

Cluster Atlas of Canada

A data profile of resource, manufacturing, and service clusters in Canadian provinces using data from the 2011 Census and National Household Survey

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Report Highlights

This report identifies where the major industrial clusters exist within Canada and provides indicators of their relative performance. The purpose is to provide a comprehensive overview of the economic landscape of the country and map areas of strengths and weakness in order to inform decisions concerning allocation of public resources. A well-established methodology for identifying and mapping clusters is derived from the work of Spencer et al (2010). The main data sources are the 2011 National Household Survey and a 2011 universal business establishment database acquired from Dun & Bradstreet.

Key highlights include:

- 230 cases of clusters identified in Canada
- Ontario leads with 86, followed by British Columbia (43), Québec (39), and Alberta (30)
- There is a general lack of clusters in Atlantic Canada
- Oil & gas and mining have been the best performing sets of clusters between 2001 and 2011 in terms of employment growth and incomes
- Service clusters such as business services, finance, ICT services, and creative & cultural industries tend to be located in the largest urban areas and are experiencing high levels of growth
- More traditional manufacturing clusters such as auto manufacturing, steel, plastics & rubber have generally been struggling over the past decade
- The previous two points suggest that there is a growing prosperity gap between smaller/mid-sized urban regions and the largest urban regions
- Knowledge intensive manufacturing clusters such as ICT and life sciences (including pharma) have shown somewhat mixed performance

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1.0 Introduction

1.1 Aims of the report

The purpose of this report is to provide a complete overview of the industrial cluster landscape in Canada. By doing so, specific areas of strength are identified within the national economy. This knowledge can help to inform strategic investments made by the public sector in areas such as infrastructure, education and training, and research and innovation. Clusters are broadly defined as sets of interrelated industries, firms, and institutions, which benefit from being in close physical proximity. A well-established and consistent quantitative methodology developed by Spencer et al (2010) is used to identify clusters in Canada. The report is data-driven and presents indicators such as employment, growth, and incomes in order to assess the relative performance of each identified cluster.

The remainder of this section provides an overview of the cluster concept, its criticisms, and recent developments. Section 2 presents the methodology of identifying clusters in greater detail as well as explains the data sources and how they should be interpreted. The third section gives a national overview of the number of clusters identified by type and geography. Section 4 contains comparative data on the 20 types of clusters identified. The fifth section presents profiles of 32 specific clusters that are intended to provide a comprehensive cross-section of cluster types and locations. The final section discusses overall cluster trends in Canada and interprets them within a pro-active policy framework.

1.2 A brief survey of cluster theory

There is now widespread understanding that the geographical clustering of related

industrial activity within particular places provides the basis for their economic prosperity and growth. Policy-makers often apply the analysis of academics or consultants in order to determine the presence of specific clusters within their jurisdictions, and to benchmark their performance relative to competing clusters in other regions or countries. The model developed by Harvard business strategist Michael Porter (1990) (1998) (2003) provides the benchmark for the field, having been propagated by his own company, as well as affiliated organizations outside the United States. This approach has also been replicated and adapted by many other consultants providing similar analyses worldwide.

The literature on clusters exists within a much broader body of work on the relationships between innovation processes and geography, including clusters, industrial districts, local production systems, and other similar concepts, which has been thoroughly reviewed in recent years (Moulaert & Sekia, 2003; Simmie, 2005; Lagendijk, 2006). For the purposes of this report, the following discussion focuses on the literature that is specific to clusters.

Porter (1998) defines clusters as: geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example, trade associations, universities, standards agencies) in a particular field that compete but also cooperate. (pp. 197–198) The fundamental theory of clusters suggests that interrelated firms and industries achieve a measure of competitive advantage by being geographically concentrated in certain locations. Economists have seized upon Marshall's (1927) original beliefs on the nature of

agglomeration economies by generally agreeing on three types of supply-side externalities that contribute to the growth of clusters. The sources of these externalities include:

- large, deep pools of specialized labour generated by the concentration of firms within related industries in the same location;
- the support that firms in the same industry illicit from a large number of specialized local providers of intermediate inputs and services; and,
- the positive technological externalities or spillovers that flow more easily among co-located firms than over longer distances (Krugman, 1991; Cortright, 2006).

The advantages enjoyed by firms in such agglomerations include traditional external economies of scale, such as shared physical infrastructure, in addition to efficiency gains from reduced transaction costs and access to specialized labour. Other advantages are based on the transfer of knowledge, including the movement of skilled labour as well as inter-firm collaboration and networking (Porter, 1998). Clusters have also been widely adopted as a policy mechanism for economic development based on the conviction that they provide a foundation for economic growth for local and regional economies. Furthermore, they have attracted the attention of policy-makers based on the belief that public institutions and regulations have a strong influence on cluster dynamism, thereby having a discernible and measurable impact on the prosperity of local economies (Information Design Associates with ICF Kaiser International, 1997; Organization for Economic Cooperation & Development (OECD), 1999; Porter, et al., 2001; Andersson, et al., 2004).

2.2 Criticisms of the cluster concept

Direct evidence of the tangible impact of clusters on economic growth remains somewhat scarce. Despite their widespread popularity with policymakers, clusters pose challenges that make their systematic identification and measurement difficult. This difficulty in turn contributes to scepticism with which cluster analyses and policy prescriptions are treated. Specific criticisms of the cluster concept are articulated by (Martin & Sunley, 2003) and (Asheim, et al., 2006), among others, who raise a number of conceptual and empirical questions about the validity of the cluster construct. For example, they note the vague and inexact definition of the geographical extent of the cluster concept, noting that it is applied at a range of spatial scales. Moreover, they question the extent to which the supposed beneficial impact of clusters on firm innovativeness and regional economic performance has been confirmed on a systematic basis across different locations and industries. Similarly, Wolfe and Gertler (2004) provide empirical evidence that questions the universality of some of the standard claims made in the cluster literature, for example, concerning local competition as a driver of firm performance (see also (Breschi & Malerba, 2005)). Wolfe and Gertler conclude that national and local contexts are central in shaping distinctive evolutionary trajectories that do not necessarily conform to Porter's US-based cluster norms. For this reason, it makes little sense to apply a conceptual and methodological framework – based as it is on the specificities of the American context – in other empirical settings without significant reflection, modification or adaptation. These critiques bring to the fore an inherent tension between the desire to develop and implement a conceptual framework that has widespread applicability (thereby facilitating comparative analysis) and the need for

an analytical approach that is sufficiently supple to accommodate regional and national variations in economic structure, inter-sectoral relationships, and historical context.

2.3 Recent developments on clusters

The cluster concept has endured and thrived despite criticisms that it is overly vague and difficult to implement in a systematic manner. These criticisms have led to more detailed research that focuses on better ways to identify clusters, analyse their impact, and recognize best practise. Notably, Muro and Katz (2010) from the Brookings Institution outline what they believe to be a new 'cluster moment' by stating that recent research has added a significant amount of validity to the concept. Furthermore, effective clusters are tangible and 'real' initiatives that enable both public sector policy but also private sector strategies for innovation and growth. This thinking is also reflected in

the Canadian context by the recent report published by the Toronto Board of Trade (2012) that compares the performance of selected city-regions with their American counterparts. The report heavily relies on and promotes clusters as a way forward to enhancing growth in the local economy. Also, in the Canadian context Spencer et al (2010) provides both a detailed methodology and a clear evaluation of the economic benefits of clusters to local economies. The methodology addresses the distinct nature of the Canadian economy and departs somewhat from the standard cluster definitions provided by Porter (discussed in greater detail in the next section). Using this methodology Spencer et al identified 263 individual clusters in Canada using data from the 2001 Census and show that incomes were nearly \$10,000/year higher in industries that are geographically clustered. This work helps to provide a comprehensive analytical framework for the analysis in this report.

This section has been adapted from: Spencer, GM, Morales, J. and Wolfe, DA. 2012. Locating high growth firms within Canadian industrial clusters. *Industry Canada*.

2.0 Data & Methods

2.1 Cluster identification

One of the difficulties of performing cluster analysis is developing a systematic methodology for identifying when and where they occur. Different types of industries cluster for different reasons in different places. The main goal of this report is to look at the Canadian economy as a whole through a cluster lens. Thus, the methodology adopted is broad and inclusive in nature rather than tailored to any one specific case. Specifically, this report uses the methodology created by Spencer et al (2010) as it is well established in the academic literature and has been used in a number of policy reports for Industry Canada, various Ontario Ministries, and other public sector institutions. It has the benefit of being comprehensive in terms of both industries and geography while taking into account the particular structure of the Canada economy (as opposed to Porter's methodology which is based on the US economy). The methodology is based on geographic patterns co-location of employment in specific industries (4-digit NAICS) in Census Metropolitan Areas (CMAs) and Census Agglomerations (CAs) using the 2001 Census of Population and the 2011 National Household Survey (NHS). Ideally the methodology would also include input-output linkages as well as labour flows but these data are not available at the level of disaggregation required for the detailed analysis to follow.

There are three main steps to the methodology. The first is to isolate the industries that display a propensity to be geographically ubiquitous. These industries tend to be things such as retail and local government that are correlated to residential populations. They are also non-basic industries (non-exporting) and are therefore not of interest to the

analysis. The second step maps the geographic pattern of the remaining industries in order to determine which groups tend to commonly locate together in the same city-regions. At this point 19 cluster types (groups of 4-digit NAICS industries) are identified. Aluminium has been added at the behest of Industry Canada for the purpose of this report for a total of 20 cluster types. The third and final step involves identifying the city-regions where each of these cluster types are strongly evident. Individual cases of clusters are identified if they meet all three of the following criteria:

- **SCALE:** the sum of local employment must be greater than 1,000;
- **SPECIALIZATION:** the percent share of local employment in the defined industries must be greater than the percent share of these industries (location quotient > 1); and,
- **SCOPE:** the location quotient at least half of the component industries must be greater than 1.

These criteria are relatively strict and are intentionally designed to segment out only the strongest cases of clustering. The binary nature means that some industry groups in some places that just fall short of meeting the criteria will not be included in the analysis but it should not be interpreted that there is 'nothing' in such places. Applying these steps to the 2011 NHS results in the identification of 225 cases of clusters in Canada.

2.2 Cluster indicators

Indicators are created for each identified cluster based on cross-tabulated data between the sets of 4-digit NAICS codes and CMA/CA in which they are located. As such cross-tabulations are very finely

grained they require very large datasets in order to populate them and thus, the scope of indicators is somewhat limited. The National Household Survey (NHS) is used for labour market indicators including incomes, employment growth, demographics of the labour force, educational attainment, and occupational structure. Firm data is obtained from Dun & Bradstreet including the precise locations of business and the number of employees at each site.

2.3 Primary data sources

The original cluster study by Spencer et al (2010) used the 2001 Census of Population to map out Canadian clusters. This report relies on the NHS in the same manner but it must be noted that the differences between the two pose a few issues. One is that change between the 2001 and 2011 time periods cannot be measured exactly as the data come from different research instruments. The second is that the response rates are inconsistent across geography (and likely industry) and so there is more data suppression issues with the NHS. In practical terms this means that smaller industries in smaller city-regions (CAs) are likely undercounted somewhat in this study. Further to the point smaller clusters in smaller city-regions may be going unrecognized and the overall number of clusters is possibly underreported.

The firm level data is provided by Dun & Bradstreet in the form of a universal file for 2011 (approximately 1.3 million firms) in order to coincide with the 2011 Census and NHS. D&B tracks all firms (and organizations) in all industries that they find to be financially active. Much of their information is derived from financial transaction data (their core business is credit rating) obtained from partner organizations. D&B claims that they capture around 97-98% of firms. Any firm

is able to opt out of their dataset but reportedly few do so. The data is supplemented and updated through direct inquiries from D&B to the firms themselves. This process is done on a rolling basis and most firms are up-to-date with six months.

2.4 How to read and interpret the results

The Spencer et al (2010) methodology was originally intended to assess the overall impact of clustering within a Canadian context. Therefore, it is best suited to addressing similarly broad questions. While it is not intended for detailed case-studies it can still be useful in this regard. The primary datasets are also large and universal and so best suited to bigger questions. Using the NAICS system is somewhat restrictive and there will always be issues about what to include/exclude. The methodology uses a common algorithm for all cluster types in order to maintain consistency. Each cluster type has core industries as well as secondary/supportive industries that are included in the definition. It is probable that some of the individual firms but not all within the secondary industries are actively related within each cluster. The potential drawback of using aggregate industry data is that the size of clusters can be overstated. Overall, the choice has been made to be broad and inclusive with definitions rather than narrow and restrictive and the reader should keep this in mind when interpreting the results of the analysis.

3.0 National Overview

Applying the Spencer et al (2010) methodology to the 2011 NHS led to the identification of 230 clusters across 21 types (please see Table 3.0.1). In describing the overall national picture, it is best to speak in terms of resource, manufacturing, and services clusters.

Resource clusters, which include agriculture, forestry, mining, and oil & gas tend to be found in smaller urban areas that support large surrounding hinterlands. The location of such clusters follow a relatively straightforward logic of being where the resources are. That being said the necessary physical infrastructure required to bring the resources to market

need to be well-developed. While the fortunes of such clusters are highly dependent on global commodity prices, efforts to innovate in processing and logistics can reap rewards. Canada should be a world leader in this area due to its abundance of resources.

Manufacturing clusters tend to be located in mid-sized city-regions in Southern Ontario and Quebec. These clusters are often closely linked with one another as well as similar ones in the United States. Innovation is key to the long-term survival of many of these clusters as global competition is intense. For relatively low knowledge intensive clusters such as

Table 3.0.1
Cluster Count by Type and Province

	NL	PEI	NS	NB	QC	ON	MB	SK	AB	BC	TOT
Agriculture	-	-	-	-	5	9	1	1	1	2	19
Maritime	1	-	2	-	-	1	-	-	-	4	8
Forestry & Wood	-	-	-	2	4	1	-	-	-	11	18
Mining	-	-	1	1	3	4	1	2	2	2	16
Oil & Gas	-	-	-	-	-	1	-	1	10	1	13
Construction	-	-	-	-	-	1	-	1	9	11	22
Logistics	-	-	-	1	1	6	-	-	1	1	10
Textiles	-	-	-	-	1	2	1	-	-	-	4
Food & Beverage	1	-	-	1	4	6	-	-	1	2	15
Aluminum	-	-	-	-	3	-	-	-	-	-	3
Steel	-	-	-	-	3	9	-	-	2	-	14
Automotive	-	-	-	-	3	16	-	-	-	-	19
Plastics & Rubber	-	-	-	-	6	7	-	-	-	-	13
Life Sciences	-	-	-	-	2	3	1	-	-	1	7
Aerospace	-	-	-	-	1	-	1	-	-	-	2
ICT Manufacturing	-	-	-	-	2	6	-	-	1	-	9
ICT Services	-	-	-	2	1	2	-	-	1	1	7
Finance	-	-	-	-	1	3	-	-	-	1	5
Business Services	1	-	-	2	1	3	-	-	1	2	10
Creative & Cultural	-	-	-	-	1	1	-	-	-	1	3
Higher Education	1	1	-	1	-	5	-	1	1	3	13
TOTAL	4	1	3	11	39	86	5	6	30	43	230

textiles the future will depend on highly specialized niche firms. For more knowledge intensive clusters such as ICT manufacturing strong innovation ecosystems need to be built and maintained. This means the active management of linkages between firms, universities, research labs, governments and various community partners.

The majority of service clusters are located in large urban areas. While many of these clusters have key anchor firms they tend to have high numbers of small firms as well as a significant amount of self-employment. Service clusters have generally been faring well over the past ten years showing clear patterns of employment growth. The health of these clusters is strongly tied to the health of the urban environment in which they inhabit. Liveability factors are key and in particular urban transportation systems are emerging as a major issue in the largest urban areas in Canada.

Ontario (86) and Quebec (39) are the

provinces with the most clusters as they possess the vast majority of manufacturing clusters as well as many resource and services clusters (please see Figure 3.0.1). British Columbia (43) and Alberta (30) are next with the former home to many forestry & wood clusters and the latter with oil & gas. These are the fastest growing areas of the country and thus also have an abundance of construction activity. The Atlantic Provinces generally have a dearth of clusters as they do not possess either large city-regions or a wealth of resources.

The fastest growing types of clusters are generally in service-based industries or mining and oil & gas (please see Figure 3.0.2). The latter two boast the highest average full-time employment incomes. Most of the types of manufacturing clusters have seen employment declines between 2001 and 2011. This trend has meant trouble for mid-sized urban areas in Ontario and Quebec. It also underscores the general shift in economic output in Canada from east to west.

Figure 3.0.1

National Cluster Count Map

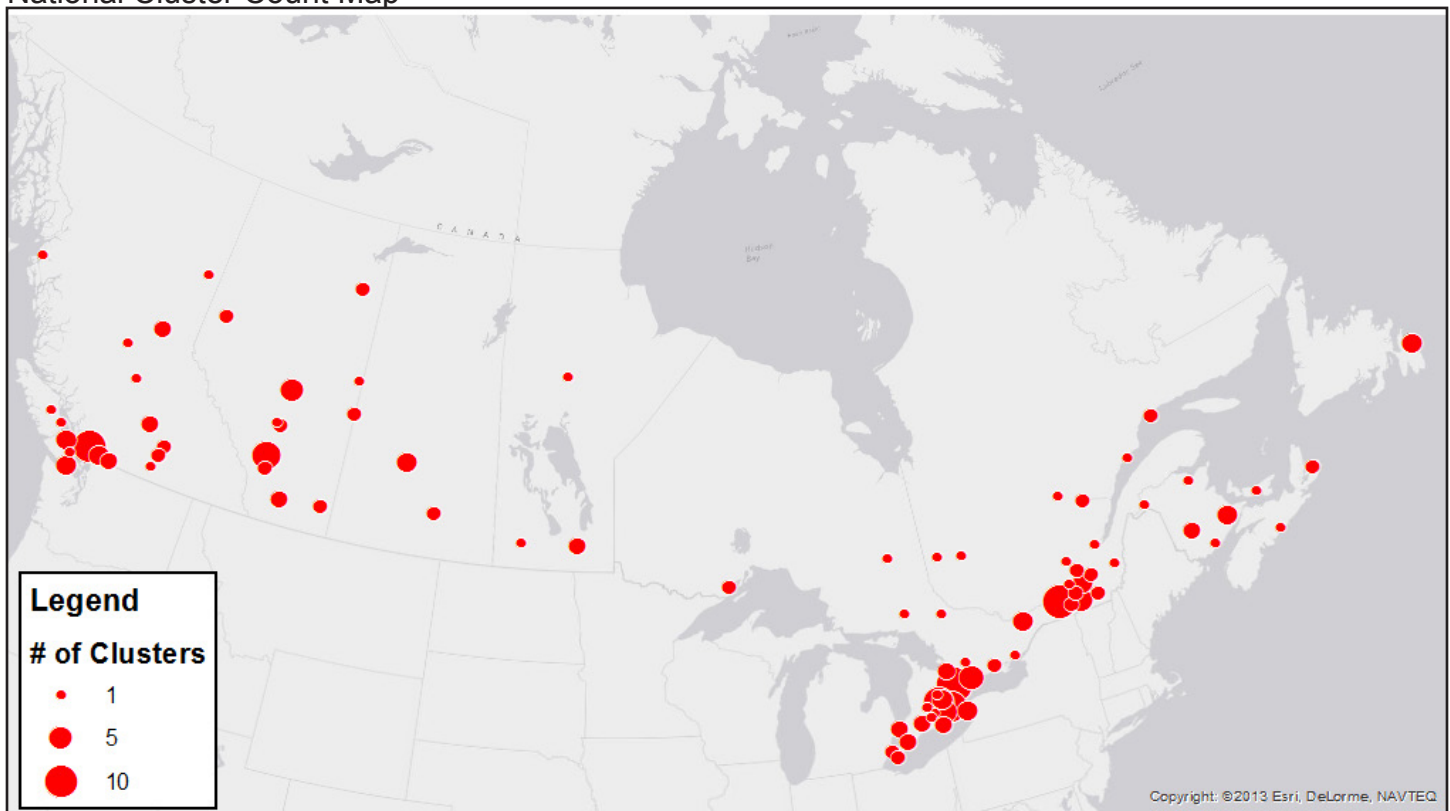
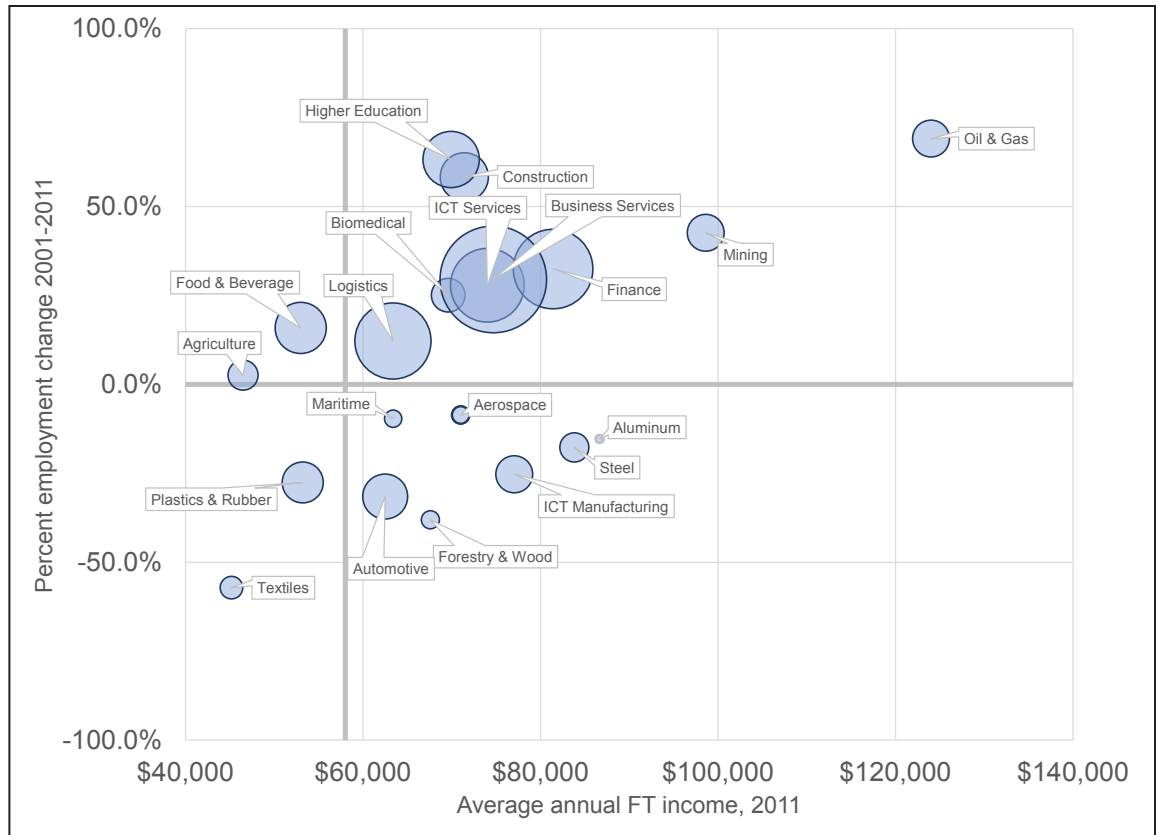


Figure 3.0.2
Average Full-time
Incomes, Growth,
and Employment
by Cluster Type



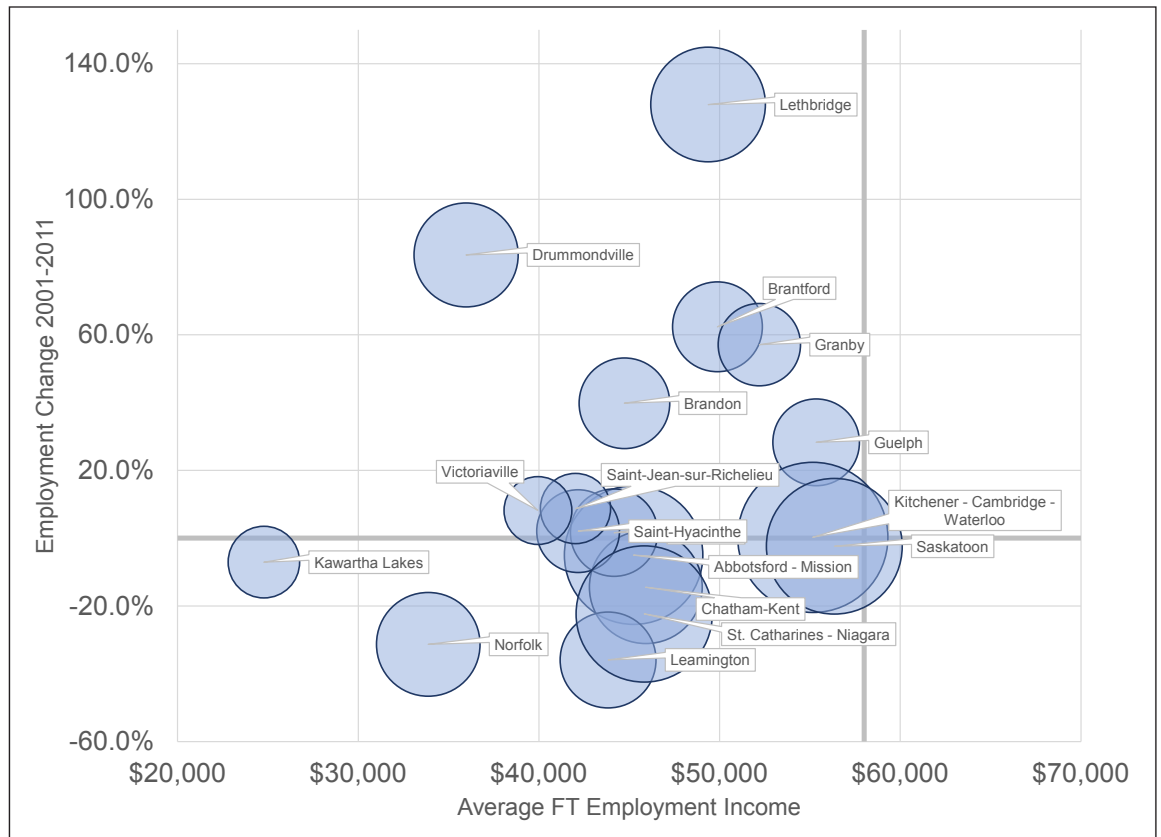
Note: Size of bubbles refers to number of employed persons

4.0 Cluster Types

This section provides general information about clusters according to type. Clusters are mapped by location and employment and differentiated by incomes and growth rates. These cluster types are groups of related 4-digit NAICS industries identified by the Spencer et al (2010) methodology (see Appendix A for specific definitions). The exceptions to this are aerospace and aluminum which were added at the request of Industry Canada. These did not come out of the original methodology as they are not found to be systematically associated with additional industries. Part of the reason for this is that they are concentrated in only a few locations (aerospace = 2; aluminum = 3) and are therefore somewhat special cases in the Canadian context.

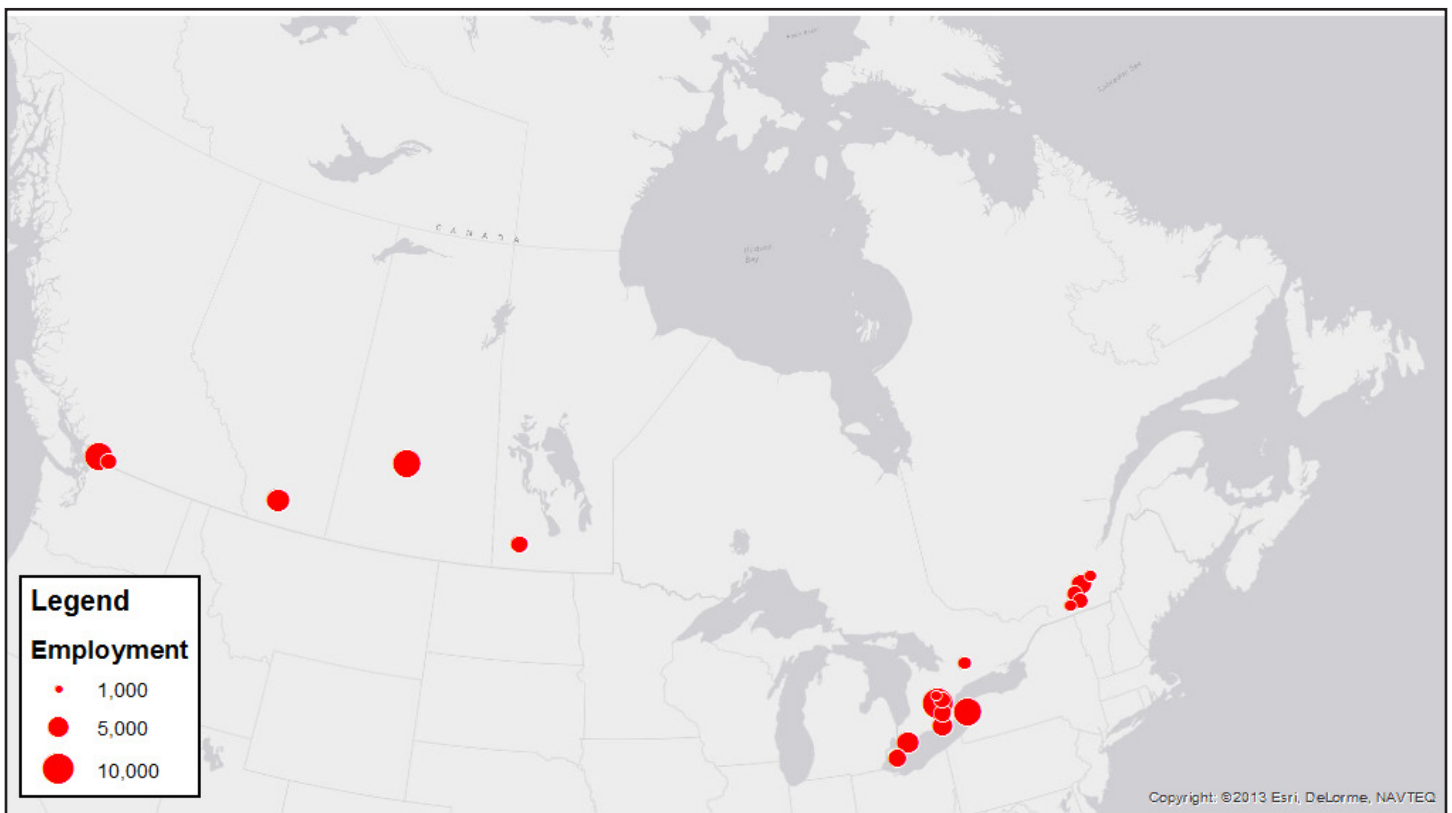
4.1 Agriculture

Figure 4.1.1
Agriculture
Clusters
Comparison



Note: Size of bubbles refers to number of employed persons

Figure 4.1.2
Agriculture Cluster Map



4.2 Maritime

Figure 4.2.1
Maritime
Clusters
Comparison



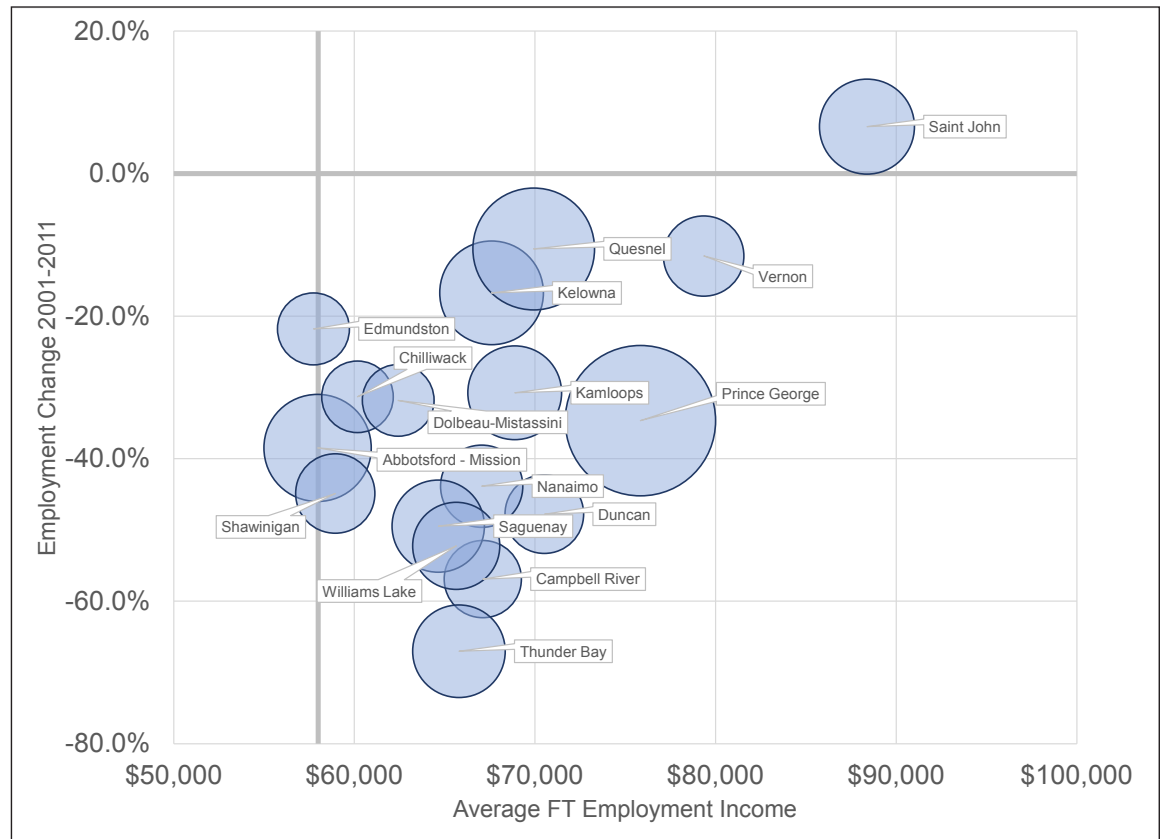
Note: Size of bubbles refers to number of employed persons

Figure 4.2.2
Maritime Cluster Map



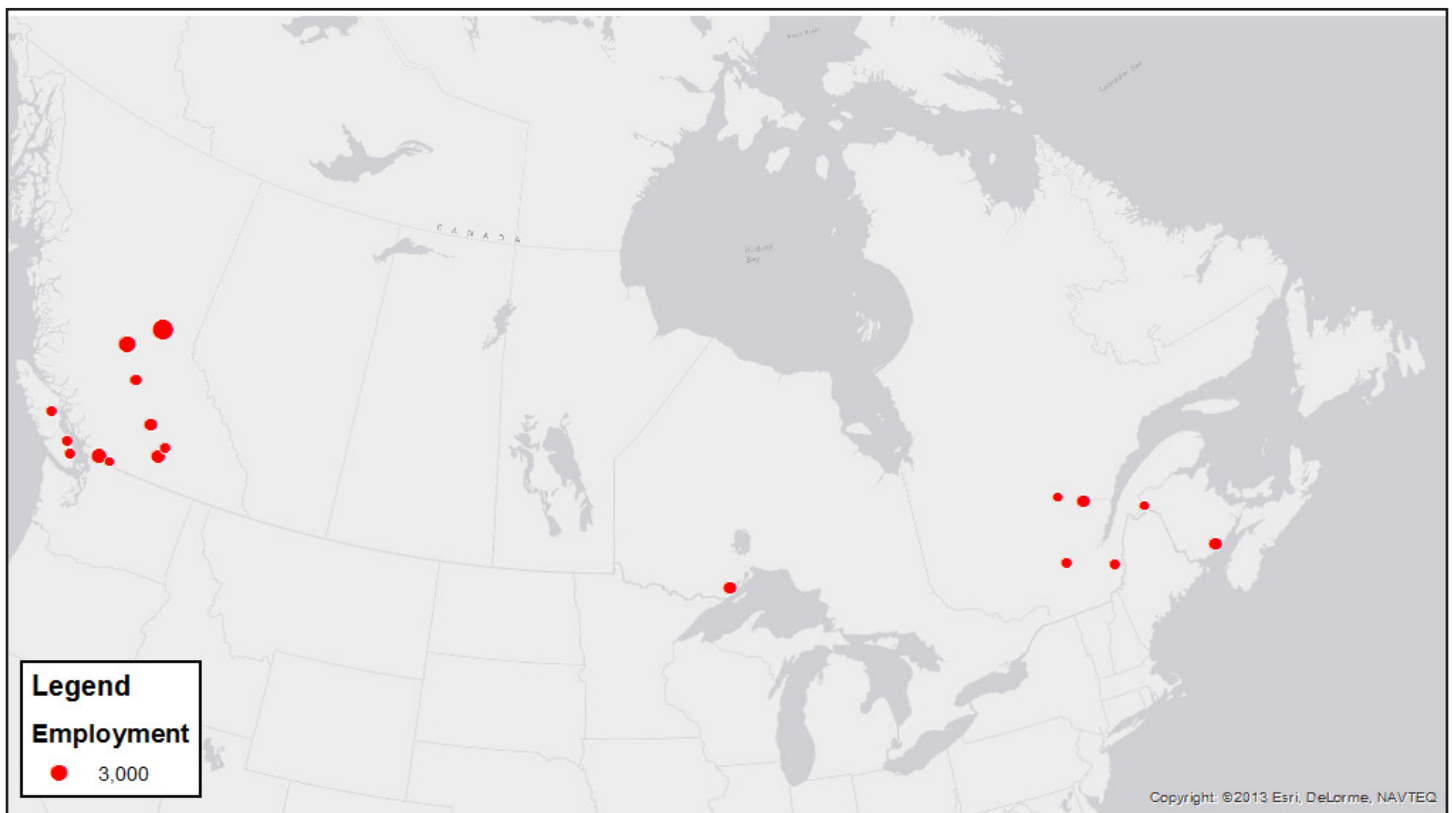
4.3 Forestry & Wood

Figure 4.3.1
Forestry & Wood
Clusters
Comparison



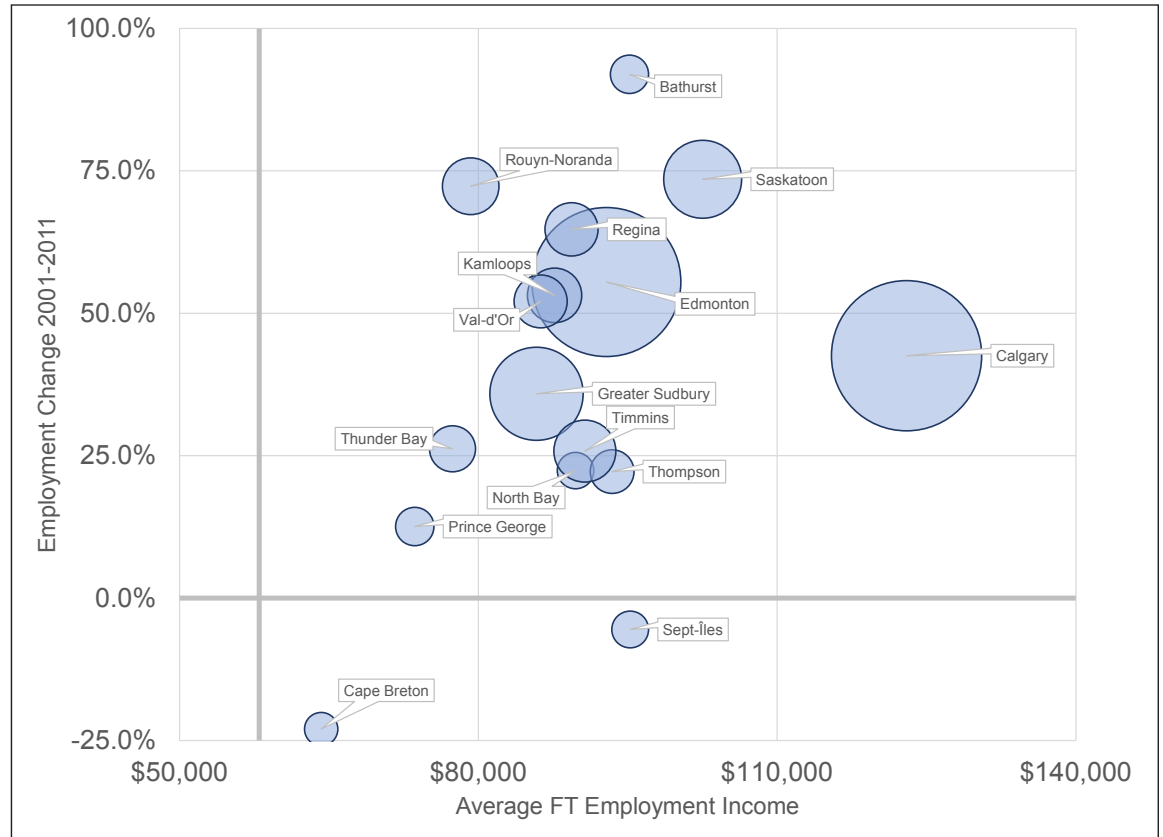
Note: Size of bubbles refers to number of employed persons

Figure 4.3.2
Forestry & Wood Cluster Map



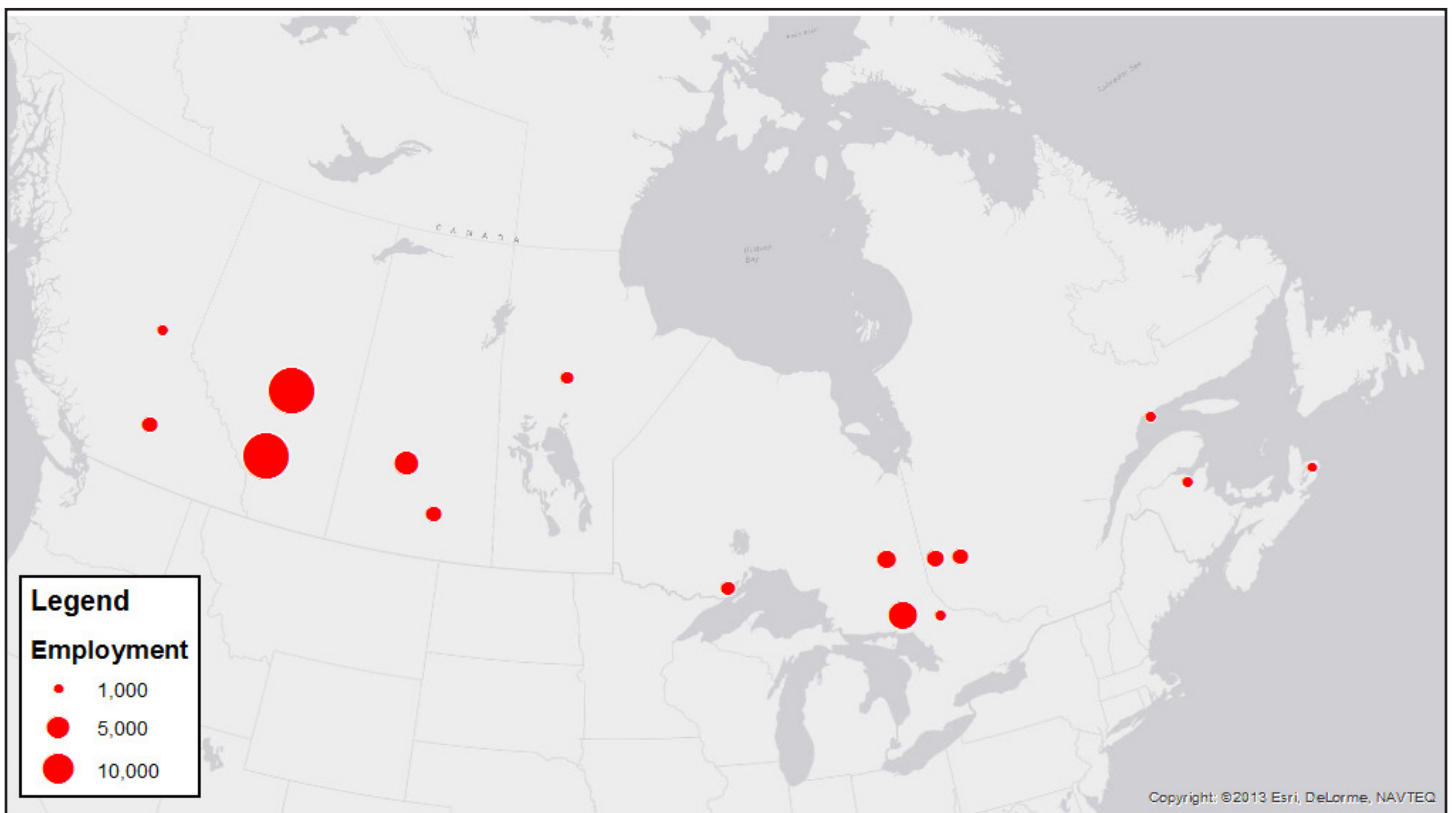
4.4 Mining

Figure 4.4.1
Mining Clusters Comparison



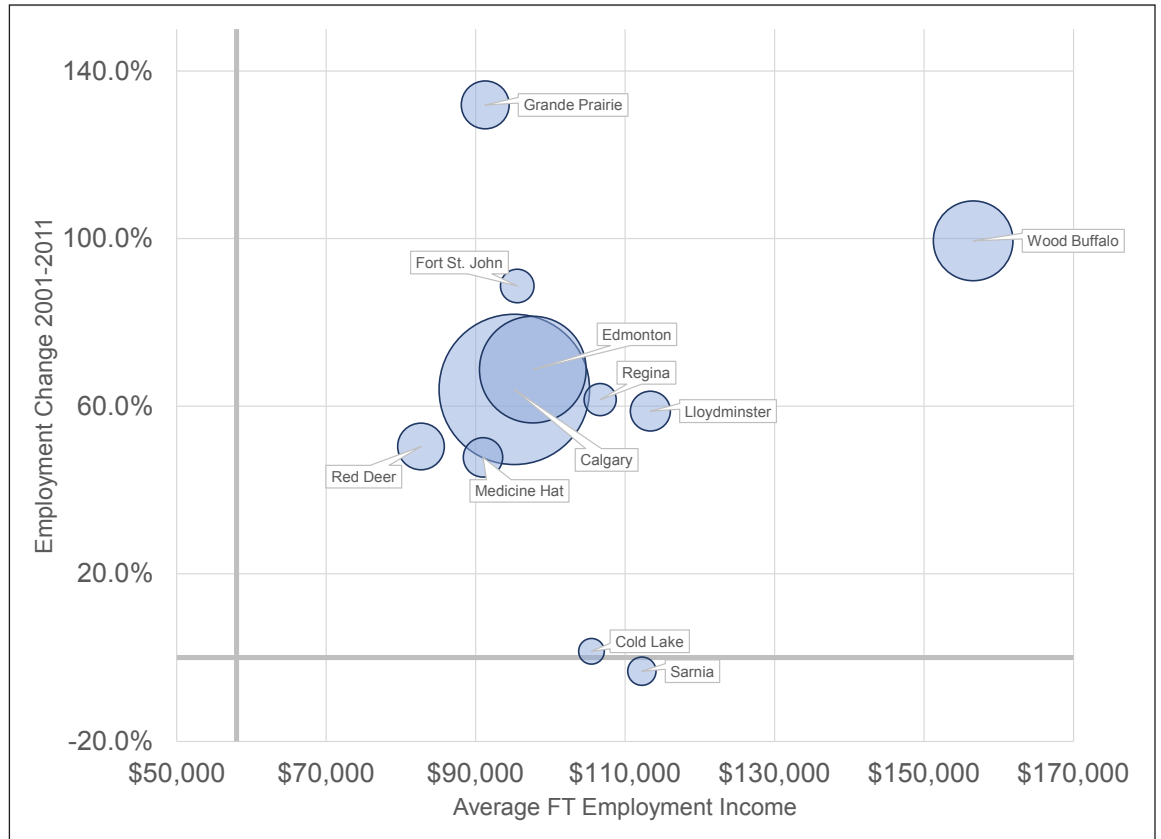
Note: Size of bubbles refers to number of employed persons

Figure 4.4.2
Mining Cluster Map



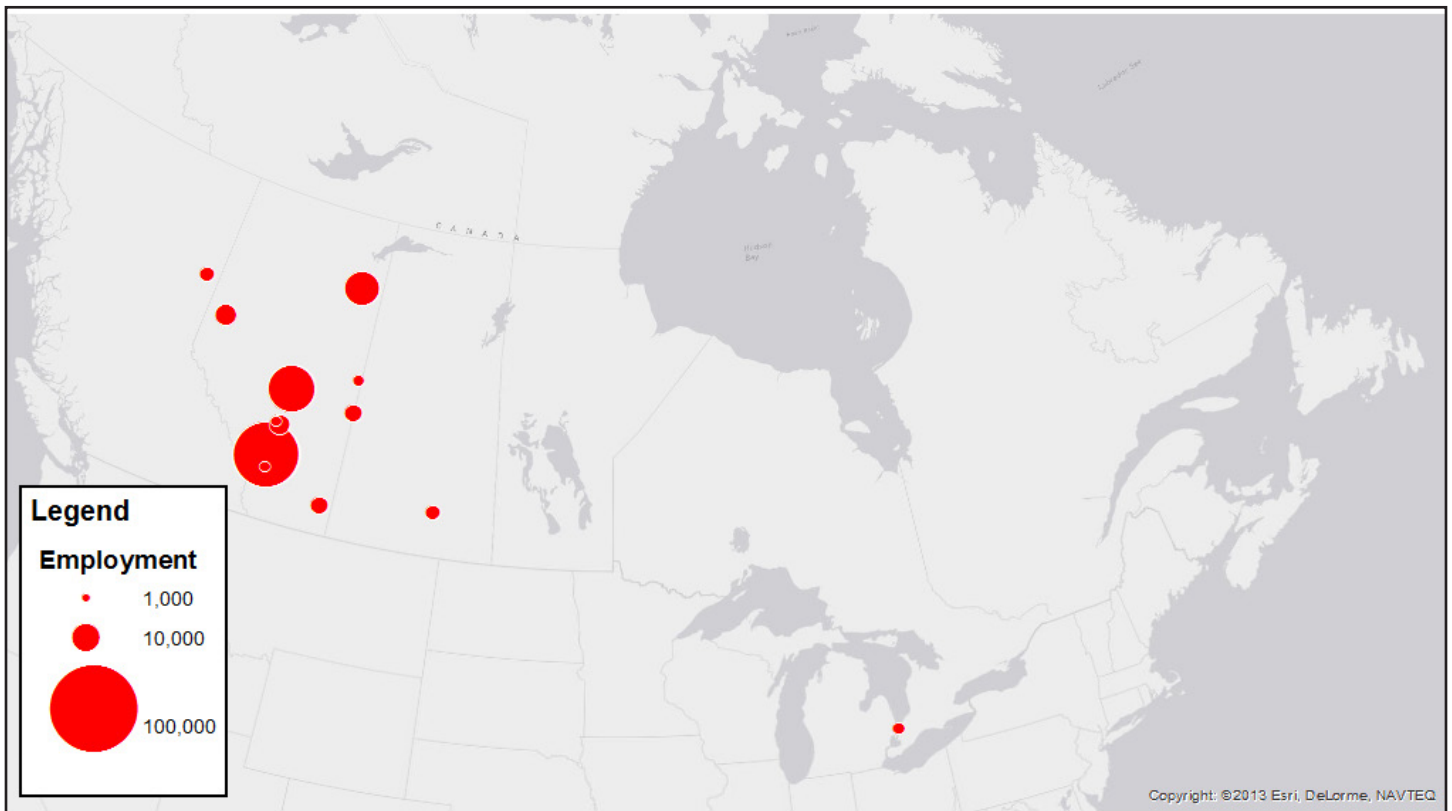
4.5 Oil & Gas

Figure 4.5.1
Oil & Gas
Clusters
Comparison



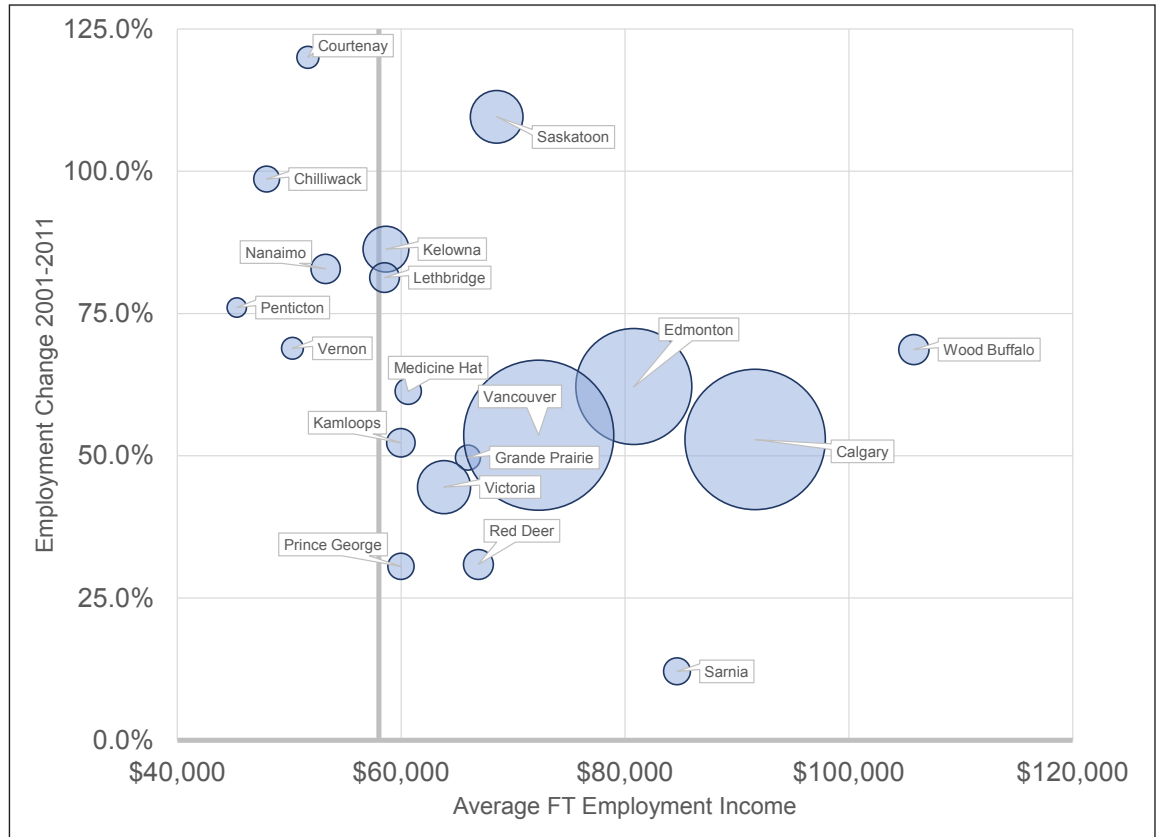
Note: Size of bubbles refers to number of employed persons

Figure 4.5.2
Oil & Gas Cluster Map



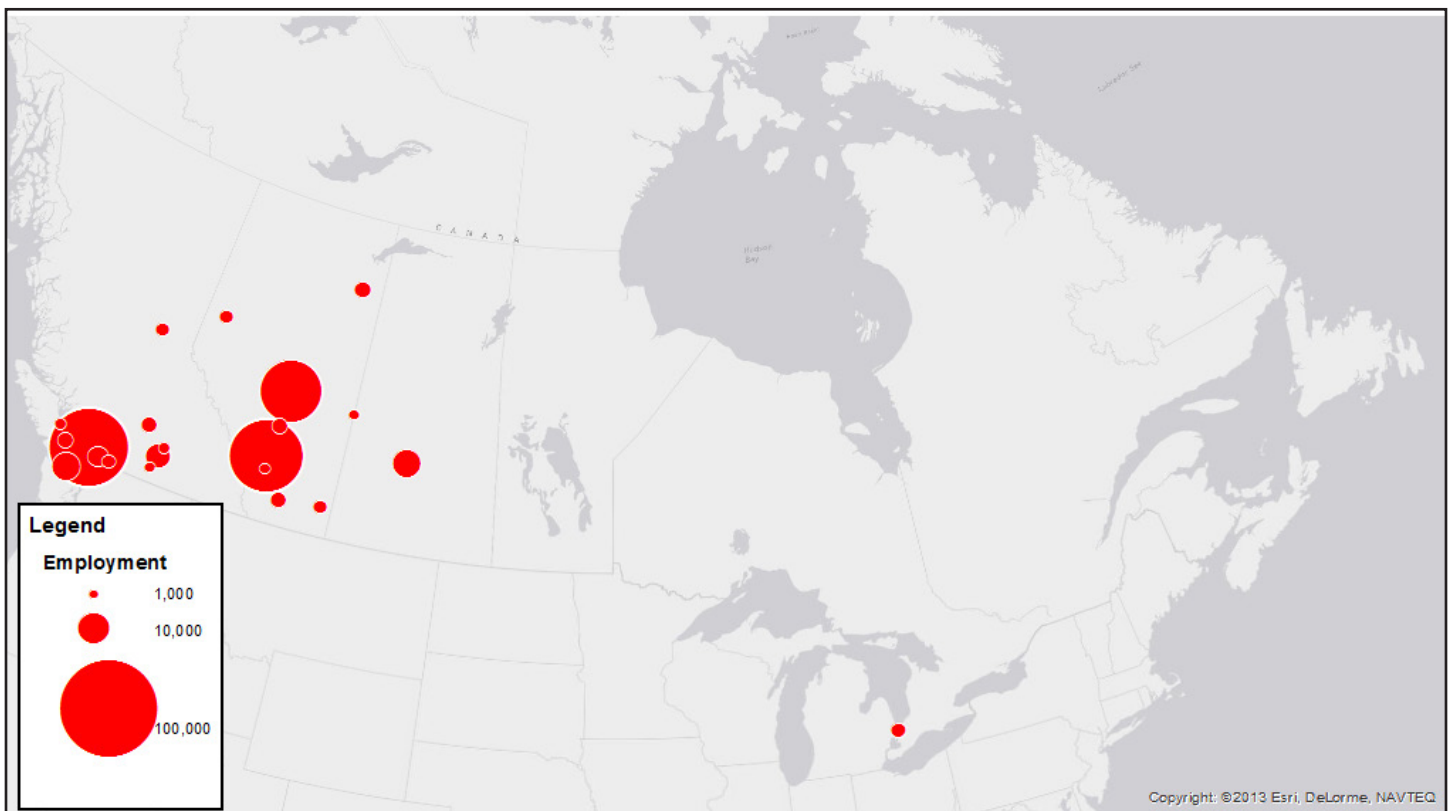
4.6 Construction

Figure 4.6.1
Construction
Clusters
Comparison



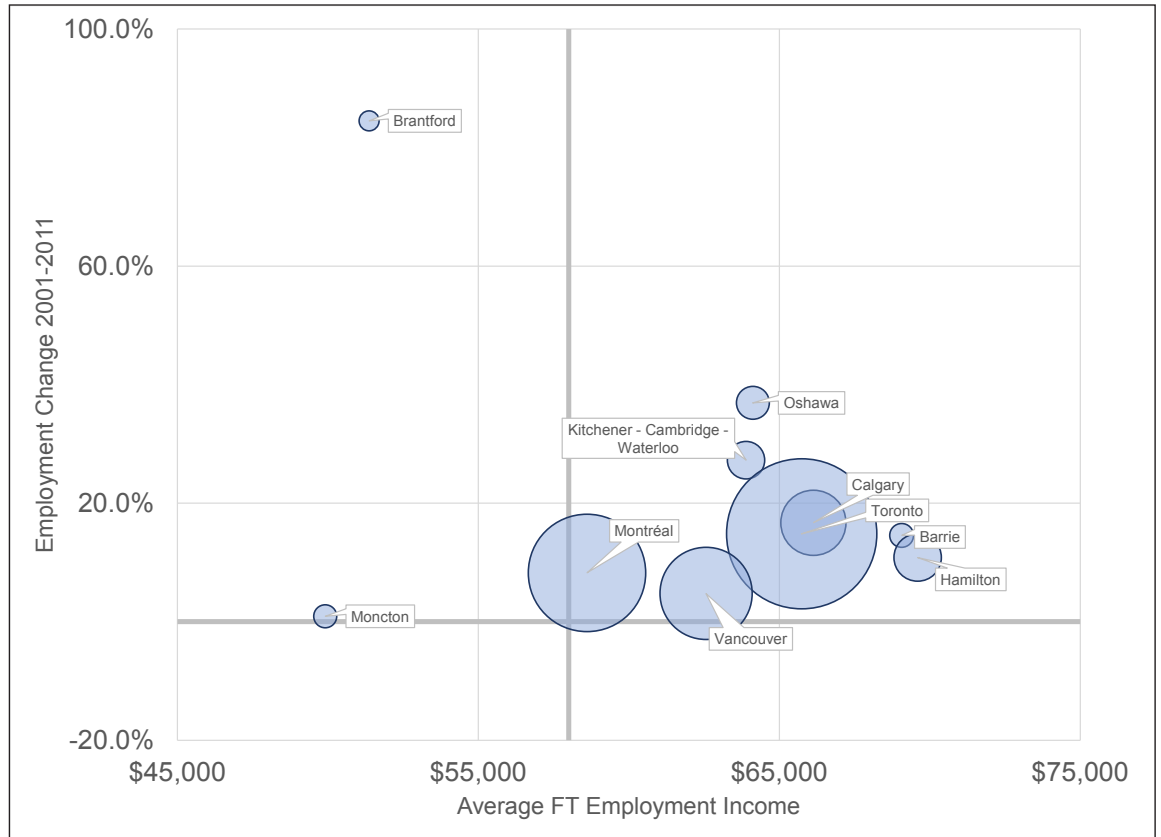
Note: Size of bubbles refers to number of employed persons

Figure 4.6.2
Construction Cluster Map



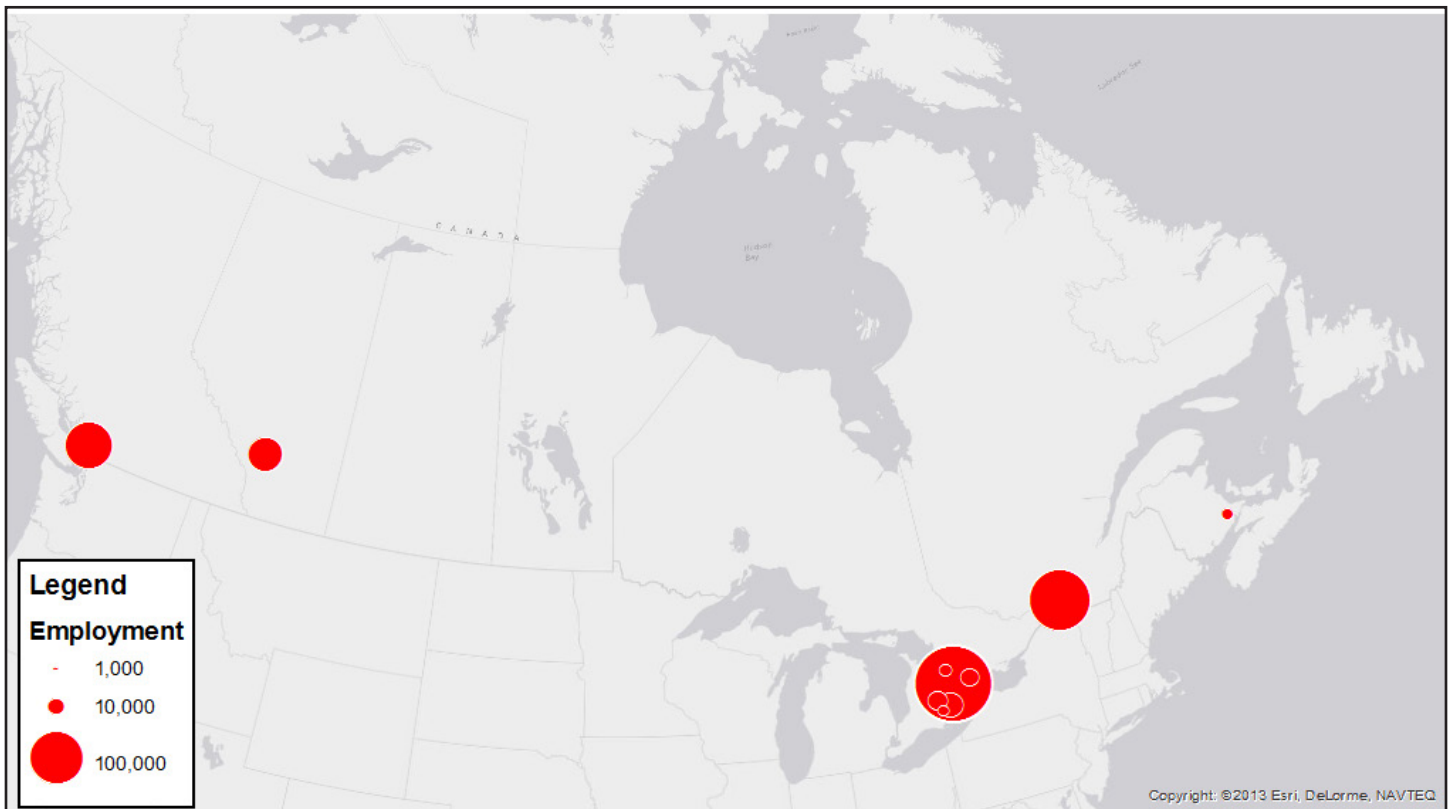
4.7 Logistics

Figure 4.7.1
Logistics
Clusters
Comparison



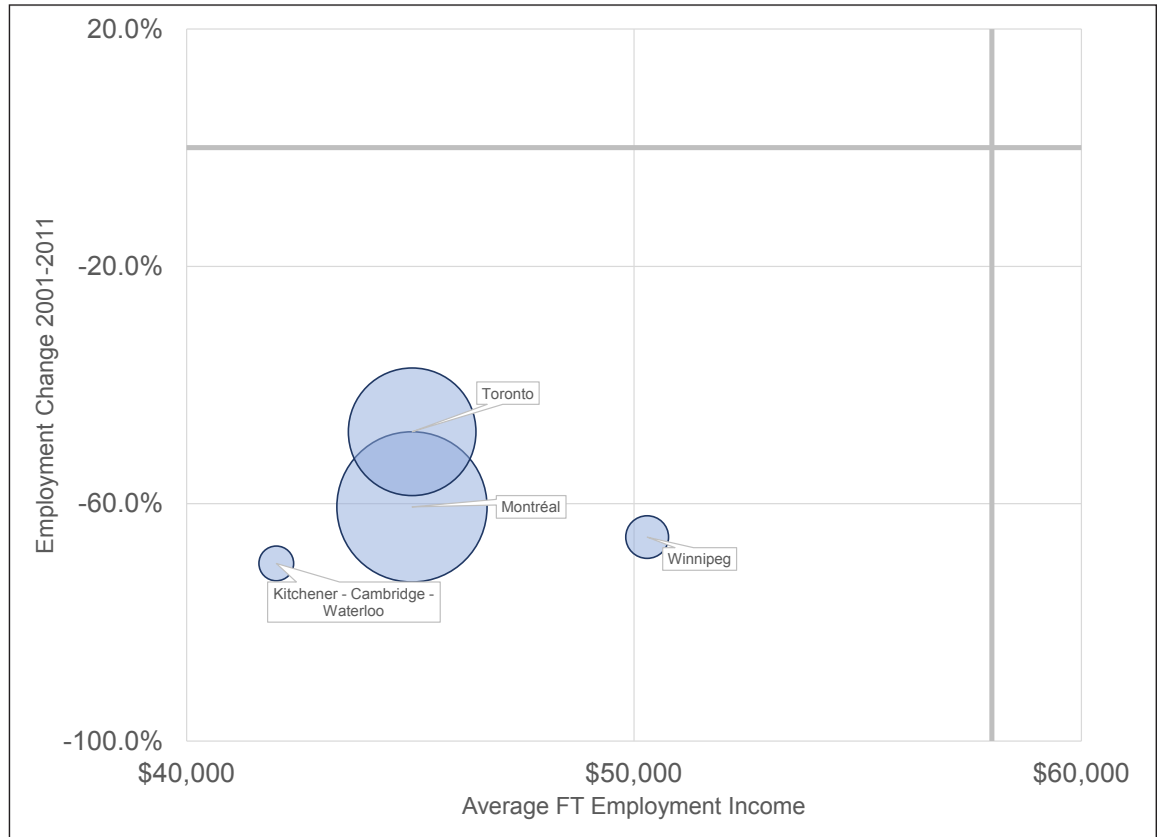
Note: Size of bubbles refers to number of employed persons

