment in the industry declined thereafter, rapidly from 1996 and 2011 before tapering off. Figure R3 shows 1,380 jobs were lost in the industry from 1991 to 2011. By 2021, only 440 people were employed in the sector, less than one quarter of its 1991 level, and they accounted for only 0.25 per cent of employment in Niagara.

Again, these numbers should be considered within the aforementioned caveat that employment in water transportation and its support in 2006 and later years are underestimated compared to 1991 to 2001 due to changes in SIC and NAICS definitions.

As noted above, the industry is male-dominated with the percentage of women employed declining from 16 per cent in 1991 to seven per cent in 2011. The percentage increased significantly in 2016 and 2021, mainly due to increased employment of women in the water transportation industry.

Figure R2: Percentage of Women Employment in Marine Transportation, by Industry

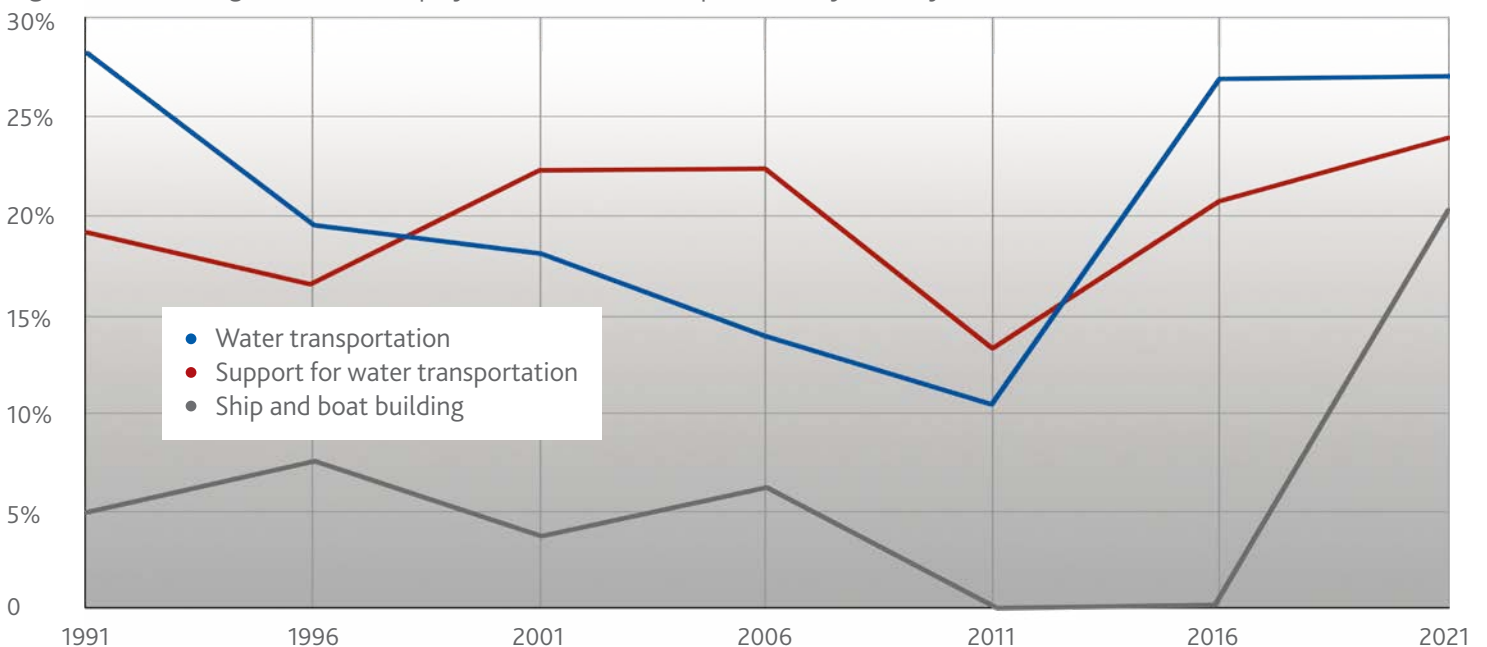


Figure R3: Total Employment in Marine Transportation, including Male vs. Female

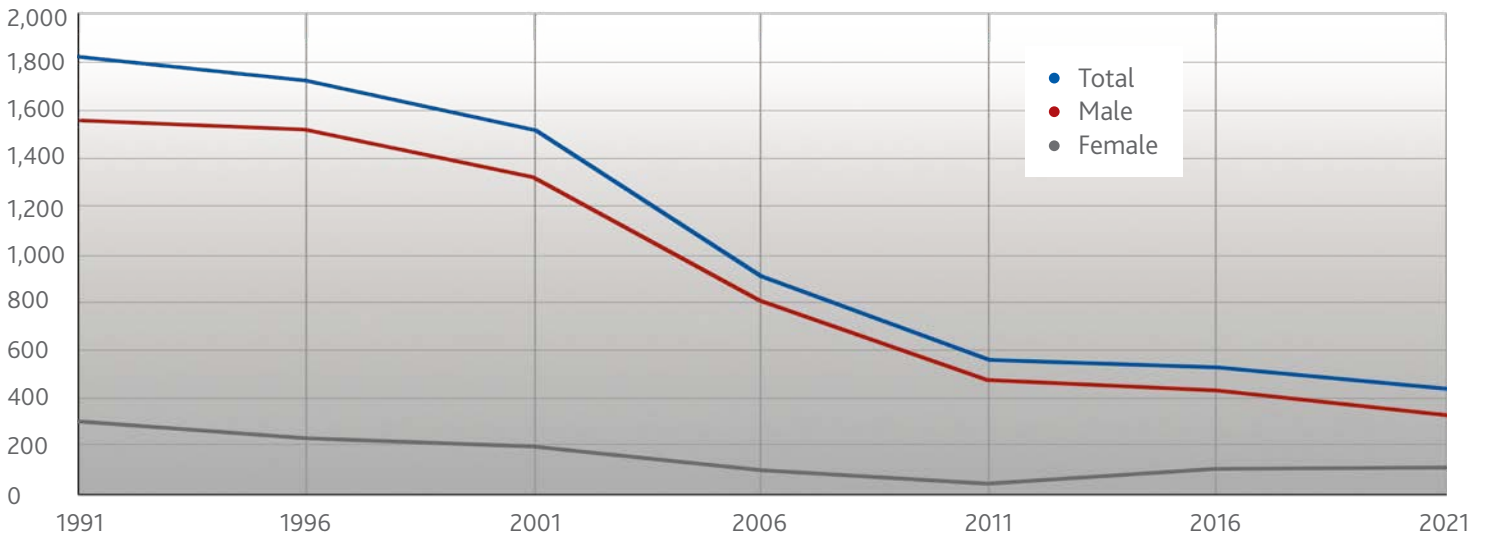


Figure R4: Percentage of Niagara Employment Working in the Marine Transportation Sector

