

Employment in selected Niagara Industries 1971–2021

This paper reports employment numbers and location quotients (relative to Ontario) in selected industries in Niagara, 1971–2021.

The location quotient (LQ) for an industry, in this case, is the industry's employment share in Niagara, divided by the industry's employment share in Ontario. That number indicates the region's job concentration in an industry relative to the rest of Ontario. So, an LQ greater than 1.0 means that Niagara has a higher proportion of employment in that industry than Ontario as a whole and demonstrates strong local competencies in that one area. An LQ less than 1.0 means a lower proportion of employment. An LQ of 1.5 or higher indicates a region's specialization in that industry.

In general, the industries considered are part of, or associated with, five broad sectors in Niagara: agribusiness; manufacturing; marine transportation; electricity generation, transmission, and distribution; and tourism. The data are taken from a dataset purchased from Statistics Canada, which was constructed from the long-form census samples.

The data cover the Niagara Census District (CD) which includes Grimsby and West Lincoln, unlike the Niagara Census Metropolitan Area (CMA), in which they are excluded.

Simple headcounts of the number of people employed in the establishments within each industry are reported.⁷ The employment numbers are rounded to multiples of five and withheld if there are fewer than 10 to ensure confidentiality.

The North American Industry Classification System (NAICS) is used to define and delimit the industries in the 2021, 2016, 2011, and 2006 censuses. The 1980 Standard Industrial Classification (SIC) is used for the 2001, 1996, 1991, and 1986 censuses. The 1970 Standard Industrial Classification (SIC) is used for 1981 and 1971. Note that the census was replaced by a "Household Survey" in 2011 so the 2011 data should be treated with more caution than the data for the other years. See Table A1 in the appendix for each industry's 1970 SIC, 1980 SIC, and NAICS classification names and code numbers.

A person is considered employed (and reported here) if, during the reference period, any of the following were true:

- They did any paid work in the context of an employer-employee relationship.
- They were self-employed.
- They did any unpaid family work. Unpaid work is any work contributing directly to the operation of a farm, business or professional practice owned and operated by a related member of the same household. Women doing less than 20 hours of unpaid work per week were excluded in 1971 but included thereafter.
- They had a job (or were self-employed) but did not work during the reference period due to factors such as their own illness, 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.

Every effort is made to ensure that the definitions of industries are consistent across the three classification systems and their revisions. But some changes in the types of establishments included or excluded from the industry categories, across the classifications systems, were inevitable.

In general, industry employment counts in later years are biased downwards (underestimated) slightly relative to the counts in earlier years. This occurred because, over time, the industry classification systems added more detailed categories and some of those categories would be reassigned to other industries. For example, marine shipping agencies were included in "Service industries incidental to water transport" in the 1980 SIC (code 455) and its 1970 SIC equivalent. But they were reassigned to a different industry, "Construction, transportation, mining, and forestry machinery and equipment rental and leasing" (code 53241), in the NAICS. So, they are no longer included in the industries supporting water transportation after the 2001 census.

ELECTRIC POWER GENERATION, TRANSMISSION, AND DISTRIBUTION

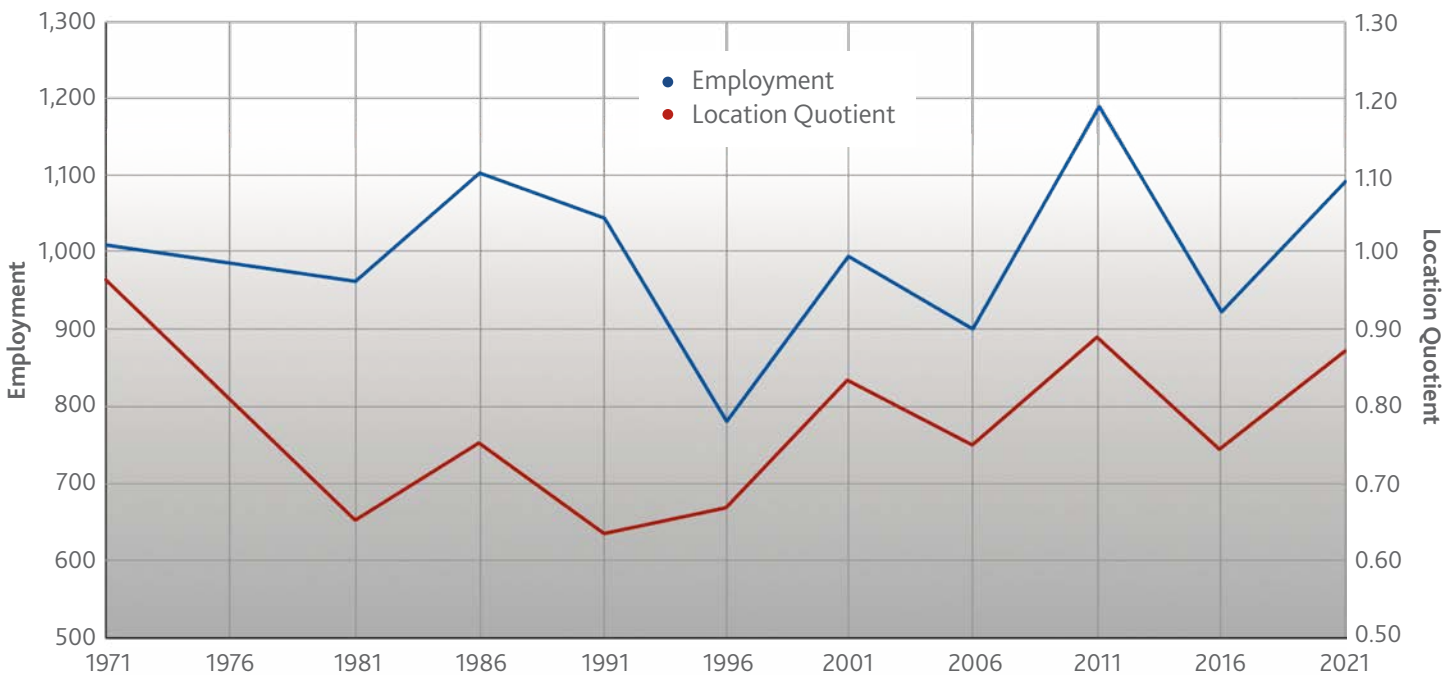
The “Electric power generation, transmission, and distribution” industry includes establishments primarily engaged in the generation of bulk electric power, transmission from generating facilities to distribution centres, and/or distribution to end users. All types of electricity generation (e.g. hydro, thermal, nuclear, wind, and solar) are included. However, the 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.

Figure E1 shows employment in the electricity sector, 1971–2021. The level of employment is shown by the left-hand side vertical axis. Employment in the electricity sector fluctuated around 1,000 people from 1971 to 2021.

There was a substantial decrease from 1991 to 1996, when employment fell to 780. After 1996, the number of people employed in the sector trended upwards, but not monotonically. From 1996 to 2021, the average increase in employment was greater than five per cent per year. Peak employment of 1,190 occurred in 2011, and in 2021 there were 1,090 people employed.

The right-hand-side vertical axis of Figure E1 shows the industry’s location quotient (LQ) relative to Ontario. Niagara’s electricity LQ is always below 1.0 so the proportion of electricity workers in the Niagara Census District (relative to Niagara’s total employment) is less than the proportion for Ontario. LQ trended downwards from 1971 to 1991, going from a high of 0.9 in 1971, to a low of 0.67 in 1991, but it trended upwards thereafter and was 0.87 in 2021.

Figure E1: Employment Numbers and Location Quotient (LQ) for the Electricity Industry²



¹ This paper focuses on headcounts of employment in the industries. The number of people employed in an industry is an extremely important measure of the significance and contribution of the industry to Niagara. But it does not provide reliable measures of other very important and overlapping characteristics such as the overall level of economic activity; 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.

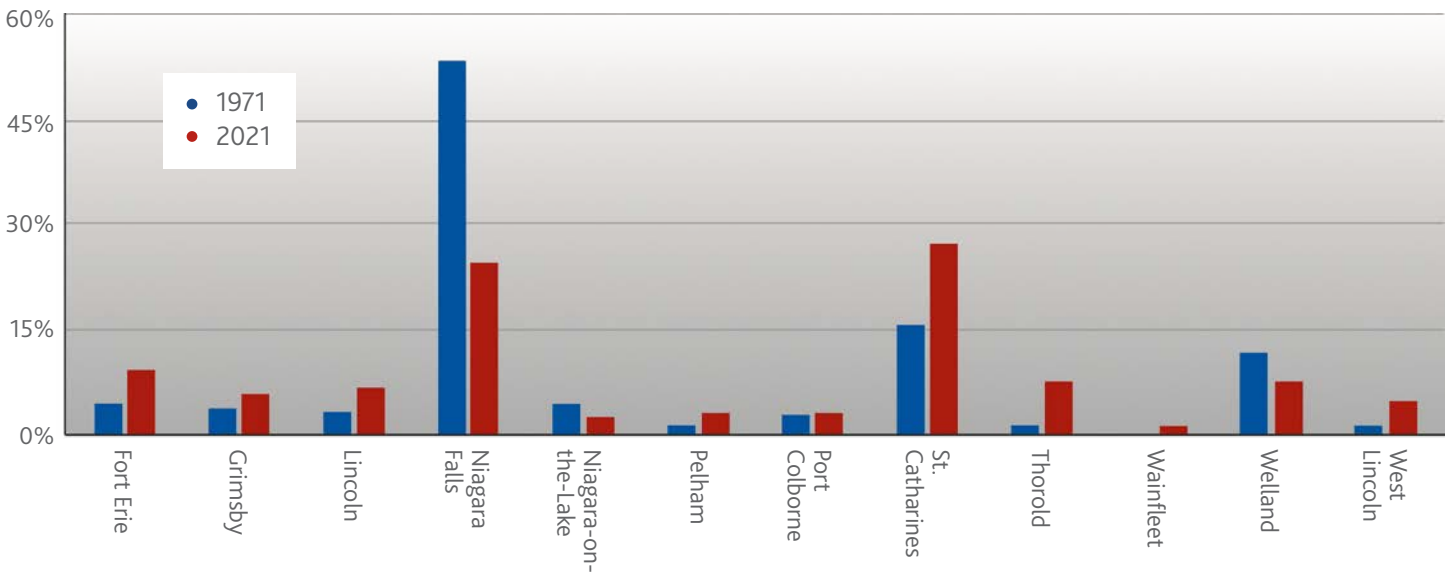
² All figures are adapted from a custom release of Statistics Canada census data. This does not constitute an endorsement by Statistics Canada of this product.

Figure E2 shows the distribution of employment in the electricity sector across the 12 Niagara census sub-districts (municipalities) for 1971 and 2021. The industry's employment was concentrated in one sub-district in 1971, with over 50 per cent of Niagara's employment in Niagara Falls. By 2021, employment in the industry was much more decentralized. In 2021, St. Catharines had the largest share of employment in the

industry at 27 per cent while Niagara Falls had fallen to 24 per cent.

Nine of the 12 sub-districts experienced an increase in their percentage of electricity workers. Most of those shares came out of Niagara Falls, but the percentage of Niagara's electricity workers in NOTL and Welland also decreased slightly from 1971 to 2021.

Figure E2: Percentage of Electricity Industry Employment in each Sub-District, 1971 and 2021



MARINE TRANSPORTATION

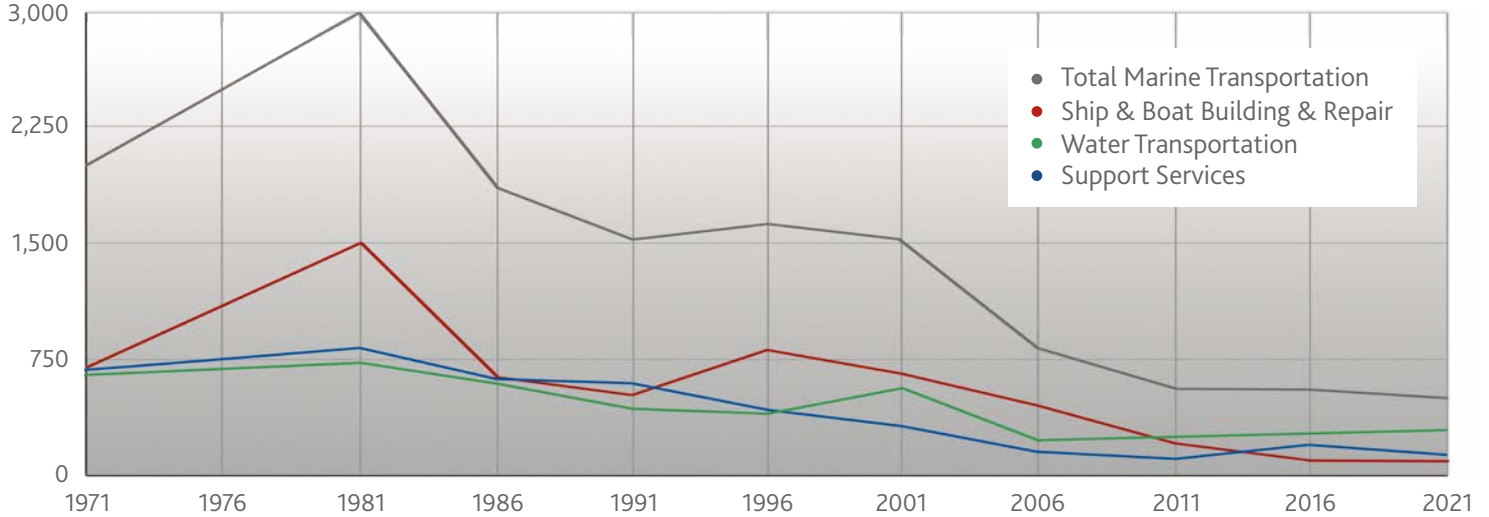
The marine transportation sector is defined here to include water transportation, support activities for water transportation, and ship and boat building. The “Water transportation” industry is exactly what it sounds like; namely, establishments primarily engaged in the water transportation of passengers and goods, using equipment designed for those purposes. “Support activities for water transportation” include port and harbour operations, marine cargo handling, navigational services, and other support services.

“Ship and boat building” includes employment in establishments primarily engaged in operating a shipyard or manufacturing boats. Their activities include constructing, manufacturing, repairing, maintaining, converting, or altering ships or boats. “Ship and boat building” is classified as a manufacturing industry under the industrial classification system used by Statistics Canada, but we include it in the marine transportation sector here.

Figure R1 shows employment in each of the industries comprising marine transportation and their sum. Employment in all those industries increased from 1971 to 1981 and all had their maximum employment in 1981. Employment

fell dramatically and steadily, however, in all the industries after 1981. Total employment in marine transportation was 3,025 at its peak in 1981 and fell 83.5 per cent (or 2,525 workers) to its low of 500 people employed in 2021.