Figure 4.7.2
Logistics Cluster Map



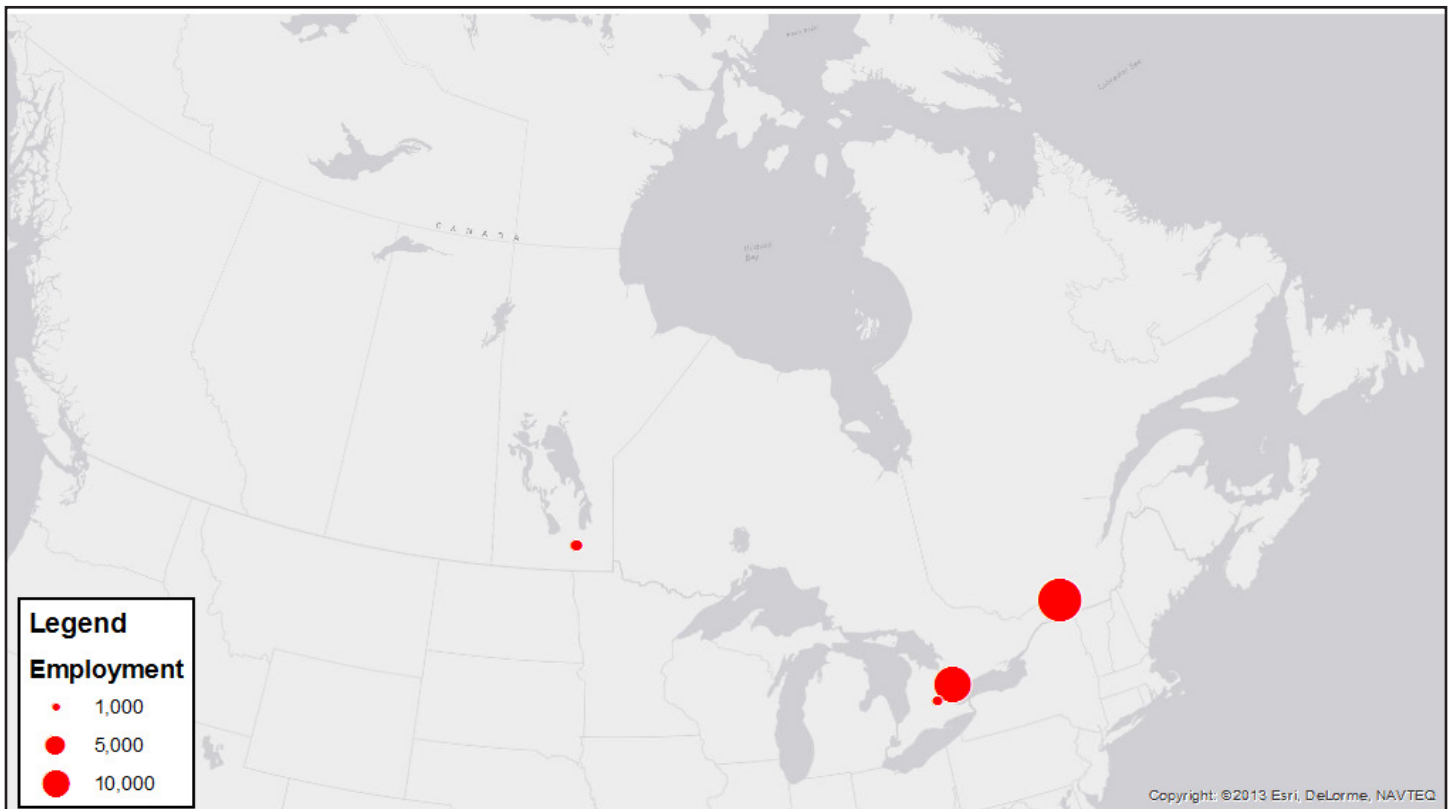
4.8 Textiles

Figure 4.8.1
Logistics
Clusters
Comparison



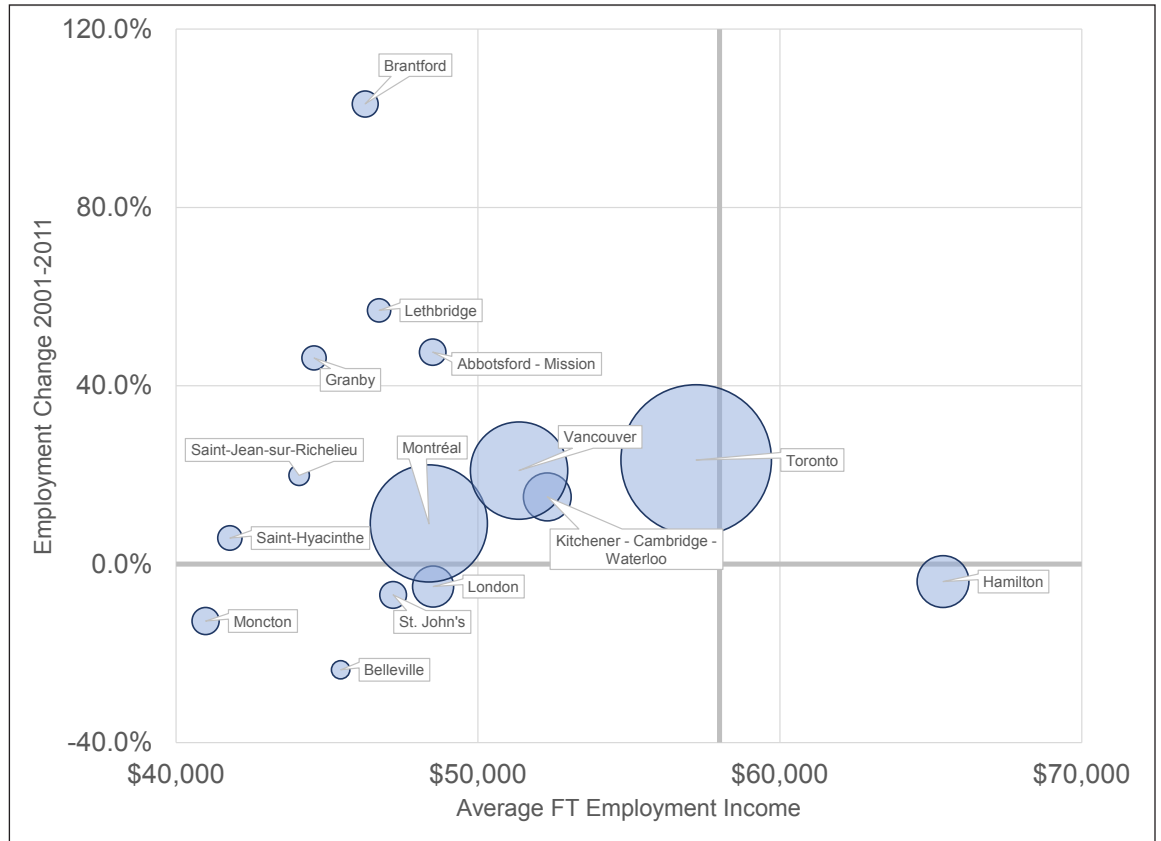
Note: Size of bubbles refers to number of employed persons

Figure 4.8.2
Logistics Cluster Map



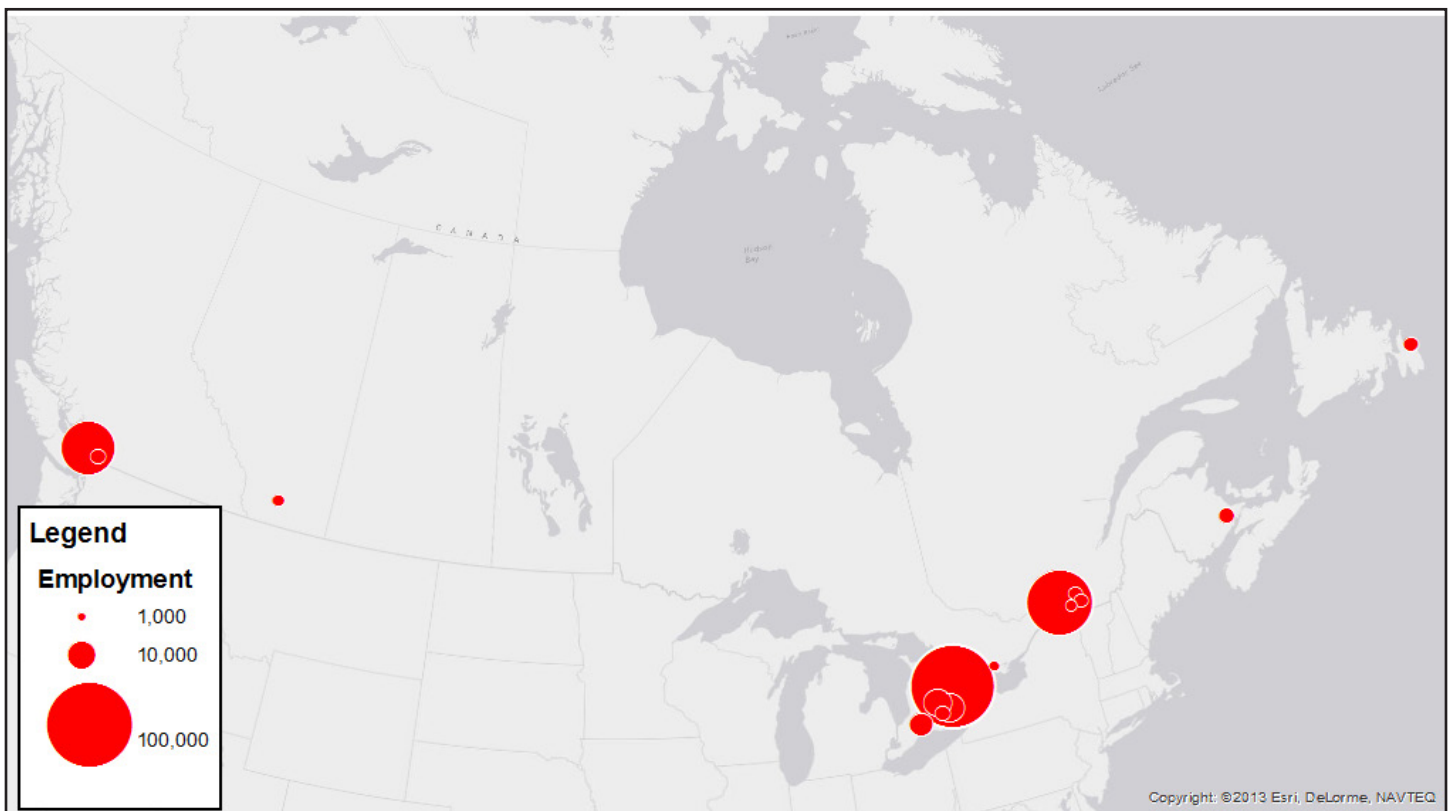
4.9 Food & Beverage

Figure 4.9.1
Food & Beverage Clusters Comparison



Note: Size of bubbles refers to number of employed persons

Figure 4.9.2
Food & Beverage Cluster Map



Legend

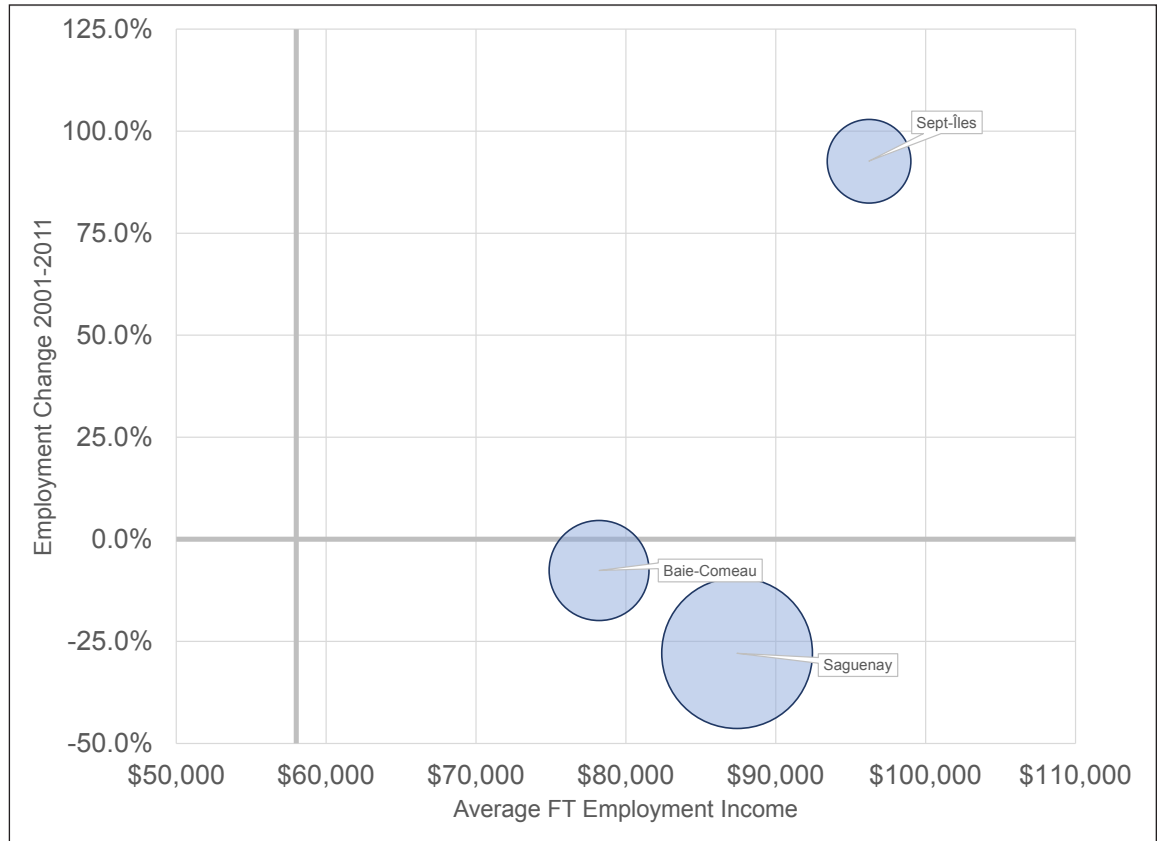
Employment

- 1,000
- 10,000
- 100,000

Copyright: © 2013 Esri, DeLorme, NAVTEQ

4.10 Aluminum

Figure 4.10.1
Aluminum
Clusters
Comparison



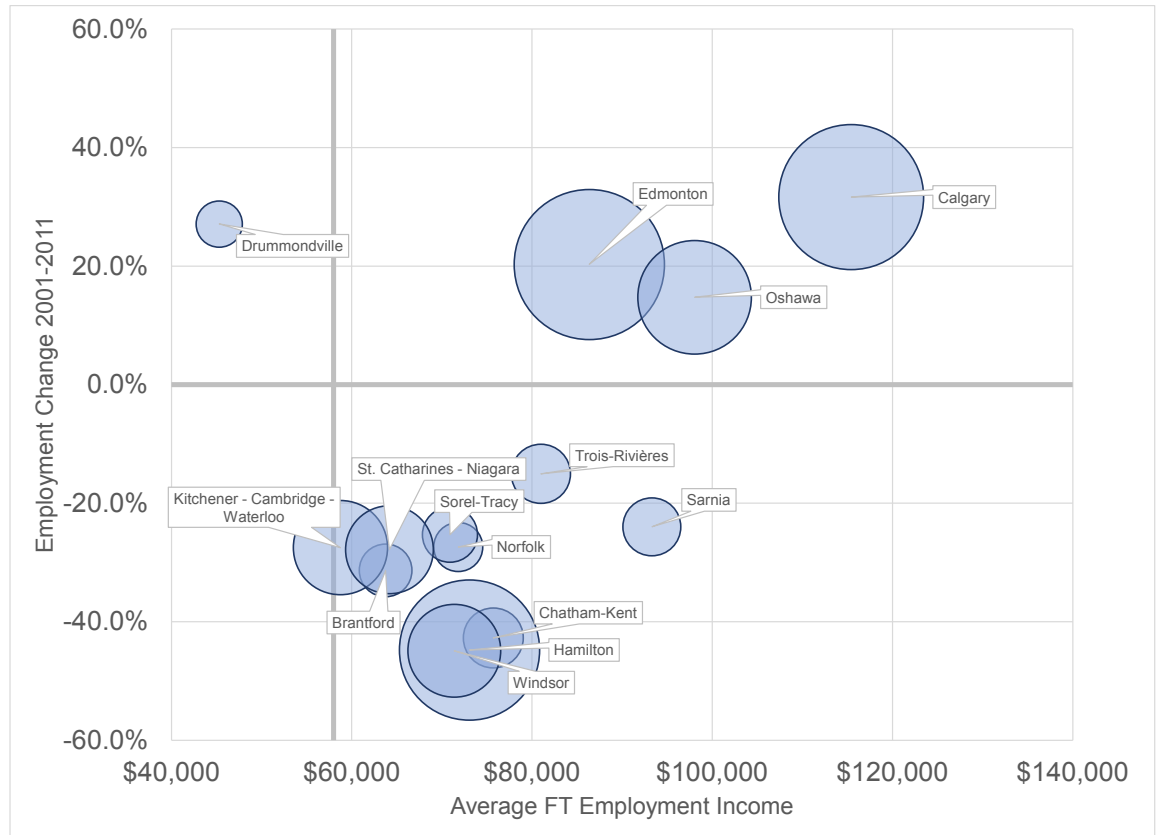
Note: Size of bubbles refers to number of employed persons

Figure 4.10.2
Aluminum Cluster Map



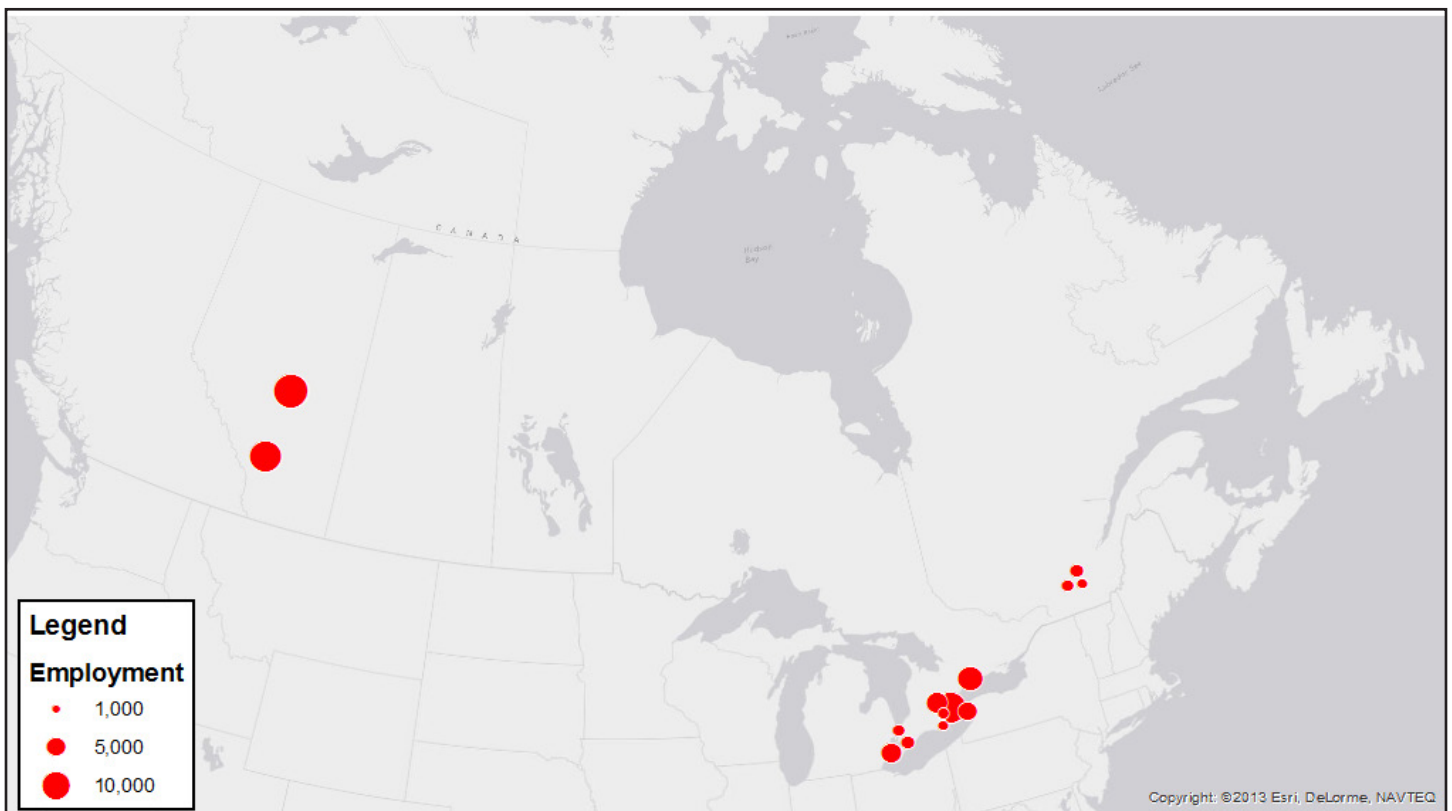
4.11 Steel

Figure 4.11.1
Steel
Clusters
Comparison



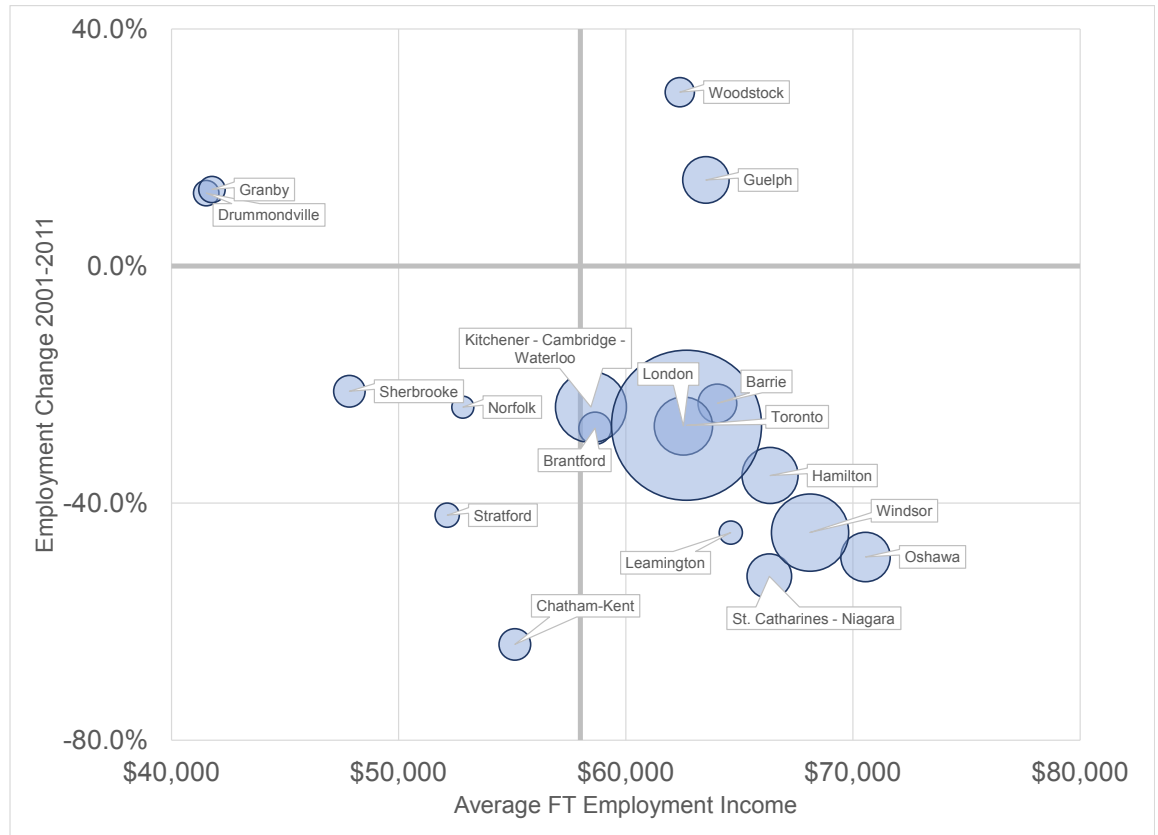
Note: Size of bubbles refers to number of employed persons

Figure 4.11.2
Steel Cluster Map



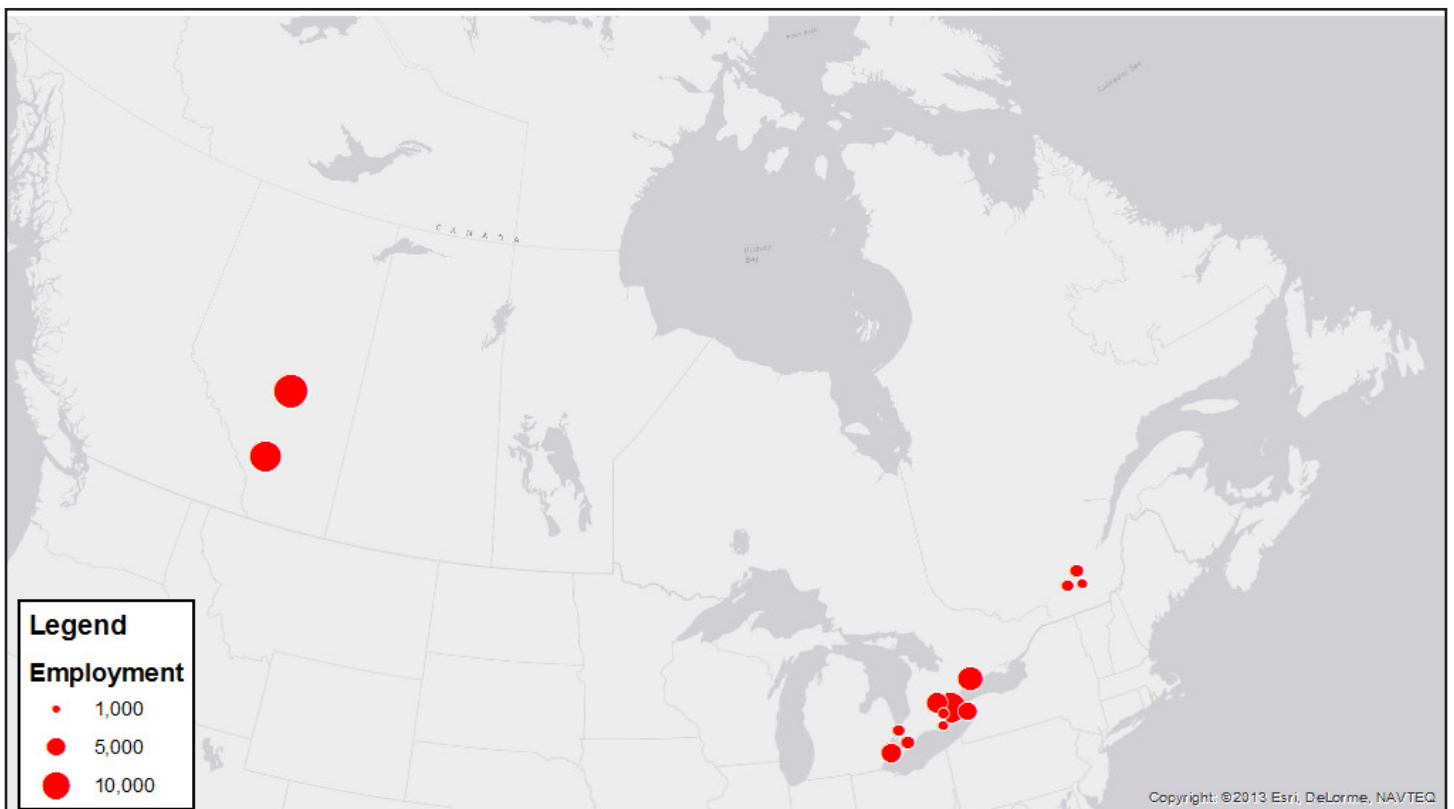
4.12 Auto Manufacturing

Figure 4.12.1
Auto
Manufacturing
Clusters
Comparison



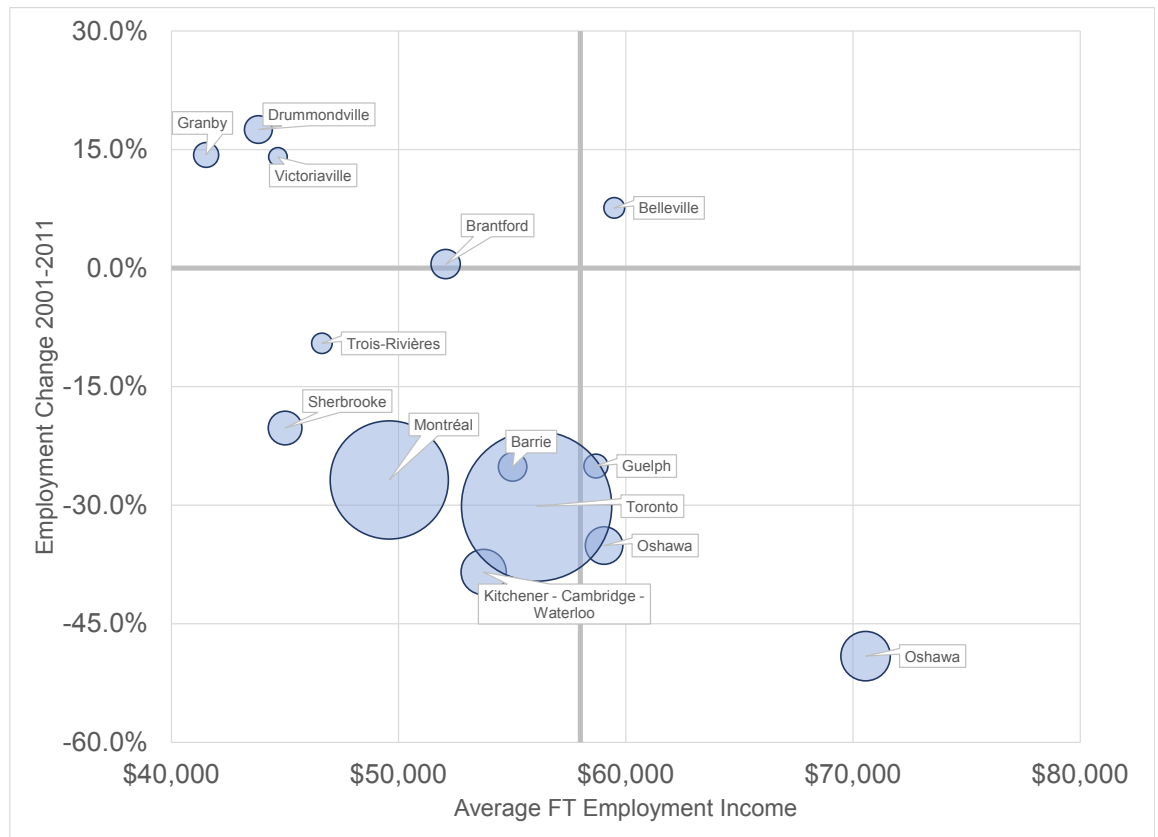
Note: Size of bubbles refers to number of employed persons

Figure 4.12.2
Auto Manufacturing Cluster Map



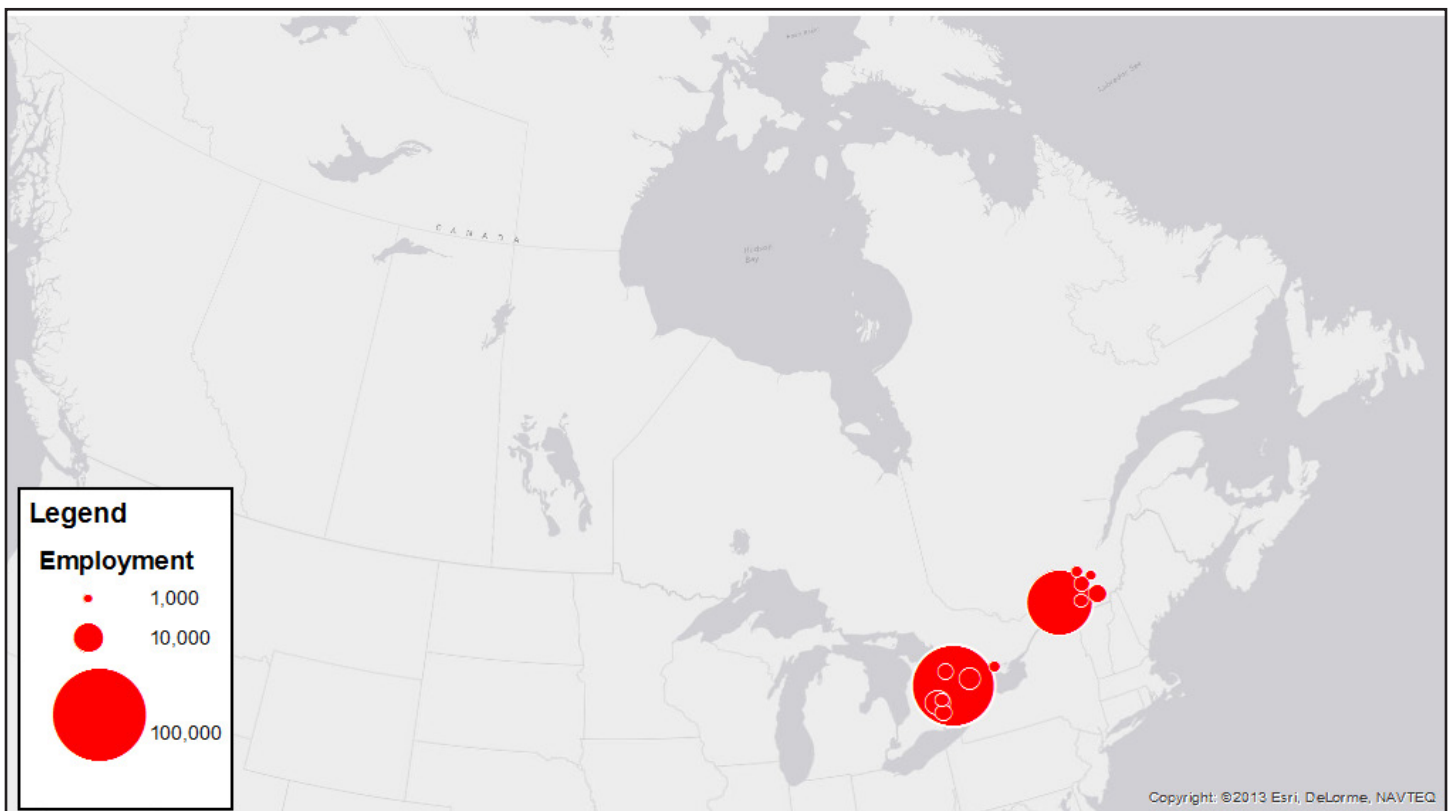
4.13 Plastics & Rubber

Figure 4.13.1
Plastics & Rubber
Clusters
Comparison



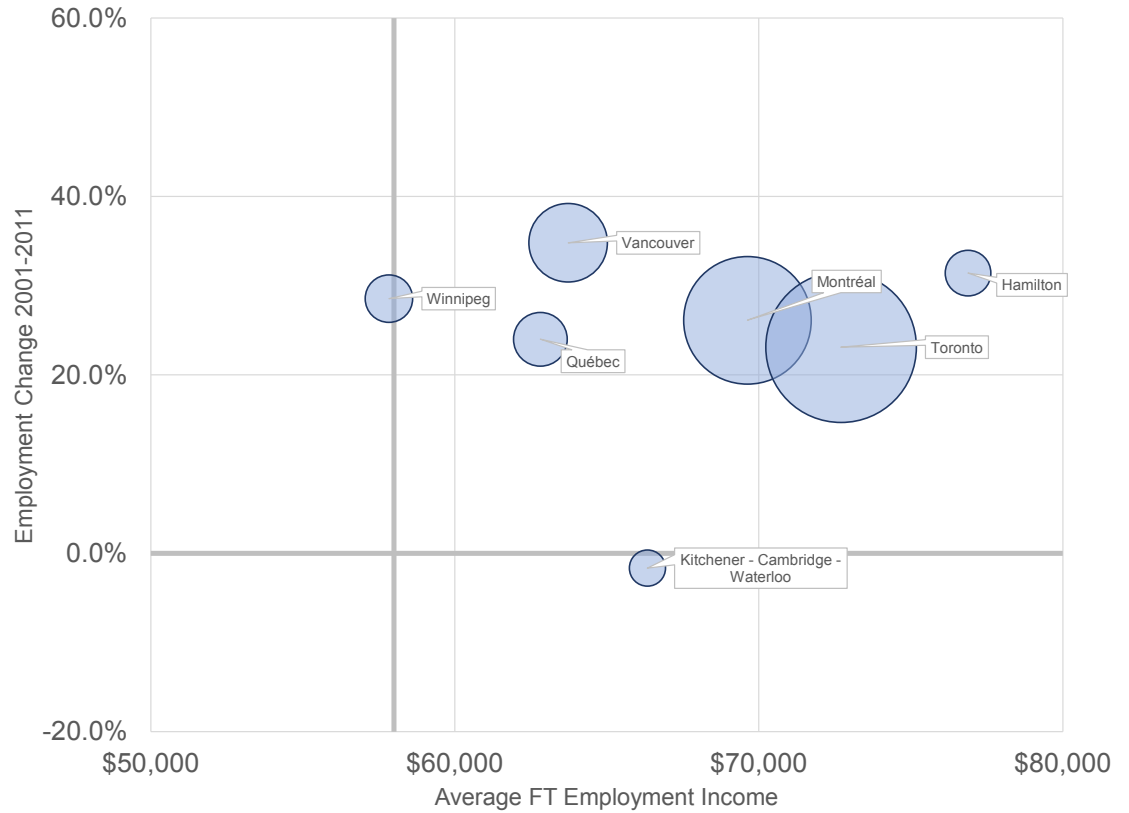
Note: Size of bubbles refers to number of employed persons

Figure 4.13.2
Plastics & Rubber Cluster Map



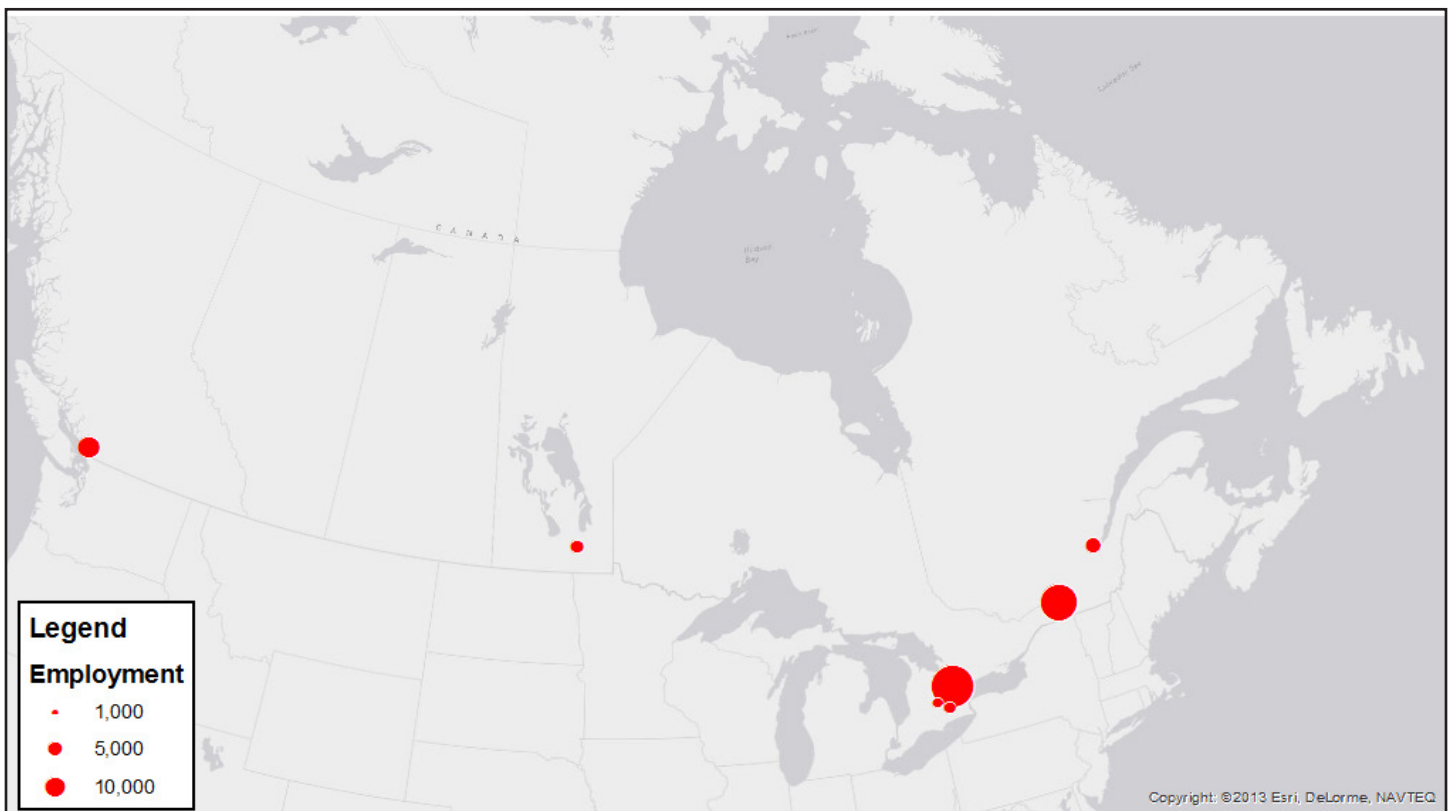
4.14 Life Sciences

Figure 4.14.1
Life Sciences
Clusters
Comparison



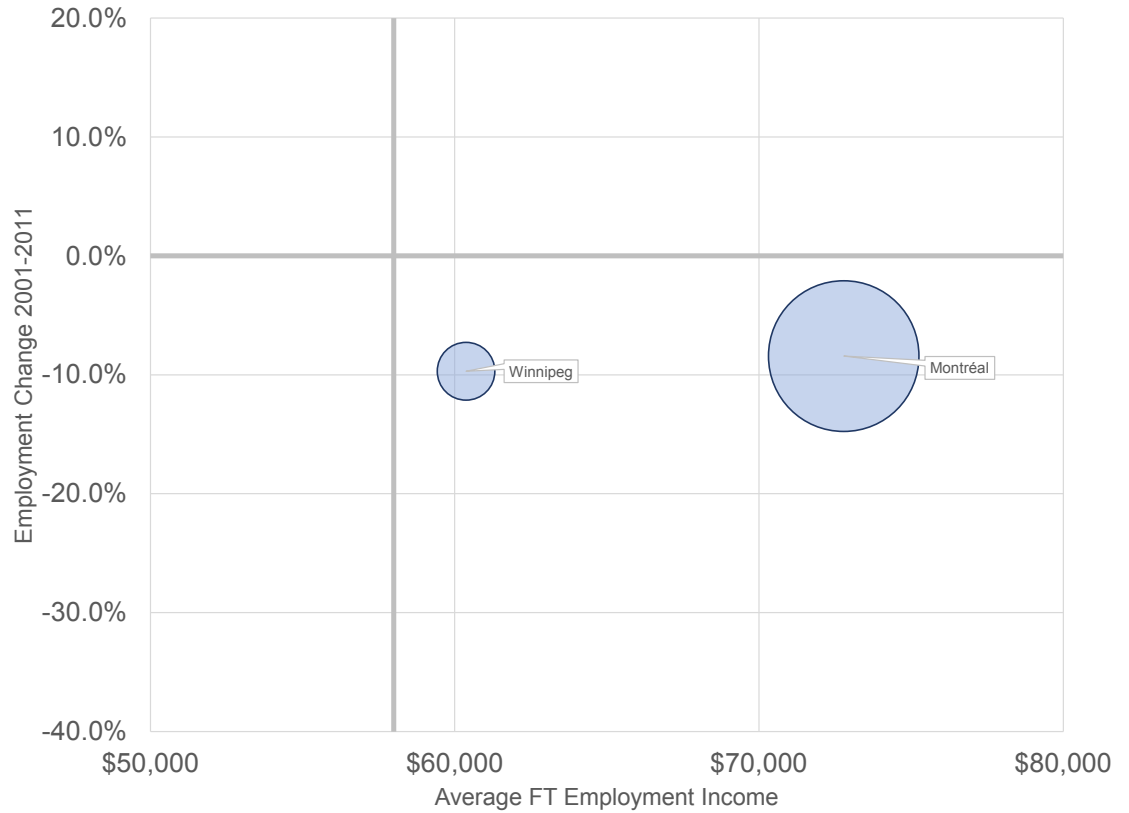
Note: Size of bubbles refers to number of employed persons

Figure 4.14.2
Life Sciences Cluster Map



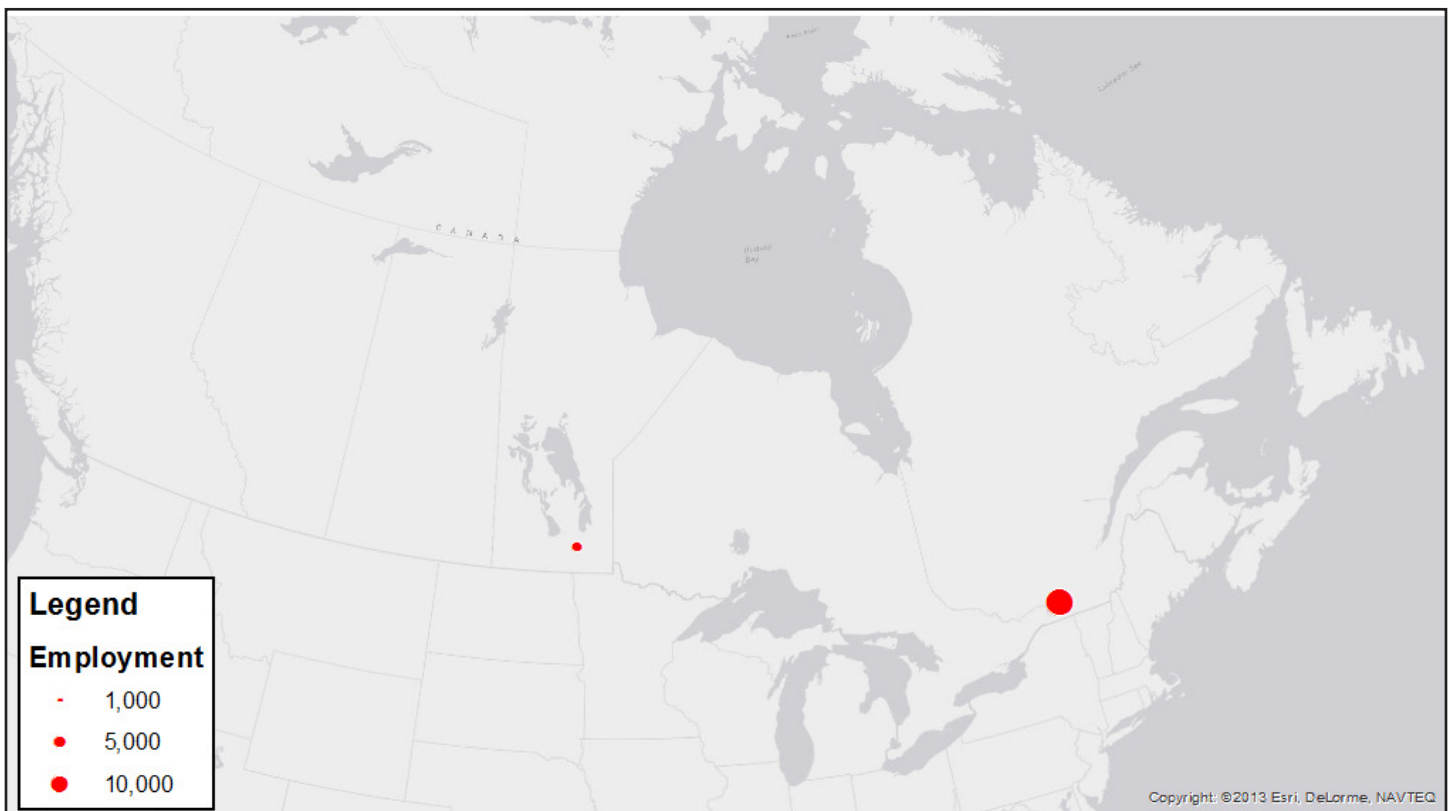
4.15 Aerospace

Figure 4.15.1
Aerospace
Clusters
Comparison



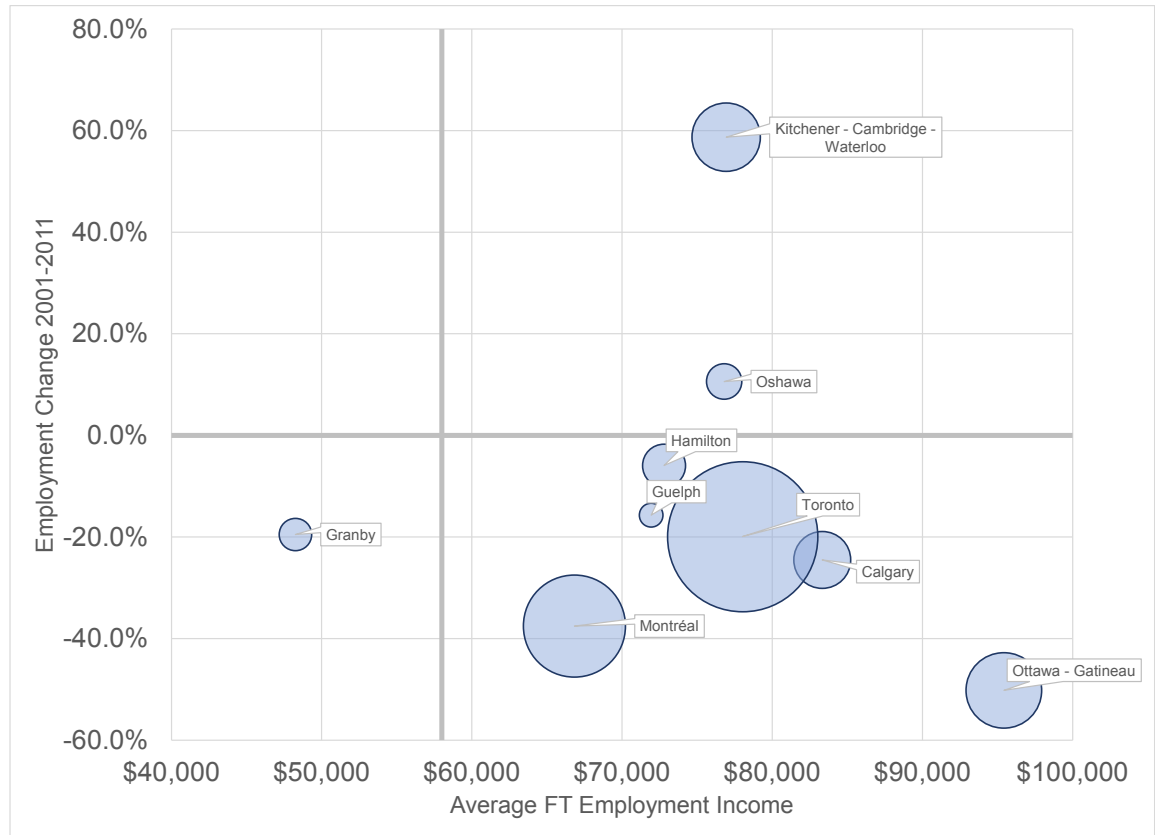
Note: Size of bubbles refers to number of employed persons

Figure 4.15.2
Aerospace Cluster Map



4.16 ICT Manufacturing

Figure 4.16.1
ICT
Manufacturing
Clusters
Comparison



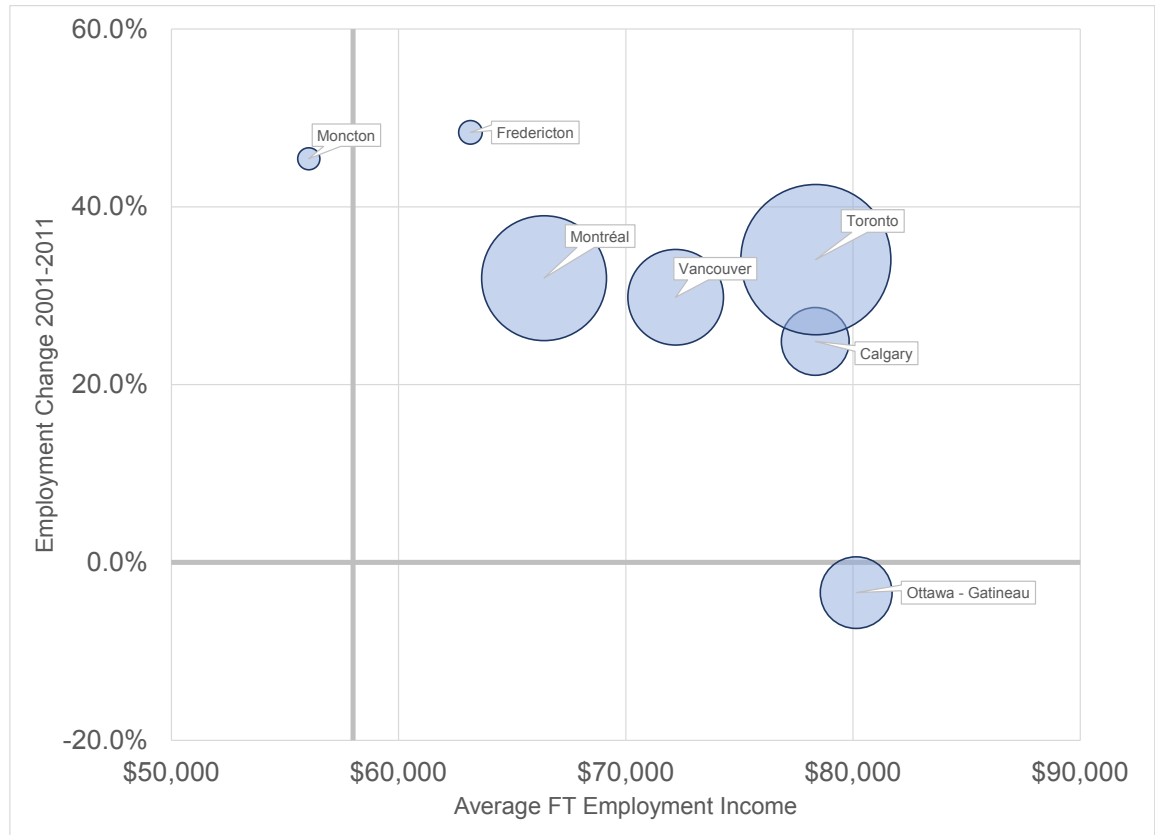
Note: Size of bubbles refers to number of employed persons

Figure 4.16.2
ICT Manufacturing Cluster Map



4.17 ICT Services

Figure 4.17.1
ICT Services
Clusters
Comparison



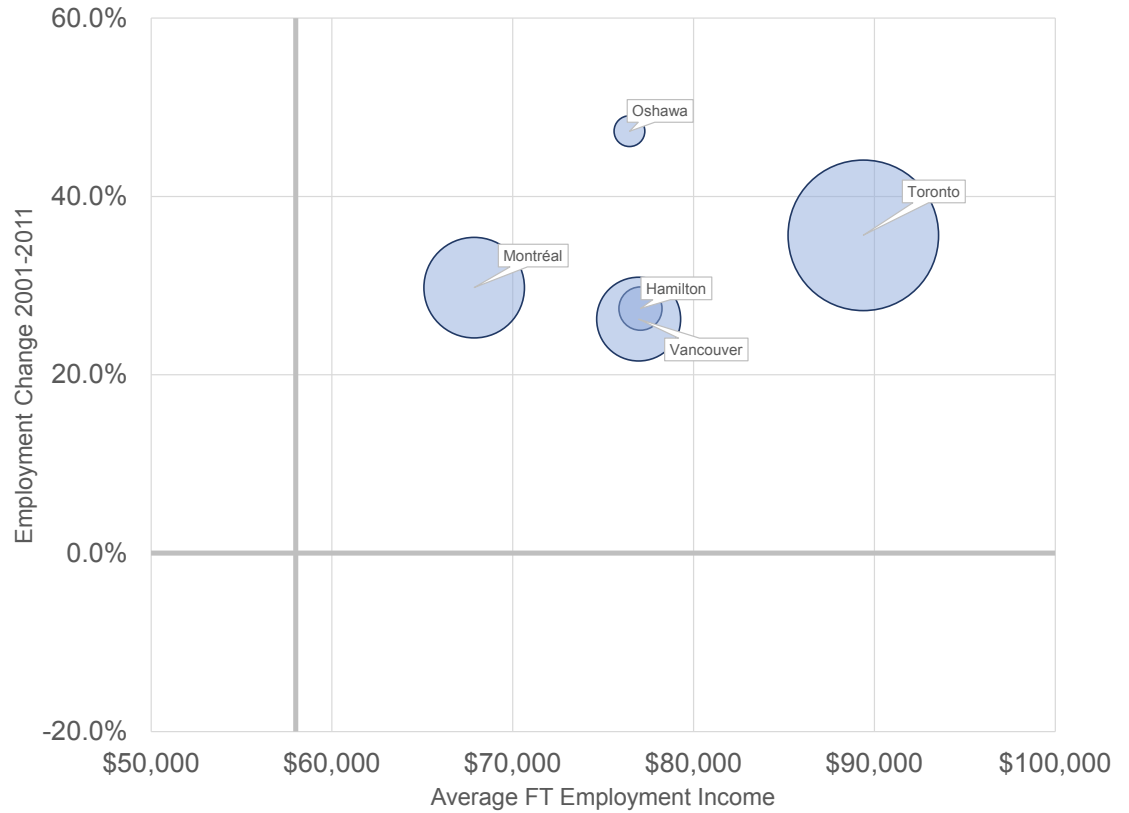
Note: Size of bubbles refers to number of employed persons

Figure 4.17.2
ICT Services Cluster Map



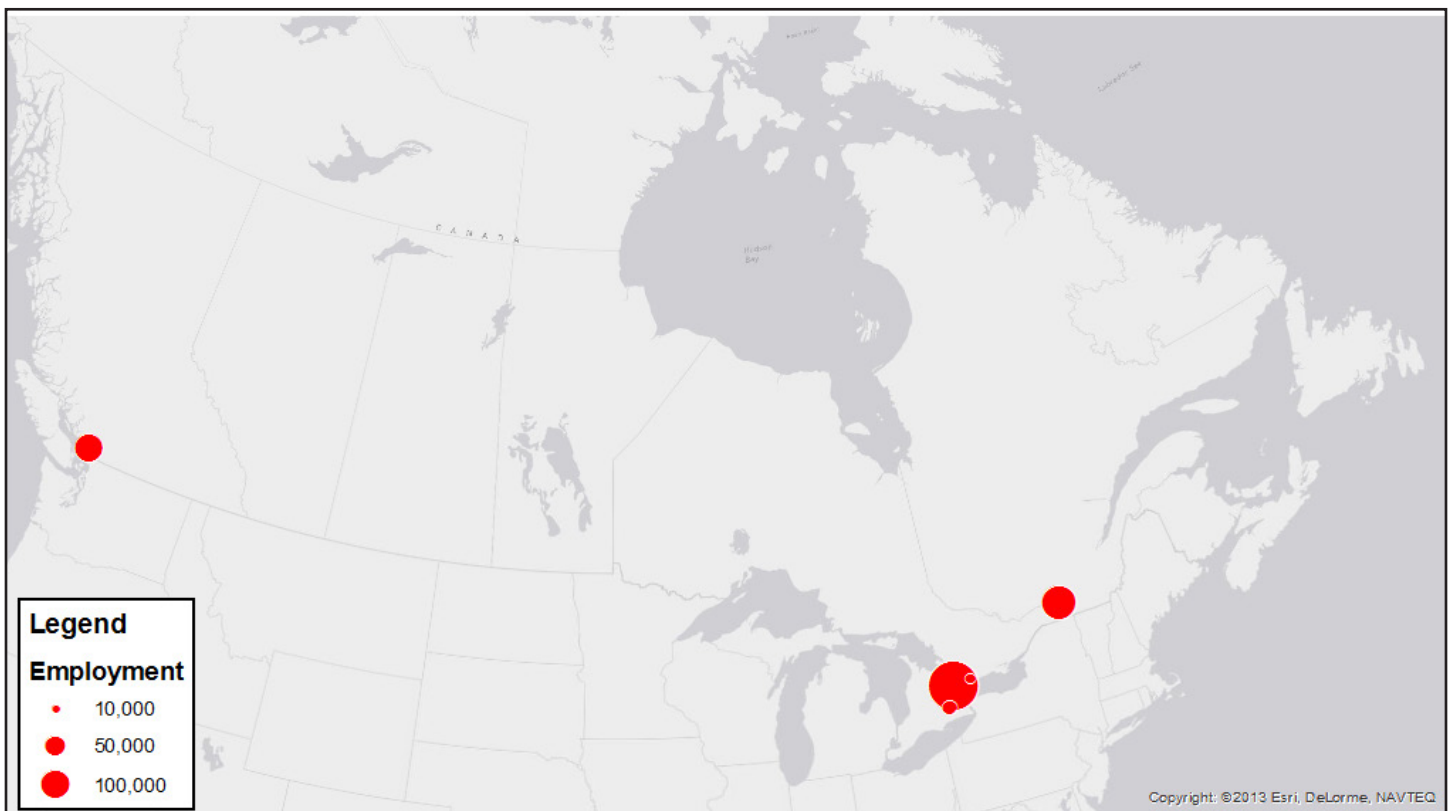
4.18 Finance

Figure 4.18.1
Finance
Clusters
Comparison



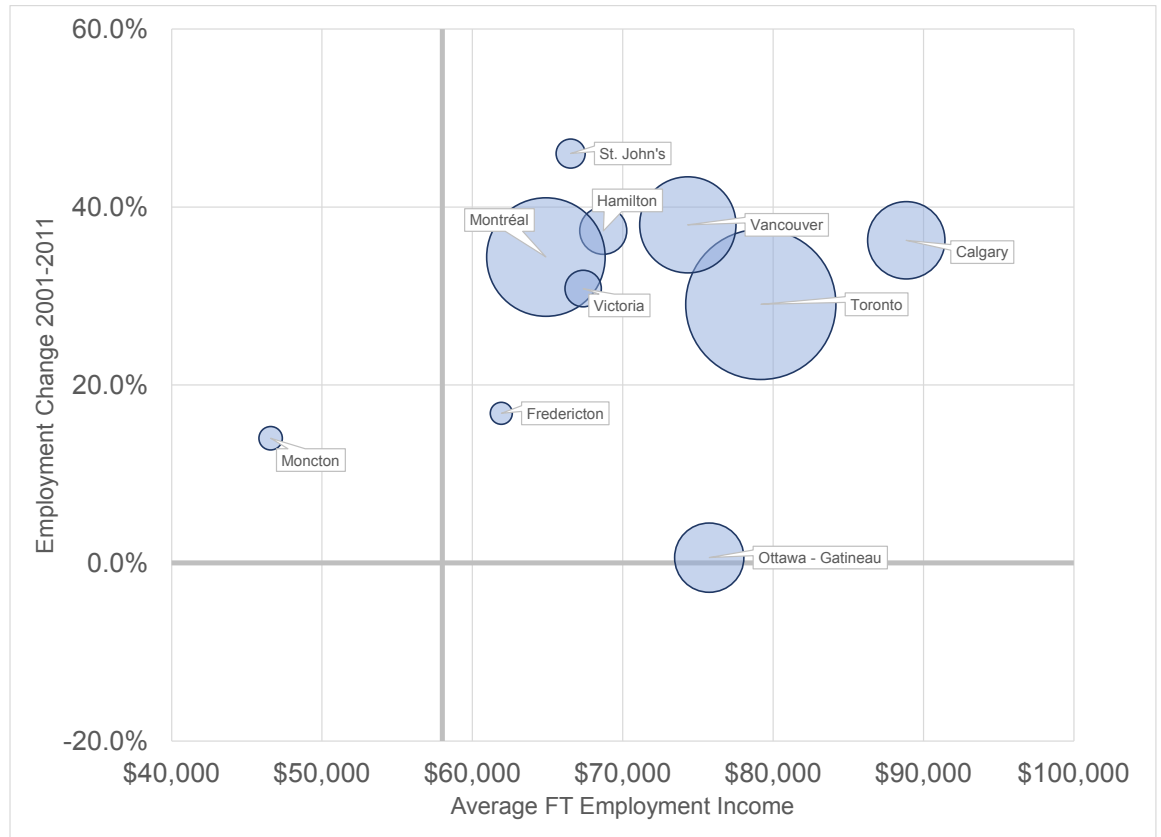
Note: Size of bubbles refers to number of employed persons

