

City of Brampton: Issues Affecting the Manufacturing Sector

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Executive Summary

This report provides an assessment of the manufacturing sector in the City of Brampton and a set of recommendations for policy actions to support the development of this sector. Although this study focuses on the manufacturing sector, it is important to recognize that other sectors of the economy are going to generate most of the new jobs over the coming decades.

Manufacturers in North America must face considerable challenges over the next decade. International competition and offshoring trends will force them to remain competitive in a global environment which will limit new employment opportunities. Canadian manufacturers also have to contend with a stronger currency, tax and environmental policies that reduce our competitiveness vis-à-vis the United States and high commodity prices that raise the costs of production.

The City of Brampton enjoys a significant natural advantage being situated within the Greater Toronto Area (GTA) and within reasonable proximity of a large proportion of the North American market. Evidence of this locational advantage can be found by examining both the number and strength of industry clusters located in the Toronto region – several of which rank 3rd among all North American urban centres in terms of size (employment).

The City of Brampton is home to the 3rd largest population and the 3rd largest number of workers on a place-of-work (daytime) basis among the 29 municipalities that make up either the GTA or the Toronto and Oshawa CMAs. Brampton is therefore widely recognized as a powerhouse of economic activity and growth in the area. Yet among these 29 municipalities the City ranks only 7th on the basis of manufacturing jobs per capita and only 13th on the basis of total jobs per capita.

The data assembled and reviewed for this study revealed that manufacturing, transportation-warehousing, trade and construction are the key economic drivers in the City of Brampton. Within the overall manufacturing sector (which employed a total of 33,282 people in Brampton in 2003) the major employers were manufacturers of transportation equipment (7,210 people), fabricated metals (5,049), food manufacturing (4,450), plastics and rubber (2,817) and chemicals (2,176). These five manufacturing industries alone accounted for 65 percent of Brampton's total employment in manufacturing at that time.

Brampton's manufacturers play a significant role in six of the ten manufacturing clusters identified in the Toronto region. These clusters are: Automotive, Food, Chemical, Metal Manufacturing, Production Technology and Jewellery and Precious Metals. The Information Technology and Biopharmaceuticals clusters are also important to the City although it was not possible to accurately assess whether these sectors were more or less prevalent in Brampton than the rest of the region. Importantly for Brampton, most of these clusters are expected to outperform the Ontario economy over the next few years. The automotive and food clusters are, however, notable exceptions and are less likely to require new facilities and workers than other parts of the economy.

This report finds that macroeconomic conditions for the manufacturing clusters concentrated in the City of Brampton are favourable over the next couple of years. Cluster theory, however, cautions us that macroeconomic conditions are just one determinant of the overall success of a region's clusters. The microeconomic conditions that foster the success of businesses in that region must also be maintained.



The findings in this report were used to develop some suggestions for an action plan to support the development of the manufacturing sector. These initiatives are summarized below.

- ❖ The research in this study supports the Six Pillars strategy and encourages the City to continue working to achieve the vision articulated in that document.
- ❖ The City should continue to monitor closely:
 - New housing development and community infrastructure requirements.
 - The adequacy of the region's transportation network.
 - The broader macroeconomic environment.
 - Regulatory provisions supportive of the needs of future manufacturers as well as new opportunities in the non-retail service sector.
- ❖ This analysis recommends ongoing support for the statistics currently collected and maintained by the Brampton Economic Development Office.
- ❖ It also recommends that the City produce analysis that compares employment growth by manufacturing sector with similar measures for other regions.
- ❖ Finally it recommends that the City produce analysis of industrial demand for electricity, natural gas and water consumption to provide the City with near-term information on production trends and issues.

These initiatives provide only a starting point for strategies to foster growth in Brampton. This report has found that the region is well positioned to attract and grow manufacturing over the next few decades. It has also pointed out the risks to the manufacturing sector both locally and throughout North America. These risks should be monitored. Beyond manufacturing, employment in a range of service sector industries is likely to be far higher than any experienced in manufacturing over the next few decades. Strategies for the City to expand its presence in these industries should also be explored over the next few years.



City of Brampton: Economic Base Overview

Introduction

The Centre for Spatial Economics (C₄SE) was retained in 2005 by the City of Brampton Economic Development Office to carry out an assessment of the manufacturing sector in the City of Brampton. This study focuses on the manufacturing sector. While manufacturing will remain important, it must be recognized that other sectors of the economy are going to generate most of the new jobs over the coming decades.

This research involved assembling a database of employment by industry in the City of Brampton. This information was used to construct a set of industrial location quotients for the City of Brampton. Location quotients are used to determine the industry by industry economic base of economic regions within larger economic areas (such as, for example, for a city within a province, state or country)¹.

This first section provides information regarding the location quotients of the City of Brampton in each of the years 1996 and 2001 based on Census of Canada data with respect to employment by place of work. These census-based data are at a high level of industrial aggregation. They are useful in establishing broad trends in industrial dependence over time.

This high level information does not, however, provide enough information for more detailed analysis of the manufacturing sector. In order to address this issue, data compiled by the City of Brampton in their survey of employers was used to generate location quotients for the City of Brampton in 2003². This data source allows us to calculate location quotients for the City of Brampton for more detailed industries. This set of data is useful in determining with greater clarity which industries most closely define the economic base of the City.

The second section of the report reviews some of the major economic factors influencing manufacturers in Canada. This includes a discussion of trends in global and financial markets, commodity prices, tax policy and environmental policy.

The third section of the report examines Brampton's manufacturing industries in the context of the GTA's industry clusters. This section provides an overview of the concept of cluster-based economic research. Economic development professionals regard a region's clusters as the natural focus for action-oriented policy initiatives. Developing information on the region's clusters – assembling a fact base – is a crucial first step in this process. The research then goes on to review the clusters that drive the GTA's economy and places Brampton's industries in context within that larger environment.

The study concludes with an assessment of the strengths, weaknesses, opportunities and threats confronting manufacturers in the region and presents some recommendations for action initiatives and the tools (measurement indicators) required to help the City monitor its progress in achieving its goals.

¹ The appendix provides a detailed description of the differences between the economic base and the community base industries of individual communities and describes how location quotients are calculated.

² This survey was last completed in 2003. A current survey is underway, but was not available for use in this study.

City of Brampton Location Quotients for 1996 and 2001

Table 1 is based on employment by place of work data from the 1996 Census. The table shows the number of persons employed in each industry in each of Brampton, Ontario and Canada in the year 1996. It also shows the location quotient for each industry in Brampton measured first relative to all of Ontario and second relative to all of Canada. The table also reveals the ranking of each location quotient by industry.

Table 1 reveals the following about Brampton's economic base in 1996:

- ❖ Manufacturing and transportation-storage were the two industries with the highest location quotients in Brampton in 1996. Manufacturing was ranked first compared to Canada, second compared to Ontario whereas transportation-storage was ranked first compared to Ontario and second compared to Canada. These two industries account for a significant share of Canada's and Ontario's economic (export) base. The high location quotients for these two industries in Brampton relative to both Ontario and Canada (ranging from 159 to 191) indicate that Brampton accounts for a disproportionately high share of Ontario's and Canada's activities in these two industries. These high location quotients indicate that in Brampton people employed in these two industries will be found at a rate anywhere from 59 to 91 percent higher than was the case throughout most other communities in Ontario and Canada in 1996.
- ❖ Trade ranks third for Brampton whether the location quotient is calculated relative to Ontario (114) or Canada (113). Wholesale and retail trade – both of which are included in this category – are not typically viewed as being part of a community's economic base (export oriented) but rather are considered part of the community base. These indices suggest that 13 to 14 percent of the trade activities in Brampton in 1996 were accounted for by export markets (that is by shoppers and businesses outside the Brampton community).
- ❖ The location quotients of 112 for construction relative to Ontario and 107 relative to Canada – the fourth highest location quotients for the City -- suggest that 7 to 12 percent of the activities of the construction companies located in Brampton are driven by export activities.
- ❖ The only other location quotient in Brampton exceeding 100 in 1996 was the 102 index for business services compared to Canada. Compared to Ontario Brampton's business service location quotient was only 89. These indices suggest that in 1996 Brampton's business services were a bit more export oriented than such activities in the average community in Canada but less so than in the average community in Ontario.

All other industries faced location quotients in Brampton in 1996 of less than 100 indicating that these industries generally could not be considered part of the City's economic base, rather that they were serving the needs only of those residing in Brampton at that time.

Table 2 is based on Census data for 2001. Between the 1996 and 2001 Censuses the compilation of industrial information had switched from the Standard Industrial Classification System (SIC) to the North American Industrial Classifications System (NAICS). At the high level of aggregation of these tables, however, this change would result in only minor changes to the individual industry categories. The data for 2001 provide information regarding 20 industries whereas the data for 1996 provide information for only 13 industries.



Table 1
Location Quotients for the City of Brampton
Based on 1996 Census Data Regarding Employment by Place of Work

	Employment			Location Quotient			Rank	
	Brampton	Ontario	Canada	Brampton	Ontario	Canada	Ontario	Canada
Total all industries	96,785	4,735,730	12,258,760	100.0	100.0	100.0	100	100
Primary	835	149,445	639,515	0.9	3.2	5.2	27	17
Manufacturing	27,685	851,555	1,832,415	28.6	18.0	14.9	159	191
Construction	3,280	142,695	387,290	3.4	3.0	3.2	112	107
Transportation, storage	5,630	151,215	442,880	5.8	3.2	3.6	182	161
Communication, utilities	1,855	157,810	396,670	1.9	3.3	3.2	58	59
Trade	19,965	855,225	2,243,365	20.6	18.1	18.3	114	113
Finance	4,145	322,715	738,605	4.3	6.8	6.0	63	71
Business services	6,500	357,445	808,735	6.7	7.5	6.6	89	102
Education	6,035	340,675	923,430	6.2	7.2	7.5	87	83
Health	6,795	474,275	1,303,790	7.0	10.0	10.6	70	66
Accommodation, food	4,505	312,440	869,320	4.7	6.6	7.1	71	66
Other services	5,040	334,955	874,490	5.2	7.1	7.1	74	73
Government	4,515	285,280	798,255	4.7	6.0	6.5	77	72

Source: Statistics Canada, 1996 Census

Table 2 reveals the following:

- ❖ As of 2001 manufacturing (indices of 161 relative to Ontario and 188 relative to Canada) and transportation-warehousing (168 and 160 respectively) are still the two most important economic base industries in Brampton. In other words Brampton continued in 2001 to account for a disproportionately large share of Ontario's and Canada's manufacturing activities.
- ❖ As of 2001 wholesale trade is the third most important economic base industry for Brampton (with location quotients of 145 compared to Ontario and 152 compared to Canada) while retail trade is the fourth most important (with location quotients of 124 and 122 respectively). In Table 1 these two industries were combined in the overall trade category. The very strong indices for wholesale trade suggest that almost half of this industry's activities in Brampton in 2001 were accounted for by export activities (that is, by businesses outside of Brampton). The indices for retail trade suggest that 22 to 24 percent of Brampton's retail trade in 2001 was driven by shoppers residing outside of Brampton (that is, that a significant portion of Brampton's retail activities was driven by malls and specialty stores attracting shoppers from nearby communities where such services are not available).
- ❖ As of 2001 construction had the fifth highest location quotients in Brampton (116 compared to Ontario and 115 compared to Canada), thus continuing behind the trade sector as Brampton's next most important economic base industry.
- ❖ As was the case in 1996 business services showed a slight bent toward export activities when compared to Canada but not when compared to Ontario. The 2001 Census data provide some detail with respect to business services, breaking it down into three industries:
 - Professional, scientific and technical services
 - Management of companies and enterprises services
 - Administrative and support, waste management and remediation services



Table 2 reveals that it is the final category above in which Brampton has established a modest export orientation relative to other communities in Canada.