Figure R1: Employment in Marine Transportation Industries



LQs for the industries are reported in Figure R2 and they show that employment in marine transportation is much more important to the Niagara region than it is to Ontario as a whole, even after its precipitous decline. Ontario's employment in all marine transportation industries also declined significantly after 1981 but at different rates than Niagara. Niagara's LQ for water transportation increased from 3.6 to 8.0 from 1971 to 2021, partly because Niagara's employment in water transportation decreased by 55 per cent compared to a 71-per-cent decrease in Ontario.

For "Ship and boat building", Niagara's LQ increased from 5.25 in 1971 to a high of 9.33 in 1996 and then declined rapidly to around 3.0 in both 2016 and 2021. The LQ for support activities increased from 1971 to 1981, remained between 7.0 and 9.0 from 1981 to 1996, and then also declined rapidly to around 3.0 for 2011 to 2021. For total marine transportation, Niagara's LQ increased from just below 5.0 in 1971 to 7.0 in 1981 and it remained at that level until 2001. It declined after 2001 and hovered between 4.0 and 5.0 in 2016 and 2021.

Figure R2: Location Quotients (LQ) of Marine Transportation Industries

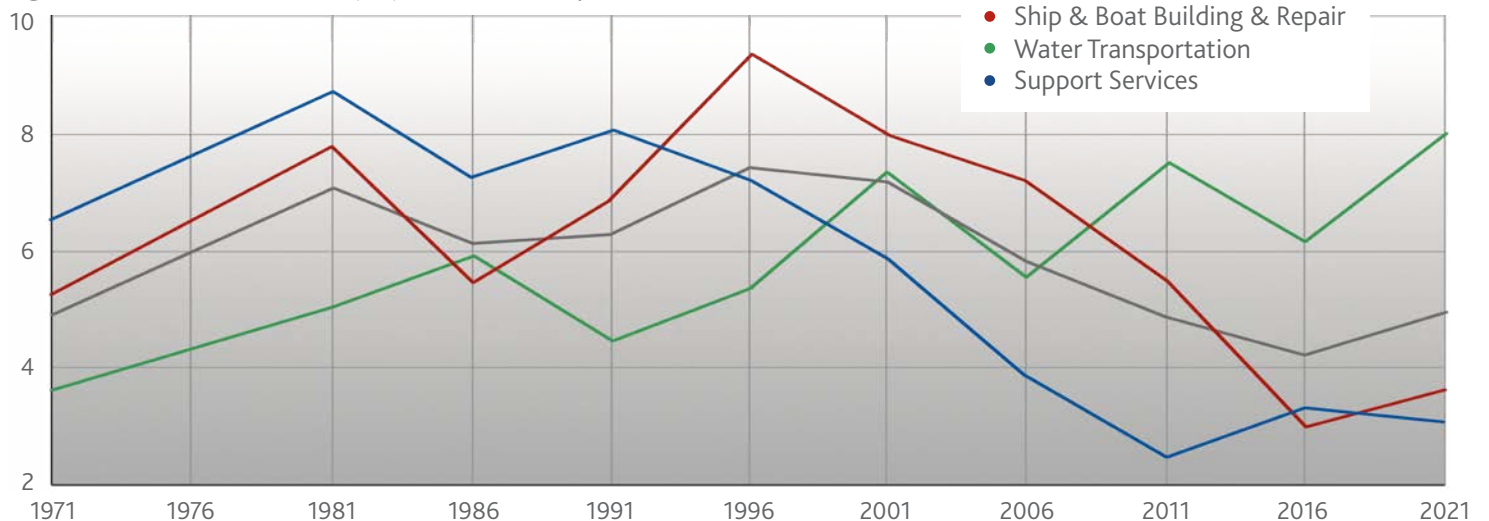


Figure R3 shows the distribution of employment in the total marine transportation sector across the sub-districts, for 1971 and 2021. Marine transportation was much less geographically concentrated in 2021, but St. Catharines still retained the biggest share by far. In 1971, more than 50 per cent of total employment

in marine transportation was in St. Catharines, but that concentration decreased to 28 per cent in 2021. Welland, Thorold, and Niagara Falls had the largest increases in their shares of employment from 1971 to 2021, while Port Colborne experienced a large decrease in employment share.

Figure R3: Percentage of (Total) Marine Transportation Employment in each Sub-district, 1971 and 2021

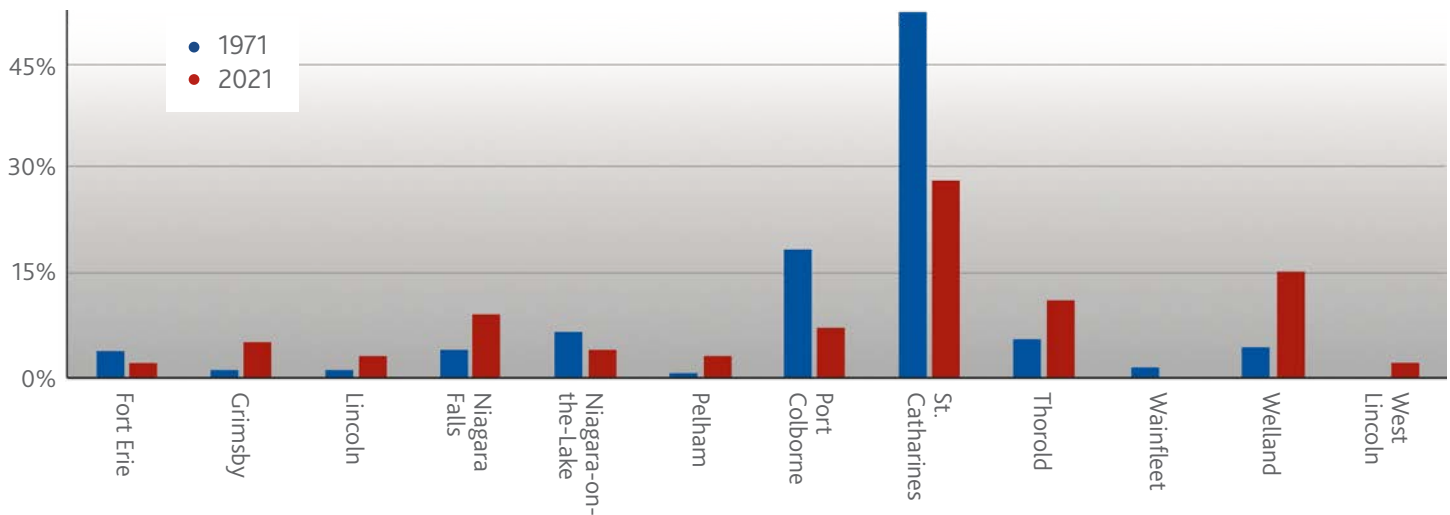
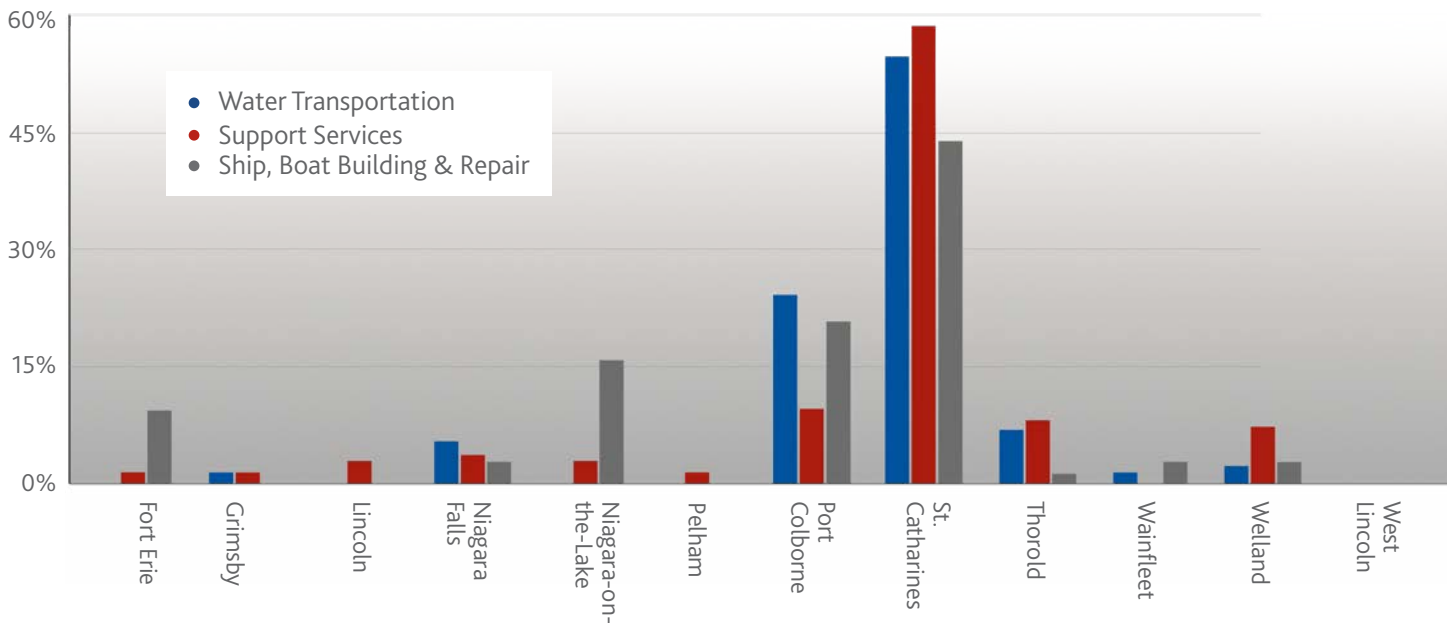


Figure R4 shows the geographical distribution of employment in the three industries comprising marine transportation in 1971. Employment in the three sub-industries was too low in 2021 to report for each of the sub-districts. St. Catharines

dominated all three of the sub-industries in 1971. Port Colborne had concentrations in “Water transportation” and “Ship and boat building”, while NOTL had a small concentration of “Ship and boat building” employment.

Figure R4: Percentage of Employment in Each Sub-district, by Industry: 1971



Agribusiness is defined here to include farms,³ farm product wholesaling, and farm supplies wholesaling. Industries providing support or service to farms (NAICS code 115; 1980 SIC Major Group 02; 1970 SIC code 02) are omitted because of major changes in its definition from the 1980 SIC to the NAICS. Activities such as veterinary services, poultry hatcheries, pet care, some types of nurseries, agricultural management and consulting services, and other services were included in the support industry (Major Group 02) classification in the 1980 SIC but were reassigned to a variety of other industries in the NAICS.

Farms

The farms industry is defined as establishments primarily engaged in growing crops (including greenhouses) and raising animals. Figure A1 reports employment and the employment LQ for farms. Farms employment in the Niagara Census District increased from 5,045 in 1971 to a high of 6,640 in 1986, indicating farms are an

important source of employment in Niagara. In 1971, farm employment accounted for 3.8 per cent of total employment in Niagara, increasing slightly to 3.91 per cent in 1986. Employment in the industry decreased slowly over the next 20 years, from 1986 to 2006, and then dropped sharply from 2006 to 2011 to a low of 4,990. It recovered slightly after 2011 with employment of 5,260 in 2016 and 5,230 in 2021. In 2021, farm employment accounted for 2.65 per cent of total employment in Niagara.

Farms LQ was around 1.0 in 1971, showing that Niagara had roughly the same density or concentration of farm employment as Ontario in that year. Farms LQ, however, rose rapidly from 1971 to 2006 indicating that farm employment became much more important for Niagara. Farm LQ continued to grow after 2006, but much more slowly, reaching a high of 1.95 in 2021. This meant that the percentage of farm workers in Niagara (as a share of overall employment) was almost twice the overall percentage of farm workers in Ontario in 2021.

Figure A1: Employment and Location Quotient (LQ) for Farms

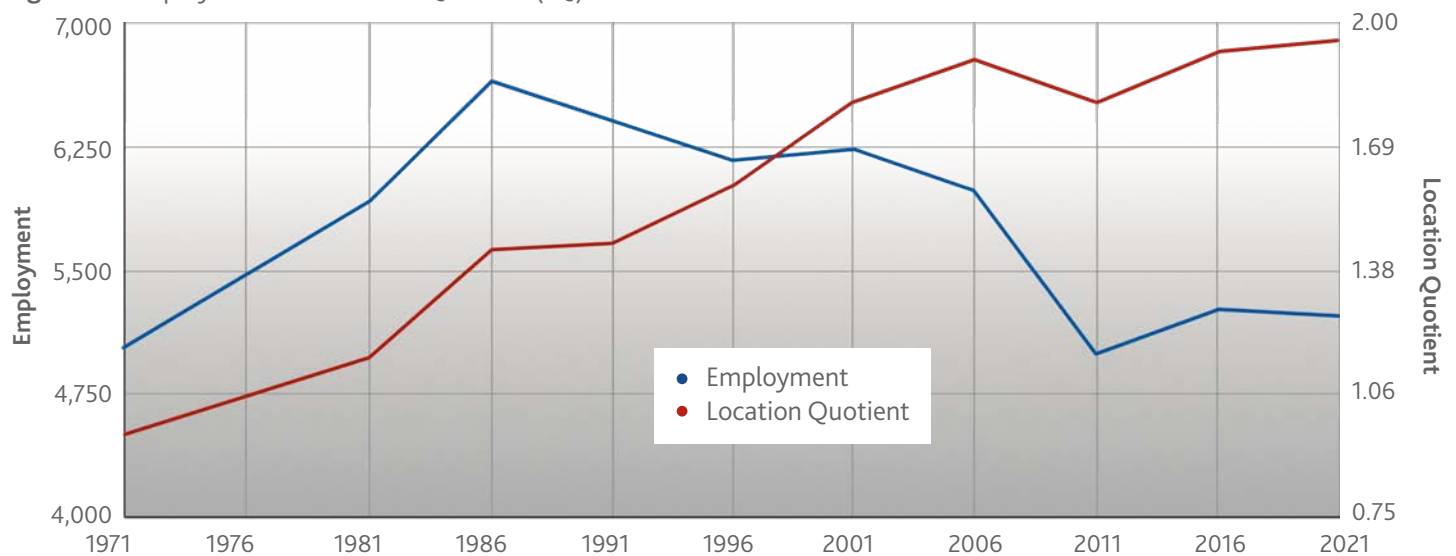
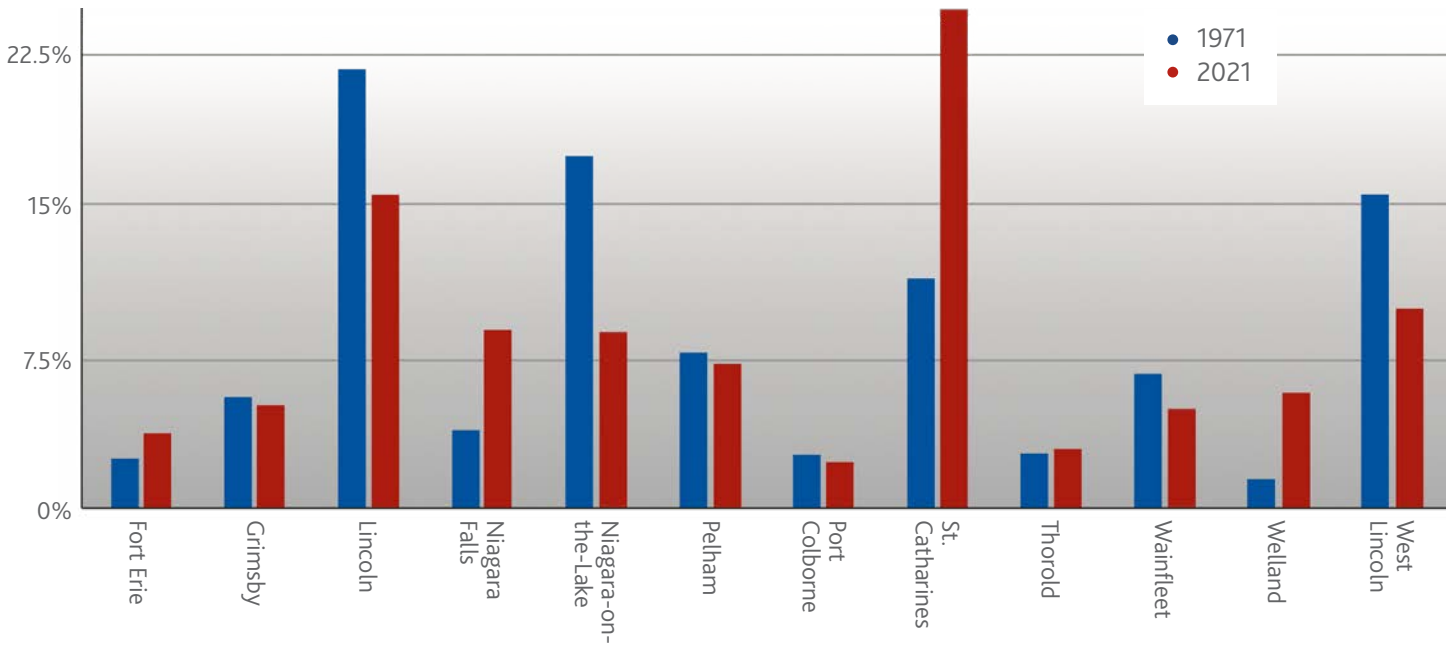


