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SHIFTING GEARS:
Examining the recent upswing of Niagara's manufacturing sector

The general story of small and midsized regions across Canada is the familiar trend of post-industrial restructuring over the past three decades. Our previous policy brief highlighted a similar story in the context of Niagara, providing a portrait of the Niagara region's once-prominent manufacturing economic base experiencing a dramatic decline in employment since the late 1980s (Calcott and Conteh 2018). It is worth noting, however, that the aim of that brief was to provide a wider historical portrait of trends in the major private-sector drivers of Niagara's economy. That data, it must be emphasized, did not capture current trends covering recent years. Our objective in this brief, therefore, is to conduct a second iteration of this research looking specifically at current economic trends in the region. Our analysis of the data reveals that there are indications of upswings in Niagara's manufacturing sector. The rest of the discussion closely explores these current trends and highlights their implications for the quality of employment in the region.

Despite significant losses in terms of total employment in Niagara's manufacturing sector, it remains one of the largest private-sector industries in the region. That it could face such a dramatic decline and remain one of the principal drivers of job growth and economic development is a testament to manufacturing's embeddedness in the Niagara landscape. Furthermore, the sector has shown remarkable resilience in the face of global economic restructuring and industrial relocation. It would be too easy, and indeed inaccurate, to say that manufacturing has left Niagara. While high-visibility flagship firms with hundreds of employees may have relocated to other locales, manufacturing has remained an integral and central piece of Niagara's economic makeup. Rather than simply accept the smaller employment figures in the sector as evidence of the manufacturing's fading relevance, we must examine the changes going on underneath the surface.

As a supplementary companion piece to *Filling the Void: Economic Development in Post-Industrial Niagara* (Calcott and Conteh 2018), this brief will detail the marked upswing of manufacturing in Niagara in the period 2012-2018 not only in terms of increased employment, but how the characteristics of the sector have evolved to support Niagara's emergent economy. If we consider *Filling the Void* as a lamentation of manufacturing's historical fall from its pedestal as the largest sector in Niagara, then this brief should be considered an optimistic reflection on the changing nature of industry in recent years and its enduring effect on Niagara.

The economic impact of Niagara's manufacturing sector is not apparent from a cursory drive through the region. Rather, it is hidden among the galaxy of diverse and dynamic small-to-midsize enterprises (SMEs), producing advanced goods from a high-skills workforce. This shift towards SME dependency more closely aligns Niagara's manufacturing with sectors that lead regional employment, such as accommodation and food services; construction, and trade. While keeping pace with these sectors in terms of total employment, regional manufacturing is producing higher-paid workers in more advanced positions. The doom-and-gloom narrative of Niagara's declining and irrelevant manufacturing base is false. Its importance to the regional economy cannot simply be stated through employment figures.

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Purpose

This brief will pick up where *Filling the Void* left off and provide a deeper understanding of the manufacturing sector between 2012 and 2018. Rather than compare manufacturing with similarly-sized sectors in Niagara, we will consider the characteristics of the sector at present, in and of itself. Our research question is thus: What kind and quality of work is available in Niagara's manufacturing sector compared to 2012, and what kind of economic impact does the labour of manufacturers provide?

We will examine this by analyzing the change in employment in the major subsectors of manufacturing, using both the North American Industry Classification System (NAICS) and National Occupation Classification (NOC). The median wages for the most common occupations within manufacturing will provide a snapshot of the quality of employment for workers in those positions. Economic impact will then be considered in terms of exports from Niagara's manufacturers. The disproportionate contribution to the regional economy from exported goods made in Niagara's manufacturing firms present a startling and unexpected picture of manufacturing's continued relevance. We will conclude with a discussion on the long-term outlook for manufacturing based on these recent trends, and if our reliance on exporting manufactured goods, particularly to the United States, should prove precarious or sustainable in the face of increasing tariffs and uncertain economic relations.