Figure 4.18.2
Finance Cluster Map



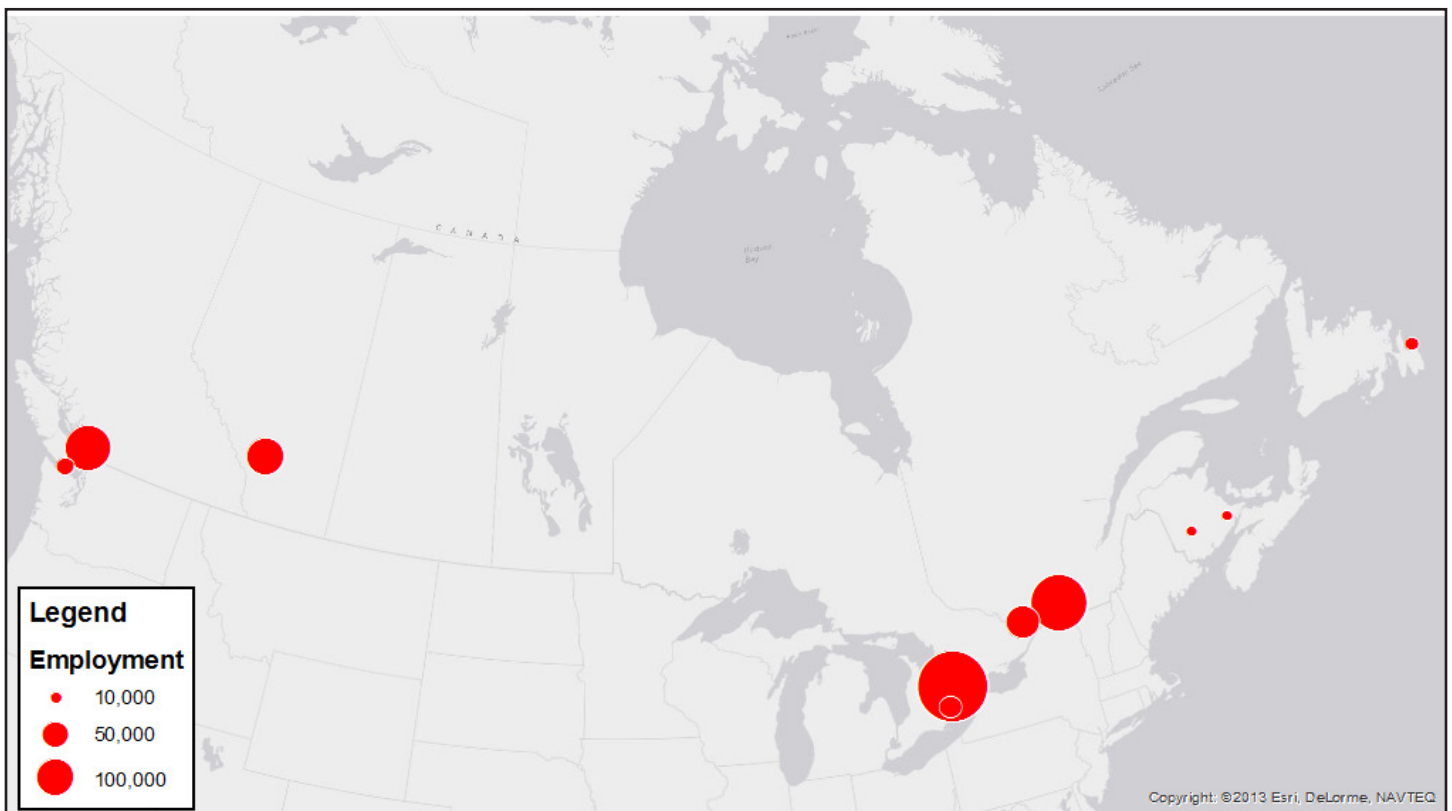
4.19 Business Services

Figure 4.19.1
Business Services
Clusters
Comparison



Note: Size of bubbles refers to number of employed persons

Figure 4.19.2
Business Services Cluster Map



4.20 Creative & Cultural

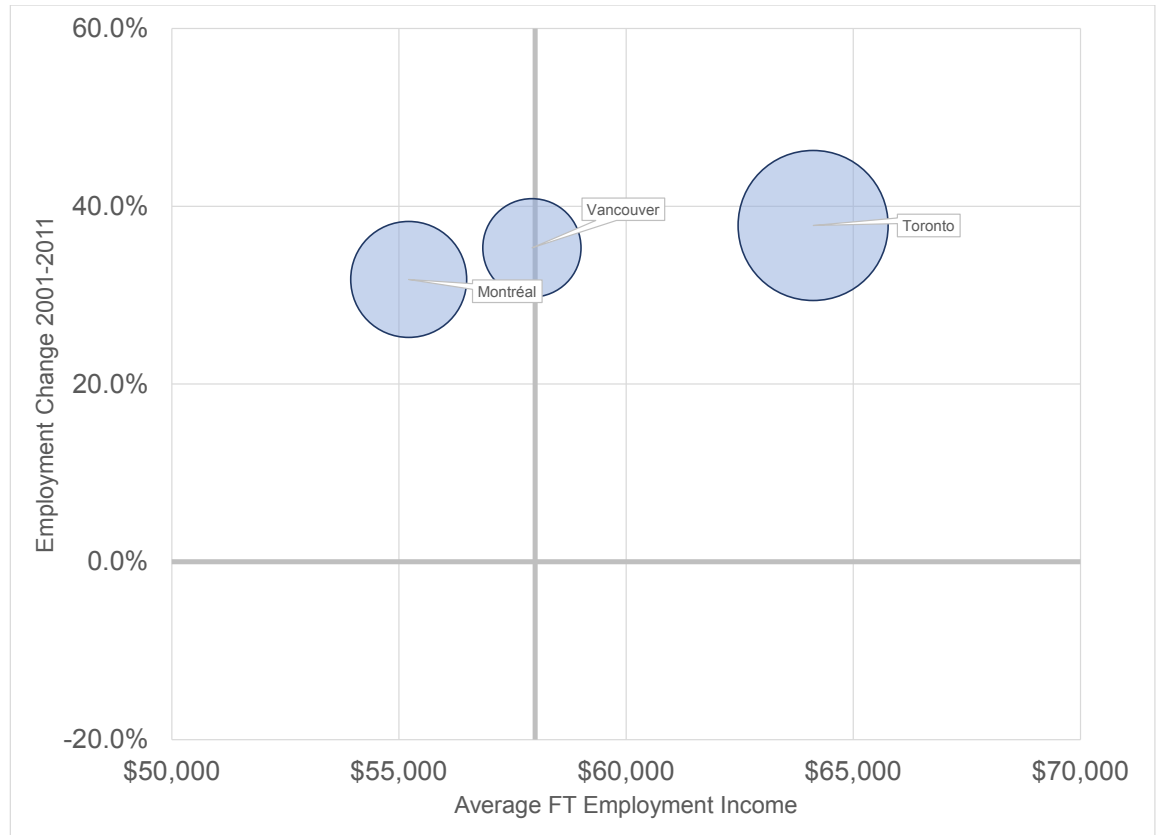
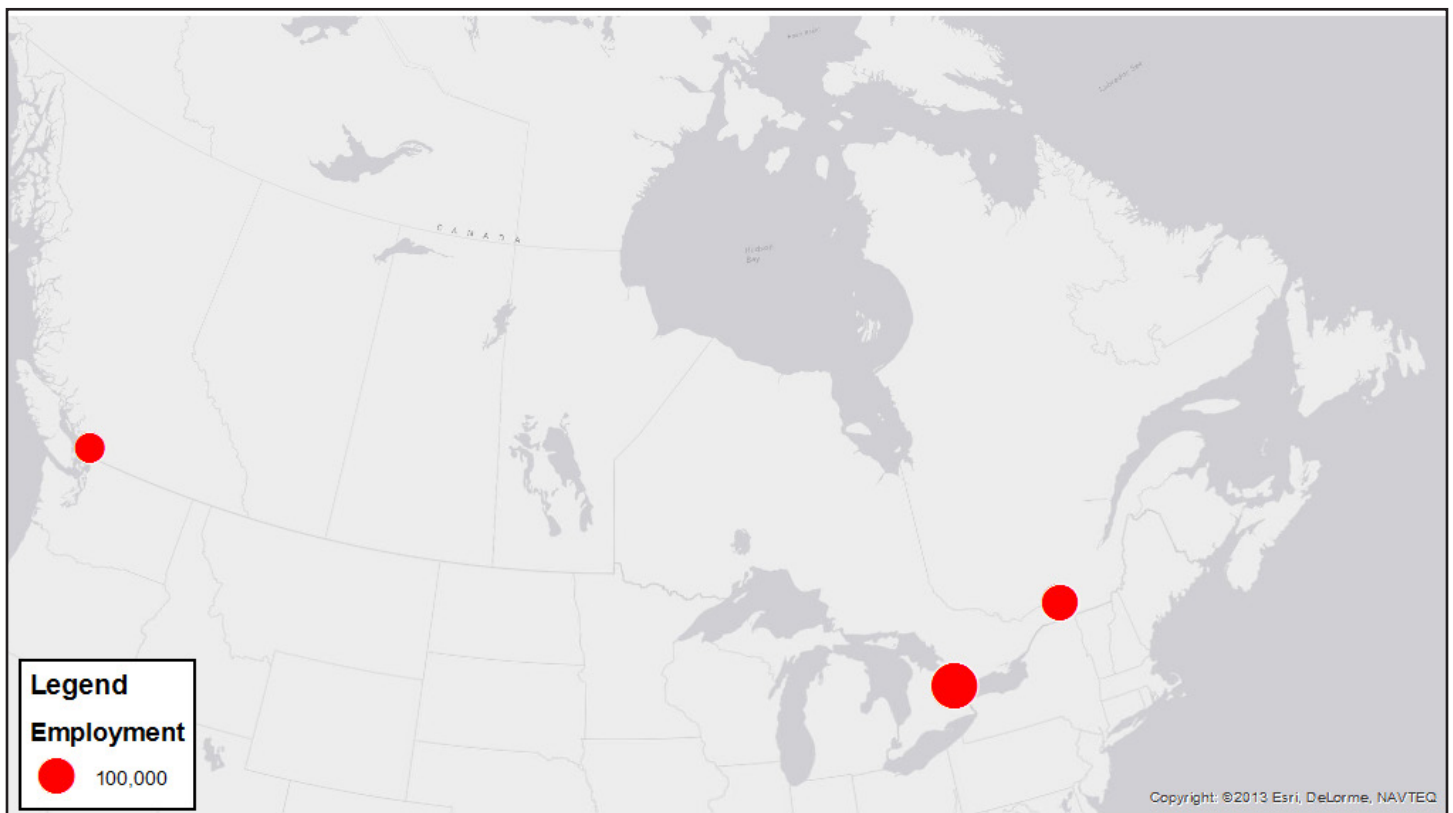


Figure 4.20.1
Creative &
Cultural Clusters
Comparison

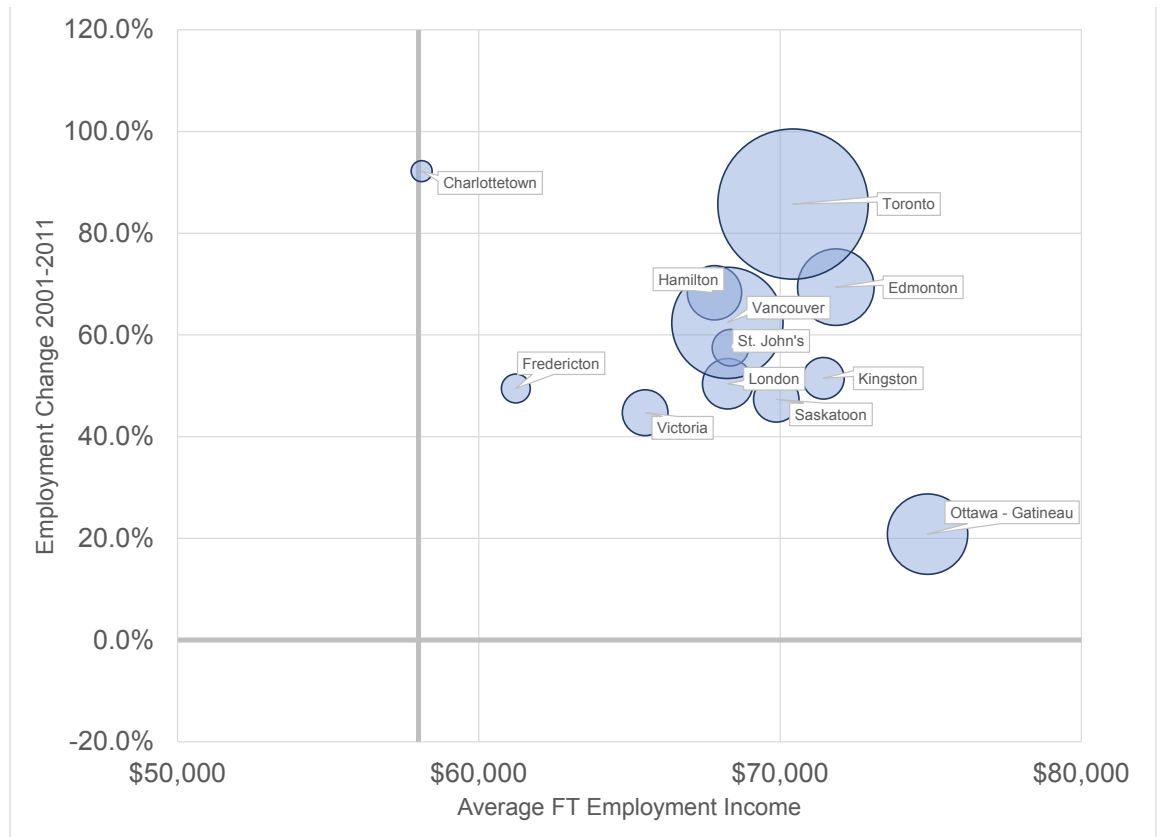
Note: Size of bubbles refers to number of employed persons

Figure 4.20.2
Creative & Cultural Cluster Map



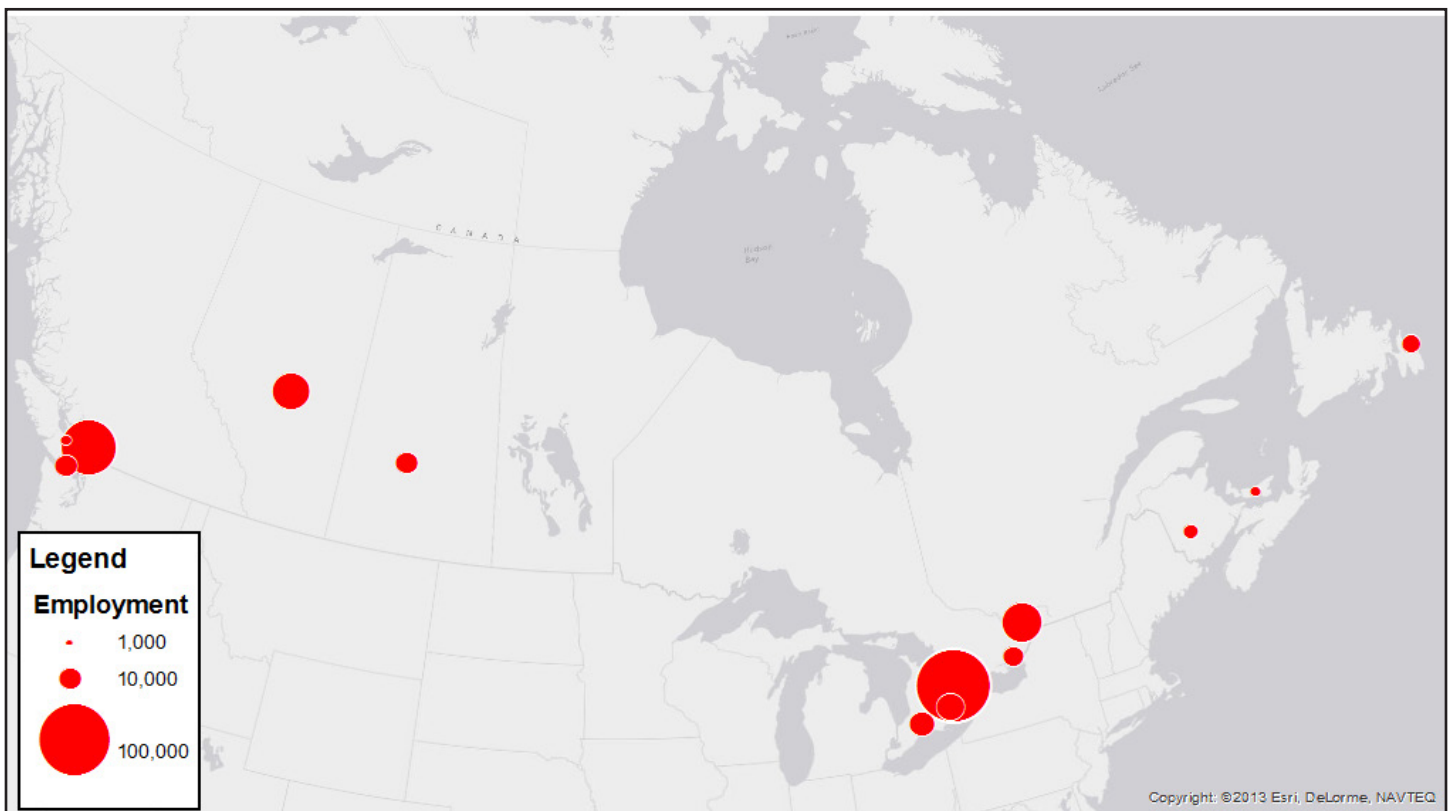
4.21 Higher Education

Figure 4.21.1
Higher Education
Clusters
Comparison



Note: Size of bubbles refers to number of employed persons

Figure 4.21.2
Higher Education Cluster Map



5.1 Atlantic Canada

There is a relative lack of clusters present in the Atlantic Provinces. Much of this is due to the lack of larger urban areas. Halifax is the largest CMA with a population of 390,000 which ranks it 13th in Canada. St. John's is the next largest at just under 200,000 which puts it in 20th place. Significant service clusters are not likely to be well-developed in smaller cities and the region does not have a strong tradition of manufacturing largely due to its lack of proximity to markets and supply chains. This leaves resource based clusters (fishing is included in maritime) which account for 7 of the 18 clusters on the east coast. The majority of these have experienced employment declines in the period between 2001 and 2011 (please see Table 5.1.1).

The relatively few bright spots include

business services in St. John's, Fredericton, and St. John along with ICT services in Fredericton and Moncton. These clusters all grew significantly in employment between 2001 and 2011 and provide relatively good incomes for the region. Higher education clusters in Charlottetown, Fredericton, and St. John's (Halifax narrowly misses meeting the criteria) are key sources of human capital that support the previously mentioned business services and ICT clusters. While the higher education clusters show very rapid rates of growth, there are concerns that the demographic picture in the Atlantic Provinces will present problems in the future in terms of providing a growing supply of students. It is essential that these provinces find ways of attracting and retaining immigrants in post-secondary education and beyond.

Table 5.1.1
Atlantic Canada clusters and key indicators

City Region	Prov	Cluster Type	Employment 2011	Employment Change 2001-2011	Average Annual FT Income
Fredericton	NB	Business Services	8,084	16.8%	\$61,927
Moncton	NB	Business Services	9,213	14.0%	\$46,581
St. John's	NL	Business Services	14,193	46.0%	\$66,535
Moncton	NB	Food & Beverage	3,036	-12.8%	\$40,977
St. John's	NL	Food & Beverage	2,937	-6.9%	\$47,189
Edmundston	NB	Forestry & Wood	1,028	-21.8%	\$57,738
Saint John	NB	Forestry & Wood	1,796	6.6%	\$88,377
Charlottetown	PE	Higher Education	2,066	92.2%	\$58,099
Fredericton	NB	Higher Education	3,939	49.5%	\$61,226
St. John's	NL	Higher Education	6,308	57.5%	\$68,350
Fredericton	NB	ICT Services	4,785	48.4%	\$63,166
Moncton	NB	ICT Services	4,152	45.4%	\$56,048
Moncton	NB	Logistics	5,061	0.9%	\$49,908
Cape Breton	NS	Maritime	2,053	-8.3%	\$49,434
Halifax	NS	Maritime	3,300	12.4%	\$60,905
St. John's	NL	Maritime	1,728	-28.1%	\$74,270
Bathurst	NB	Mining	1,363	91.9%	\$95,174
Cape Breton	NS	Mining	1,024	-23.0%	\$64,211

5.1.1 St. John's Food & Beverage

The food & beverage cluster in St. John's employed 2,937 people in 2011. This made St. John's the 8th largest food & beverage cluster in Canada (out of 15). Between 2001 and 2011 employment shrank by 6.9%. The labour force was 71.6% male and 28.4% female. 42.6% of the labour force was over the age of 44.

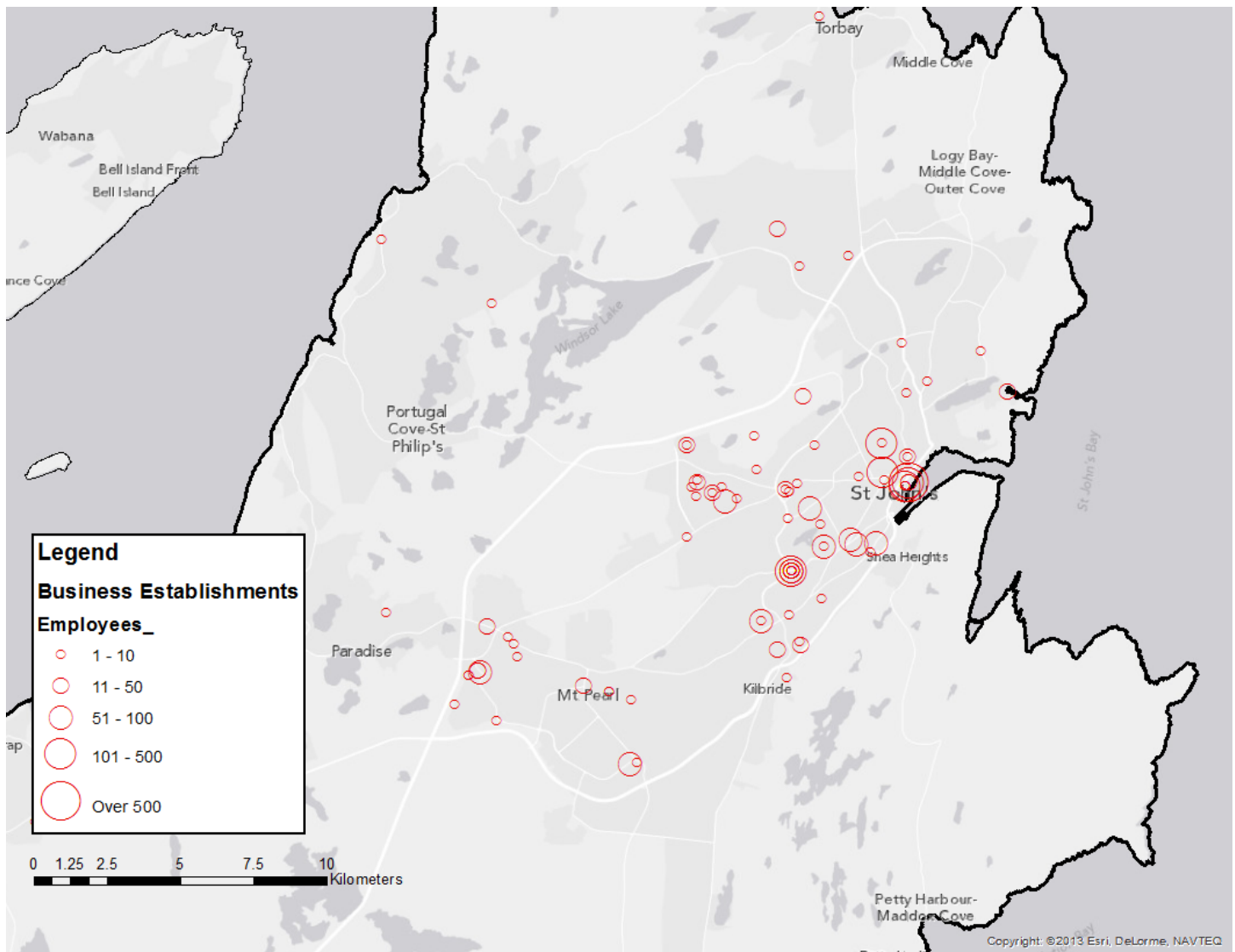
In 2011 39.1% of the cluster labour force held post-secondary qualifications with 6.7% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the St. John's food & beverage cluster was \$47,189 per year. This ranked the

cluster 8th out of 15 food & beverage clusters in Canada.

In 2011 Dun & Bradstreet identified 124 business establishments in the St. John's food & beverage cluster. The average establishment size was 29 employees. Key firms of at least 100 employees in 2011 included: Quinlan Brothers Limited; Country Ribbon Inc; Ocean Choice International L.P.; Barry Group Inc; Labrador Sea Products Inc; Molson Canada; Furlong Brothers Limited; Independent Dockside Grading Inc; Labatt Brewing Company Limited.

Figure 5.1.1.1
Size and location of business establishments, 2011



5.1.1 St. John's Food & Beverage

Figure 5.1.1.2
Labour force demographics, 2011

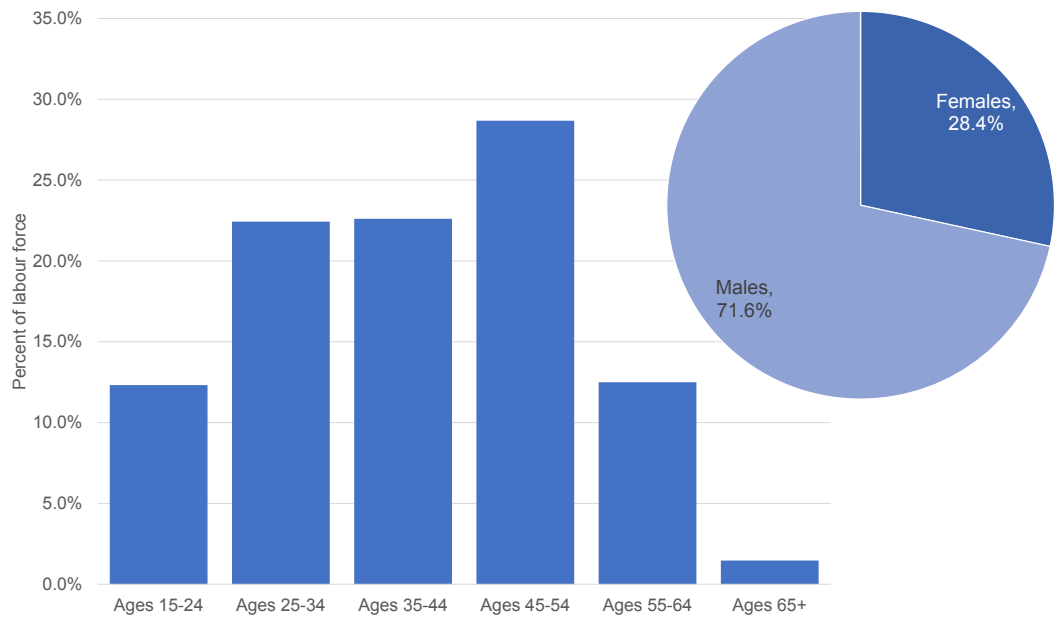


Figure 5.1.1.3
Educational attainment of labour force, 2011

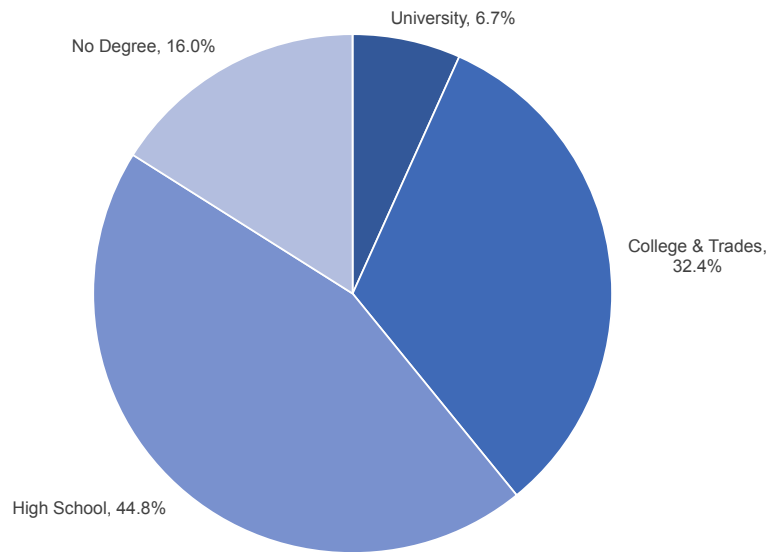
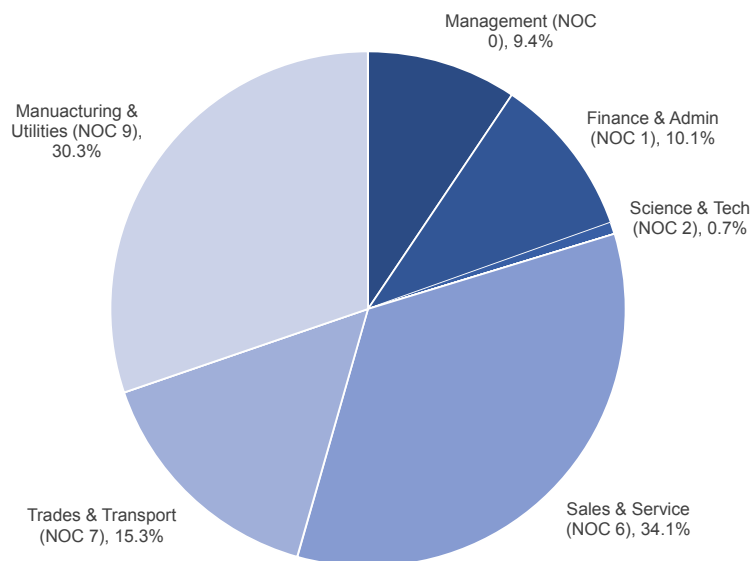


Figure 5.1.1.4
Occupational structure of labour force, 2011



5.1.2 St. John's Business Services

The business services cluster in St. John's employed 14,193 people in 2011. This made St. John's the 8th largest business services cluster in Canada (out of 10). Between 2001 and 2011 employment grew by 46%. The labour force was 56.5% male and 43.5% female. 42% of the labour force was over the age of 44.

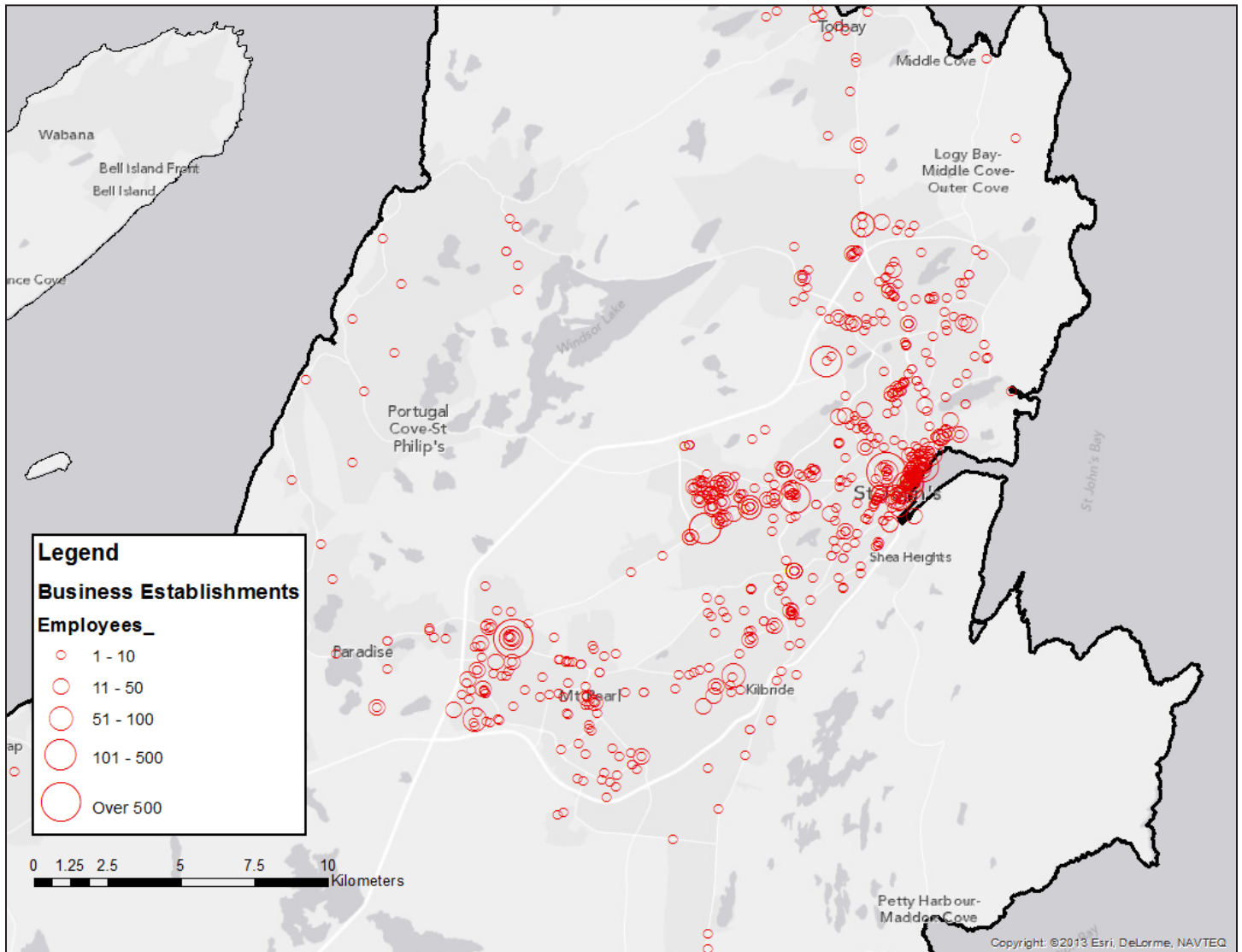
In 2011 81.1% of the cluster labour force held post-secondary qualifications with 42.4% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the St. John's business services cluster was \$66,535 per year. This ranked the

cluster 7th out of 10 business services clusters in Canada.

In 2011 Dun & Bradstreet identified 1,017 business establishments in the St. John's business services cluster. The average establishment size was 11 employees. The largest firms in core business services industries in 2011 included: Shannahan's Investigation Security Limited; Fortis Properties Corporation; Canadian Corps Of Commissionaires (Newfoundland); Amec Inc; Production Services Network Canada Inc; The Responsive Marketing Group Inc.; Cabot Call Centre; Call Centre Inc; Oceaneering Canada Limited; John C Crosbie P.C. O.C. Q.C.; SNC-Lavalin Inc.

Figure 5.1.2.1
Size and location of business establishments, 2011



5.1.2 St. John's Business Services

Figure 5.1.2.2
Labour force demographics, 2011

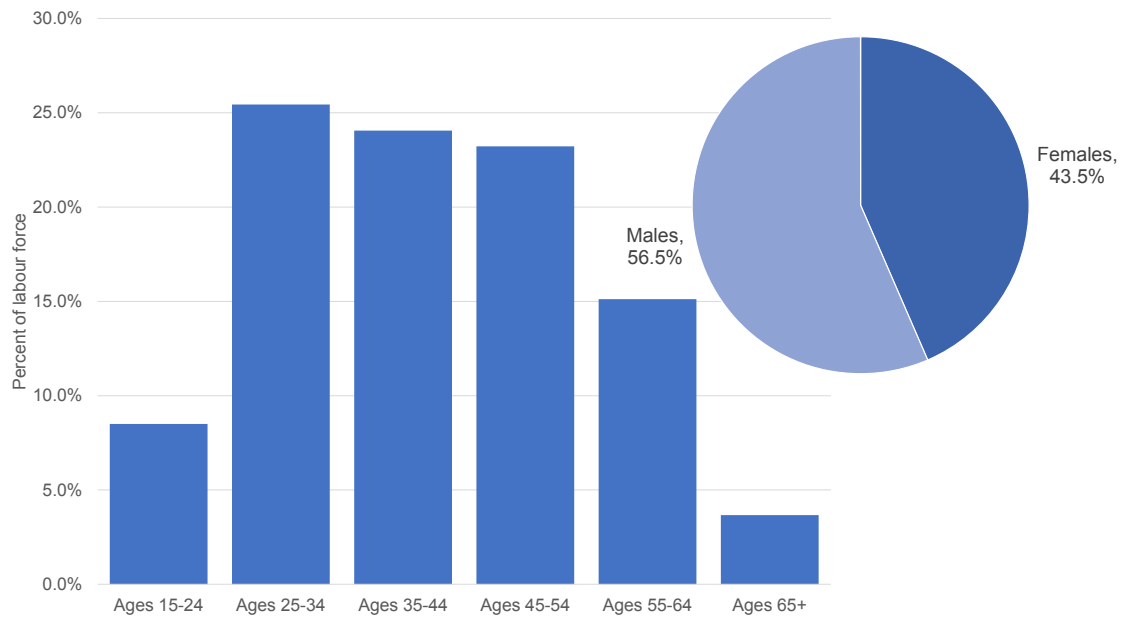


Figure 5.1.2.3
Educational attainment of labour force, 2011

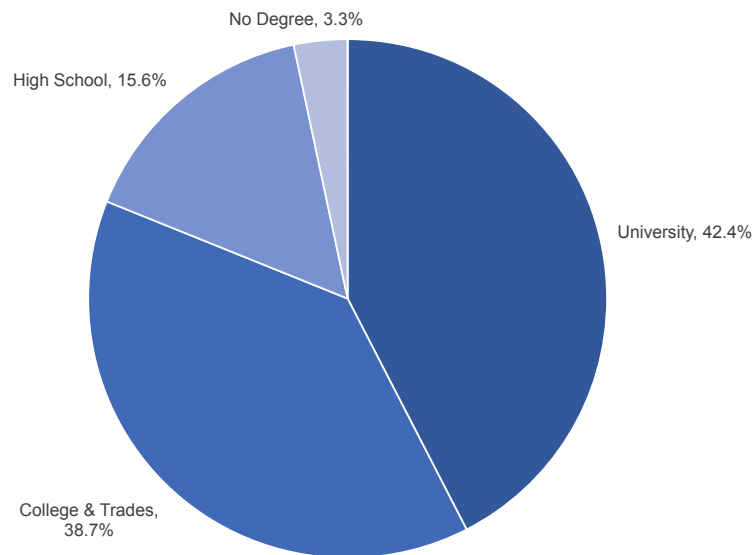
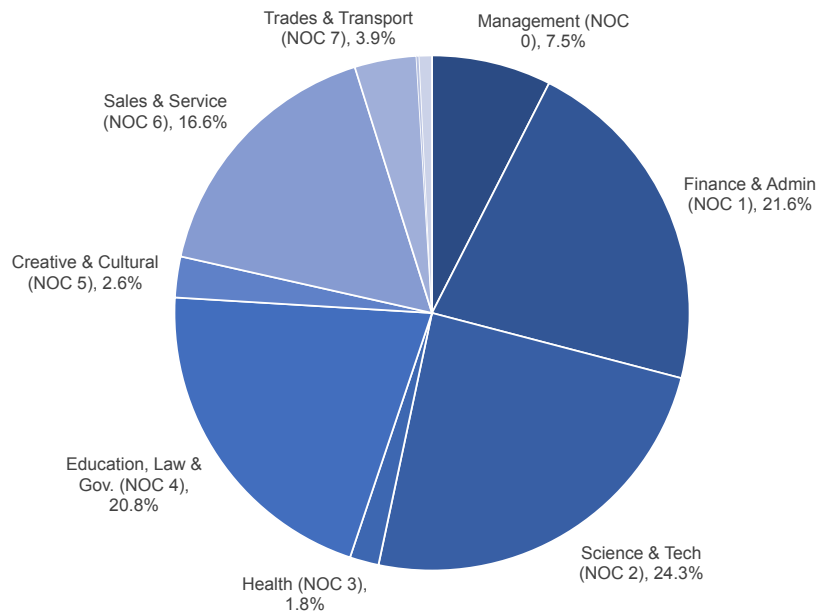


Figure 5.1.2.4
Occupational structure of labour force, 2011



5.1.3 Charlottetown Higher Education

The higher education cluster in Charlottetown employed 2,066 people in 2011. This made Charlottetown the 13th largest higher education cluster in Canada (out of 13). Between 2001 and 2011 employment grew by 92.2%. The labour force was 41.9% male and 58.1% female. 52.3% of the labour force was over the age of 44.

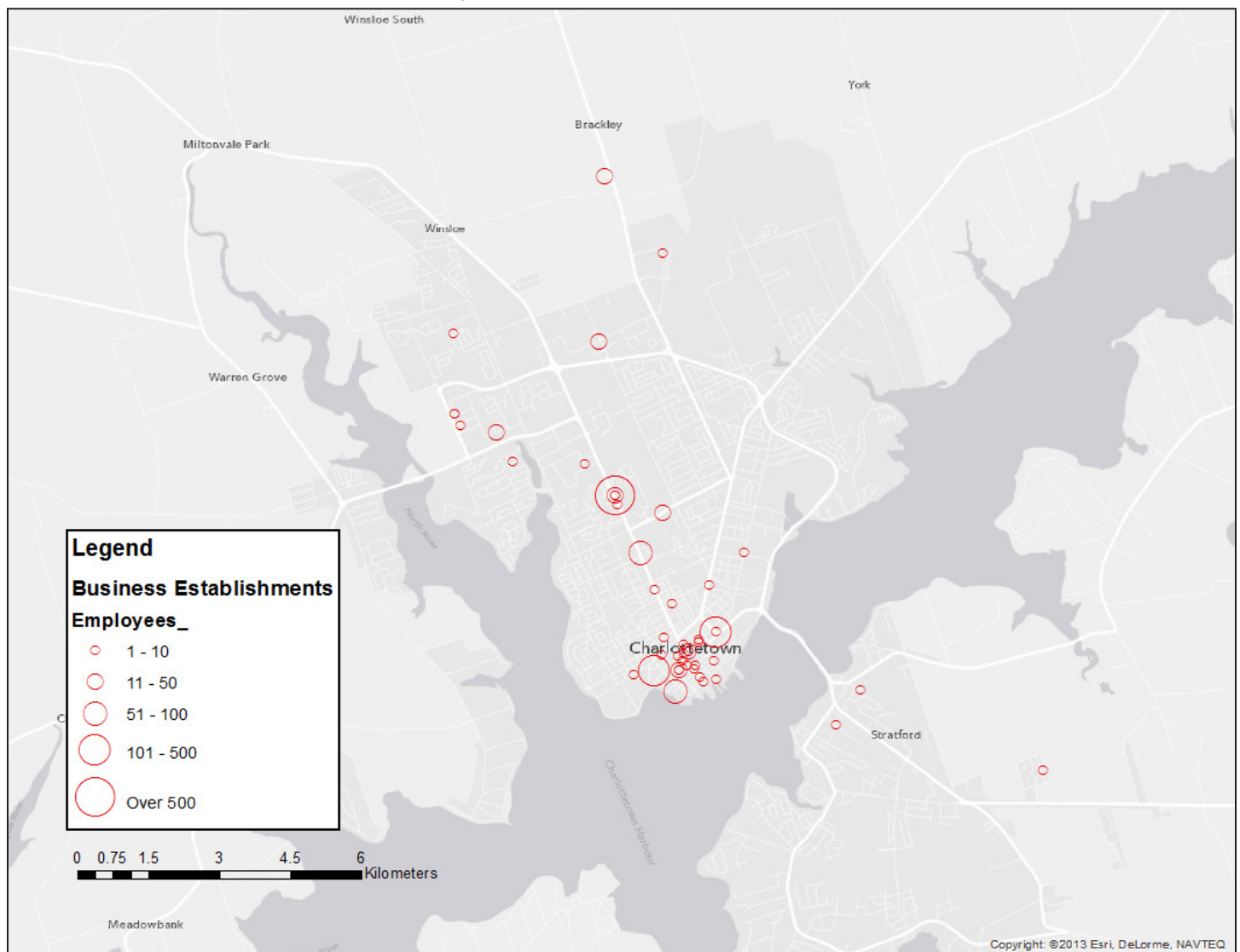
In 2011 78% of the cluster labour force held post-secondary qualifications with 58.8% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Charlottetown higher education cluster was \$58,099 per year. This

ranked the cluster 13th out of 13 higher education clusters in Canada.

In 2011 Dun & Bradstreet identified 51 business establishments in the Charlottetown higher education cluster. The average establishment size was 31 employees. The University of Prince Edward Island and Holland College were the two main employers in 2011.

Figure 5.1.3.1
Size and location of business establishments, 2011



5.1.3 Charlottetown Higher Education

Figure 5.1.3.2
Labour force demographics, 2011

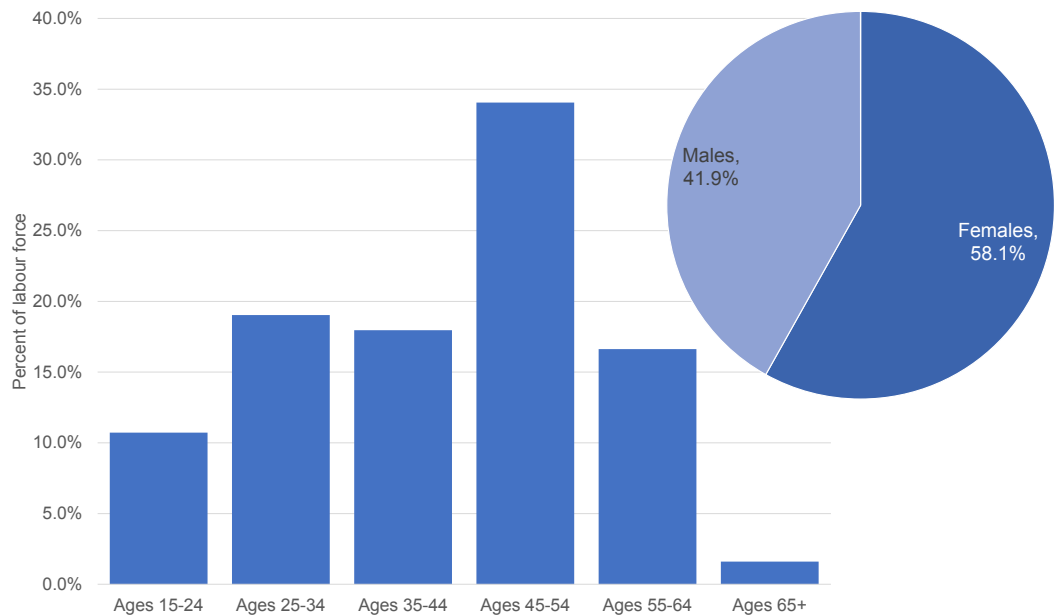


Figure 5.1.3.3
Educational attainment of labour force, 2011

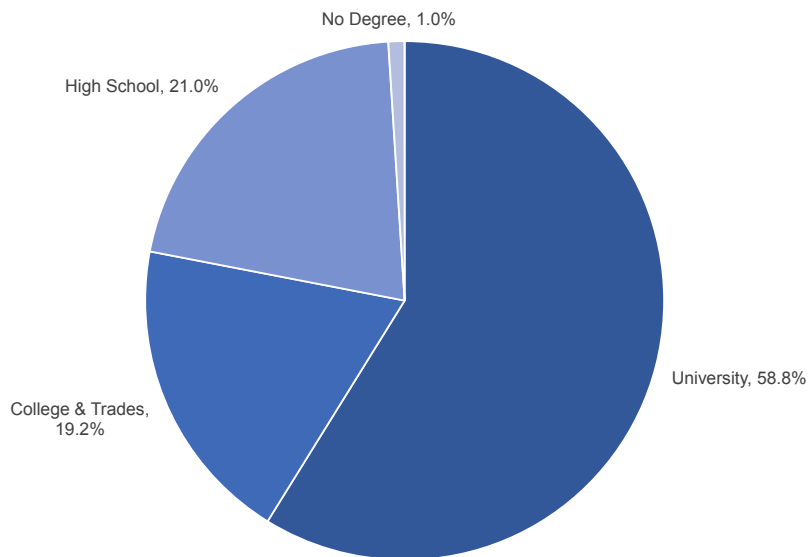
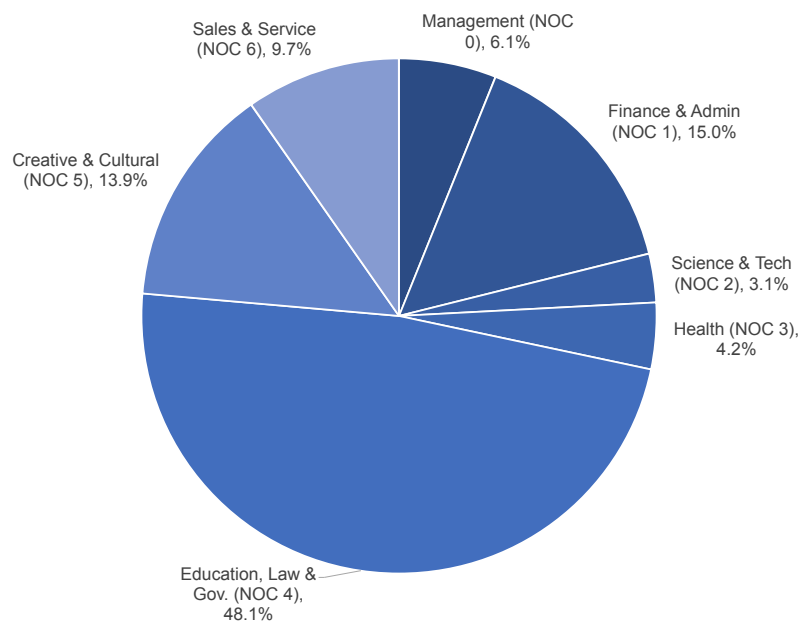


Figure 5.1.3.4
Occupational structure of labour force, 2011



5.1.4 Halifax Maritime

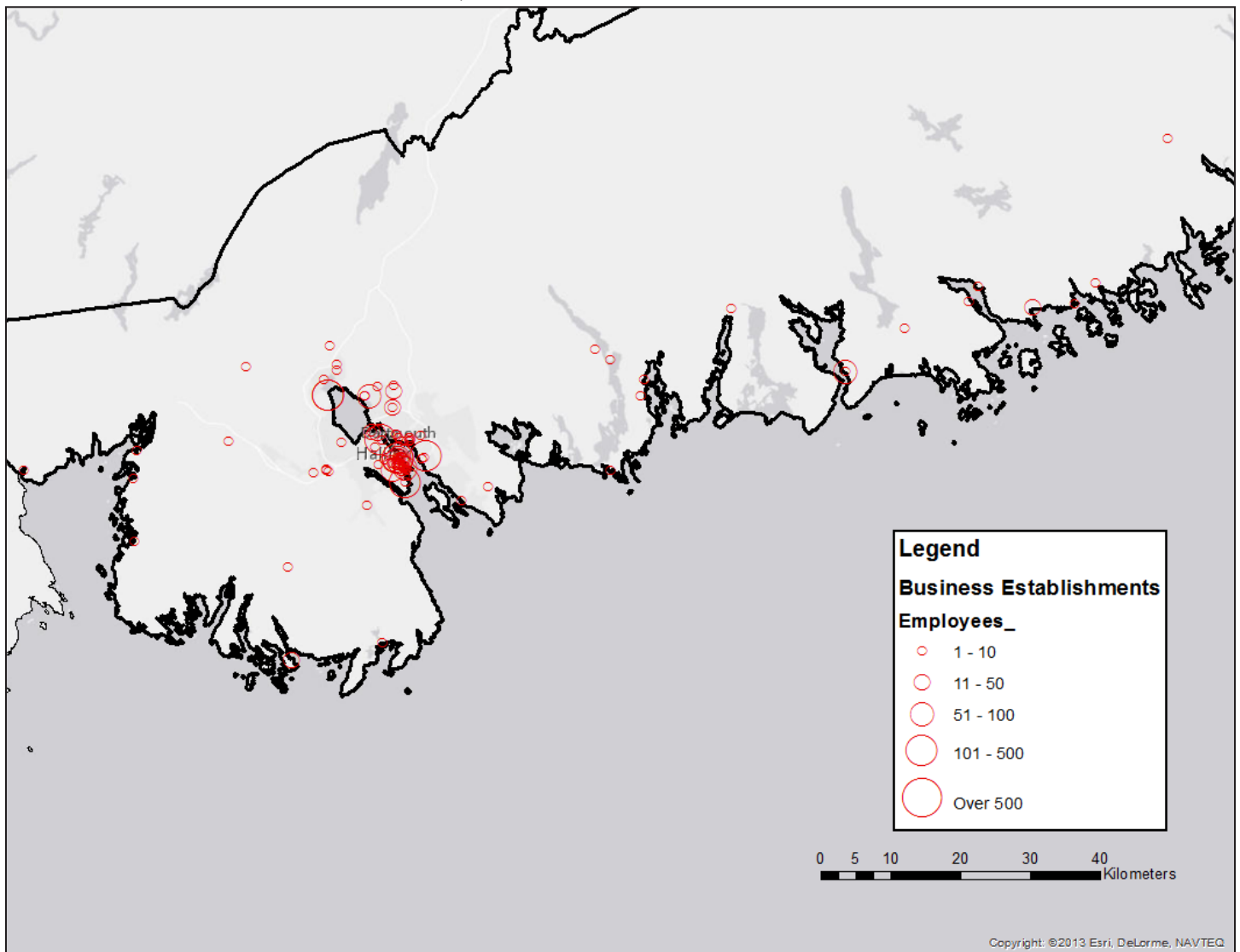
The maritime cluster in Halifax employed 3,300 people in 2011. This made Halifax the 3rd largest maritime cluster in Canada (out of 8). Between 2001 and 2011 employment grew by 12.4%. The labour force was 75.6% male and 24.4% female. 50.8% of the labour force was over the age of 44.

In 2011 62.8% of the cluster labour force held post-secondary qualifications with 17.4% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Halifax maritime cluster was \$60,905 per year. This ranked the cluster 4th out of 8 maritime clusters in Canada.

In 2011 Dun & Bradstreet identified 109 business establishments in the Halifax maritime cluster. The average establishment size was 25 employees. The largest firms in core maritime industries in 2011 included: Ultra Electronics Canada Inc; Clearwater Seafoods Income Fund; Irving Shipbuilding Inc; Halterm Limited; Northern Transportation Company Limited; Atlantic Pilotage Authority; Bakers Point Fisheries Limited; and Halifax Port Authority.

Figure 5.1.4.1
Size and location of business establishments, 2011



5.1.4 Halifax Maritime

Figure 5.1.4.2
Labour force demographics, 2011

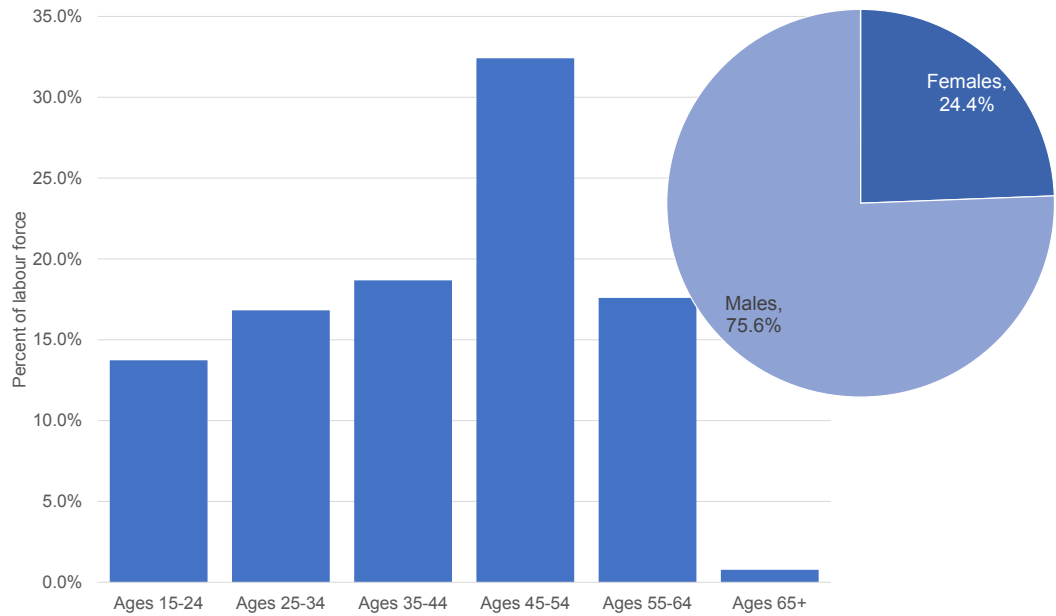


Figure 5.1.4.3
Educational attainment of labour force, 2011

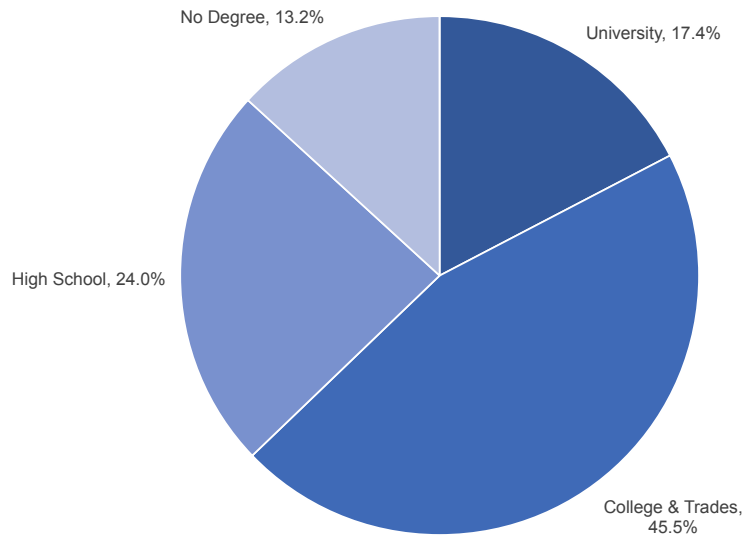
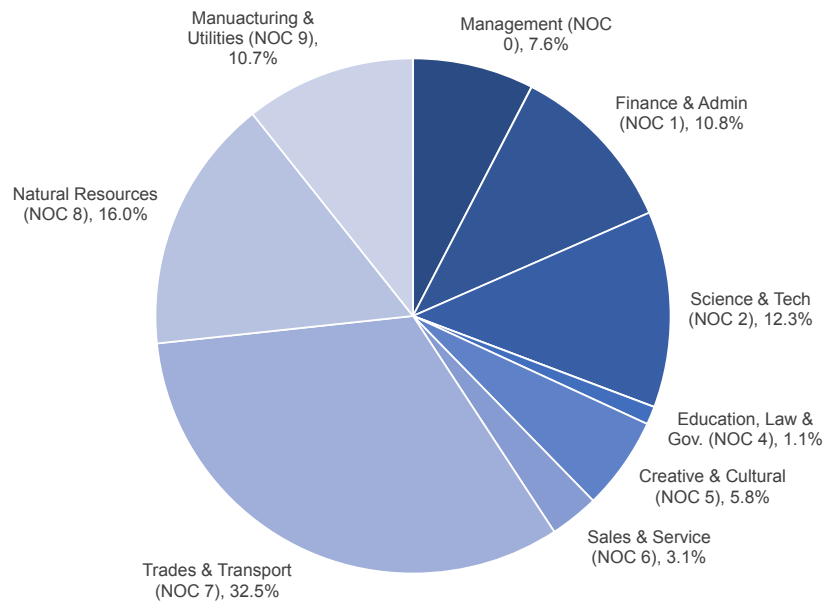


Figure 5.1.4.4
Occupational structure of labour force, 2011



5.1.5 Cape Breton Mining

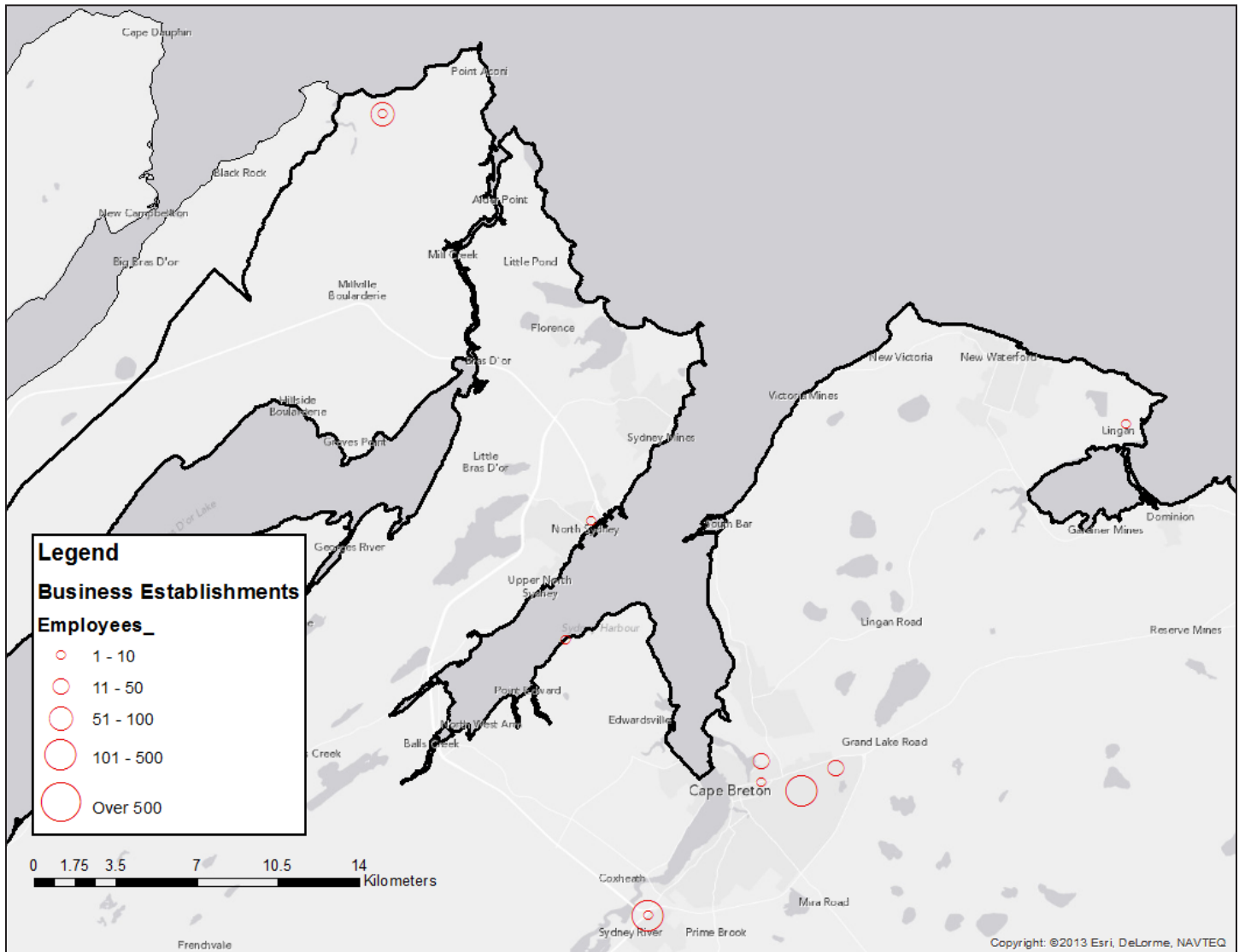
The mining cluster in Cape Breton employed 1,024 people in 2011. This made Cape Breton the 16th largest mining cluster in Canada (out of 16). Between 2001 and 2011 employment declined by 23%. The labour force was 90.2% male and 9.8% female. 52.6% of the labour force was over the age of 44.

In 2011 Dun & Bradstreet identified 10 business establishments in the Cape Breton mining cluster. The average establishment size was 50 employees. The largest firms in core mining industries in 2011 were Nova Scotia Power Incorporated and Municipal Capital Incorporated.

In 2011 79.1% of the cluster labour force held post-secondary qualifications with 4.1% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Cape Breton mining cluster was \$64,211 per year. This ranked the cluster 16th out of 16 mining clusters in Canada.

Figure 5.1.5.1
Size and location of business establishments, 2011



5.1.5 Cape Breton Mining

Figure 5.1.5.2
Labour force demographics, 2011

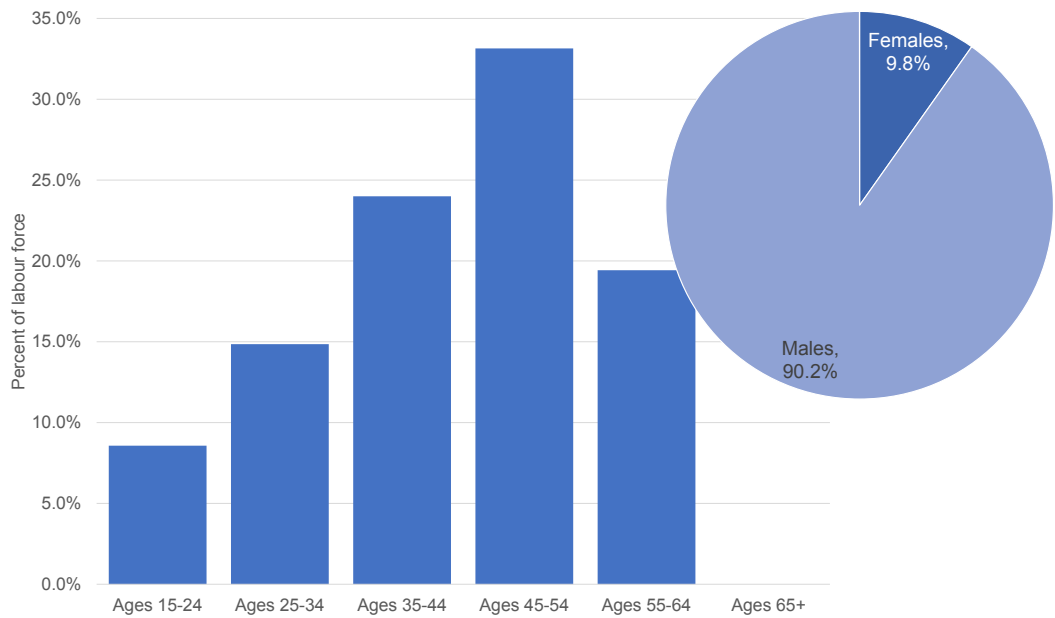


Figure 5.1.5.3
Educational attainment of labour force, 2011

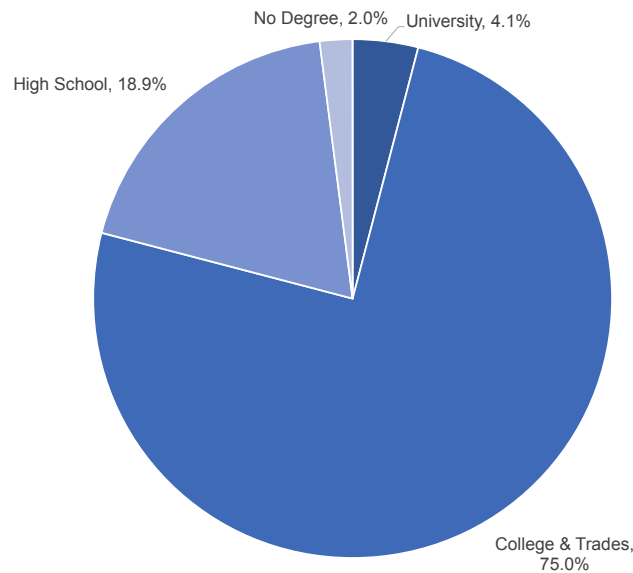
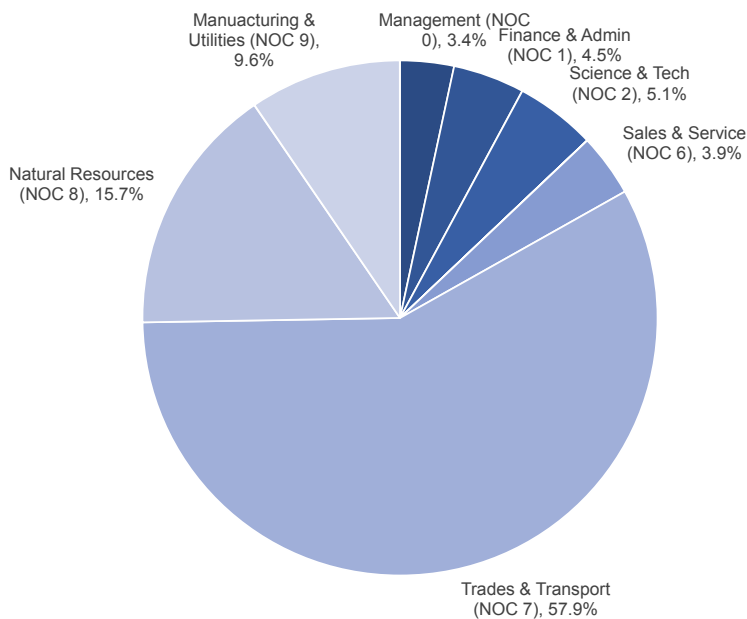


Figure 5.1.5.4
Occupational structure of labour force, 2011



5.1.6 Moncton Logistics

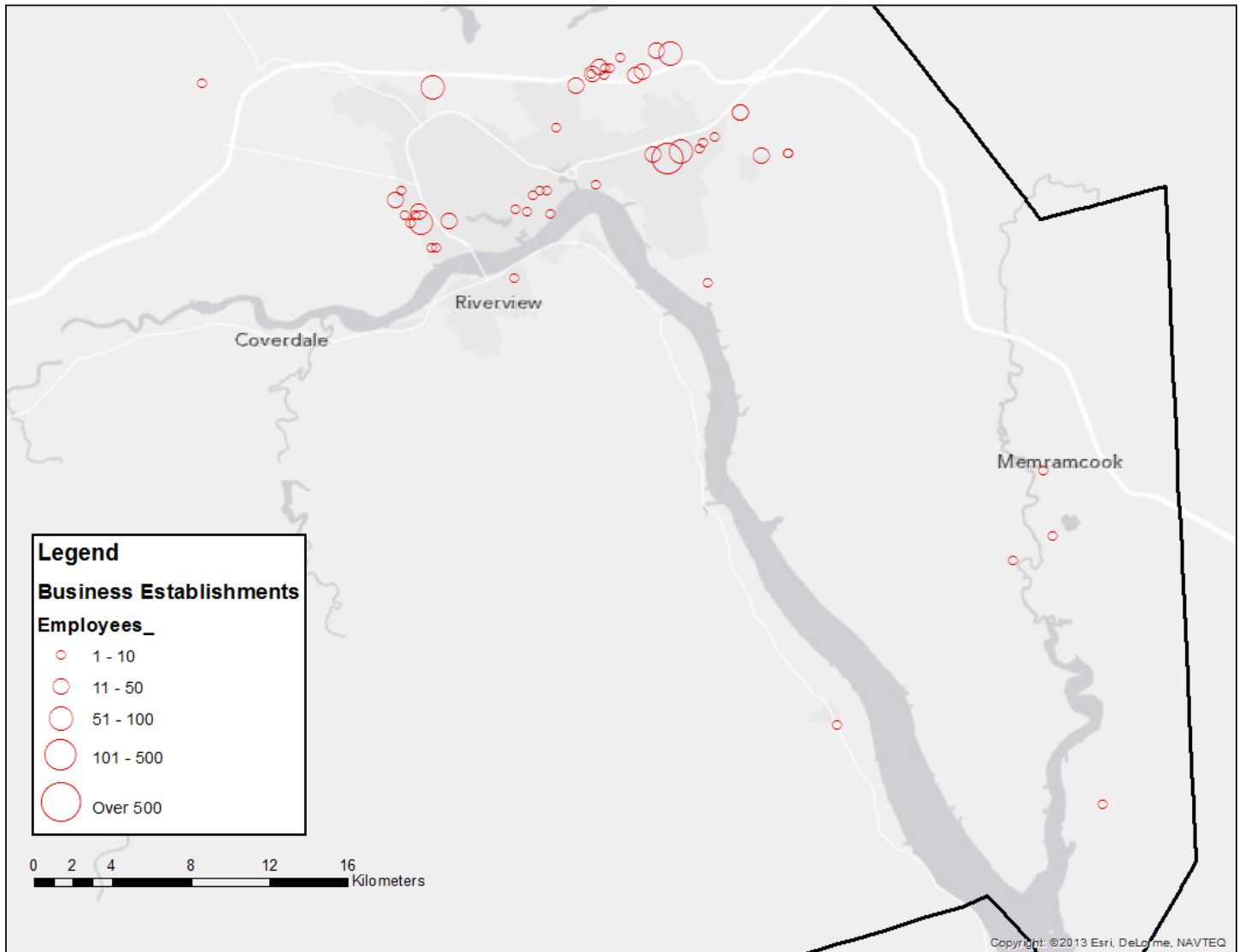
The logistics cluster in Moncton employed 5,061 people in 2011. This made Moncton the 9th largest logistics cluster in Canada (out of 10). Between 2001 and 2011 employment grew by 0.9%. The labour force was 66.9% male and 33.1% female. 47.2% of the labour force was over the age of 44.

In 2011 54.4% of the cluster labour force held post-secondary qualifications with 10.0% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Moncton logistics cluster was \$49,908 per year. This ranked the cluster 10th out of 10 logistics clusters in Canada.