- ❖ The location quotients for the City for all other industries in Table 2 fall below 100 indicating that no other industries emerged between 1996 and 2001 to define Brampton's economic base.

This analysis suggests that the economic base of the City of Brampton changed very little between 1996 and 2001, that manufacturing, transportation-warehousing, trade and construction as of 2001 remained the key economic drivers of the community at large.

Table 2
Location Quotients for the City of Brampton
Based on 2001 Census Data Regarding Employment by Place of Work

	Brampton			Ontario			Canada			Rank	
	Brampton	Ontario	Canada	Brampton	Ontario	Canada	Location Quotient Ontario	Location Quotient Canada	Ontario	Canada	
Total all industries	122,280	5,252,735	13,353,170	100.0	100.0	100.0	100	100			
11 Agriculture, forestry, fishing and hunting	650	109,910	454,755	0.5	2.1	3.4	25	16	19	19	
21 Mining and oil and gas extraction	70	18,200	124,410	0.1	0.3	0.9	17	6	20	20	
22 Utilities	380	41,970	106,970	0.3	0.8	0.8	39	39	18	18	
23 Construction	4,380	162,850	415,500	3.6	3.1	3.1	116	115	5	5	
31-33 Manufacturing	33,995	909,710	1,972,720	27.8	17.3	14.8	161	188	2	1	
41 Wholesale trade	8,470	251,005	607,820	6.9	4.8	4.6	145	152	3	3	
44-45 Retail trade	17,900	621,625	1,608,080	14.6	11.8	12.0	124	122	4	4	
48-49 Transportation and warehousing	8,310	212,825	567,045	6.8	4.1	4.2	168	160	1	2	
51 Information and cultural industries	1,845	152,880	363,985	1.5	2.9	2.7	52	55	15	15	
52 Finance and insurance	2,930	279,600	602,380	2.4	5.3	4.5	45	53	17	16	
53 Real estate and rental and leasing	2,025	99,950	233,280	1.7	1.9	1.7	87	95	8	7	
54 Professional, scientific and technical services	5,455	382,120	866,205	4.5	7.3	6.5	61	69	13	11	
55 Management of companies and enterprises	95	7,515	14,280	0.1	0.1	0.1	54	73	14	9	
56 Admin and support, waste mgnt and remediation services	3,930	184,330	421,125	3.2	3.5	3.2	92	102	6	6	
61 Educational services	7,120	340,835	933,910	5.8	6.5	7.0	90	83	7	8	
62 Health care and social assistance	8,725	491,655	1,399,915	7.1	9.4	10.5	76	68	10	12	
71 Arts, entertainment and recreation	1,145	103,055	248,290	0.9	2.0	1.9	48	50	16	17	
72 Accommodation and food services	5,680	345,055	935,845	4.6	6.6	7.0	71	66	12	13	
81 Other services (except public administration)	4,320	243,390	654,120	3.5	4.6	4.9	76	72	9	10	
91 Public administration	4,870	294,265	822,530	4.0	5.6	6.2	71	65	11	14	

Source: Statistics Canada, 2001 Census

City of Brampton Location Quotients for 2003 in Detail

The City of Brampton carries out an annual survey of employers. The latest data available are for the year 2003. Table 3 compares the estimates of employment by major industry from the City's survey to the results of the 2001 Census (which refer to the year 2000). Table 3 also reveals the Location Quotients implied by the two data sources relative to the province as a whole and the relative rankings of these broad industries on the basis of the two sources of employment by industry data.

Table 3 reveals that the City's survey identifies fewer employed people in total in the City (115,601) than the Census (122,295) even though the City's survey refers to a year three years beyond the Census reference year for employment. Since growth in Ontario and Brampton was strong between 2000 and 2003 it is unlikely that employment in Brampton fell over this period as is implied by this comparison of the two data sources.

The methodology note with the City's employer census is that only place of work establishments are surveyed. The City's employer census does not measure employment in place of residents. This assumption explains a significant portion of the variance between the Statistics Canada Census and the City's employer census. For the purpose of this study however, the City's database is appropriate for measuring clustering patterns in the manufacturing sector.



Table 3
Comparison of Location Quotient Indexes for the City of Brampton
Census of Canada (2000) and Brampton Employer Survey (2003)

	2000 Census	2003 BES	Index 2000 Census	Index 2003 ES/LFS	Rank Census	Rank ES/LFS
11 Agriculture, forestry, fishing and hunting	650	16	25	1	19	20
21 Mining and oil and gas extraction	70	15	17	4	20	19
22 Utilities	380	185	39	18	18	16
23 Construction	4,380	4,566	116	66	5	13
31+32+33 Manufacturing	33,995	33,282	161	162	2	3
41 Wholesale trade	8,470	8,548	145	205	3	2
44+45 Retail trade	17,900	17,429	124	131	4	5
48+49 Transportation and warehousing	8,310	8,023	168	149	1	4
51 Information and cultural industries	1,845	467	52	16	15	18
52 Finance and insurance	2,930	2,180	45	39	17	15
53 Real estate and rental and leasing	2,025	2,101	87	104	8	8
54 Professional, scientific and technical services	5,455	4,757	61	57	13	14
55 Management of companies and enterprises	95	184	54	659	14	1
56 Admin and support, waste mgnt and remediation services	3,930	5,560	92	114	6	7
61 Educational services	7,120	1,145	90	16	7	17
62 Health care and social assistance	8,725	8,150	76	71	10	11
71 Arts, entertainment and recreation	1,145	2,675	48	103	16	9
72 Accommodation and food services	5,680	6,234	71	91	12	10
81 Other services (except public administration)	4,320	3,430	76	70	9	12
91 Public administration	4,870	6,654	71	116	11	6
Total employment	122,295	115,601				

Source: Census of Canada 2001 and Brampton Employer Survey 2003

The magnitude of employment by industry indicated by each source is similar for most industries, though there are some significant exceptions. The most significant discrepancy is in education: the City's survey counts 1,145 in education whereas the Census counts 7,120, possibly reflecting of the fact that the City's survey is of employers in Brampton while the Census is of people residing in the area and working in Brampton. Other noteworthy differences: the City's count exceeds the Census count by a wide margin in information and culture; other services; professional, scientific and technical; and agriculture, forestry, fishing and hunting; whereas the Census count exceeds the City's count by a wide margin in public administration; administrative and support; and arts, entertainment and recreation.

Table 4 compares the results of the City's survey in greater industrial detail to data for Ontario and Canada drawn from Statistics Canada's monthly Labour Force Survey for 2003 presented in annual average form. All data are on the basis of the North American Industrial Classification System (NAICS).

Table 4 reveals that the most important economic base industries in the City of Brampton include the following (based on rankings of the location quotient for Brampton compared to Ontario; figures in the brackets after each industry reveal Brampton's location quotient compared first to Ontario then to Canada and its ranking across all industries based on the Ontario based and Canadian based location quotients):

- Management of companies and enterprises (658 and 859, ranked 1 and 1)
- Petroleum and coal manufacturing (634 and 444, ranked 2 and 2)
- Beverage and tobacco product manufacturing (379 and 399, ranked 3 and 4)
- Fabricated metal product manufacturing (316 and 402, ranked 4 and 3)



Non-metallic mineral manufacturing (280 and 301, ranked 5 and 6)
Food manufacturing (254 and 231, ranked 6 and 9)
Wholesale trade (204 and 203, ranked 7 and 12)
Transportation and warehousing (NAICS 49) (199 and 221, ranked 8 and 10)
Plastics and rubber manufacturing (195 and 286, ranked 9 and 7)
Chemical manufacturing (178 and 243, ranked 10 and 8)
Miscellaneous manufacturing (169 and 215, ranked 11 and 11)
Transportation equipment manufacturing (165 and 304, ranked 12 and 5)
Paper manufacturing (163 and 158, ranked 13 and 14)
Retail trade (NAICS 44) (132 and 119, ranked 14 and 18)
Transportation and warehousing (NAICS 48) (131 and 114, ranked 15 and 19)
Machinery manufacturing (129 and 171, ranked 16 and 13)
Retail trade (NAICS 45) (129 and 140, ranked 17 and 16)
Public administration (115 and 110, ranked 18 and 21)
Administrative and support (114 and 124, ranked 19 and 17)
Real estate rental and leasing (104 and 107, ranked 20 and 23)
Arts, entertainment and recreation (103 and 106, ranked 21 and 24)
Furniture and related manufacturing (101 and 109, ranked 22 and 22)

Two industries in Brampton reveal Canadian based location quotients in excess of 100 (but Ontario based ones of less than 100):

Electronic equipment appliance manufacturing (93 and 145, ranked 23 and 15)
Printing manufacturing (92 and 105, ranked 24 and 25)

All other industries in Brampton reveal location quotients of less than 100 against both Ontario and Canada.