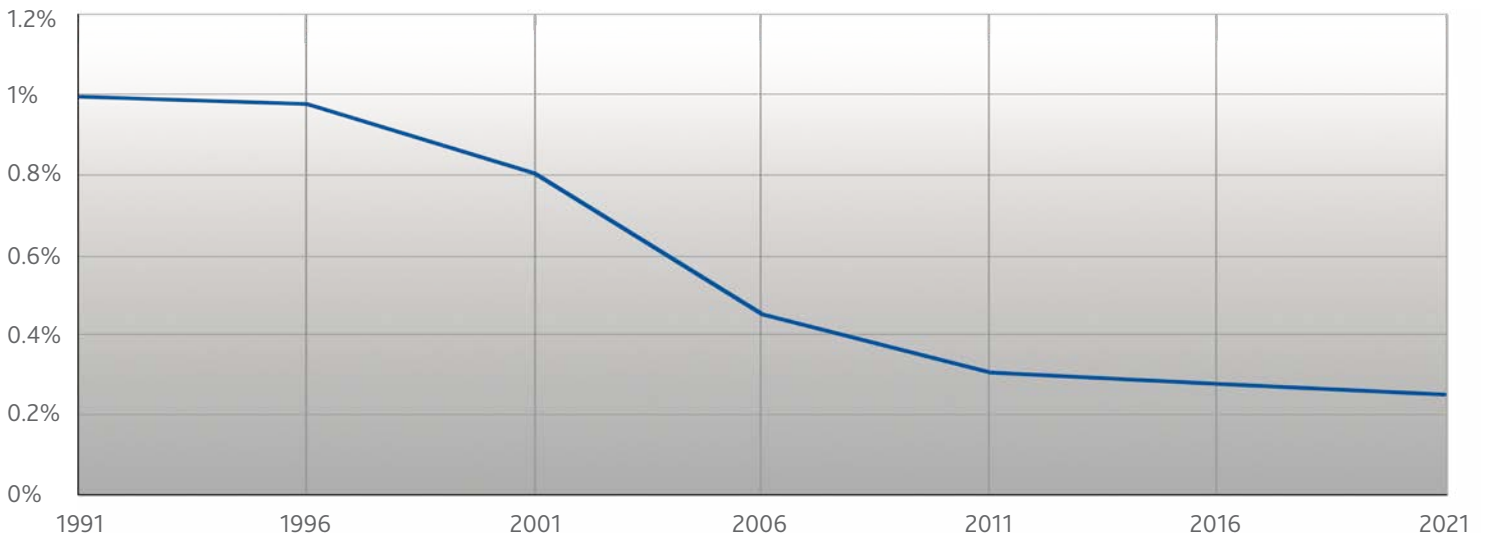
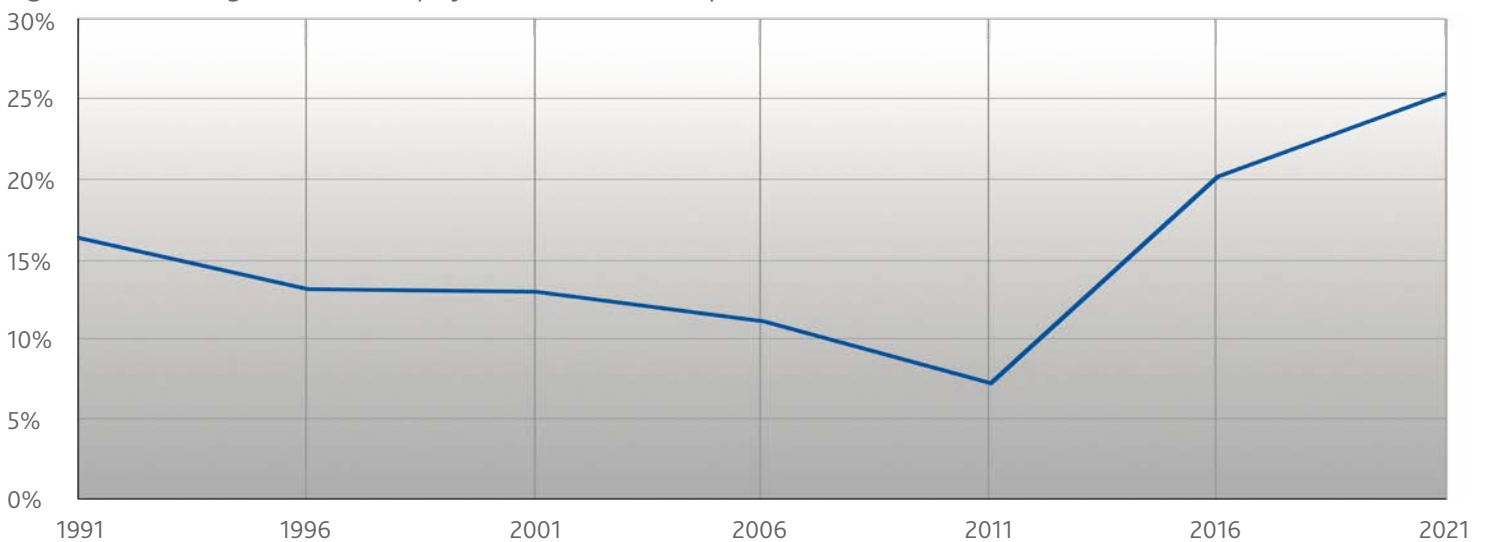


Figure R5: Percentage of Women Employed in the Marine Transportation Sector



Unfortunately, there is no tourism classification in any of the industrial classification systems used by Statistics Canada. There are only industries closely associated with the tourism industry, and employment for a few of those is presented here. These include “Arts, entertainment and recreation”; “Gambling”; “Accommodation services”; and food and beverage services (called “Food services and drinking places” in the NAICS). It is important to realize that all these industries serve the local population as well, and not just tourists, although they are clearly very important to the tourism industry.

Arts, Entertainment, and Recreation Industries; and its component, Gambling Industries

The “Arts, entertainment, and recreation” (AER) industry consists of establishments that provide all aspects of cultural, entertainment, and recreational services. These include live performances; events or exhibits intended for public viewing; artistic products; preserving and exhibiting objects and sites of historical, cultural or educational interest; sports or recreational activities; amusements; hobbies; and leisure-time interests. “Gambling industries” is also included in AER, in all years. More information on the gambling industry is presented below.

Establishments providing both accommodation and recreational facilities, such as hunting and fishing camps, resorts and casino hotels are excluded here but included in the “Accommodation services” section below. Similarly, restaurants, bars, or nightclubs that provide live entertainment,

video gaming, or other gambling machines in addition to the sale of food and beverages are also excluded here but are included in the “Food services and drinking places” industry below. Motion picture theatres, libraries and archives, and publishers of newspapers, magazines, books, periodicals and computer software are excluded. (These are classified as information and cultural industries in the NAICS.)

Last, transportation establishments providing sightseeing and pleasure trips and cruises are excluded from this industry. These activities are assigned to the “Transportation and warehousing” sector in the NAICS, (but see the “Water transportation” section above). They are omitted from this report because it proved impossible to construct relevant industry definitions that were consistent across the SIC and NAICS.

The gambling industry is an important component of the AER industry in Niagara. It consists of establishments primarily engaged in operating gambling facilities such as casinos, bingo halls, and video-gaming terminals; or providing gambling services, such as lotteries and off-track betting. Establishments primarily operating horse racetracks are excluded from the gambling classification. Horse racetracks are assigned to the “Spectator sports” industry and are, therefore, included in the AER industry.

Figures T1, T2, T3, and T4 report on employment, and some of its characteristics, for the AER industry, the gambling industry, and non-gambling AER industries (i.e. employment in AER minus gambling employment).