Figure A2 shows the distribution of employment in farms across the 12 census sub-districts in 1971 and 2021. Figure A2 shows a strong (relative) migration of farm jobs out of NOTL, Lincoln, and West Lincoln and into St. Catharines. In 1971, St. Catharines had an 11.4 per cent share of farm employment but it more than doubled

to almost 25 per cent in 2021. NOTL's share of farm employment fell from 17.7 per cent to 8.8 per cent over the same period, while Lincoln's fell from 21.85 per cent to 15.5 per cent and West Lincoln from 15.6 per cent to 9.9 per cent. Niagara Falls and Welland also increased their share of farm employment.

³ For the purpose of our research, farms include the NAICS categories of crop production (code 111) and animal production/aquaculture (code 112).

Figure A2: Percentage of Employment in Farms across the 12 Sub-districts, 1971 and 2021



Wholesale Distributors of Farm Products

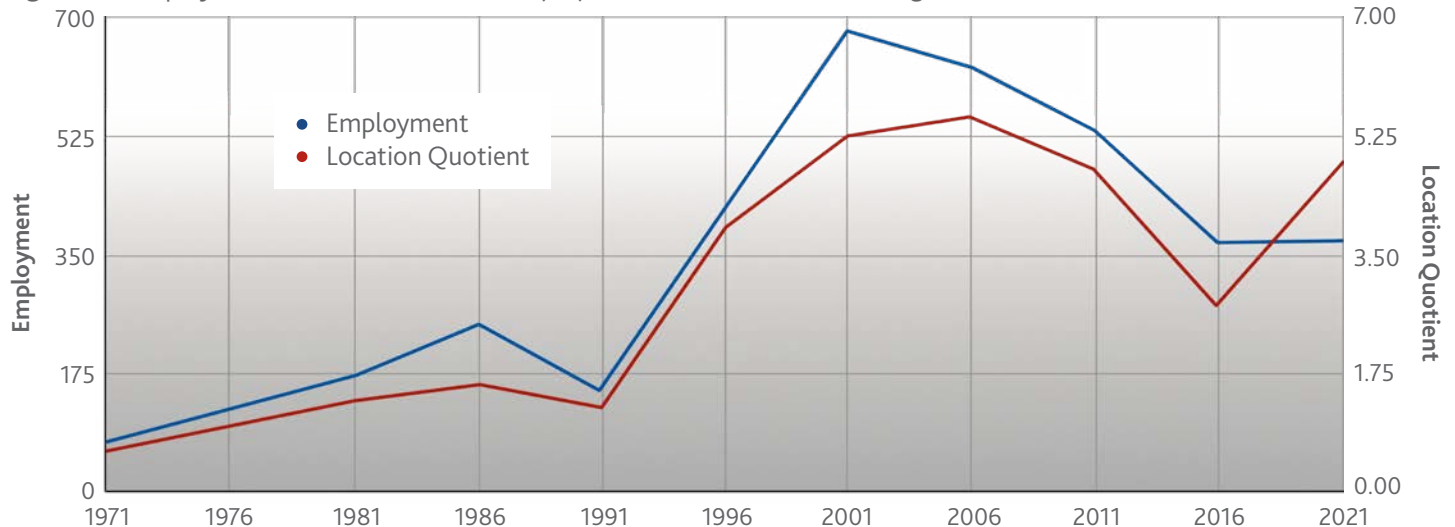
“Farm product wholesaler-distributors” consist of establishments that sell products such as livestock, grain, fruits and vegetables, and other farm products at the wholesale level. Figure A3 shows both employment and the LQ for farm product wholesalers in Niagara, 1971 to 2021.

Employment in farm product wholesaling rose steadily from 70 jobs in 1971 to 245 in 1986. It dipped to 150 in 1991, but then rose rapidly to a high of 675 in 2001. Employment fell, but less rapidly than it had risen, from 2001 to 2016

and remained flat at 370 in 2016 and 2021. The LQ mostly followed the changes in employment. Employment in farm product wholesaling became much more important to Niagara, relative to Ontario, after 1991, and it remained so with an LQ always greater than 2.5. In 2021, the LQ was 4.8, so the proportion of farm product wholesaling employment in Niagara was almost five times greater than Ontario.

The farm product wholesaling industry is too small to show the distribution of employment across the 12 census sub-districts in the early years. In 2021, however, almost half of its employment was in Lincoln and St. Catharines.

Figure A3: Employment and Location Quotient (LQ) for Farm Product Wholesaling



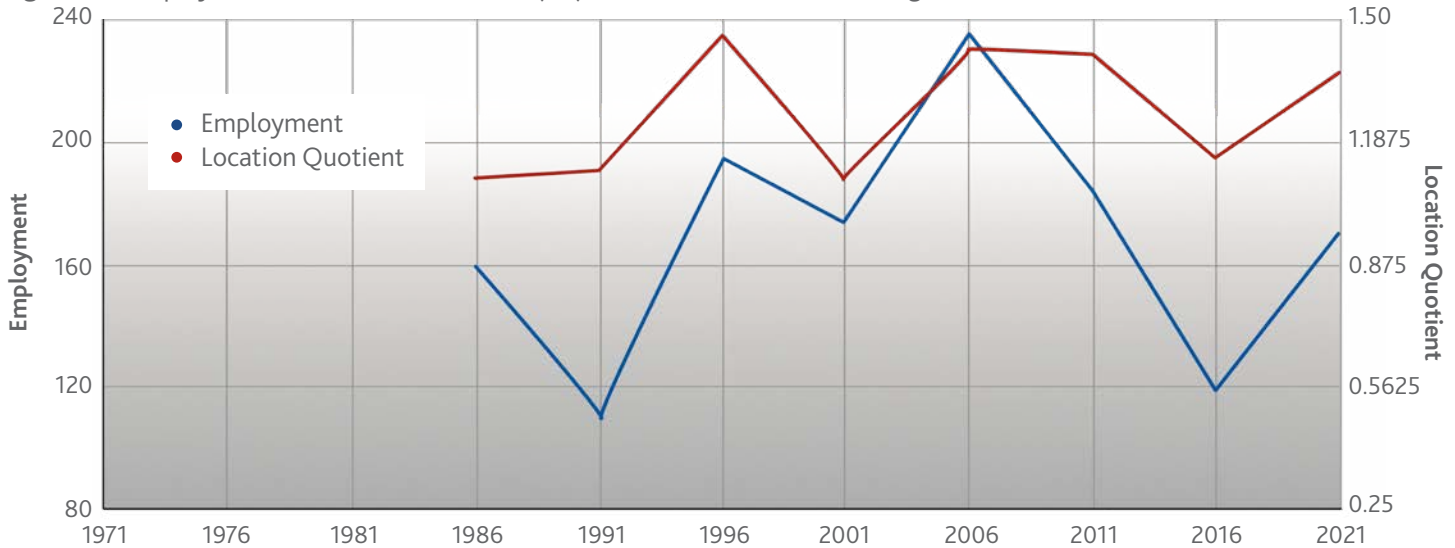
Wholesale Distributors of Farm Supplies

Farm supplies wholesalers are establishments that sell animal feeds, seeds and processed seeds, fertilizers and other agricultural chemicals, and other farm supplies at the wholesale level. Figure A4 shows employment and LQ for the industry. Data for 1971 and 1981 are not available because the 1970 SIC buried the industry in the three-digit industry “Wholesalers, not elsewhere specified (n.e.s.)”, code 629.

Farm supplies wholesaling is a small industry with employment fluctuating between 110 and 235 jobs from 1986 to 2021. Employment hit a low of 110 in 1991, a high of 235 in 2006, and was 170 in 2021. Its LQ trended up slightly from 1.12 in 1986 to 1.37 in 2021, showing that Niagara does not have a large concentration of farm supply wholesale employment, relative to Ontario.

The industry is too small to show the distribution of employment across the 12 census sub-districts.

Figure A4: Employment and Location Quotient (LQ) for Farm Product Wholesaling



MANUFACTURING

This section reports on employment in the manufacturing sector, and in selected manufacturing industries, namely: foods, beverages, transportation equipment, primary metals, fabricated metal products and machinery production; and paper manufacturing.

Total Manufacturing

The “Manufacturing” sector as a whole consists of 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 inputs to 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 packaging, meat cutting, or assembly of, for example, bicycles or computers are assigned to their respective retail or wholesale industries.

Figure M1 reports employment and location quotients for total manufacturing in Niagara for 1971 and 2021. Employment rose from 43,315 in 1971 to a high of 51,160 in 1981 but declined steadily thereafter. By 2021, employment in total manufacturing had fallen to 19,070, less than half its peak level. The decline in manufacturing employment is also shown through the decline in LQ over the period. The manufacturing

LQ was 1.33 in 1971, indicating that Niagara had a higher proportion of employment in manufacturing than Ontario. However, the manufacturing share of employment in Niagara, relative to Ontario, fell over the next 45 years and its LQ hit a low of 0.95 in 2016. Its LQ rose slightly to 1.04 in 2021, but it is clear that the share of manufacturing employment in Niagara has been virtually the same as Ontario since 2006.

Figure M1: Employment and Location Quotient (LQ) for Total Manufacturing

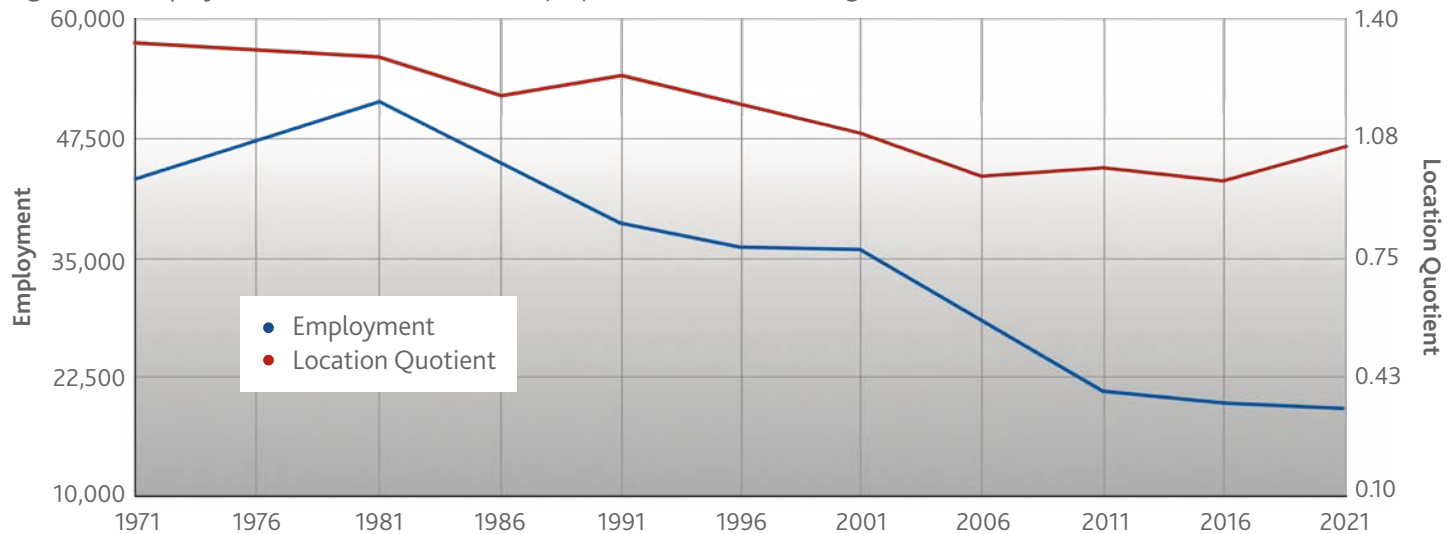
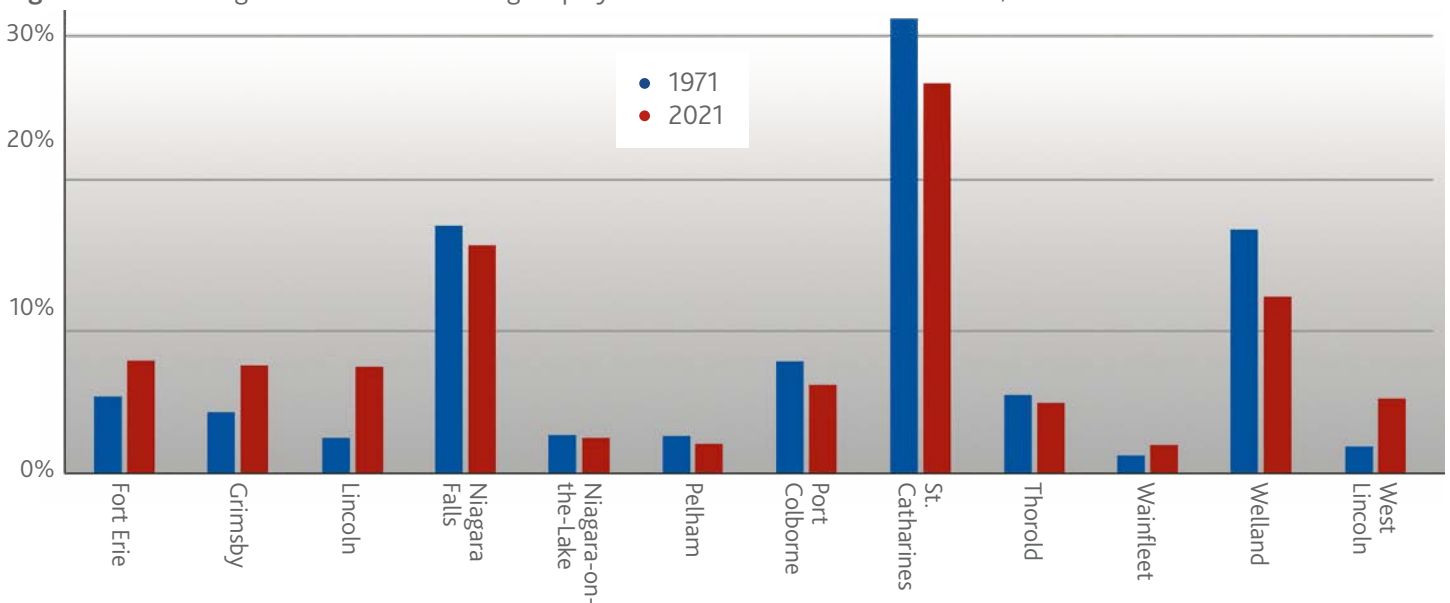