In 2011 Dun & Bradstreet identified 53 business establishments in the Moncton logistics cluster. The average establishment size was 19 employees. The largest firms in core logistics industries in 2011 included: Canada Post Corporation; Matrix Logistics Services Limited; Day & Ross Inc; Midland Transport Limited; Coca-Cola Bottling Company; Armour Transport Inc; and Greater Moncton International Airport Authority.

Figure 5.1.6.1
Size and location of business establishments, 2011



5.1.6 Moncton Logistics

Figure 5.1.6.2
Labour force demographics, 2011

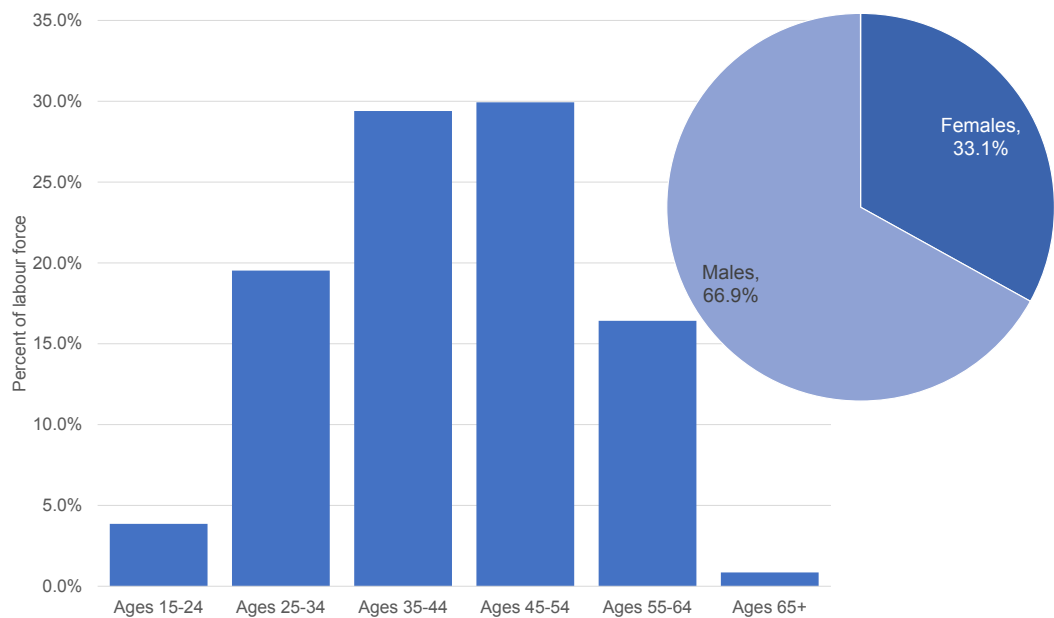


Figure 5.1.6.3
Educational attainment of labour force, 2011

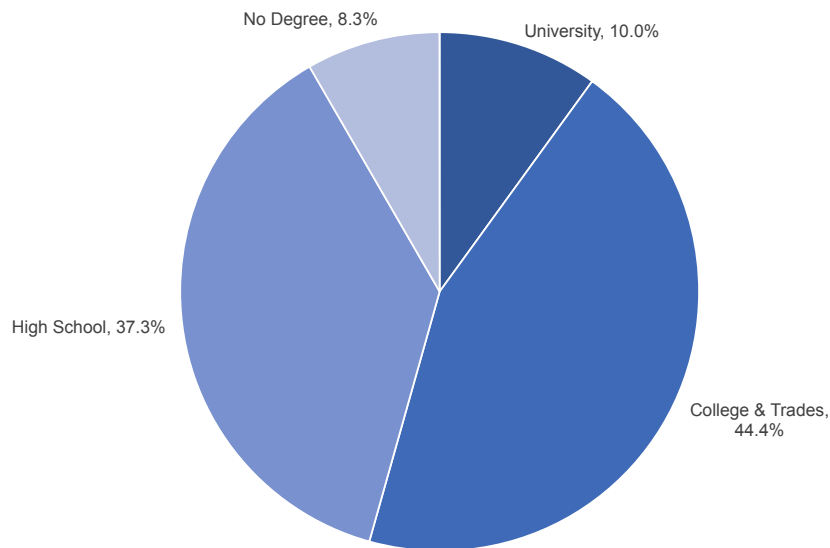
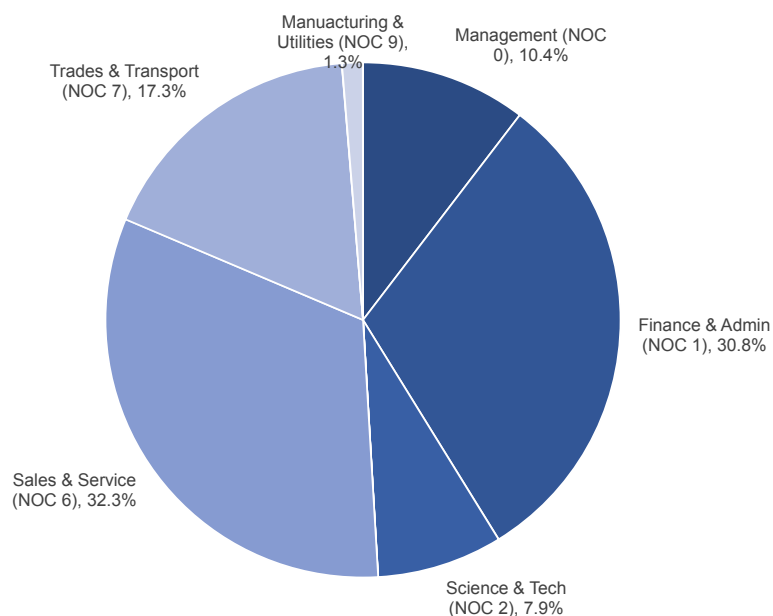


Figure 5.1.6.4
Occupational structure of labour force, 2011



5.1.7 Fredericton ICT Services

The ICT services cluster in Fredericton employed 4,785 people in 2011. This made Fredericton the 6th largest ICT services cluster in Canada (out of 7). Between 2001 and 2011 employment grew by 48.4%. The labour force was 62.7% male and 37.3% female. 36.2% of the labour force was over the age of 44.

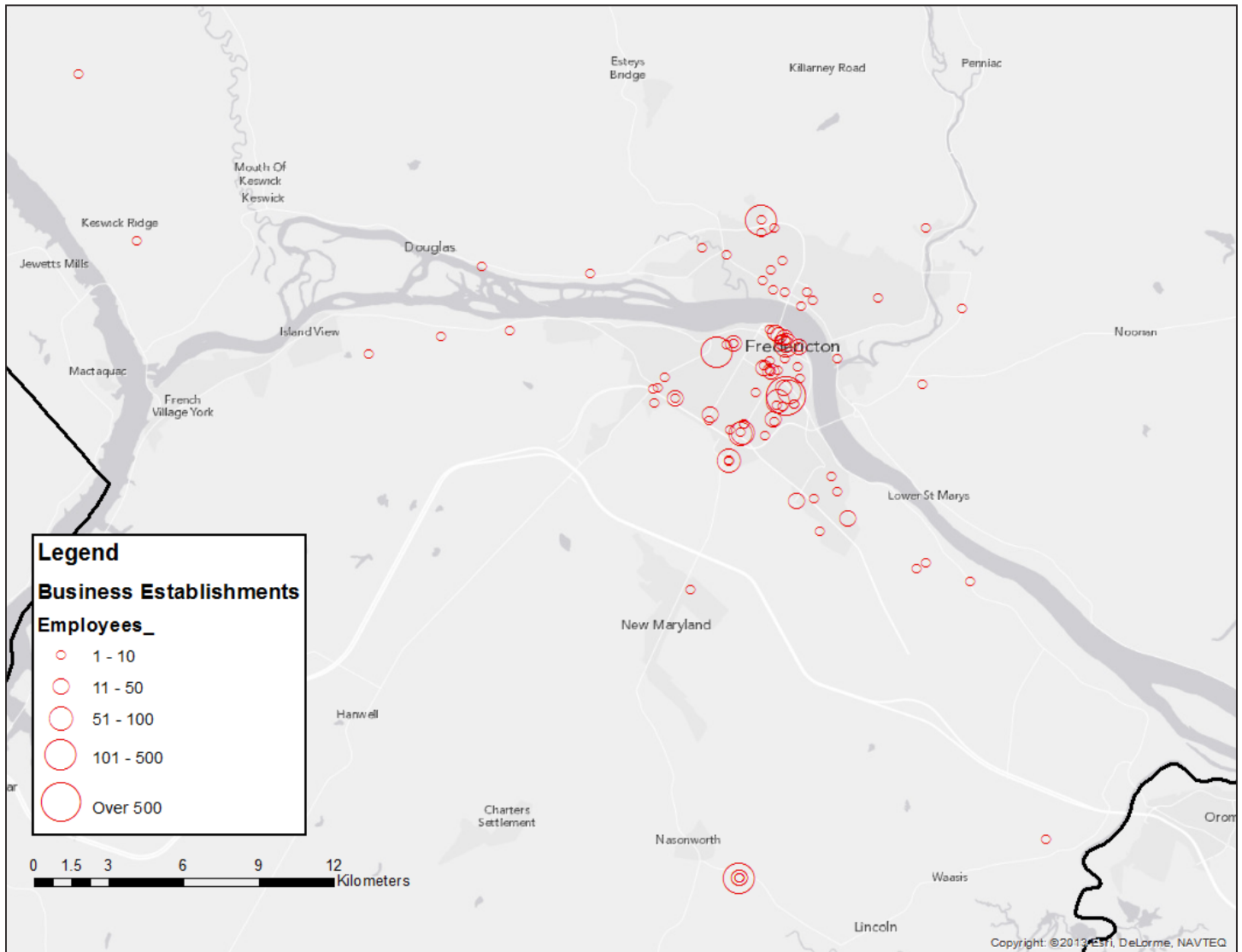
In 2011 83.5% of the cluster labour force held post-secondary qualifications with 58.6% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Fredericton ICT services cluster was \$63,166 per year. This ranked the

cluster 6th out of 7 ICT services clusters in Canada.

In 2011 Dun & Bradstreet identified 102 business establishments in the Fredericton ICT services cluster. The average establishment size was 35 employees. The largest firms in core ICT services industries in 2011 included: Cendant Canada Inc; Universal Systems Ltd; Provinent Corp; Groupe CGI Inc; Bell Aliant Regional Communications Inc; Astral Media Radio Atlantic Inc; and Unisys Canada Inc..

Figure 5.1.7.1
Size and location of business establishments, 2011



5.1.7 Fredericton ICT Services

Figure 5.1.7.2
Labour force demographics, 2011

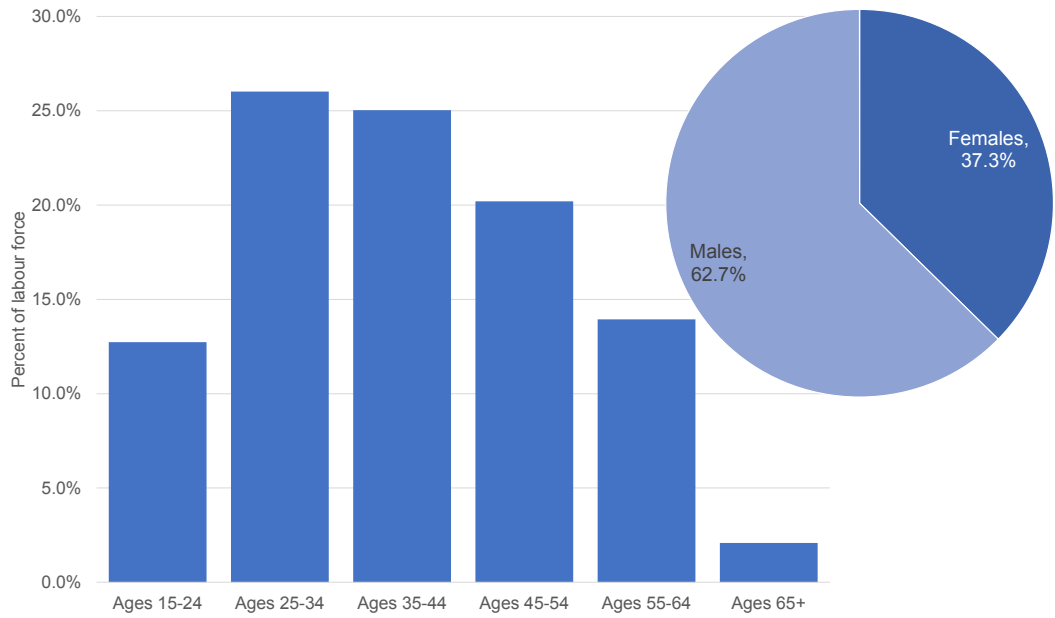


Figure 5.1.7.3
Educational attainment of labour force, 2011

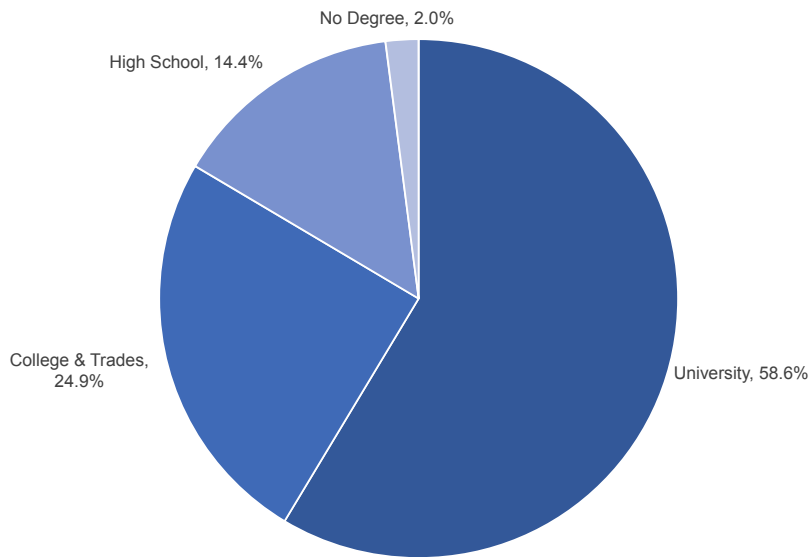
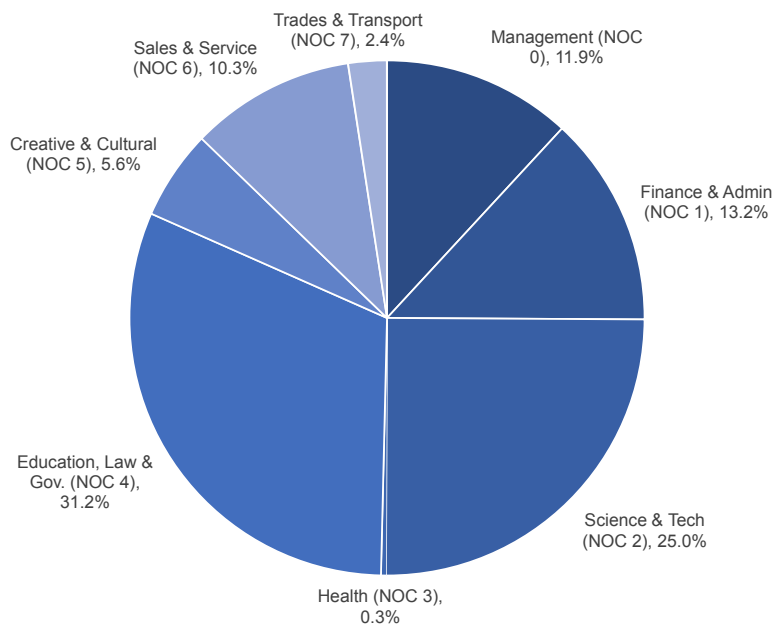


Figure 5.1.7.4
Occupational structure of labour force, 2011



5.2 Québec

Québec has a wide range of clusters and is third to Ontario (86) and British Columbia (43) with 39. Of these clusters 12 are focused in resources with five agriculture, four forestry & wood, and three mining. The mining clusters provide the highest incomes and two of three (Rouyn-Noranda and Val-d'Or) have seen significant growth between 2001 and 2011. The forestry & wood clusters have experienced the greatest difficulty over this period with three of four losing significant amounts of jobs.

Québec is the only province to report at least one cluster of each manufacturing type suggesting that there is a broadly diversified industrial base. Aluminum and aerospace are specific specializations that Québec possesses that are limited in the rest of Canada. All four food & beverage clusters experienced employment growth between 2001 and 2011. The results for plastics & rubber (6), auto manufacturing (3), aluminum (3), steel (3) were mixed on this measure. For the more knowledge intensive manufacturing clusters ICT (2) reported significant declines although this can be attributed to the timeframe and the results of the dot-com crash in the early 2000s. The two life sciences (Montréal and Québec) both grew by about 25%.

All four of the Québec services clusters are located in Montréal. All four, including ICT services, finance, business services, and creative and cultural experienced growth of around a third between 2001 and 2011. This trend is in line with similar clusters in the other major urban areas of the country. It exemplifies the overall trend of employment shifts to service industries (and away from manufacturing). While this may provide an aggregate benefit to the economy it poses somewhat of a conundrum for policy

makers as the largest cities tend to be the primary drivers of this growth. A gap is emerging with mid-sized and smaller urban areas that have economies with resource and manufacturing histories. Attempts to geographically spread such growth is not likely to succeed, yet smaller communities need to find ways to be prosperous in the 21st century global economy.

Table 5.2.1
Quebec clusters and key indicators

City Region	Prov	Cluster Type	Employment 2011	Employment Change 2001-2011	Average Annual FT Income
Montréal	QC	Aerospace	24,390	-8.4%	\$72,786
Drummondville	QC	Agriculture	4,525	83.6%	\$35,970
Granby	QC	Agriculture	2,836	57.1%	\$52,203
Saint-Hyacinthe	QC	Agriculture	2,863	2.1%	\$42,169
Saint-Jean-sur-Richelieu	QC	Agriculture	2,061	8.7%	\$42,025
Victoriaville	QC	Agriculture	1,925	8.2%	\$39,942
Saguenay	QC	Aluminum	3,687	-27.9%	\$87,418
Baie-Comeau	QC	Aluminum	1,621	-7.7%	\$78,210
Sept-Îles	QC	Aluminum	1,137	92.6%	\$96,230
Drummondville	QC	Automotive	2,157	12.3%	\$41,529
Granby	QC	Automotive	2,309	12.9%	\$41,783
Sherbrooke	QC	Automotive	3,332	-21.1%	\$47,832
Montréal	QC	Life Sciences	31,436	26.1%	\$69,624
Québec	QC	Life Sciences	5,542	24.0%	\$62,815
Montréal	QC	Business Services	235,300	34.4%	\$64,886
Montréal	QC	Creative & Cultural	94,427	31.8%	\$55,215
Montréal	QC	Finance	137,348	29.8%	\$67,867
Granby	QC	Food	2,421	46.3%	\$44,569
Montréal	QC	Food	56,946	9.1%	\$48,374
Saint-Hyacinthe	QC	Food	2,461	5.9%	\$41,781
Saint-Jean-sur-Richelieu	QC	Food	1,739	19.9%	\$44,074
Dolbeau-Mistassini	QC	Forestry	1,023	-31.8%	\$62,427
Saguenay	QC	Forestry	1,695	-49.5%	\$64,648
Saint-Georges	QC	Forestry	1,242	46.9%	\$39,768
Shawinigan	QC	Forestry	1,254	-44.9%	\$58,945
Granby	QC	ICT Manufacturing	2,547	-19.5%	\$48,253
Montréal	QC	ICT Manufacturing	25,341	-37.5%	\$66,828
Montréal	QC	ICT Services	133,473	32.0%	\$66,403
Montréal	QC	Logistics	131,793	8.2%	\$58,611
Rouyn-Noranda	QC	Mining	2,964	72.3%	\$79,237
Sept-Îles	QC	Mining	1,247	-5.5%	\$95,246
Val-d'Or	QC	Mining	2,593	52.1%	\$86,253
Drummondville	QC	Plastics & Rubber	2,586	17.5%	\$43,829
Granby	QC	Plastics & Rubber	2,086	14.3%	\$41,530
Montréal	QC	Plastics & Rubber	46,866	-26.8%	\$49,593
Sherbrooke	QC	Plastics & Rubber	3,789	-20.2%	\$45,009
Trois-Rivières	QC	Plastics & Rubber	1,402	-9.5%	\$46,627
Victoriaville	QC	Plastics & Rubber	1,152	14.1%	\$44,687
Drummondville	QC	Steel	1,354	27.1%	\$45,308
Sorel-Tracy	QC	Steel	1,930	-25.3%	\$70,903
Trois-Rivières	QC	Steel	2,222	-15.0%	\$80,992
Montréal	QC	Textiles	25,106	-60.5%	\$45,039

5.2.1 Saguenay Aluminum

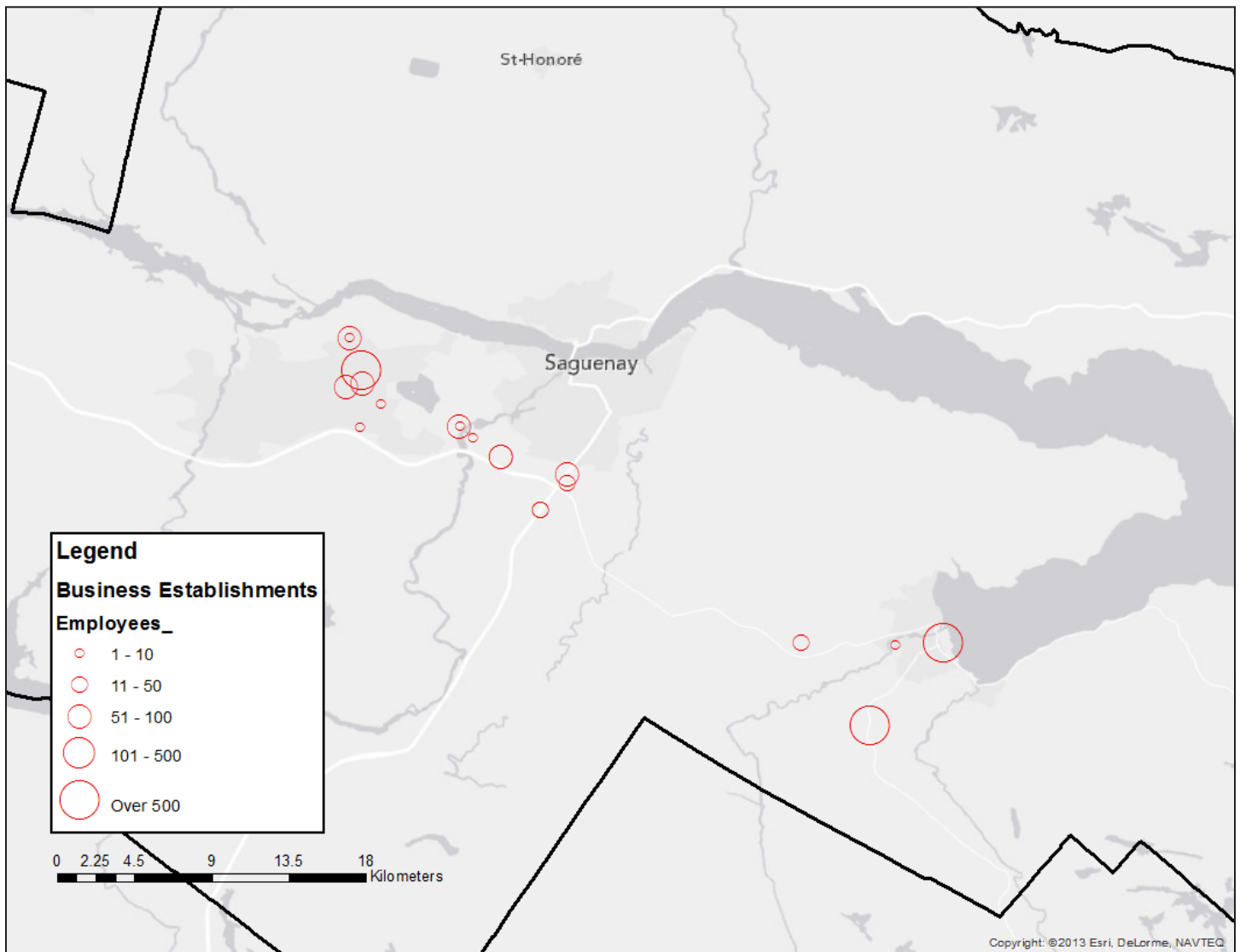
The aluminum cluster in Saguenay employed 3,687 people in 2011. This made Saguenay the largest aluminum cluster in Canada (out of 3). Between 2001 and 2011 employment declined by 27.9%. The labour force was 90.0% male and 10.0% female. 63.9% of the labour force was over the age of 44.

In 2011 Dun & Bradstreet identified 20 business establishments in the Saguenay aluminum cluster. The average establishment size was 134 employees. The largest firms in core aluminum industries in 2011 included: Rio Tinto Alcan Inc; Alfiniti Inc; Spectube Inc; Novelis Inc; and Fonderie Saguenay Ltée.

In 2011 84.8% of the cluster labour force held post-secondary qualifications with 18.0% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Saguenay aluminum cluster was \$87,418 per year. This ranked the cluster 2nd out of 3 aluminum clusters in Canada.

Figure 5.2.1.1
Size and location of business establishments, 2011



5.2.1 Saguenay Aluminum

Figure 5.2.1.2
Labour force demographics, 2011

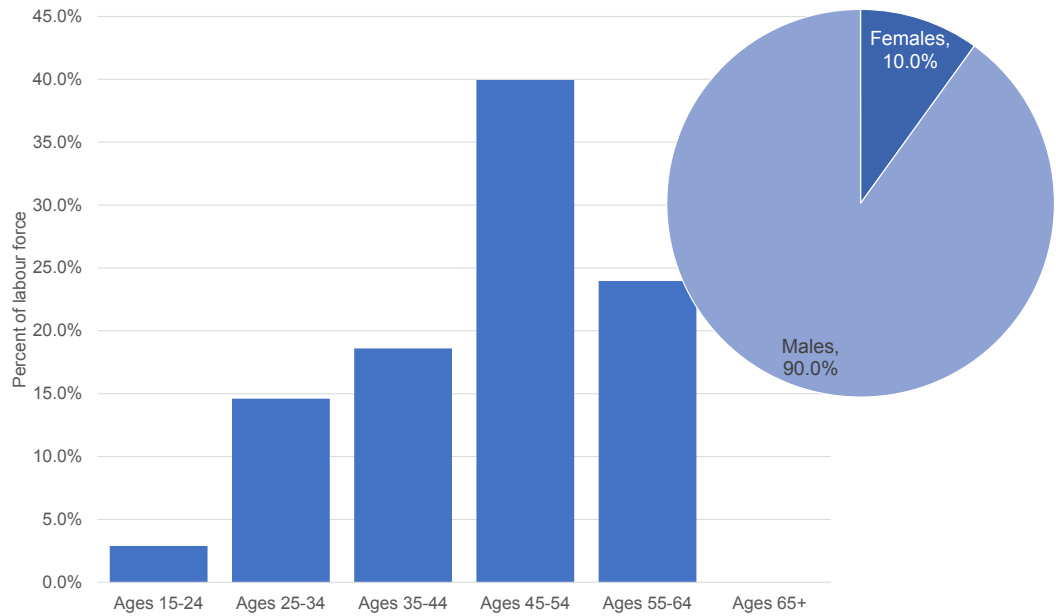


Figure 5.2.1.3
Educational attainment of labour force, 2011

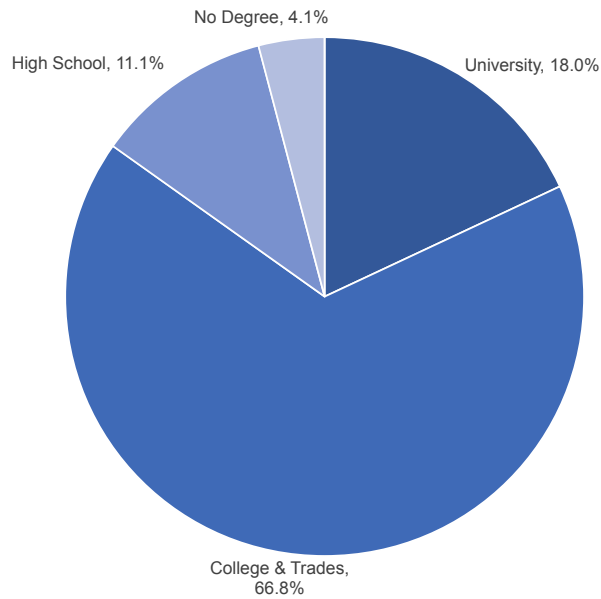
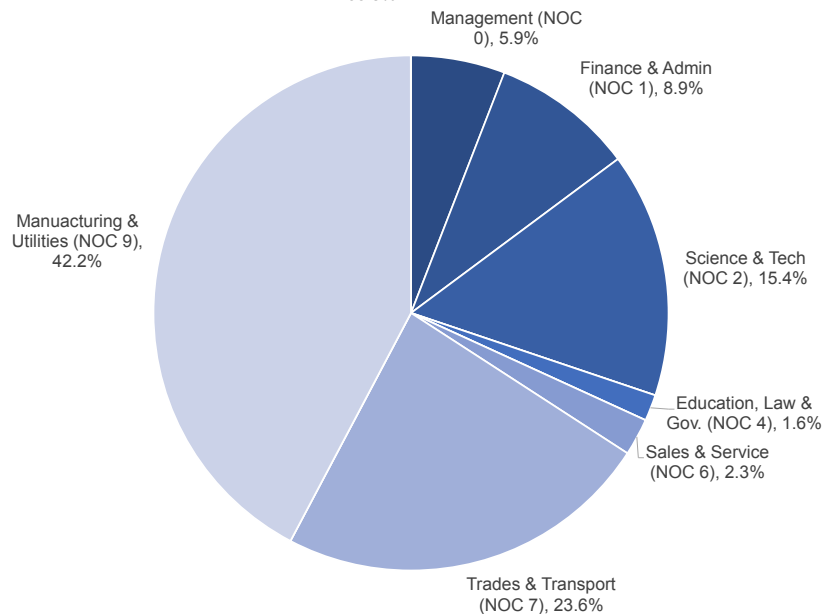


Figure 5.2.1.4
Occupational structure of labour force, 2011



5.2.2 Rouyn-Noranda Mining

The mining cluster in Rouyn-Noranda employed 2,964 people in 2011. This made Rouyn-Noranda the 6th largest mining cluster in Canada (out of 16). Between 2001 and 2011 employment increased by 72.3%. The labour force was 83.7% male and 16.3% female. 43.6% of the labour force was over the age of 44.

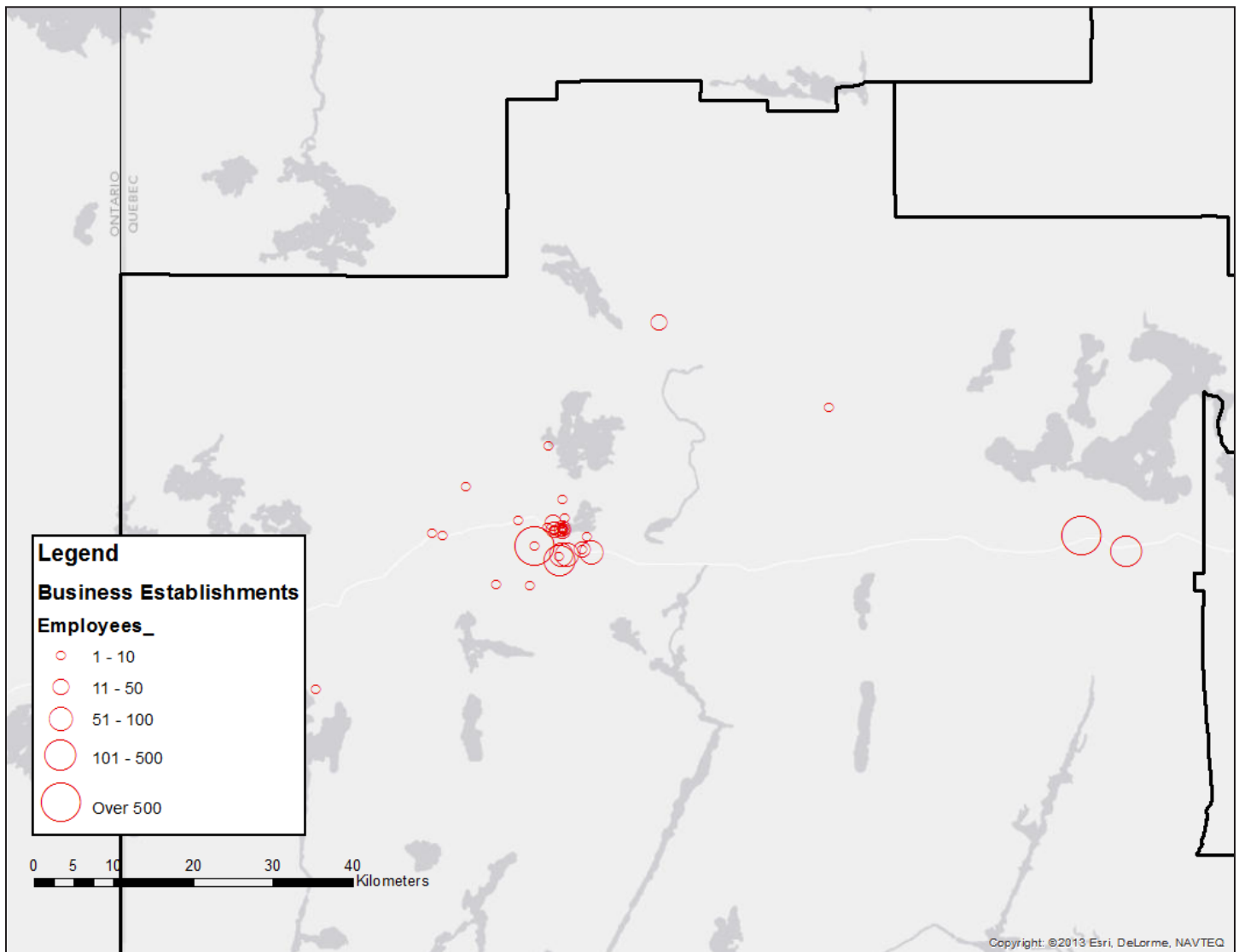
In 2011 66.3% of the cluster labour force held post-secondary qualifications with 12.7% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Rouyn-Noranda mining cluster was \$79,237 per year. This ranked the

cluster 13th out of 16 mining clusters in Canada.

In 2011 Dun & Bradstreet identified 42 business establishments in the Rouyn-Noranda mining cluster. The average establishment size was 54 employees. The largest firms in core mining industries in 2011 included: Xstrata Canada Corporation; Agnico-Eagle Mines Limited; Les Mines D'Argent ECU Inc; Gestion Iamgold-Québec Inc; Services d'Entretien Miniers Industriels R.N. 2000; and Bradley Frères Ltée.

Figure 5.2.2.1
Size and location of business establishments, 2011



5.2.2 Rouyn-Noranda Mining

Figure 5.2.2.2
Labour force demographics, 2011

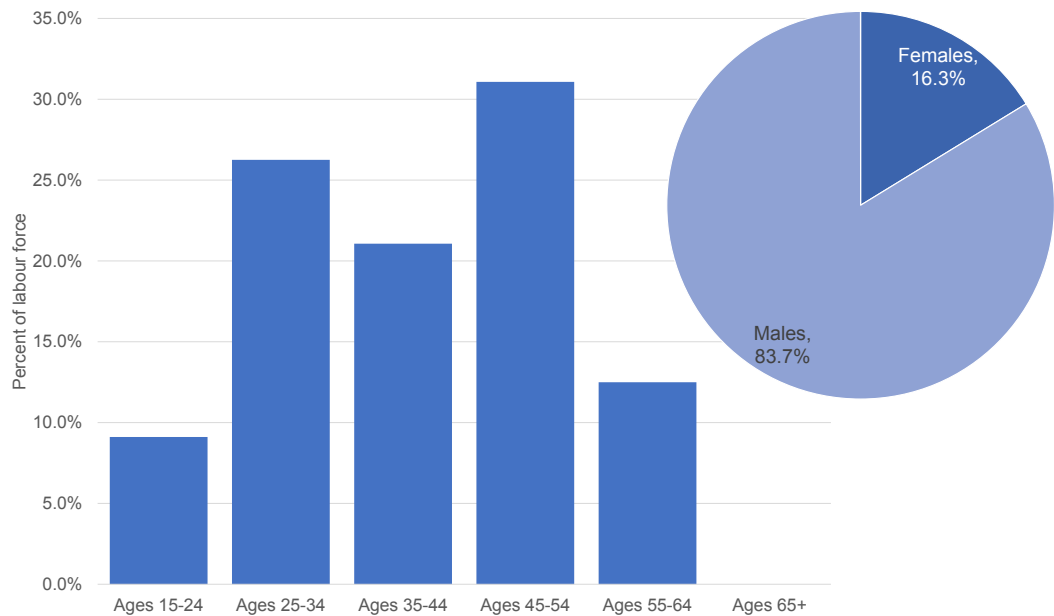


Figure 5.2.2.3
Educational attainment of labour force, 2011

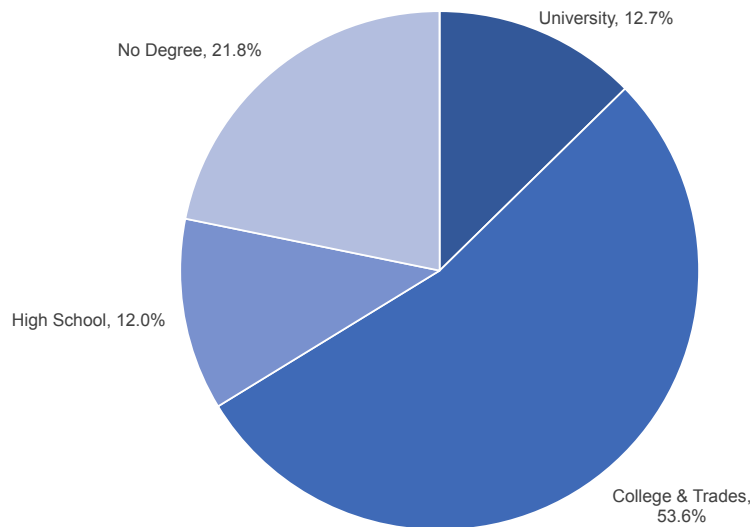
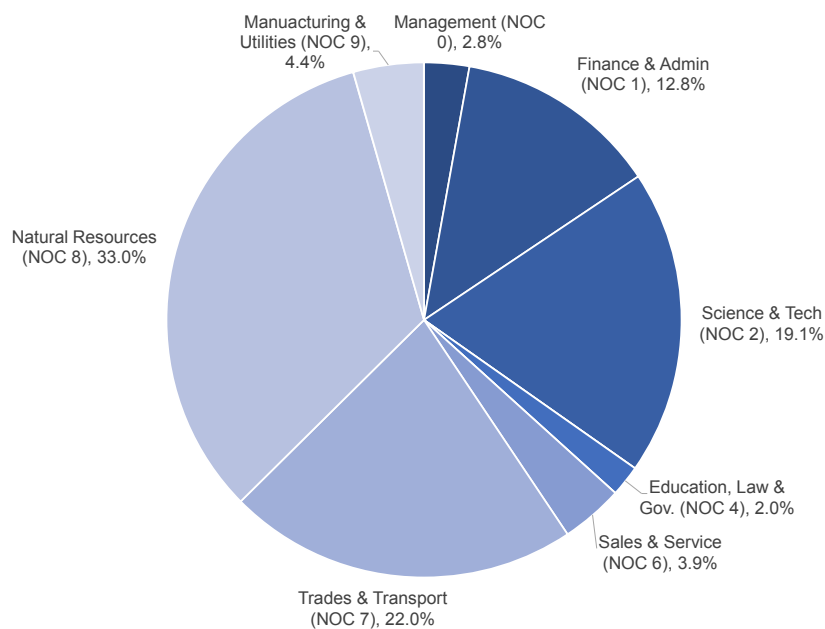


Figure 5.2.2.4
Occupational structure of labour force, 2011



5.2.3 Québec Life Sciences

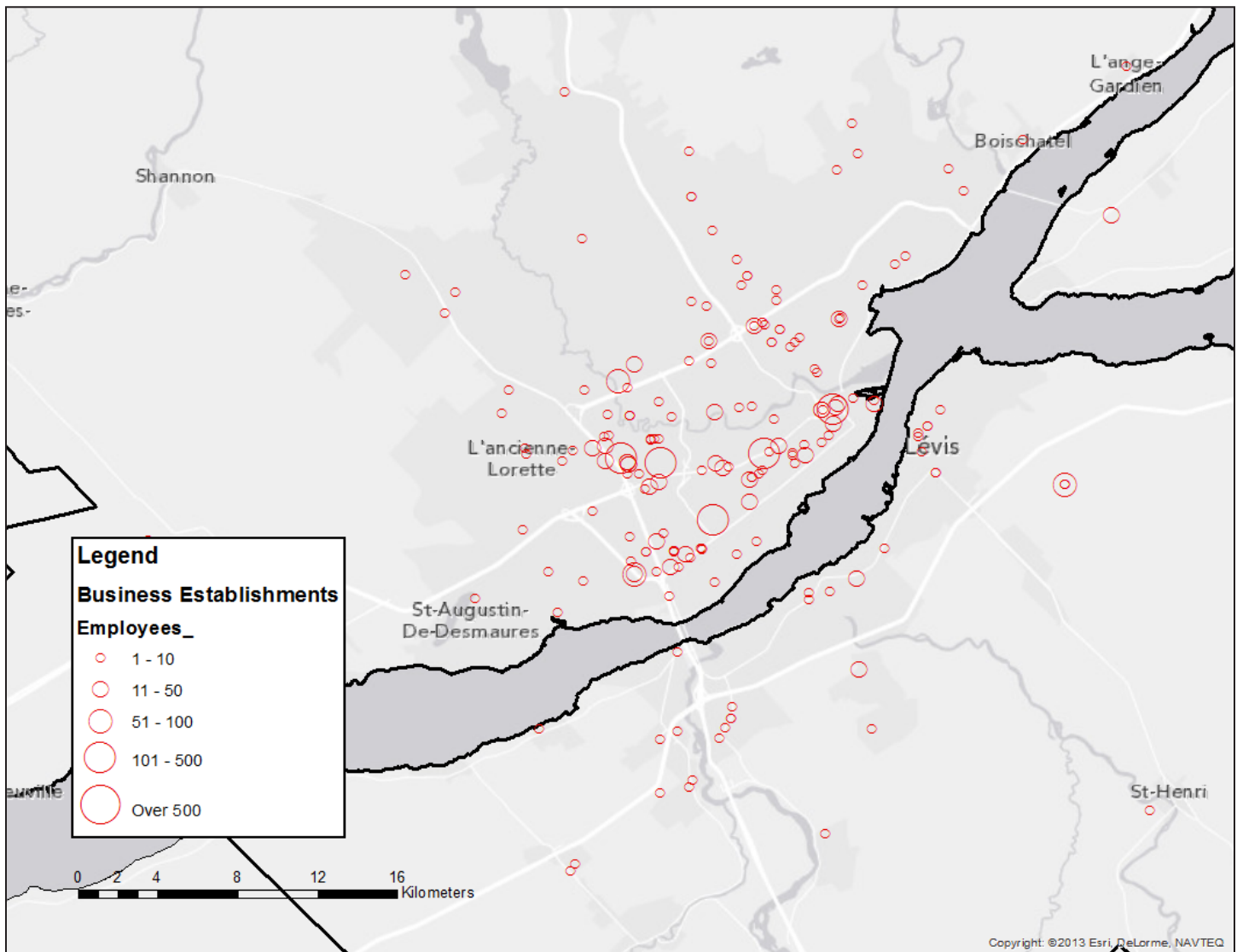
The life sciences cluster in Québec employed 5,542 people in 2011. This made Québec the 4th largest life sciences cluster in Canada (out of 7). Between 2001 and 2011 employment increased by 24.0%. The labour force was 53.0% male and 47.0% female. 31.8% of the labour force was over the age of 44.

In 2011 83.6% of the cluster labour force held post-secondary qualifications with 37.5% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Québec life sciences cluster was \$62,815 per year. This ranked the cluster 6th out of 7 life sciences clusters in Canada.

In 2011 Dun & Bradstreet identified 189 business establishments in the Québec life sciences cluster. The average establishment size was 14 employees. The largest firms in core life sciences industries in 2011 included: Olympus NDT Canada Inc; ABB-Bomem Inc; GeneOhm Sciences Canada Inc; General Electric Canada Company; Pharmalab Inc; Multitel Inc; Orthofab Inc; Optel-Technologies Inc; Laboratoire Dentaire Morisset Inc; and DiagnoCure Inc..

Figure 5.2.3.1
Size and location of business establishments, 2011



5.2.3 Québec Life Sciences

Figure 5.2.3.2
Labour force demographics, 2011

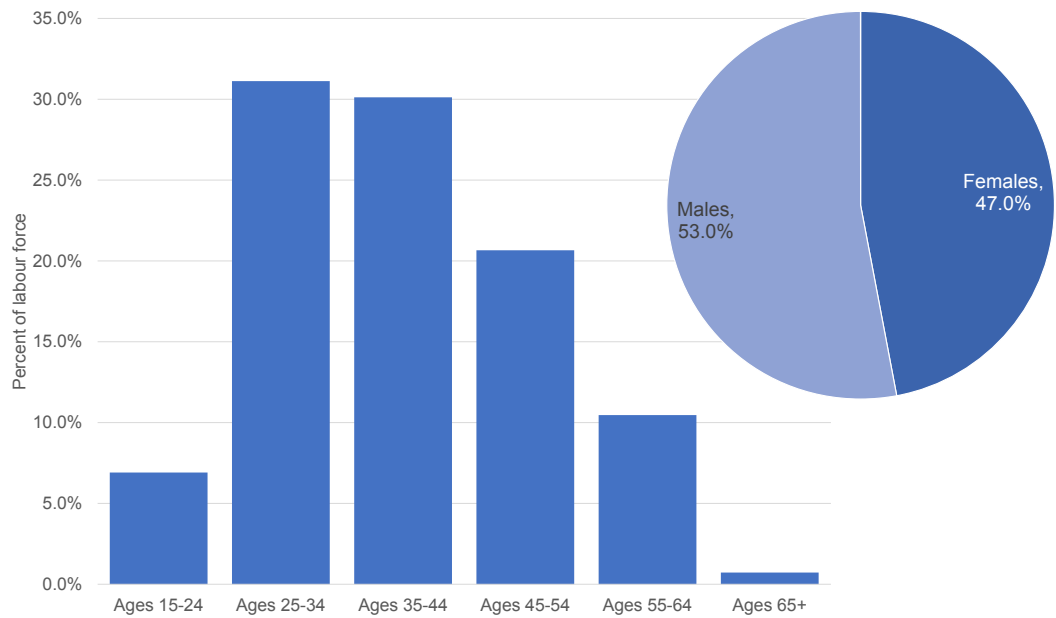


Figure 5.2.3.3
Educational attainment of labour force, 2011

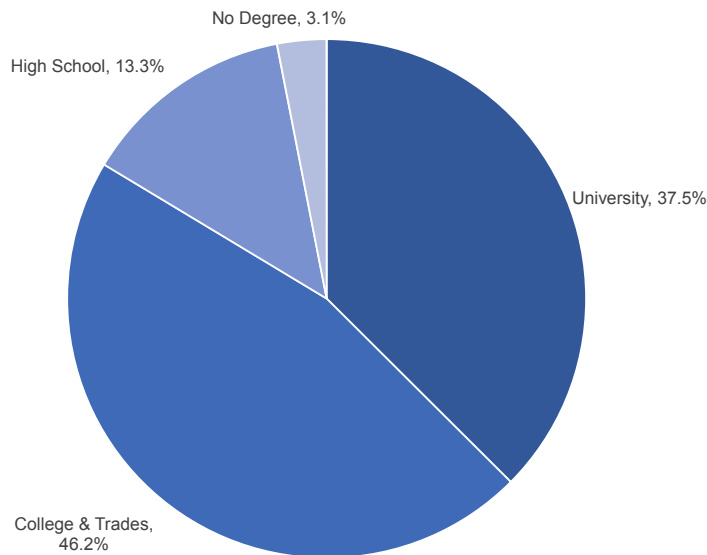
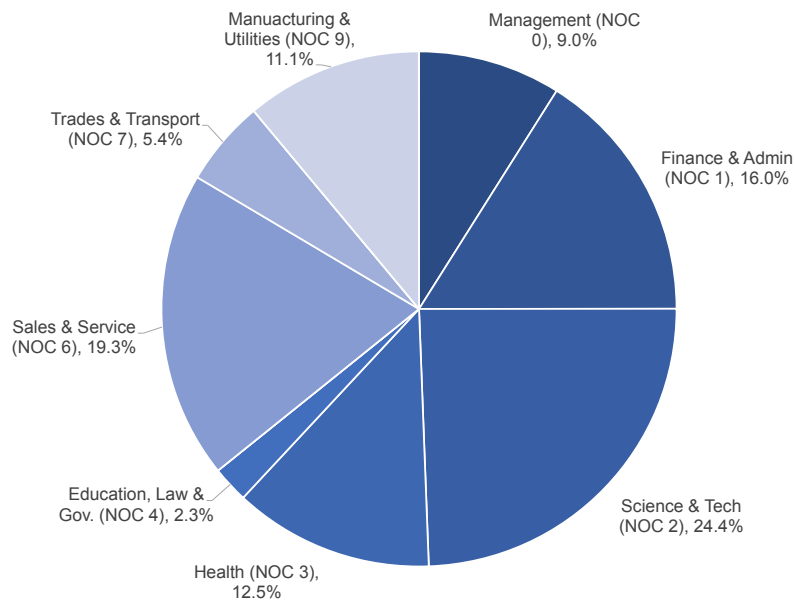


Figure 5.2.3.4
Occupational structure of labour force, 2011



5.2.4 Montréal Finance

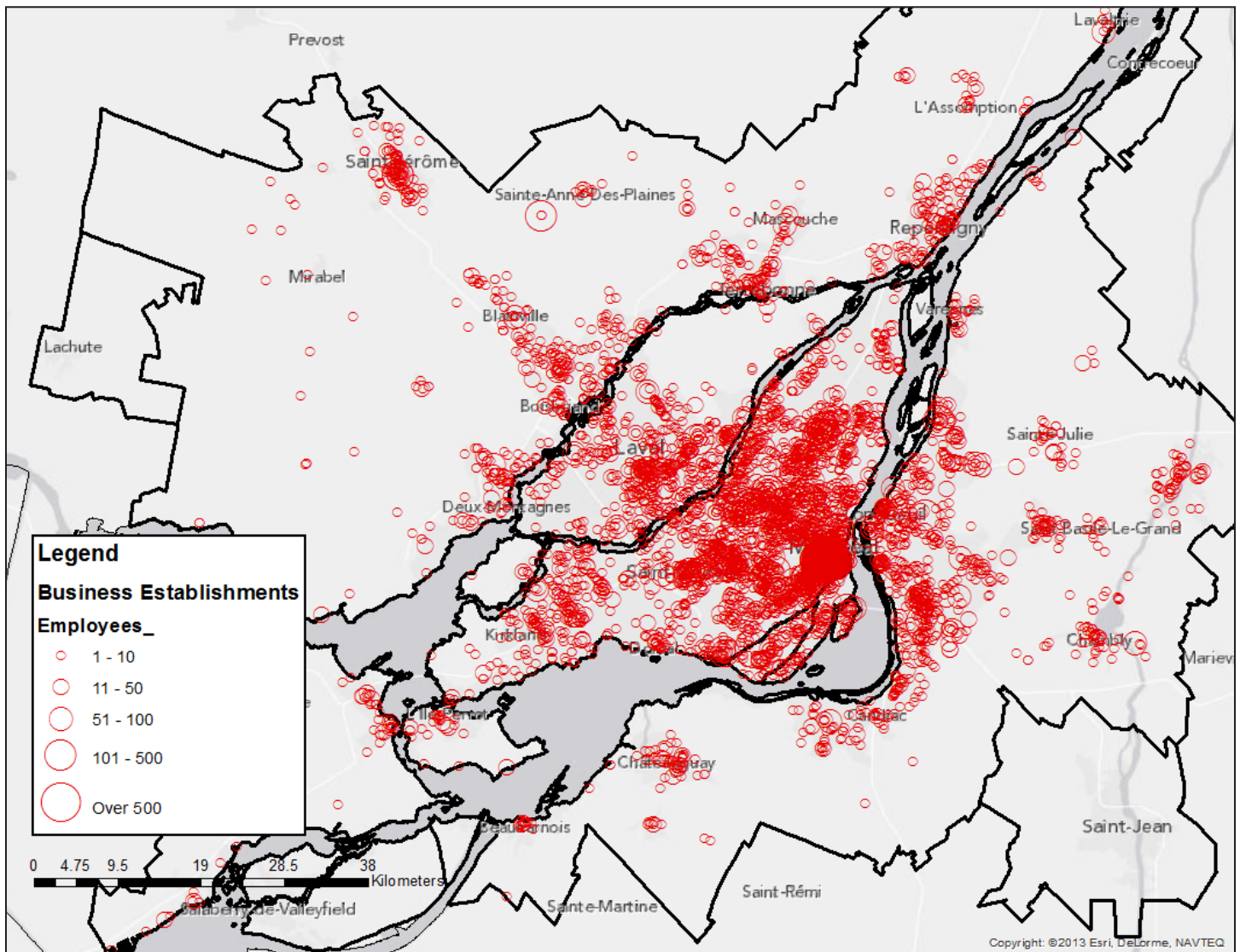
The finance cluster in Montréal employed 137,348 people in 2011. This made Montréal the 2nd largest finance cluster in Canada (out of 5). Between 2001 and 2011 employment increased by 29.8%. The labour force was 44.0% male and 56.0% female. 41.8% of the labour force was over the age of 44.

In 2011 79.5% of the cluster labour force held post-secondary qualifications with 42.4% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Montréal finance cluster was \$67,867 per year. This ranked the cluster 5th out of 5 finance clusters in Canada.

In 2011 Dun & Bradstreet identified 6,263 business establishments in the Montréal finance cluster. The average establishment size was 16 employees. The largest firms in core finance industries in 2011 included: RBC; Bank of Montréal; Fédération Des Caisses Desjardins Du Québec; Financière Banque Nationale & Cie Inc; Sun Life Assurance Company Of Canada; Sécurité Nationale Compagnie D'Assurance; Valeurs Mobilières Desjardins Inc; Les Associés Services Financiers du Canada Ltée; Banque Laurentienne Du Canada; Power Financial Corporation; Ernst & Young Inc; INTRIA Items Inc; The Manufacturers Life Insurance Company; and Ernst & Young LLP.

Figure 5.2.4.1
Size and location of business establishments, 2011



5.2.4 Montréal Finance

Figure 5.2.4.2
Labour force demographics, 2011

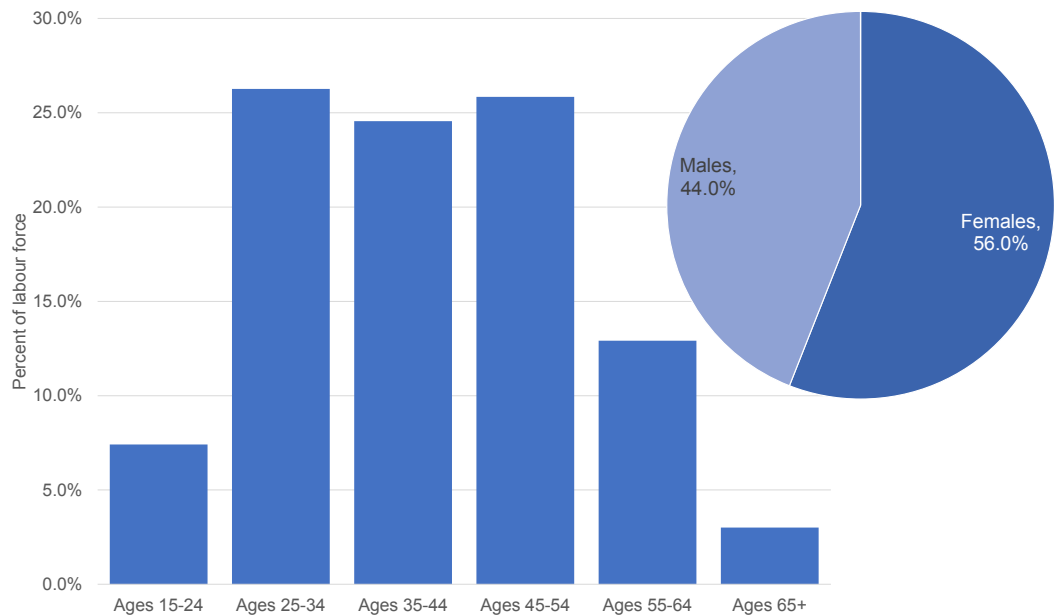


Figure 5.2.4.3
Educational attainment of labour force, 2011

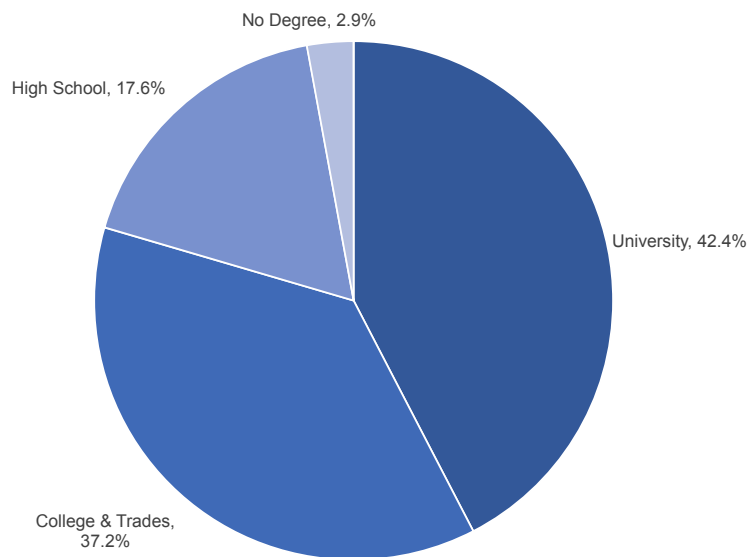
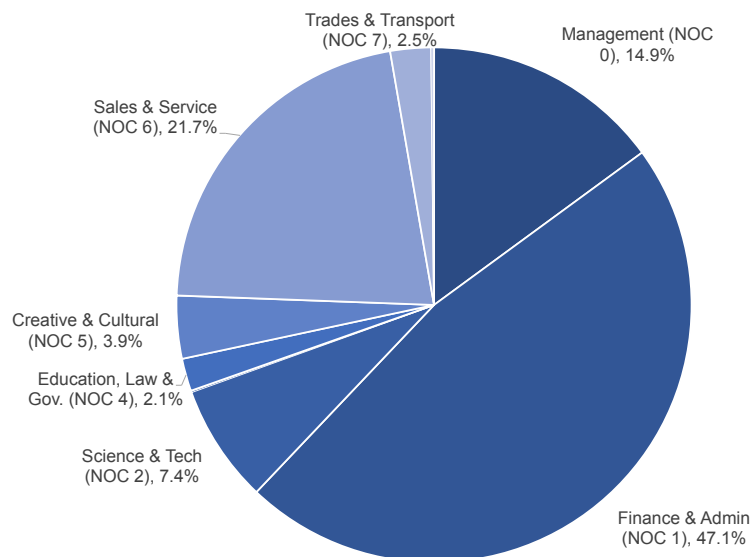


Figure 5.2.4.4
Occupational structure of labour force, 2011



5.2.5 Montréal Creative & Cultural

The creative & cultural cluster in Montréal employed 94,427 people in 2011. This made Montréal the 2nd largest creative & cultural cluster in Canada (out of 3). Between 2001 and 2011 employment increased by 31.8%. The labour force was 51.6% male and 48.4% female. 35.5% of the labour force was over the age of 44.

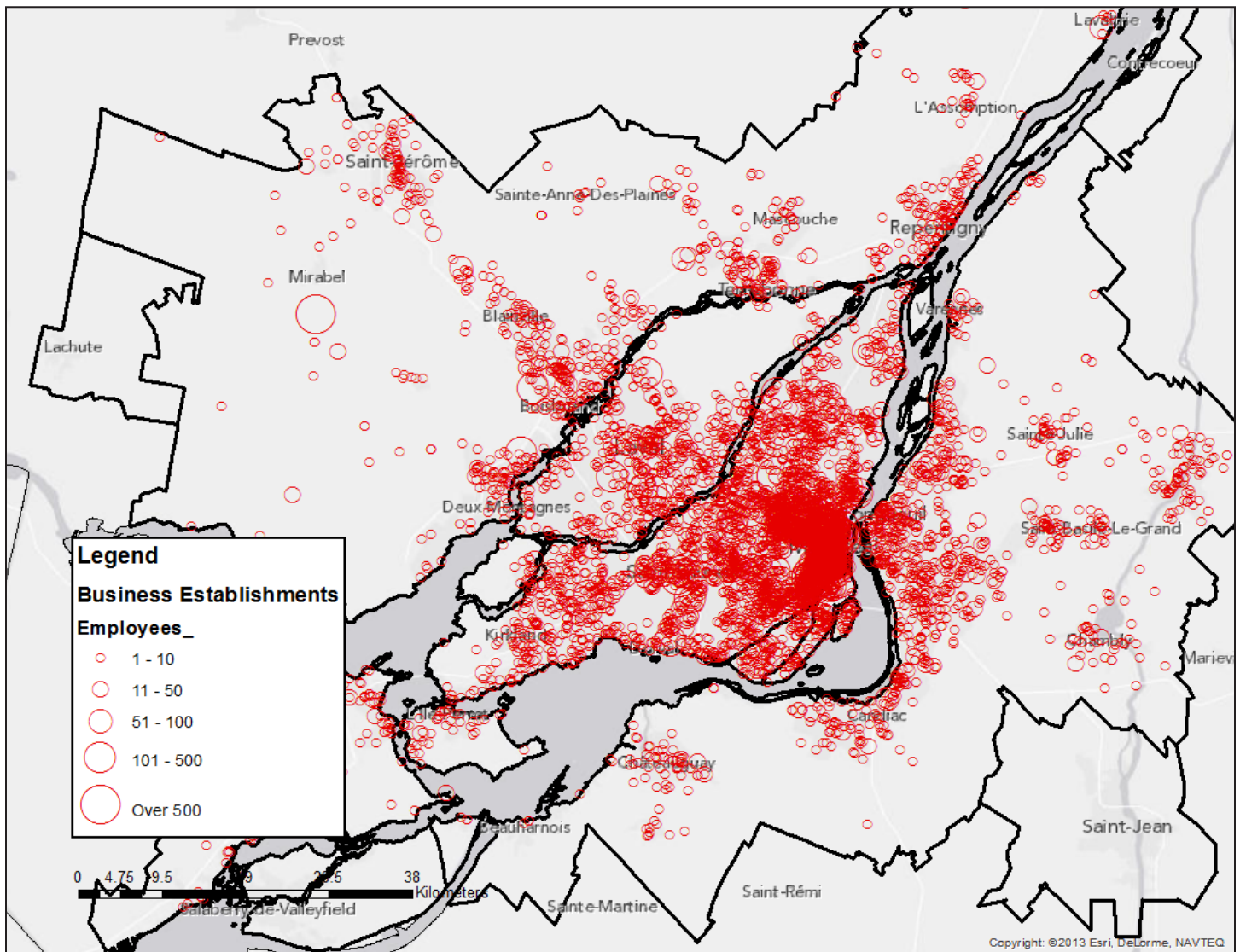
In 2011 80.7% of the cluster labour force held post-secondary qualifications with 40.5% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Montréal creative & cultural cluster was \$55,215 per year. This ranked the

cluster 3rd out of 3 creative & cultural clusters in Canada.

In 2011 Dun & Bradstreet identified 7,059 business establishments in the Montréal creative & cultural cluster. The average establishment size was 9 employees. The largest firms in core creative & cultural industries in 2011 included: Canadian Broadcasting Corporation; Académie de Coiffure Laval Inc; Cirque Du Soleil Inc; L' Arena des Canadiens Inc; L-3 Communications MAS (Canada) Inc; Bellevue Pathe Holdings Ltd; Zone3 Inc; Cossette Inc; Corus Entertainment Inc; Cogeco Inc; and Astral Media Inc.

Figure 5.2.5.1
Size and location of business establishments, 2011



5.2.5 Montréal Creative & Cultural

Figure 5.2.5.2
Labour force demographics, 2011

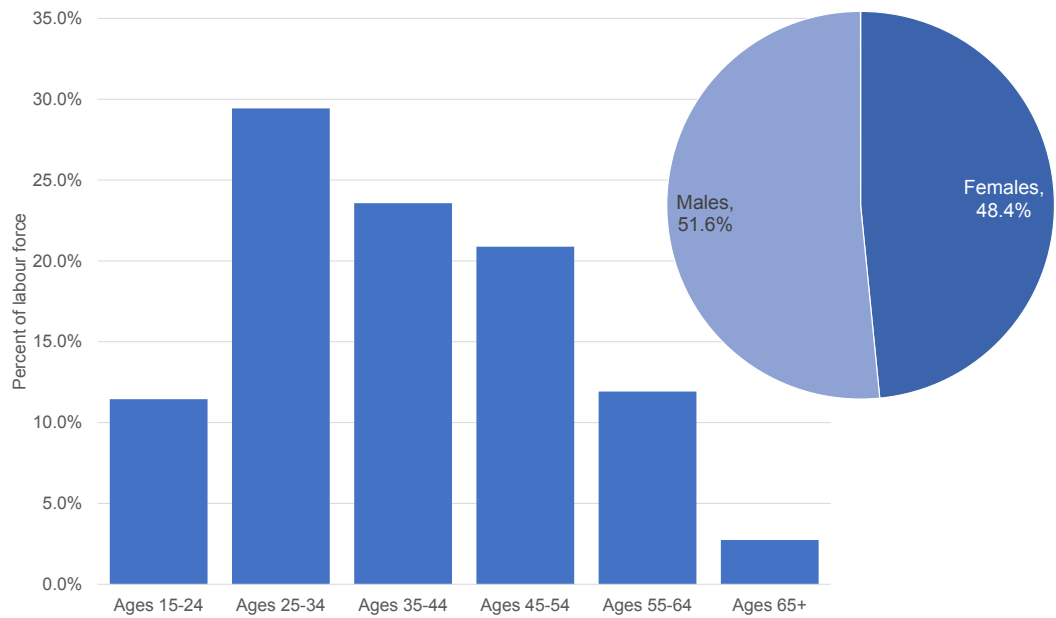


Figure 5.2.5.3
Educational attainment of labour force, 2011

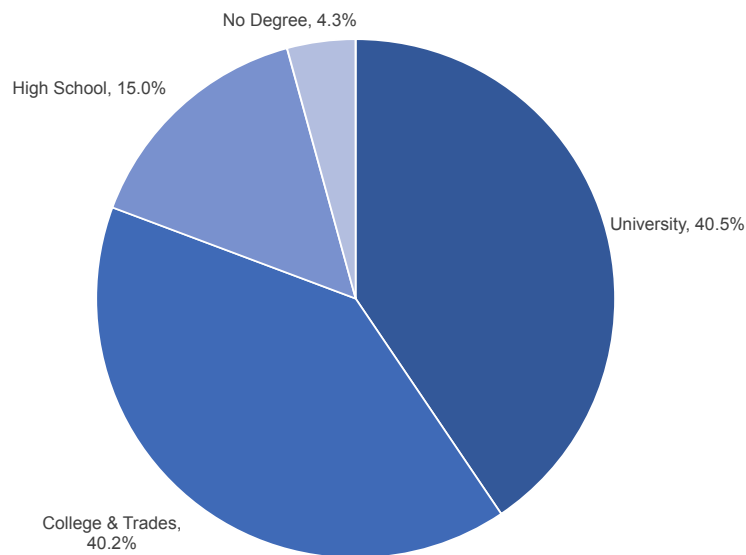
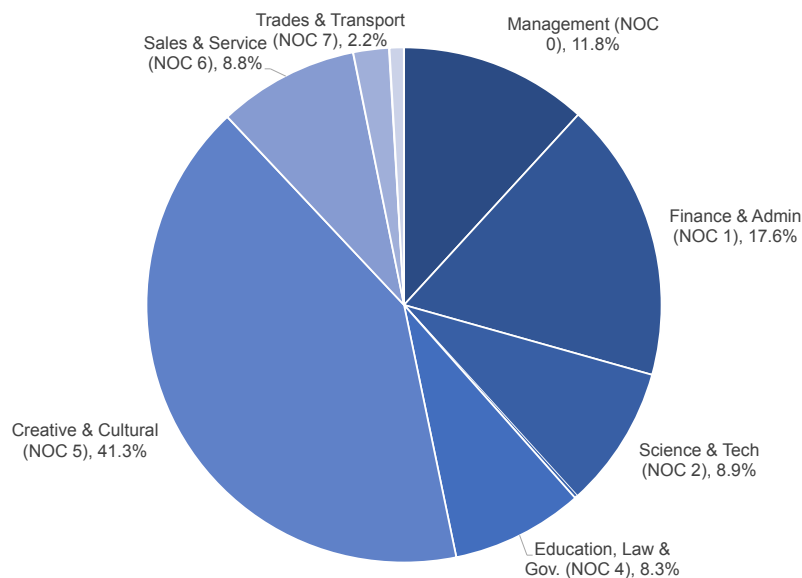


Figure 5.2.5.4
Occupational structure of labour force, 2011



5.3 Ontario

Ontario has the most clusters of any province with 86 in total. They are also quite varied by type with 16 in resources, 49 in manufacturing, 14 in services, as well as 7 in construction and logistics. Mining in the north and agriculture in the south make up the majority of the resource clusters. The four mining clusters in Ontario experienced healthy growth rates between 2001 and 2011 while the agriculture clusters show mixed results.