Recent Industrial Trends

In the analysis of recent industrial trends in this section, we have focused on using data at the regional level, as opposed to census metropolitan area (CMA) data. This means that data from Grimsby and West Lincoln, which are not part of the St. Catharines-Niagara CMA, will be included. As we discuss the evolution of manufacturing and its lasting economic impact on the region, it is easier to conceive of the region as one cohesive unit, with its manufacturers working in concert to drive innovation. For their part, the contributions of Grimsby and West Lincoln to the number of manufacturing firms in Niagara is not insignificant.

Figure 1 shows the business counts for all manufacturing firms in each of Niagara's municipalities as of 2018. All sizes of business are included in this graph, including zero-employee firms, or self-employed manufacturers. If we factor out zero-employee firms, focusing only on manufacturing businesses with one or more employees, we see a clearer picture of the dispersion of manufacturing jobs in the region. It becomes more apparent where jobs are being created and where Niagara residents are being employed. *Figure 2* displays the size of manufacturing firms region-wide as of 2018. There are 31 firms in Niagara with 100 or

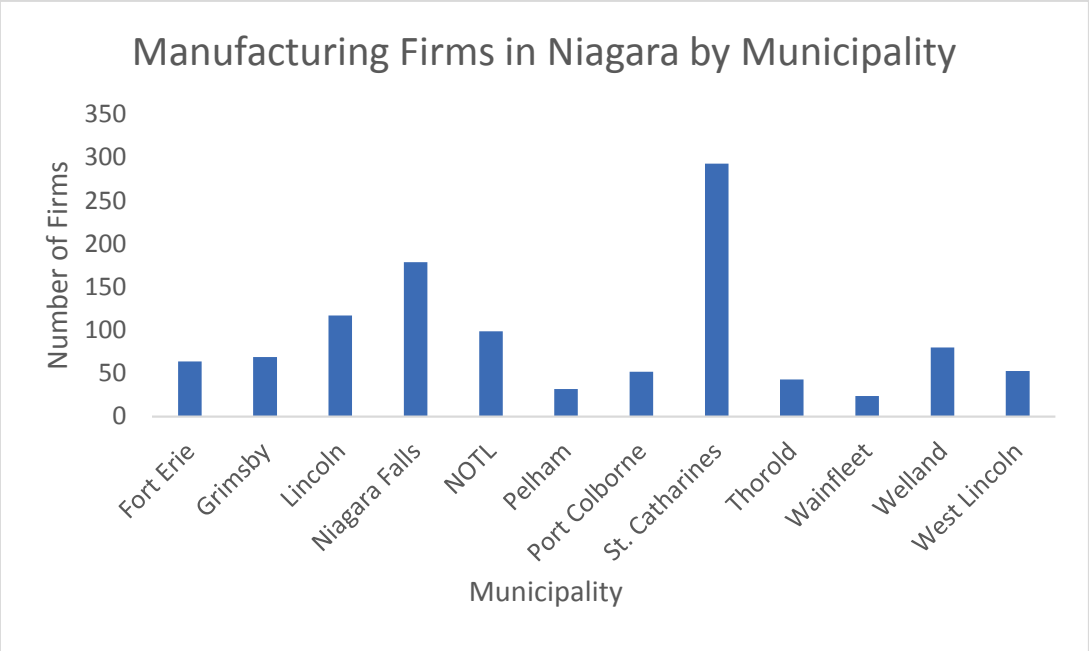

Figure 1

Source: Statistics Canada, courtesy Niagara Region

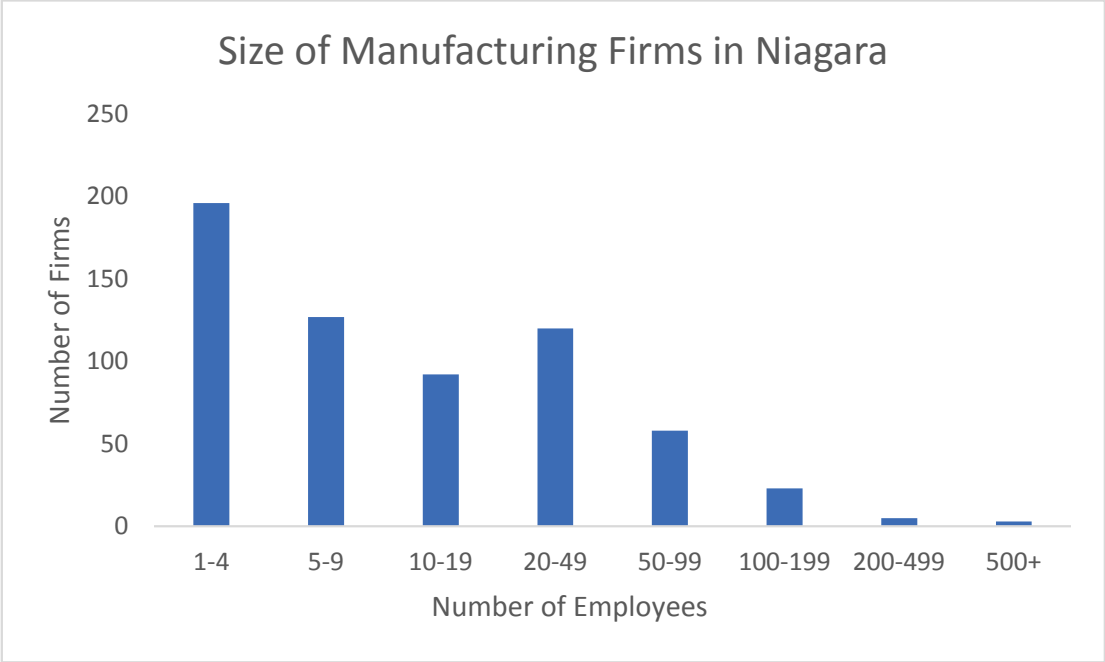

Figure 2

Source: Statistics Canada, courtesy Niagara Region

more employees, which can be expected given the region's history of branch-plant manufacturing.