Figure M2 shows that the distribution of manufacturing employment across the 12 Niagara census sub-districts did not change radically from 1971 to 2021. It did, however, become a little more evenly distributed across the region. St. Catharines' percentage of manufacturing employment

fell from 31.2 per cent to 26.8 per cent while Welland experienced a slightly larger loss from 16.8 per cent to 12.2 per cent. Lincoln, West Lincoln, Grimsby, and Fort Erie received the biggest gains in their share of manufacturing employment, all from low levels in 1971.

Figure M2: Percentage of Total Manufacturing Employment in the 12 Census Sub-districts, 1971 and 2021



Food Manufacturing Industries

“Food manufacturing” industries consist of all establishments producing food for human or animal consumption, mostly from inputs produced on farms. 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. Figure M3 shows that 2,720 people were employed in “Food manufacturing” establishments in Niagara in

1971 and that number increased to a high of 2,925 in 1981. Employment fell after that, but not monotonically, reaching a low of 1,960 in 2011. Employment increased slightly after 2011 and 2,215 people were employed in the industry in 2021. The LQ shows that Niagara had a lower proportion of food industry employment, relative to Ontario, over almost the whole period studied. Its LQ reached a high of 1.0 in 1996 and a low of 0.78 in 2011. From 1971 to 1996, the LQ mostly fluctuated between 0.9 and 1.0. From 2001 to 2021, the LQ mostly fluctuated between 0.8 and 0.9.

Figure M3: Employment and Location Quotient (LQ) for Food Manufacturing Industries

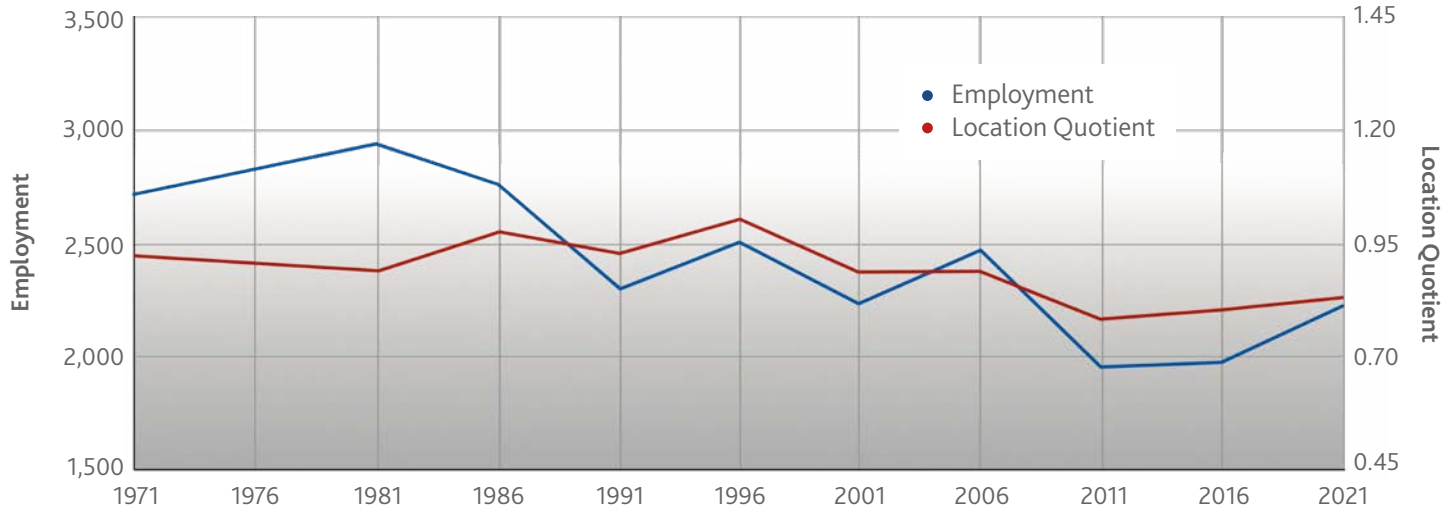
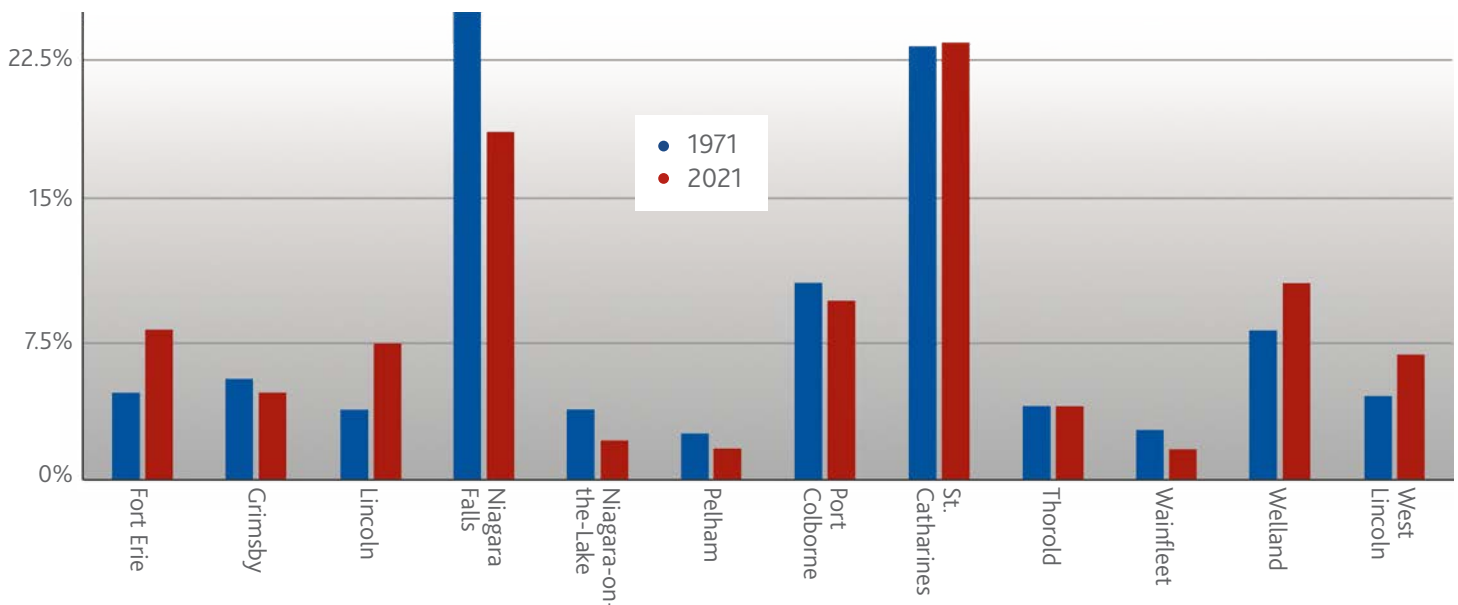


Figure M4 shows that the distribution of employment in “Food manufacturing” across Niagara did not change significantly from 1971 to 2021. The percentage employed

in Niagara Falls fell from 25.2 per cent to 18.7 per cent while gains occurred in Lincoln, Fort Erie, Welland, and West Lincoln.

Figure M4: Percentage of Food Manufacturing Industries’ Employment in the 12 Sub-districts, 1971 and 2021



Beverage Manufacturing Industries

The “Beverage manufacturing” industries consist of all establishments producing beverages for human or animal consumption, mostly from inputs produced on farms. These include breweries, wineries, distilleries, and soft drink and ice manufacturers. Milk-based drinks and fruit and vegetable juices are included in “Food manufacturing”. Figure M5 shows that from 1971 to 1996, industry employment in Niagara was flat, fluctuating between 440 (1991) and 700 (1986). After 1996, however, employment

grew rapidly. From 1996 to 2011 it gained 835 jobs, an increase of 142 per cent, and reached a high of 1,420 in 2011. Employment fell after 2011 and by 2021 there were 1,165 people employed in the industry. The LQ shows that the proportion of beverage employment in Niagara was very similar to, or slightly above, Ontario’s from 1971 to 1996. The increase in employment in the industry after 1996, however, had the expected impact and LQ rose rapidly to a high of 3.96 in 2011. Its LQ declined thereafter, but the share of beverage manufacturing employment in Niagara was still more than three times (LQ=3.07) the share in Ontario in 2021.

Figure M5: Employment and Location Quotient (LQ) for Beverage Manufacturing Industries

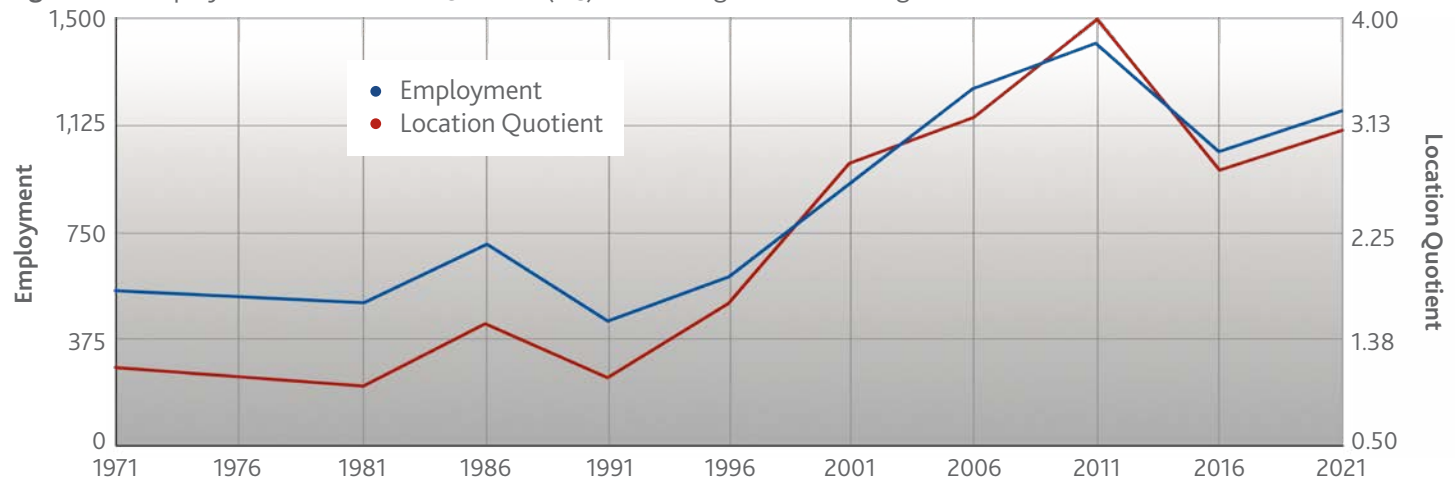
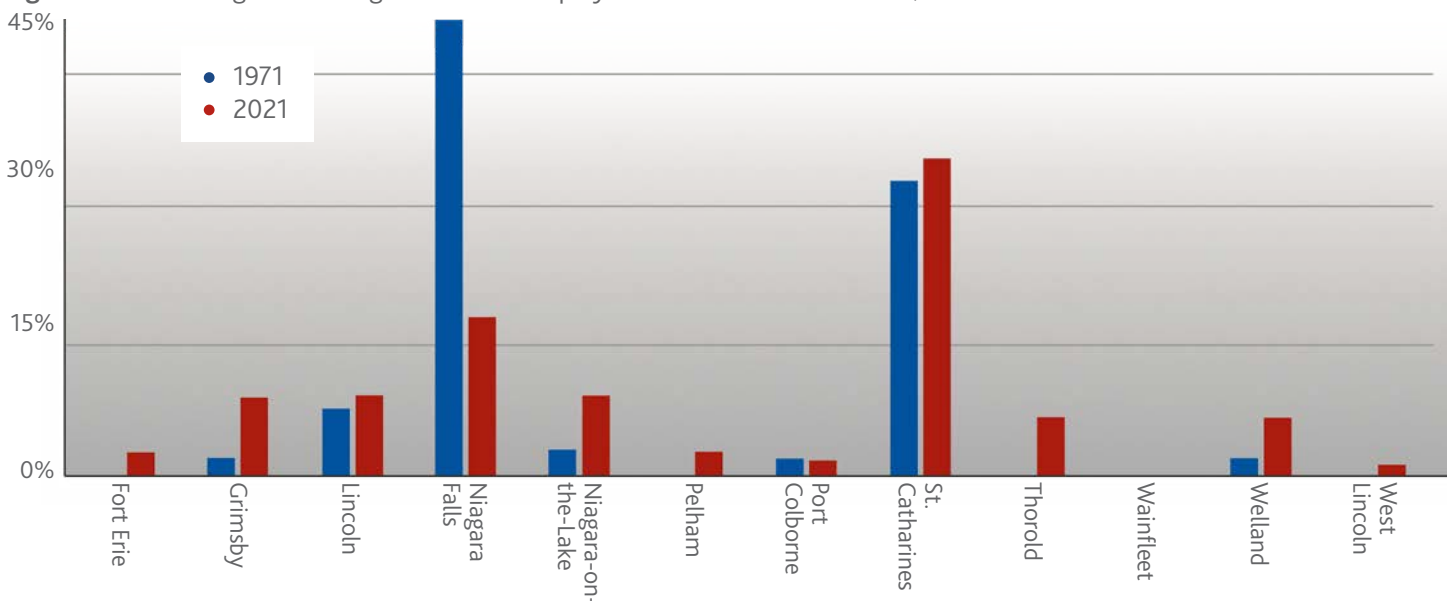


Figure M6 shows that Niagara Falls dominated “Beverage manufacturing” employment in 1971, but its share fell to roughly 18 per cent in 2021. The industry spread out across the region with Grimsby, Thorold, and NOTL each gaining more than six percentage

points of the rising employment. Welland had the next largest gain with a 4.6 percentage-point increase in its share. St. Catharines maintained its important position in the industry with around a third of the industry’s employment in 1971 and 2021.