Manufacturing remains a very important part of the Ontario economy. In particular auto manufacturing is the backbone of many local economies, particularly from the GTA to the southwest of the province. The methodology identified 16 auto manufacturing clusters in Ontario. Worryingly the vast majority of these endured significant employment decline between 2001 and 2011. The picture was fairly similar for the nine steel clusters in the province as well as the seven plastics & rubber clusters. The picture was somewhat better for the more knowledge intensive manufacturing clusters. The Kitchener-Waterloo ICT cluster grew rapidly between 2001 and 2011 although the Ottawa-Gatineau and Toronto clusters declined. This is likely due to the relative performance of key anchor firms in each instance. Life sciences performed somewhat better with two of three (Toronto and Hamilton) growing by roughly 25%.

There were 14 service clusters identified in Ontario. These clusters tend to be large, rapidly growing and located in the major urban centres. The only service cluster to experience decline between 2001 and 2011 was ICT in Ottawa-Gatineau, and this was a marginal amount at 3.4%. As with Québec there is a fairly clear pattern of overall employment shifting from manufacturing to services.

The related pattern is that new employment opportunities are being created predominantly in the largest cities. This poses a problem for many of the smaller and mid-sized urban areas, particularly in the southwest of the province, that are seeing their industrial base erode. It is not clear what types of jobs will replace the ones being lost to automation and off-shoring. Pitfalls exist with trying to retain manufacturing employment just as they exist with trying to compete with big cities for service industry jobs. Such places must navigate this issues with determination if they are to prosper going forward.

Table 5.3.1

Ontario clusters and key indicators

City Region	Prov	Cluster Type	Employment 2011	Employment Change 2001-2011	Average Annual FT Income
Brantford	ON	Agriculture	3,377	62.4%	\$49,878
Centre Wellington	ON	Agriculture	1,387	NA	\$44,343
Chatham-Kent	ON	Agriculture	5,330	-14.4%	\$45,912
Guelph	ON	Agriculture	3,149	28.3%	\$55,343
Kawartha Lakes	ON	Agriculture	2,147	-7.1%	\$24,777
Kitchener - Waterloo	ON	Agriculture	9,449	0.3%	\$55,159
Leamington	ON	Agriculture	3,844	-35.9%	\$43,831
Norfolk	ON	Agriculture	4,498	-31.3%	\$33,878
St. Catharines - Niagara	ON	Agriculture	7,780	-22.4%	\$45,830
Barrie	ON	Automotive	5,005	-23.2%	\$64,036
Brantford	ON	Automotive	3,508	-27.4%	\$58,649
Chatham-Kent	ON	Automotive	3,324	-63.9%	\$55,117
Guelph	ON	Automotive	7,238	14.5%	\$63,528
Hamilton	ON	Automotive	10,523	-35.3%	\$66,351
Ingersoll	ON	Automotive	1,065	NA	\$68,965
Kitchener - Waterloo	ON	Automotive	16,861	-23.8%	\$58,466
Leamington	ON	Automotive	1,805	-45.0%	\$64,623
London	ON	Automotive	11,326	-27.0%	\$62,539
Norfolk	ON	Automotive	1,611	-23.8%	\$52,828
Oshawa	ON	Automotive	8,170	-49.1%	\$70,554
St. Catharines - Niagara	ON	Automotive	6,608	-52.3%	\$66,318
Stratford	ON	Automotive	1,947	-42.1%	\$52,140
Toronto	ON	Automotive	75,280	-26.9%	\$62,675
Windsor	ON	Automotive	19,902	-45.0%	\$68,114
Woodstock	ON	Automotive	2,871	29.3%	\$62,377
Hamilton	ON	Life Sciences	4,021	31.4%	\$76,883
Kitchener - Waterloo	ON	Life Sciences	2,522	-1.7%	\$66,334
Toronto	ON	Life Sciences	43,810	23.1%	\$72,704
Hamilton	ON	Business Services	37,150	37.3%	\$68,709
Ottawa - Gatineau	ON	Business Services	80,365	0.6%	\$75,758
Toronto	ON	Business Services	378,458	29.1%	\$79,178
Sarnia	ON	Construction	2,057	12.1%	\$84,638
Toronto	ON	Creative & Cultural	158,249	37.8%	\$64,115
Hamilton	ON	Finance	25,357	27.4%	\$77,065
Oshawa	ON	Finance	12,884	47.3%	\$76,458
Toronto	ON	Finance	307,963	35.6%	\$89,388
Belleville	ON	Food & Beverage	1,400	-23.7%	\$45,449
Brantford	ON	Food & Beverage	2,804	103.2%	\$46,263
Hamilton	ON	Food & Beverage	11,138	-3.9%	\$65,406
Kitchener - Waterloo	ON	Food & Beverage	9,494	15.1%	\$52,296
London	ON	Food & Beverage	6,972	-5.0%	\$48,513
Toronto	ON	Food & Beverage	94,010	23.3%	\$57,230
Thunder Bay	ON	Forestry & Wood	1,706	-67.0%	\$65,795

Table 5.3.1

Ontario clusters and key indicators

City Region	Prov	Cluster Type	Employment 2011	Employment Change 2001-2011	Average Annual FT Income
Hamilton	ON	Higher Education	13,894	68.3%	\$67,821
Kingston	ON	Higher Education	8,165	51.5%	\$71,435
London	ON	Higher Education	11,987	50.4%	\$68,259
Ottawa - Gatineau	ON	Higher Education	30,389	20.8%	\$74,893
Toronto	ON	Higher Education	106,354	85.8%	\$70,429
Guelph	ON	ICT Manufacturing	1,361	-15.7%	\$71,938
Hamilton	ON	ICT Manufacturing	4,486	-5.9%	\$72,803
Kitchener - Waterloo	ON	ICT Manufacturing	11,371	58.7%	\$76,933
Oshawa	ON	ICT Manufacturing	3,047	10.6%	\$76,800
Ottawa - Gatineau	ON	ICT Manufacturing	13,879	-50.2%	\$95,423
Toronto	ON	ICT Manufacturing	54,805	-19.9%	\$78,034
Ottawa - Gatineau	ON	ICT Services	44,033	-3.4%	\$80,144
Toronto	ON	ICT Services	192,759	34.1%	\$78,364
Barrie	ON	Logistics	5,442	14.6%	\$69,067
Brantford	ON	Logistics	3,819	84.5%	\$51,366
Hamilton	ON	Logistics	21,506	10.8%	\$69,600
Kitchener - Waterloo	ON	Logistics	13,438	27.2%	\$63,895
Oshawa	ON	Logistics	10,317	36.9%	\$64,120
Toronto	ON	Logistics	215,599	14.8%	\$65,744
St. Catharines - Niagara	ON	Maritime	2,068	5.5%	\$57,222
Greater Sudbury	ON	Mining	8,057	35.9%	\$85,842
North Bay	ON	Mining	1,230	22.4%	\$89,760
Thunder Bay	ON	Mining	1,963	26.2%	\$77,394
Timmins	ON	Mining	3,547	25.8%	\$90,689
Sarnia	ON	Oil & Gas	1,916	-3.3%	\$112,242
Barrie	ON	Plastics & Rubber	2,721	-25.1%	\$55,019
Bellefonte	ON	Plastics & Rubber	1,421	7.6%	\$59,494
Brantford	ON	Plastics & Rubber	2,864	0.5%	\$52,076
Guelph	ON	Plastics & Rubber	1,919	-25.0%	\$58,683
Kitchener - Waterloo	ON	Plastics & Rubber	6,846	-38.5%	\$53,744
Oshawa	ON	Plastics & Rubber	4,708	-35.1%	\$59,045
Toronto	ON	Plastics & Rubber	75,465	-30.1%	\$56,076
Brantford	ON	Steel	1,754	-31.4%	\$63,766
Chatham-Kent	ON	Steel	2,273	-42.7%	\$75,710
Hamilton	ON	Steel	12,463	-44.8%	\$73,070
Kitchener - Waterloo	ON	Steel	5,640	-27.5%	\$58,750
Norfolk	ON	Steel	1,525	-27.4%	\$71,810
Oshawa	ON	Steel	8,175	14.7%	\$98,049
Sarnia	ON	Steel	2,128	-24.0%	\$93,306
St. Catharines - Niagara	ON	Steel	4,891	-27.9%	\$64,183
Windsor	ON	Steel	5,449	-44.9%	\$71,384
Kitchener - Waterloo	ON	Textiles	1,341	-70.1%	\$42,007
Toronto	ON	Textiles	18,115	-47.9%	\$45,041

5.3.1 Sudbury Mining

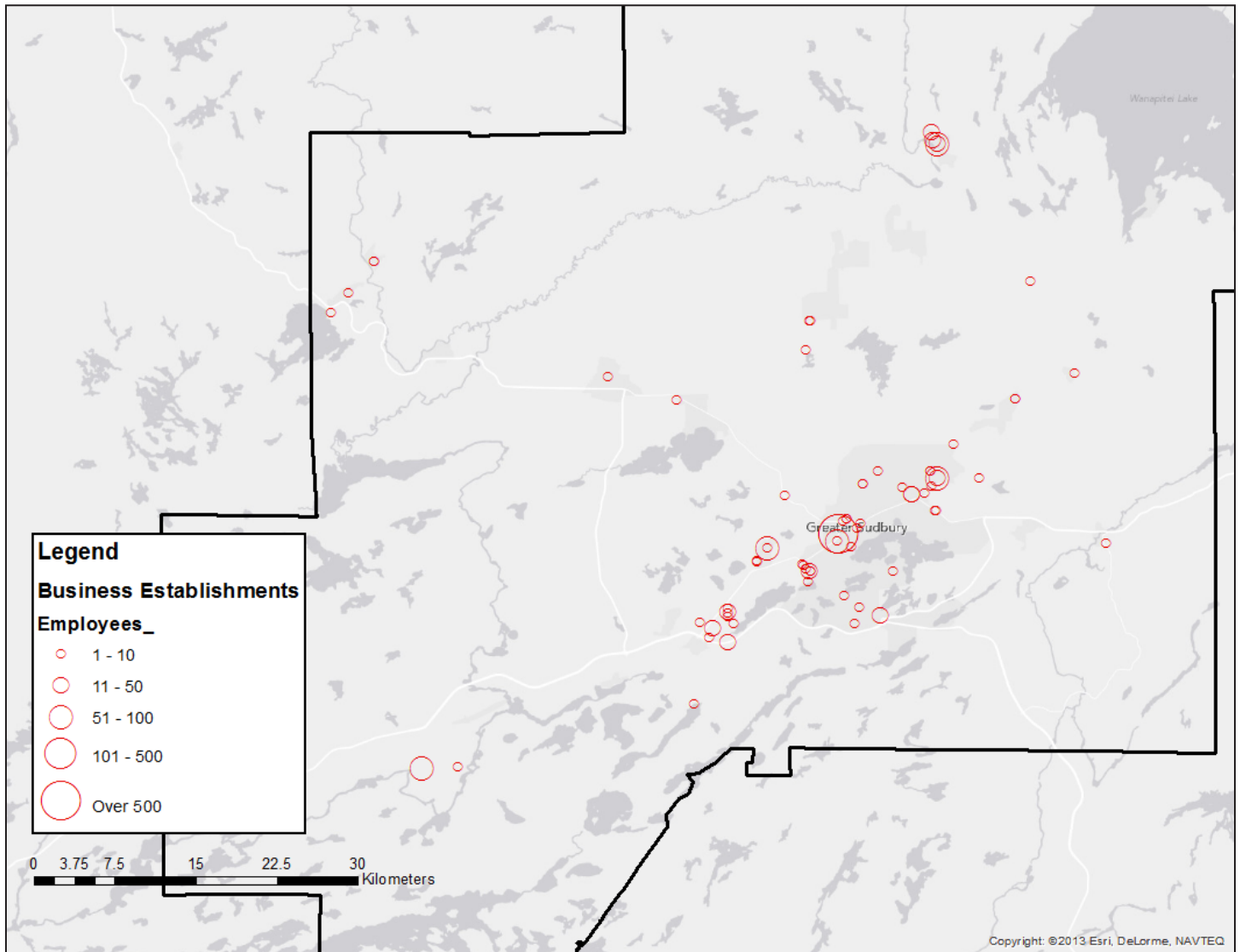
The mining cluster in Sudbury employed 8,057 people in 2011. This made Sudbury the 3rd largest mining cluster in Canada (out of 16). Between 2001 and 2011 employment increased by 35.9%. The labour force was 93.4% male and 6.6% female. 43.9% of the labour force was over the age of 44.

In 2011 72.1% of the cluster labour force held post-secondary qualifications with 14.0% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Sudbury mining cluster was \$85,842 per year. This ranked the cluster 12th out of 16 mining clusters in Canada.

In 2011 Dun & Bradstreet identified 72 business establishments in the Sudbury mining cluster. The average establishment size was 34 employees. The largest firms in core mining industries in 2011 included: First Nickel Inc; Layne Christensen Canada Limited; Vale Inco Limited; Technica Group Inc; Northcote Industrial Products Inc; and Ethier Sand And Gravel Limited.

Figure 5.3.1.1
Size and location of business establishments, 2011



5.3.1 Sudbury Mining

Figure 5.3.1.2
Labour force demographics, 2011

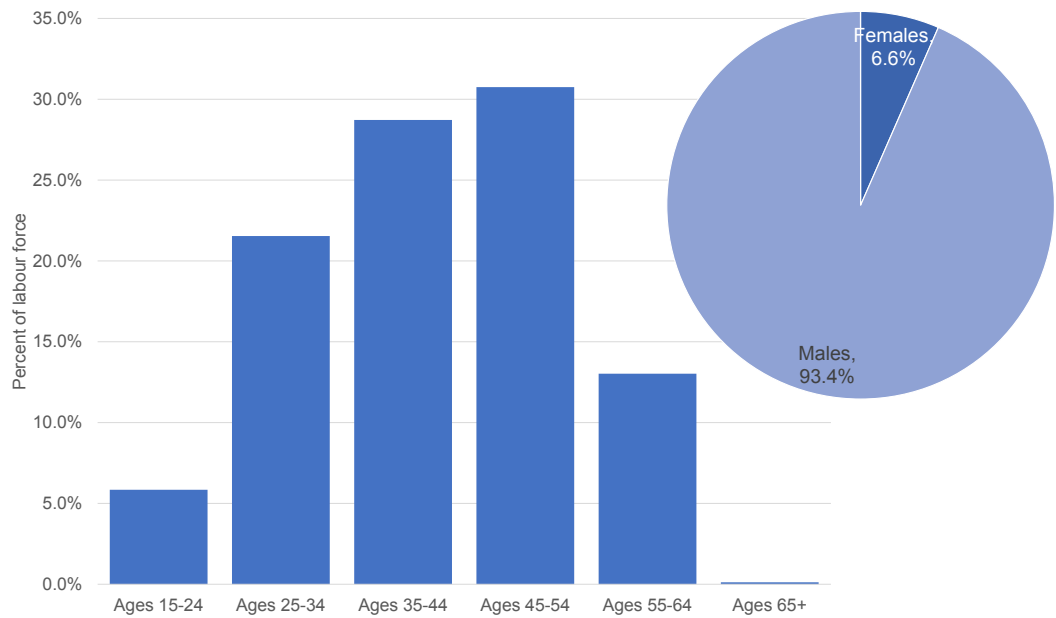


Figure 5.3.1.3
Educational attainment of labour force, 2011

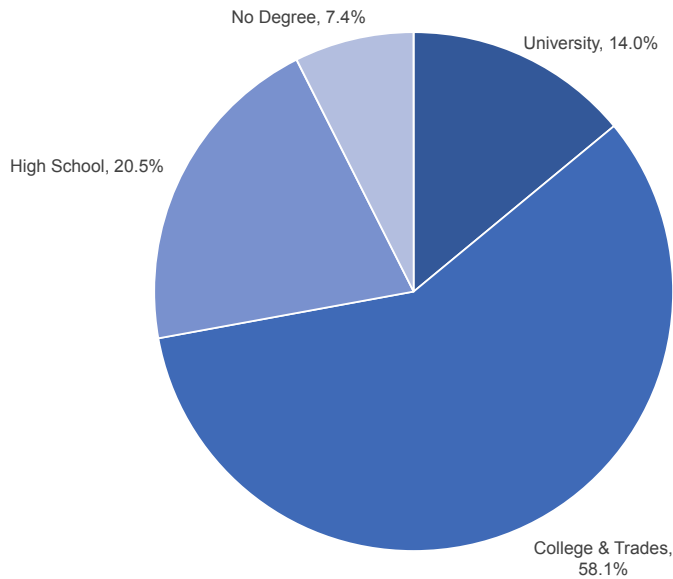
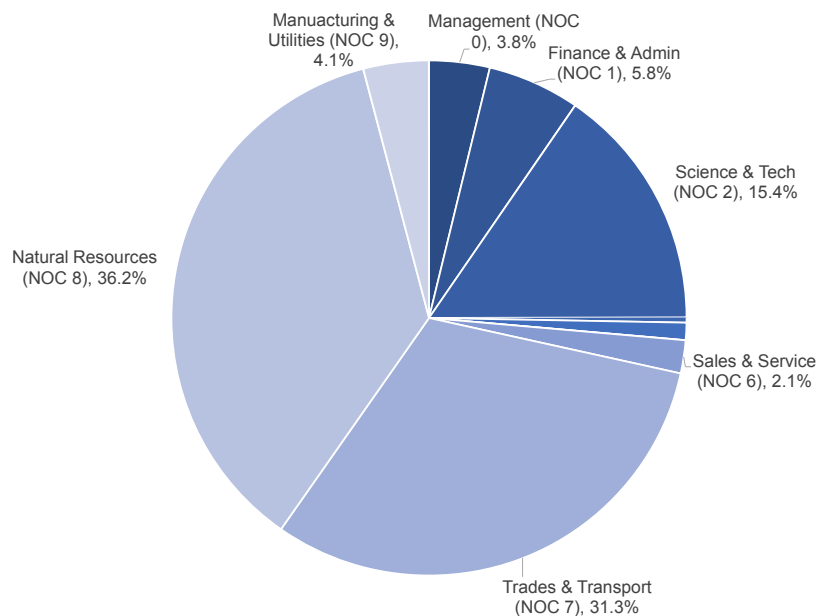


Figure 5.3.1.4
Occupational structure of labour force, 2011



5.3.2 Hamilton Steel

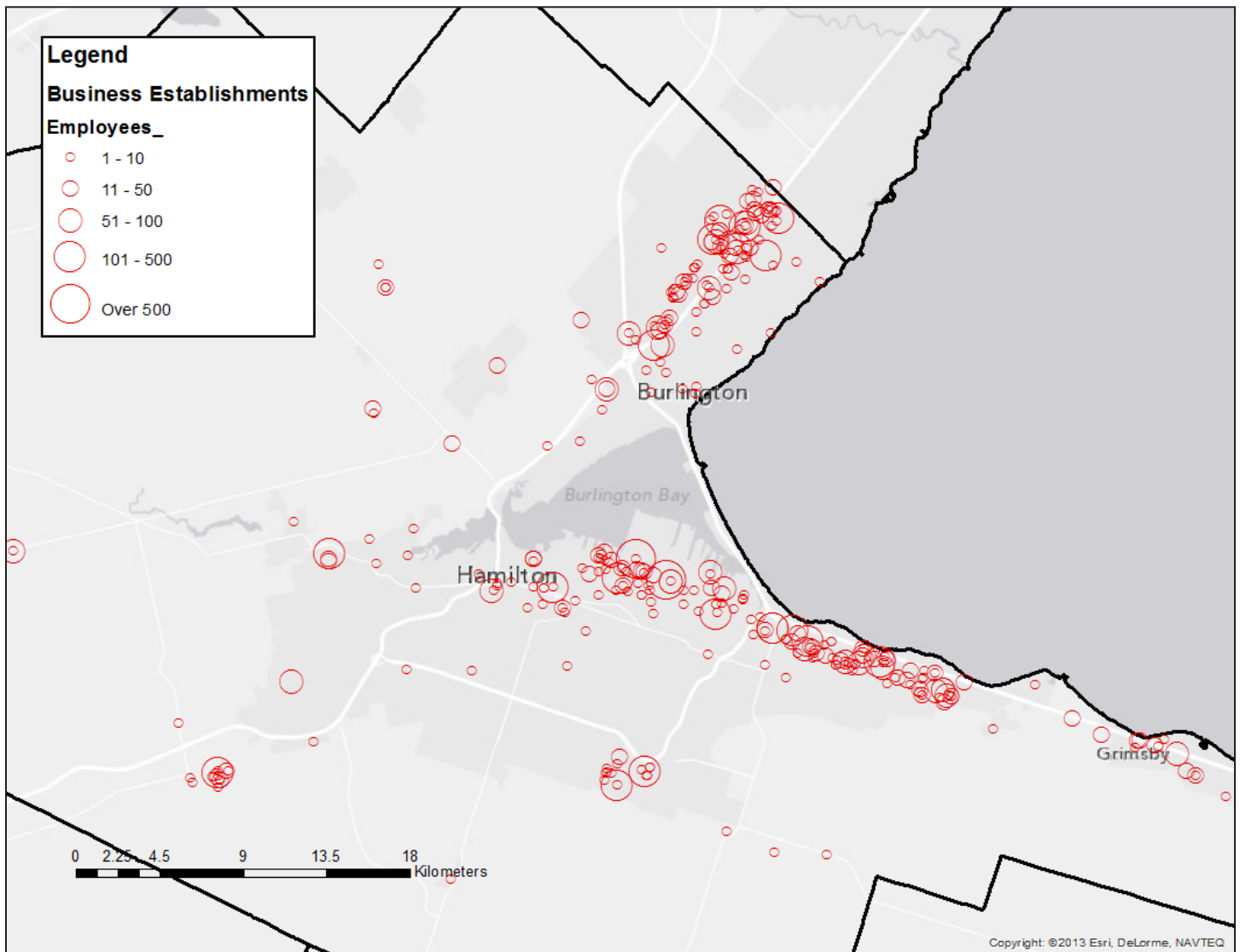
The steel cluster in Hamilton employed 12,463 people in 2011. This made Hamilton the 3rd largest steel cluster in Canada (out of 14). Between 2001 and 2011 employment decreased by 44.8%. The labour force was 85.1% male and 14.9% female. 62.1% of the labour force was over the age of 44.

In 2011 61.3% of the cluster labour force held post-secondary qualifications with 17.0% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Hamilton steel cluster was \$73,070 per year. This ranked the cluster 7th out of 14 steel clusters in Canada.

In 2011 Dun & Bradstreet identified 359 business establishments in the Hamilton steel cluster. The average establishment size was 51 employees. The largest firms in core steel industries in 2011 included: Arcelor-Mittal Dofasco Inc; U. S. Steel Canada Inc; Tempel Canada Company; Nalco Canada Co.; Walter's Inc; Baycoat Limited; Harris Steel ULC; Associated Materials Canada Limited; Orlick Industries Limited; and Sobotec Ltd.

Figure 5.3.2.1
Size and location of business establishments, 2011



5.3.2 Hamilton Steel

Figure 5.3.2.2
Labour force demographics, 2011

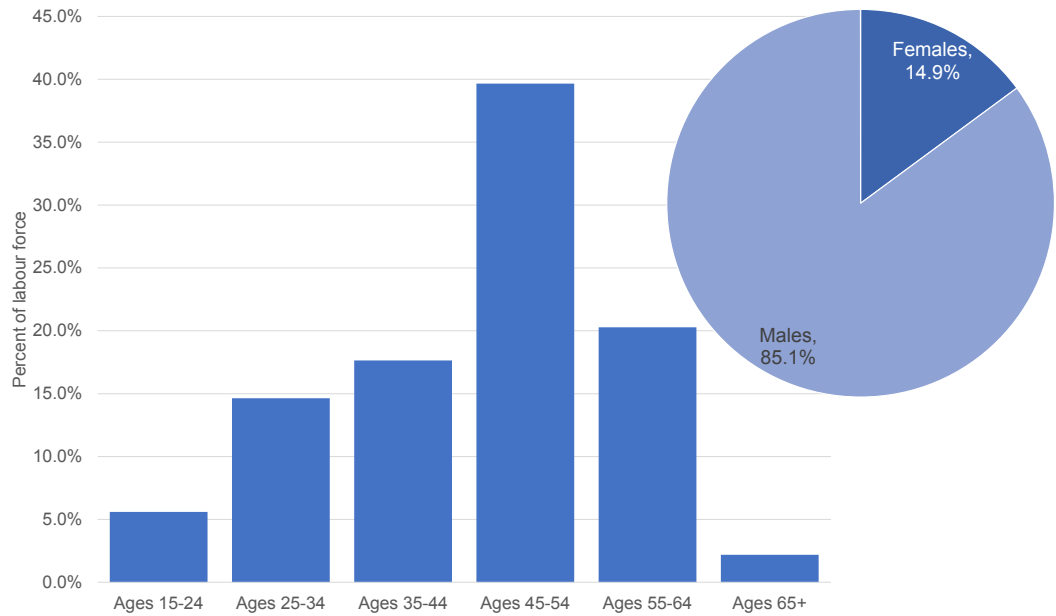


Figure 5.3.2.3
Educational attainment of labour force, 2011

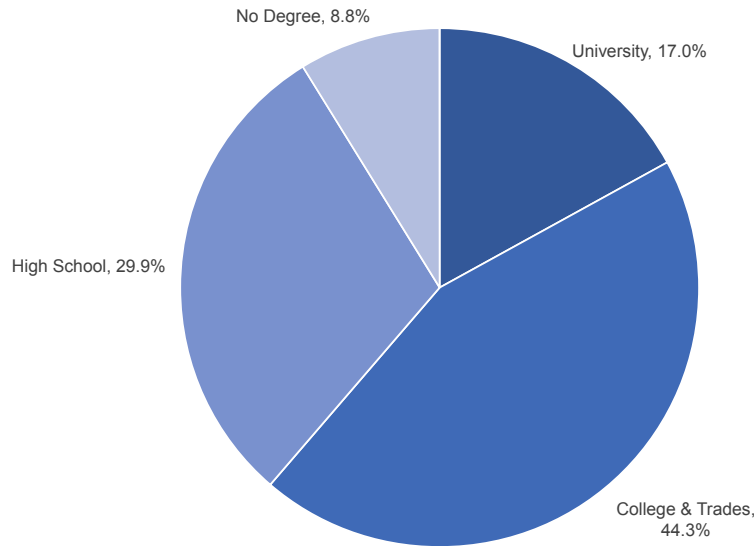
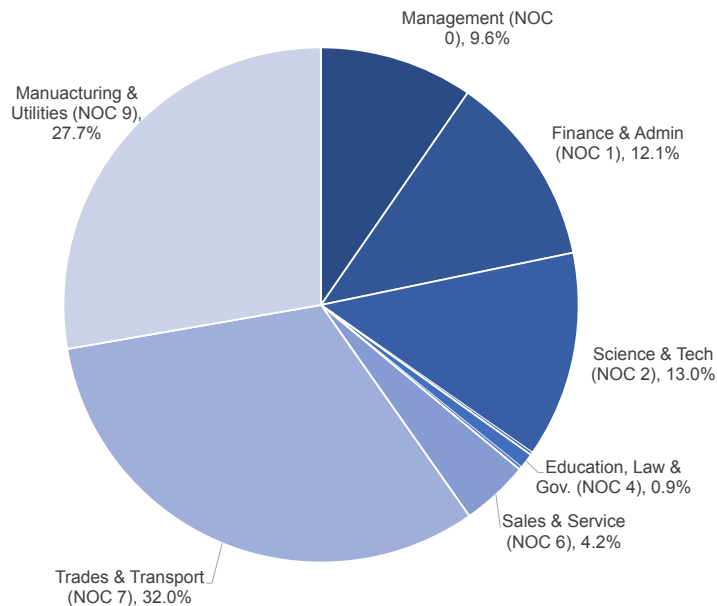


Figure 5.3.2.4
Occupational structure of labour force, 2011



5.3.3 Windsor Auto Manufacturing

The auto manufacturing cluster in Windsor employed 19,902 people in 2011. This made Windsor the 2nd largest auto manufacturing cluster in Canada (out of 19). Between 2001 and 2011 employment decreased by 45.0%. The labour force was 77.9% male and 22.1% female. 46.3% of the labour force was over the age of 44.

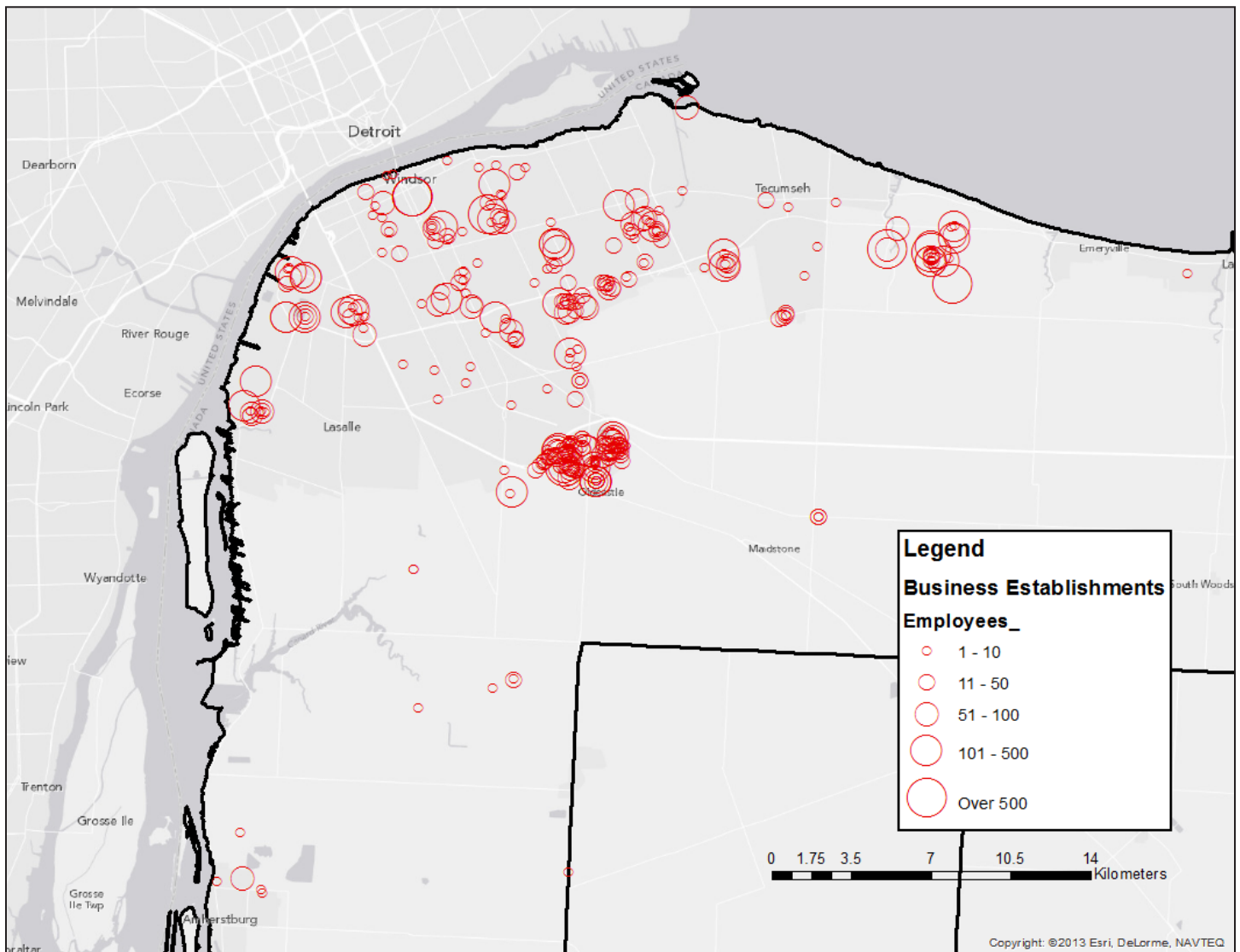
In 2011 56.1% of the cluster labour force held post-secondary qualifications with 15.9% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Windsor auto manufacturing cluster was \$68,114 per year. This ranked

the cluster 3rd out of 19 auto manufacturing clusters in Canada.

In 2011 Dun & Bradstreet identified 384 business establishments in the Windsor auto manufacturing cluster. The average establishment size was 74 employees. The largest firms in core auto manufacturing industries in 2011 included: Chrysler Canada Inc; General Motors of Canada Limited; Ford Motor Company of Canada Limited; Ventra Group Co; Magna Seating Inc; A.P. Plasman Inc; Kautex Corporation; Quality Safety Systems Company; Nematik of Canada Corporation; and A.P. Plasman Inc.

Figure 5.3.1
Size and location of business establishments, 2011



5.3.3 Windsor Auto Manufacturing

Figure 5.3.3.2
Labour force demographics, 2011

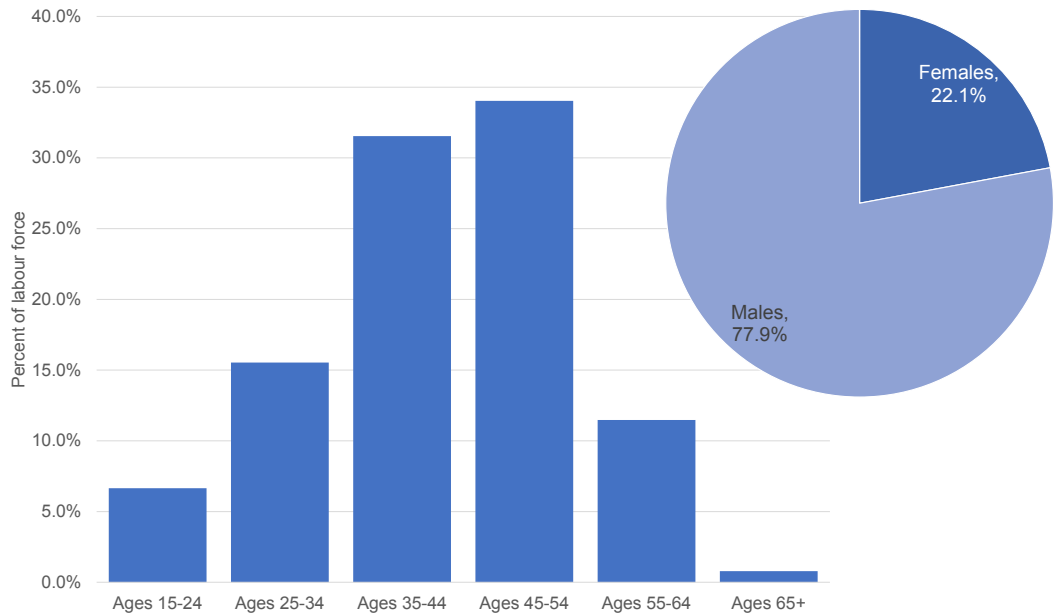


Figure 5.3.3.3
Educational attainment of labour force, 2011

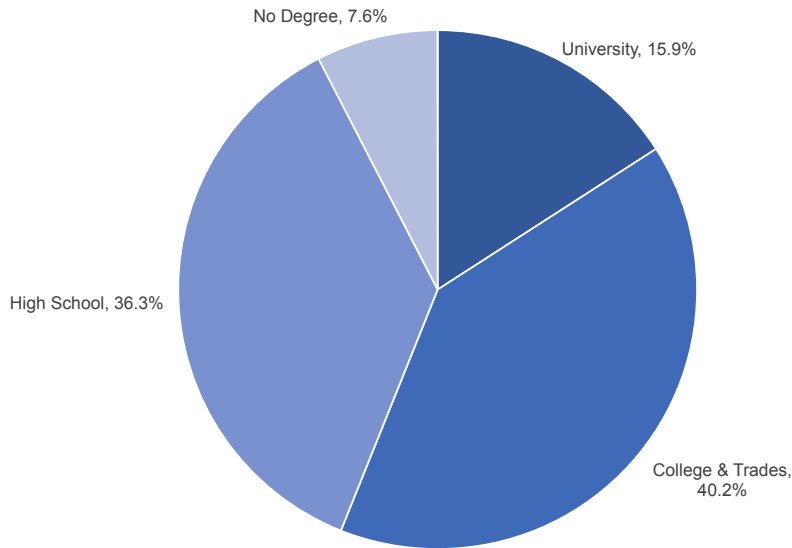
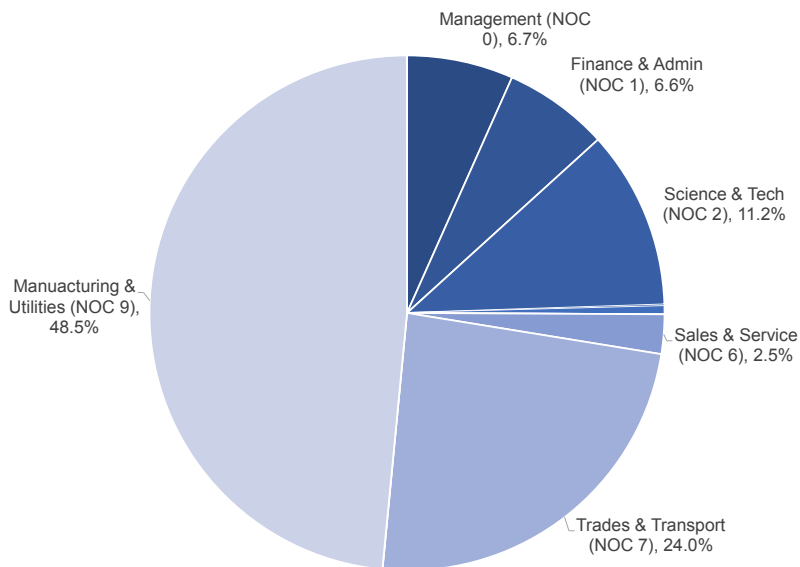


Figure 5.3.3.4
Occupational structure of labour force, 2011



5.3.4 London Food & Beverage

The food & beverage cluster in London employed 6,972 people in 2011. This made London the 6th largest food & beverage cluster in Canada (out of 15). Between 2001 and 2011 employment decreased by 5.0%. The labour force was 60.9% male and 39.1% female. 50.9% of the labour force was over the age of 44.

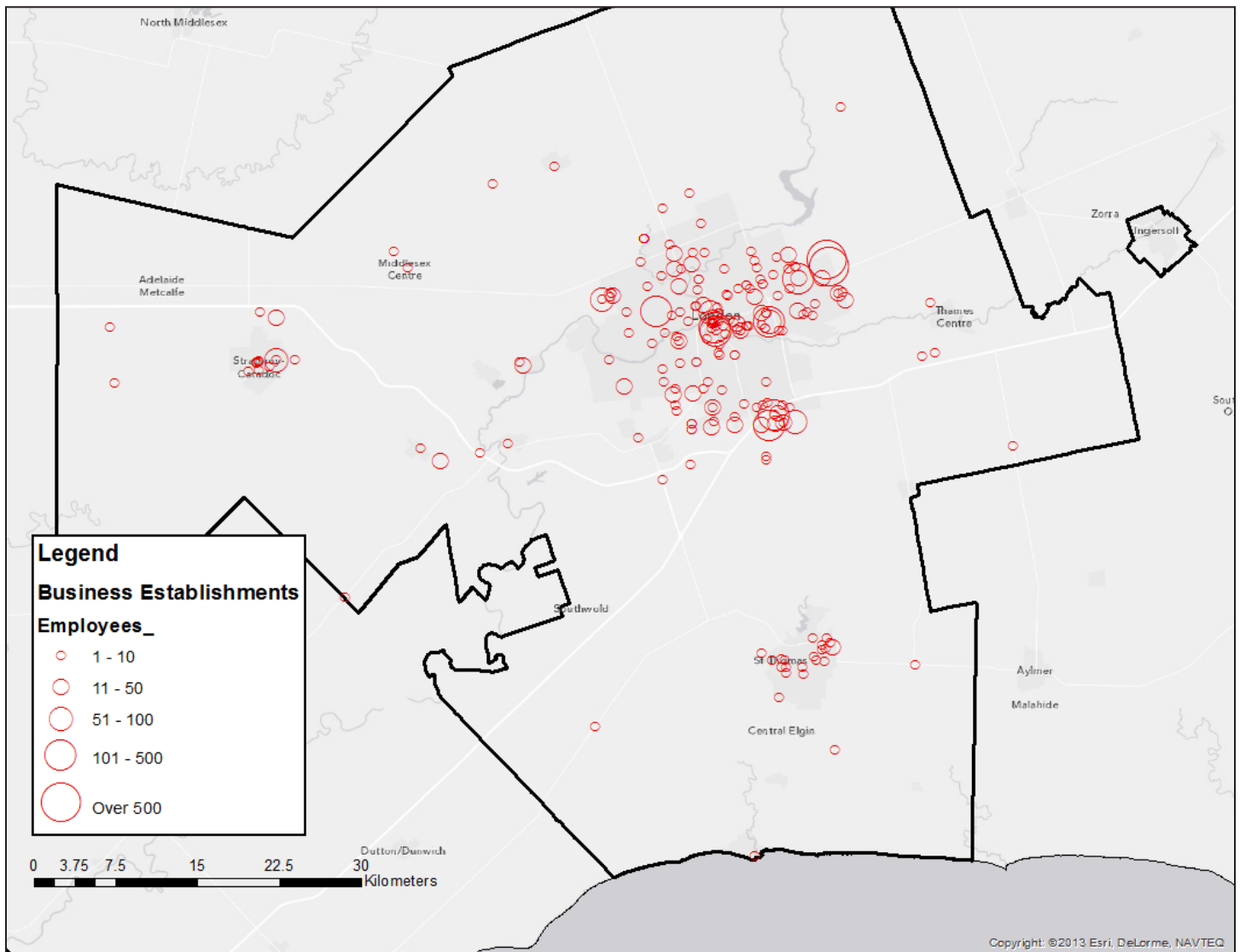
In 2011 40.7% of the cluster labour force held post-secondary qualifications with 10.7% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the London food & beverage cluster was \$48,513 per year. This ranked the

cluster 5th out of 15 food & beverage clusters in Canada.

In 2011 Dun & Bradstreet identified 231 business establishments in the London food & beverage cluster. The average establishment size was 24 employees. The largest firms in core food & beverage industries in 2011 included: Cuddy International Corporation; Cargill Limited; Nestle Canada Inc; La Cie McCormick Canada Co.; Labatt Brewing Company Limited; Coca-Cola Bottling Company; Canada Starch Operating Company Inc; and Bonduelle Ontario Inc.

Figure 5.3.4.1
Size and location of business establishments, 2011



5.3.4 London Food & Beverage

Figure 5.3.4.2
Labour force demographics, 2011

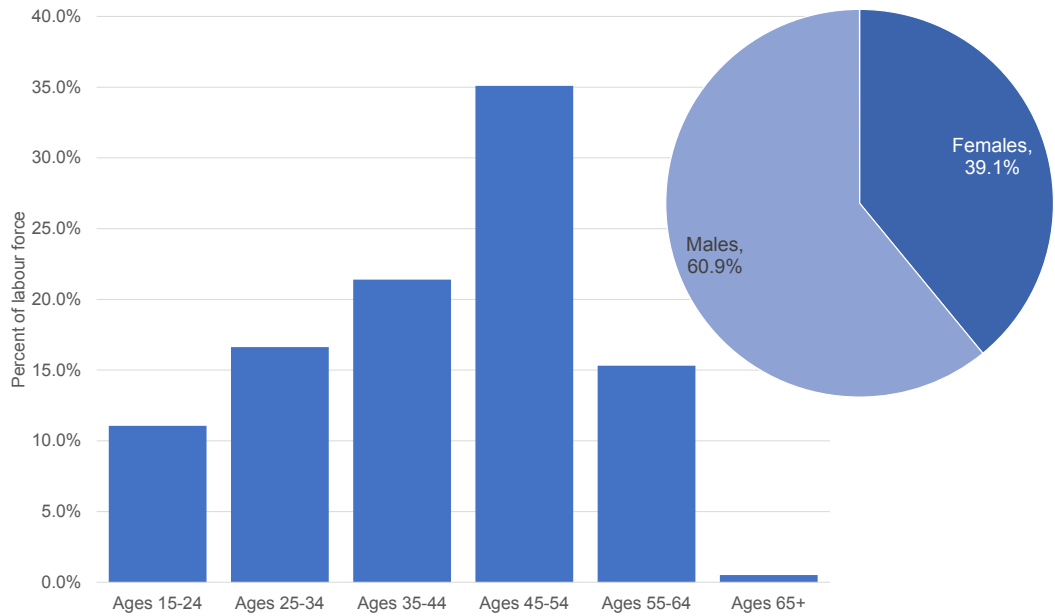


Figure 5.3.4.3
Educational attainment of labour force, 2011

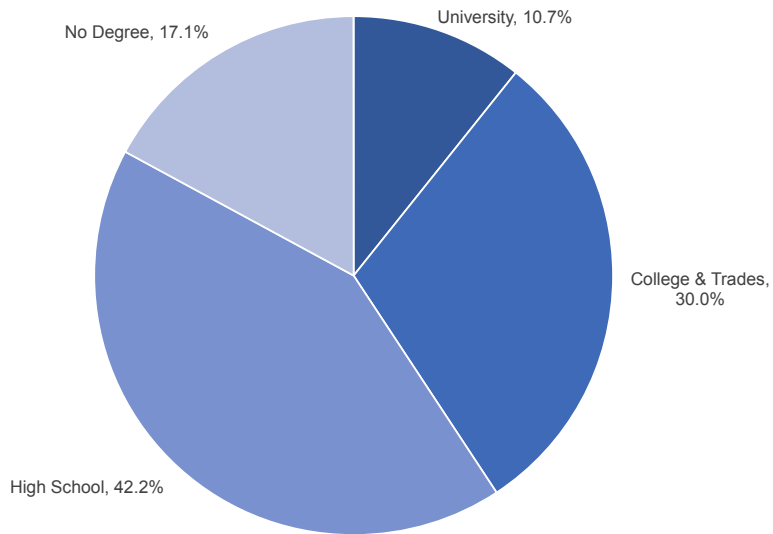
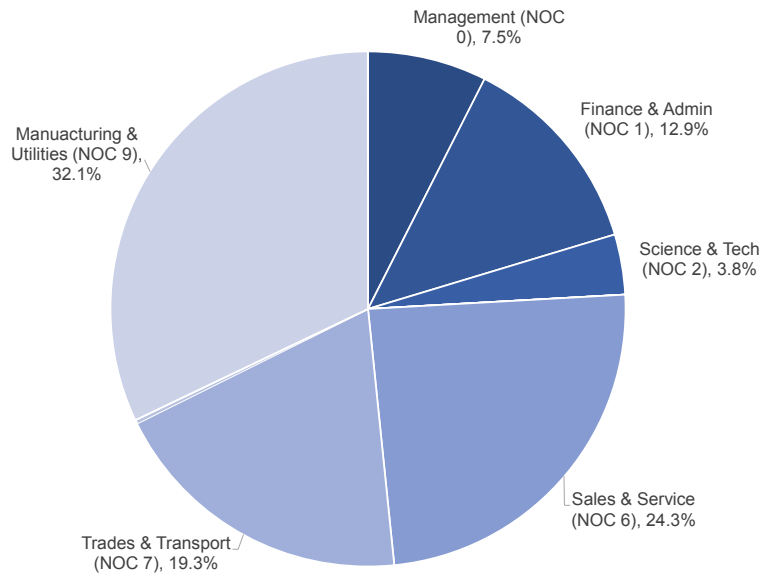


Figure 5.3.4.4
Occupational structure of labour force, 2011



5.3.5 Kitchener-Waterloo ICT Manufacturing

The ICT manufacturing cluster in Kitchener-Waterloo employed 11,371 people in 2011. This made Kitchener-Waterloo the 4th largest ICT manufacturing cluster in Canada (out of 9). Between 2001 and 2011 employment increased by 58.7%. The labour force was 65.9% male and 34.1% female. 27.3% of the labour force was over the age of 44.

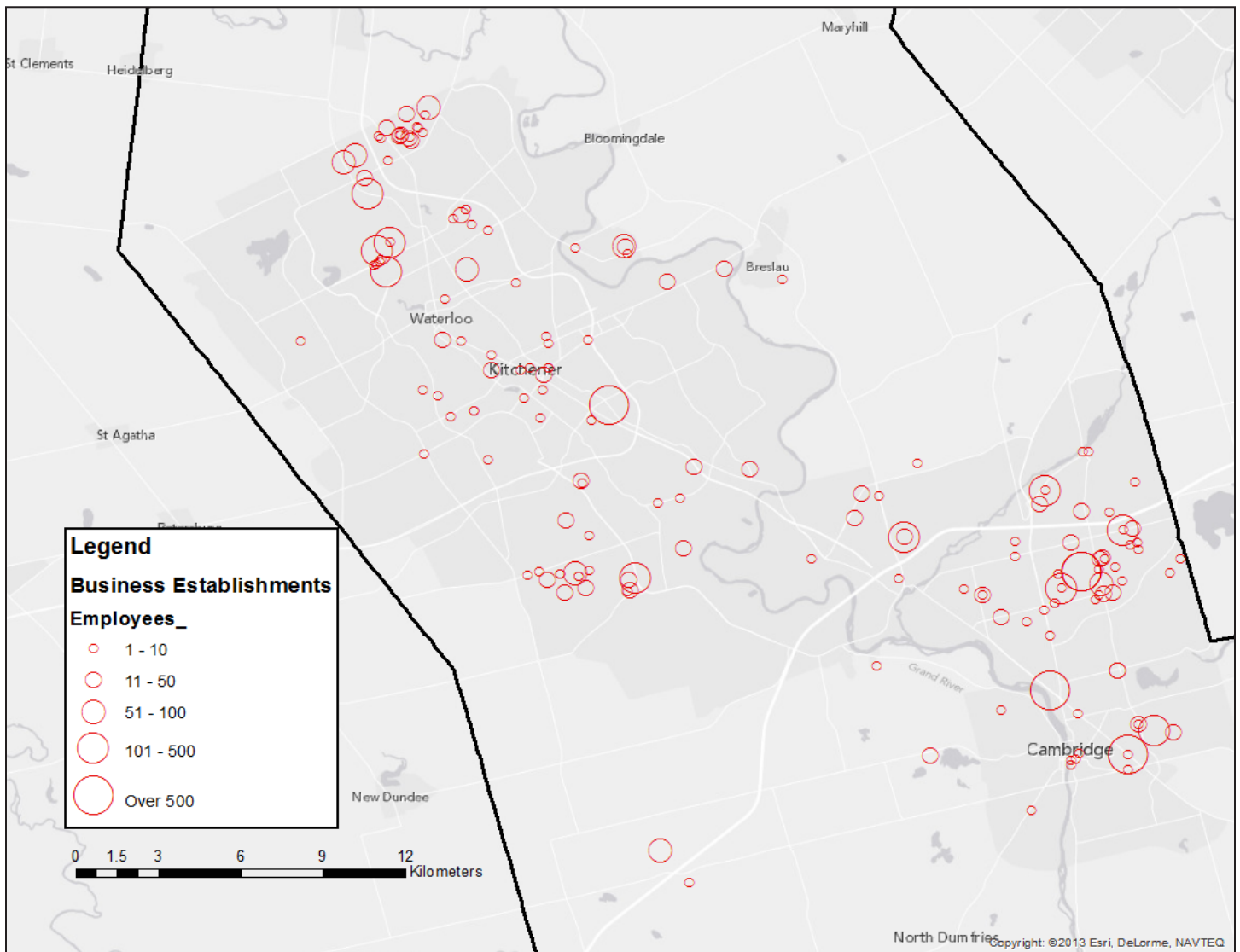
In 2011 79.5% of the cluster labour force held post-secondary qualifications with 47.8% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Kitchener-Waterloo ICT manufacturing cluster was \$76,933 per year. This ranked the cluster 4th out of 9 ICT manufac-

turing clusters in Canada.

In 2011 Dun & Bradstreet identified 174 business establishments in the Kitchener-Waterloo ICT manufacturing cluster. The average establishment size was 52 employees. The largest firms in core ICT manufacturing industries in 2011 included: COM DEV International Ltd; Babcock & Wilcox Canada Ltd; Rockwell Automation Canada Control Systems; NCR Canada Ltd; Research In Motion Limited; Raytheon Canada Limited; Strite Industries Limited; Von Weise Of Canada Company; Unitron Hearing Ltd; Sandvine Incorporated ULC; ATS Automation Tooling Systems Inc; ATC-Frost Magnetics Inc; Siemens Canada Limited; and EGS Electrical Group Canada Ltd.

Figure 5.3.5.1
Size and location of business establishments, 2011



5.3.5 Kitchener-Waterloo ICT Manufacturing

Figure 5.3.5.2
Labour force demographics, 2011

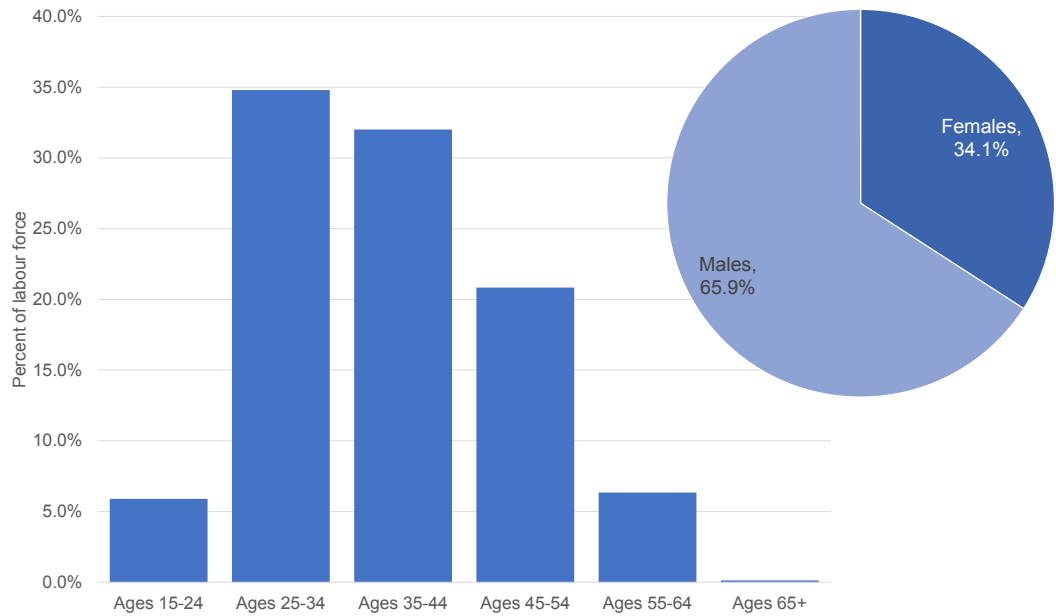


Figure 5.3.5.3
Educational attainment of labour force, 2011

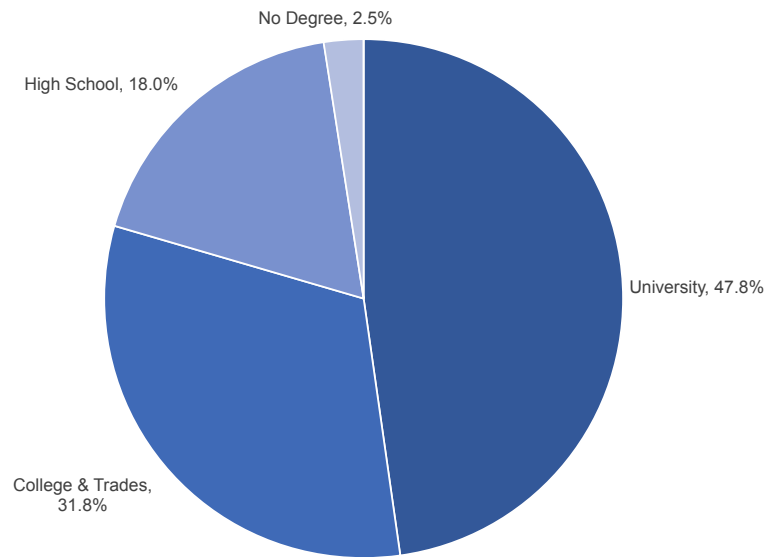
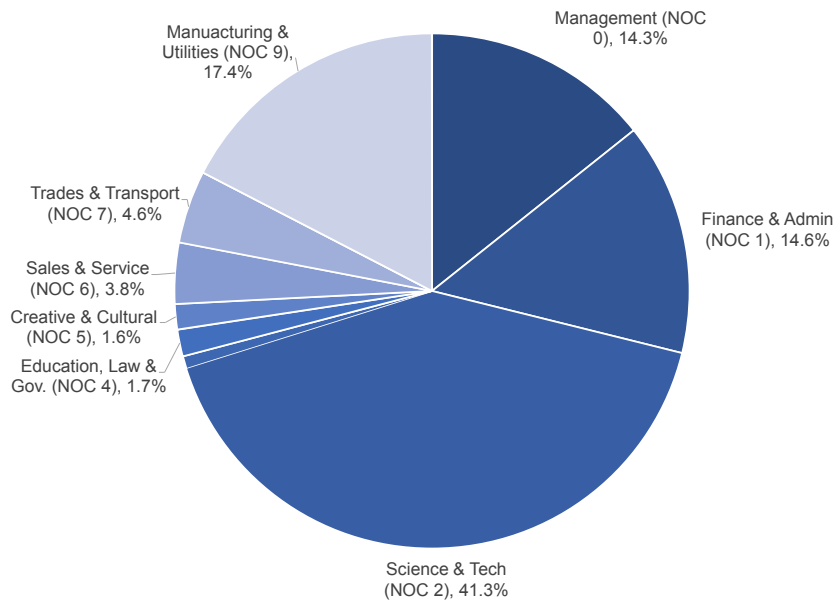


Figure 5.3.5.4
Occupational structure of labour force, 2011



5.3.6 Hamilton Life Sciences

The life sciences cluster in Hamilton employed 4,021 people in 2011. This made Hamilton the 6th largest life sciences in Canada (out of 7). Between 2001 and 2011 employment increased by 31.4%. The labour force was 38.9% male and 61.1% female. 51.7% of the labour force was over the age of 44.

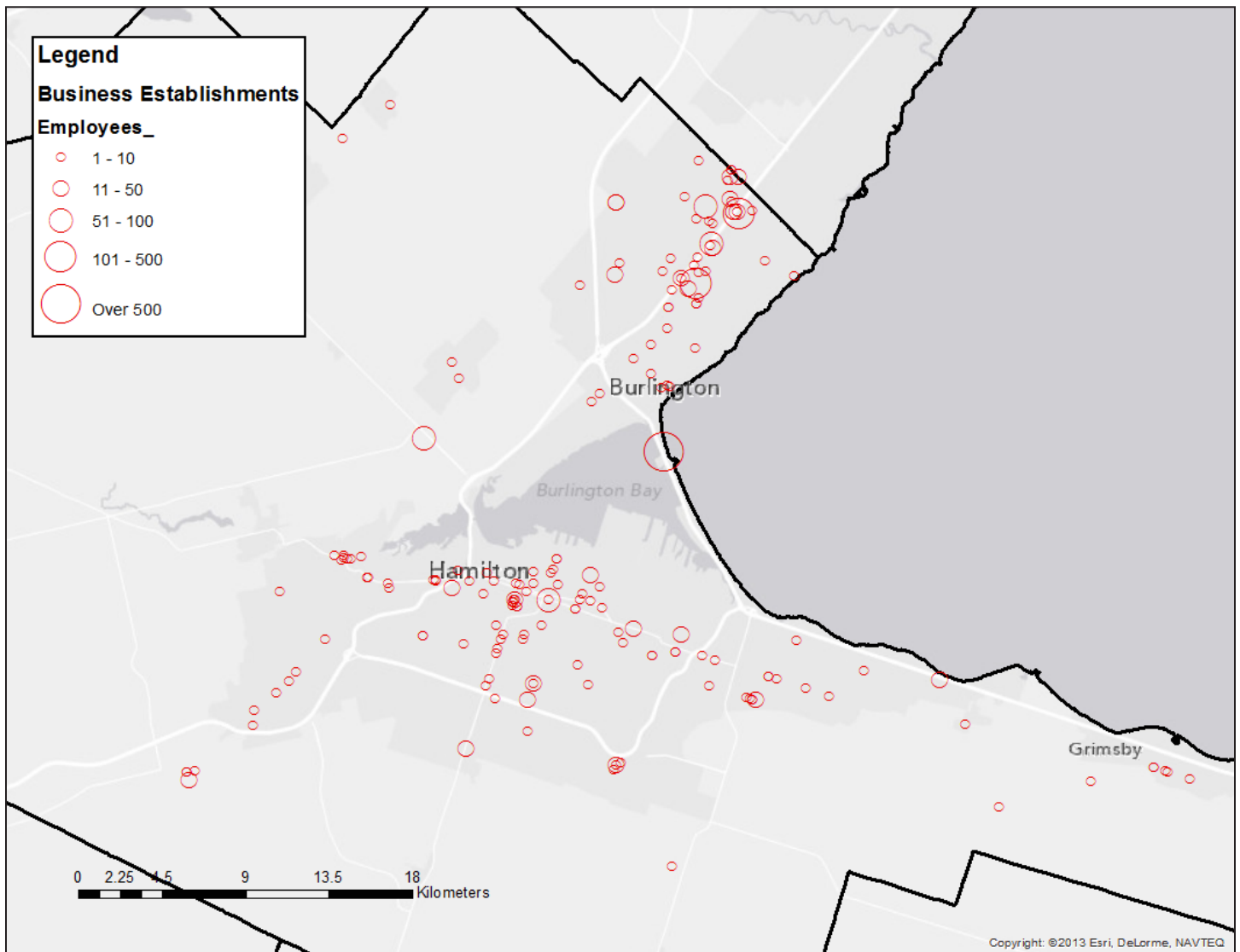
In 2011 81.2% of the cluster labour force held post-secondary qualifications with 40.6% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Hamilton life sciences cluster was \$76,883 per year. This ranked the cluster

1st out of 7 life sciences clusters in Canada.

In 2011 Dun & Bradstreet identified 180 business establishments in the Hamilton life sciences cluster. The average establishment size was 14 employees. The largest firms in core life sciences industries in 2011 included: ABB Inc; Patheon Inc; Rotsaert Dental Laboratory Services Inc; Cedarlane Corporation; Widex Canada Ltd; Gulfstream Plastics; Hamilton Health Sciences Corporation; and Islip Flow Controls Inc.

Figure 5.3.6.1
Size and location of business establishments, 2011



5.3.6 Hamilton Life Sciences

Figure 5.3.6.2
Labour force demographics, 2011

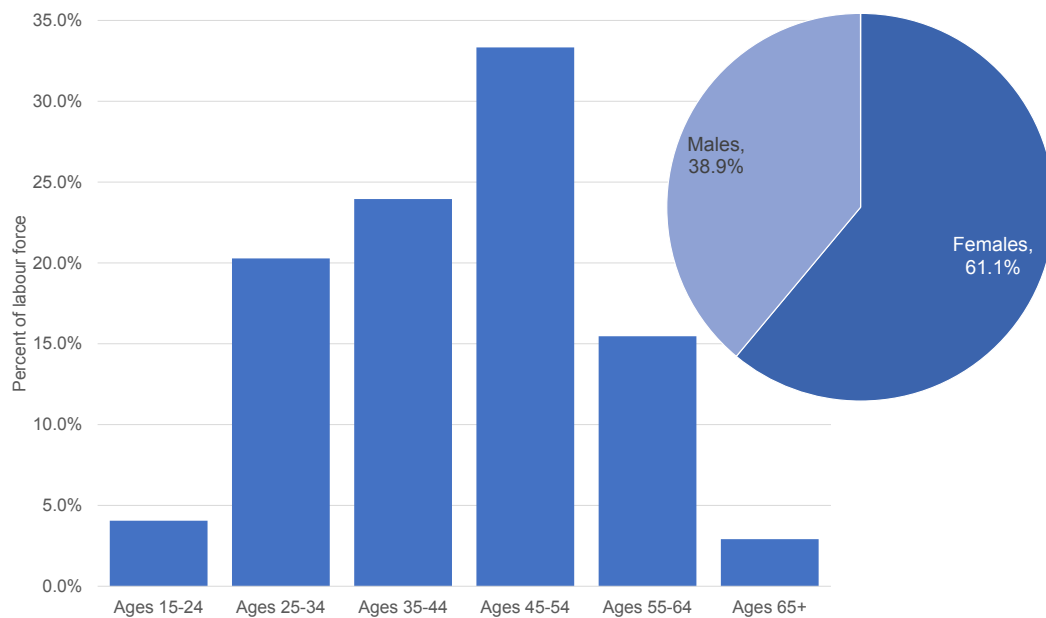


Figure 5.3.6.3
Educational attainment of labour force, 2011

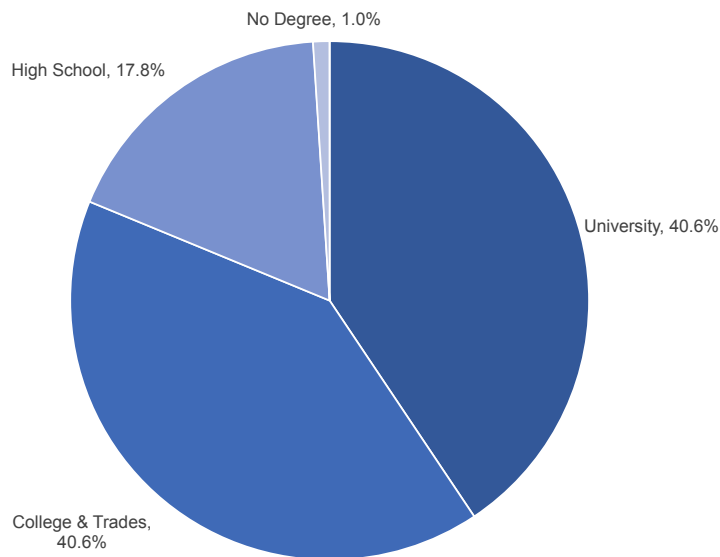
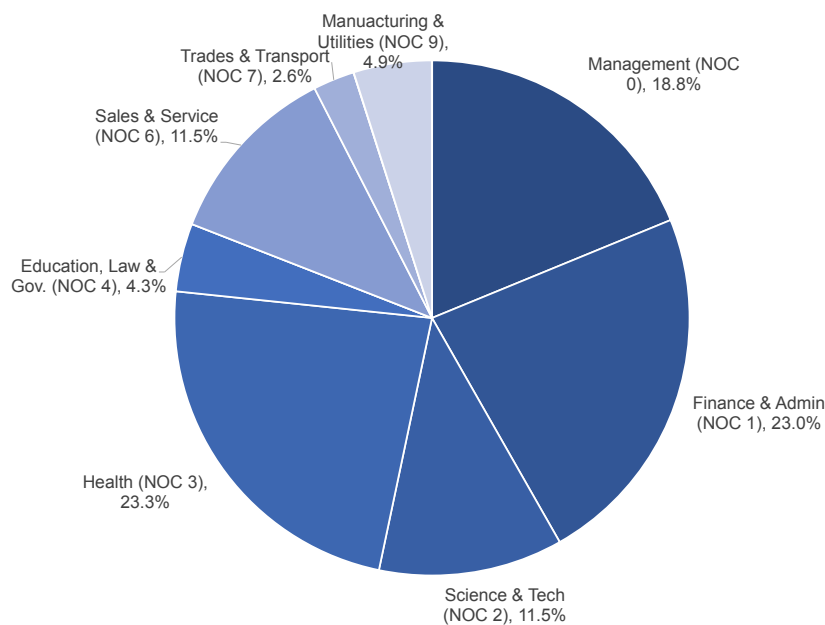


Figure 5.3.6.4
Occupational structure of labour force, 2011



5.3.7 Toronto Finance

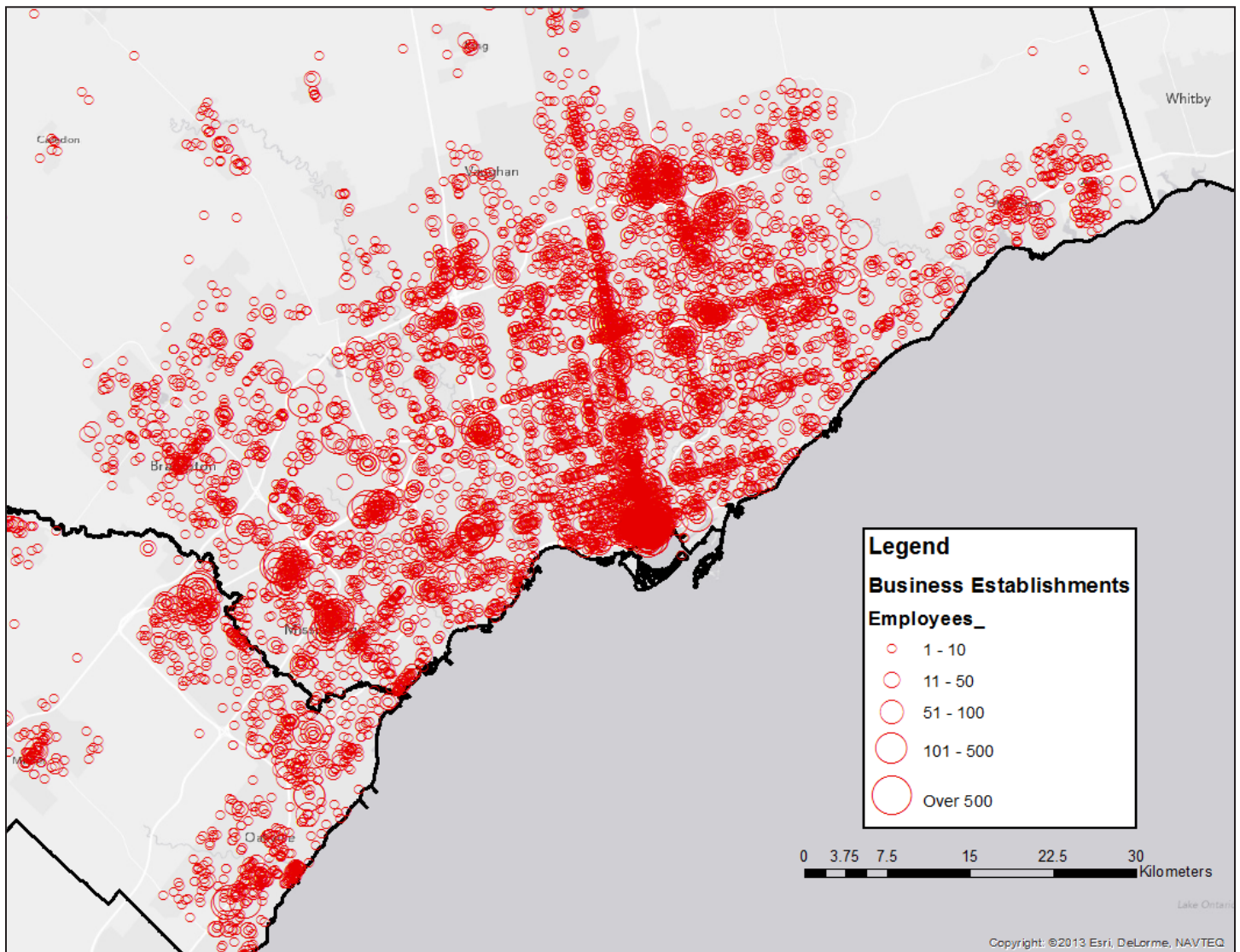
The finance cluster in Toronto employed 307,963 people in 2011. This made Toronto the largest finance cluster in Canada (out of 8). Between 2001 and 2011 employment increased by 35.6%. The labour force was 47.6% male and 52.4% female. 40.2% of the labour force was over the age of 44.