While this number is higher than most other sectors in the region, it trails behind retail trade and accommodation/food services, with 45 and 44 firms, respectively, having more than 100 employees. These are service-led sectors which have filled the void left from the loss of thousands of manufacturing jobs over several decades and have risen above manufacturing in terms of total employment. Employment in manufacturing has become more concentrated in firms with fewer than 500 employees, also known as small-to-medium size firms (SMEs). More accurately, the majority of manufacturing firms have fewer than 100 employees, which would technically qualify them as small businesses.

SMEs present advantages over larger enterprises because their smaller footprint enables more risk-taking and innovation than firms which have invested greater resources into an established business model. They are also able to adapt more quickly to changing market conditions and may find relocation to be easier than firms with more property, equipment, and other assets. While easy relocation due to changing market conditions is not necessarily a point that regions like Niagara should use to attract new investment in SMEs, it is nonetheless a reason why investors and employers are finding them increasingly suitable for their business needs. Furthermore, automation and other technological innovations have greatly reduced the number of employees needed to effectively run a business. This is perhaps as, or more, apparent in the manufacturing sector as any other.

Employment in Manufacturing

The rise of SMEs in the manufacturing sector represents a marked shift from the large branch-plant model that emerged across local and regional economies in North America over the course of the 20th century. Specialized goods, made by a highly-skilled workforce harmonizing technological innovation, characterize Niagara's present manufacturing base. Shifting away from the size and number of firms in the region, we will now observe some of the most populated industries that comprise manufacturing, as well as some of the most-common occupations.