Figure M6: Percentage of Beverage Industries’ Employment in the 12 Sub-districts, 1971 and 2021



Transportation Equipment

“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 this industry. They are also reported in the marine transportation section above.

Figure M7 shows that employment in the industry rose steadily from 11,560 jobs in 1971 to a high of 15,090 in 1986 and declined sharply after 1986. From 1986 to 2021, 11,840 jobs were lost in the industry, leaving only 3,250 employed in 2021, just a little more than one-fifth of the 1986 peak.

Put another way, almost four out of every five jobs in 1986 were gone by 2021. Transportation equipment was a hugely important industry in Niagara in 1971, accounting for 8.7 per cent of its total employment. Though much diminished, it was still an important employer in 2021, accounting for 1.65 per cent of Niagara’s total employment.

Its LQ also declined over the period since Ontario did not suffer the same decline in transportation equipment employment, relative to total employment, or in absolute terms, as Niagara. In 1971 and 1981, Niagara had a much higher concentration of employment in the transportation equipment industry, with an LQ equal to 2.7. LQ declined steadily thereafter, however. In 2021 the transportation equipment LQ was 0.9 so Niagara’s employment in the industry, relative to its total employment, was slightly less than for Ontario as a whole,

Figure M7: Employment and Location Quotient (LQ) in the Transportation Equipment Industry

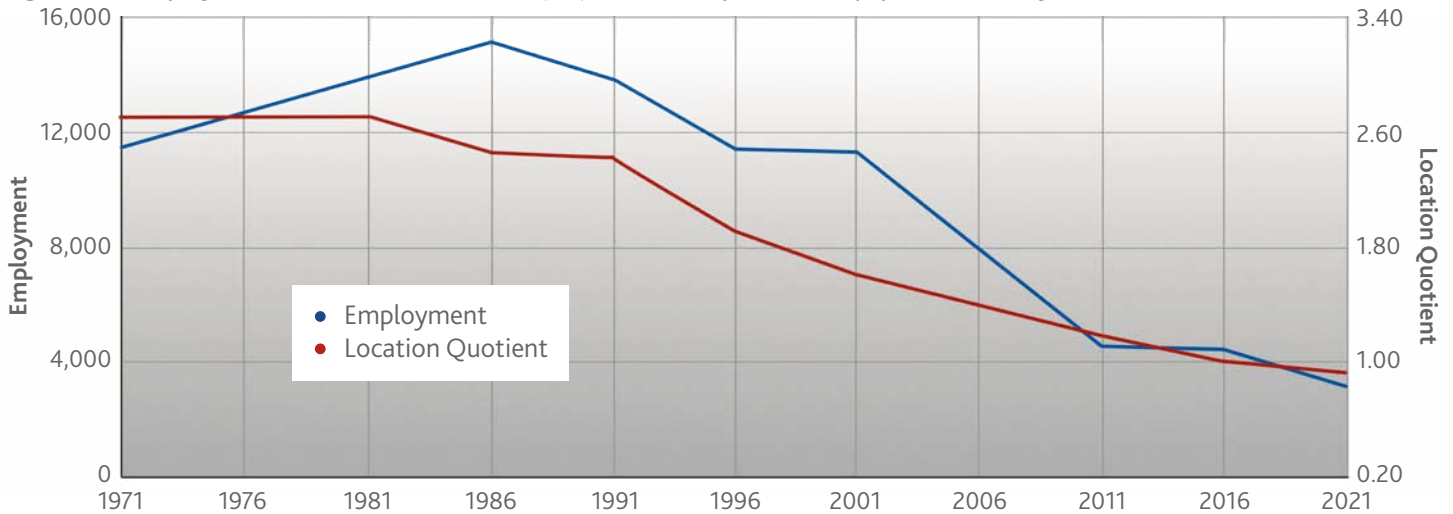
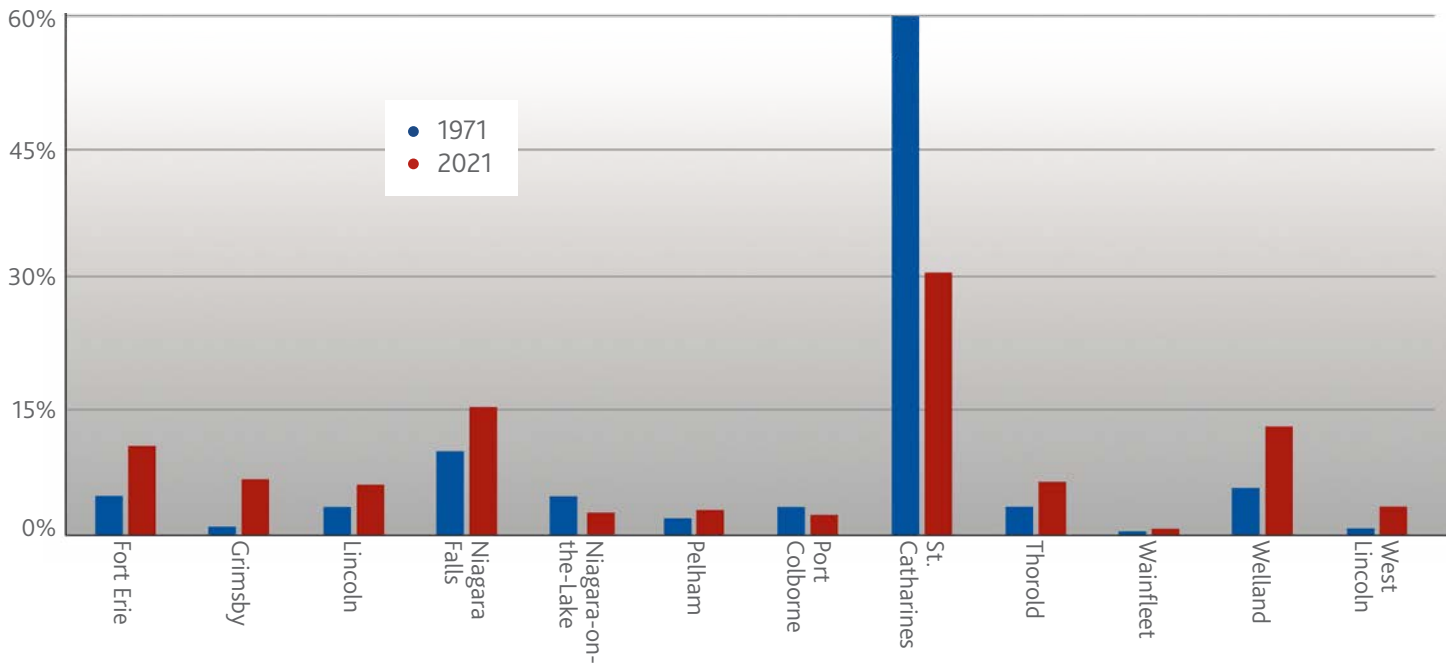


Figure M8 show the distribution of transportation equipment employment across the 12 census sub-districts. In 1971, St. Catharines dominated the industry with 60 per cent of the region’s employment in the industry. In 2021, St. Catharines was still the dominant sub-district, but its share of the much-diminished employment had fallen to 30 per cent. Welland increased its share by almost seven percentage points, while Fort Erie, Grimsby, and Niagara Falls increased

their shares (again, of much-diminished employment) by five to six percentage points. It is important to understand that employment in transportation equipment industries declined in almost every sub-district in Niagara. It just declined by smaller percentages in Welland, Fort Erie, and Niagara Falls. Grimsby was the big exception. Its employment in transportation equipment increased from 145 in 1971 to 215 in 2021.

Figure M8: Percentage of Transportation Equipment Employment in the 12 Sub-districts, 1971 and 2021



Primary Metals

“Primary metal manufacturing” is comprised of establishments primarily engaged in smelting and refining ferrous and non-ferrous metals from ore, pig or scrap in blast or electric furnaces. Establishments that roll, draw, extrude, or alloy the refined or smelted outputs to produce sheets, strips, bars, rods, pipe, wire and other basic metal products are also included, as are foundries that pour molten metal into moulds or dies to form castings.

Employment in primary metals mimics the pattern shown by total manufacturing. Figure M9 illustrates that employment

increased from 7,395 in 1971 to a high of 8,990 in 1981. Employment then fell steadily from 1981 to 2011, reaching a low of 2,000 jobs in 2011—less than one quarter of the 1981 peak. Employment remained at a slightly higher level, between 2,100 and 2,200, in 2016 and 2021.

The LQ shows that Niagara had a much higher concentration of primary metal jobs than Ontario as a whole. Its LQ was 2.57 in 1971 and increased to 2.82 in 1981. The LQ continued to fluctuate between 2.0 and 3.0 over the remaining years. It reached a high of 2.85 in 2021, meaning that the proportion of primary metal jobs in Niagara was almost three times higher than the average over Ontario.

Figure M9: Employment and Location Quotient (LQ) in the Primary Metals Industry

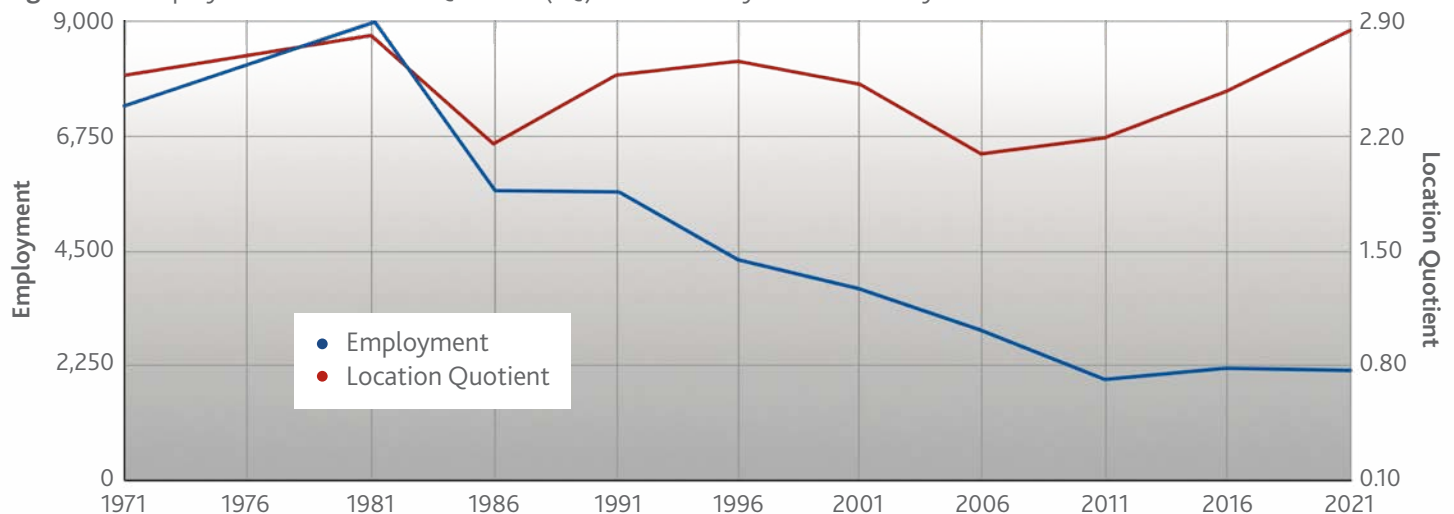
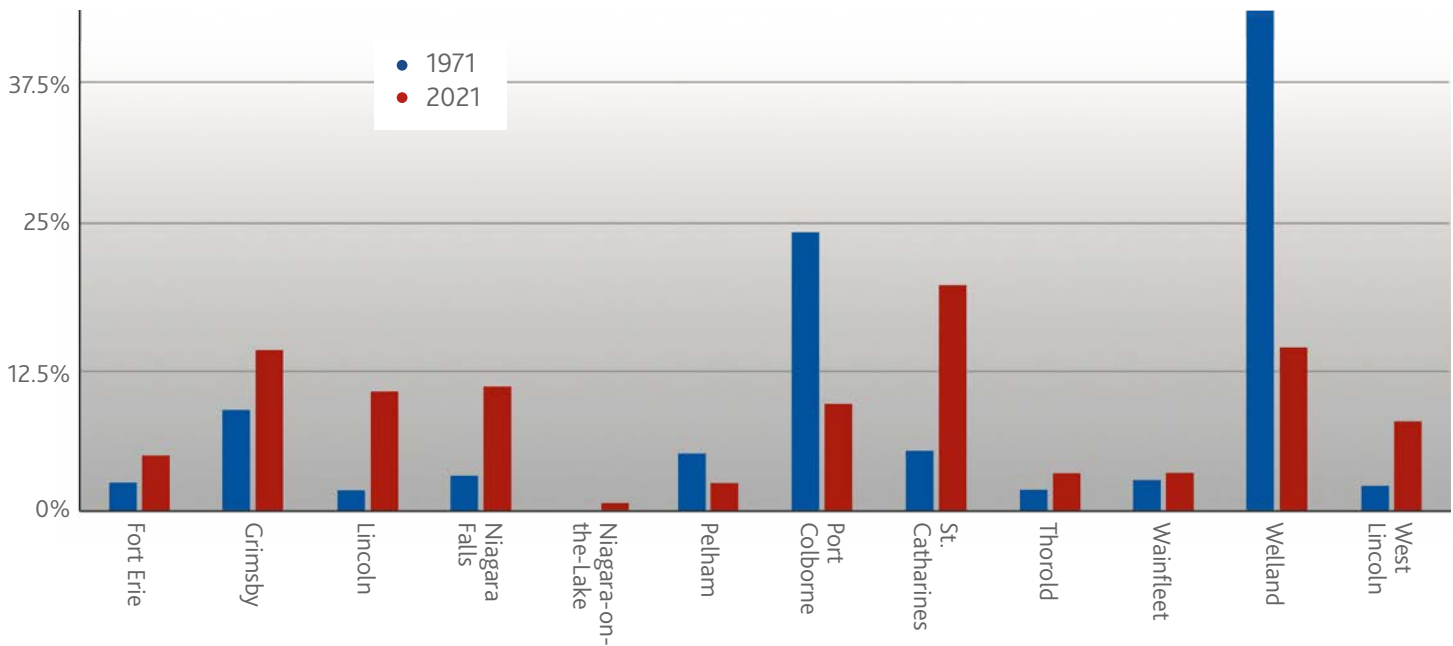


Figure M10 shows the distribution of primary metals employment across the region. In 1971, 43 per cent of the jobs were located in Welland. Another 24 per cent were in Port Colborne. Both lost their dominant positions in the industry by 2021, with Welland's share falling to 14 per cent and Port Colborne to under 10 per cent. St. Catharines gained 14.5 percentage points of the employment share from 1971 to 2021, Lincoln and

Niagara Falls gained around eight percentage points, and Grimsby and West Lincoln gained just over five percentage points. But, again, they were all increased shares of a much smaller total. In this case, St. Catharines and Lincoln gained a few jobs, Niagara Falls and West Lincoln essentially kept the same level of employment, and Grimsby lost a smaller percentage of jobs than the region as a whole.