In 2011 80.2% of the cluster labour force held post-secondary qualifications with 52.0% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Toronto finance cluster was \$89,388 per year. This ranked the cluster 1st out of 8 finance clusters in Canada.

In 2011 Dun & Bradstreet identified 12,495 business establishments in the Toronto finance cluster. The average establishment size was 16 employees. The largest firms in core life sciences industries in 2011 included: The Toronto-Dominion Bank; Royal Bank Inc; Canadian Imperial Bank Of Commerce; BMO Nesbitt Burns Inc; Intact Financial Corporation; The Bank Of Nova Scotia; The Workplace Safety & Insurance Board; Amex Canada Inc; The Great-West Life Assurance Company; The Canada Life Assurance Company; TD Securities Inc; Jones Edward D & Co. Canada Holding Co.; The Manufacturers Life Insurance Company; Citi Cards Canada Inc; RBC Insurance Holdings Inc; The Bank of Nova Scotia Trust Company; and INTRIA Items Inc.

Figure 5.3.7.1
Size and location of business establishments, 2011



5.3.7 Toronto Finance

Figure 5.3.7.2
Labour force demographics, 2011

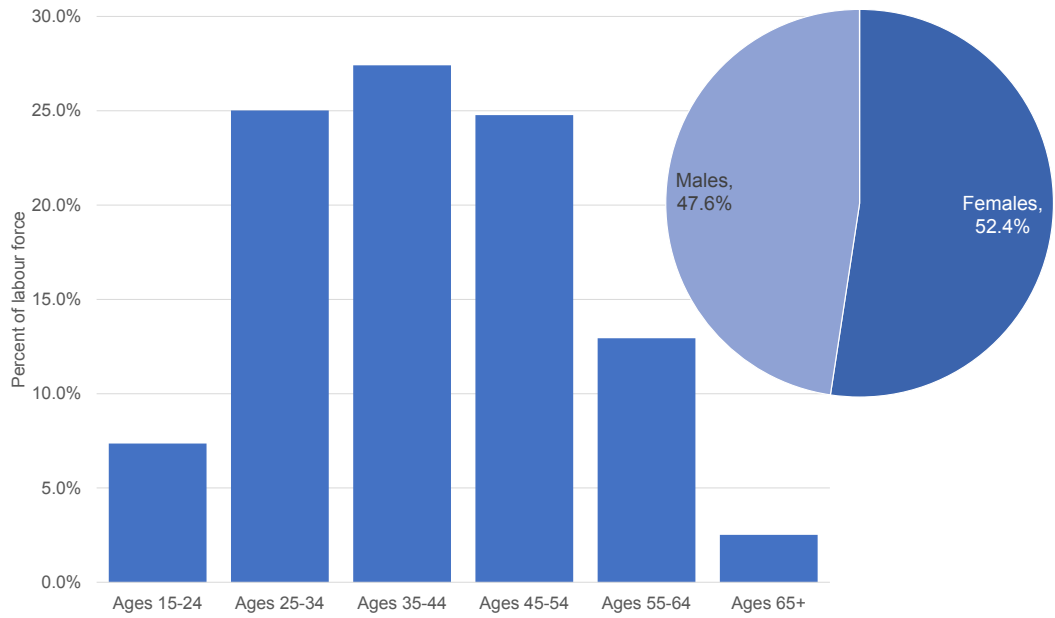


Figure 5.3.7.3
Educational attainment of labour force, 2011

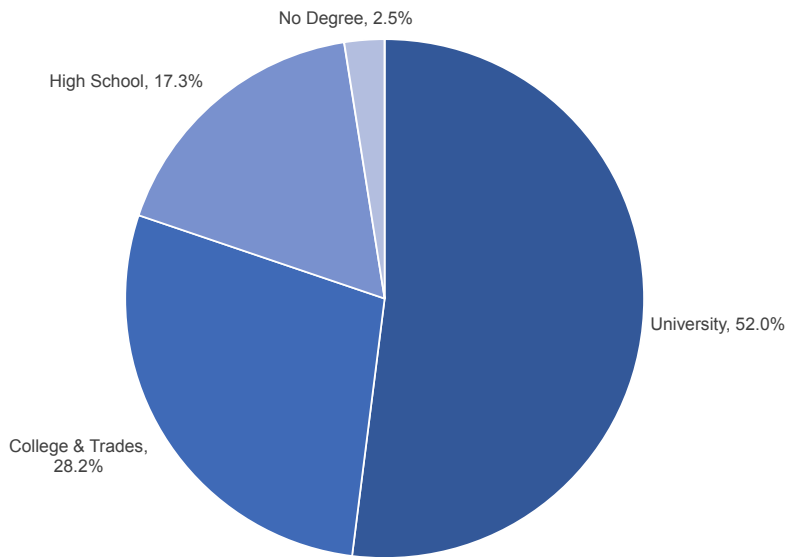
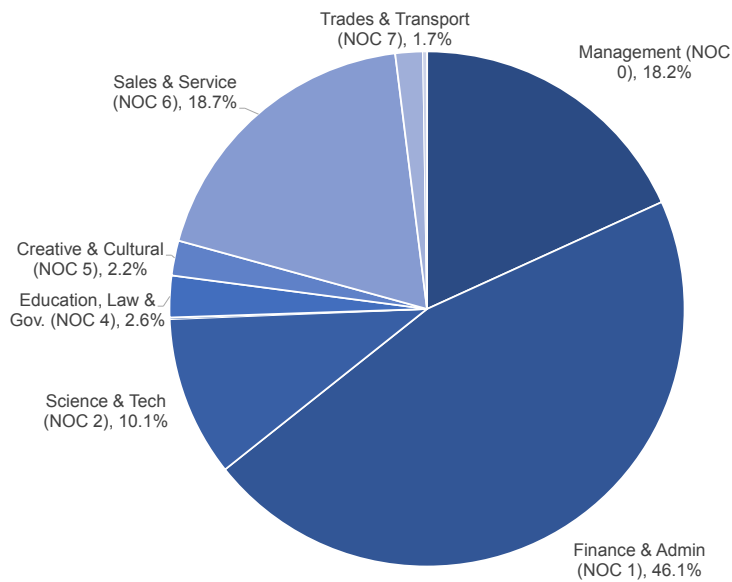


Figure 5.3.7.4
Occupational structure of labour force, 2011



5.3.8 Toronto Creative & Cultural

The creative & cultural cluster in Toronto employed 158,249 people in 2011. This made Toronto the largest creative & cultural cluster in Canada (out of 4). Between 2001 and 2011 employment increased by 37.8%. The labour force was 49.5% male and 50.5% female. 36.1% of the labour force was over the age of 44.

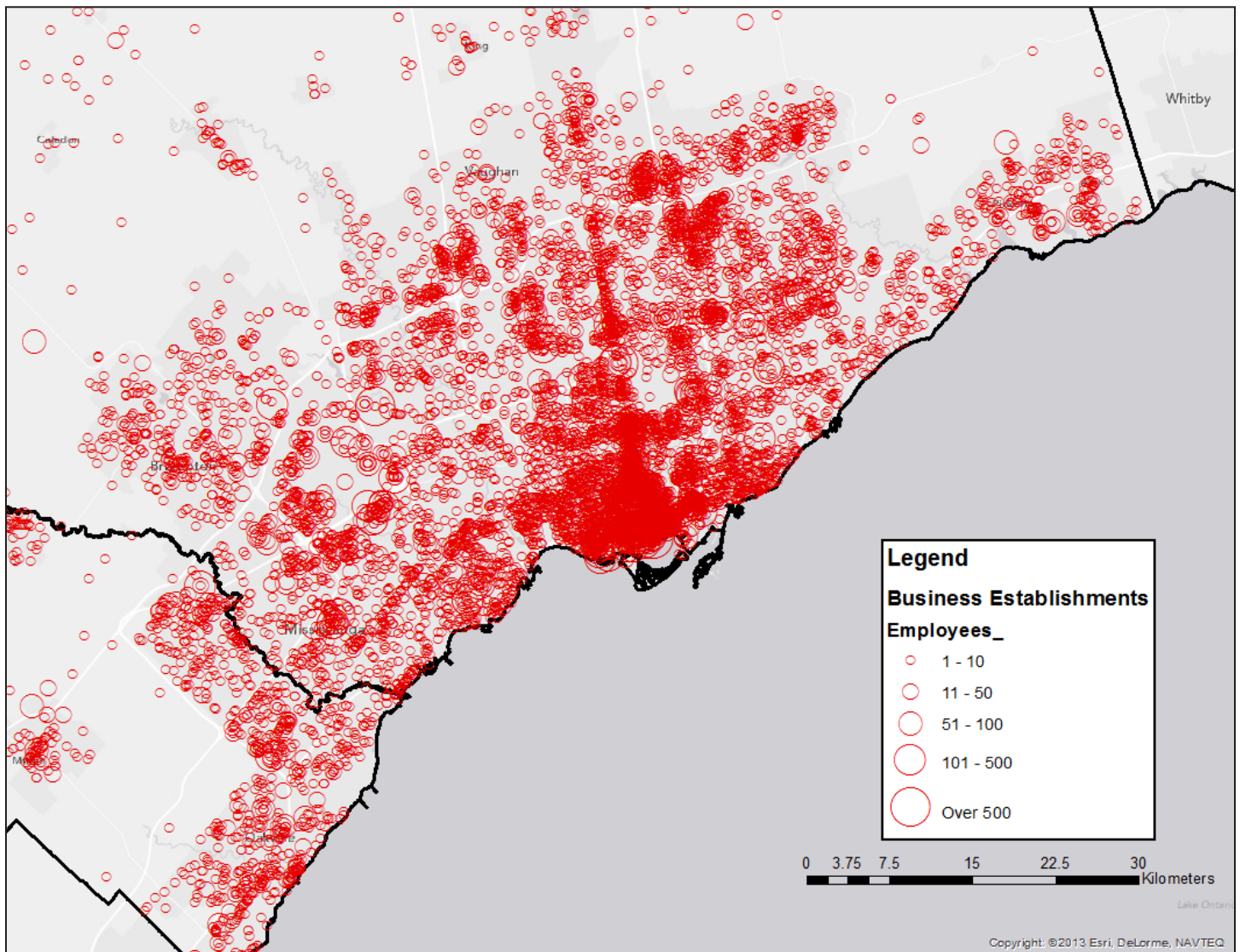
In 2011 76.7% of the cluster labour force held post-secondary qualifications with 46.1% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Toronto creative & cultural cluster was \$64,115 per year. This ranked the

cluster 1st out of 4 creative & cultural clusters in Canada.

In 2011 Dun & Bradstreet identified 12,865 business establishments in the Hamilton life sciences cluster. The average establishment size was 8 employees. The largest firms in core life sciences industries in 2011 included: Canadian Broadcasting Corporation; CTV Inc; Cinram International Inc; Woodbine Entertainment Group; Mood Media Corporation; MacLaren McCann Canada Inc; Natmar Holdings Inc; CW Media Inc; and Maple Leaf Sports & Entertainment Ltd.

Figure 5.3.8.1
Size and location of business establishments, 2011



5.3.8 Toronto Creative & Cultural

Figure 5.3.8.2
Labour force demographics, 2011

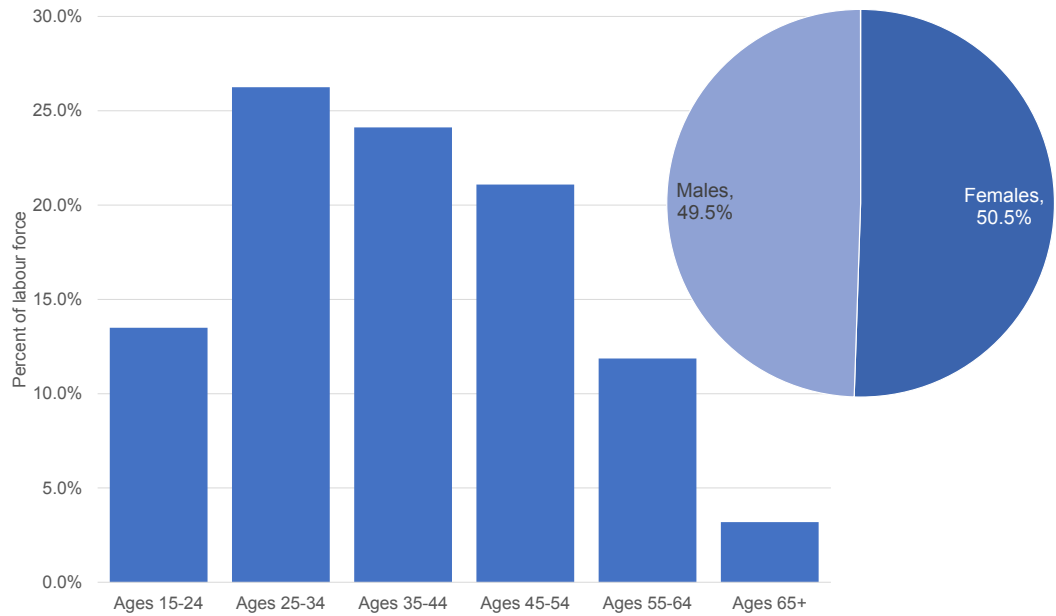


Figure 5.3.8.3
Educational attainment of labour force, 2011

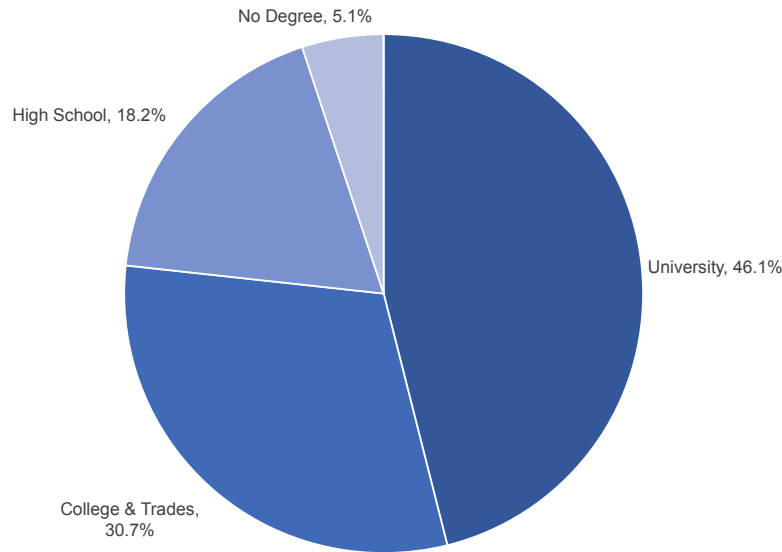
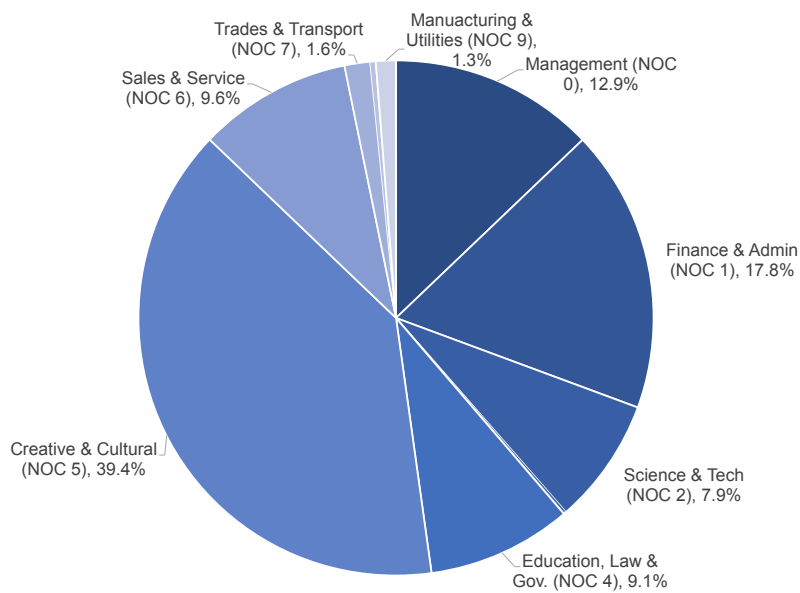


Figure 5.3.8.4
Occupational structure of labour force, 2011



5.4 Prairies

The economic landscape of Manitoba, Saskatchewan, and Alberta is dominated by resources which account for 19 of the 41 clusters in total. Specifically, there are 11 oil & gas clusters of which 10 are in Alberta, 5 mining clusters and 3 agriculture clusters. It is important to note that this report captures economic activities that exist within city-regions and thus a great deal, particularly in resources, is not presented. Both the oil & gas and mining sectors have experienced extremely high rates of growth between 2001 and 2011. The both also boast very high average wages. It is clear that these clusters have been very important for not just local economic outcome but have had significant national implications. There are 10 construction clusters, 9 in Alberta and 1 in Saskatchewan. They tend to be co-located with rapidly growing oil & gas clusters, likely due for the expansion of infrastructure and growing demand for housing.

There is not a strong tradition of manufacturing in these provinces and thus there are only seven clusters identified. There are two well performing steel clusters (which includes metal products) in Calgary and Edmonton which are likely linked to the expansion of the oil & gas industry and its demand for new infrastructure. Winnipeg is home to a growing life sciences cluster as well as an aerospace cluster that has shown a slight decline in employment between 2001 and 2011. Calgary has the lone ICT manufacturing cluster which lost roughly one quarter of its jobs in the ten years after 2001. This is partly explained by the specific time period when the industry experienced retraction in most places.

There are four service clusters in the Prairie Provinces. Two higher education clusters are present, one in Edmonton

and one in Saskatoon. Calgary is home to a business services cluster and an ICT services cluster. Both are growing at a healthy pace. If these provinces are going to diversify their economies away from being resource-dependent, building on knowledge intensive manufacturing and service industries is likely the best way forward due to the lack of an industrial heritage. This means as the key cities expand they must be able to maintain their currently very high standard of living. Public investments in infrastructure such as urban transportation system will be vital.

Table 5.4.1

Prairie clusters and key indicators

City Region	Prov	Cluster Type	Employment 2011	Employment Change 2001-2011	Average Annual FT Income
Winnipeg	MB	Aerospace	3,585	-9.7%	\$60,373
Brandon	MB	Agriculture	3,433	39.8%	\$44,729
Lethbridge	AB	Agriculture	5,505	127.9%	\$49,362
Saskatoon	SK	Agriculture	7,717	-2.4%	\$56,351
Winnipeg	MB	Life Sciences	4,358	28.5%	\$57,832
Calgary	AB	Business Services	100,406	36.3%	\$88,855
Calgary	AB	Construction	56,358	52.9%	\$91,621
Edmonton	AB	Construction	38,449	62.2%	\$80,784
Grande Prairie	AB	Construction	1,796	49.7%	\$65,961
Lethbridge	AB	Construction	2,493	81.3%	\$58,511
Lloydminster	AB	Construction	1,097	213.5%	\$71,492
Medicine Hat	AB	Construction	1,952	61.3%	\$60,633
Okotoks	AB	Construction	1,072		\$79,427
Red Deer	AB	Construction	2,559	30.9%	\$66,897
Saskatoon	SK	Construction	7,943	109.6%	\$68,529
Wood Buffalo	AB	Construction	2,606	68.7%	\$105,810
Lethbridge	AB	Food & Beverage	2,236	56.9%	\$46,724
Edmonton	AB	Higher Education	27,561	69.4%	\$71,847
Saskatoon	SK	Higher Education	9,762	47.3%	\$69,871
Calgary	AB	ICT Manufacturing	7,853	-24.5%	\$83,332
Calgary	AB	ICT Services	39,231	24.9%	\$78,340
Calgary	AB	Logistics	40,817	16.7%	\$66,133
Calgary	AB	Mining	20,918	42.5%	\$122,993
Edmonton	AB	Mining	20,580	55.5%	\$92,857
Regina	SK	Mining	2,619	64.7%	\$89,360
Saskatoon	SK	Mining	5,623	73.5%	\$102,531
Thompson	MB	Mining	1,766	22.2%	\$93,429
Calgary	AB	Oil & Gas	53,707	64.0%	\$142,199
Cold Lake	AB	Oil & Gas	1,568	1.5%	\$105,502
Edmonton	AB	Oil & Gas	27,036	68.7%	\$97,660
Grande Prairie	AB	Oil & Gas	5,449	131.9%	\$91,272
Lloydminster	AB	Oil & Gas	3,780	58.8%	\$113,384
Medicine Hat	AB	Oil & Gas	3,687	47.8%	\$90,985
Okotoks	AB	Oil & Gas	1,313		\$136,604
Red Deer	AB	Oil & Gas	5,189	50.4%	\$82,686
Regina	SK	Oil & Gas	2,464	61.6%	\$106,656
Sylvan Lake	AB	Oil & Gas	1,357		\$87,737
Wood Buffalo	AB	Oil & Gas	15,069	99.5%	\$156,582
Calgary	AB	Steel	13,315	31.6%	\$115,420
Edmonton	AB	Steel	14,293	20.3%	\$86,362
Winnipeg	MB	Textiles	2,026	-65.6%	\$50,295

5.4.1 Brandon Agriculture

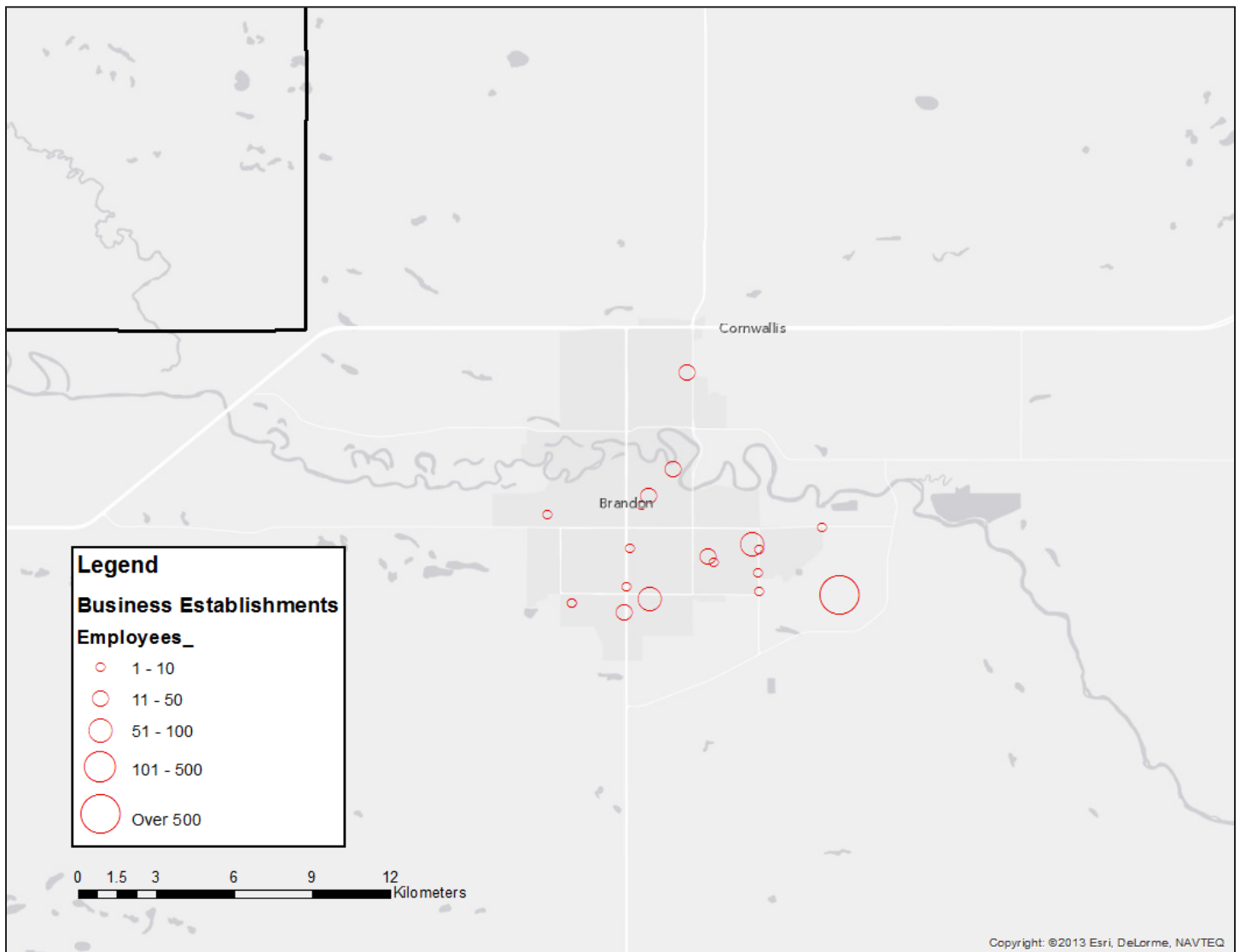
The agriculture cluster in Brandon employed 3,433 people in 2011. This made Brandon the 10th largest agriculture cluster in Canada (out of 18). Between 2001 and 2011 employment increased by 39.8%. The labour force was 75.6% male and 24.4% female. 28.5% of the labour force was over the age of 44.

In 2011 Dun & Bradstreet identified 19 business establishments in the Brandon agriculture cluster. The average establishment size was 129 employees. The cluster is heavily dominated by Maple Leaf Foods which employs a majority of all workers.

In 2011 39.1% of the cluster labour force held post-secondary qualifications with 7.3% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Brandon agriculture cluster was \$44,729 per year. This ranked the cluster 10th out of 18 agriculture clusters in Canada.

Figure 5.4.1.1
Size and location of business establishments, 2011



5.4.1 Brandon Agriculture

Figure 5.4.1.2
Labour force demographics, 2011

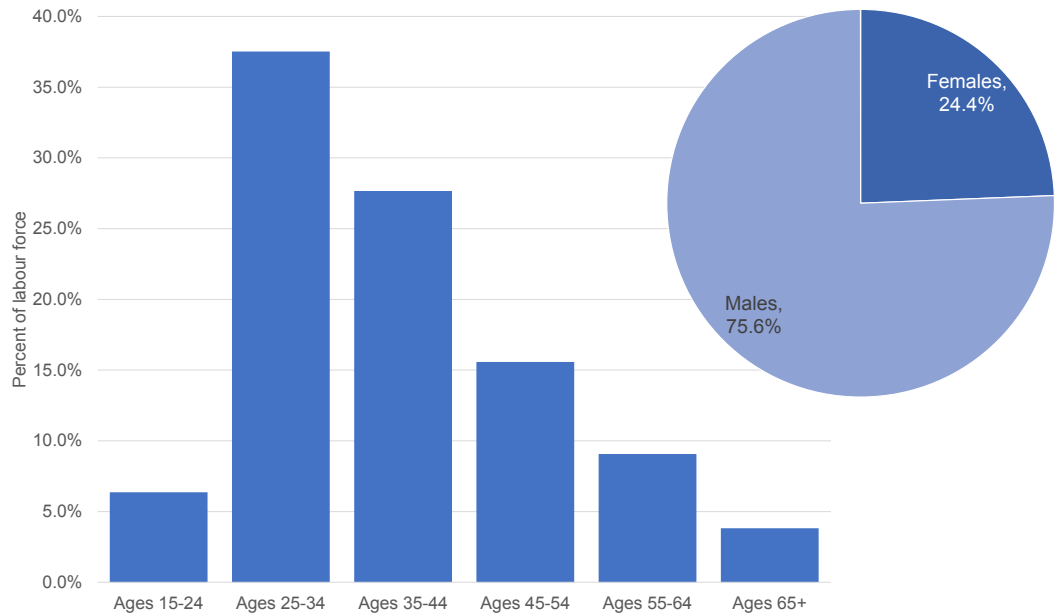


Figure 5.4.1.3
Educational attainment of labour force, 2011

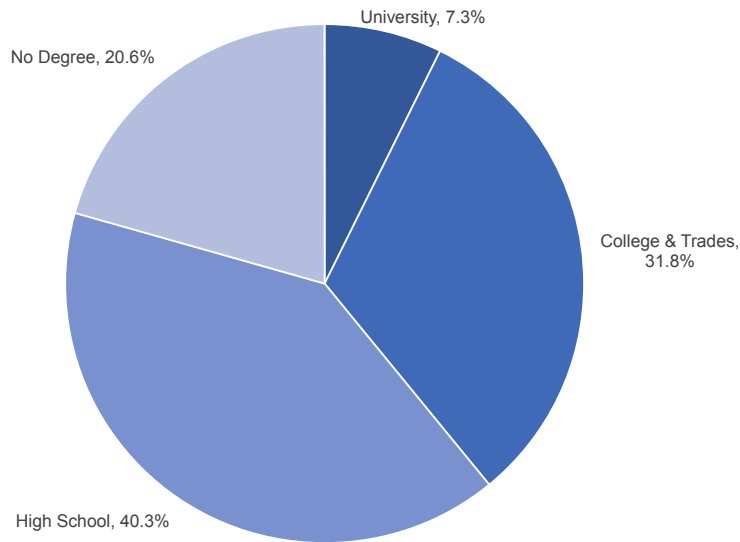
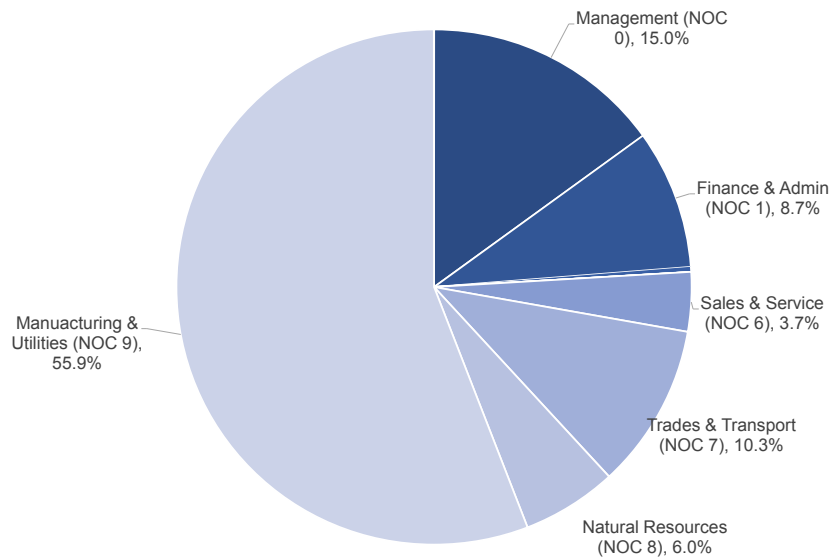


Figure 5.4.1.4
Occupational structure of labour force, 2011



5.4.2 Winnipeg Life Sciences

The life sciences cluster in Winnipeg employed 4,358 people in 2011. This made Winnipeg the 5th largest life sciences cluster in Canada (out of 7). Between 2001 and 2011 employment increased by 28.5%. The labour force was 39.9% male and 60.1% female. 46.4% of the labour force was over the age of 44.

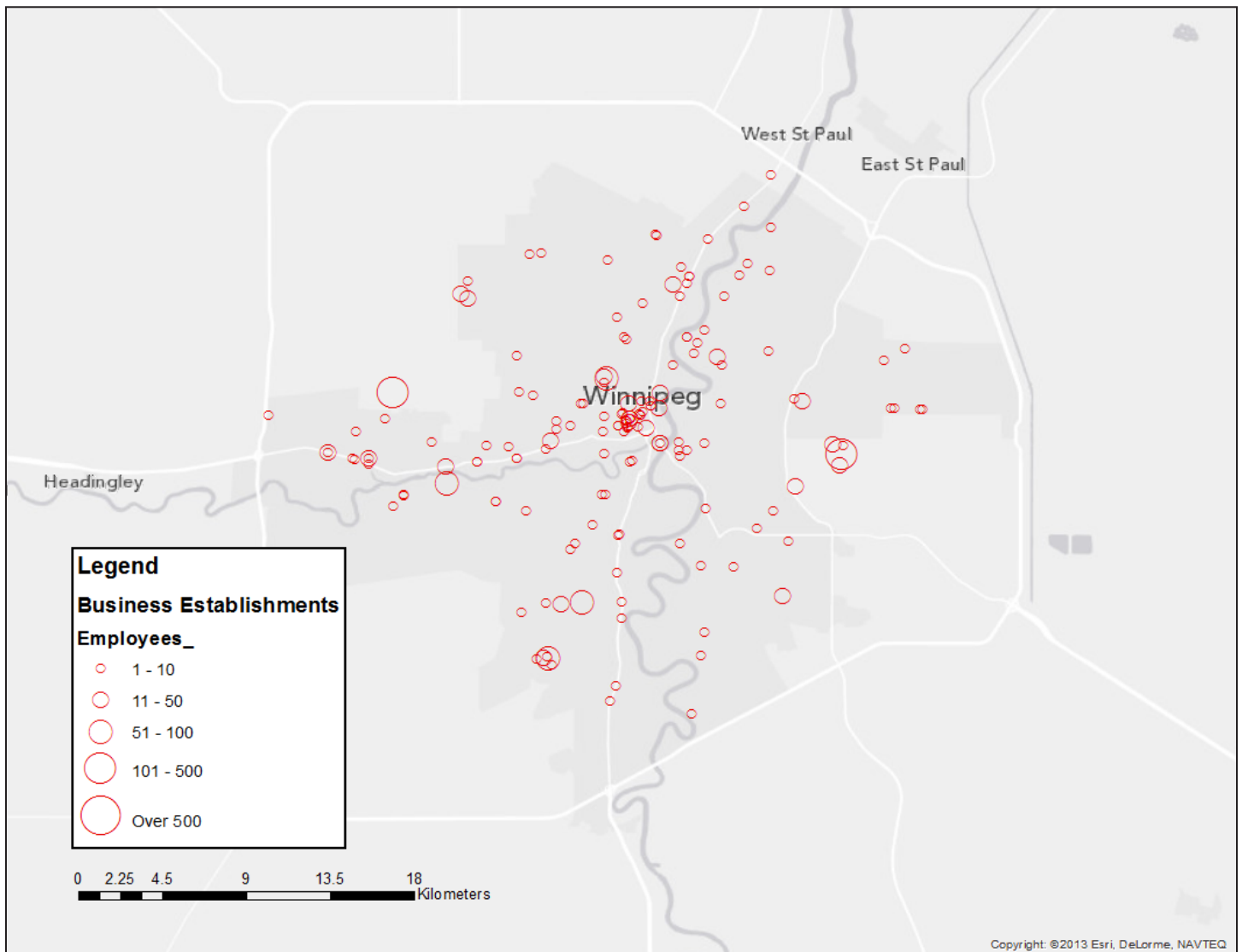
In 2011 75.9% of the cluster labour force held post-secondary qualifications with 40.0% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Winnipeg life sciences cluster was \$57,832 per year. This ranked the cluster

7th out of 7 life sciences clusters in Canada.

In 2011 Dun & Bradstreet identified 171 business establishments in the Winnipeg life sciences cluster. The average establishment size was 12 employees. The largest firms in core life sciences industries in 2011 included: Vita Health Products Inc; NAV Canada; Apotex Fermentation Inc; IMRIS Inc; and Rix Ltd.

Figure 5.4.2.1
Size and location of business establishments, 2011



5.4.2 Winnipeg Life Sciences

Figure 5.4.2.2
Labour force demographics, 2011

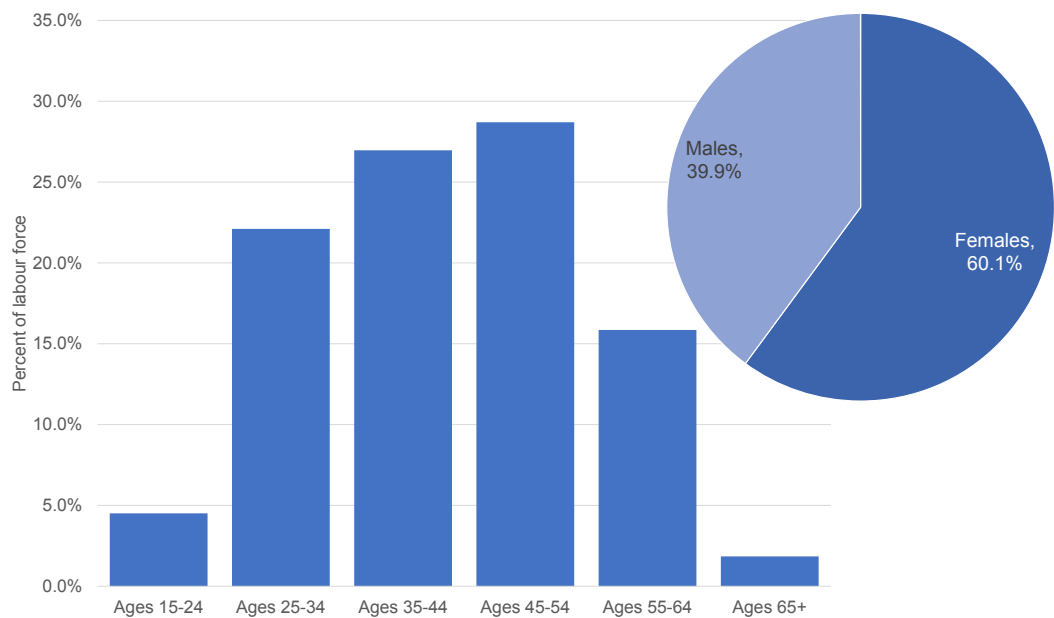


Figure 5.4.2.3
Educational attainment of labour force, 2011

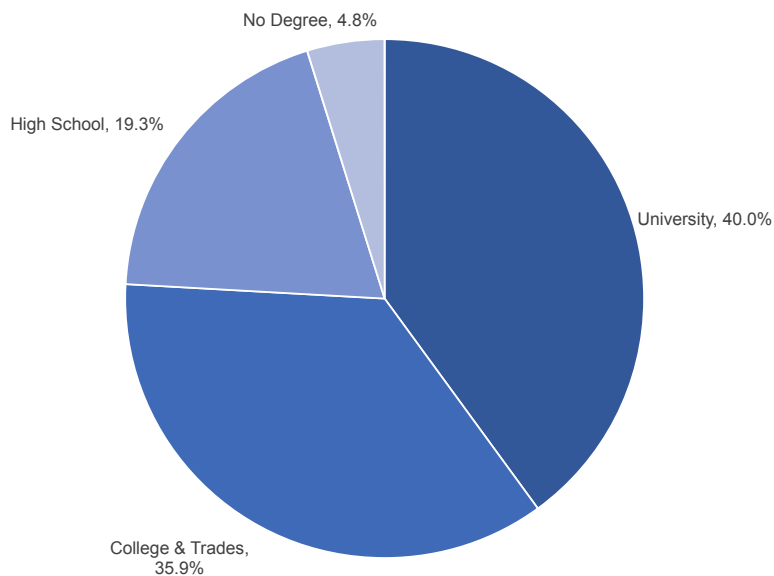
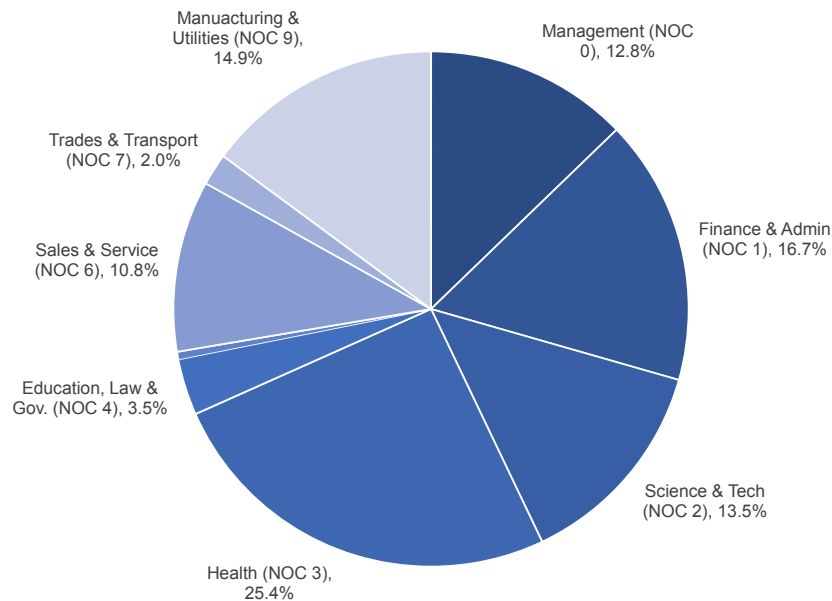


Figure 5.4.2.4
Occupational structure of labour force, 2011



5.4.3 Saskatoon Agriculture

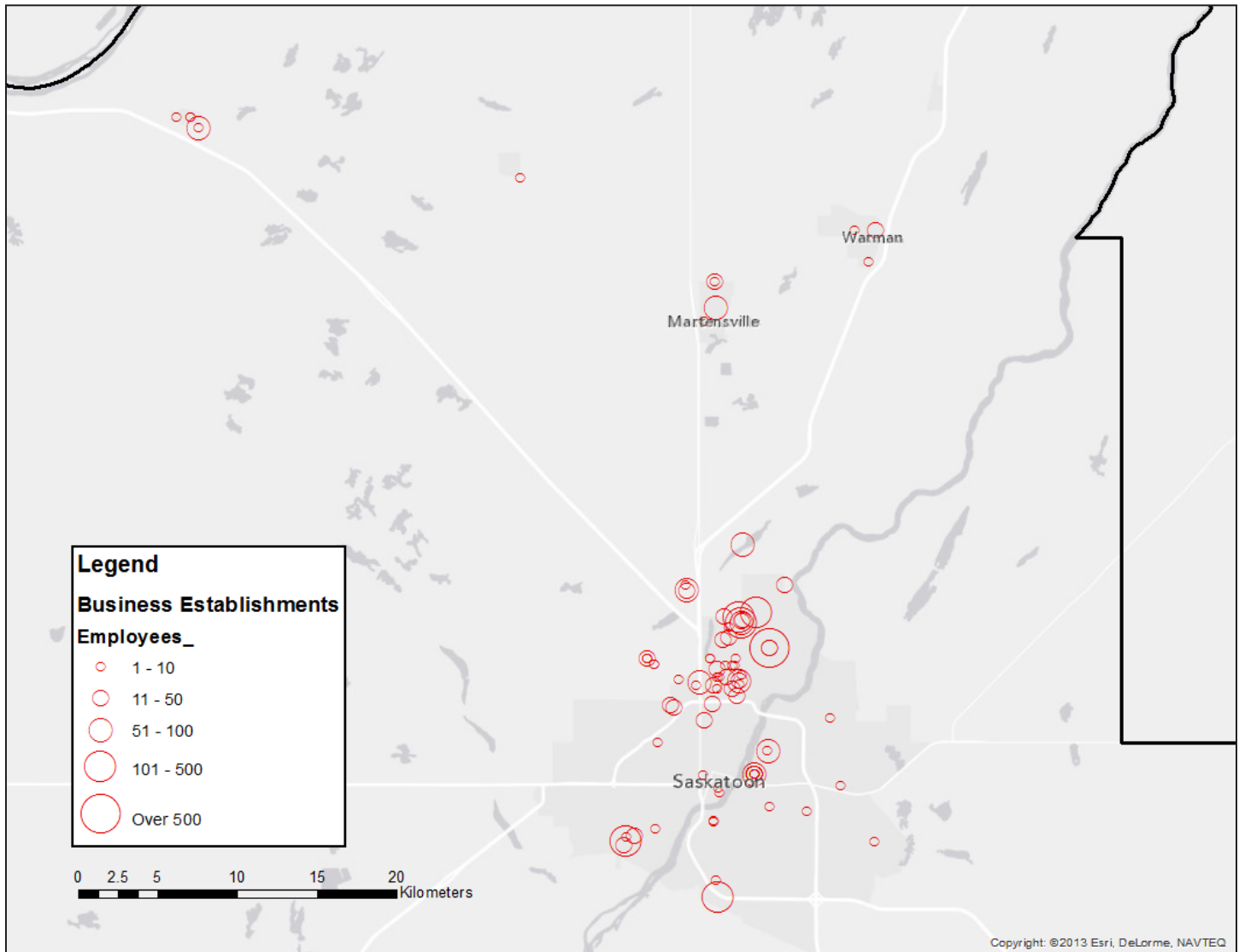
The agriculture cluster in Saskatoon employed 7,717 people in 2011. This made Saskatoon the 4th largest agriculture cluster in Canada (out of 18). Between 2001 and 2011 employment decreased by 2.4%. The labour force was 75.4% male and 24.6% female. 44.3% of the labour force was over the age of 44.

In 2011 49.1% of the cluster labour force held post-secondary qualifications with 18.7% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Saskatoon agriculture cluster was \$56,351 per year. This ranked the cluster 1st out of 18 agriculture clusters in Canada.

In 2011 Dun & Bradstreet identified 113 business establishments in the Saskatoon agriculture cluster. The average establishment size was 30 employees. The largest firms in core agriculture industries in 2011 included: CNH Canada Ltd; Maple Leaf Foods Inc; New Food Classics; Prairie Machine & Parts MFG Partnership; Norseman Structures Inc; Prairie Pride Natural Foods Ltd; Vicwest Operating Limited Partnership; Dow AgroSciences Canada Inc; Wheatheart Manufacturing Ltd; JNE Welding; Advanced Ag. & Industrial Ltd; Prairie Machine & Parts Mfg (1978) Ltd; Harmon International Industries Inc; Bourgault F.P. Tillage Tools Ltd; Nutana Machine Ltd; and Supreme Steel Ltd.

Figure 5.4.3.1
Size and location of business establishments, 2011



5.4.3 Saskatoon Agriculture

Figure 5.4.3.2
Labour force demographics, 2011

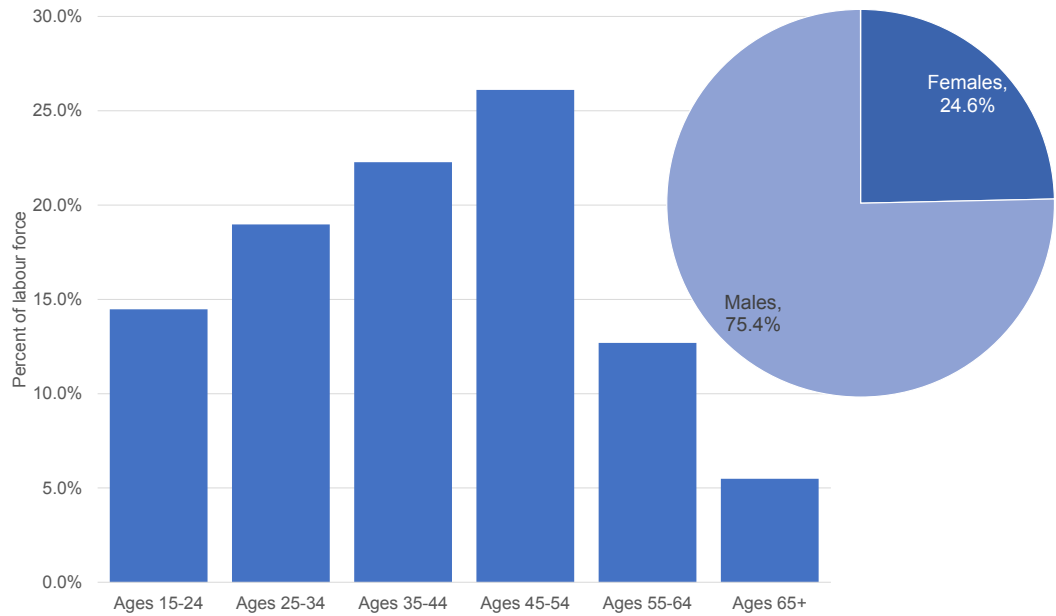


Figure 5.4.3.3
Educational attainment of labour force, 2011

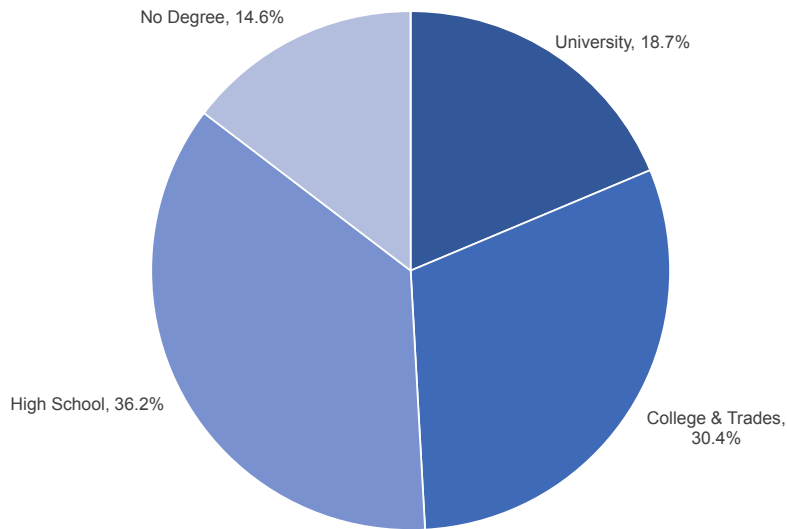
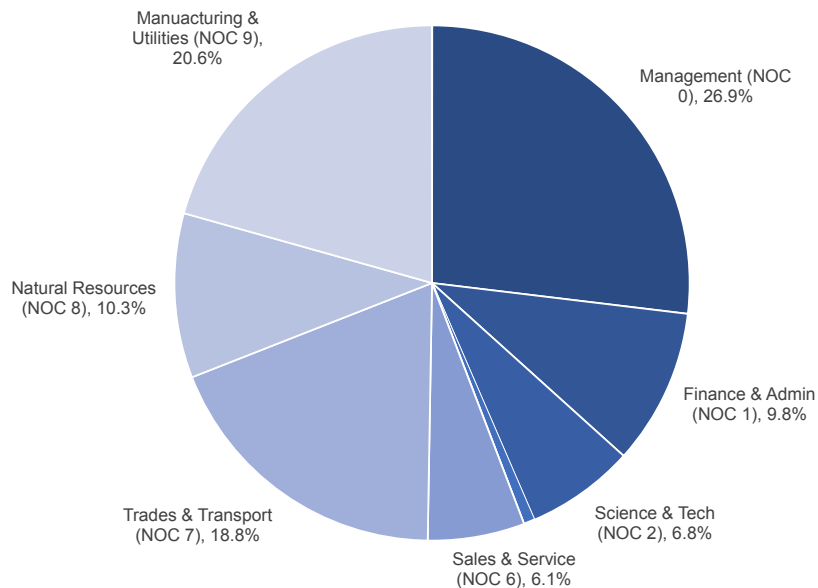


Figure 5.4.3.4
Occupational structure of labour force, 2011



5.4.4 Saskatoon Mining

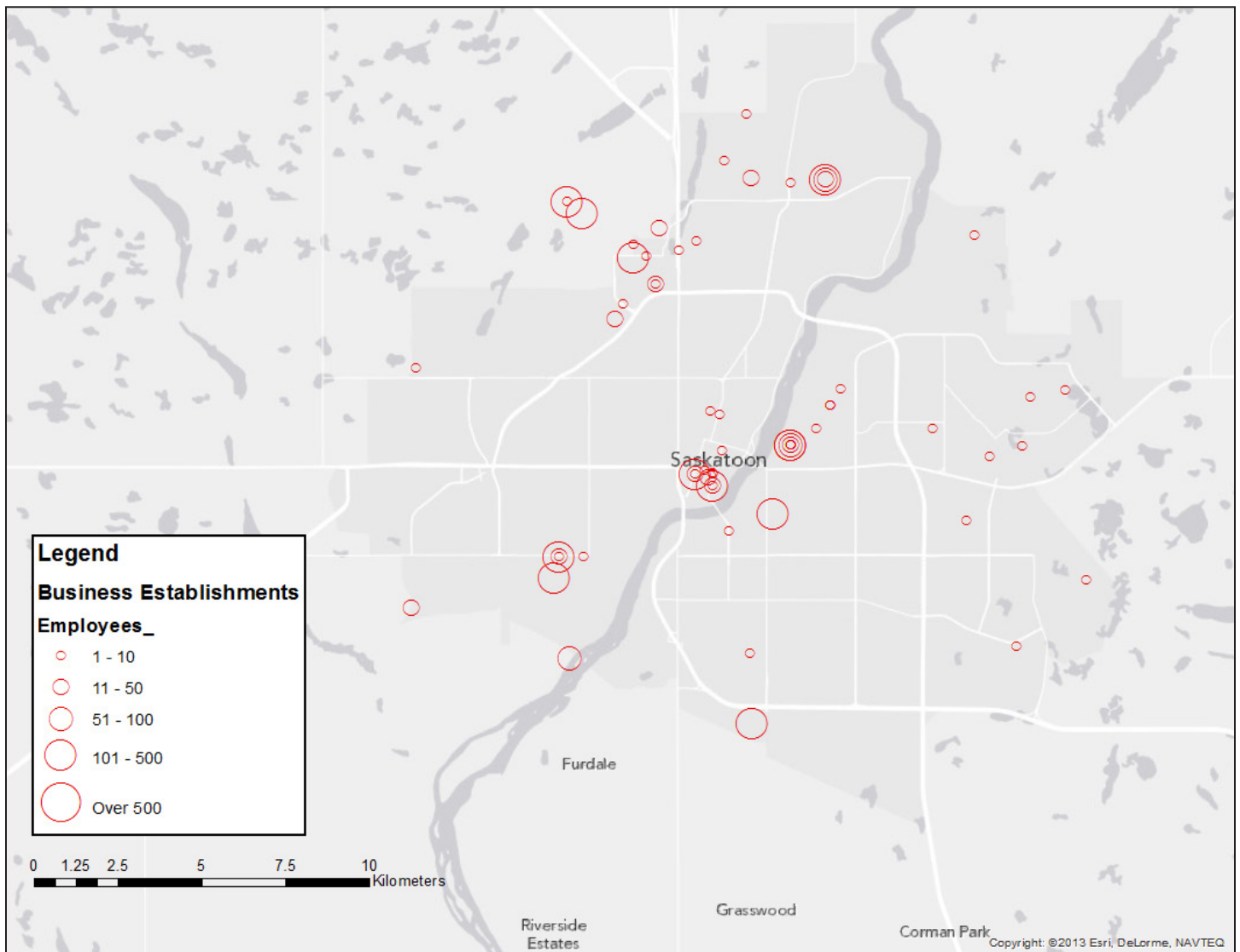
The mining cluster in Saskatoon employed 5,623 people in 2011. This made Saskatoon the 4th largest mining cluster in Canada (out of 16). Between 2001 and 2011 employment increased by 73.5%. The labour force was 83.5% male and 16.5% female. 41.5% of the labour force was over the age of 44.

In 2011 66.2% of the cluster labour force held post-secondary qualifications with 20.9% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Saskatoon mining cluster was \$102,531 per year. This ranked the cluster 2nd out of 16 mining clusters in Canada.

In 2011 Dun & Bradstreet identified 76 business establishments in the Saskatoon mining cluster. The average establishment size was 55 employees. The largest firms in core mining industries in 2011 included: AREVA Resources Canada Inc; Agrium Inc; Cameco Corporation; Mosaic Potash Colonsay ULC; Potash Corporation of Saskatchewan Inc; Claude Resources Inc; and Shore Gold Inc.

Figure 5.4.4.1
Size and location of business establishments, 2011



5.4.4 Saskatoon Mining

Figure 5.4.4.2
Labour force demographics, 2011

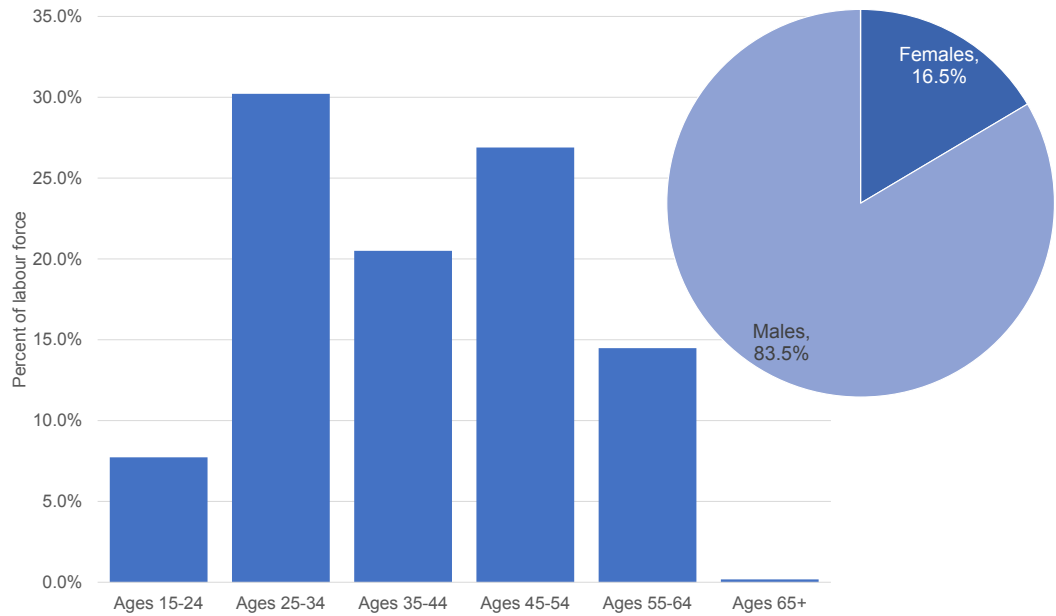


Figure 5.4.4.3
Educational attainment of labour force, 2011

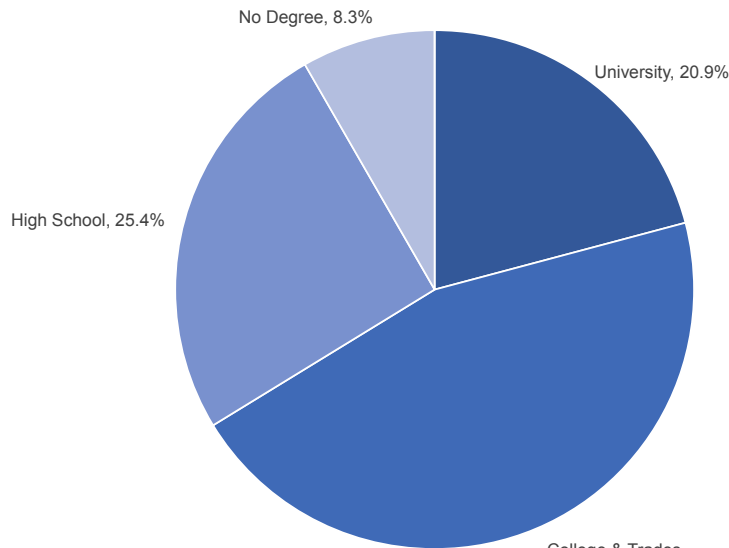
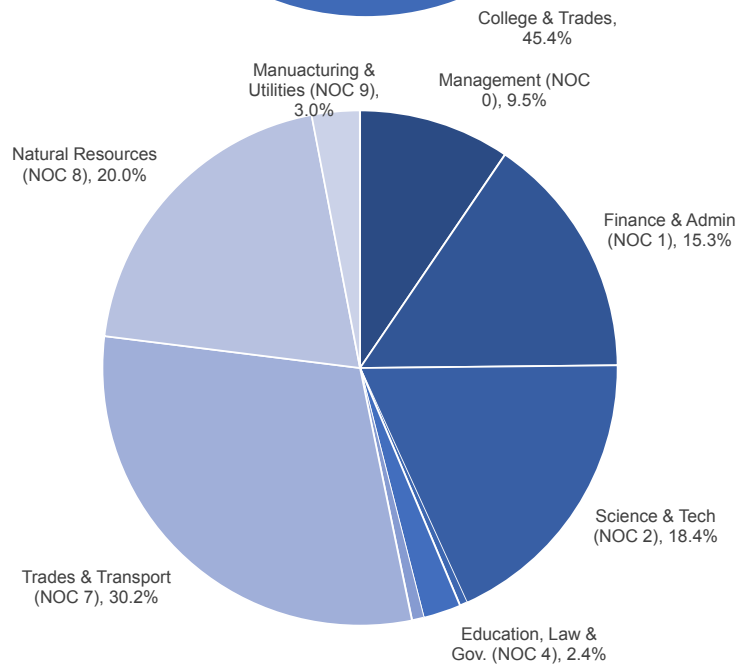


Figure 5.4.4.4
Occupational structure of labour force, 2011



5.4.5 Wood Buffalo Oil & Gas

The oil & gas cluster in Wood Buffalo employed 15,069 people in 2011. This made Wood Buffalo the 3rd largest oil & gas cluster in Canada (out of 13). Between 2001 and 2011 employment increased by 99.5%. The labour force was 79.8% male and 20.2% female. 37.5% of the labour force was over the age of 44.

In 2011 73.1% of the cluster labour force held post-secondary qualifications with 18.6% having a university degree.

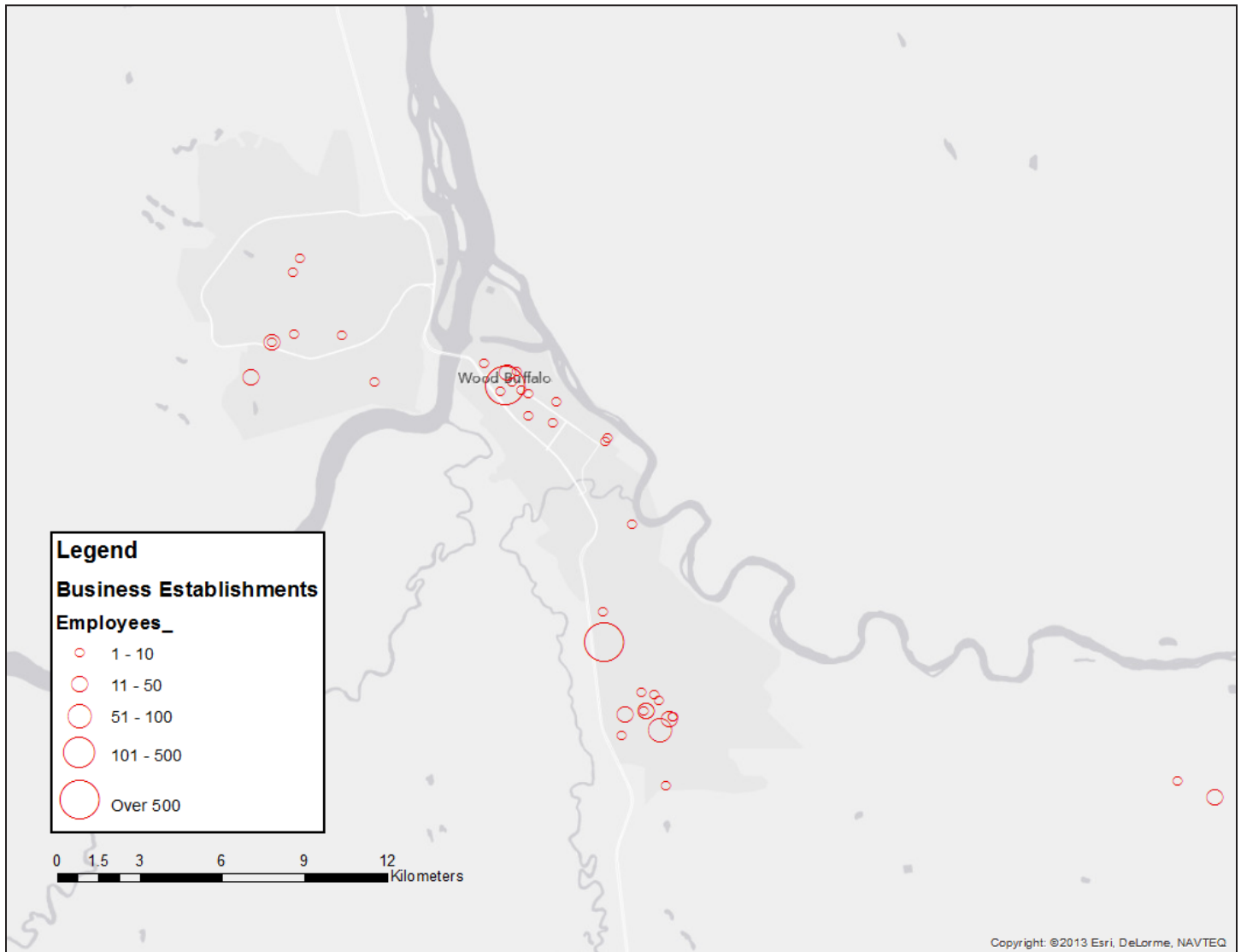
According to the 2011 NHS the average full-time employment income for individuals working in the Wood Buffalo oil & gas cluster was \$156,582 per year. This ranked the cluster

1st out of 13 oil & gas clusters in Canada.

In 2011 Dun & Bradstreet identified 45 business establishments in the Wood Buffalo oil & gas cluster. The average establishment size was 88 employees. These figures suggest that the D&B data is not capturing many of the firms in this instance. The largest firms in core oil & gas industries in 2011 included: Syncrude Canada Ltd; Landing Trail Petroleum Co; Matthews Equipment Limited; Big Eagle Limited Partnership; Cardium Vac Services Ltd; Myshak Crane and Rigging Ltd; BP Canada Energy Company; Brandt Tractor Ltd; Inter Pipeline (Corridor) Inc; Ameco Services Inc; and ATCO Gas And Pipelines Ltd.