Table 1 displays the largest industries in Niagara's manufacturing sector as of 2012, and their change in employment from 2012 to 2018. Three-digit NAICS codes designate the 13 manufacturing industries which had 500 or more employees as of 2012. The cut-off of 500 workers in these sectors allows us to realize the variation found within manufacturing in Niagara, while isolating the most important in terms of employment. Food manufacturing, paper manufacturing, printing and related activities, and computer and electronic product manufacturing show slight declines in employment, while primary metal and fabricated metal product manufacturing remain stable in terms of the change in employment over the six-year span. Transportation equipment manufacturing, despite the loss of notable flagship firms in this sector since the turn of the century, has proven to be resilient and continues to grow. The most impressive gains are realized in beverage and tobacco manufacturing (the entirety of which are in beverage manufacturing at the four-digit level, NAICS

Table 1: Largest Industries in Niagara's Manufacturing Sector

NAICS	Description	2012 Jobs	2018 Jobs	% change 2012-2018
311	Food manufacturing	1,725	1,372	-20
312	Beverage and tobacco product manufacturing	1,746	2,519	44
322	Paper manufacturing	535	405	-24
323	Printing and related support activities	693	504	-27
325	Chemical manufacturing	630	881	40
326	Plastics and rubber products manufacturing	644	1,095	70
327	Non-metallic mineral product manufacturing	1,083	1,255	16
331	Primary metal manufacturing	888	875	-1
332	Fabricated metal product manufacturing	2,520	2,740	9
333	Machinery manufacturing	1,341	1,538	15
334	Computer and electronic product manufacturing	681	561	-18
336	Transportation equipment manufacturing	2,626	3,237	23
339	Miscellaneous manufacturing	532	624	17

Source: Industry Table, All Industries in Niagara (Ontario), Emsi 2018.1

3121), chemical manufacturing, and a veritable boom in plastics and rubber products manufacturing.

Among these 13 major drivers of Niagara's manufacturing sector, employment has increased 13 per cent, which is in line with the 12 per cent increase in employment across all manufacturing industries over the same period. Sector-wide, manufacturing employment increased by 2,075 jobs between 2012 and 2018. To go a step further, we must consider not only the increased availability of jobs in manufacturing, but also what people working in these positions tend to earn in Niagara. At a four-digit National Occupation Classification (NOC) level, the most-common jobs within the manufacturing sector show mixed growth. Many of those can be found within the most-common sectors identified in *Table 1*.

Table 2 details the change in employment for all occupations in manufacturing (in which 200 or more people are employed as of 2012), over the six-year period. This time, a cut-off of 200 workers has been chosen to reflect the variety of employment in manufacturing, while also isolating the most-common occupations. The threshold for *Table 2* is less than that of *Table 1* because not all employees in a given industry will share the same occupation. There may in fact be some degree of overlap between what occupation a worker may be classified as, and the industry in which they are likely to work.

Substantial losses are apparent for mineral and metal processing supervisors; industrial butchers; mechanical assemblers and inspectors; industrial painters, coaters, and finishing process operators; and other labourers in processing, manufacturing, and utilities (such as those employed in material handling, cleanup, and packaging). At the same time, these losses are offset by noteworthy gains in motor vehicle assembling supervisors; other metal products and machine operators (producing things such as wire mesh, bolts, and chains); process control and machine operators for food and beverage; labourers in metal fabrication; and labourers in food and beverage, and associated products. Among these 14 most-common occupations, there is a net gain of 391 employees.

To get a sense of the quality of employment for Niagara's manufacturing employees, we can observe what people working in the most-common occupations tend to earn. *Table 3* details the median hourly wages for these 14 most-common manufacturing occupations as of 2017, as well as the change in employment levels between 2012 and 2018.

Here we have a more nuanced snapshot of manufacturing that is neither wholly positive or negative. Both the lowest- and highest-paying of these occupations (NOC 9619 and 0911, respectively) have