Figure M10: Percentage of Primary Metals Employment in the 12 Sub-districts, 1971 and 2021



Fabricated Metal Products and Machinery Manufacturing Industries

“Fabricated metal product manufacturing” includes establishments primarily engaged in forging, stamping, forming, turning, and joining processes to produce ferrous and non-ferrous metal products. “Machinery manufacturing” comprises establishments primarily engaged in manufacturing or rebuilding industrial and commercial machinery by assembling parts into components, subassemblies, or complete machines.

Electrical equipment (e.g. electric motors, transformers, and industrial control apparatus, household appliances) is excluded from the machinery industry classification.

Heating equipment was assigned to the “Machinery manufacturing” category in the 1970 SIC but it was moved to “Fabricated Metal Products” in the 1980 SIC. Given the prominence of the Grimsby Furnace enterprise in Grimsby, the two classifications are combined so the reclassification will have no impact on this analysis.

Figure M11 shows that the sum of employment in the two industries increased from 6,200 in 1971 to a high of 8,700 in 1981. Employment dropped sharply to 4,790 from 1981 to 1991, recovered a bit in the 1990s, and then decreased further to 4,130 in 2011. Employment remained

slightly below 4,000 people in 2016 and 2021. The LQ for the industries fluctuates in a fairly narrow band between 1.1 and 1.3 over the whole period, so Niagara's share of employment in these two industries is just slightly above the average for Ontario.

Figure M11: Employment and LQ in the Fabricated Metal Products and Machinery Industries

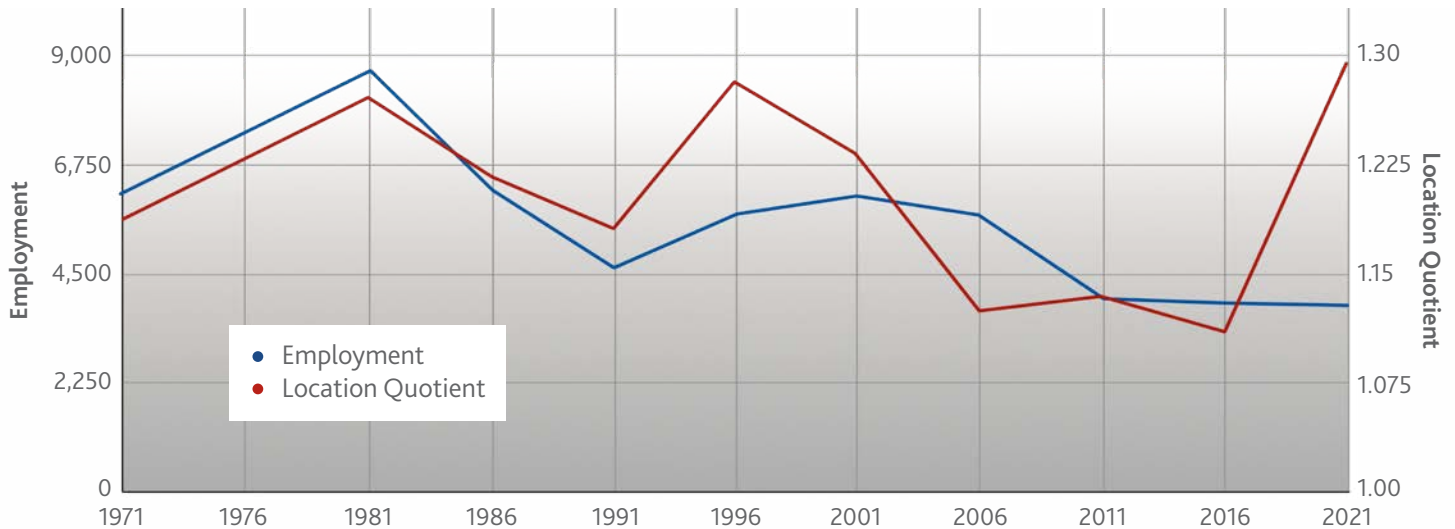
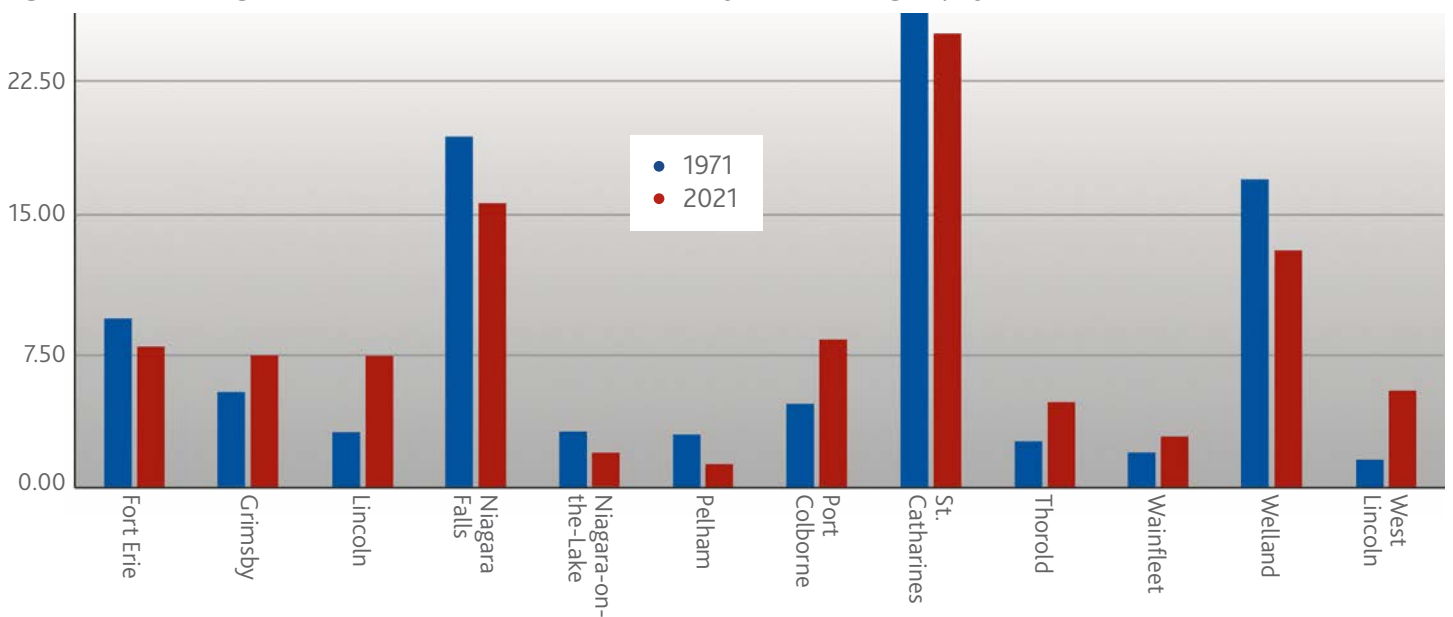


Figure M12 shows that over 65 per cent of employment in the two industries was located in St. Catharines (30 per cent), Niagara Falls (19 per cent), and Welland (17 per cent) in 1971. The employment shares in all three sub-districts declined by

roughly four percentage points from 1971 to 2021. In turn, Lincoln, West Lincoln, and Port Colborne all increased their employment shares in the two industries. But, again, they were larger shares of a diminished level of employment.

Figure M12: Percentage of Fabricated Metal Products and Machinery Manufacturing Employment in the 12 Sub-districts, 1971 and 2021



Paper Manufacturing

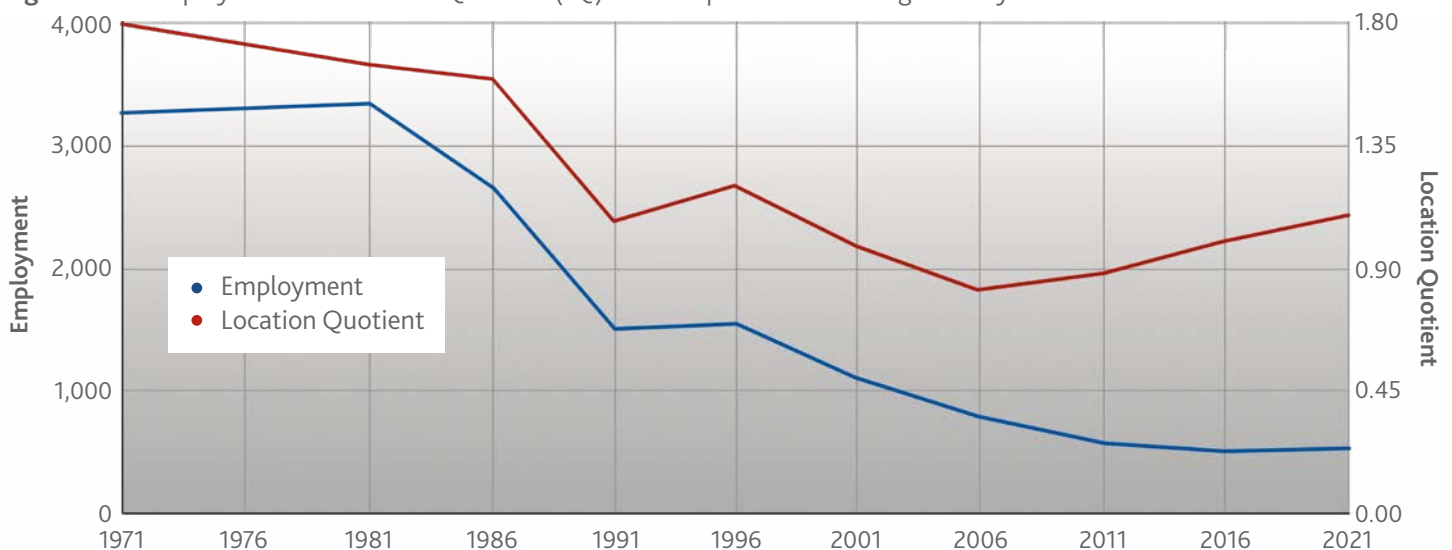
The “Paper manufacturing” industry covers establishments primarily engaged in manufacturing pulp, paper, paperboard, and paper products from wood, recycled used paper, or other sources of fibre. Converted paper products such as paperboard and corrugated cardboard containers, paper bags, coated or treated paper products, stationery products, and other converted paper products are also included in this industry. In relative terms, employment in the “Paper manufacturing” industry declined more than primary metals or transportation equipment manufacturing. In 1971, 3,260 people were employed in the industry, accounting for 2.5 per cent of total Niagara employment. Employment increased slightly in 1981 and then decreased rapidly. By 2021, employment had fallen to 535 people representing just 0.27 per cent of total Niagara employment. From peak (1981) to trough (2021),

the industry shed 2,800 jobs or more than five-sixths of its peak employment. Put another way, only one out of every six 1981 jobs still existed in 2021.

Figure M13 shows that Niagara had a higher concentration of paper manufacturing jobs than Ontario from 1971 to 1986. Its LQ trended down over those years from a high of 1.8 in 1971, but it remained well above 1.5 in 1981 and 1986. From 1991 to 2021, however, the LQ fluctuated around 1.0, indicating that Niagara and Ontario had similar concentrations of paper manufacturing employment. This implies that the proportion of paper workers employed in Ontario also decreased dramatically over the period studied.

In 1971, virtually all paper manufacturing employment occurred in Thorold and St. Catharines. By 2021, some of the much-diminished paper manufacturing employment had spread to West Lincoln and, to a lesser extent, Welland.

Figure M13: Employment and Location Quotient (LQ) in the Paper Manufacturing Industry



Unfortunately, there is no “Tourism” industry classification in any of the industrial classification systems used by Statistics Canada. There are only industries that are closely associated with the tourism industry, and employment for a few of those are presented here. These include “Arts, entertainment and recreation”; “Gambling”; “Accommodation services”; and “Food services and drinking places”. 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

This 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 is included in this industry 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 are included in the accommodation services section below. Similarly, restaurants and night clubs that provide live entertainment in addition to the sale of food and beverages are included in the food services and drinking places section 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. These activities are assigned to the transportation and warehousing industry in the NAICS. They are omitted from this report because it proved impossible to construct industry definitions that were consistent across the SIC and NAICS.

Figure T1 shows that employment in “Arts, entertainment, and recreation” grew steadily, and more than doubled from 1,525 in 1971 to 3,235 in 1996. Over the next decade, employment grew much more quickly. It more than tripled from 1996 to 2006, reaching a high of 9,965 in 2006.

More than two thirds of this remarkable employment growth can be attributed to employment growth in the gambling industry. Employment fell over the next decade to 8,500 in 2016 and then it plummeted to 3,265 in 2021 due to the shutdowns imposed to help control the spread of COVID-19.

Figure T1 also shows that the LQ fluctuated around 1.5 from 1971 to 1996, indicating that Niagara had higher proportions of arts, entertainment, and recreation workers than Ontario. Its LQ spiked to 2.29 in 2001 and remained above 2.0 from 2001 to 2016, indicating Niagara had more than twice the concentration of employment in this industry than Ontario during that period. With COVID-19, its LQ fell to 1.25. This occurred because employment in arts, entertainment, and recreation fell by 62 per cent in Niagara from 2016 to 2021, but only by 36 per cent in Ontario.