Table 4
Detailed Location Quotients for the City of Brampton in 2003

NAICS	Industry	Employed Brampton	Employed Ontario	Employed Canada	Brampton (% Share)	Ontario (% Share)	Canada (% Share)	LQ Index vs Ontario	LQ Index vs Canada	Rank vs Ontario	Rank vs Canada
11	Agriculture Forestry Fishing and Hunting	16	90,400	431,500	0.01	1.46	2.75	1	1	42	42
21	Mining and Oil and Gas Extraction	15	22,600	178,000	0.01	0.36	1.14	4	1	41	41
22	Utilities	185	53,900	130,400	0.16	0.87	0.83	18	19	37	36
23	Construction	4,566	371,400	907,400	3.94	5.98	5.79	66	68	30	27
311	Food Manufacturing	4,450	93,800	261,200	3.84	1.51	1.67	254	231	6	9
312	Beverage and Tobacco Product Manufacturing	1,173	16,600	39,800	1.01	0.27	0.25	379	399	3	4
313	Textile Mills	36	6,600	19,400	0.03	0.11	0.12	29	25	34	35
314	Textile Product Mills	50	10,000	24,300	0.04	0.16	0.16	27	28	35	34
315	Clothing Manufacturing	48	30,100	95,500	0.04	0.48	0.61	9	7	40	40
316	Leather and Allied Product Manufacturing	8	1,000	5,900	0.01	0.02	0.04	43	18	32	37
321	Wood Product Manufacturing	578	38,200	185,600	0.50	0.62	1.18	81	42	27	32
322	Paper Manufacturing	1,269	41,800	108,400	1.10	0.67	0.69	163	158	13	14
323	Printing Manufacturing	897	52,100	115,400	0.77	0.84	0.74	92	105	24	25
324	Petroleum and Coal Manufacturing	532	4,500	16,200	0.46	0.07	0.10	634	444	2	2
325	Chemical Manufacturing	2,176	65,500	121,300	1.88	1.06	0.77	178	243	10	8
326	Plastics and Rubber Manufacturing	2,817	77,400	133,400	2.43	1.25	0.85	195	286	9	7
327	Non-Metallic Mineral Manufacturing	1,173	22,500	52,700	1.01	0.36	0.34	280	301	5	6
331	Primary Metal Manufacturing	823	50,900	97,700	0.71	0.82	0.62	87	114	26	20
332	Fabricated Metal Product Manufacturing	5,049	85,600	169,800	4.36	1.38	1.08	316	402	4	3
333	Machinery Manufacturing	1,677	69,600	132,400	1.45	1.12	0.85	129	171	16	13
334	Computer and Electronic Manufacturing	314	70,900	119,000	0.27	1.14	0.76	24	36	36	33
335	Electric Equipment Appliance Manufacturing	591	34,200	55,000	0.51	0.55	0.35	93	145	23	15
336	Transportation Equipment Manufacturing	7,210	234,200	320,900	6.23	3.77	2.05	165	304	12	5
337	Furniture and Related Manufacturing	943	50,300	117,400	0.81	0.81	0.75	101	109	22	22
339	Miscellaneous Manufacturing	1,468	46,500	92,200	1.27	0.75	0.59	169	215	11	11
41	Wholesale Trade	8,548	224,300	570,500	7.38	3.61	3.64	204	203	7	12
44	Retail Trade	11,708	474,300	1,332,500	10.11	7.64	8.51	132	119	14	18
45	Retail Trade	5,721	238,200	554,600	4.94	3.84	3.54	129	140	17	16
48	Transportation and Warehousing	5,232	214,000	618,600	4.52	3.45	3.95	131	114	15	19
49	Transportation and Warehousing	2,791	75,300	170,700	2.41	1.21	1.09	199	221	8	10
51	Information and Cultural Industries	467	154,000	373,600	0.40	2.48	2.38	16	17	39	38
52	Finance and Insurance	2,180	300,600	645,600	1.88	4.84	4.12	39	46	33	31
53	Real Estate Rental and Leasing	2,101	108,300	266,600	1.81	1.74	1.70	104	107	20	23
54	Professional Scientific and Technical Services	4,757	448,300	1,000,700	4.11	7.22	6.39	57	64	31	30
55	Management of Companies and Enterprises	184	1,500	2,900	0.16	0.02	0.02	658	859	1	1
56	Administrative and Support	5,560	262,300	604,800	4.80	4.22	3.86	114	124	19	17
61	Educational Services	1,145	374,700	1,029,300	0.99	6.04	6.57	16	15	38	39
62	Health Care and Social Assistance	8,150	613,000	1,683,200	7.04	9.87	10.74	71	66	28	28
71	Arts Entertainment and Recreation	2,675	139,000	340,600	2.31	2.24	2.17	103	106	21	24
72	Accommodation and Food Services	6,234	368,900	1,006,800	5.39	5.94	6.43	91	84	25	26
81	Other Services (except Public Administration)	3,430	261,800	713,000	2.96	4.22	4.55	70	65	29	29
91	Public Administration	6,654	309,200	820,300	5.75	4.98	5.24	115	110	18	21
99	Not classified	157	0	0	0.14	0.00	0.00	0	0	43	43
	Total all industries	115,758	6,208,300	15,665,100	100.00	100.00	100.00	100	100		
	Total Manufacturing	33,282	1,102,300	2,283,500	28.75	17.76	14.58	162	197		

Source: Statistics Canada (Labour Force Survey) and Brampton Employer Survey

Summary of Location Quotient Analysis and Findings

The data collected by the City of Brampton for 2003 generally support the conclusions reached about Brampton's economic base industries based on the Census data for 1996 and 2001: manufacturing, transportation-warehousing, trade and construction are the key economic drivers of the community at large.

The City of Brampton's Employer Survey data provide considerable detail with respect to which specific industries within these broad industrial categories account for most of the City's economic base. For example, within the overall manufacturing sector (which employed a total of 33,282 people in Brampton in 2003) the major employers were manufacturers of transportation equipment (7,210 people), fabricated metals (5,049), food manufacturing (4,450), plastics and rubber (2,817) and chemicals (2,176). These five manufacturing industries alone accounted for 65 percent of Brampton's total employment in manufacturing at that time.



Economic Environment for Manufacturing Industries in Brampton

The manufacturing sector has experienced a profound transformation in the last few years. The emergence of the Chinese economy has far eclipsed the shift in production experienced when the Asian Tigers³ industrialized in the preceding decades which in turn followed the growth of the Japanese and German economies following the end of the Second World War.

Transportation and distribution techniques have reduced the advantages that local manufacturers enjoyed. As a result, plant location is increasingly based upon production costs; with access to markets reasonably assured under the WTO and GATT treaties.

Despite these global forces, manufacturers will continue to operate – and grow – in the Toronto region. This section will briefly address some of the key macroeconomic factors that are likely to have an impact on local manufacturers. These include trends in global and financial markets, commodity prices, tax policy and environmental policy.

Global Markets

The IMF recently released its World Economic Outlook, and is expecting economic growth to remain relatively strong, but moderate from last year's pace. World economic growth is expected to moderate from 5.1% in 2004 to 4.3% this year and 4.4% in 2006. Most of Canada's export markets are in the highly industrialized economies, however, which are expected to grow more slowly than the world as a whole. Advanced economies are expected to experience a moderation in growth from 3.4% last year to 2.6% this year before accelerating to 3.0% next year. This is a relatively positive external environment for Canadian exporters especially considering that the average growth rate from 2004 to 2006 is the fastest for the world economy since the late 1970s, and the best since the late 1980s for the world's advanced economies. If ever Canadian exporters could weather the blow from a dollar shock, now is the time.

The IMF did, however, sound the alarm that the world oil market would remain fairly tight for the foreseeable future, which would increase the risk of an upward spike in oil prices. High oil prices and the significant imbalances in the global economy could cause growth to be weaker than they expect. In its outlook the IMF expects US economic growth to moderate to 3.6% in both 2005 and 2006.

It is widely expected that the US Federal Reserve will continue to raise the federal funds rate from an average of 2.45% in the first quarter of this year to 4.50% by the end of 2006 in quarter point steps. The gradual tightening of US monetary policy will contribute to a sell off in the bond market, and push the yield on ten year treasuries from 4.26% in the first quarter of this year to 5.5% by the fourth quarter of 2006.

Rising interest rates will hit interest sensitive expenditure components, with overall residential investment expected to decline by 1.7% this year and 4.4% next year. Significantly for Canadian exporters, spending on big ticket items will drop below the national average. Residential

³ Hong Kong, Taiwan, the Philippines, Indonesia, Singapore, Thailand, Malaysia and Vietnam all experienced rapid growth of their manufacturing sectors supplying goods to the rest of the world.



investment in single family dwellings is expected to drop by 2.9% this year and 7.2% in 2006. Rising interest rates will also constrain consumer spending on motor vehicles rising by a modest 2.7% this year and only 0.6% next year. This will weaken prospects for Canada's automotive sector, consumer products and wood products manufacturers.

In contrast with modest consumer driven spending on interest sensitive goods, strong US profits will help to boost business investment spending providing opportunities for Canadian equipment manufacturers.

Financial Markets

The world's currency markets are going through a fundamental readjustment that has more to do with the decline in the US dollar than the strength of the Canadian currency. Major floating exchange rates are expected to gain ground versus the US dollar over the coming decade. The US dollar's weakness is a consequence of the massive US current account deficit, and the weakness in the US dollar is required to reduce its current account deficit to a more sustainable level.

The Canadian dollar has been in the range of 80-83 cents in recent months and, barring movements due to political uncertainty once parliament resumes in the fall, is expected to remain in this range through next year. The pause in large exchange rate movements is good news for Canadian exporters. Since manufacturers are heavily export oriented, the rise in the value of the dollar has had a significant impact on their competitiveness. A recent report⁴ found that manufacturers have begun to invest more heavily in machinery and equipment in order to raise their productivity. As a result, they found that productivity in the manufacturing sector has seen a cumulative increase of nearly 11 per cent since 2001. New equipment has allowed manufacturers to boost their real output by an average annualized rate of about 2% while at the same time reducing factory hours by 1.3%.

The Canada/US short-term interest rate spread narrowed considerably over the past few months as the US Federal Reserve edged up rates while the Bank of Canada stayed on hold. Recently it moved into negative territory with the rate on Canadian T-bills below that for the adjusted US T-bill rate. We expect the negative T-bill spread will result in the Canadian dollar trading water until Canadian interest rates start to go up more appreciably in 2006-07. We do not expect a major decline in the Canadian dollar versus the US currency this year despite the negative spread.

Underlying the Canada/US exchange rate are commodity prices and the US current account situation. Commodity prices have risen recently, which has supported the CAD. And the US has a huge current account deficit and is simply utilizing too much of the world's savings to be sustainable over any prolonged period of time. Since the US economy is expected to grow more quickly than its trading partners over the next couple of years, combined with the upward pressure on the US current account deficit from high energy prices, the US current account deficit is set to balloon without a decline in the US dollar. Consequently, there needs to be a significant drop in the value of the US dollar over the medium term.

The upshot of these conflicting forces for the Canadian currency is that it is likely to tread water over the next couple of years as the negative spread against Canada widens, but ultimately the US

⁴ Gomez, C. (2005). "Who's to Blame for Canada's Productivity Woes?" TD Economics Topic Paper, June 15, 2005.

Current account will cause the US dollar to move lower against the Canadian dollar over the medium term as it falls versus a basket of currencies and as the Bank of Canada ultimately starts to raise interest rates for domestic economic reasons.

Commodity Prices

Prices for all major commodities have risen sharply over the last couple of years. Oil, natural gas, metal, and mineral prices have all risen. The current bull market follows a protracted bear market in which many commodity prices were significantly depressed in the 1990s. While it is not unusual for commodity prices to rise and fall by comparatively large amounts over a business cycle, a growing numbers of analysts expect that a large proportion of the recent increase is likely to be permanent. They point to the substantial rise in demand for commodities that has accompanied the rise of the Chinese economy. Sustained growth in that economy will help fuel continued high commodity prices.

All manufacturers, regardless of location, face these higher commodity prices. Prices for manufactured goods will eventually rise to reflect these higher costs. Consumers will continue to look for the lowest price so manufacturers with the lowest costs will have an increasing advantage over time.

Part of the reason for the increase in overall commodity prices over the last two years is because of fears of energy supply disruptions—both real and imagined. Beyond short-term fears, however, commodity prices tend to follow the international business cycle. In most previous cycles of the past thirty years, after major slowdowns it took a protracted period of strong growth to boost commodity prices as excess capacity was exhausted. During this cycle the run up in commodity prices was coincident with the improvement in world demand and happened while the world's economy was below its trend level of output. The trend growth path for commodities appears to have shifted to a higher trajectory compared with global growth which suggests that a different dynamic is at work in the world economy. China could be the answer.

On a purchasing power parity basis, the IMF estimates that China was responsible for close to one third of the world's growth in the past three years. China's demand for products tends to be more raw material intensive than in advanced economies. There is a massive amount of investment occurring in China, which tends to be relatively raw material intensive. And as the economy expands, more people with low to medium levels of income are benefiting. These types of consumers tend to want cars and appliances, which are also raw material intensive. As a result of China's emergence, it is likely that the equilibrium price for commodities is higher today than a decade ago.

For commodities, however, high prices do not last forever. A prolonged period of high commodity prices encourages consumers and businesses throughout the world to move away from expensive materials toward cheaper substitutes. This is after all one of the reasons why there was a period of prolonged relative weakness for commodities during the 1980s through to the mid 1990s. Over prolonged periods of time, historically commodity prices have fallen in real terms as a result of this phenomenon. It should also be noted that commodity prices tend to move in exaggerated cycles. After a peak, there is always a crash. This reflects not only swings in demand, but also the length of the supply response in boosting capacity. In the past, a crash has meant declines in the neighbourhood of 15 to 20 per cent in real US dollar terms two to three years after the peak. So even with a higher equilibrium price and faster trend path for commodities, there will likely be another slide in the next few years.