Figure T1: Employment in Arts, Entertainment, and Recreation Industries; plus Gambling

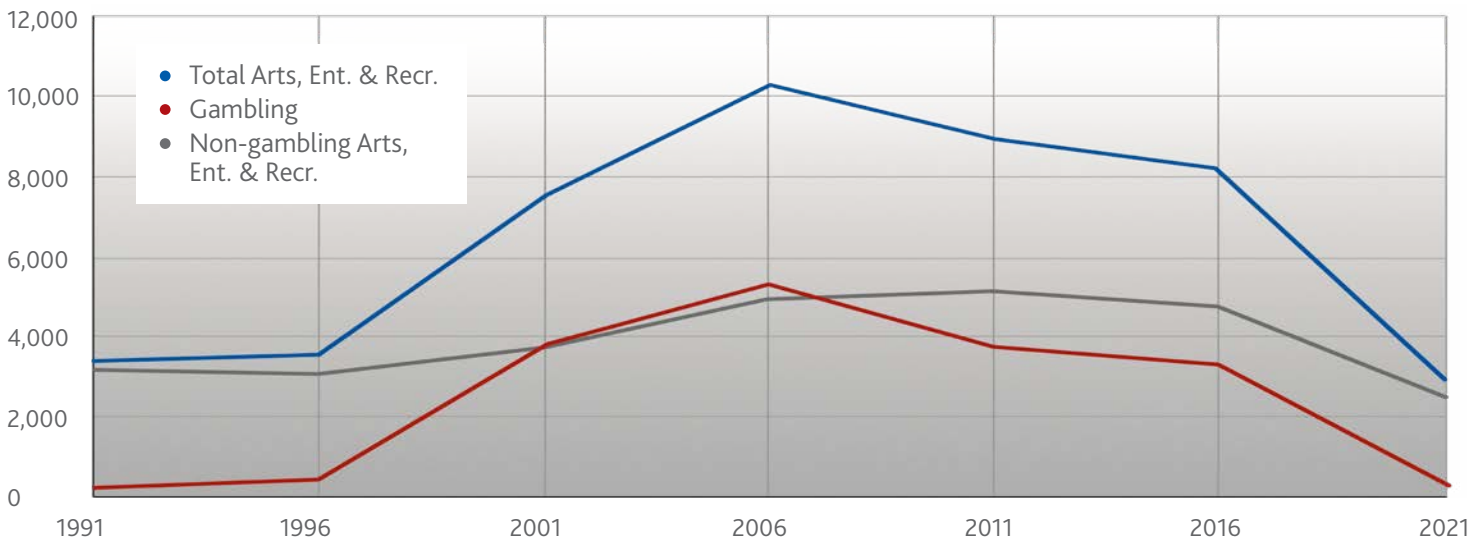


Figure T1 reports that 3,355 people were employed in the AER industry in 1991, or 1.8 per cent of total employment in Niagara. Virtually all were in non-gambling industries. From 1991 to 1996, total employment in AER increased by 220 due to a 240-person rise in gambling employment and a small (20 people) decrease in non-gambling employment.

Employment in the gambling industry increased dramatically in the decade after 1996. From 1996 to 2006, gambling employment increased by 4,840 people (or 1,075 per cent) and it reached a high of 5,290 people in 2016. Its percentage of total employment in Niagara increased from 0.25 per cent in 1996 to 2.62 per cent in 2016. Employment in non-gambling industries also increased, but by much smaller amounts. Employment in non-gambling industries increased by 1,825 people (or 58.4 per cent) from 1996 to 2006 and its percentage of Niagara employment increased from 1.77 per cent to 2.46 per cent. The increases in gambling and non-gambling employment meant that total employment in AER increased by 6,665 people (or 186 per cent) from 1996 to 2006, reaching a high of 10,240 (or 5.1 per cent of total Niagara employment) in 2006.

Employment in the gambling industry fell dramatically in the years after 2006 as 1,945 jobs were lost from 2006 to 2016, a decline of 37 per cent. That left 3,345 employed in 2016, or just 1.8 per cent of Niagara's total employment. In 2021, as a result of the restrictions imposed due to COVID-19, employment in gambling plummeted to just 440 (or 0.26 per cent of Niagara's total), a decline of 2,895 jobs.

The non-gambling components of AER, on the other hand, continued to grow after 2006, reaching a peak of 5,125 employed (2.8 per cent of Niagara's total) in 2011. Employment fell by seven per cent, from 2011 to 2016, and then plummeted by 46 per cent from 2016 to 2021 due to COVID-19 restrictions. In 2021, there were 2,575 people employed in the non-gambling AER industry in Niagara. Although it employed many fewer people in 2021, compared to 2011 or 2016, the non-gambling arts, entertainment and recreation industry was still an important employer in 2021, accounting for 1.46 per cent of Niagara's total employment.

The increases in gambling and non-gambling AER employment from 1991 to 2006 meant that total employment in AER rose dramatically during that period (i.e. by 6,885 people or 205 per cent), reaching a high of 10,240 people, or 5.1 per cent of total employment in Niagara.

Employment in AER fell to 8,120 from 2006 to 2016 due to the decreases in the gambling establishments, and then fell sharply to just 3,025 jobs (1.72 per cent of Niagara's total) as both the gambling and non-gambling industries had contracted sharply by 2021.

Employment in the gambling industry was female-dominated (greater than 65 per cent women) in 1991 and 1996 but the industry was very small in those years. As the gambling industry grew, its share of women in employment fell in the range of 45 to 50 per cent between 2011 and 2016—similar to the non-gambling percentage.

In 2021, the percentage of women employed in the gambling industry dropped sharply to just 36.7 per cent. This meant that more women than men lost their jobs in the gambling industry from 2016 to 2021. The difference is not great, however. Given the almost complete decline in employment, most of the women and most of the men employed in the industry lost their jobs from 2016 to 2021.

The percentage of women employed in the non-gambling AER trended downwards from 48.8 per cent in 1991 to a low of 44.4 per cent in 2016. The percentage increased to 47.2 per cent in 2021, so layoffs in the industry from 2016 to 2021 must have fallen a bit more heavily on the men in the industry.

There is virtually no self-employment in the gambling industry over the years studied. The percentage of self-employed in the non-gambling AER industries increased from 7.6 per cent to 14.1 per cent from 1991 to 1996 and then it remained in the range of 12 to 14 per cent of the industry from 1996 to 2016. In 2021, the percentage of self-employed increased sharply to 33 per cent, perhaps reflecting the shift to the 'gig economy' in industries like non-gambling AER industries and the effects of the COVID-19 epidemic as people started their own businesses at home.