Figure T1: Employment and Location Quotient (LQ) for Arts, Entertainment and Recreation Industries

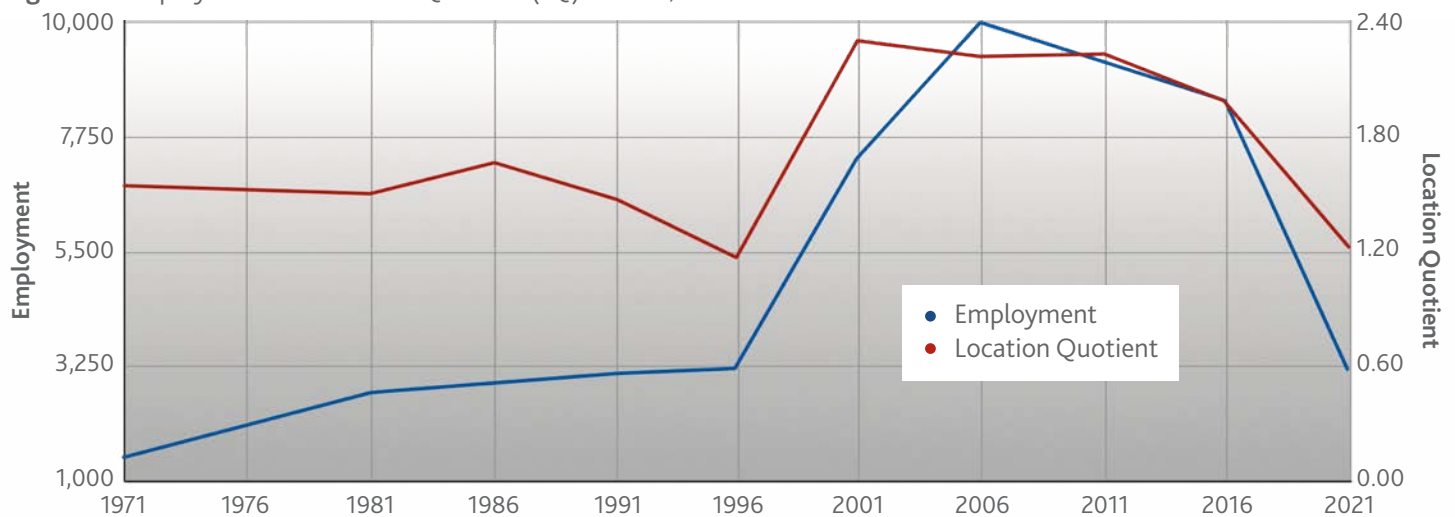
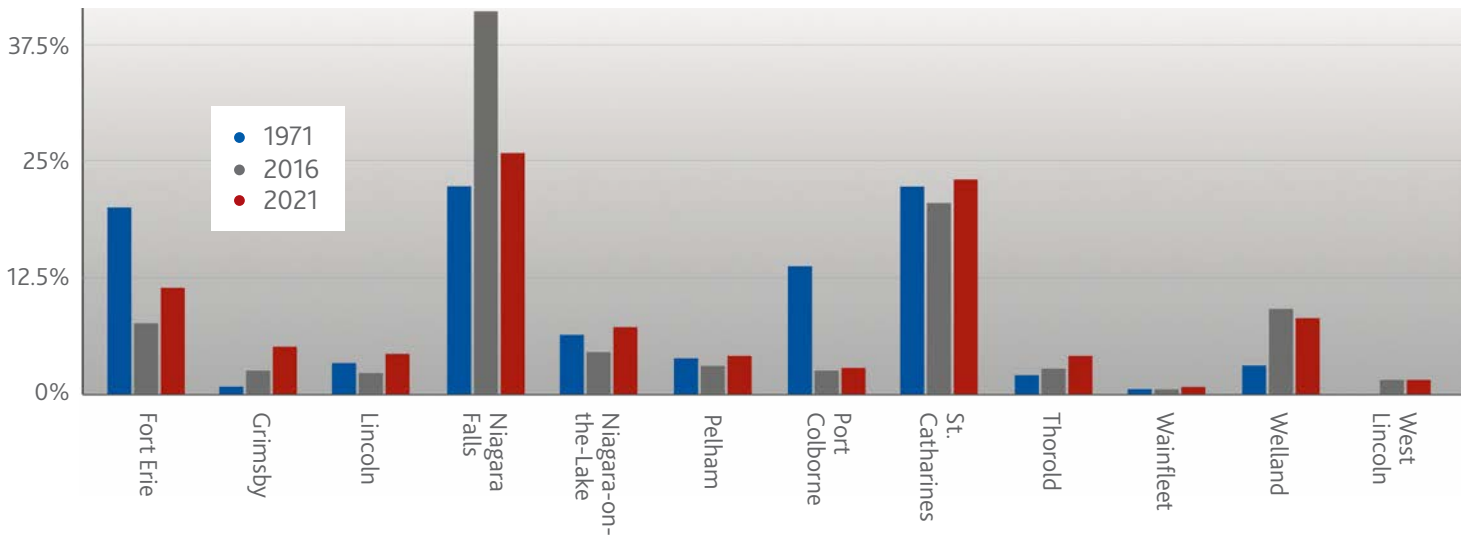


Figure T2 shows the distribution of employment in the “Arts, entertainment, and recreation” industry across the 12 Niagara sub-districts in 1971, 2016, and 2021. The year 2016 is included here to display the distribution of employment in the industry before it was so strongly affected by COVID-19. Niagara Falls was an important centre for the industry in 1971 with around 22 per cent of industry employment. Niagara Falls’ share jumped to a bit over 40 per cent in 2016 but fell back to around 25 per cent with the COVID-19 restrictions in 2021.

St. Catharines had the second-largest share of employment in the region, and it was remarkably stable over the years shown, staying between 20 and 23 per cent.

Fort Erie and Port Colborne experienced large decreases in their shares of the industry from 1971 to 2016, with their percentages of employment falling by 12 and 11 percentage points respectively. Welland became a more important sub-district with its share of employment almost tripling from just 3.3 per cent in 1971 to 9.3 per cent in 2016.

Figure T2: Percentage of Arts, Entertainment and Recreation Industries Employment in each Sub-District: 1971, 2016, 2021



Gambling Industries

“Gambling industries” is an important component of the “Arts, entertainment, and recreation” 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. The following are not included in the gambling classification:

- Establishments primarily operating horse racetracks. They are assigned to the spectator sports industry and included in the “Arts, entertainment, and recreation” industry above.
- Establishments primarily operating casino hotels. They are assigned to the casino hotels industry and included in the “Accommodation services” industry.
- Establishments primarily operating bars and restaurants with video-gaming or other gambling machines on the premises. They are included in the “Food services and drinking places” industry.

Unfortunately, gambling is buried in the “Miscellaneous Amusement and Recreation Services” classification (code 849) in the 1970 SIC, so separate data on employment in the gambling industry are not available for 1971 and 1981. Code 849 is included in the “Arts, entertainment, and recreation” industries classification, however, so gambling employment is included in that industry (presented above) for all years.

As shown in Figure T3, employment in the gambling industry grew in the Niagara region from 1986 to 1996, but it was still a very small industry. Employment was only 95 people in 1986 and it grew to only 440, representing just 0.24 per cent of total Niagara employment, in 1996. Employment exploded in the decade from 1996 to 2006, increasing by 4,785 workers to reach a high of 5,225 in 2006. This made gambling an important industry in Niagara, accounting for almost 2.5 per cent of total employment. Employment fell (a loss of 1,835 jobs) over the next decade, leaving 3,390 workers employed in 2016. Employment again plummeted to just 460 with COVID-19 in 2021.

Figure T3 shows that the location quotient for the gambling industry in Niagara follows its changes in employment. Its LQ is between 1.0 and 2.0 from 1986 to 1996, so Niagara had higher percentages of employment in the gambling

industry (relative to Ontario) even before the big increases in employment. After 1996, its LQ is mostly above 5.0, showing that Niagara had a much higher concentration of employment in gambling over those years.

Figure T3: Employment and Location Quotient (LQ) for the Gambling Industry

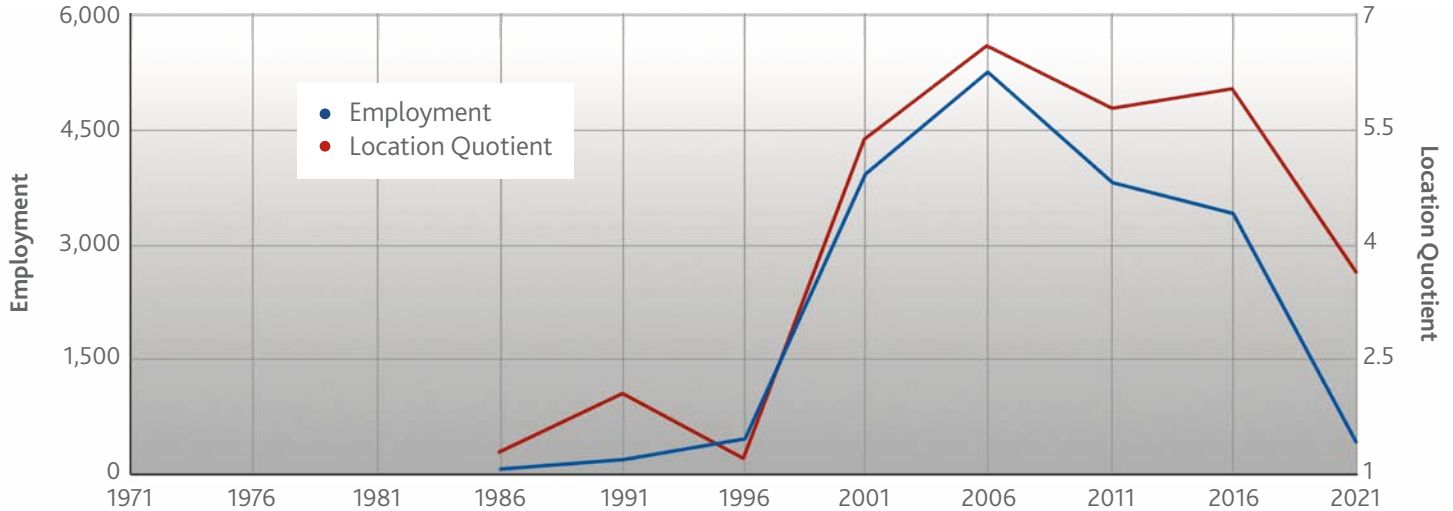
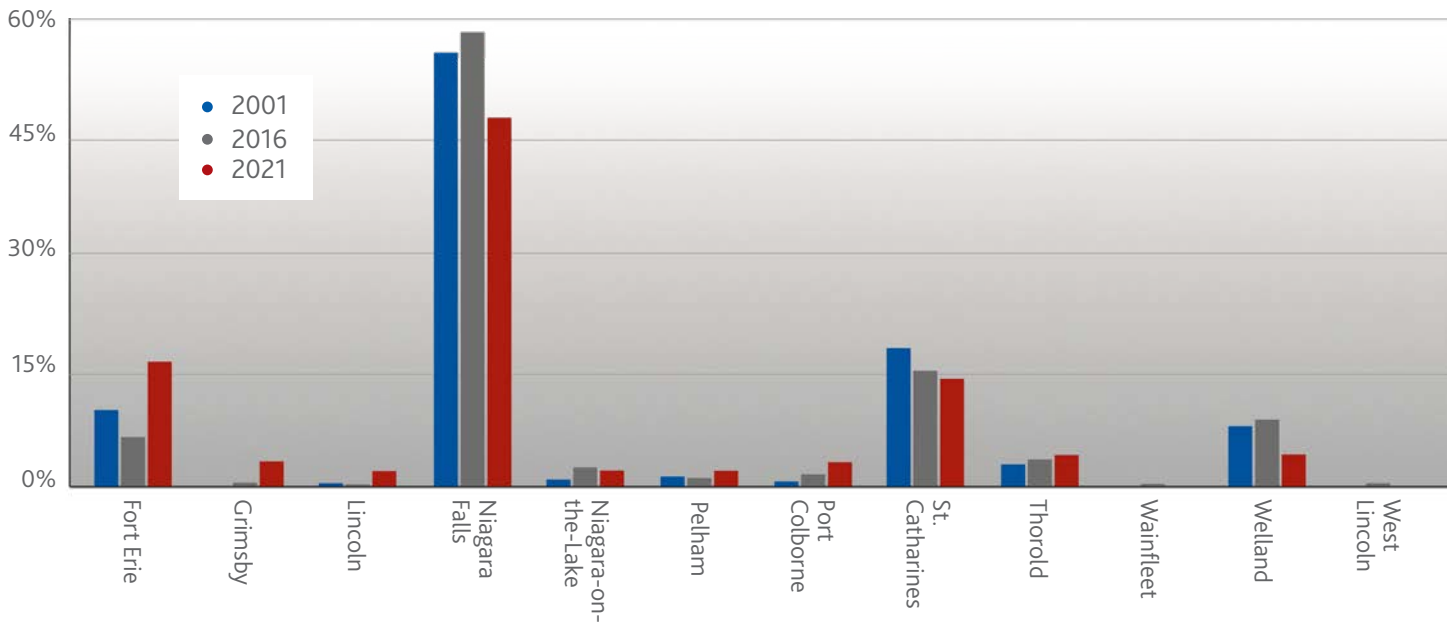


Figure T4 shows the distribution of employment in the gambling industry across the 12 sub-districts in 2001 (showing the early part of the boom), 2016 (showing the later part of the boom) and 2021 (showing the effects of COVID-19). Niagara Falls dominated the industry with well

over 50 per cent of Niagara's gambling employment in 2001 and 2016. St. Catharines hosted 10 to 20 per cent of gambling employment in all three years, and Fort Erie and Welland had between seven to 10 per cent of the industry's employment in 2001 and 2016.

Figure T4: Percentage of Gambling Industry Employment in each Sub-District: 2001, 2016 and 2021



Accommodation Services

“Accommodation services” is comprised 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 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.

Figure T5 shows that “Accommodation services” is an important industry for Niagara. In 1971, 2,695 people were employed in the industry, accounting for just over two per cent of total employment in Niagara. Employment grew robustly to 3,799 in 1981 and then very slowly from 1981 to 2001. Employment jumped by 2,835 from 2001

to 2006 as it increased from 4,095 in 2001 to a high of 6,930 in 2006. There was a small decline in employment from 2006 to 2016, but the industry still employed 6,415 in 2016, representing over three per cent of total employment in Niagara. Employment collapsed with the COVID-19 restrictions, leaving only 2,275 employed in 2021.

The LQ shows that “Accommodation services” is much more important to Niagara than it is to Ontario as a whole. The proportion of employment in this industry is more than 50-per-cent higher in Niagara, compared to Ontario (LQ>1.5), in 1971 and 1981, and the difference grew much larger from 1981 to 2016. From 2006 to 2016, the proportion of industry employment in Niagara is more than three and a half times higher than Ontario’s. The LQ declined to 2.73 in 2021 because Niagara’s employment in “Accommodation services” declined by 64.5 per cent (close to two thirds) while Ontario’s only declined by 47 per cent (less than half).