Tax Policy

Political uncertainty has added to uncertainty around federal tax initiatives. Adjustment to corporate income taxes, capital taxes and capital cost allowances have been regarded by the business community as vital measures for maintaining Canada's competitive position. Provincial and local government planning is also affected, since planned capital projects are dependent on federal spending promises that may, or may not, be honoured.

Duanjie Chen and Jack Mintz of the University of Toronto's Rotman School of Management, have reviewed Ontario's business tax rates with those of other jurisdictions in Canada and the United States⁵. In their research, the impact of expenditure and tax policies on the cost of doing business is estimated by a summary statistic called the "marginal fiscal burden". Intuitively, the fiscal burden is the added cost of producing more output in a jurisdiction, induced by fiscal policies – taxes add to costs while subsidies reduce them. For example, without fiscal policies, the cost of producing a product may be \$27 per unit. If taxes, net of subsidies, total \$3 per unit, increasing the cost of goods and services sold to \$30, the marginal fiscal burden is measured as 10 percent (\$3 divided by \$30).

They conclude that Ontario's fiscal competitiveness has generally improved in 2004 except in forestry and manufacturing. Federal policies – lower corporate income and capital taxes – have provided fiscal relief to Ontario businesses. However, the federal policies have been somewhat blunted by provincial policies that have eroded fiscal competitiveness, including higher corporate income tax rates and the Ontario health premium tax.

Ontario's marginal fiscal burden remains higher than that in the US despite recent changes that have affected US competitiveness. In particular, the US federal government has eliminated bonus depreciation for expenditures on capital assets with a life of less than 20 years. They find that Ontario remains fiscally uncompetitive relative to five key US states⁶. Michigan, for example introduced further personal tax cuts and a reduction in the Michigan Single-Business Tax in 2004 from 1.9 percent to 1.7 percent.

Given the fiscal needs of the Ontario government, they recognize that it will be sometime before Ontario can resume taking a path of improving fiscal competitiveness by reducing taxes and investing in programs that lower business costs.

Beyond tax policy, the Ontario government has a variety of programs and initiatives to attract business to the province. A recent success was the attraction of a new automotive assembly plant to Woodstock. The government's commitment to invest \$70 million in support for training and infrastructure encouraged Toyota to select Ontario over a number of other possible locations in North America.

Environmental Policy

Environmental standards will continue to evolve in Ontario, and other jurisdictions, reflecting changes in information regarding the impact of economic activity on the environment. Arguably

⁵ Duanjie, Chen and Jack Mintz, "Ontario Fiscal Competitiveness", Rotman School of Management, 2003. (Updated in 2004 for the Institute for Competitiveness and Prosperity).

⁶ California, Georgia, Illinois, Massachusetts, and Michigan.



the most significant environmental policy for the manufacturing sector in this country is that surrounding the Kyoto protocol. This policy seeks to limit the emission of greenhouse gasses principally through the reduction in use of fossil fuels. The impact of this policy is significant for Canadian manufacturers because, outside of the European Union and Japan, none of the countries with which Canadian manufacturers compete are bound by this treaty.

Under Kyoto, the Canadian government committed to reducing greenhouse gas (GHG) emissions by 6% below 1990 levels by 2008-2012. As of 2002 GHG emissions were 20% above 1990 levels, which suggests that GHG emissions need to be cut by 26% and perhaps more since the economy will continue to grow over the medium to long run. In April the government released its plan to achieve this goal. The government's plan for how these reductions would be achieved is vague – and the implications for Canadian business are significant. The costs to business depend critically on whether the government ultimately forces more of a reduction in energy use or whether they rely on mechanisms to purchase credits for reductions.

Ironically, the most forceful action to date to reduce GHG emissions is not a government program, but the current high oil and natural gas prices. Since these cost increases affect our trading partners too, this is less damaging to the economy than independent action to boost energy costs. The government is reinforcing the incentives provided by the market with incentives to encourage energy conservation. This type of carrot and stick approach might deliver significant energy and therefore GHG emission reductions. And the beauty of this confluence of events is that it is the market that is wielding the stick, while the government can get credit for the carrot.



Brampton's Cluster Profile

Within the Greater Toronto Area, the City of Brampton is home to the 3rd largest population, the 3rd largest number of workers on a place-of-work (daytime) basis, and the 4th largest number of manufacturing jobs among the 29 municipalities that make up either the GTA or the Toronto and Oshawa CMAs. Brampton is therefore widely recognized as a powerhouse of economic activity and growth in the area. Yet among these 29 municipalities the City ranks only 7th on the basis of manufacturing jobs per capita and only 13th on the basis of total jobs per capita. These rankings suggest considerable potential exists for employment growth in the City, not only in the manufacturing sector but across the rest of the industrial spectrum as well.

Table 5
GTA Population and Employment Statistics by Municipality⁷

	Total Pop.	Total Emp.	Mfg. Emp.	Total Emp / Pers.	Total Mfg. Emp. / Pers.	Total Pop. Rank	Total Emp. Rank	Mfg. Emp. Rank	Total Emp / Pers. Rank	Total Mfg. Emp. / Pers. Rank
Greater Toronto Total	5,162,245	2,546,175	442,265	0.493	0.086					
Ajax	73,815	23,055	5,560	0.312	0.075	12	13	12	20	14
Aurora	40,205	16,355	3,865	0.407	0.096	17	16	17	12	9
Bradford West Gwillimbury	22,240	5,810	1,180	0.261	0.053	22	25	21	25	19
Brampton	325,400	122,280	33,995	0.376	0.104	3	3	4	13	7
Brock	12,125	3,690	515	0.304	0.042	28	28	26	22	22
Burlington	150,825	71,010	14,390	0.471	0.095	6	6	8	9	11
Caledon	50,585	16,435	4,160	0.325	0.082	15	15	16	18	13
Clarington	69,840	16,170	1,750	0.232	0.025	13	17	20	26	26
East Gwillimbury	20,565	4,215	775	0.205	0.038	24	27	23	28	23
Georgina	39,255	6,885	310	0.175	0.008	18	22	28	29	29
Halton Hills	48,115	14,600	3,270	0.303	0.068	16	19	18	23	16
King	18,545	5,875	615	0.317	0.033	26	24	25	19	24
Markham	208,630	116,590	19,530	0.559	0.094	4	4	5	5	12
Milton	31,500	20,170	4,750	0.640	0.151	19	14	14	1	3
Mississauga	612,930	348,780	70,065	0.569	0.114	2	2	2	4	5
Mono	6,925	1,430	55	0.206	0.008	29	29	29	27	28
New Tecumseth	26,160	15,305	7,140	0.585	0.273	20	18	9	3	1
Newmarket	65,780	32,765	6,445	0.498	0.098	14	10	10	7	8
Oakville	144,770	68,160	15,725	0.471	0.109	7	7	7	8	6
Orangeville	25,285	10,985	2,425	0.434	0.096	21	20	19	10	10
Oshawa	139,075	57,840	15,945	0.416	0.115	8	8	6	11	4
Pickering	87,105	31,635	4,745	0.363	0.054	11	11	15	14	18
Richmond Hill	132,060	47,445	6,320	0.359	0.048	9	9	11	15	20
Scugog	20,160	6,200	630	0.308	0.031	25	23	24	21	25
Toronto	2,481,505	1,327,615	173,310	0.535	0.070	1	1	1	6	15
Uxbridge	17,405	4,920	385	0.283	0.022	27	26	27	24	27
Vaughan	181,990	112,570	38,210	0.619	0.210	5	5	3	2	2
Whitby	87,415	29,920	5,185	0.342	0.059	10	12	13	16	17
Whitchurch-Stouffville	22,035	7,465	1,015	0.339	0.046	23	21	22	17	21

Source: Statistics Canada, 2001 Census

The analysis in this section provides information on the contribution businesses in the City of Brampton make to the region's economy. In order to do this we first explain the concept of

⁷ The 29 municipalities in Table 5 include all those in either the Greater Toronto Area or in the CMAs of Toronto and Oshawa. Those not in the GTA are Bradford West Gwillimbury, Mono, New Tecumseth and Orangeville. Employed refers to employed by place of work.



cluster-based economic research. Economic development professionals regard a region's clusters as the natural focus for action-oriented policy initiatives. Developing information on the region's clusters – assembling a fact base – is a crucial first step in this process. We then need to understand the GTA's economy and the clusters that drive its growth before placing Brampton's industries in context within that larger environment.

What are Clusters?

In the early 1990s Professor Michael Porter of the Institute for Strategy and Competitiveness, Harvard Business School, developed an analysis of how firms compete⁸. It sees productivity as being determined by the interplay of three broad influences: a nation's political, legal and macroeconomic context; the quality of the microeconomic business environment; and the sophistication of company operations and strategy.

Stable political and legal institutions combined with a sound macroeconomic context featuring low inflation, low and stable interest rates and a taxation policy favourable to savings and investment create an environment in which competitiveness is possible. However, a favourable macroeconomic context only creates the potential. Wealth is actually created by the microeconomic foundations of competitiveness: the workers, firms, markets and associated institutions in which competition actually takes place.

The quality of the microeconomic business environment is a function of four interrelated features captured in what is frequently referred to as Porter's "diamond model" (Figure 1) which was first introduced in "The Competitive Advantage of Nations" in 1990. Porter shows how these four features work together in a self-reinforcing dynamic to drive the clustering of competitive industries that are highly effective because they serve markets outside their local area and are able to grow through trade.

A favourable Microeconomic Business Environment is one that creates pressure for firms to continuously upgrade the source and sophistication of their advantage and at the same time supports the upgrading process with the appropriate factor inputs and supporting institutions. The combination of pressure and support is created by the interaction of the features shown in the diamond model.

Pressure for upgrading is supplied by *demand conditions* featuring sophisticated and demanding customers, whose demands spur local firms to innovate in order to upgrade their product/service offerings. Particularly valuable is customer pressure that anticipates the nature of demand elsewhere in the world.

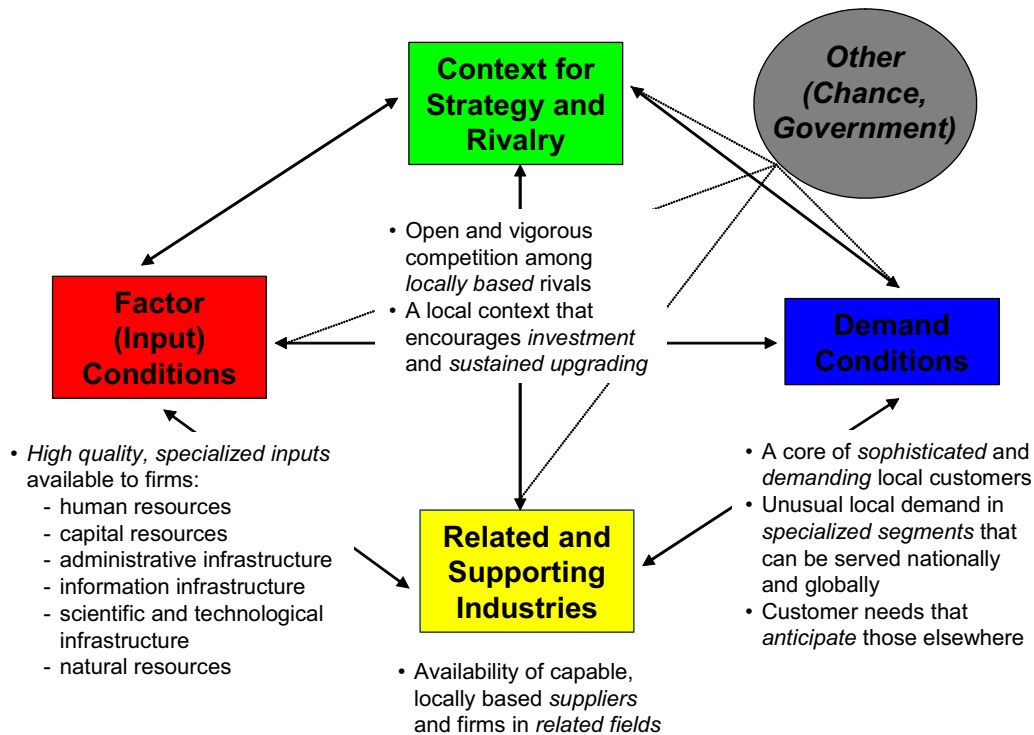
Beneficial pressure is also supplied by a *context for firm strategy and rivalry* that causes local competitors to feel the need to continuously seek unique and better ways to meet the needs of customers. Such a context typically requires active rivalry among firms competing in the same jurisdiction.