Figure T2: AER's Percentage of Total Employment in Niagara

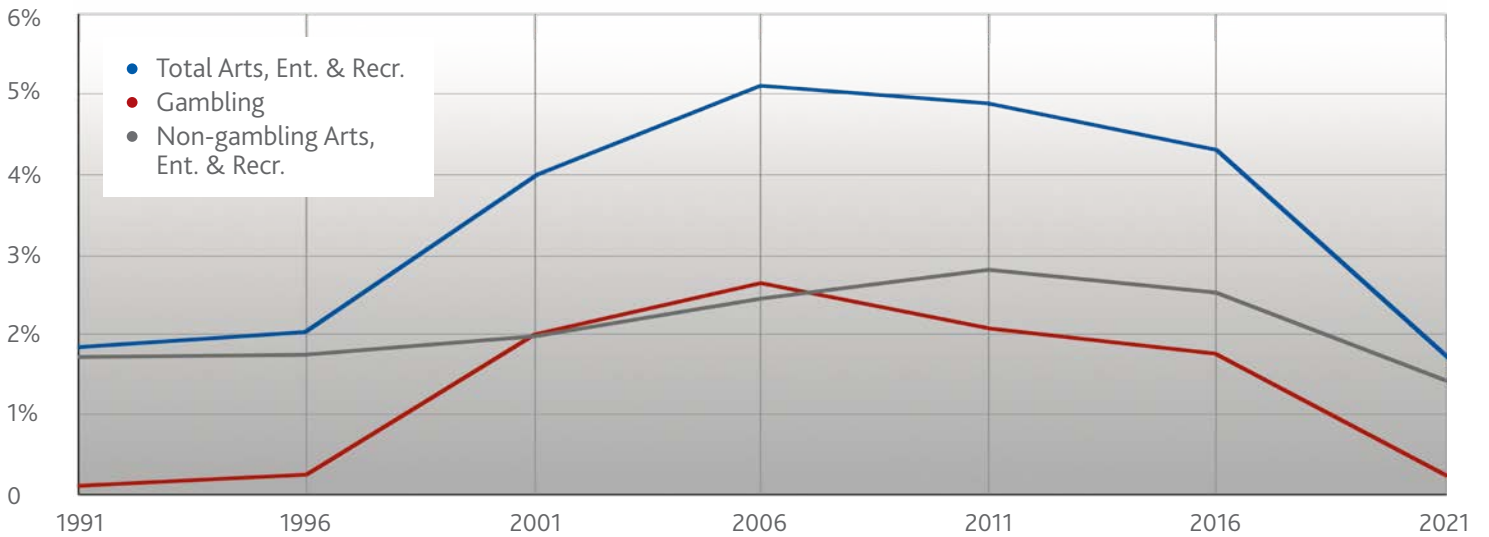


Figure T3: Percentage of Women Employed in AER

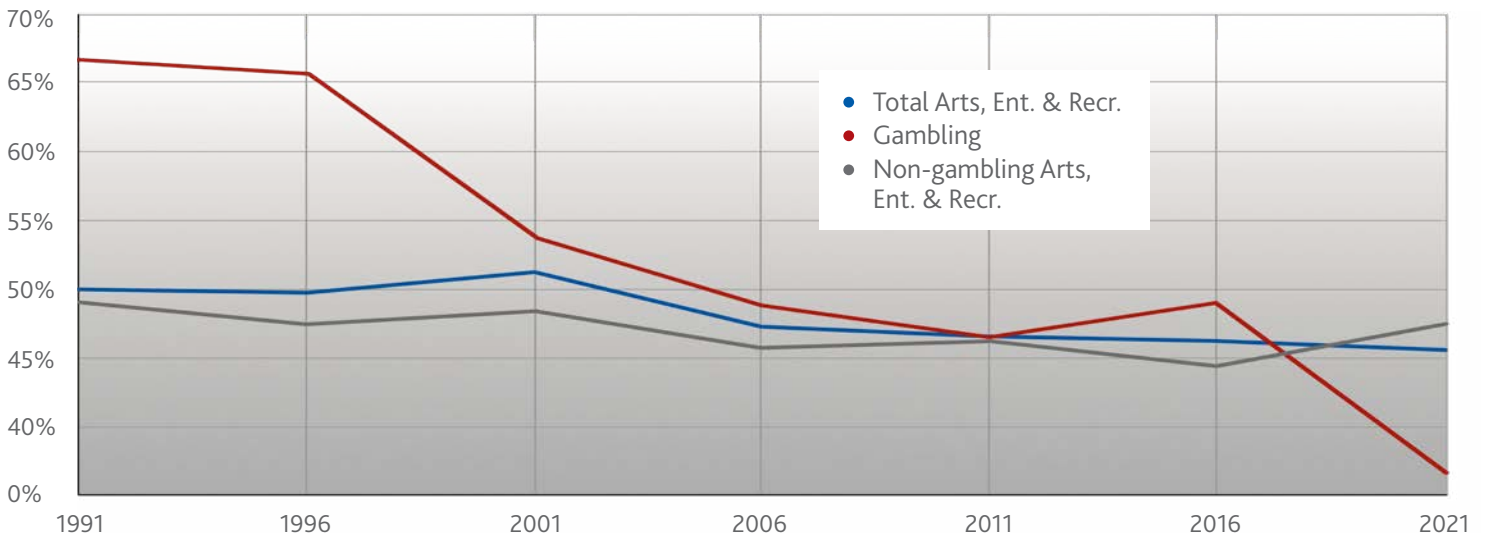
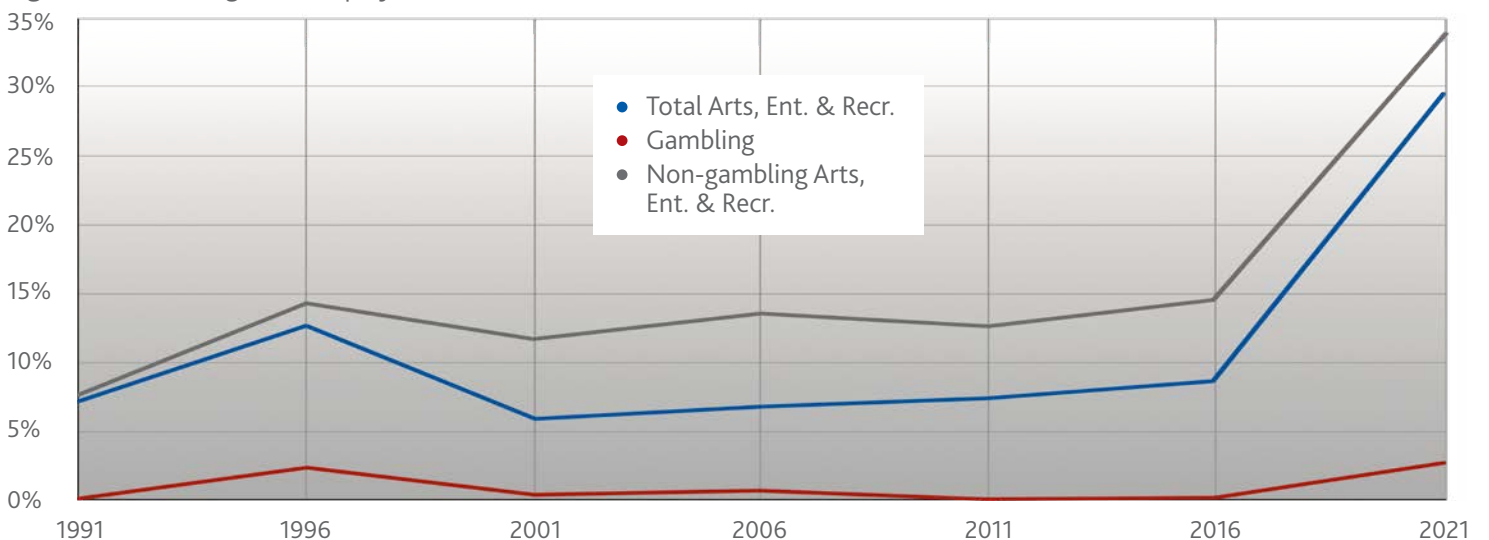


Figure T4: Percentage Self-Employed in AER



Accommodation Services and Food and Beverage Services

“Accommodation services” consists of establishments that provide short-term lodgings for people. These include hotels, motels, resorts, casino hotels, bed-and-breakfast homes, housekeeping cottages and cabins, and rooming or boarding houses. The establishments may also offer food and beverage services, recreational services, conference rooms, and convention services. The industry also includes establishments designed to accommodate outdoor enthusiasts such as recreational vehicle parks, campgrounds, hunting and fishing camps, and adventure camps.