Figure 5.4.5.1

Size and location of business establishments, 2011



5.4.5 Wood Buffalo Oil & Gas

Figure 5.4.5.2
Labour force demographics, 2011

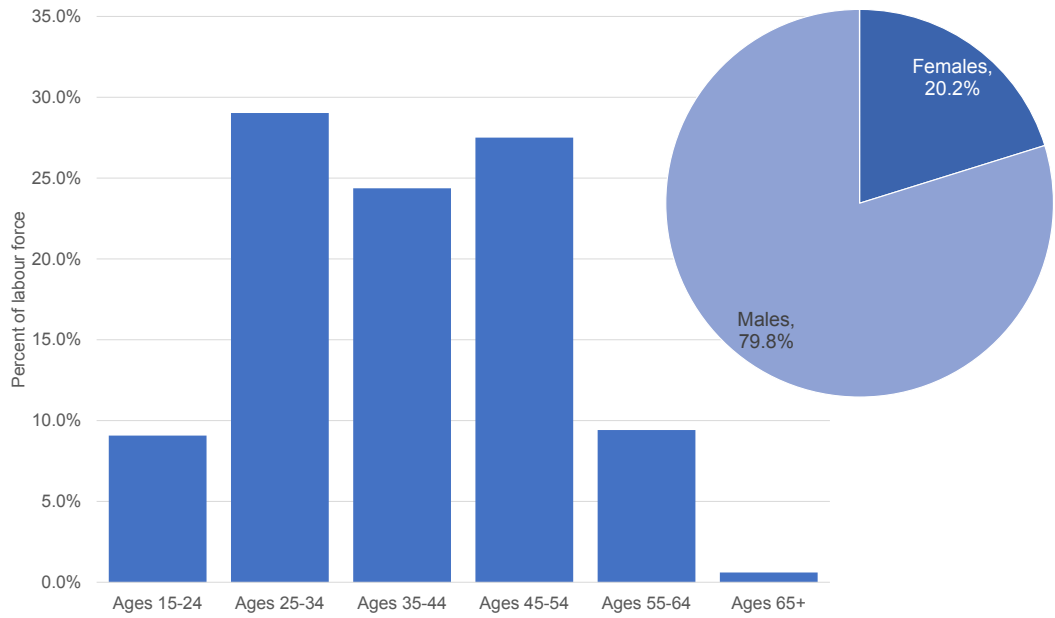


Figure 5.4.5.3
Educational attainment of labour force, 2011

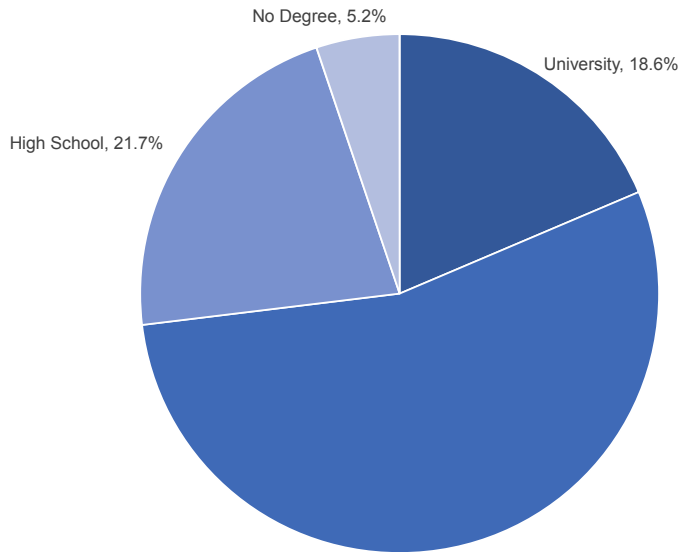
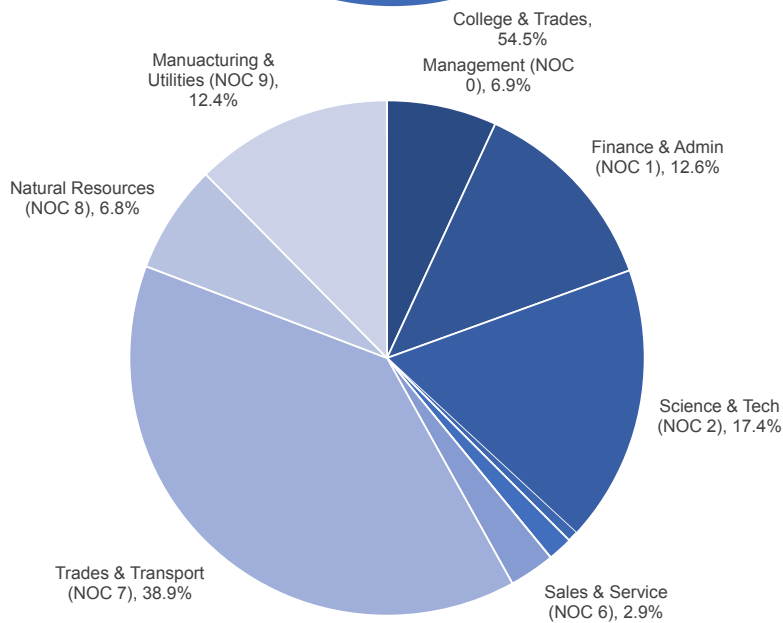


Figure 5.4.5.4
Occupational structure of labour force, 2011



5.4.6 Calgary Oil & Gas

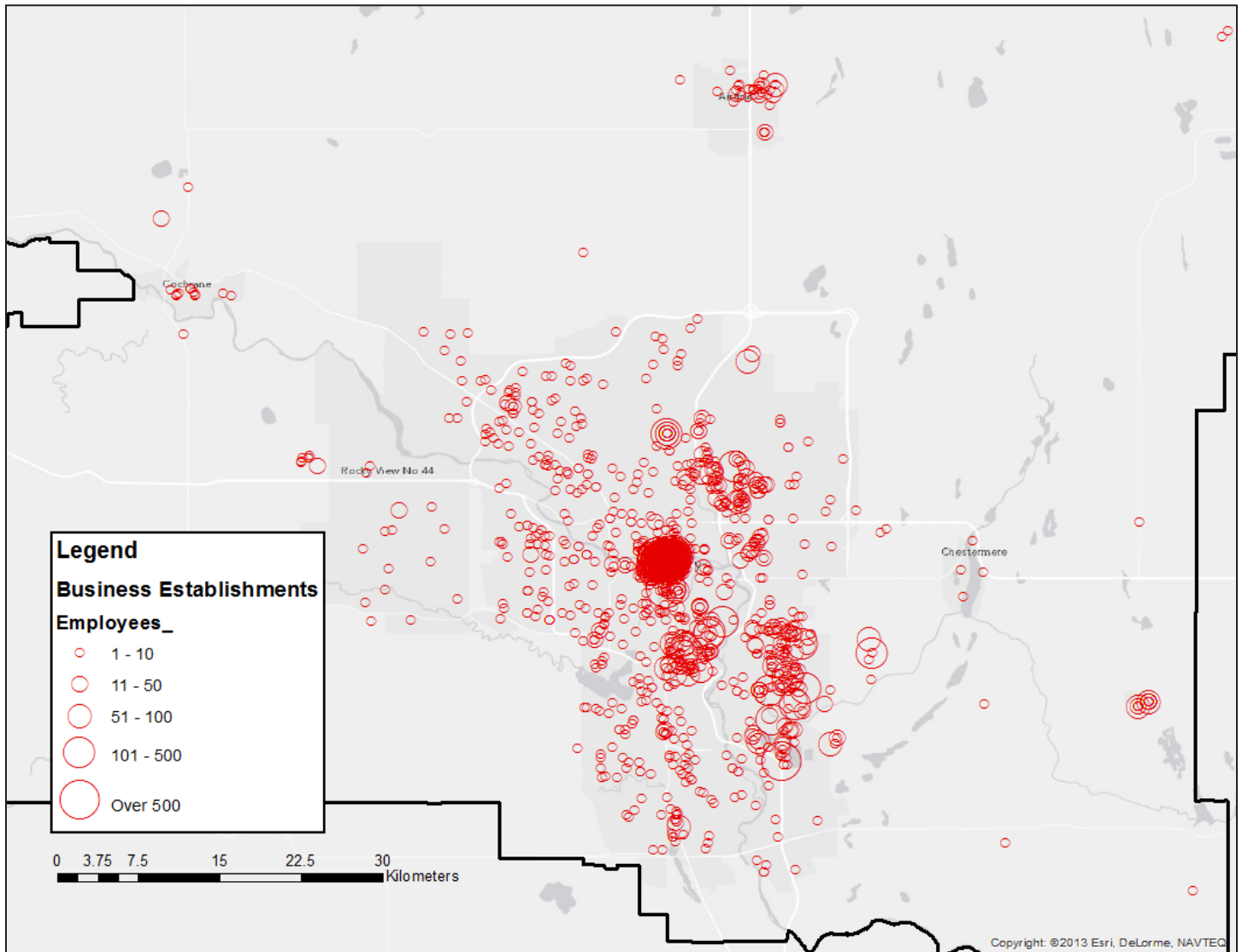
The oil & gas cluster in Calgary employed 53,707 people in 2011. This made Calgary the largest oil & gas cluster in Canada (out of 13). Between 2001 and 2011 employment increased by 64.0%. The labour force was 60.9% male and 39.1% female. 40.3% of the labour force was over the age of 44.

In 2011 83.4% of the cluster labour force held post-secondary qualifications with 50.8% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Calgary oil & gas cluster was \$142,199 per year. This ranked the cluster 2nd out of 13 oil & gas clusters in Canada.

In 2011 Dun & Bradstreet identified 2,826 business establishments in the Calgary oil & gas cluster. The average establishment size was 27 employees. The largest firms in core oil & gas industries in 2011 included: Imperial Oil; Cenovus Energy Inc; BP Canada Energy Company; Canadian Natural Resources Limited; ConocoPhillips Canada Resources Corp; Talisman (Asia) Ltd; Nexen Holdings (USA) Inc; Shell Canada Limited; Husky Oil Operations Limited; Trican Well Service Ltd; and CGG Veritas.

Figure 5.4.6.1
Size and location of business establishments, 2011



5.4.6 Calgary Oil & Gas

Figure 5.4.6.2
Labour force demographics, 2011

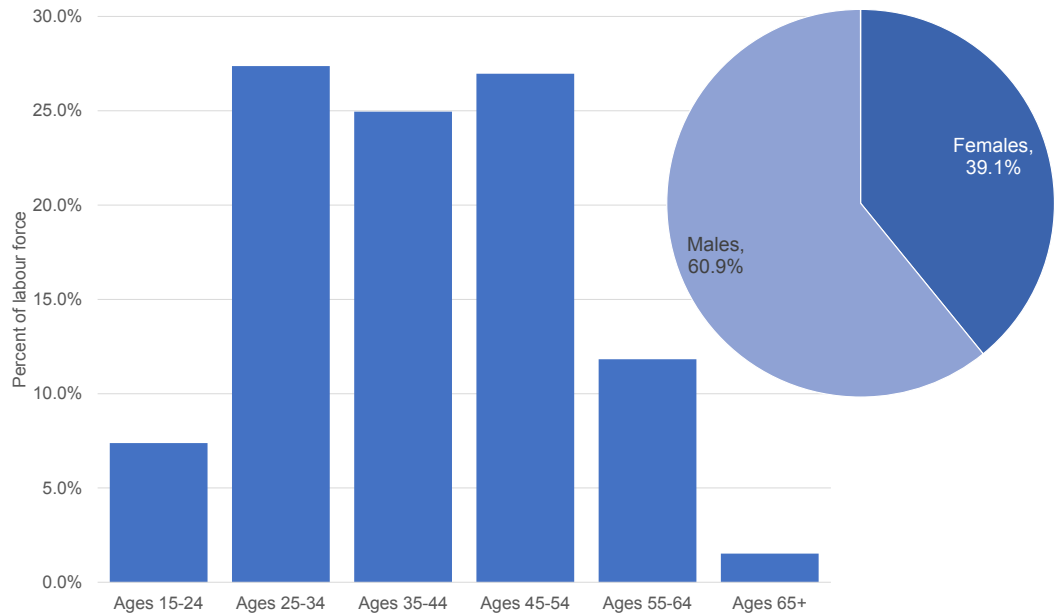


Figure 5.4.6.3
Educational attainment of labour force, 2011

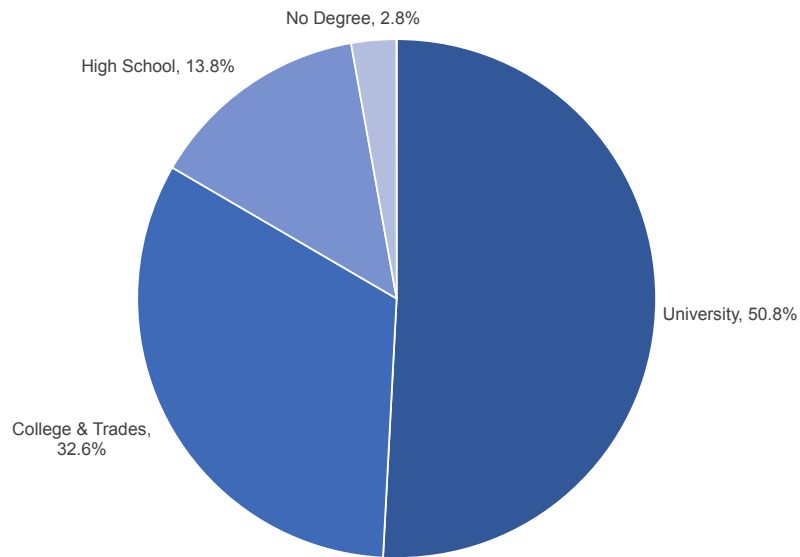
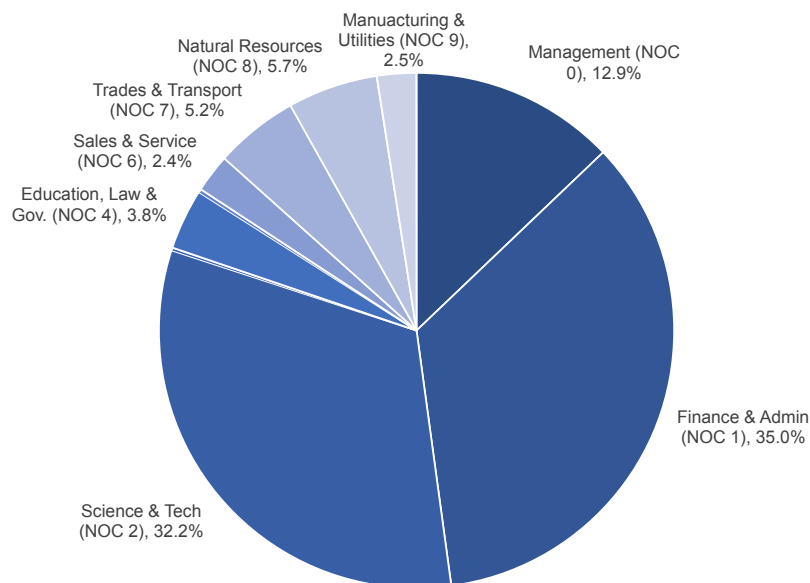


Figure 5.4.6.4
Occupational structure of labour force, 2011



5.4.7 Calgary Logistics

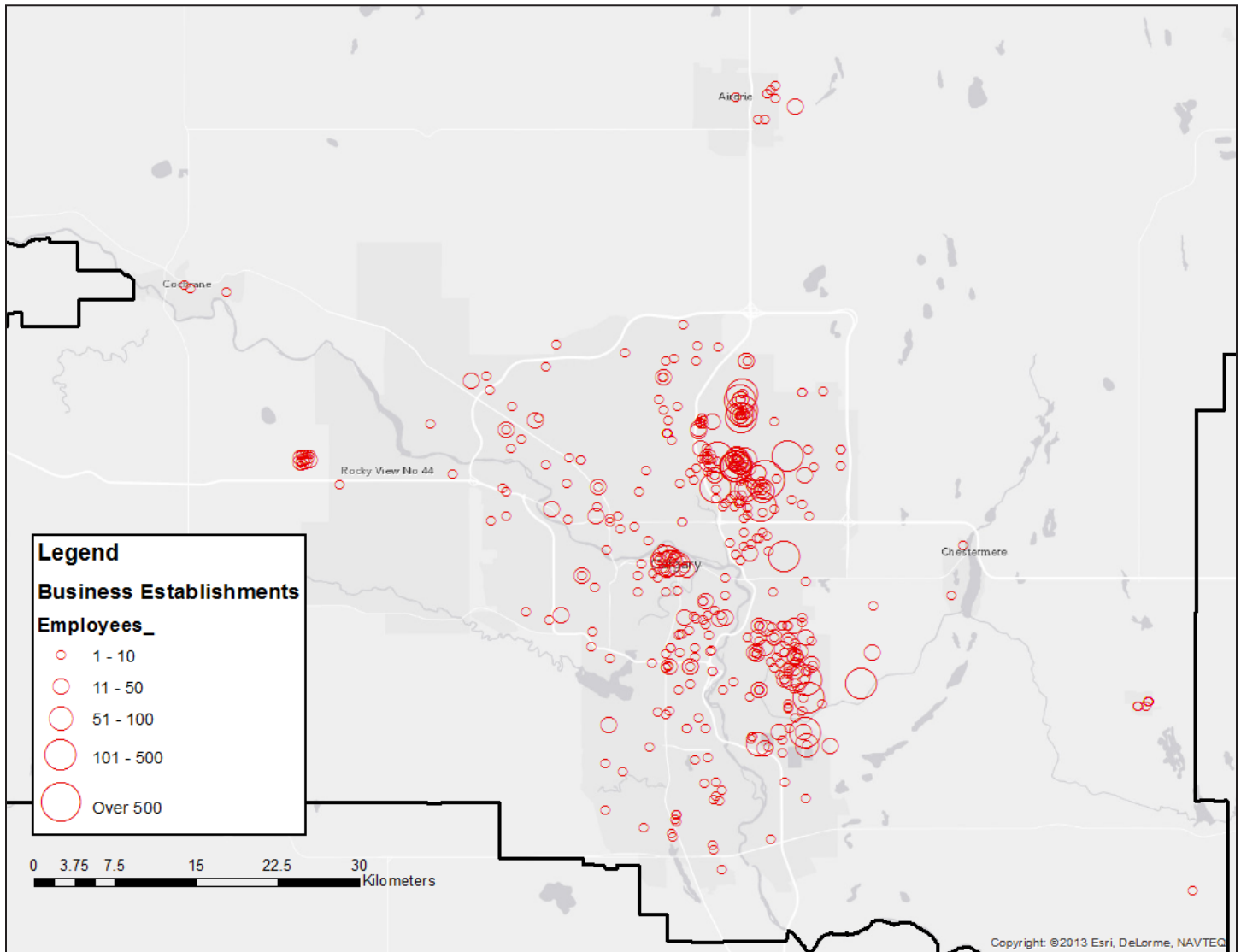
The logistics cluster in Calgary employed 40,817 people in 2011. This made Calgary the 4th largest logistics cluster in Canada (out of 10). Between 2001 and 2011 employment increased by 16.7%. The labour force was 65.4% male and 34.6% female. 40.3% of the labour force was over the age of 44.

In 2011 55.2% of the cluster labour force held post-secondary qualifications with 20.8% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Calgary logistics cluster was \$66,133 per year. This ranked the cluster 3rd out of 10 logistics clusters in Canada.

In 2011 Dun & Bradstreet identified 541 business establishments in the Calgary logistics cluster. The average establishment size was 17 employees. The largest firms in core logistics industries in 2011 included: SCM Supply Chain Management Inc; Sears Canada Inc; HBC Logistics; Borek Kenn Air Ltd; Sunwest Aviation Ltd; Bison Transport Inc; Canada Safeway Limited; Horizon North Logistics Inc; Borek Kenn Air Ltd; Avmax Group Inc; United Parcel Service Canada Ltd; and Matrix Logistics Services Limited.

Figure 5.4.7.1
Size and location of business establishments, 2011



5.4.7 Calgary Logistics

Figure 5.4.7.2
Labour force demographics, 2011

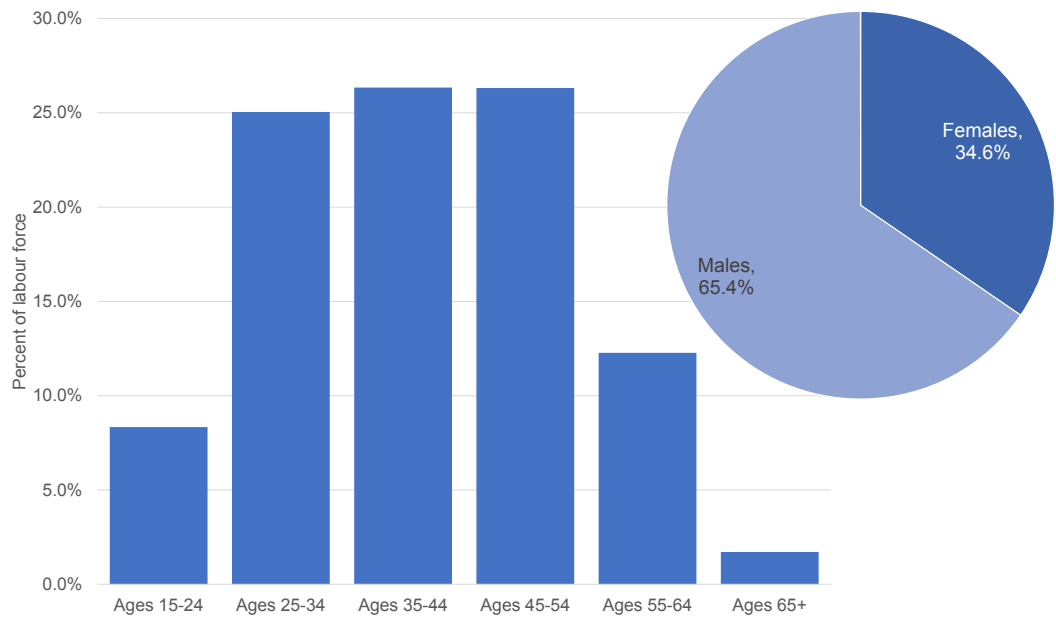


Figure 5.4.7.3
Educational attainment of labour force, 2011

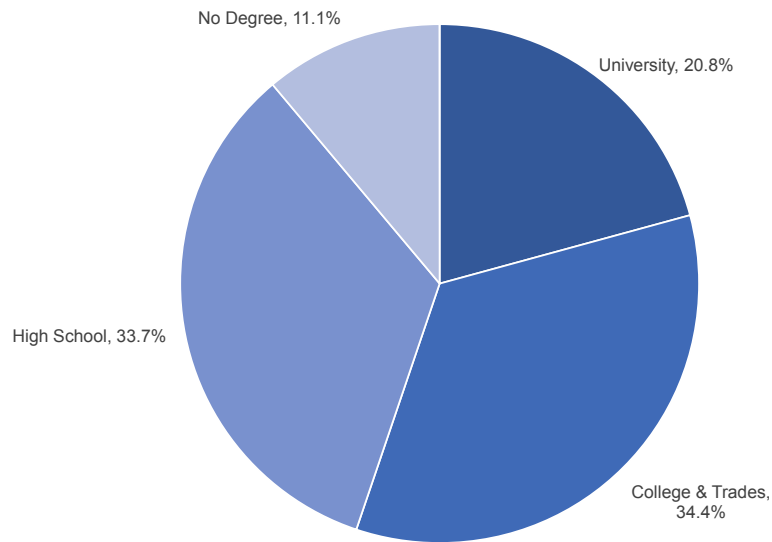
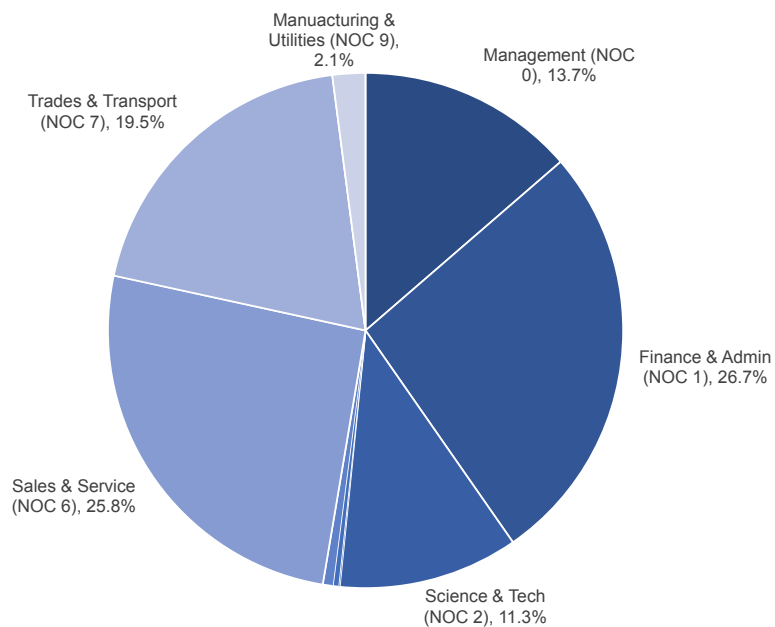


Figure 5.4.7.4
Occupational structure of labour force, 2011



5.5 British Columbia

The British Columbia economy is characterized by many resource clusters as well as a strong set of service clusters. Forestry & wood clusters are plentiful with 11 cases. Unfortunately, all 11 experienced employment declines between 2001 and 2011. Trade issues particularly with the United States as well in slumping demand from the housing crash are likely key reasons for these problems. BC also has four maritime clusters (includes fishing), two agriculture, two mining, and one oil & gas. Construction is also prominent with 11 clusters in the province. This is likely largely due to housing demand driven by population gains.

The only manufacturing clusters in British Columbia are two in food & beverage (Abbotsford-Mission and Vancouver) and one life sciences (Vancouver). All of these clusters have shown strong growth over the 2001 to 2011 time period. The general lack of manufacturing clusters in the province is a sign of the limited industrial history. There are likely some emerging technologies such as fuel cells and other environmental technologies that do not yet show up in the data due to the legacy of the industrial classifications systems.

British Columbia possesses eight service clusters, five of which are located in Vancouver. There are also higher education clusters in Victoria and Nanaimo which have grown at very high rates. Victoria additionally is home to a business services cluster that grew by 30% between 2001 and 2011. All five types of service clusters are found in Vancouver. Each of these clusters employ at least 50,000 people and have grown by substantial amounts of the ten year period. As with other large cities, maintaining liveability is an important factor to these clusters as they are essentially driven by human capital. A serious concern for Vancouver

is affordability which may crimp its ability to attract and retain younger workers.

Table 5.5.1

British Columbia clusters and key indicators

City Region	Prov	Cluster Type	Employment 2011	Employment Change 2001-2011	Average Annual FT Income
Abbotsford - Mission	BC	Agriculture	8,027	-5.0%	\$45,239
Chilliwack	BC	Agriculture	3,191	1.6%	\$44,155
Vancouver	BC	Life Sciences	11,910	34.8%	\$63,727
Vancouver	BC	Business Services	155,022	38.0%	\$74,328
Victoria	BC	Business Services	22,334	30.8%	\$67,368
Abbotsford - Mission	BC	Construction	4,139	62.3%	\$53,930
Chilliwack	BC	Construction	1,927	98.6%	\$47,976
Courtenay	BC	Construction	1,375	120.0%	\$51,668
Kamloops	BC	Construction	2,314	52.3%	\$59,965
Kelowna	BC	Construction	5,981	86.3%	\$58,642
Nanaimo	BC	Construction	2,468	82.8%	\$53,246
Penticton	BC	Construction	1,083	76.0%	\$45,313
Prince George	BC	Construction	1,959	30.6%	\$59,979
Vancouver	BC	Construction	64,446	53.6%	\$72,282
Vernon	BC	Construction	1,368	68.9%	\$50,286
Victoria	BC	Construction	8,034	44.5%	\$63,822
Vancouver	BC	Creative & Cultural	67,916	35.3%	\$57,927
Vancouver	BC	Finance	95,557	26.2%	\$76,962
Abbotsford - Mission	BC	Food & Beverage	2,885	47.5%	\$48,499
Vancouver	BC	Food & Beverage	39,271	21.0%	\$51,362
Abbotsford - Mission	BC	Forestry & Wood	2,288	-38.5%	\$57,964
Campbell River	BC	Forestry & Wood	1,187	-56.9%	\$67,112
Chilliwack	BC	Forestry & Wood	1,016	-31.3%	\$60,175
Duncan	BC	Forestry & Wood	1,230	-47.8%	\$70,520
Kamloops	BC	Forestry & Wood	1,748	-30.8%	\$68,881
Kelowna	BC	Forestry & Wood	2,136	-16.7%	\$67,597
Nanaimo	BC	Forestry & Wood	1,350	-43.9%	\$67,048
Prince George	BC	Forestry & Wood	4,504	-34.7%	\$75,838
Quesnel	BC	Forestry & Wood	2,951	-10.6%	\$69,931
Vernon	BC	Forestry & Wood	1,287	-11.6%	\$79,340
Williams Lake	BC	Forestry & Wood	1,507	-52.2%	\$65,643
Nanaimo	BC	Higher Education	2,075	273.9%	\$65,032
Vancouver	BC	Higher Education	58,301	62.4%	\$68,251
Victoria	BC	Higher Education	9,862	44.7%	\$65,519
Vancouver	BC	ICT Services	78,231	29.8%	\$72,196
Vancouver	BC	Logistics	81,261	4.8%	\$62,567
Nanaimo	BC	Maritime	1,300	1.1%	\$59,697
Prince Rupert	BC	Maritime	1,245	-6.4%	\$69,786
Vancouver	BC	Maritime	12,390	-14.3%	\$66,637
Victoria	BC	Maritime	3,621	-5.9%	\$59,879
Kamloops	BC	Mining	2,749	53.2%	\$87,653
Prince George	BC	Mining	1,356	12.6%	\$73,617
Fort St. John	BC	Oil & Gas	2,670	88.7%	\$95,575

5.5.1 Prince George Forestry & Wood

The forestry & wood cluster in Prince George employed 4,504 people in 2011. This made Prince George the largest forestry & wood cluster in Canada (out of 18). Between 2001 and 2011 employment decreased by 34.7%. The labour force was 87.3% male and 12.7% female. 51.8% of the labour force was over the age of 44.

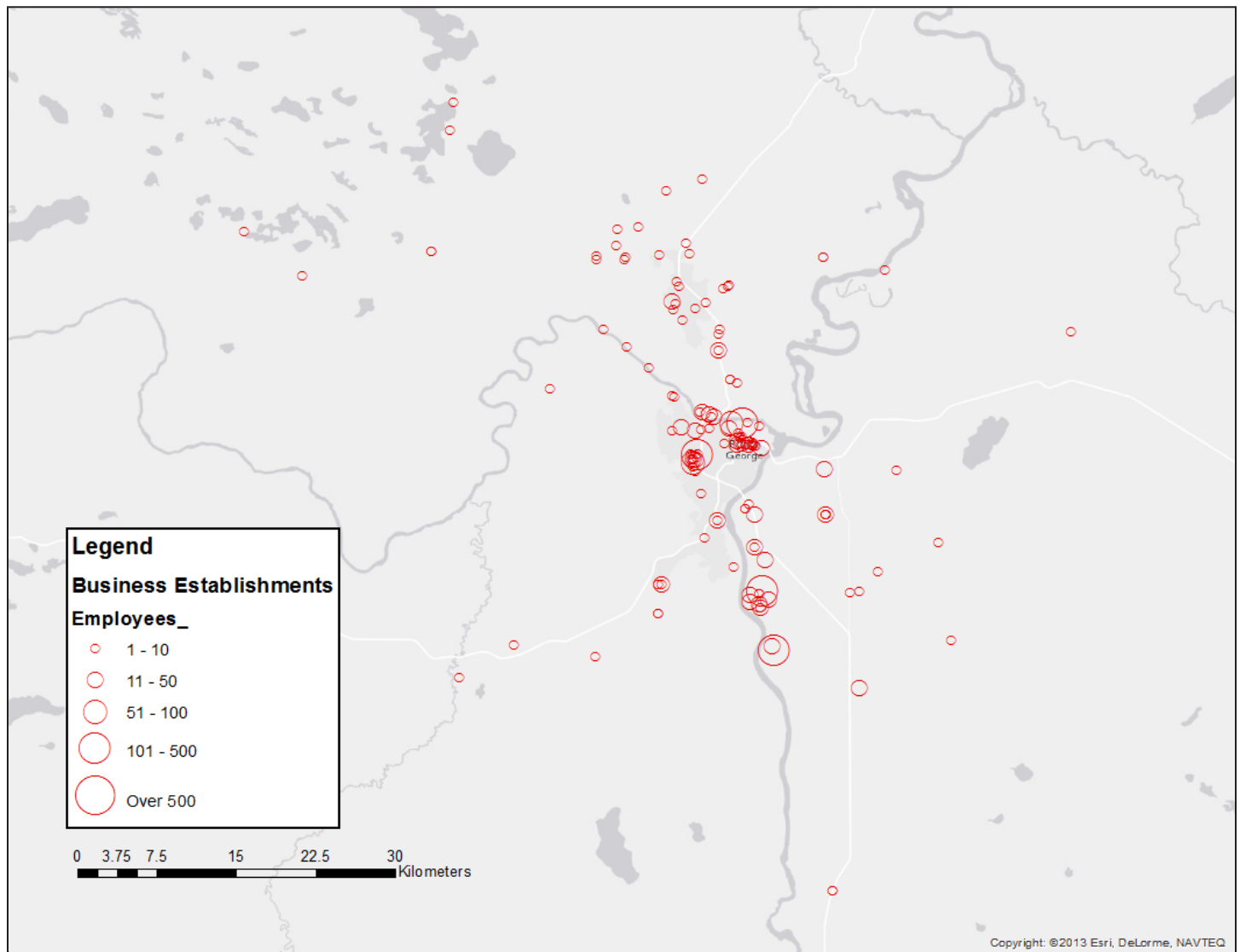
In 2011 49.5% of the cluster labour force held post-secondary qualifications with 10.7% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Prince George forestry & wood cluster was \$75,838 per year. This

ranked the cluster 3rd out of 18 forestry & wood clusters in Canada.

In 2011 Dun & Bradstreet identified 144 business establishments in the Prince George forestry & wood cluster. The average establishment size was 16 employees. The largest firms in core forestry & wood industries in 2011 included: Canadian Forest Products Ltd; Carrier Forest Products Ltd; Winton Global Lumber Ltd; Brink Forest Products Ltd; Parallel Wood Products Ltd; Northwest Wood Preservers Ltd; Industrial Forestry Service Ltd; Dollar Saver Lumber Ltd; Warmac Ventures Ltd; Spruce Capital Homes Ltd; and Frost Lake Logging Ltd.

Figure 5.5.1.1
Size and location of business establishments, 2011



5.5.1 Prince George Forestry & Wood

Figure 5.5.1.2
Labour force demographics, 2011

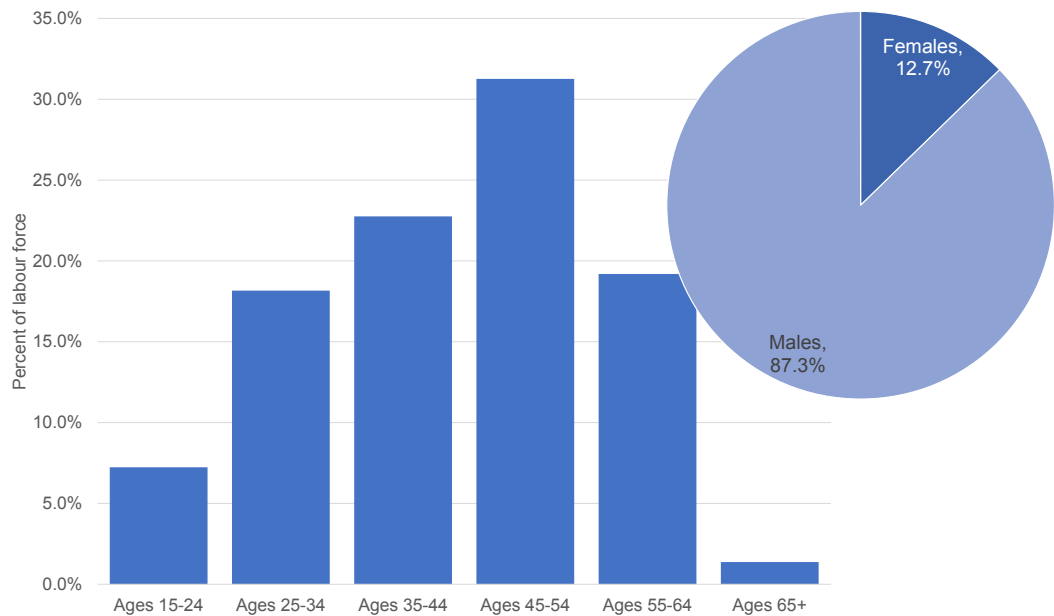


Figure 5.5.1.3
Educational attainment of labour force, 2011

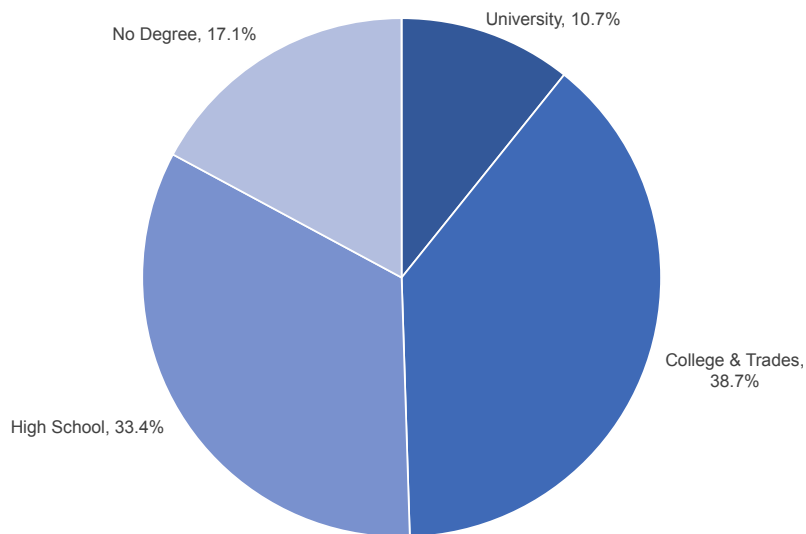
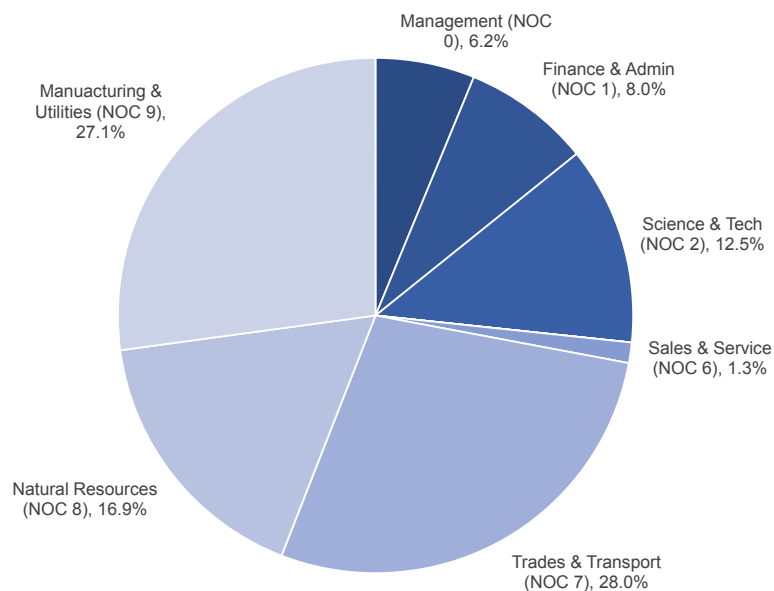


Figure 5.5.1.4
Occupational structure of labour force, 2011



5.5.2 Abbotsford - Mission Food & Beverage

The food & beverage cluster in Abbotsford - Mission employed 2,885 people in 2011. This made Abbotsford - Mission the 9th largest food & beverage cluster in Canada (out of 15). Between 2001 and 2011 employment increased by 47.5%. The labour force was 62.6% male and 37.4% female. 31.9% of the labour force was over the age of 44.

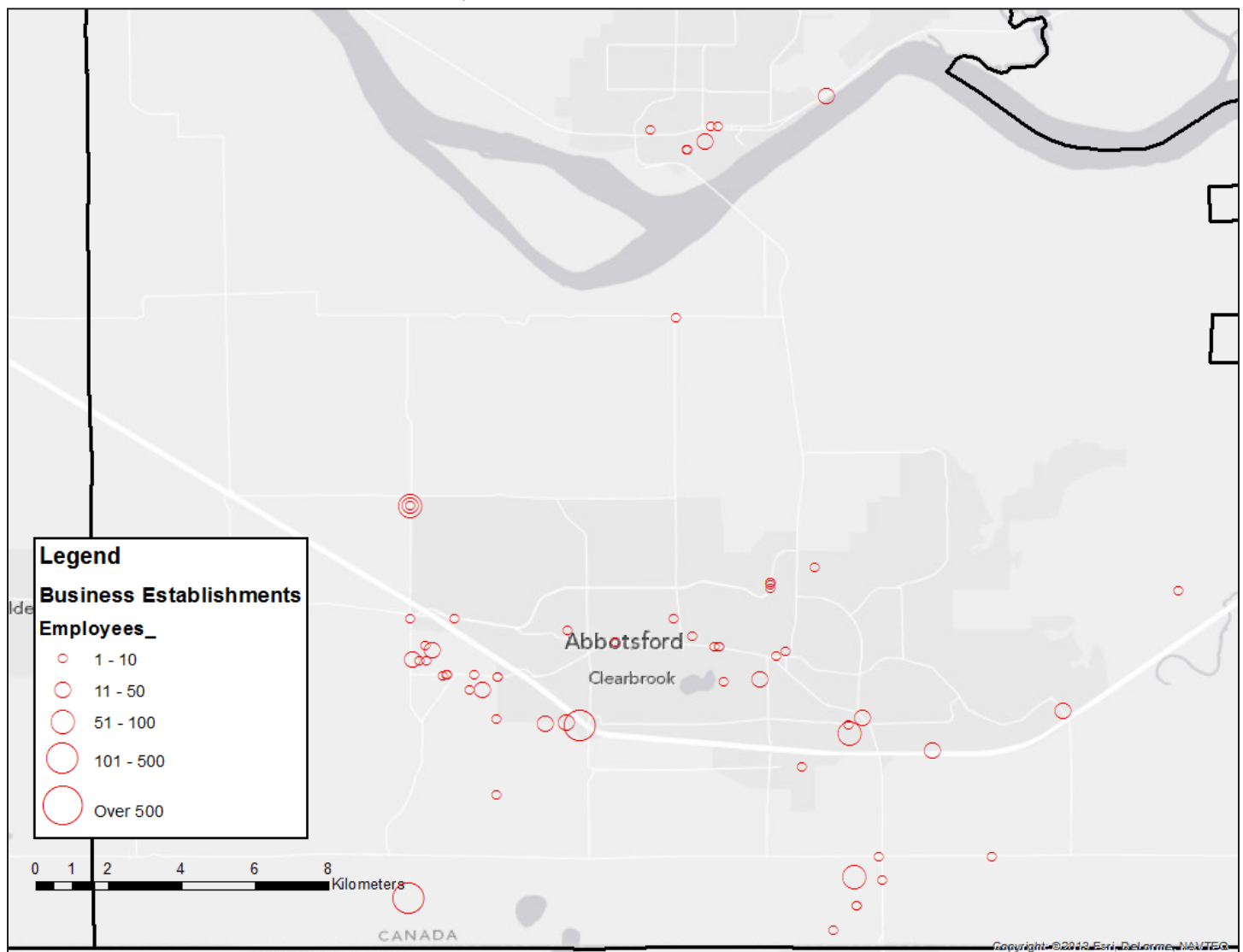
In 2011 37.3% of the cluster labour force held post-secondary qualifications with 10.3% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Abbotsford - Mission food & beverage cluster was \$48,499 per year. This

ranked the cluster 6th out of 15 food & beverage clusters in Canada.

In 2011 Dun & Bradstreet identified 64 business establishments in the Abbotsford - Mission food & beverage cluster. The average establishment size was 16 employees. The largest firms in core food & beverage industries in 2011 included: Lilydale Inc; A & P Fruit Growers Ltd; Vanderpol's Eggs Ltd; Omstead Foods Limited; Valley Berries Inc; I & G Bismarkating Ltd; Klassic Catering Ltd; Smith E.D. Foods Ltd; Anglo American Cedar Products Ltd; and B.C. Frozen Foods Ltd.

Figure 5.5.2.1
Size and location of business establishments, 2011



5.5.2 Abbotsford - Mission Food & Beverage

Figure 5.5.2.2
Labour force demographics, 2011

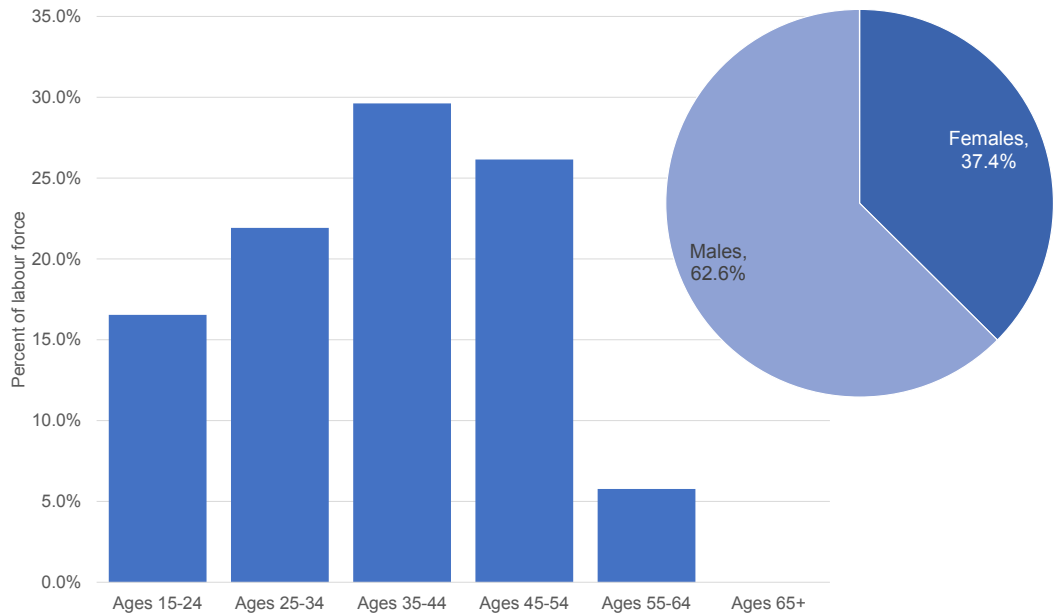


Figure 5.5.2.3
Educational attainment of labour force, 2011

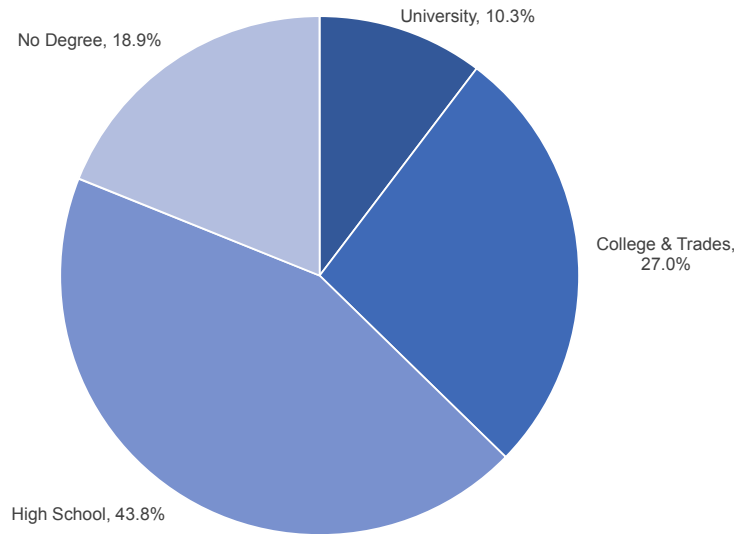
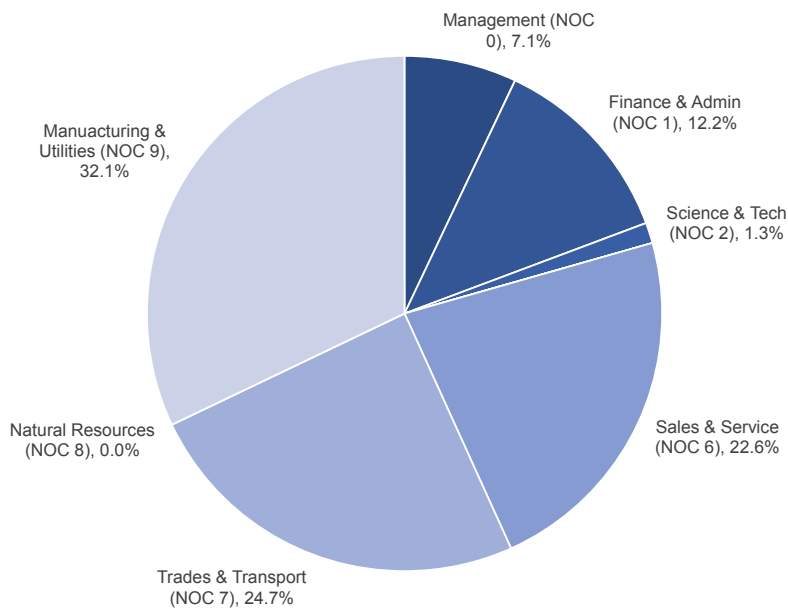


Figure 5.5.2.4
Occupational structure of labour force, 2011



5.5.3 Victoria Business Services

The business services cluster in Victoria employed 22,334 people in 2011. This made Victoria the 7th largest business services cluster in Canada (out of 10). Between 2001 and 2011 employment increased by 30.8%. The labour force was 56.3% male and 43.7% female. 51.0% of the labour force was over the age of 44.

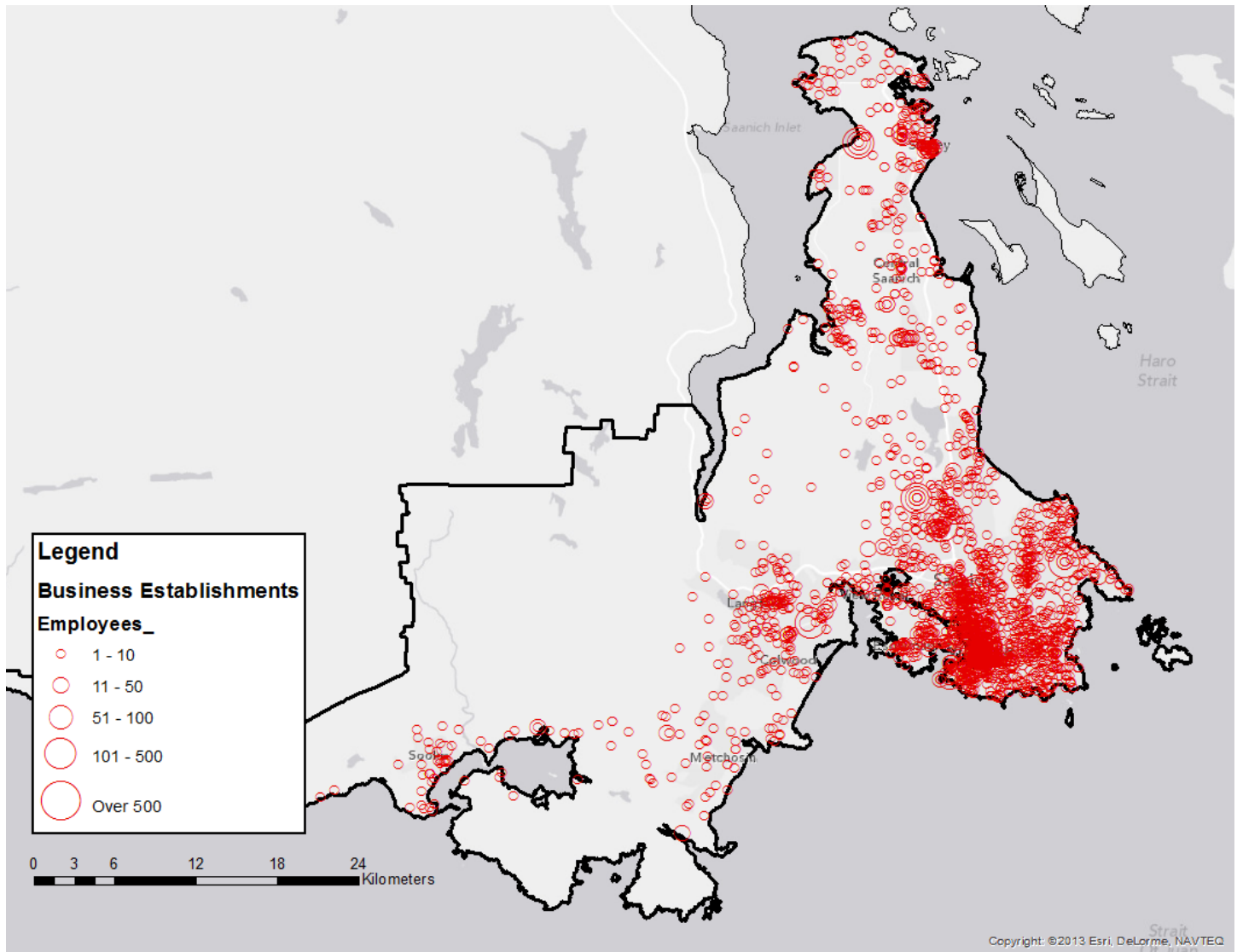
In 2011 81.3% of the cluster labour force held post-secondary qualifications with 54.1% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Victoria business services cluster was \$67,368 per year. This ranked the cluster 6th out of 10 business services clusters in Canada.

ters in Canada.

In 2011 Dun & Bradstreet identified 2,779 business establishments in the Victoria business services cluster. The average establishment size was 8 employees. The largest firms in core business services industries in 2011 included: The Canadian Corps Of Commissioners National Off; The Land Conservancy Enterprise Ltd; Agropur Cooperative; A.R.C. Accounts Recovery Corporation; HP Advanced Solutions Inc; Sierra Systems Group Inc; Land Title & Survey Authority of British Columbia; Paretologic Inc; Total Delivery Systems Inc; Rai Enterprise Ltd A; Devon Properties Ltd; Coast Forest Management Ltd; and Axyx Analytical Services Ltd.

Figure 5.5.3.1
Size and location of business establishments, 2011



5.5.3 Victoria Business Services

Figure 5.5.3.2
Labour force demographics, 2011

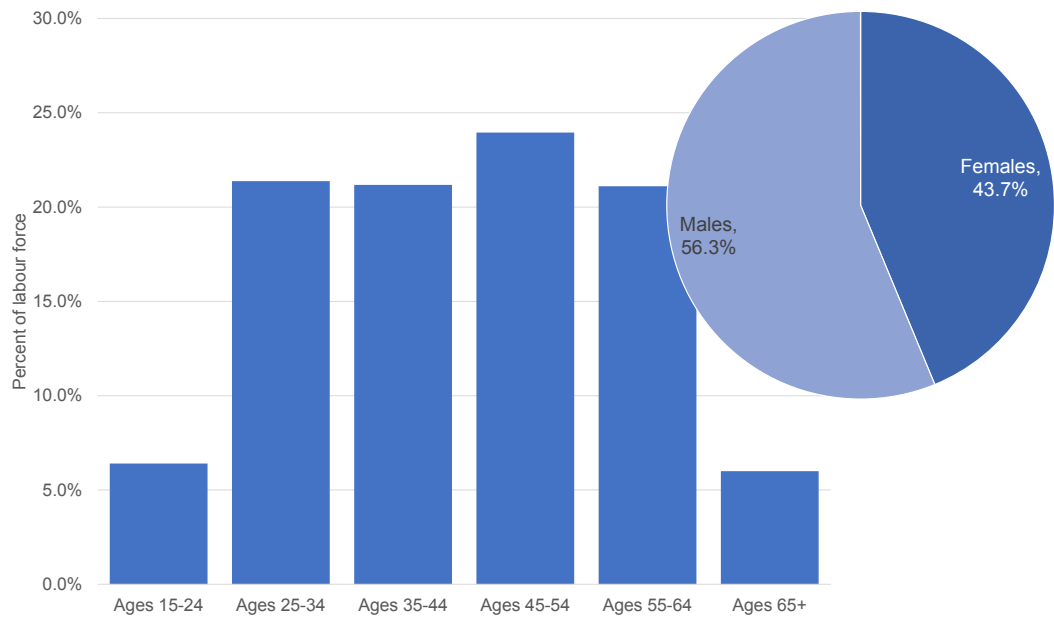


Figure 5.5.3.3
Educational attainment of labour force, 2011

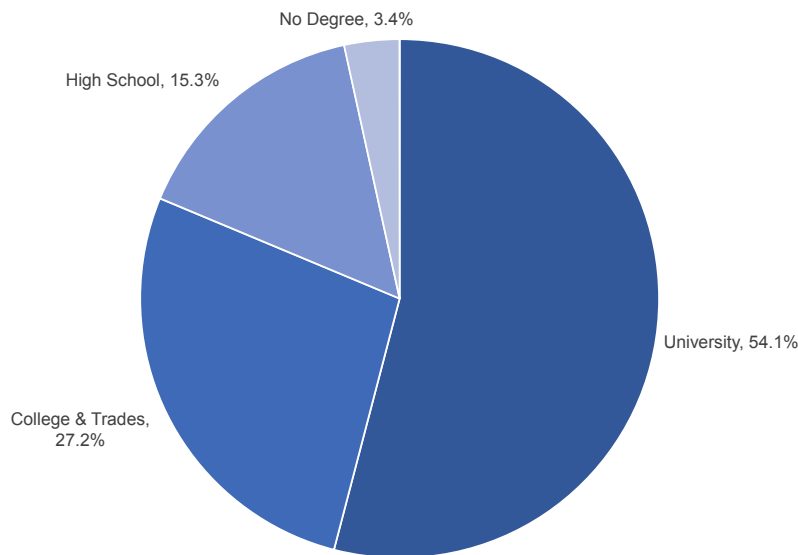
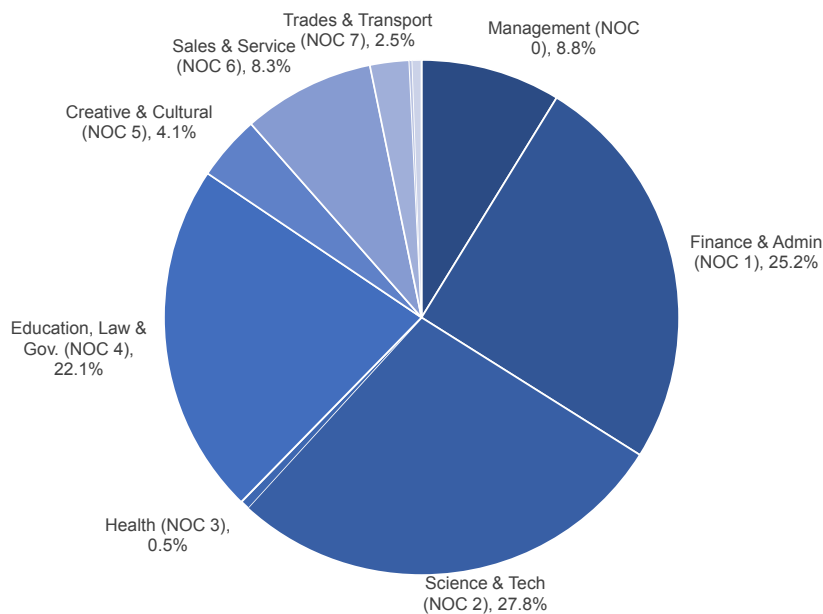


Figure 5.5.3.4
Occupational structure of labour force, 2011



5.5.4 Vancouver ICT Services

The ICT services cluster in Vancouver employed 78,231 people in 2011. This made Vancouver the 3rd largest ICT services cluster in Canada (out of 7). Between 2001 and 2011 employment increased by 29.8%. The labour force was 62.2% male and 37.8% female. 35.2% of the labour force was over the age of 44.

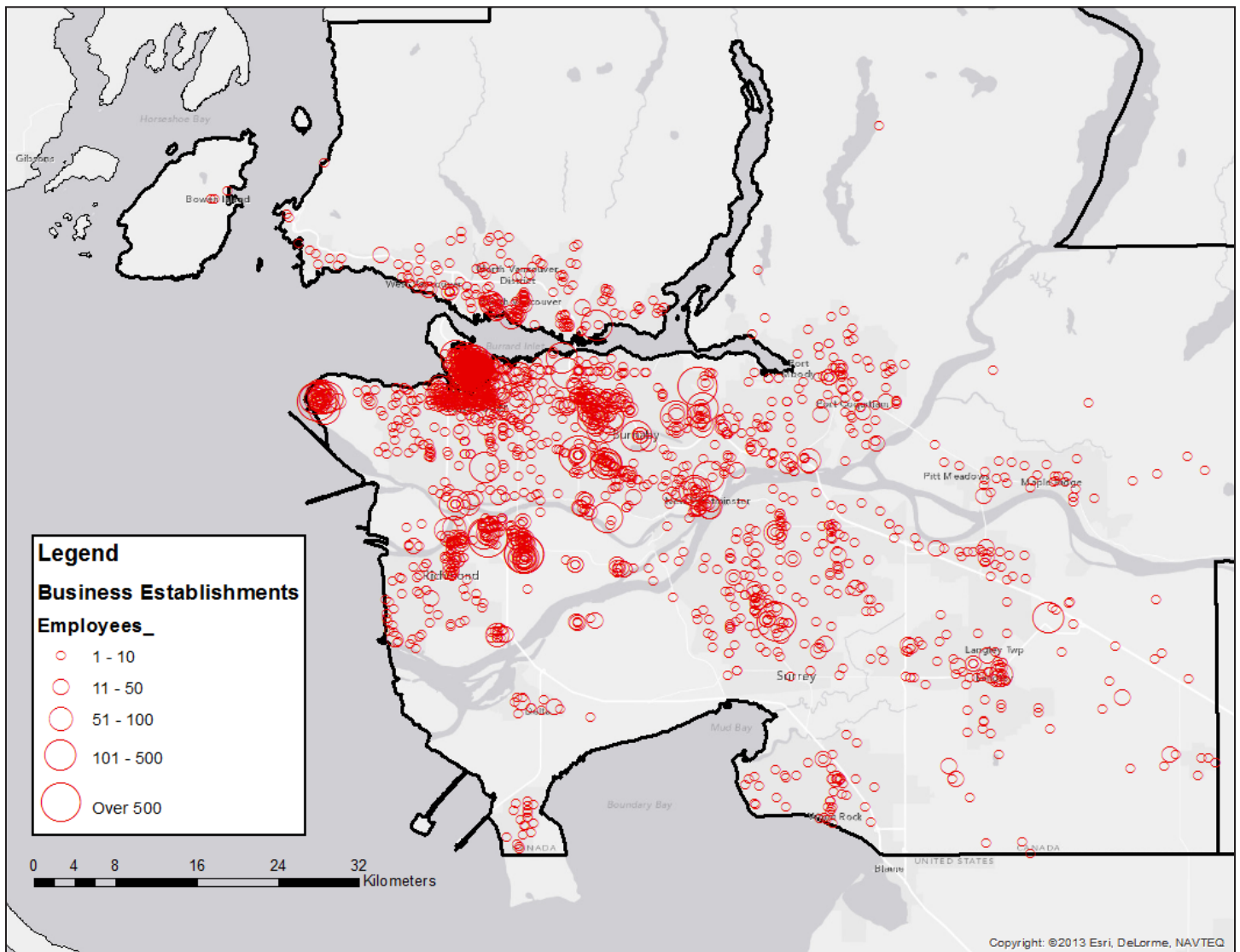
In 2011 83.6% of the cluster labour force held post-secondary qualifications with 56.4% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Vancouver ICT services cluster was \$72,196 per year. This ranked the

cluster 4th out of 7 ICT services clusters in Canada.

In 2011 Dun & Bradstreet identified 2,567 business establishments in the Vancouver ICT services cluster. The average establishment size was 21 employees. The largest firms in core ICT services industries in 2011 included: TELUS Communications Inc; Business Objects Corp; MDA Systems Ltd; MacDonald Dettwiler And Associates Ltd; McKesson Medical Imaging Company; NAV Canada; Rogers Cable Communications Inc; and E-Comm Emergency Communications.

Figure 5.5.4.1
Size and location of business establishments, 2011



5.5.4 Vancouver ICT Services

Figure 5.5.4.2
Labour force demographics, 2011

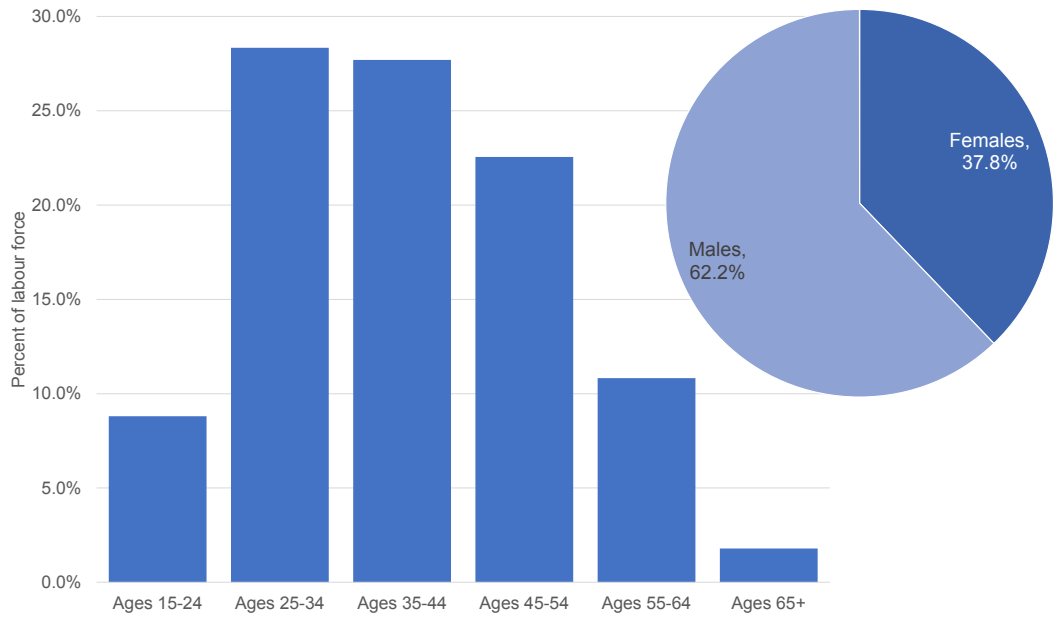


Figure 5.5.4.3
Educational attainment of labour force, 2011

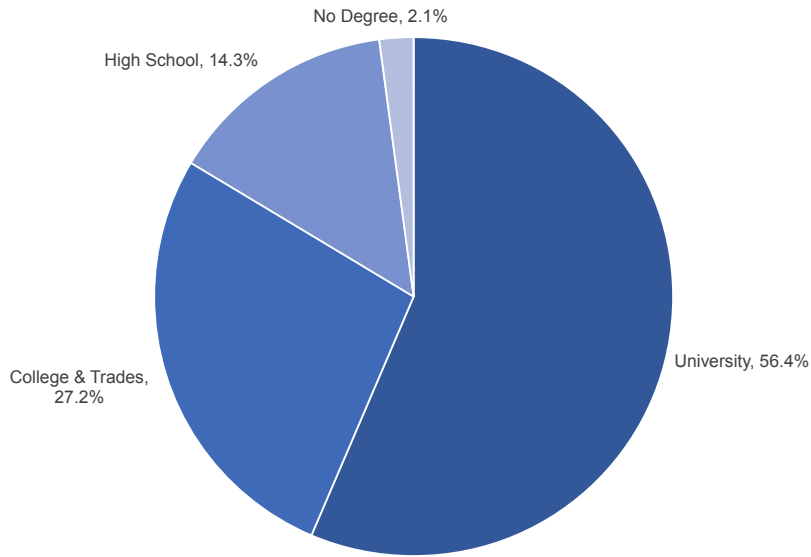
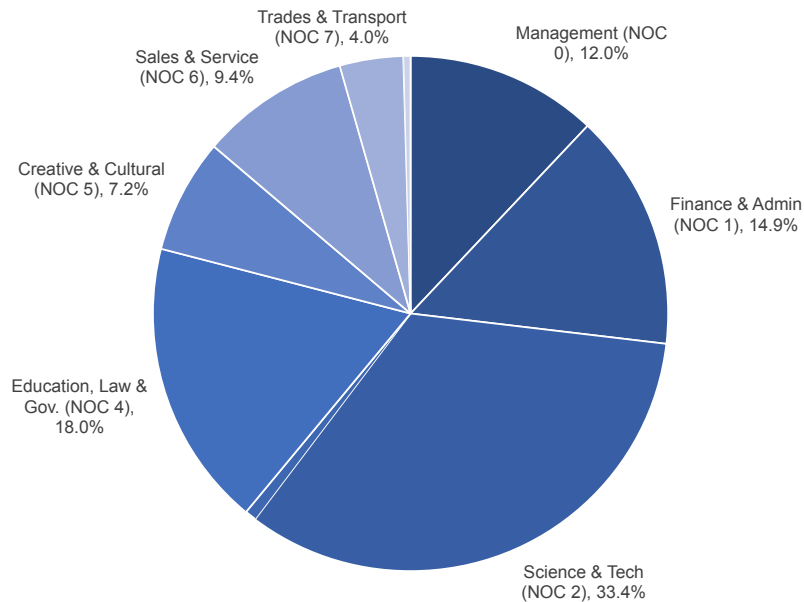


Figure 5.5.4.4
Occupational structure of labour force, 2011



5.5.5 Vancouver Creative & Cultural

The creative & cultural cluster in Vancouver employed 67,916 people in 2011. This made Vancouver the 3rd largest creative & cultural cluster in Canada (out of 3). Between 2001 and 2011 employment increased by 35.3%. The labour force was 52.6% male and 47.4% female. 36.3% of the labour force was over the age of 44.