Support for upgrading is provided by the abundant supply of *factor (input) conditions*, including basic factors such as natural resources and capital resources, as well as advanced and specialized factors such as scientific infrastructure and pools of specialized labour. As countries become more advanced, the quality of their microeconomic business environments is increasingly

⁸ Porter, Michael E. *The Competitive Advantage of Nations*. New York, 1990.

determined by advanced and specialized factors (e.g. research universities) rather than basic factors (e.g. raw material supply) because the basic factors can be readily purchased from abroad.

Figure 1
Porter's Diamond Model



Source: Claas Van der Linde (2003).

Finally, support for upgrading is enhanced by the presence of high quality *related and supporting industries*. Clusters of such industries can help competing firms innovate and create more unique ways of meeting customer needs without needing to make all the investments themselves.

The four features work together in a self-reinforcing dynamic to drive the clustering of industries. The presence of demanding and sophisticated customers encourages the formation of multiple local rivals. The presence of a number of local rivals encourages the local establishment and growth of supplier industries and other related industries. The presence of local rivals and supplier industries spurs the creation of specialized local infrastructure and educational institutions. These in turn help the local rivals innovate and upgrade their capacity to serve the local customers even better, spurring even more sophisticated demand.

While the macroeconomic context and the microeconomic business climate create the conditions for prosperity, ultimately companies need to take advantage of these conditions to make sophisticated choices consistent with innovation, upgrading and competitiveness.



Cluster-based Economic Research

The Cluster Mapping Project, led by Professor Michael Porter, assembled a detailed picture of the location and performance of industries in the United States, with a special focus on the linkages or externalities across industries that give rise to clusters.

Cluster-based economic research has demonstrated that when industries are divided between those in clusters of traded industries, in which more intensive innovation and upgrading occurs, and local industries, in which the forces for upgrading are muted and the possibilities of expanding by selling outside the region are limited, the traded cluster industries have distinctly higher levels of innovation, productivity and wages.

Traded clusters provide opportunities for growth and utilization that surpass those in the local economy. However, the presence of traded clusters in a region has a spill-over effect and typically generates opportunities for increased success of the local industries as well.

Using Porter's database, industries were separated into "traded" and "local" based on the degree of industry dispersion across areas. Local industries are typically present in most geographic areas and primarily serve the local market. Traded industries are those that are typically concentrated in specific geographic areas and sell to markets beyond their local region.

Among traded industries, clusters were identified using the correlation of industry employment across geographic areas. The principle is that industries normally located together are those that are linked by some external economies. This externality is reflected in the degree to which the occurrence of groups of industries in particular geographic areas is correlated.

Industries that are highly correlated constitute clusters. Within clusters, groups of industries whose correlation is particularly strong are identified as sub-clusters. Sub-clusters can be "narrow" or "broad" depending on the degree of their correlation and their importance to the cluster. Narrow sub-clusters and the industries comprising them are components that most strongly define the cluster and can be regarded as the core of the cluster.

Narrow sub-clusters are unique and can only be associated with one cluster in this capacity. Broad sub-clusters and the industries comprising them can be part of more than one sub-cluster and are thought to be supporting or peripheral industries. Using these definitions, the Cluster Mapping Project identified 41 clusters of traded industries.

Regions in which there is an above average level of employment in clusters of traded industries tend to be more competitive, productive and prosperous than other regions.

Claas Van der Linde used this database to assess the drivers of cluster competitiveness from the diamond model⁹. Factor conditions were found to be the most important determinant of competitiveness in 43% of these cases. They were followed by demand conditions with 25%, related and supporting industries (13%), and other reasons, including chance, isolated individual entrepreneurs, and early mover advantages with 6%.

⁹ Van der Linde, Claas. "The Demography of Clusters – Findings from the Cluster Meta-Study." In Bröcker, J., D. Dohse and R. Soltwedel (eds.) *Innovation Clusters and Interregional Competition*. Berlin, Heidelberg, New York: Springer-Verlag, Berlin, Heidelberg, New York 2003, p. 130-149.

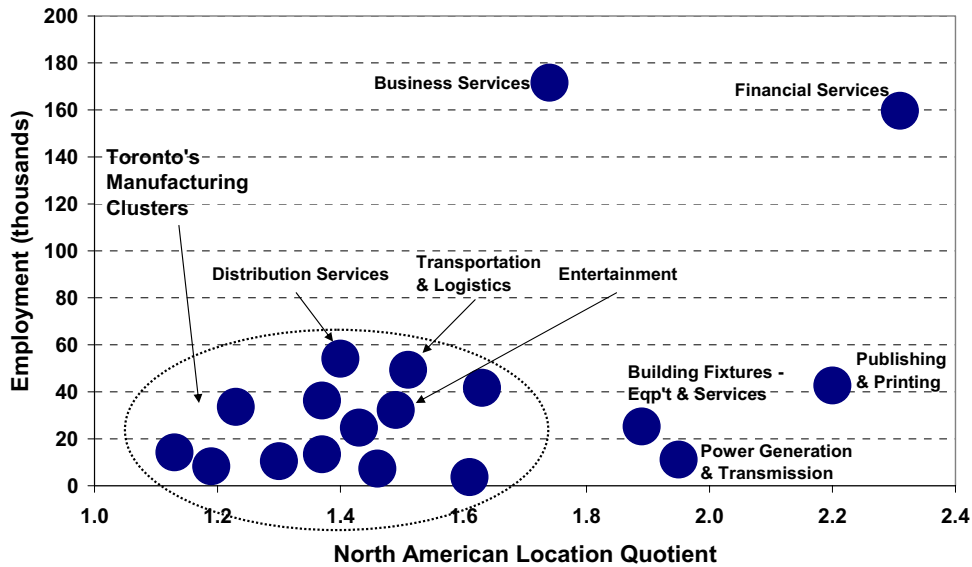


Clusters in the Toronto Region

In 2002, The Institute for Competitiveness and Prosperity (ICP)¹⁰ extended the U.S. Cluster Mapping Project to Canada¹¹. The ICP analysis used the same 41 clusters developed for the United States and determined their presence by province and Census Metropolitan Area in 2000.

Figure 2

Toronto CMA Industrial Clusters



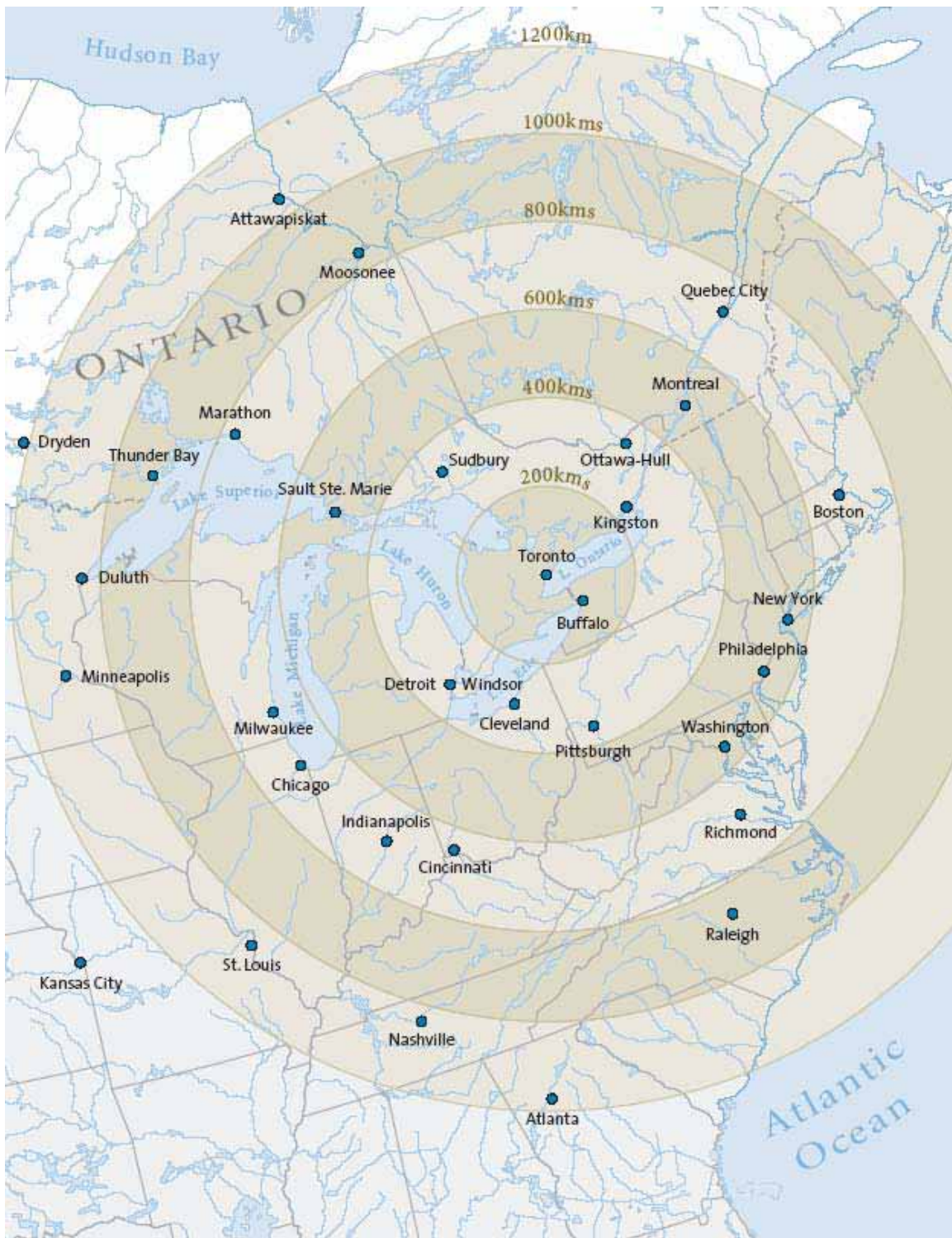
Source: data from <http://www.competeprosper.ca/clusters/project.html>

¹⁰ The Institute for Competitiveness and Prosperity is an independent not-for-profit organization established in 2001 to serve as the research arm of Ontario's Task Force on Competitiveness, Productivity and Economic Progress. For more information please visit their website at www.competeprosper.ca.

¹¹ The Institute for Competitiveness & Prosperity (2002). "A View of Ontario: Ontario's Clusters of Innovation." Working Paper No. 1. Toronto: The Institute for Competitiveness & Prosperity.



Figure 3
Toronto's Geographic Advantage



Source: Institute for Competitiveness & Prosperity, Working Paper No. 1 (2002).