The food and beverage services industry includes establishments primarily engaged in preparing meals, snacks, and beverages to customer order, for immediate consumption on and off the premises. Food services includes full-service restaurants where customers may eat in or take out, limited-service eating places where food is ordered at a counter

(including cafeterias), caterers, and food trucks or carts. Beverage services or drinking places comprises establishments known as bars, taverns, or drinking places primarily engaged in preparing and serving alcoholic beverages for immediate consumption. These establishments may also provide limited food services.

Some 4,345 people were employed in “Accommodation services” in 1991, representing 2.4 per cent of Niagara’s total employment in that year. Employment grew slowly from 1991 to 2001 and then rapidly from 2001 to 2006 to a high of 7,455 or 3.7 per cent of Niagara’s employment. Employment declined by 1,160 persons from 2006 to 2016, leaving 6,295 still employed in 2016, accounting for 3.34 per cent of Niagara’s employment. The industry lost 4,070 jobs (or almost two thirds of its 2016 level of employment) by 2021. In 2021, “Accommodation services” employed just 2,225 people or 1.26 per cent of total employment in Niagara, a bit more than half of its 1991 level.

Figure T5: Employment in Accommodation Service/Food & Beverage Services

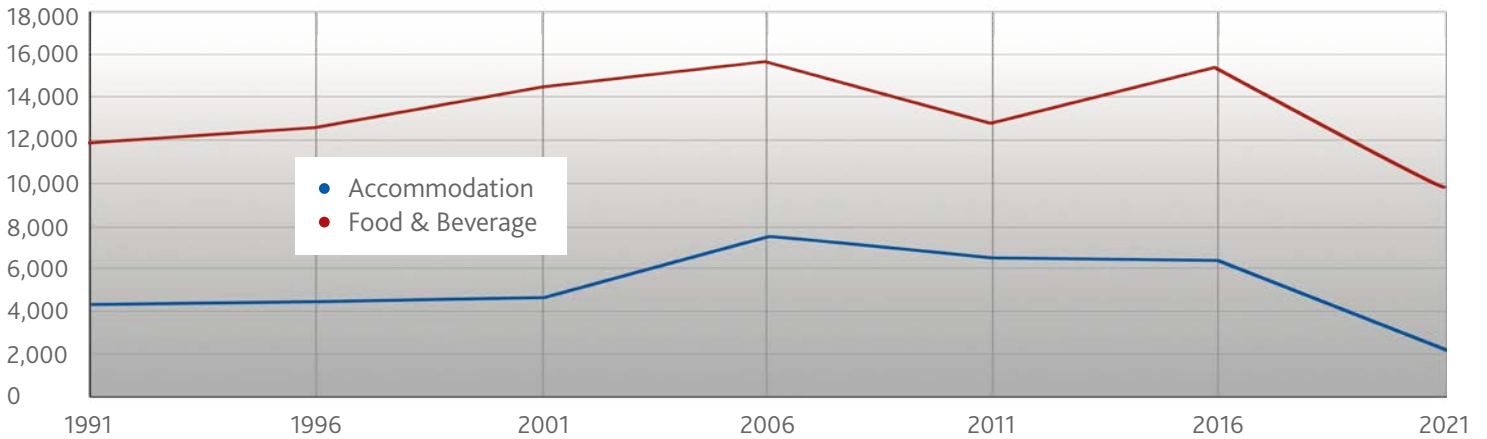
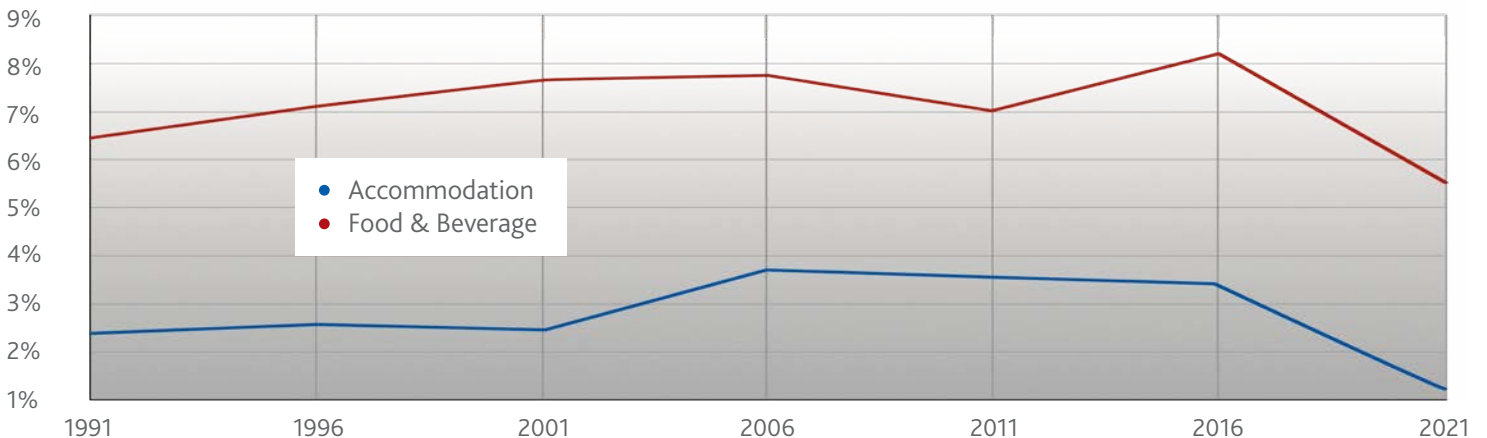


Figure T6: Percentage of Total Niagara Employment, Accommodation Services/Food & Beverage Services



Food and beverage services is a much larger industry. In 1991, 11,900 people were employed in the industry, accounting for 6.5 per cent of employment in Niagara. Employment grew steadily at a rate of almost eight per cent per year from 1991 to 2006, to a high of 15,560 people or 7.76 per cent of Niagara’s total in 2006.

Employment declined by 18 per cent from 2006 to 2011 but rebounded back to 15,420 workers in 2016. Employment in the industry decreased by 36.6 per cent in 2021, leaving a low of 9,770 people employed in the industry and accounting for 5.5 per cent of Niagara’s employment.

The “Accommodation services” industry and the food and beverage services industry both employ more women than men. But the percentage of women employed trended down, rather strongly, in both industries over the 30 years shown. The percentage of women employed in accommodation was 60.5 per cent in 1991 and it fluctuated around that level until 2016. In 2021, the percentage of women dropped sharply to 51 per cent, suggesting that the layoffs due to COVID-19 fell more heavily on women than

men. The percentage of women employed in beverage services was 64.6 per cent in 1991 and it declined mostly steadily to 56.4 per cent in 2021.

Self-employment is an important type of employment in both industries, but the rates are lower than non-gambling AER, for example. Self-employment accounted for 8.9 per cent of employment in accommodations in 1991. Aside from a spike up in 2001, the percentage of self-employed trended downwards to a low of 2.5 per cent in 2011. It increased steadily from 2011 to 2021 and 7.4 per cent of the workers in accommodations were self-employed in 2021.

Self-employment made up 7.4 per cent of the workforce in food and beverage services in 1991. It remained at roughly that same level in 1996 and then fluctuated between 4.9 per cent and 6.8 per cent from 2001 to 2016. In 2021, the percentage of self-employed in food and beverage services increased to a high of 10.8 per cent, again possibly reflecting the prevalence of the ‘gig economy’ and people working for themselves after being laid off due to COVID-19.