Table 2: Change in Employment for Occupations in Manufacturing

NOC	Description	2012 Jobs	2018 Jobs	% change 2012-2018
0911	Manufacturing managers	952	825	-13
9211	Supervisors, mineral and metal processing	253	109	-57
9213	Supervisors, food, beverage and associated products processing	231	283	23
9221	Supervisors, motor vehicle assembling	256	419	64
9226	Supervisors, other mechanical and metal products manufacturing	287	350	22
9416	Metalworking and forging machine operators	398	514	29
9418	Other metal products machine operators	222	381	72
9461	Process control and machine operators, food, beverage, etc.	830	1,339	61
9462	Industrial butchers and meat cutters, poultry preparers and related workers	283	193	-32
9526	Mechanical assemblers and inspectors	209	128	-39
9536	Industrial painters, coaters and metal finishing process operators	383	127	-67
9612	Labourers in metal fabrication	356	490	38
9617	Labourers in food, beverage and associated products processing	405	565	40
9619	Other labourers in processing, manufacturing and utilities	455	187	-59

Source: Occupation Table, All Occupations in Niagara (Ontario), Emsi 2018.1

shrunk in employment since 2012. At the same time, the second-lowest and second-highest paying occupations have shown considerable growth. Jobs paying a median wage of $25 per hour or greater (NOC 0911, 9211, 9213, 9221, 9226) have shown a net increase of only seven positions over the six-year period. Jobs paying between $20 and $25 per hour (NOC 9416, 9526, and 9536) have decreased by 221. For the remaining jobs, those paying a median hourly wage of less than $20 per hour, there has been a gain of 604 employees.

The increased number of workers in Niagara's most-common manufacturing occupations is realized in jobs paying a median hourly wage between $15 and $20 per hour. What we may consider the "mid-range" of these occupations, those paying a median hourly wage between $20 and $25 per hour, are seeing a notable decrease in their numbers. The upper-tier of manufacturing jobs, those paying a median hourly wage greater than $25 per hour, is seeing unsubstantial growth: increases in some areas to offset losses in others.

What we can infer from this is that the middle-tier of manufacturing jobs are being displaced by lower-paying labourer positions, while higher-paying managerial and supervisory positions are stable. The latter of these are not growing at the same rate as lower-paying occupations, but there will be fewer of these positions by their very nature. Median hourly wages for all occupations in manufacturing stands at $22.36 as of 2017, just below the median wage for all occupations in Niagara which is $24.72.

Manufacturing Exports

Perhaps the most dramatic indication of the importance of manufacturing to Niagara's economy is

in the value of its exported goods. Niagara's location on the Canada-U.S. border, between the GTA and New York state, makes it a vital transportation hub for imports and exports as far as the national economy is concerned. This is no doubt a tremendous boost to the region's flourishing trade, and accommodation and food services industries. Manufacturing

Table 3: Average Hourly Wages for Most-common Manufacturing Occupations

NOC	Description	% change 2012-2018	2017 Median Hourly Wages
0911	Manufacturing managers	-13	39.45
9211	Supervisors, mineral and metal processing	-57	25.99
9213	Supervisors, food, beverage and associated products processing	23	29.32
9221	Supervisors, motor vehicle assembling	64	32.29
9226	Supervisors, other mechanical and metal products manufacturing	22	28.58
9416	Metalworking and forging machine operators	29	21.71
9418	Other metal products machine operators	72	19.61
9461	Process control and machine operators, food, beverage, etc.	61	18.60
9462	Industrial butchers and meat cutters, poultry preparers and related workers	-32	17.79
9526	Mechanical assemblers and inspectors	-39	24.22
9536	Industrial painters, coaters and metal finishing process operators	-67	20.17
9612	Labourers in metal fabrication	38	19.01
9617	Labourers in food, beverage and associated products processing	40	16.58
9619	Other labourers in processing, manufacturing and utilities	-59	15.62

Source: Occupation Table, All Occupations in Niagara (Ontario), Emsi 2018.1

must also be aided by locational convenience for exporting goods to the United States. The degree to which Niagara-manufactured goods add value to the economy is staggering.