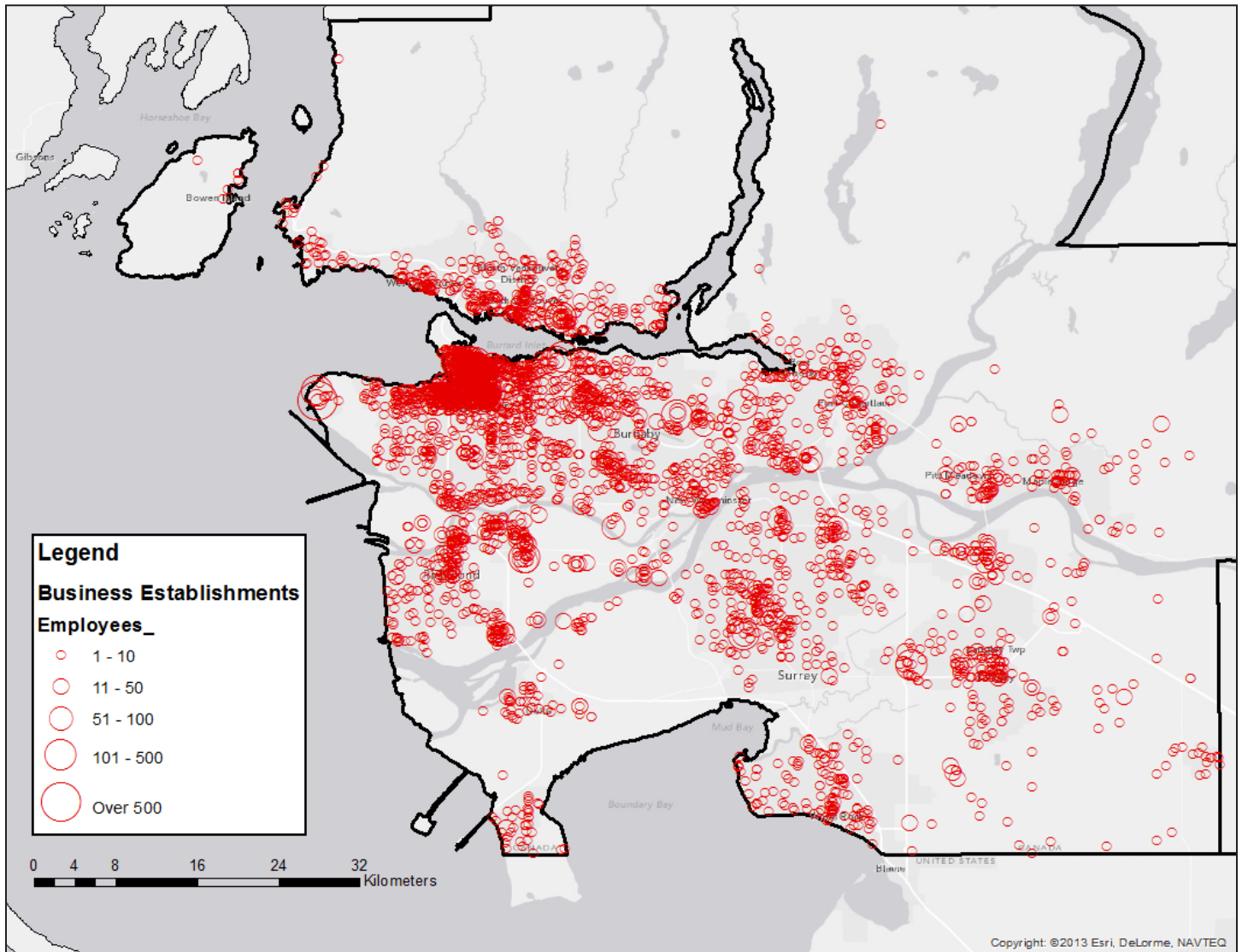
In 2011 74.5% of the cluster labour force held post-secondary qualifications with 41.3% having a university degree.

According to the 2011 NHS the average full-time employment income for individuals working in the Vancouver creative & cultural cluster was \$57,927 per year. This ranked the cluster 2nd out of 3 creative & cultural clusters in Canada.

ters in Canada.

In 2011 Dun & Bradstreet identified 4,601 business establishments in the Vancouver creative & cultural cluster. The average establishment size was 7 employees. The largest firms in core creative & cultural industries in 2011 included: Canadian Broadcasting Corporation; B.C. Pavilion Corporation; Hannah-Rachel Production Services Limited; Hastings Entertainment Inc; Grosvenor Park Impact Productions Inc; Orangeville Raceway Limited; Canadian Tourism Commission Fincentric Corporation; Mainframe Entertainment Inc; Postmedia Network Inc; Rainmaker Entertainment Inc; Pegasus Productions V Inc; Black Street Productions Ltd; and CTV Inc.

Figure 5.5.1
Size and location of business establishments, 2011



5.5.5 Vancouver Creative & Cultural

Figure 5.5.2
Labour force demographics, 2011

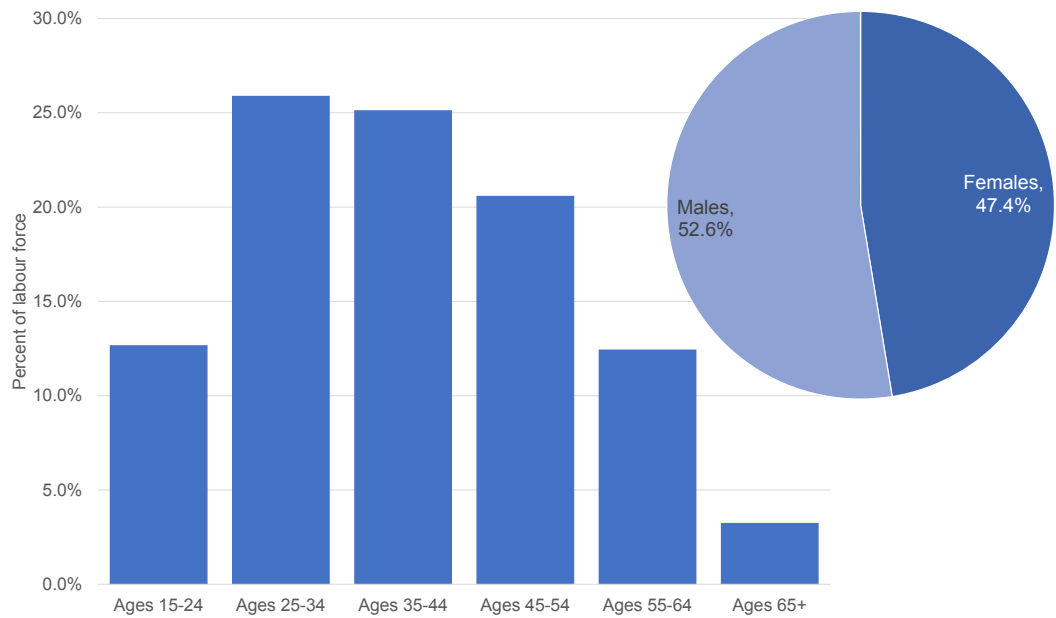


Figure 5.5.3
Educational attainment of labour force, 2011

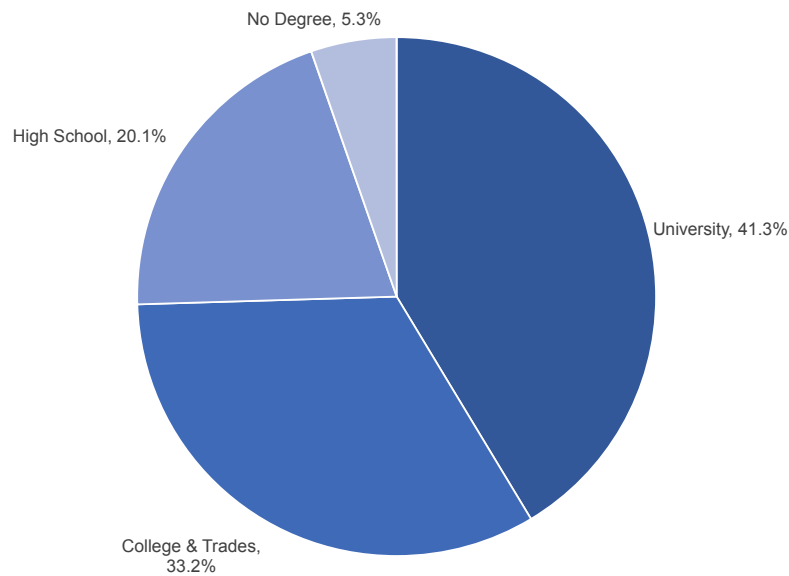
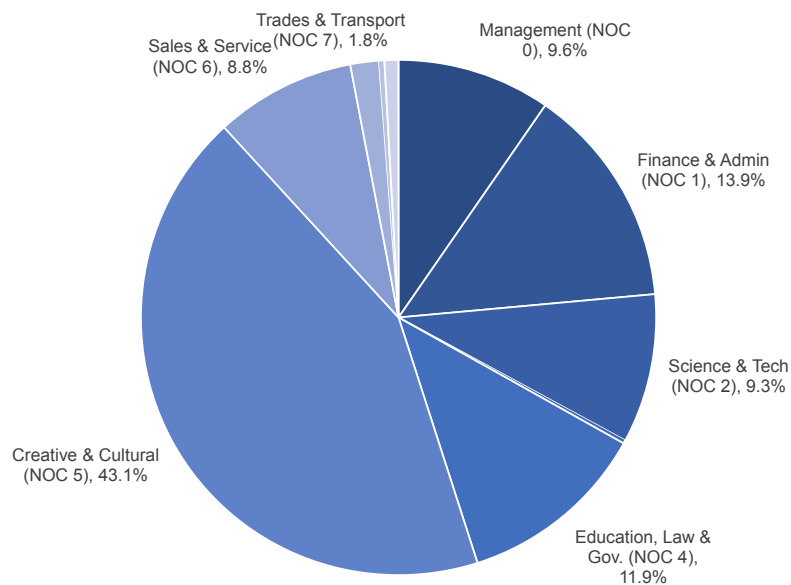


Figure 5.5.4
Occupational structure of labour force, 2011



6.0 Discussion & Conclusions

This report provides a comprehensive overview of what industries are performing well and specifically where they are performing well in Canada. Pockets of strength and weakness are evident within the national economy and national geography. The information presented allows for a sober view on where strategic investments are needed and where they may be most impactful. That being said there are some dilemmas that become evident when looking at the bigger trends. In particular, the 2001 to 2011 period was very difficult for manufacturing and some resource sectors such as forestry and wood. There are numerous reasons for this, namely the rise in the value of the Canadian dollar, stronger global competition, and generally poor performance on innovation.

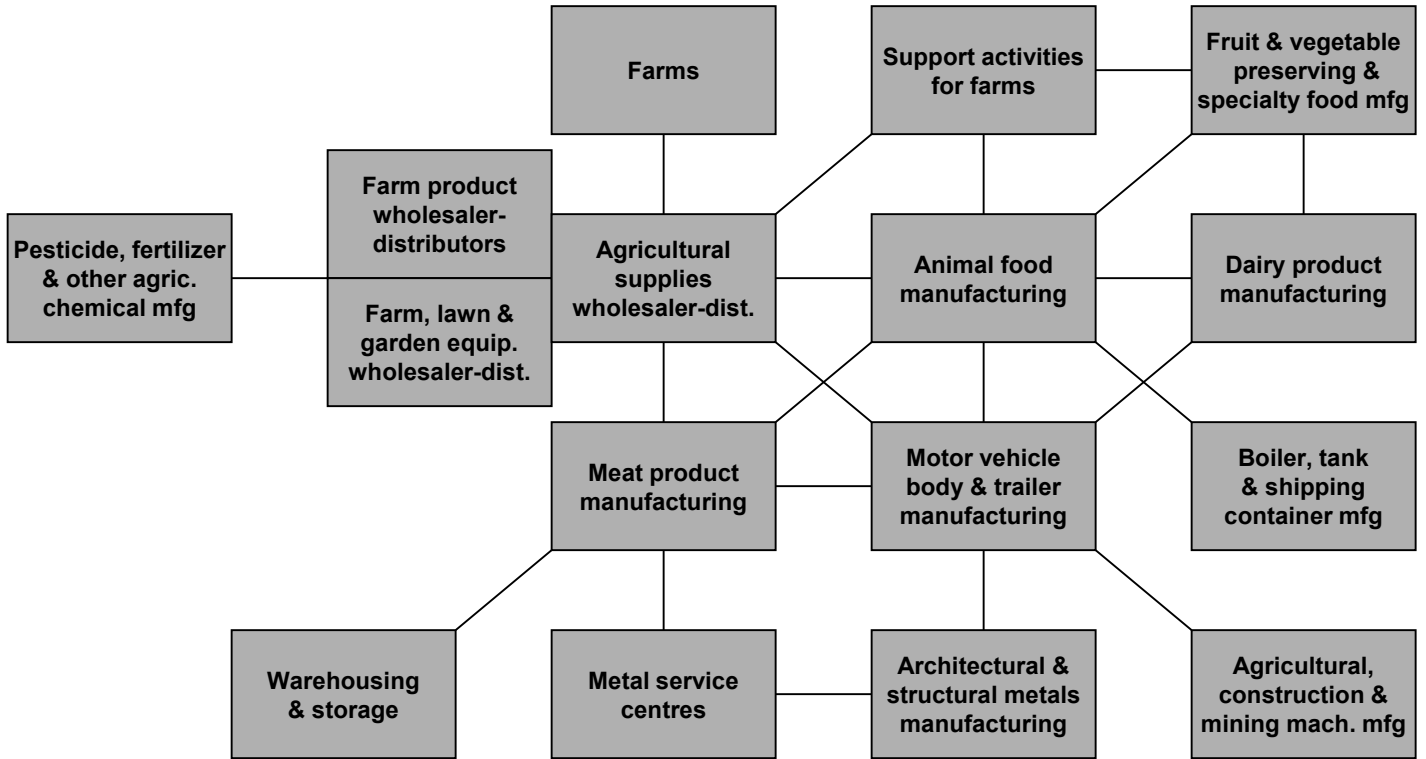
This generalized decline is a problem in its outright, but also one that is compounded by geography. The significant declines in traditional manufacturing and resource sectors has meant significant decline for communities that depend on them. These communities tend to be smaller and mid-sized cities that are often highly specialized in certain economic activities. The decline of these industries is only half of the problem. There has been very strong employment growth in service industries and some resource sectors such as oil & gas and mining. While the latter are wedded to certain locations for obvious reasons, the former provide hope that jobs can be created that replace the ones lost in other parts of the economy. The issue with this however is that the rapid growth in services is occurring disproportionately in the largest urban centres. There are different reasons why clusters exist where they do. Some are more cost sensitive, some depend on specific infrastructure, access to markets matters more to

some, as does economies of scale and networks. It is important to consider that certain clusters may be in decline due to a change in demand (e.g. coal mining and certain forestry clusters), increased global competition, or difficulties with attracting new younger workers. Further research is needed to better understand these complex dynamics in order to develop effective policies that can balance the goals of maximizing aggregate growth with those that are geared to distributing growth across all parts of the country.

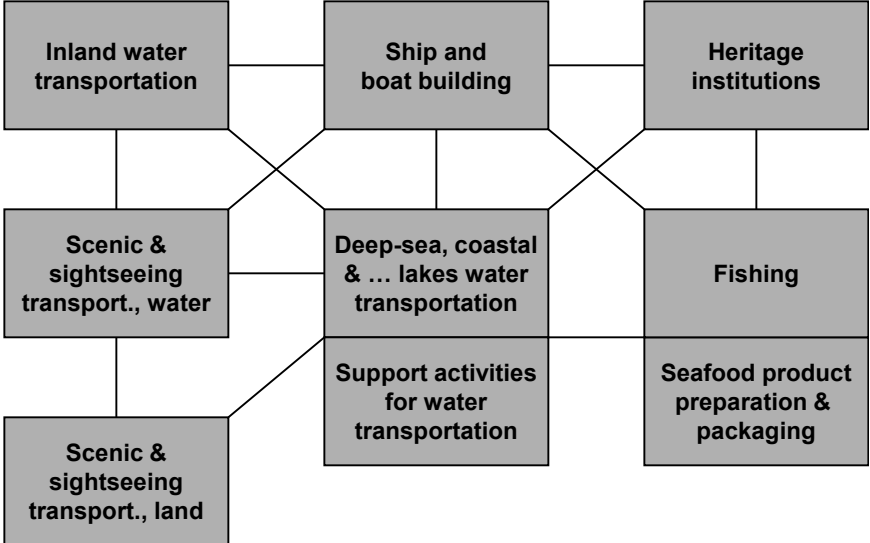
Current areas of strength are mainly the aforementioned service based clusters as well as oil & gas and mining. Support for the former largely depends on ensuring that the larger urban areas are well functioning, highly liveable, and affordable. Urban transportation systems and housing costs have been recent key issues for such places. With oil & gas and mining public support is needed in achieving physical access to markets. Transportation investments including ports and pipelines are key. These are the relatively straightforward interventions, more difficult decisions lie with many manufacturing clusters. While innovation is essential across the entire spectrum of economic sectors, it is arguably most important in manufacturing. Furthermore, the knowledge intensive clusters such as ICT and life sciences receive a substantial amount of attention in this area, but it is the next tier of industries that may be most crucial. Areas such as auto manufacturing, steel, aluminum, and other materials are under heavy pressure from global competition that have a significant cost element. Long-term local industrial change in many clusters shows that there is a trend away from manufacturing employment. This raises the potential for deindustrialization and growing disparity in regional economies that de-

pend on such industries. Some regional economies, particularly in Ontario and Quebec that rely on traditional manufacturing industries could face important challenges in rejuvenating themselves. Thus, effective innovation policies must be put in place in order to increase the chances of longer term prosperity, not just for the industries but for the communities as a whole. This does not necessarily mean trying to maintain what currently exists but also finding ways to evolve to new and emerging technologies while building clusters of whole new industries. Overall, a balance needs to be struck between supporting clusters that are clearly drivers of growth and those that need assistance in order to provide sustainable foundations for communities in the future.

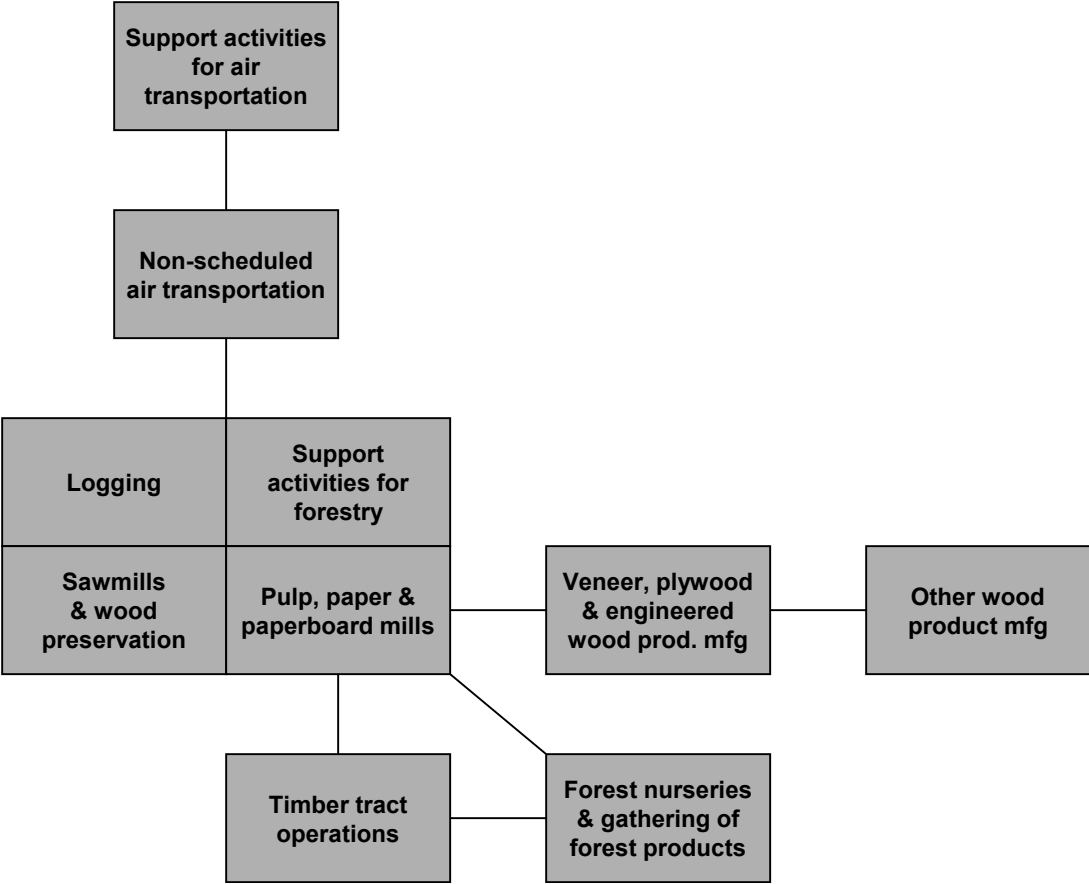
Appendix A - Cluster Definitions - Agriculture



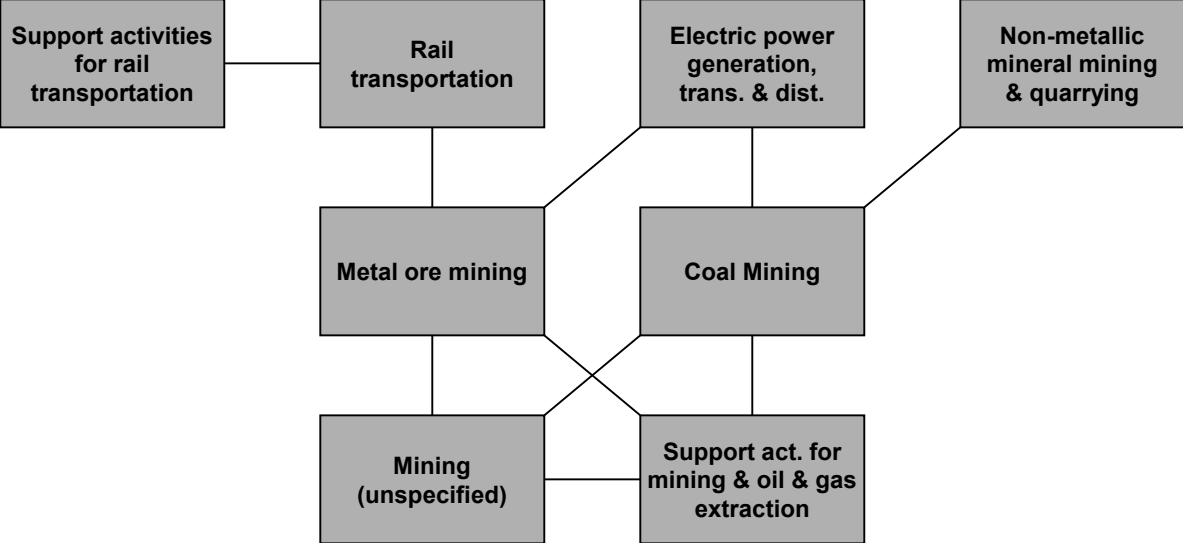
Appendix A - Cluster Definitions - Maritime



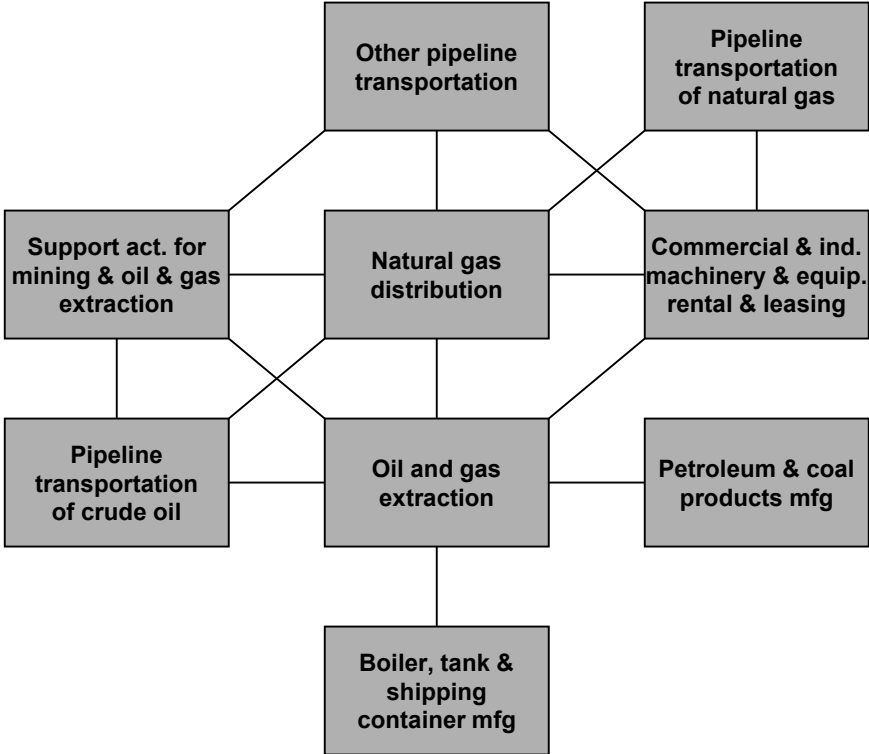
Appendix A - Cluster Definitions - Forestry & Wood



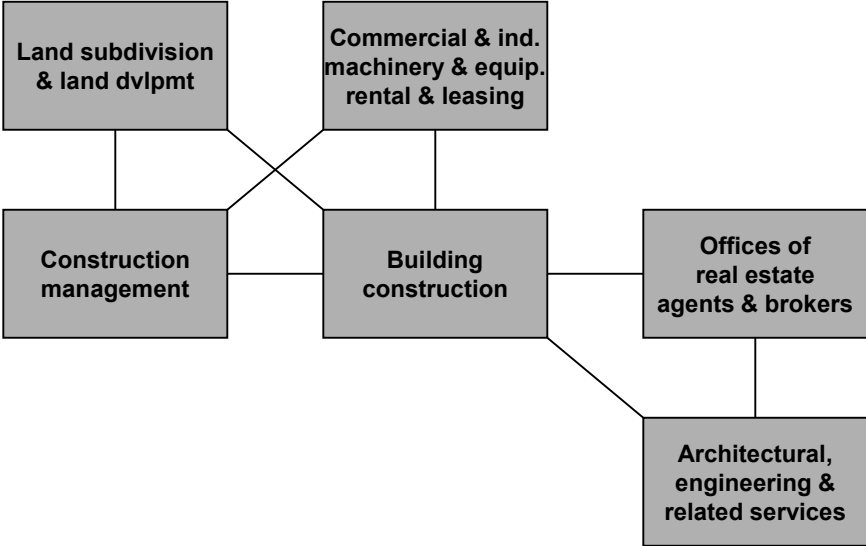
Appendix A - Cluster Definitions - Mining



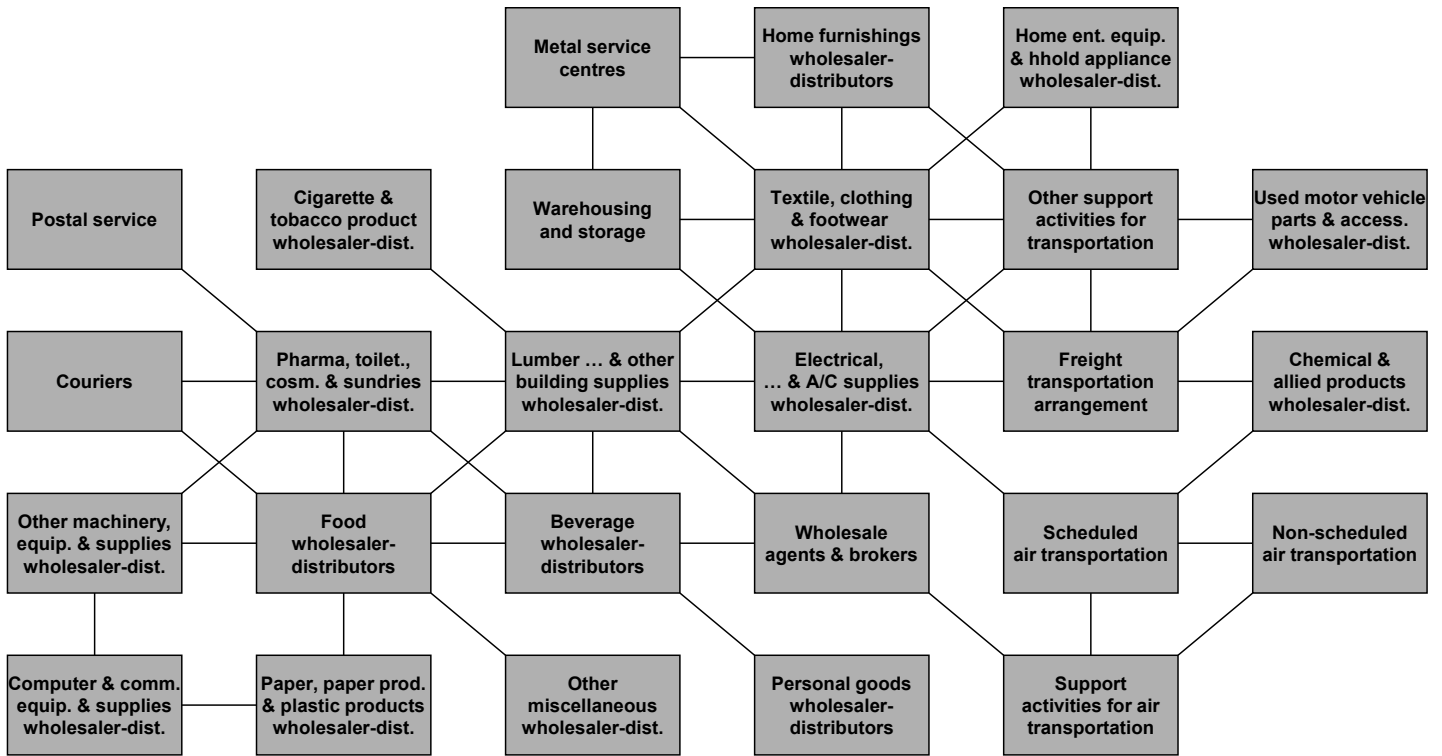
Appendix A - Cluster Definitions - Oil & Gas



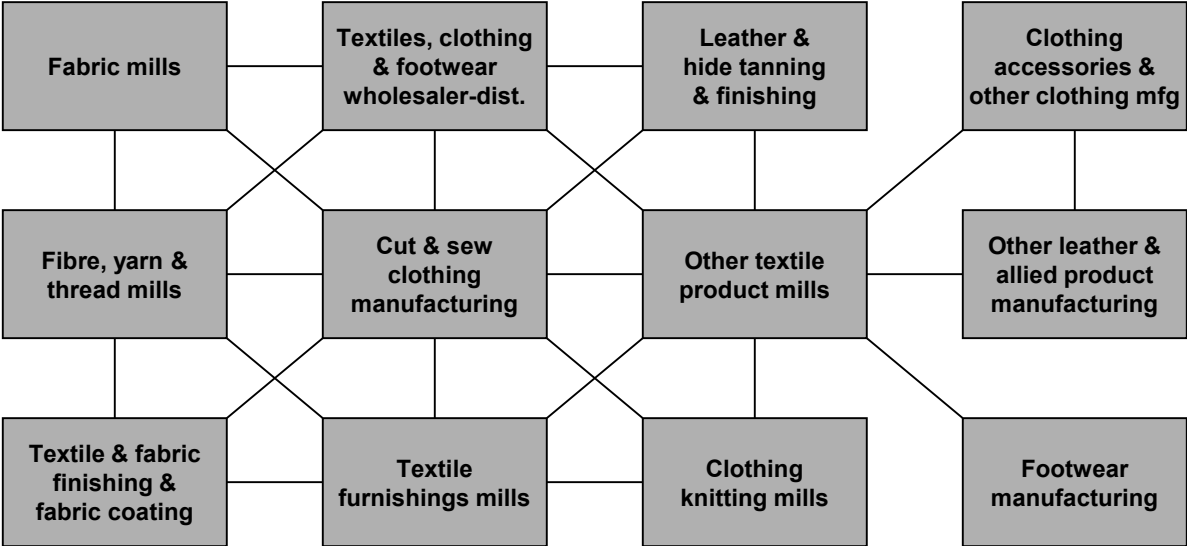
Appendix A - Cluster Definitions - Construction



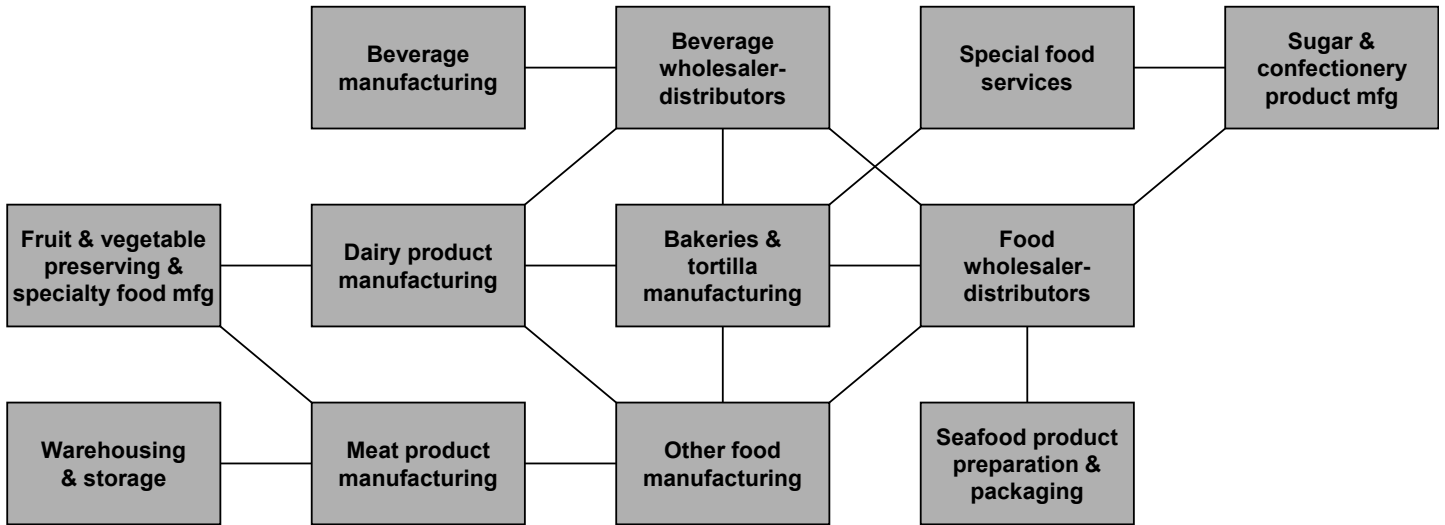
Appendix A - Cluster Definitions - Logistics



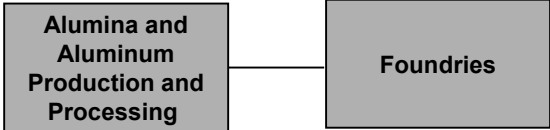
Appendix A - Cluster Definitions - Textiles



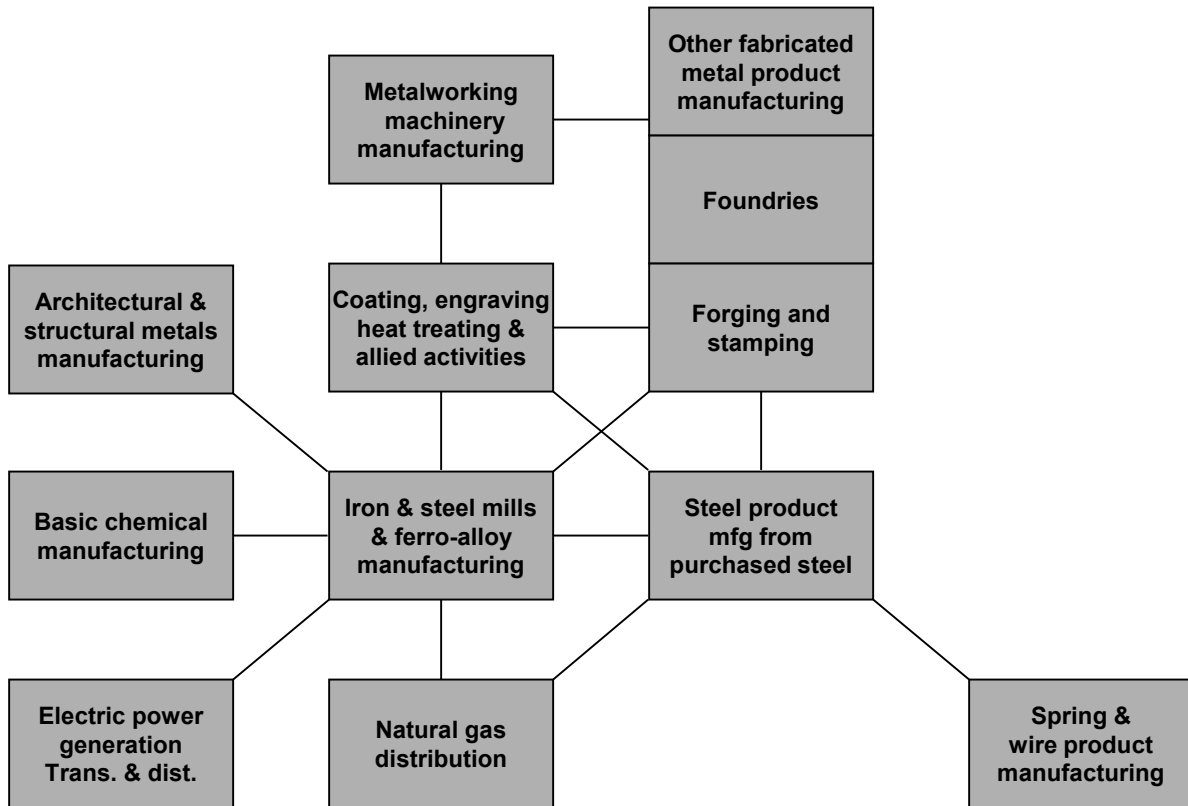
Appendix A - Cluster Definitions - Food & Beverage



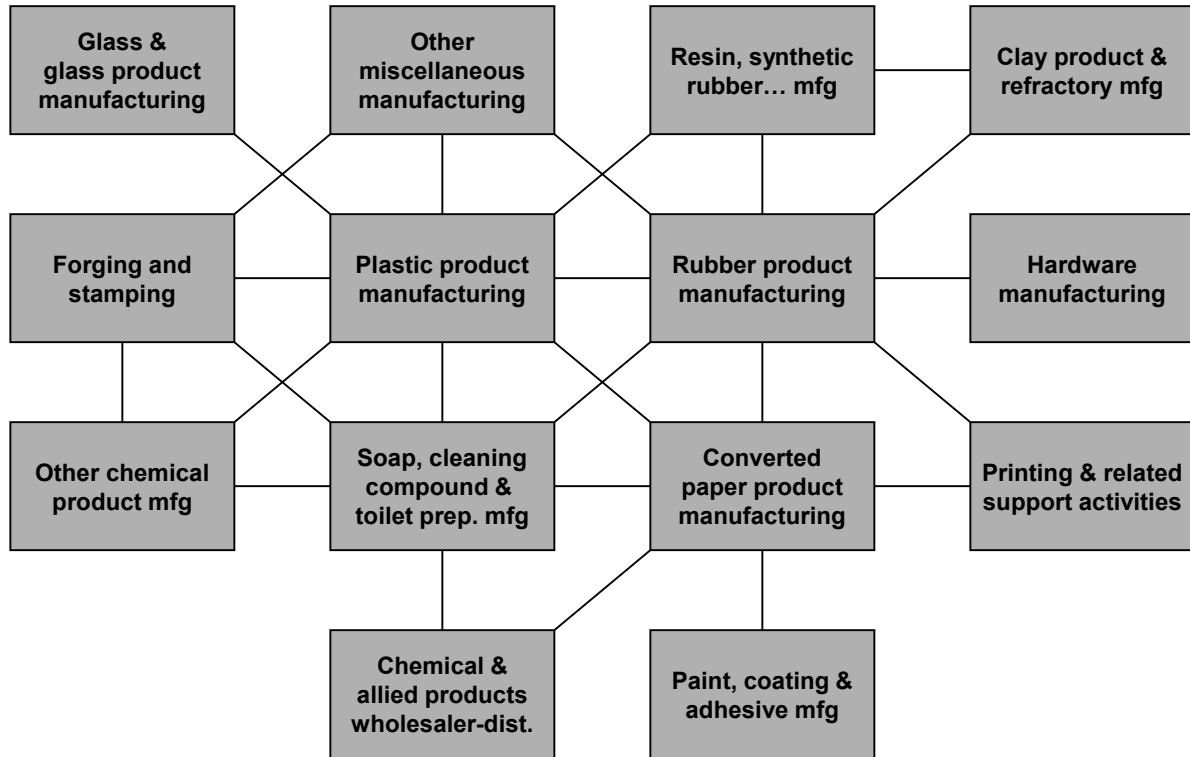
Appendix A - Cluster Definitions - Aluminum



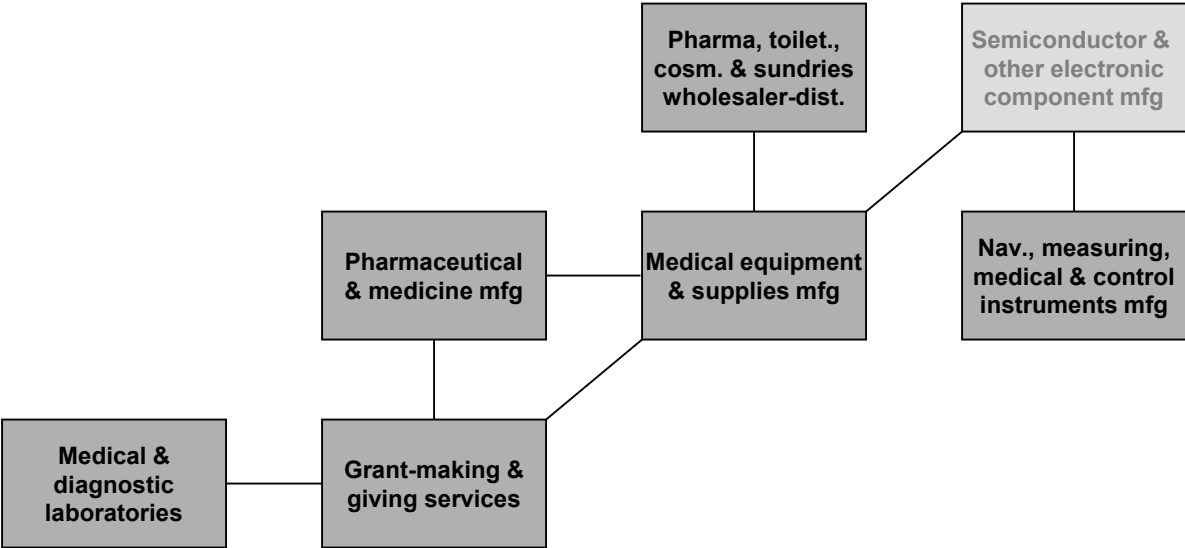
Appendix A - Cluster Definitions - Steel



Appendix A - Cluster Definitions - Plastics & Rubber



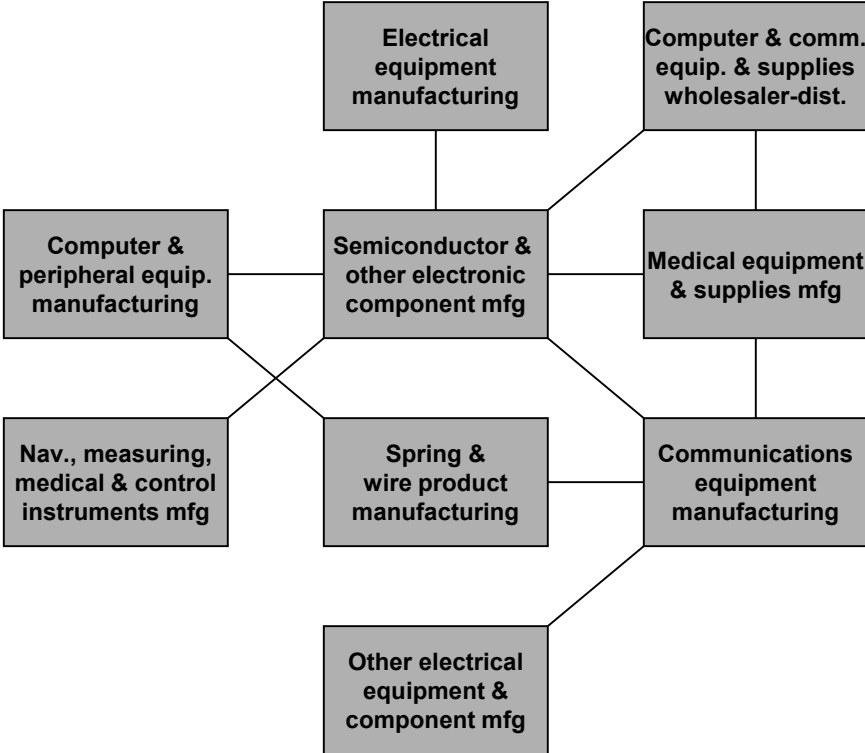
Appendix A - Cluster Definitions - Life Sciences



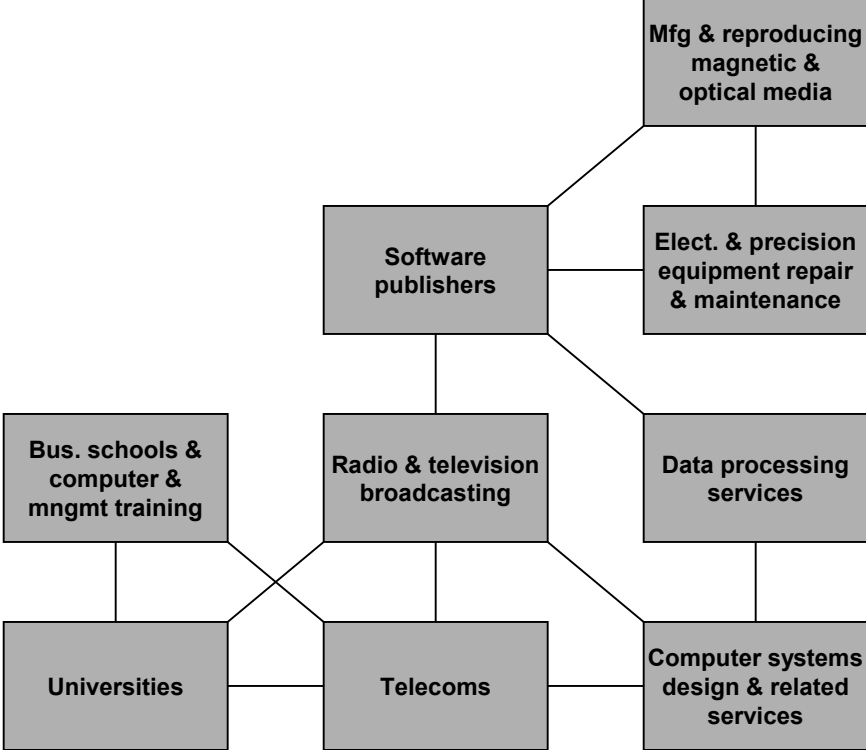
Appendix A - Cluster Definitions - Aerospace

**Aerospace
Product and
Parts
Manufacturing**

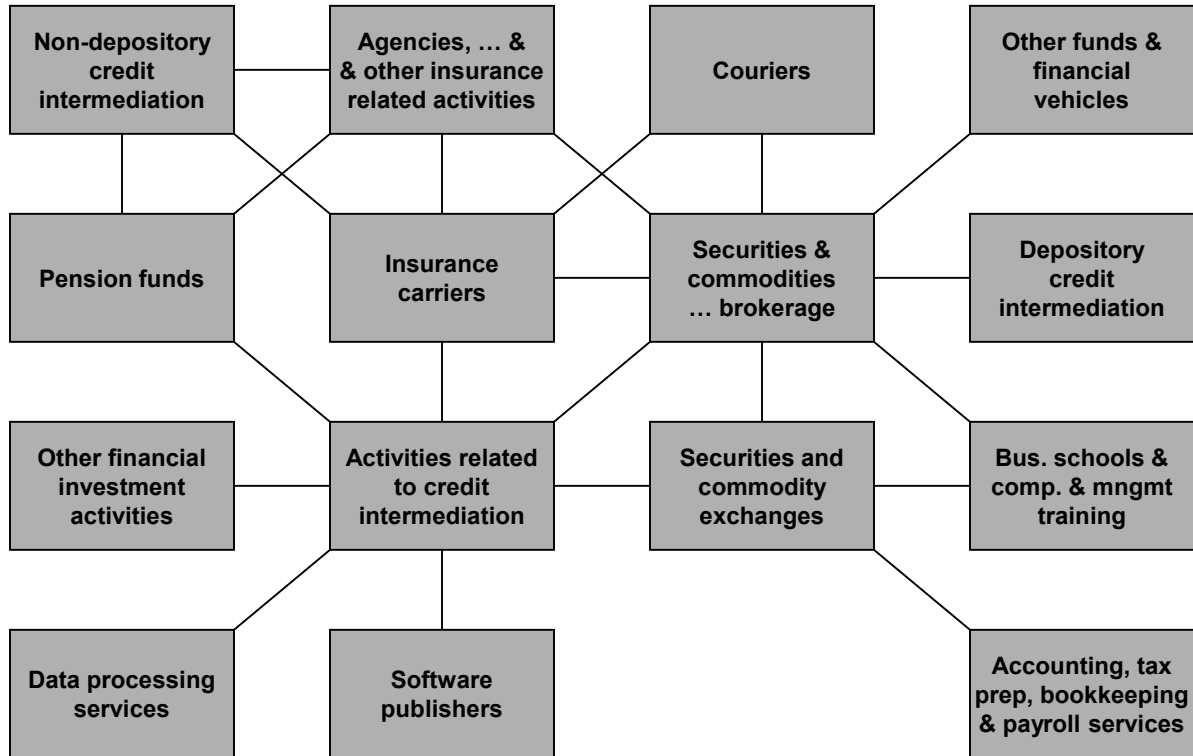
Appendix A - Cluster Definitions - ICT Manufacturing



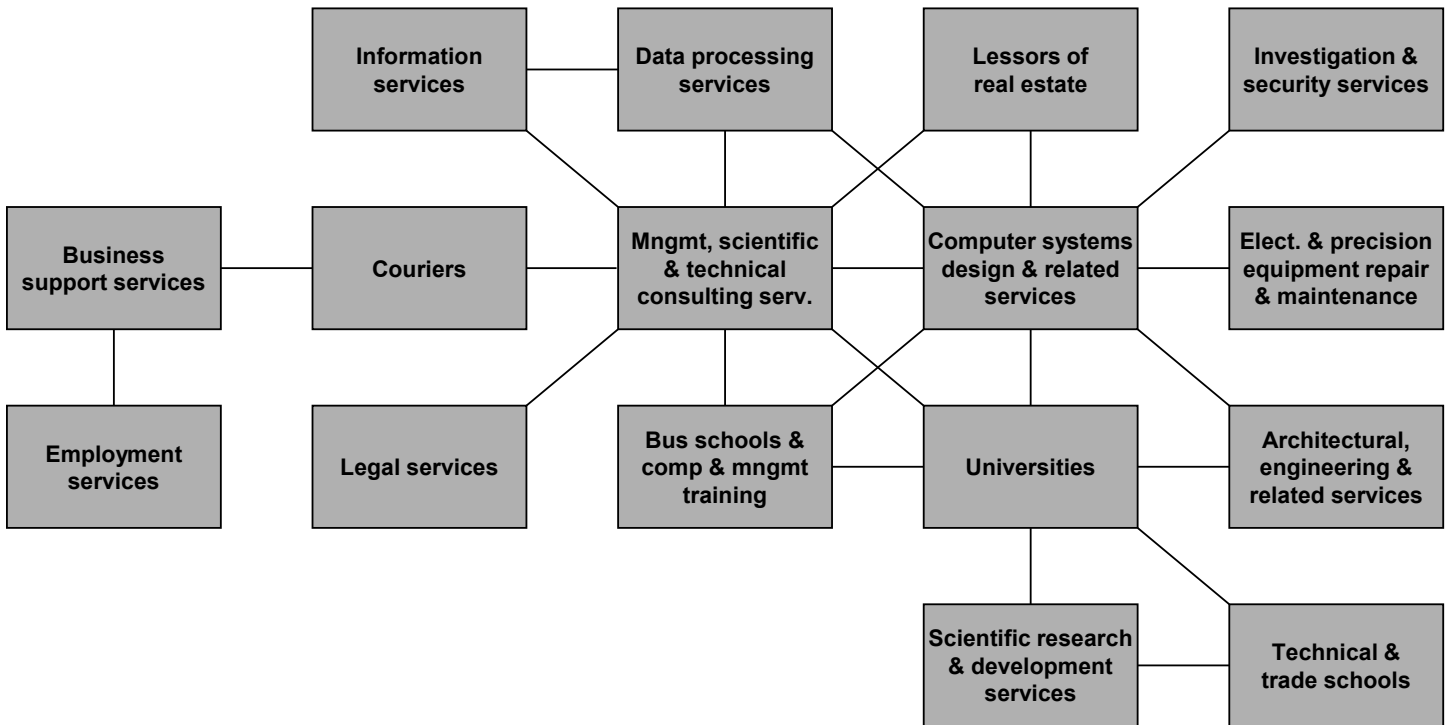
Appendix A - Cluster Definitions - ICT Services



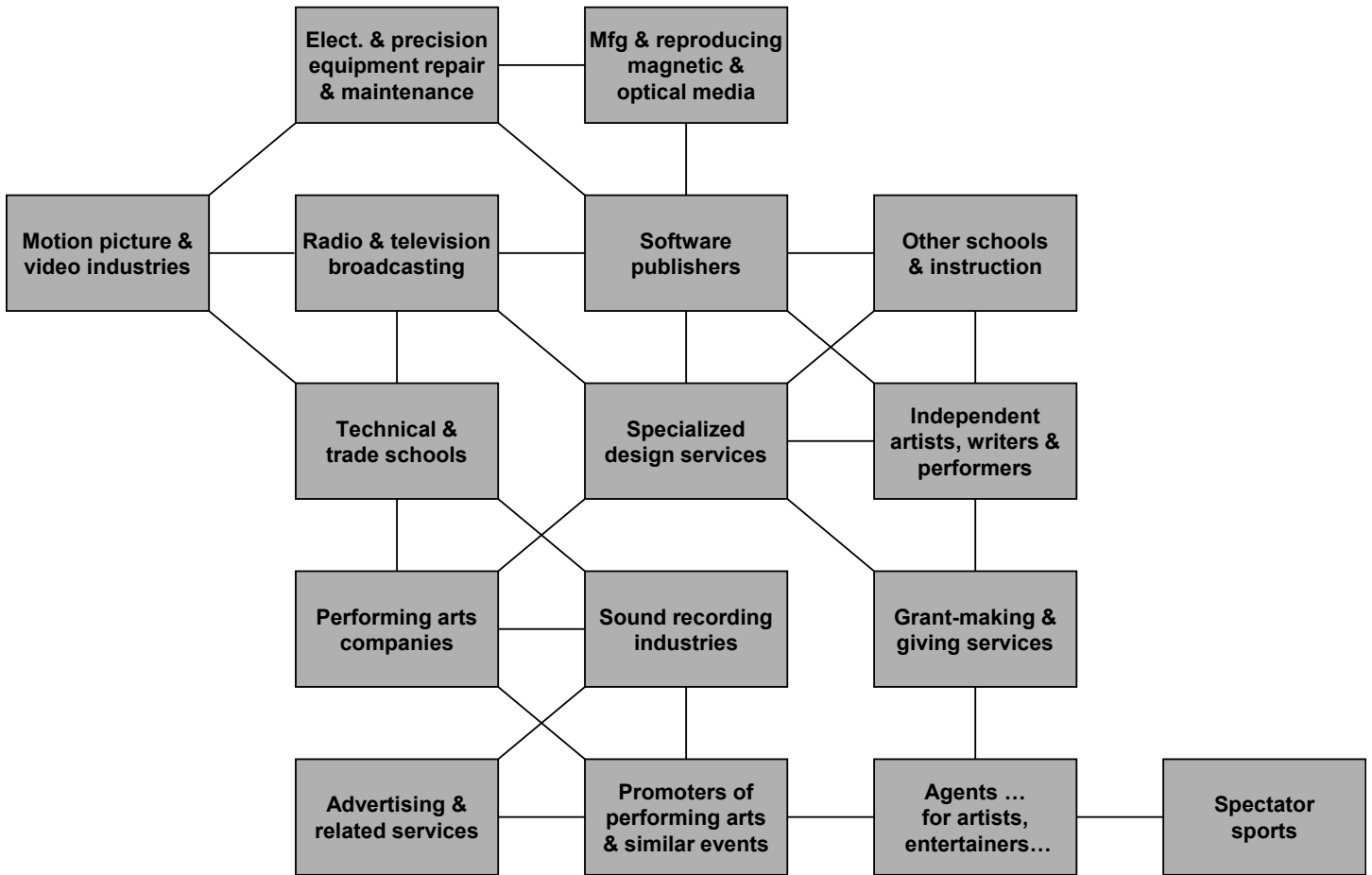
Appendix A - Cluster Definitions - Finance



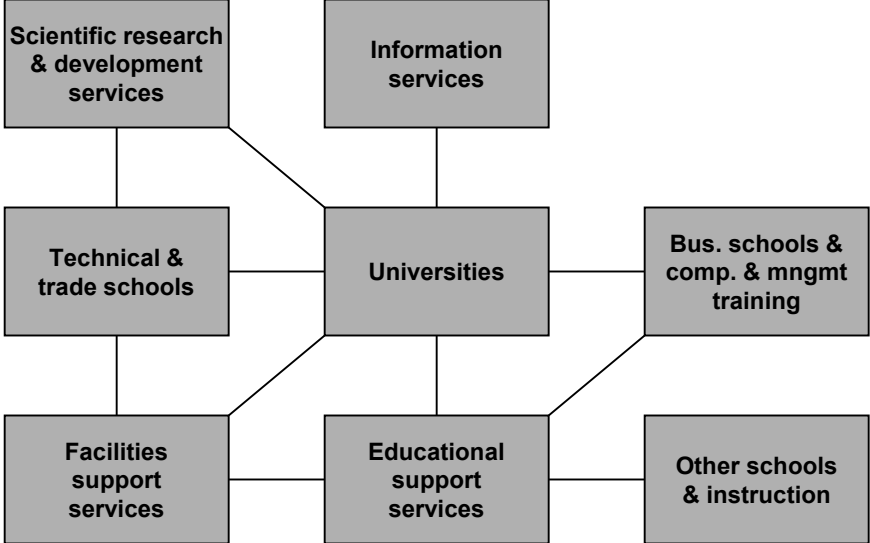
Appendix A - Cluster Definitions - Business Services



Appendix A - Cluster Definitions - Creative & Cultural



Appendix A - Cluster Definitions - Higher Education



Appendix B - City-region Innovation Finance Indicators

CMA	Public R&D Funding		Private R&D Expenditure		Venture Capital		Overall
	Public R&D \$ per Adult Pop.	Rank	Business Enterprise R&D \$ per Adult Pop.	Rank	VC \$ per Adult Pop.	Rank	Rank
Guelph	\$3,230	2	\$1,799	2	\$763.4	1	1
Ottawa - Gatineau	\$818	13	\$3,468	1	\$315.7	2	2
Montréal	\$765	14	\$1,443	3	\$188.4	6	3
Sherbrooke	\$1,384	6	\$264	16	\$188.5	5	4
Kitchener	\$877	12	\$1,241	5	\$91.3	10	4
Calgary	\$644	17	\$1,427	4	\$112.2	8	6
Vancouver	\$682	15	\$828	8	\$145.0	7	7
Victoria	\$913	11	\$264	17	\$200.9	4	8
Québec	\$1,323	7	\$489	12	\$68.0	14	9
Toronto	\$505	18	\$1,171	6	\$84.5	11	10
Saskatoon	\$1,900	3	\$223	20	\$84.4	12	10
Kingston	\$3,683	1	\$303	15	\$6.2	21	12
Winnipeg	\$659	16	\$342	13	\$97.0	9	13
Edmonton	\$1,216	8	\$224	19	\$50.2	15	14
London	\$1,459	5	\$245	18	\$0.7	23	15
Halifax	\$945	10	\$183	21	\$41.8	16	16
Hamilton	\$1,510	4	\$161	23	\$3.0	22	17
St. John's	\$1,129	9	\$137	27	\$9.4	19	18
Saint John	-	28	\$678	9	\$6.6	20	19
Moncton	\$204	25	\$22	31	\$206.4	3	20
Peterborough	\$402	19	\$311	14	-	26	20
Windsor	\$241	24	\$660	10	-	26	22
Oshawa	-	28	\$1,104	7	-	26	23
St. Catharines-Niagara	\$113	26	\$144	26	\$70.3	13	24
Brantford	-	28	\$573	11	-	26	24
Saguenay	\$300	22	\$104	29	\$27.4	18	26
Regina	\$322	21	\$159	24	\$0.1	24	26
Trois-Rivières	\$279	23	\$76	30	\$34.1	17	28
Barrie	-	28	\$178	22	\$0.0	25	29
Thunder Bay	\$400	20	-	32	-	26	30
Kelowna	-	28	\$148	25	-	26	31
Abbotsford	\$22	27	\$107	28	-	26	32
Greater Sudbury	-	28	-	32	-	26	33

Original data sources: CAUBO; Impact Group/Statistic Canada; Thomson-Reuters
Data are averages for 2005-2007

Appendix B - City-region Innovation Output Indicators

CMA	Technological Innovation		High-tech Entrepreneurship		Incomes		Overall Rank
	Patents per 10,000 adult pop.	Rank	High-tech business formation rate	Rank	Median Emp. Income	Rank	
Ottawa - Gatineau	16.8	1	12.8	2	\$33,892	1	1
Toronto	6.0	8	13.1	1	\$30,350	6	2
Calgary	5.5	9	12.8	3	\$31,572	3	2
Kitchener	13.9	2	7.5	11	\$30,719	5	4
Guelph	6.5	6	7.1	13	\$31,470	4	5
Vancouver	9.2	3	11.2	4	\$27,596	16	5
Windsor	7.5	4	6.5	16	\$30,060	9	7
Kingston	6.6	5	10.5	6	\$26,663	20	8
Hamilton	3.8	18	8.9	8	\$30,186	7	9
Edmonton	4.9	11	7.0	15	\$30,115	8	10
London	4.7	12	7.0	14	\$28,727	12	11
Montréal	4.6	13	10.4	7	\$26,731	19	12
Québec	4.3	14	6.4	17	\$28,192	15	13
Halifax	2.1	24	8.9	9	\$27,219	17	14
Barrie	3.7	19	5.1	23	\$30,059	10	15
Oshawa	1.5	25	3.9	28	\$33,863	2	16
Sherbrooke	3.9	17	8.0	10	\$24,303	30	17
St. John's	0.7	32	11.0	5	\$26,022	23	18
Saskatoon	5.5	10	4.3	27	\$25,702	24	19
Kelowna	6.1	7	5.5	21	\$23,692	33	19
Brantford	3.7	20	3.2	29	\$28,311	13	21
Victoria	4.0	16	4.5	26	\$26,329	22	22
Peterborough	4.2	15	5.1	22	\$24,497	29	23
Moncton	1.0	30	7.1	12	\$25,068	25	24
St. Catharines-Niagara	2.7	21	5.9	19	\$24,750	27	24
Thunder Bay	0.6	33	5.7	20	\$28,213	14	24
Winnipeg	2.6	22	5.0	24	\$26,624	21	24
Regina	1.4	27	3.1	32	\$29,210	11	28
Greater Sudbury	1.3	28	3.2	30	\$26,793	18	29
Trois-Rivières	1.1	29	6.4	18	\$24,059	31	30
Saint John	0.8	31	4.9	25	\$24,981	26	31
Abbotsford	2.4	23	3.1	31	\$24,541	28	31
Saguenay	1.5	26	2.6	33	\$23,999	32	33

Original data sources: USPTO/Dieter Kogler UCD; Canadian Business Patterns; Census of Population 2006
Patent & income data is for 2006; HT formation is for 2001-2006

References

- Andersson, T., Serger, S., Sorvik, J. & Hansson, E. W., 2004. *The Cluster Policies Handbook*. Malmo: International Organization for Knowledge and Enterprise Development.
- Asheim, B., Cooke, P. & Martin, R., 2006. The rise of cluster concept in regional analysis and policy: a critical assessment. In: B. Ashiem, P. Cooke & R. Martin, eds. *Clusters and Regional Development*. London: Routledge, pp. 1-19.
- Breschi, S. & Malerba, F., 2005. Clusters, networks, and innovation: research results and new directions. In: S. Breschi & F. Malerba, eds. *Clusters, Networks, and Innovation*. Oxford: Oxford University Press, pp. 1-26.
- Cortright, J., 2006. *Making Sense of Clusters: regional competitiveness and economic development*. Washington, DC: The Brookings Institution.
- Information Design Associates with ICF Kaiser International, 1997. *Cluster-based Economic Development: a key to regional competitiveness*. Washington, DC: US Department of Commerce.
- Krugman, P., 1991. *Geography and Trade*. Cambridge, MA: MIT Press.
- Lagendijk, A., 2006. Learning from conceptual flow in regional studies: framing present debates, unbracketing past debates. *Regional Studies*, Volume 44, pp. 385-399.
- Marshall, A., 1927. *Industry and Trade*. London: Macmillan.
- Martin, R. & Sunley, P., 2003. Deconstructing clusters: chaotic concept or policy panacea?. *Journal of Economic Geography*, Volume 3, pp. 5-35.
- Moulaert, F. & Sekia, F., 2003. Territorial innovation models: a critical survey. *Regional Studies*, Volume 37, pp. 289-302.
- Muro, M. & Katz, B., 2010. *The new 'cluster moment': how regional innovation clusters can foster the next economy*, Washington, DC: Brookings Institution.
- Organization for Economic Cooperation & Development (OECD), 1999. *Boosting Innovation: the cluster approach*. Paris: OECD.
- Porter, M. E., 1990. *The Competitive Advantage of Nations*. New York: Basic Books.
- Porter, M. E., 1998. Clusters and competition: new agendas for companies, government, and institutions. In: *On Competition*. Cambridge, MA: Harvard Business Review Books.
- Porter, M. E., 2003. The economic performance of regions. *Regional Studies*, Volume 37, pp. 549-578.
- Porter, M. E., Group, M., OnTheFrontier & Competitiveness, C. o., 2001. *Clusters of Innovation; regional foundations of US Competitiveness*. Washington, DC: Council on Competitiveness.

- Simmie, J., 2005. Innovation and space: a critical review of the literature. *Regional Studies*, Volume 39, pp. 789-804.
- Spencer, G. M., Vinodrai, T., Gertler, M. S. & Wolfe, D. A., 2010. Do Clusters Make a Difference? Defining and assessing their economic performance. *Regional Studies*, Volume 44, pp. 697-715.
- Toronto Board of Trade, 2012. *Toronto as a Global City: scorecard on prosperity 2012*, Toronto: Toronto Board of Trade.
- Wolfe, D. A. & Gertler, M. S., 2004. Clusters from the Inside and Out: Local Dynamics and Global Linkages. *Urban Studies*, Volume 41, pp. 1071-1093.