Figure T7: Percentage of Women Employed, Accommodation Services/Food & Beverage Services

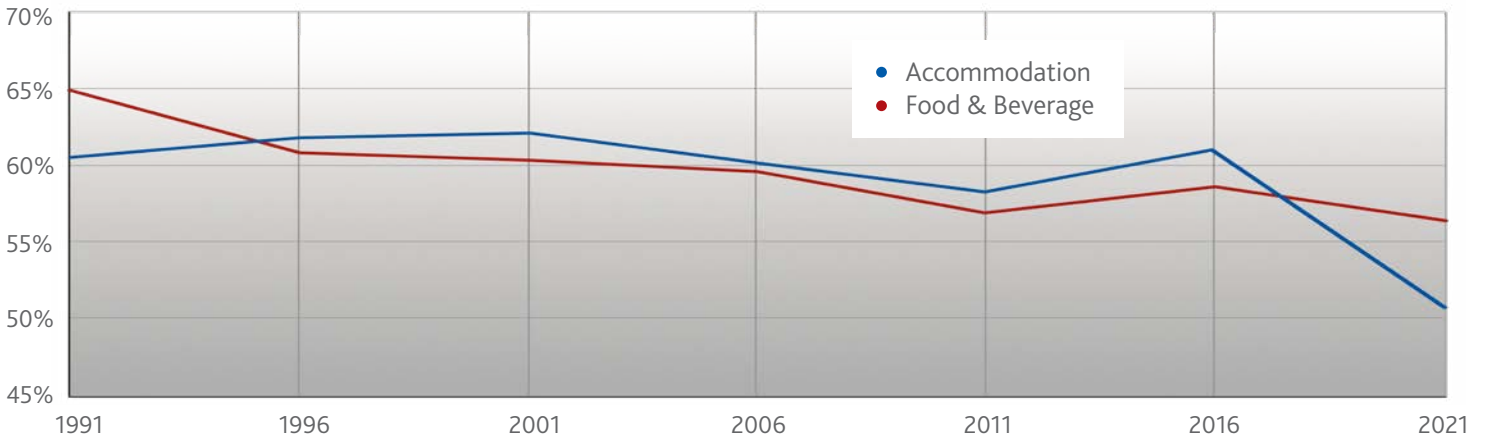
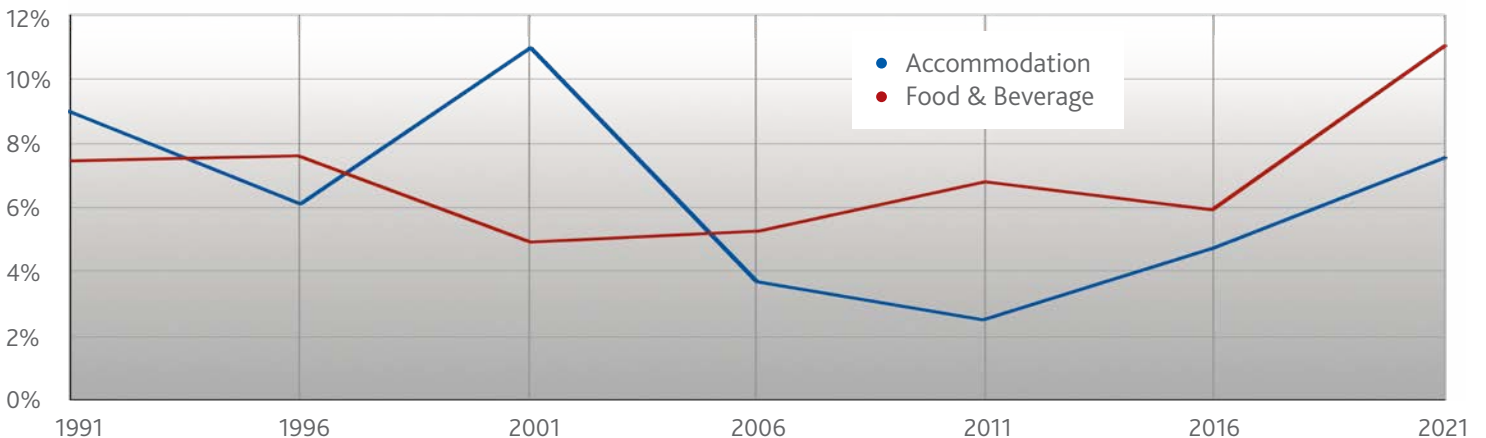


Figure T8: Percentage of Self-Employment, Accommodation Services/Food & Beverage Services



The Information and Communications Technology (ICT) sector experienced revolutionary changes between 1991 and 2021. As a result, it is very difficult to construct employment time series that maintain consistent industry definitions over those 30 years. A reasonably consistent time series could be constructed for 1980 SIC 772 “Computer and Related Services”. The NAICS disaggregated the classification into many more categories, which is reasonable given the amazing growth, innovation, and change in the industry. Most of SIC 772 was allocated to NAICS 5415 – “Computer systems design and related services”; NAICS 518 – “Data processing, hosting, and related services”; and NAICS 5112 – “Software publishers”.

Three activities, however, were included in the 1980 SIC 772 classification but allocated to other classifications in the NAICS:

- Computer repair was placed in the broader category of “Electronic and precision equipment repair and maintenance” (NAICS 811210).
- Computer rentals and leasing was assigned to the broader category “Office machinery and equipment rental and leasing” (NAICS 53242).
- Electronic database publishing was placed in the broader category “Directory and mailing list publishers” (NAICS 511140).

It is too difficult to isolate the computer-related parts of those three NAICS categories into the data here. So, the employment growth from 2006 to 2021 for the original SIC 772 category (“Computer and Related Services”) will be understated here.

Computer and related services includes establishments primarily engaged in all aspects of software production, processing, and publishing; internet webpage development; planning and designing computer systems; on-site management and operation of clients’ computer and data processing facilities; advice on information technologies; providing the infrastructure for data processing, hosting, and related services; and other professional and technical computer-related services, such as training and support after sales.

Figure I1 shows that, save for a decrease from 2006 to 2011, employment grew strongly over the whole period. There was especially fast growth from 2016 to 2021. In 1991, 505 people were employed in the computer service industry, accounting for 0.28 per cent of Niagara employment. From 1991 to 2021, employment increased by 2,210 persons or 438 per cent. The increase from 2016 to 2021 alone was 1,195 people or 78.6 per cent of the 2016 level of employment. By 2021, some 2,715 people worked in the computer services industry, accounting for 1.54 per cent of total Niagara employment.

Figure I3 shows that women made up around 30 per cent of the workforce in computer services over the 30-year period. The percentage trended up very slightly with a high of 33.5 per cent women employed in 2021. Figure I3 also shows that the percentage of self-employed is high in the industry. Of the industries considered in this paper, only the farms categories have a higher percentage of self-employed. The self-employed percentage fluctuated rather wildly in 1991 and 1996, but it remained between 22 per cent and 24 per cent for all the years from 2001 to 2021.