The ICP reviewed the factors that influence competitiveness in a region; their evidence led them to conclude that competitive prices and innovative products that can be traded outside of local borders provide the driving force for increasing GDP per capita in a region, thereby increasing its standard of living and the number of well-paid jobs.

Figure 2 uses the ICP's data to display the strengths of the clusters in the Toronto CMA. The vertical axis plots the number of people employed in the cluster (in 2000) and is indicative of the overall scale of the cluster in the region. The horizontal axis plots the location quotient for the Toronto region relative to all of North America for the cluster. The North American benchmark was chosen because, as Figure 3 shows, the Toronto region is exposed to markets throughout much of the continent¹². Of the 41 clusters in the database, only the clusters with a North American location quotient greater than one are displayed in the chart. This is done to maintain the focus on the idea that clusters drive the region's economy through export growth.

The two largest clusters in the Toronto region in terms of employment are the Business Services and Financial Services clusters. Not only are these two clusters large, but their location quotient is also high signalling their strength in the North American market.

The Financial Services Cluster

The Financial Services cluster includes many products and services related to consumer, business and government services including insurers, commercial bankers, savings institutions and monetary authorities. Toronto's Financial Services cluster ranks 3rd among urban centres in North America in terms of employment, behind New York and Chicago. The banks, insurance and securities companies, however, face significant challenges in maintaining their competitive position, due to globalization, the increasing costs of technology development and changing regulations. The pressure to consolidate in order to capitalize on economies of scale and compete with their much larger global competitors has been a constant factor for most of the last decade.

Canadian regulation stands as an obstacle to bank mergers and cross-ownership in several segments of the industry. The Financial Services cluster is becoming much more global, in part because the use of information and communications technology is reducing the limitations of time and distance. While Toronto's Financial Services sector is undeniably strong, its ability to remain dominant over the long-term has been questioned by those who argue that size matters in the global economy.

The smaller size of the other clusters should not be construed as their being of lesser importance to the region. In fact, the Financial and Business Services clusters may not enjoy such a dominant position if they didn't have so many strong and vibrant clusters to support in the region. The Printing and Publishing, Power Transmission and Generation, Entertainment and Building Fixtures, Equipment and Services clusters all have high location quotients and serve large parts of the continent.

The Entertainment Cluster

The Entertainment cluster, as defined by the US Cluster Mapping project, includes industries such as radio and television communications equipment and news syndicates. Broadcasting is not included in the Entertainment cluster because it is considered to be a local industry. The

¹² The relative position of the clusters is not materially different if the Canadian location quotient is used in place of the broader North American one.

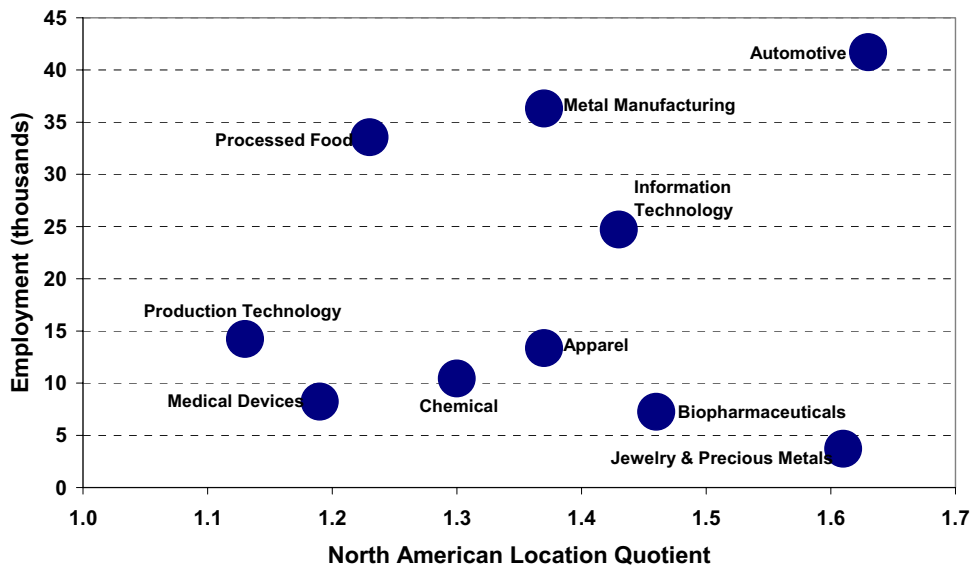
Entertainment cluster is ranked in 9th place for Toronto but is 3rd among Entertainment clusters in North American urban centres. While this cluster remains important to Toronto, the appreciation of the Canadian dollar in the last few years has had a significant impact on the sector's competitiveness and job losses have been widely reported in the media.

There are ten manufacturing clusters in the Toronto region with North American location quotients greater than one. Individually, their employment in 2000 is not large, but combined they employed over 190,000 people in the region. The Toronto region is also home to two clusters that perform a critical supporting role for these manufacturing clusters: Distribution Services and Transportation & Logistics. These clusters have grown to service the region's manufacturing clusters but, as Porter's diamond model suggests, also serve markets throughout North America. That said, their fate is still tied to the health of the region's manufacturing clusters.

Figure 4 expands the shaded area in the oval in Figure 2 to show Toronto's manufacturing clusters. Not surprisingly, the Automotive cluster is not only the region's largest but also has the highest North American location quotient. The Metal Manufacturing, Information Technology and Processed Food clusters are also relatively large and highly concentrated.

Figure 4

Toronto's Manufacturing Clusters



Source: data from <http://www.competeprosper.ca/clusters/project.html>

The Automotive Cluster

The Automotive cluster, as defined by the US Cluster Mapping project, includes motor vehicle production (excluding buses and motor homes). Ontario's Automotive cluster ranks 3rd in North America with Toronto, Oshawa and Windsor leading Ontario's CMAs. In 2000, Toronto ranked 2nd among all urban centres in North America, second only to "Motor City" Detroit. Ontario's automotive industry is highly efficient with it taking an average 24.4 labour hours to produce a

vehicle in Ontario relative to 27.1 in U.S. plants. The appreciation of the Canadian dollar has, however, reduced the competitive advantage of Ontario's parts and production industries.

All the clusters in Figure 4 represent areas of strength for the GTA's economy. While the competitive pressures on all have some similarities, as discussed in the Economic Environment section, they also each face unique challenges and will grow – or shrink – in response to them over the next few years.

Brampton's Position in Toronto's Manufacturing Clusters

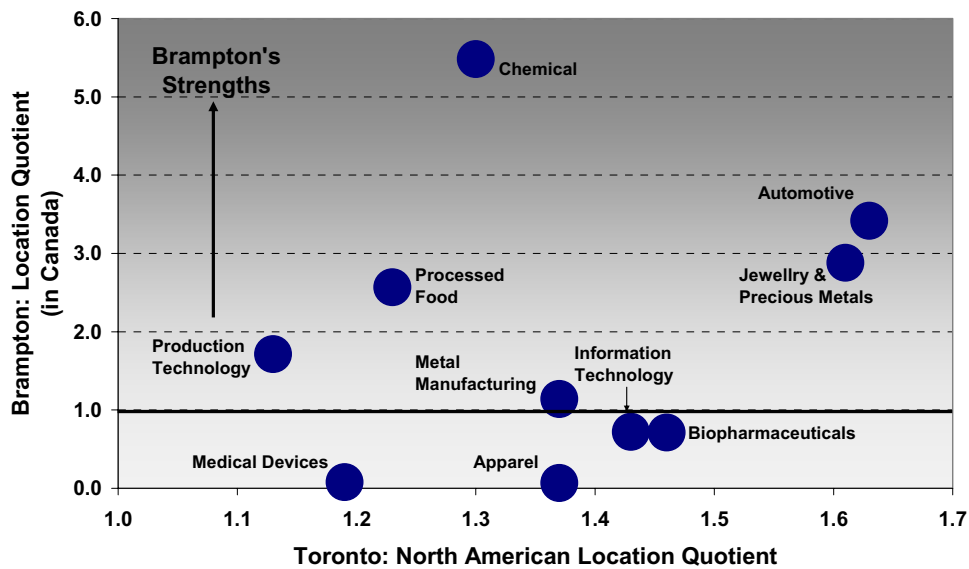
Brampton's businesses contribution to the clusters in the Toronto region was reviewed in the previous section. The City of Brampton, with its available land and access to transportation networks, was a natural location choice for many of the region's manufacturing plants.

While the City of Brampton ranks only 7th in terms of manufacturing jobs per capita in the GTA, our analysis indicates that its manufacturing jobs are concentrated in several of the GTA's manufacturing clusters.

The quantitative information in this report can be used to determine the contribution of Brampton's businesses to the region's manufacturing clusters. To accomplish this, the employment information and location quotients generated for Brampton were combined with the Toronto cluster information reviewed in the previous section in Figure 5.

Figure 5

Brampton's Manufacturing Clusters



Source: data from <http://www.competeprosper.ca/clusters/project.html> and Brampton's employer database



The vertical axis in Figure 5 shows the City of Brampton's location quotient in Canada for each of the ten manufacturing clusters in the Toronto region. The horizontal axis shows Toronto's North American location quotient for these clusters.

Note on Methodology

This analysis is based on C₄SE judgment mapping the NAICS based data from Brampton's employer database to the cluster definitions used by the Ontario Institute for Competitiveness and Prosperity (ICP). The ICP clusters were constructed by combining industries at the 4-digit SIC level of aggregation. The precise set of 4-digit industries used to define the clusters is, however, confidential and was not available to the C₄SE. The concordance between Brampton's data and the ICP clusters is, therefore, heuristic in nature. Based on our experience in constructing cluster profiles, the C₄SE believes that the concordance presented below provides a reasonable representation of the relationship between Brampton's industries and Toronto's manufacturing clusters.

Of the ten manufacturing clusters in the region, Brampton-based businesses are strongly present in six and less so in the other four. Based on Brampton's employer survey data for 2003, Brampton has a strong presence in the Chemical, Automotive, Processed Food, Metal Manufacturing, Production Technology and Jewellery & Precious Metals clusters.

The Automotive, Metal Manufacturing and Processed Food clusters are major employers in the Toronto region. The ICP data indicated that these clusters each employed over 30,000 people. Brampton's high location quotient for these clusters is indicative of their importance to the City. The health of the auto industry in Ontario is of particular concern to Brampton; and the announcement of a new assembly plant in Woodstock and ongoing investment in existing plants in the province is welcome news.

The Chemical, Production Technology and Jewellery and Precious Metals clusters employ relatively few people in the Toronto region: ten, fourteen and four thousand respectively based on the ICP data. These three clusters¹³ are well represented in Brampton and form a key part of the region's cluster network.

Brampton's employer survey indicates that four of the Toronto region's clusters are less prevalent in Brampton than other parts of the region. The Information Technology, Biopharmaceuticals, Medical Devices and Apparel clusters employ twenty-five, seven, eight, and thirteen thousand people respectively in the Toronto region.

The broad-based nature of the firms that comprise these clusters makes precise measurement of their importance to Brampton difficult. Brampton's economic development literature makes it clear that the City has a vibrant core of firms in the Information Technology and Biopharmaceuticals clusters. Many of the firms identified as part of these clusters are, however, classified in industries that would not normally be considered part of these clusters. The analysis in this report understates the importance of Brampton based businesses to these clusters; although it is not possible to say by how much.