Figure T5: Employment and Location Quotient (LQ) for the Accommodation Services Industry

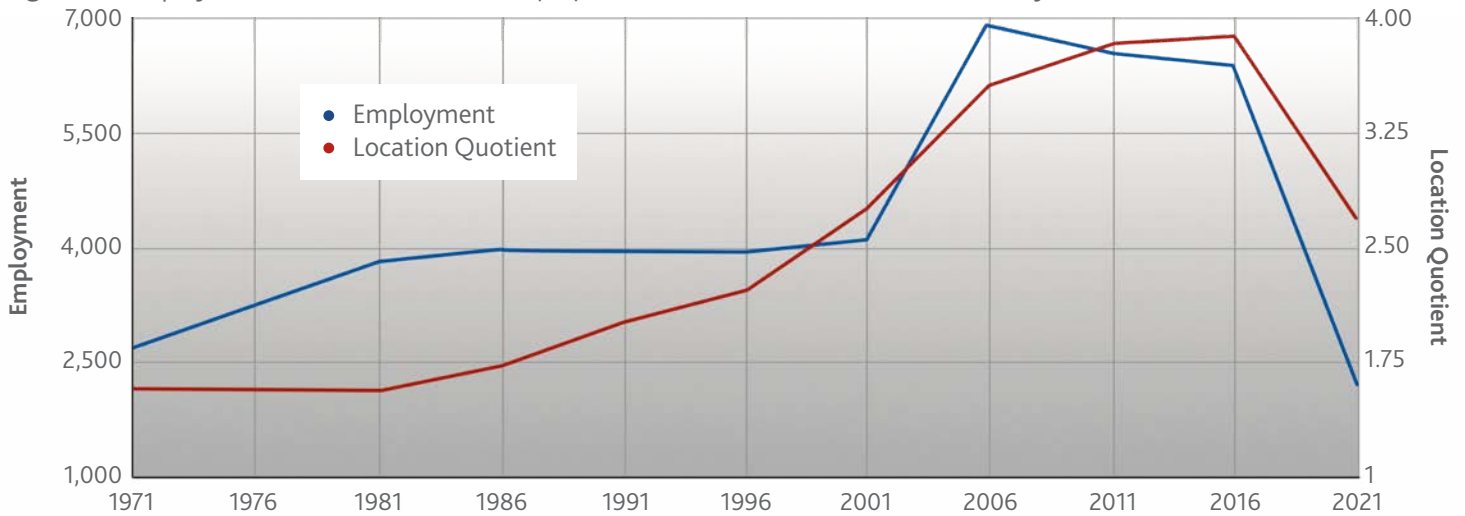
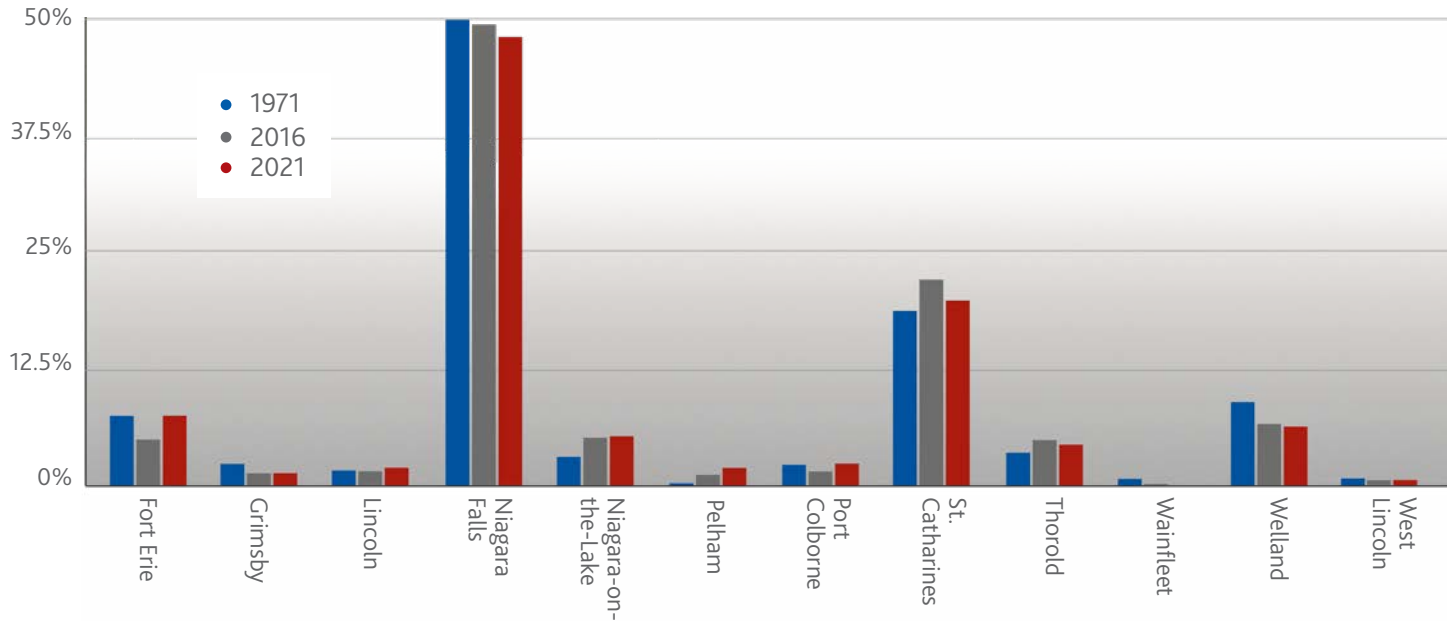


Figure T6 shows that there was very little change in the distribution of “Accommodation services” employment across Niagara from 1971 to 2021. Niagara Falls dominated the industry with very close to 50 per

cent of the region’s employment in the industry in all three years shown. St. Catharines was a distant second with around 20 per cent and Welland and Fort Erie had between five and 10 per cent each.

Figure T6: Percentage of Accommodation Services Employment in each Sub-District: 1971, 2016, and 2021



Food Services and Drinking Places

The “Food services and drinking places” 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. ‘Drinking places’ is comprised of 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.

The “Food services and drinking places” industry is a large and important employer in Niagara, as shown in Figure T7.

There were 3,705 people employed in the industry in 1971, representing 2.8 per cent of total employment in Niagara. Employment in the industry grew quickly and steadily from 1971 to 2006 when 15,375 people were employed. Employment dipped a bit in 2011, but it increased further to a high of 16,435, or 7.8 per cent of Niagara’s total employment, in 2016. With the COVID-19 restrictions, by 2021 employment in the industry had fallen by 36 per cent to 10,490.

Employment in the “Food services and drinking places” industry grew at a similar rate in Ontario, relative to total employment. Thus, Niagara’s LQ remained at basically the same level over the whole period, fluctuating between 1.25 and 1.4. This means Niagara had a higher proportion of workers in this industry than Ontario, but the difference was not large.

Figure T7: Employment and Location Quotient (LQ) for Food Services and Drinking Places

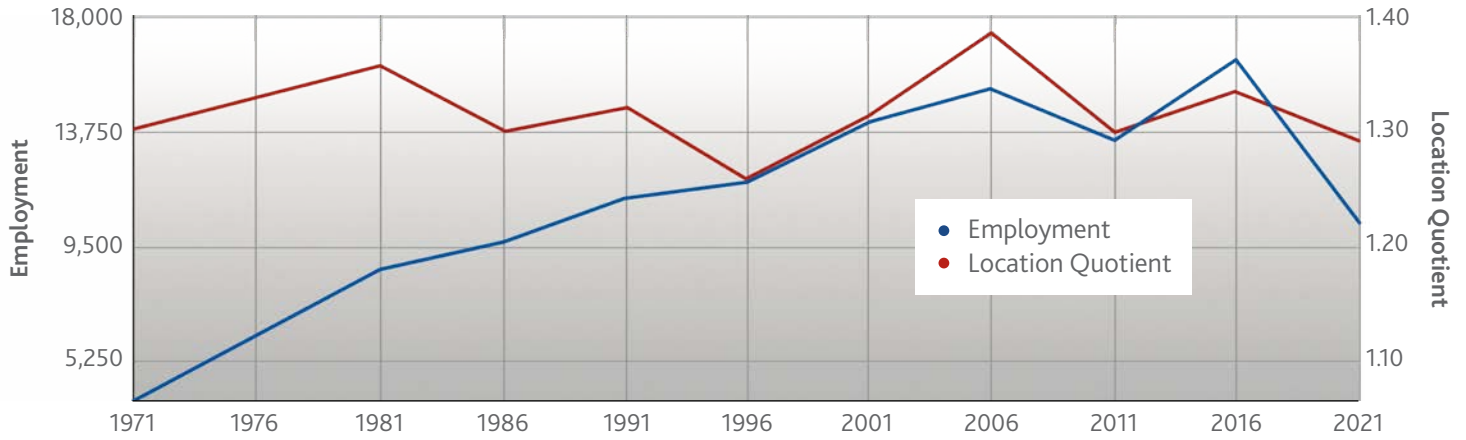
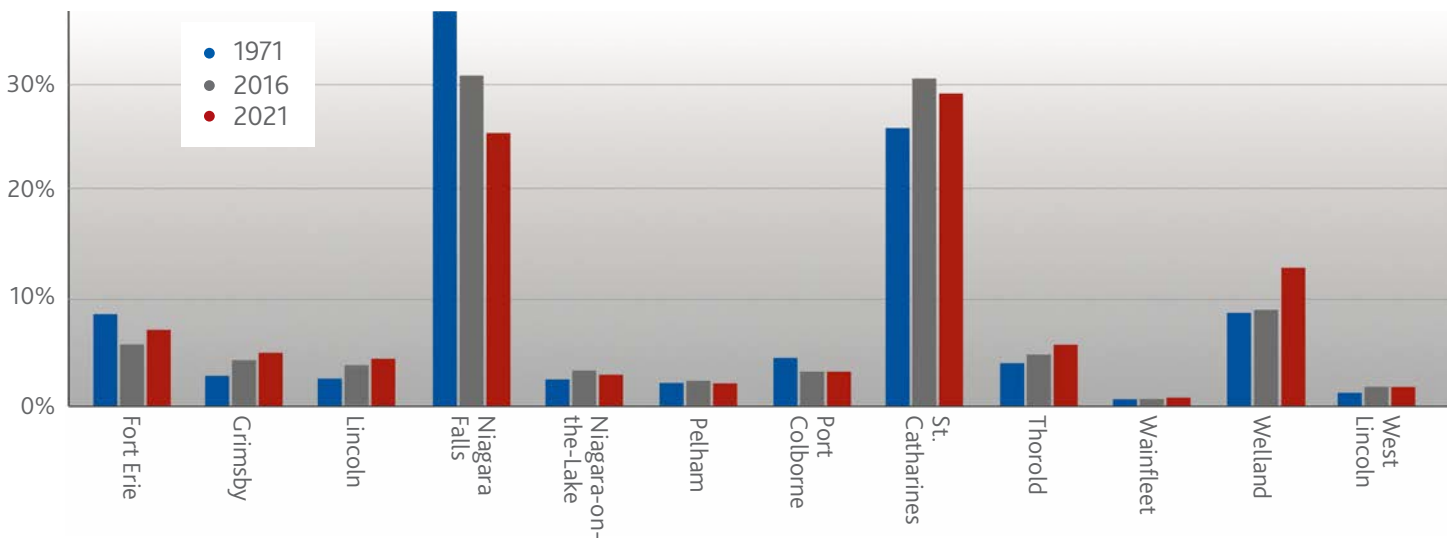


Figure T8 shows that Niagara Falls and St. Catharines are the most important sub-districts for employment in the “Food and drinking services” industry, with each having more than 25 per cent of total employment in all years shown. Niagara Falls was more important in 1971, with 36.6 per cent of the employment, but its share dropped to

just over 30 per cent in 2016 while St. Catharines increased its share from 25.8 per cent to 30.4 per cent from 1971 to 2016. Welland is the next largest employer with almost nine per cent of total employment in both 1971 and 2016, followed by Fort Erie with 8.5 per cent and 5.7 per cent in 1971 and 2016 respectively.

Figure T8: Percentage of the Food Services and Drinking Places Employment in each Sub-District: 1971, 2016, and 2021



Appendix: Table A1

	1971, 1981 Data 1970 SIC	1986, 1991, 1996, 2001 Data 1980 SIC	2006, 2011, 2016, 2021 Data 2002–2017 NAICS
Electricity	572 Electric Power	491 Electric Power Systems Industry	2211 Electric power generation, transmission and distribution
Marine Transportation	504 Water transport	454 Water Transport Industries	483 Water transportation
	505 Services incidental to water transport	455 Service Industries Incidental to Water Transport	4883 Support activities for water transportation
	327 Shipbuilding and repair plus 328 Boat building and repair	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	Marine Transportation is the sum of the above
Agribusiness	01 Farms, including experimental and institutional	Major Group 01—Agricultural industries	111–112 Farms
	602 Wholesalers of farm products	Major Group 50—Farm products industries, wholesale	411 Farm product wholesaler-distributors
		593 Agricultural supplies, wholesale	4183 Agricultural supplies wholesaler-distributors
Manufacturing	Division 5 (Total) Manufacturing Industries	Division E (Total) Manufacturing Industries	31–33 (Total) Manufacturing
	101 to 108 (sum) Food Industries	Major Group 10—Food industries	311 Food manufacturing
	109 Beverage industries	Major Group 11—Beverage industries	3121 Beverage manufacturing
	32 Transportation equipment plus 188 Automotive fabric	Major Group 32—Transportation equipment industries	336 Transportation equipment manufacturing
	29 Primary metal industries	Major Group 29—Primary metal industries	331 Primary metal manufacturing
	30—Fabricated metal products industries (except machinery and & transport equipment industries) plus 31—Machinery industries (except electrical machinery)	Major Group 30—Fabricated metal products industries (except machinery and & transport equipment industries) plus Major Group 31—Machinery industries (except electrical machinery)	332 Fabricated metal product manufacturing plus 333 Machinery manufacturing
	27 Paper and allied industries	Major Group 27—Paper and allied products industries	322 Paper manufacturing
Tourism	Amusement and recreation services without Motion Picture industries (841, 842). Sum of: <ul style="list-style-type: none"> • 843 Bowling alleys and billiard parlours • 844 Golf clubs and country clubs • 845 Theatrical and other staged entertainment services • 849 Miscellaneous amusement and recreation services 	Major Group 96—Amusement and recreational service industries without motion picture industries (961, 962). Sum of: <ul style="list-style-type: none"> • 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
	Gambling is buried in 849 Miscellaneous amusement and recreation services, so data are not available	966 Gambling operations	7132 Gambling industries
	Accommodation services. Sum of: <ul style="list-style-type: none"> • 881 Hotels and motels • 883 Lodging houses & residential clubs • 884 Camping grounds and trailer parks 	Major Group 91—Accommodation service industries	721 Accommodation services
	886 Restaurants, caterers, and taverns	Major Group 92—Food and beverage service industries	722 Food services and drinking places