Figure I1: Employment in Computer Services, including Male and Female

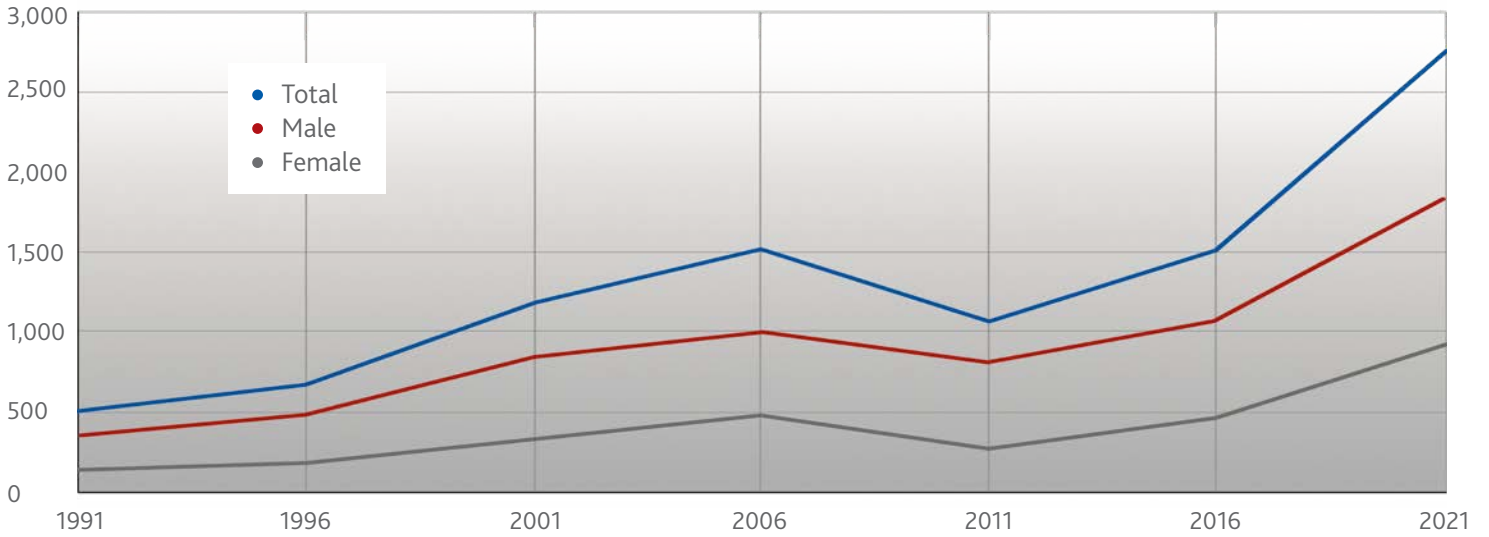


Figure I2: Computer Services Percentage of Total Niagara Employment

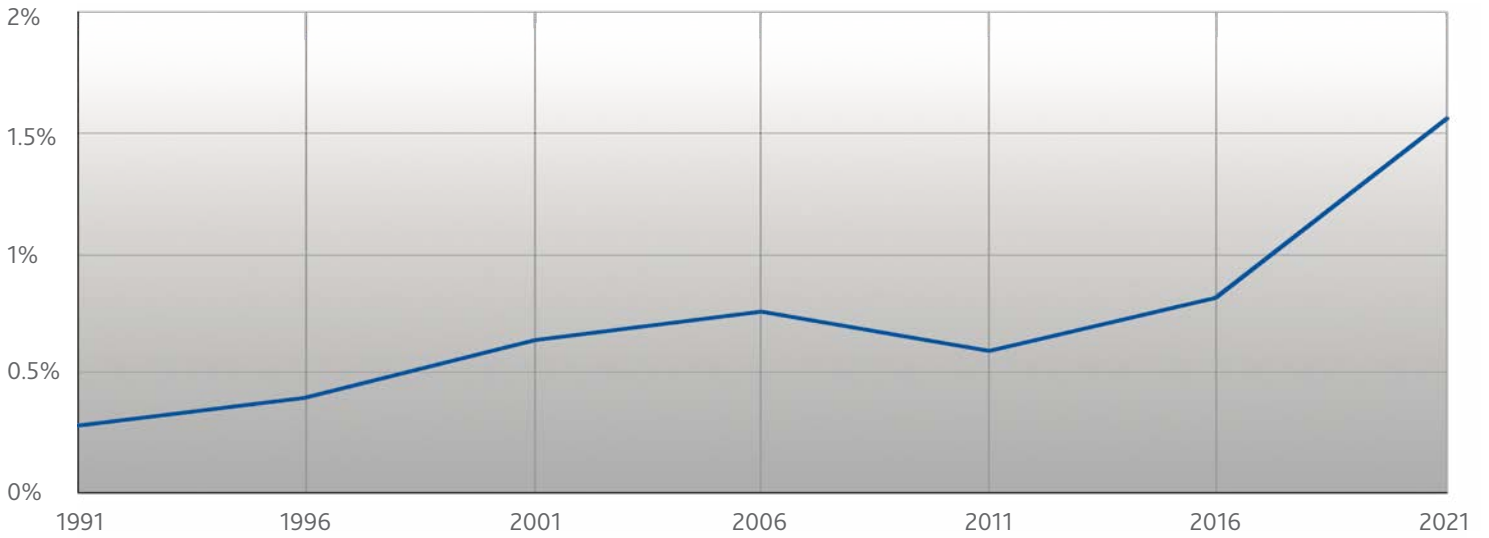
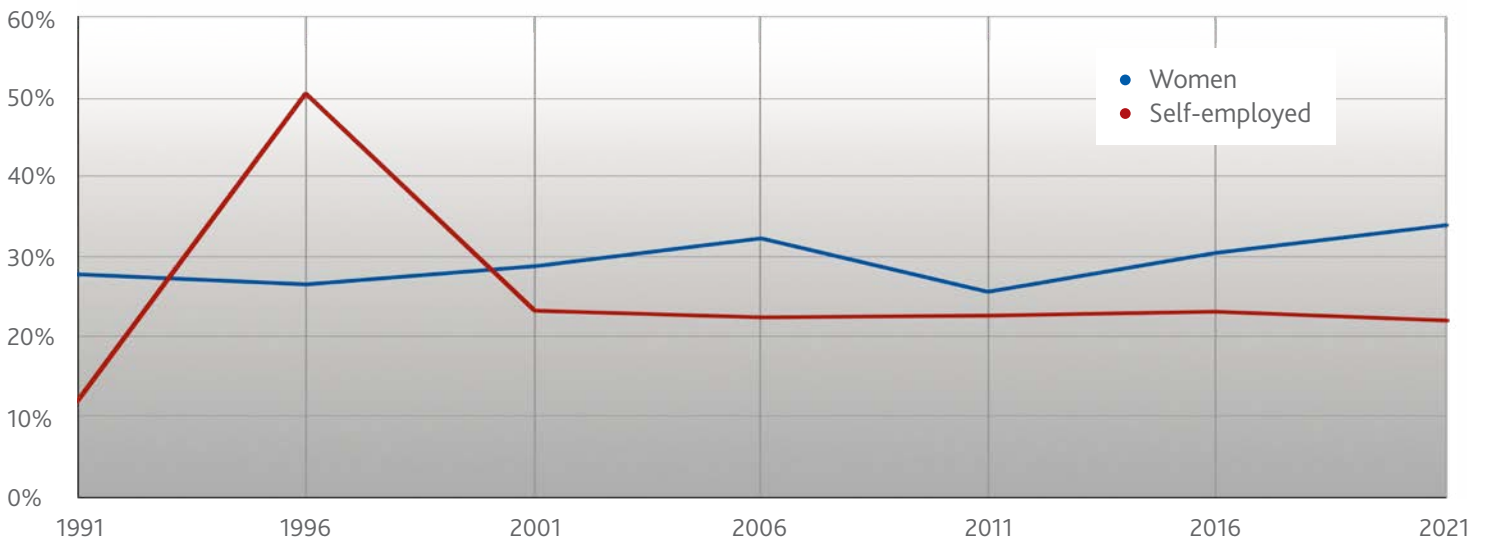


Figure I3: Percentage of Women and Self-Employed in Computer Services



Tables 1, 2, and 3 show the industries considered above ranked by percentage of women employed, percentage of total employment in Niagara, and percentage of self-employed, respectively, in 2016. Employment in 2016 (rather than 2021) is reported in these tables to avoid the huge and unevenly distributed effects of the COVID-19 epidemic that were strongly felt in 2021. One should also recall that only a selected set of industries are considered here. Other important Niagara employers such as construction, retail trade, total transportation and warehousing, or health services are not included.