As of 2016, there were 243 manufacturing firms in Niagara that exported goods they produced to one or more continents. Of these, 220 exported goods within North America. The value of goods exported by all Niagara manufacturers in 2016 was approximately $3.7 billion, of which $3.6 billion was exported across North America. Exported goods classified as machinery, boilers, mechanical appliances, engines, and parts brought in more than $1.6 billion. Other major exported goods included: nickel and articles thereof ($659 million); railway and tramway vehicles, parts, and accessories ($254 million); iron and steel ($100 million); paper and paper products ($72 million); plastics and articles thereof ($254 million); and miscellaneous chemical products ($98 million).

These figures indicate that, whatever else may have occurred to the sector, it is still an integral part of the regional economy. Again, it must be noted that Niagara's prime location no doubt plays a significant role in the success of the manufacturing sector, to take nothing away from the firms housed within it. For that same reason, we must be wary of hanging our collective hats on a metric of success that hinges so much on actors outside of our region. We must reign in the cause for celebration somewhat by looking at the volatility of global trade, and particularly that with the United States. It is difficult to project how sustainable these export figures are in both the short and long term. The

prospect of tariffs against Canadian products entering the United States means that Niagara may get hit harder than other regions due to the U.S. being, by far, our major export market. In a worst-case scenario, increased trade to partners in Europe and Asia would likely still not recoup the losses in regular and free trade with the U.S. Until more predictable trade relations can be resumed, we must proceed with a cautious optimism for the state of Niagara's manufacturing.

Conclusion

The Niagara region's once-prominent manufacturing economic base has seen a dramatic decline in employment over the preceding three decades. Much has been said of this deindustrialization; indeed, our earlier brief details the ostensible decline in employment from manufacturing's heyday, to levels where it has been treading water to keep up with the ramped-up service-driven economy. These industries supplanting the old model of branch-plant manufacturing tend to offer lower wages and more precarious terms of employment than what would have been available to low-skilled workers during the peak of manufacturing in Niagara. This narrative is hardly unique to Niagara, nor is it a particularly recent problem that modern economies are only just now facing.

What this follow-up study has done is provide a more nuanced perspective of changes within the sector itself over the past several years. Rather than accept that manufacturing's fall from the undisputed top employer in the region is evidence of its fading relevance, we must reimagine its place in the ecosystem of Niagara's economy and understand its continued presence and importance. Employment within the industry is growing, and it remains one of the largest sectors in the Niagara region. Industries within the sector have experienced varying degrees of employment growth and loss with the ebbs and flows of the economy, but beverage product manufacturing, chemical manufacturing, and plastics and rubber products manufacturing have emerged as some of the fastest-growing industries in the sector. The largest manufacturing industries, transportation vehicles manufacturing, and fabricated metal product manufacturing, continue to grow.

The most-common jobs within the manufacturing sector are trending towards those that pay $15-20 per hour. This may be an interesting development to monitor over the coming years, and further research comparing the increase of lower-paying jobs in manufacturing to other major sectors in the regional economy should provide a clearer snapshot of the quality of employment for those in manufacturing. At present, manufacturing jobs will pay above minimum wage in most cases. The labour of these workers is realized in the value of their goods that are exported to the United States, the overwhelming majority of which comes from 220 firms in the manufacturing sector. Value of exports - the best indicator of the importance of manufacturing to the regional economy - is perhaps the one most susceptible to change as it is so contingent on external forces, such as the trade relationship with our American neighbours.

Policy Recommendations

The emerging trends in Niagara's manufacturing sector point to adaptive capacities that attest to the region`s competitiveness and relative resilience in the face of rapid transitions in technologies, markets, and economic shocks (such as recessions) over the past three decades (Conference Board of Canada 2017). It is worth recalling, however, that the central focus of our research is on the type and quality of work available in Niagara's manufacturing sector compared to 2012, and the economic impact that the labour of manufacturers provides. Several policy implications emerge from this portrait of an upswing in Niagara's manufacturing sector.