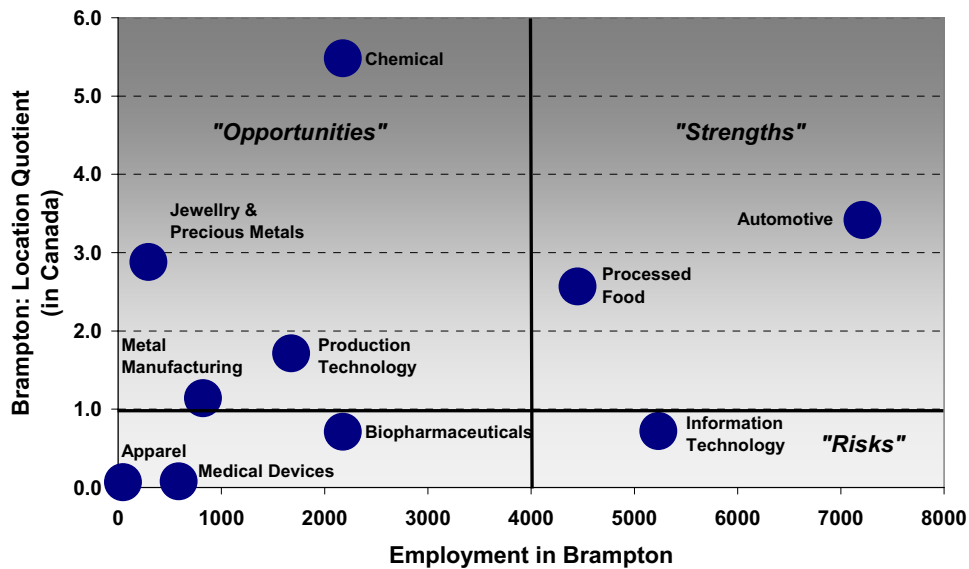
¹³ The data available from the City's employer survey are for the broader "Other Miscellaneous Manufacturing" industry which includes a diverse set of industries along with jewellery and precious metals. This analysis, therefore, overstates the importance of this cluster in Brampton. It is not, however, possible to determine the extent to which the location quotient is overstated.



It is clear that the shifting fortunes of Nortel and the North American information technology industry will continue to have a direct impact on Brampton’s economy. The recovery of this sector will encourage the expansion and location of firms in this industry in the City. The Biopharmaceuticals cluster is emerging and expanding in the Toronto region and is likely to play a growing role in the economic development of the region.

Figure 6

Brampton's Manufacturing Clusters



Source: Statistics Canada, Brampton’s employer database

Figure 6 divides the manufacturing clusters into four quadrants. Clusters with high employment in Brampton and a location quotient above one are located in the top right hand quadrant. These clusters represent Brampton’s current strengths: i.e. sectors in which a large number of people work in a deep, well developed clusters of companies. The automotive and processed food clusters belong to this group. This diagram only represents the current position of these clusters in the region’s economy. Analysis in the next section reveals that the prospects for these two sectors are weaker than for most of the other clusters in the region over the next few years.

The clusters in the top left hand quadrant of Figure 6 can be characterized as providing opportunities for future growth in the region. These clusters currently have less employment but are highly concentrated in the region. Attracting more firms in these sectors will help both raise employment in these clusters but also maintain their locational strength. The chemicals, production technology, metal manufacturing and jewellery and precious metals clusters fall into this group.

The information and technology cluster is in the lower right hand quadrant which indicates that it is at risk. Measurement difficulties, however, make it possible that it should actually belong in the upper quadrant. As mentioned above, the fate of this cluster depends on the health of the North American telecommunications market in general and Nortel in particular making its position in this quadrant appropriate – if not correct.

The remaining clusters in the bottom left hand quadrant are currently of more limited economic significance to the region as they have both low employment and a low location quotient. It will, therefore, take more effort for these clusters to gain the “critical mass” in terms of number of companies to generate higher growth and employment opportunities.

The Information and Communication Technologies Cluster

The Information and Communication Technologies (ICTs) cluster in Ontario grew rapidly in the second half of the 1990s with concentrations in Toronto, Ottawa, Kitchener and Hamilton. The bursting of the technology bubble, the rise in competition from China and the appreciation of the Canadian dollar has significantly eroded the position of this cluster since 2000. While the worst is behind the industry and growth is again in evidence, the cluster is still far below the peak employment levels seen in 2000 and is not expected to exceed them for several more years.

The Pharmaceuticals and Biotechnology Cluster

The Pharmaceuticals and Biotechnology cluster includes medicinal chemicals and botanical products, pharmaceutical preparations, perfumes, cosmetics, and other toilet preparations. A considerable amount of local infrastructure contributes to the strength of this research-intensive cluster. Toronto’s Pharmaceuticals and Biotechnology cluster ranks 4th among urban centres in North America.

This cluster has been the beneficiary of government initiatives to support its growth. The Government of Ontario’s goal is for the province to be the third-largest in North America behind California and New England. For example, research in cancer and genomics research is supported by the Ontario Research and Development Challenge Fund. The Medical and Related Sciences Discovery District’s (MARS) research facility in downtown Toronto is expected to attract researchers from around the world.

A final and important point to note is that the analysis of location quotients for Brampton revealed that key supporting industries for the region’s manufacturing clusters are well represented in Brampton. The Distribution Services and Transportation & Logistics clusters both have high location quotients in Brampton. The presence of these service sectors is indicative of and essential for the success of the manufacturing clusters in the region.

Prospects for Brampton’s Manufacturing Clusters

Based on the C₄SE’s current outlook for Ontario, the prospects for the manufacturing clusters located in Brampton are good for the next couple of years.

The rise in the value of the Canadian dollar is providing a powerful incentive for businesses in Ontario to become more competitive. To accomplish this, businesses need to invest more in plant and equipment and curtail labour costs. As a result, we expect real GDP growth to exceed employment growth over the next few years – with the difference in growth being particularly pronounced in manufacturing industries.

Table 6 provides some highlights from the C₄SE’s current (Spring 2005) outlook for Ontario. Manufacturing industries output growth at 3.0% is expected to nearly match the economy over the next few years but employment growth of just over 1% is significantly slower than the 2% expected for the economy as a whole.



The Transportation and warehousing industry, which can be compared to the Transportation and Logistics and Distribution Services clusters, is also expected to make productivity gains. These clusters are concentrated in Brampton and may experience relatively low employment growth of about 1% over the next few years.

Table 6
C4SE Spring 2005 Outlook for Ontario

	2005	2006	2007	05-07
Employment				
Total	1.4%	2.1%	2.6%	2.0%
Manufacturing	1.3%	1.2%	1.2%	1.2%
Transportation and warehousing	0.0%	1.7%	1.9%	1.2%
Real GDP				
Total	2.3%	3.3%	3.6%	3.1%
Manufacturing	3.0%	3.1%	3.0%	3.0%
Transportation and warehousing	1.2%	3.1%	3.3%	2.5%
Real GDP: Brampton's Leading Manufacturing Sectors				
Chemicals	4.6%	2.8%	2.1%	3.2%
Primary, fabricated metals	4.8%	5.3%	5.7%	5.3%
Machinery	4.6%	4.1%	4.4%	4.4%
Food, beverages, tobacco	2.1%	2.0%	2.2%	2.1%
Transportation equipment	2.4%	1.7%	1.6%	1.9%
Miscellaneous manufacturing	4.4%	7.8%	5.0%	5.8%
Real GDP: GTA's Other Leading Manufacturing Sectors				
Textiles, clothing	-2.1%	-4.4%	-4.9%	-3.8%
Computers, equipment	5.4%	7.2%	7.3%	6.6%
Other electronic equipment	-0.1%	3.9%	3.6%	2.5%
Miscellaneous manufacturing	4.4%	7.8%	5.0%	5.8%

The six manufacturing clusters that are concentrated in Brampton were matched to comparable NAICS industries in our forecast. The Chemicals industry can be compared to both the Biopharmaceutical and Chemical Products clusters. The Primary, fabricated metal products industry to the Metal Manufacturing cluster. The Machinery industry to the Production Technology cluster. The Transportation equipment industry to the Automotive cluster. And the Miscellaneous manufacturing industry to the Jewellery and Precious Metals cluster¹⁴.

Most of these sectors are expected to lead the economy in terms of growth over the next few years with the exception of the Transportation equipment and Food industries. These two industries form the core of the two largest clusters in the Toronto region. Their relatively slow growth – coupled with rapid productivity gains – means that they are less likely to demand new manufacturing facilities or workers than other parts of the economy.

The prospects for the other manufacturing clusters in the region are also mixed. The Computers, equipment and Other electronic equipment industries can be compared to the Information

¹⁴ The Miscellaneous manufacturing industry includes a wide range of businesses and is matched to both the Jewellery and Precious Metals and Medical Products clusters. Strong growth is expected in these sectors.



Technology cluster. Following this year, prospects for the Information Technology cluster appear promising. The same, however, can not be said for the Apparel cluster which can be compared to the Textiles and clothing industry where outright declines can be expected.

This information indicates that macroeconomic conditions for the manufacturing clusters concentrated in the City of Brampton are relatively favourable over the next couple of years. Even allowing for rapid productivity growth, employment growth in many of these industries should be strong for the next few years. The exceptions are the transportation, food and apparel industries which are likely to experience slower growth – or even declines. Cluster theory, however, cautions us that macroeconomic conditions are just one determinant of the overall success of a region’s clusters. The microeconomic conditions that foster the success of businesses in that region must also be maintained.



Brampton Manufacturing SWOT Assessment

The analysis in the preceding sections of this report can be used to develop an assessment of the strengths, weaknesses, opportunities and threats facing the manufacturing sector in Brampton over the next few years. This SWOT analysis leads naturally to the development of a set of recommendations for action initiatives designed to preserve and enhance the opportunities for growth in the region. These recommendations also include some suggestions for ongoing measurement indices to provide concrete measures of success or early indications of possible issues.

Strengths

The City of Brampton has a wide range of factors that make it an attractive location for manufacturing and related businesses. These factors include its location, transportation network, available labour force, available land and quality of life.

As noted earlier, Brampton's proximity to major North American markets and the depth of local suppliers are key factors in attracting and retaining manufacturing businesses to the region.

The City's proximity to these markets is supported by an extensive transportation network. Ontario's 400 series highways provide Brampton's businesses with excellent access to both markets and suppliers. Pearson International Airport, Canada's largest airport, is only minutes away and is engaged in a series of expansion projects designed to provide long-term capacity for growth in the region. The City is also connected to the region's GO Transit passenger rail network and a recently upgraded CN intermodal freight facility. In short, the City has the capacity to transport people and goods throughout the region and across the continent. Evidence of this capacity can be seen in the number of transportation and logistics companies in the region and the presence of several major warehouse and distribution centres.

Key support for this activity is provided by the region's telecommunications infrastructure. As part of the GTA, Brampton benefits by being within the largest free calling area in the world with the most reliable digital public network system in North America and the most intense ringed fibre system in North America.

The availability of labour is of concern to businesses that intend to remain in North America. A general aging of the population on this continent forces businesses to consider the demographic profile of the community they locate in to ensure that they will have access to the labour they require in the future. Brampton's population is young, relatively well educated with good incomes and projected to grow rapidly over the next two decades. Brampton's young, growing workforce is ideal for long-term business plans.

All these factors would, however, amount to little if there was no land available for business expansion in the City. Brampton has a significant inventory of land available for future industrial use. This capacity for growth stands in stark contrast to some communities that have exhausted their available land and ensures that the City will continue to capture a significant share of any future growth in the GTA.