Industries ranked by percentage of women employed in 2016

Table 1 shows, not surprisingly, that service industries employ the highest percentages of women, with “Accommodation services”, “Food services and drinking places”, and “Gambling” taking three of the four highest spots. Wholesalers are also near the top of the ranking with “Agricultural supply wholesaler-distributors” and “Farm product wholesaler-distributors” in the third and fifth ranks, respectively. The bottom ranks, with the lowest percentages of women employed, are filled by manufacturing industries. Again, important employers like construction, for example, are not considered here.

Industries ranked by percentage of employment in 2016

Table 2 shows that service industries are the largest employers overall with “Food services and drinking places”; “Arts, entertainment and recreation”; and “Accommodation services” in the second, third and fourth spots. “Manufacturing”, as a whole, takes the top spot. Other high-profile industries such as “Ship and boat building”; “Water transportation”; “Electric power generation, transmission, and distribution”; and “Beverage manufacturing” are actually quite small employers in Niagara.

Industries ranked by percentage of self-employment in 2016

Table 3 shows that self-employment is most important in farms, computer services, and non-gambling arts, entertainment and recreation. Self-employment is essentially non-existent in “Gambling”; “Paper manufacturing”; “Agricultural supplies wholesaler-distributors”; “Support activities for water transportation”; and “Electric power generation, transmission and distribution”.

Table 1: Industries Ranked by Percentage of Women Employed in 2016

Industry 2016	% Female
Accommodation Services	61%
Agricultural Supplies Wholesalers	58.82%
Food and Beverage Services	58.66%
Gambling	48.88%
Farm Product Wholesalers	46.55%
Arts, Entertainment and Recreation	46.24%
Non-Gambling Arts, Ent. & Recreation	44.40%
Beverage Manufacturing	41.24%
Food Manufacturing	38.75%
Farms	38.64%
Computer Services	30.26%
Water Transportation	26.92%
Total Manufacturing	20.77%
Electric power Generation, Transmission, and Distribution	20.73%
Support Activities for Water Transportation	20.59%
Total Marine Transportation	20%
Paper Manufacturing	17.95%
Machinery Manufacturing	14.06%
Fabricated Metal Products Manufacturing	13.90%
Transportation Equipment Manufacturing	13.08%
Primary Metals Manufacturing	8.64%
Ship and boat building	0%

Table 2: Industries Ranked by Percentage of Employment in 2016

Industry 2016	% within Niagara
Total Manufacturing	9.05%
Food and Beverage Services	8.19%
Arts, Entertainment and Recreation	4.31%
Accommodation Services	3.34%
Non-Gambling Arts, Ent. & Recreation	2.54%
Farms	2.34%
Transportation Equipment Manufacturing	2.11%
Gambling	1.78%
Fabricated Metal Products Manufacturing	1.17%
Food Manufacturing	0.93%
Primary Metals Manufacturing	0.86%
Computer Services	0.81%
Machinery Manufacturing	0.68%
Beverage Manufacturing	0.52%
Electric power Generation, Transmission, and Distribution	0.44%
Total Marine Transportation	0.28%
Paper Manufacturing	0.21%
Farm Product Wholesalers	0.15%
Water Transportation	0.14%
Support Activities for Water Transportation	0.09%
Ship and boat building	0.05%
Agricultural Supplies Wholesalers	0.05%

Table 3: Industries Ranked by Percentage of Self-Employment in 2016

Industry 2016	% Self-Employed
Farms	24.32%
Computer Services	23.03%
Non-Gambling Arts, Ent. & Recreation	14.35%
Arts, Entertainment and Recreation	8.44%
Beverage Manufacturing	8.25%
Fabricated Metal Products Manufacturing	5.92%
Food and Beverage Services	5.90%
Total Manufacturing	5.28%
Farm Product Wholesalers	5.17%
Accommodation Services	4.69%
Food Manufacturing	4.56%
Machinery Manufacturing	3.91%
Total Marine Transportation	1.90%
Primary Metals Manufacturing	1.23%
Transportation Equipment Manufacturing	1.01%
Gambling	0%
Paper Manufacturing	0%
Agricultural Supplies Wholesalers	0%
Water Transportation	0%
Support Activities for Water Transportation	0%
Electric power Generation, Transmission, and Distribution	0%

³ "Ship and boat building" is not shown in Table 3 because its low levels of employment and self-employment in 2016, coupled with the data rounding and withholding rules used by Statistics Canada, produce misleading percentages of self-employment.

Appendix: Table A1

	1991, 1996, 2001 Data 1980 SIC	2006, 2011, 2016, 2021 Data 2002–2017 NAICS
Electricity	491 Electric Power Systems Industry	2211 Electric power generation, transmission and distribution
Marine Transportation	454 Water Transport Industries	483 Water transportation
	455 Service Industries Incidental to Water Transport	4883 Support activities for water transportation
	327 Shipbuilding and Repair Industry plus 328 Boatbuilding and Repair Industry	3366 Ship and boat building
	Marine Transportation is the sum of the above	Marine Transportation is the sum of the above
Agribusiness	Major Group 01—Agricultural industries	111–112 Farms (111 crop production and 112 animal production/aquaculture)
	Major Group 50—Farm products industries, wholesale	411 Farm product wholesaler-distributors
	593 Agricultural supplies, wholesale	4183 Agricultural supplies wholesaler-distributors
	Major Group 10—Food industries	311 Food manufacturing
	Major Group 11—Beverage industries	3121 Beverage manufacturing
Manufacturing	Division E (Total) Manufacturing Industries	31–33 (Total) Manufacturing
	Major Group 32—Transportation equipment industries	336 Transportation equipment manufacturing
	Major Group 29—Primary metal industries	331 Primary metal manufacturing
	Major Group 27—Paper and allied products industries	322 Paper manufacturing
	Major Group 30—Fabricated metal products industries (except machinery and transport equipment industries)	332 Fabricated metal product manufacturing
	Major Group 31—Machinery industries (except electrical machinery)	333 Machinery manufacturing
Tourism	Major Group 96—Amusement and recreational service industries without motion picture industries (961, 962). Sum of: • 963 Theatrical and other staged entertainment services • 964 Commercial spectator sports • 965 Sports and recreation clubs and services • 966 Gambling operations • 969 Other amusement and recreational services	71 Arts, entertainment and recreation
	966 Gambling operations	7132 Gambling industries
	Major Group 91—Accommodation service industries	721 Accommodation services
	Major Group 92—Food and beverage service industries	722 Food services and drinking places
Information and Communications Technology (ICT)	772 Computer and related services	Sum of • 5112 Software publishers • 518 Internet service providers, web search portals, and data processing services • 5415 Computer systems design and related services