First, to the extent that the region`s economy is bound to a complex and geographically distributed national and global supply chain, manufacturing's resurgence is not a purely local affair. Niagara needs to leverage this upswing by aligning its industrial strategy more closely with those of neighbouring economic clusters in Hamilton, the GTA, and the Buffalo region. This means building an integrated system of design and production nodes in a distributed network of interlocking supplier and customer firm relationships that spans the QEW industrial corridor and extends to the Buffalo market, across the border. An interesting trend in this regard is the emergence of "mega-clusters," which are based on initiatives whereby regional groups in a given economic sector align their resources and priorities with various adjacent regions (Wolfe and Gertler 2016). For a region the size of Niagara, mega-clusters provide strategic opportunities for the region to leverage its assets as a border-region, cushion itself against the vicissitudes of Canada-U.S. trade relations, and carve its own niche in a turbulent global trade and investment landscape.

Second, the nature of low-wage labour in the emerging manufacturing sector in Niagara is a cause for further reflection and action. Turning Niagara into an industrial innovation hub would be incomplete without serious consideration for improving the skills-set of the existing labour market. Brock University and Niagara College have been making strides to address these issues

(Niagara Connects 2017). The region can build on these initiatives. Niagara will need to guard against the "ghosts-without-feet" syndrome that affects other regions whereby they host innovation hubs with a few high-paying research-based jobs on the one hand but are stuck in the trap of low-wage production firms (Clark 2013). The research and production components of knowledge-driven manufacturing sectors should go hand in hand. Part of this entails more investment in specialized industrial skills in targeted labour-intensive manufacturing sectors.

Third, there is a role for institutional intermediaries to take Niagara's manufacturing trend to the next level. Intermediaries serve as facilitators of industrial policy platforms that bring disparate actors together, including small and medium-sized entrepreneurs, venture capitalists, university and college researchers, economic development officials, and a wide variety of other participants in the regional economic ecosystem to take stock of existing assets and identify new targets for investment attraction and skills training (Conteh 2013; Scott and Storper 2015). Innovate Niagara is an example of what such a platform might look like. We will reiterate our call in previous NCO policy briefs for the creation of an intermediary organization or "broker", which expends 100 per cent of its efforts towards achieving specific strategic industrial targets. An "economic reinvention broker" could serve as a catalyst in building the networks of key stakeholder groups and helping to communicate and execute the region`s collaborative strategic vision.

In closing, the enthusiasm, opportunities and challenges arising from Niagara's recent manufacturing trend raise the inevitable question of the need for an industrial strategy that is aligned with a targeted labour market strategy at the regional scale. There is also the need for a regional approach to cultivating local firm networks, cross-border mega-clusters that cushion against the vagaries of international trade, and the institutional infrastructure that facilitate industrial innovation, new investment attraction, and the requisite skills training to match the needs of emerging firms and sectors.

References

Calcott, Sean and Charles Conteh. (2018). *Filling the Void: Economic Development in Post-Industrial Niagara.* https://brocku.ca/niagara-community-observatory/wp-content/uploads/sites/117/NCO-Policy-Brief-34-FINAL-June-2018.pdf

Clark, Jennifer. (2013). *Working regions : reconnecting innovation and production in the knowledge economy.* n.p.: Abingdon, Oxon ; New York : Routledge

Conference Board of Canada. (2017). *Improved Economic Outlook For Many Canadian Mid-Sized Cities.* http://www.conferenceboard.ca/press/newsrelease/17-07-27/improved_economic_outlook_for_many_canadian_mid-sized_cities.aspx. Accessed August 2018.

Conteh, Charles. (2013). *Policy Governance in Multi-Level Systems: Economic Development and Policy Implementation in Canada.* Montreal and Kingston: McGill-Queen's University Press.

Niagara Connects. (2017). *Living in Niagara Report.* http://www.livinginniagarareport.com/

Scott, Allen, and Michael Storper. (2015). "The Nature of Cities: The Scope and Limits of Urban Theory." *International Journal of Urban and Regional Research* no. 1: 1

Wolfe, David A., and Meric S. Gertler. (2016). *Growing urban economies : innovation, creativity, and governance in Canadian city-regions.* n.p.: Toronto ; Buffalo ; London : University of Toronto Press.

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