Finally, the City presents a positive image of the quality of life in the community. The fact that Brampton is selected as the location for so many new businesses, and the testimonials of existing businesses confirms the positive relationship between the City and the businesses that chose to



make Brampton their home. A low crime rate, competitive local tax rates, local amenities and a well articulated vision for the future of the community are all factors that help make Brampton an attractive home for business and the people that make those businesses work.

Weaknesses

As a location for manufacturing enterprises, Brampton has few weaknesses. The local economy's ability to attract and retain new businesses attests to its strengths.

The local economy's most glaring weakness is, in fact, its foundation on the manufacturing sector. This sector is the driving force in the community. The transportation and logistics and warehouse and distribution centres in the region are dependent on the manufacturing sector. This report cited a number of national and global forces that are affecting the manufacturing sector in Canada. These factors include offshoring and global competition, tax and regulatory issues, financial markets – the higher Canadian dollar and rising interest rates – and higher commodity prices. A significant decline in manufacturing in the region would have profound consequences for the City.

Despite the City being home to some of the country's most prestigious companies, there are a limited number of hotel and convention facilities to attract business travelers. And while the GTA and surrounding area is home to a large number of academic and research institutions, Brampton is home to a limited number of these facilities including Sheridan and Magna. The new Sheridan Centre for Advanced Manufacturing and Design Technologies will be a significant addition to the City's educational infrastructure. Beyond the public sector, some corporations have established research and training centres. Encouraging the growth and development of both public and private sector research and education centres should be an important part of a strategy to encourage knowledge-based manufacturers over the next few decades.

Opportunities

Based on the C₄SE's current outlook for Ontario, the manufacturing clusters in the Toronto region that are expected to experience the most rapid growth over the next few years are already heavily concentrated in the City of Brampton. Brampton's strengths as a location for manufacturing should, therefore, make it a natural choice for this new business.

The growth of the transportation and logistics hub in the City provides opportunities for local manufacturers to have more immediate contact with and be more responsive to the needs of the major retailers and distributors headquartered in the City. Growth among these sectors can, and should, be mutually reinforcing.

Finally, the employment opportunities generated by this activity should continue to make Brampton an attractive place for young, educated people to locate and raise their families.

Threats

There are a variety of threats to Brampton's manufacturing sector. Many of these threats are beyond the control or jurisdiction of the City of Brampton or the businesses that will be affected. The assessment of the macroeconomic environment presented earlier in this report highlight a



number of key threats to the manufacturing growth not just in Brampton but throughout the country.

The cost of doing business in the GTA is rising including real estate values, utility prices, provincial and municipal fees and charges related to development, etc.

An additional threat to the manufacturing sector lies in the resilience of the transportation network to (i) growing demand and (ii) disruptions on major arteries or along the Canada-US border. Provincial projections suggest that even with major new infrastructure spending in the area in the future traffic congestion will continue to increase throughout the GTA. Businesses are likely, therefore, to increasingly consider locations other than Brampton (such as Hamilton, Brantford and Niagara) that are outside of the GTA and closer to their markets (primarily the US).

Preliminary Action Plan

The conclusions in this study represent some ideas for an action plan. The review process surrounding the delivery of this study in conjunction with other analysis conducted for or by the City will ultimately generate a set of initiatives.

The research in this study supports the Six Pillars strategy and encourages the City to continue working to achieve the vision articulated in that document. The City of Brampton is a highly integrated part of the GTA economy and must face the challenge of absorbing a significant portion of the region's growth over the next few decades. This is a challenge that the City has recognized and addressed with its long-term plan.

The following are a preliminary set of issues that the City should continue to monitor closely:

- ❖ New housing development and community infrastructure should be expanded to meet the needs of new residents and be consistent with the salaries and employment opportunities offered by new businesses. New community infrastructure will have to be responsive to the needs of new residents who may come from diverse backgrounds.
- ❖ The transportation network should be monitored for bottlenecks, capacity constraints, and contingency plans developed in the event of disruptions to parts of the system. The City should actively participate in long-term planning of the region's transportation network.
- ❖ The broader macroeconomic environment should be monitored so that the City remains aware of issues affecting manufacturers and related businesses in the region.
- ❖ The City's new Official Plan (a master planning tool for defining existing and future land-uses and supporting policies), could reflect the analysis undertaken in this study to ensure supporting provisions are established for future manufacturers, as well as establishing new land-use opportunities for the expected growth in the non-retail service sector.

This analysis recommends ongoing support for the statistics currently collected and maintained by the Brampton Economic Development Office. These measures provide valuable information on the development, current state and capacity for growth of the manufacturing sector in the region.

In addition to the current statistics, this study recommends that the City produce analysis that compares employment growth by manufacturing sector with similar measures for one or more of

the following regions: the Toronto CMA, the GTA, Ontario and Canada. As noted earlier in this study, there are a wide-ranging set of issues that are likely to influence manufacturing sector performance throughout the country. Careful review of these measures will help the City determine whether local employment changes are likely due to national or global forces that are affecting employment in other region's of the country or whether local factors are responsible.

This study also recommends that the City produce analysis of industrial demand for electricity, natural gas and water consumption. These measures would provide the City with near-term information on production trends and facilitate rapid analysis of potential problems and the development of strategies to address them.

These initiatives provide only a starting point for strategies to foster growth in Brampton. This report has found that the region is well positioned to attract and grow manufacturing over the next few decades. It has also pointed out the risks to the manufacturing sector both locally and throughout North America. These risks should be monitored. Beyond manufacturing, employment in a range of service sector industries is likely to be far higher than any experienced in manufacturing over the next few decades. Strategies for the City to expand its presence in these industries should also be explored over the next few years.



Appendix

Economic Base and Community Base Industries As Revealed Through Location Quotients

Economic Base and Community Base Industries

Communities exist because there is an economic reason for their existence: as a mining site, a manufacturing centre, a transportation hub, a tourism attractor. Industries providing products or services to businesses or people outside of a community are said to be export-based.

Traditionally the primary (agriculture, forestry, fishing and mining) and manufacturing sectors have been seen as the export-based engines of economic growth for communities.

Increasingly, however, many services are serving non-local markets. Exported services account for a growing share of the economic base of a number of communities. Numerous examples of exported services can be found: legal, accounting, architectural, engineering, software development and consulting firms serving national or international markets; call centres, data processing centres, head offices, back offices and warehouses serving non-local businesses; universities and hospitals serving sizable non-local populations; and attractions, hotels, restaurants and retail outlets serving tourists from other communities or other countries.

In sharp contrast to the export-based industries, most activity within a community serves the needs only of those living in that community. While exceptions exist, in most communities most of the activity in construction, education, health care and social assistance, other services and public administration, is driven by the needs of the local community. These industries would not exist in any community in the absence of some form of an export base.

Thus the economic potential of a community depends on the economic base already established and on the potential for growth in that base in the years ahead.

Calculating Location Quotients

The separate export and community shares of the activities of a community's industries and organizations are not readily known; they can be accurately assessed only through a detailed analysis of the revenue sources of each enterprise in the community. In the absence of such information, however, it is difficult to determine a community's true economic base.

Because such detailed information is not readily available, and because the analysis of such data would be costly even if it were, "location quotients" are used to define a community's economic base.

The location quotient of an industry compares the relative importance of a given industry in a given community to that industry's relative importance at a broader geographic scale. For example: food and accommodation accounts for 10 percent of total employment in a given community but it accounts for 8 percent of total employment at the provincial level. In this example the location quotient for the community in question for food and accommodation is 125 (10 divided by 8 times 100). The location quotient indicates that employment in food and accommodation in the community exceeds the norm by 25 percent. It is reasonable to assume that the above-normal portion (the location quotient less 100) reflects the portion of activity



attributable to demand from outside the local community. In this example 20 percent of the food and accommodation jobs can be considered export based (that is, 25 divided by 125 times 100).

In the main report we calculate location quotients based on two key sources of data, the Census of Canada and a tabulation of employment by industry data from the City of Brampton's employer database.

Census data provide information regarding employment by industry at a highly aggregated level, including for all of manufacturing (not for individual industries within manufacturing). Using census data for each of 1996 and 2001 in the main report we have determined how Brampton's economic base in a broad sense has changed in recent years. This comparison determined the extent to which manufacturing's relative importance to Brampton increased or decreased over that time, and the extent to which the various service industries in the City developed an export based component.

Using Brampton's data regarding employment by place of work for 2003 we determined which individual manufacturing industries dominate within that sector and which individual service industries have developed an export base.



Toronto CMA's Industry Clusters

Toronto CMA's Industry Clusters					
Cluster yellow shading = NA LQ > 1.1	Wages	Employment	Share in region	Can LQ	NA LQ
Aerospace Engines	53270	1336	0.1%	1.18	0.79
Aerospace Vehicles and Defense	55933	5247	0.2%	1.12	0.75
Agricultural Products	38886	4574	0.2%	0.46	0.79
Analytical Instruments	44573	8819	0.4%	1.75	0.65
Apparel	23780	13348	0.6%	1.04	1.37
Automotive	44250	41709	1.9%	1.29	1.63
Biopharmaceuticals	40873	7252	0.3%	1.92	1.46
Building Fixtures- Equipment and Services	36096	25234	1.2%	1.36	1.89
Business Services	53074	171609	7.9%	1.58	1.74
Chemical Products	47132	10445	0.5%	1.55	1.30
Communications Equipment	46770	6311	0.3%	0.93	0.74
Construction Materials	40946	1851	0.1%	0.73	0.50
Distribution Services	47896	54068	2.5%	1.55	1.40
Education and Knowledge Creation	38528	48507	2.2%	0.84	1.05
Entertainment	37555	32201	1.5%	1.34	1.49
Financial Services	71513	159622	7.4%	1.60	2.31
Fishing and Fishing Products	33857	175	0.0%	0.02	0.10
Footwear	27926	225	0.0%	0.38	0.53
Forest Products	42523	8015	0.4%	0.62	1.02
Furniture	30975	5020	0.2%	0.51	0.70
Heavy Construction Services	39816	34493	1.6%	0.74	0.93
Heavy Machinery	44905	6346	0.3%	0.59	0.80
Hospitality and Tourism	28458	43257	2.0%	0.74	0.86
Information Technology	51756	24711	1.1%	1.79	1.43
Jewelry and Precious Metals	33974	3715	0.2%	2.07	1.61
Leather and Related Products	29806	2217	0.1%	1.00	0.93
Lighting and Electrical Equipment	40476	5208	0.2%	1.55	0.88
Medical Devices	47454	8231	0.4%	1.90	1.19
Metal Manufacturing	39999	36308	1.7%	1.32	1.37
Motor Driven Products	42869	4165	0.2%	0.69	0.56
Oil and Gas Products and Services	74256	5118	0.2%	0.24	0.56
Plastics	40998	13496	0.6%	1.71	0.88
Power Generation and Transmission	62635	11126	0.5%	1.73	1.95
Prefabricated Enclosures	45386	4744	0.2%	0.97	0.87
Processed Food	41543	33553	1.6%	1.06	1.23
Production Technology	45586	14226	0.7%	1.07	1.13
Publishing and Printing	40468	42667	2.0%	1.64	2.20
Sporting- Recreational and Children's Goods	33222	792	0.0%	0.53	0.41
Textiles	30995	4771	0.2%	0.90	0.68
Tobacco	49470	604	0.0%	1.01	0.82
Transportation and Logistics	46321	49338	2.3%	1.12	1.51
Total Traded Clusters	48776	954651	44.2%		
Total Local Industries	33414	1193969	55.2%		
Total Natural Resource Industries	44494	12823	0.6%		
Total	40265	2161443	100.0%		

Source: <http://www.competeprosper.ca/clusters/project.html>

