Made in Montreal: A Study of the Geography and Priorities of Small Urban Manufacturers in Post Industrial Montreal

Supervised Research Project

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This study is dedicated to the memory of Maxim (Maks) Wells (1982 – 2011), whose life and work are an inspiration for urban planners who are striving for new ways of collectively influencing urban change.

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ABSTRACT

There are tens of thousands of people working in the manufacturing sector in Montreal. This research uses highly disaggregated geolocational point data to plot the positions of Montreal's manufacturing community. It then, using the survey results from 95 respondents, presents explanations for why urban manufacturers chose to establish or to remain in the central areas of the city. The methodology and results of this study are preceded by a review of the literature summarizing the history of academic enquiry concerning the intra-metropolitan distribution of manufacturers, Montreal's existing industrial geography and economy, and existing policies in place supporting Montreal's urban manufacturers. Framed in this way the main research question is divided in two parts which help to organize this document: **What kinds of manufacturing have survived Montreal's central areas and why have they decided to locate or remain there?** The study concludes by examining relevant urban planning issues and policy and service recommendations.

À Montréal, il y a des dizaines de milliers de personnes travaillant dans le secteur de la fabrication. Cette recherche s'appuie sur des données désagrégées pour tracer les positions uniques des entreprises dans la communauté manufacturière de Montréal. Additionnellement, en utilisant les résultats de l'enquête de 95 répondants, le papier présente des explications pour lesquelles les petits fabricants urbains a choisi d'établir ou de rester dans les zones centrales de la ville. La méthodologie et les résultats de cette étude sont précédés par une revue de la littérature résumant la recherche académique concernant la distribution intra-métropolitaine des fabricants, la géographie et l'économie industrielle existante à Montréal, et les politiques et services en place concernant les fabricants urbains de Montréal. Encadrée ainsi, la question principale de recherche est divisée en deux parties qui aident à organiser ce document: **Quels sont les types de fabrication qui ont survécu dans les zones centrales de Montréal et pourquoi ont-ils décidé d'implanter ou y rester?** L'étude conclut en examinant les questions pertinentes de planification urbaine, y compris des recommendations de politiques et de services.

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CHAPTER 1: INTRODUCTION & OBJECTIVES

HYPOTHESIS & RESEARCH QUESTION

Montreal stands among other historically industrial cities as an important traditional seat of the North American manufacturing sector. Like Cleveland, Philadelphia, New York, Pittsburgh and other large North American cities, it has shed its old industrial overalls in favor of business suits and barista smocks. However, many small urban manufacturing firms are still located within or remarkably close to the city center. This paper describes the distribution of Montreal's community of small urban manufacturers and enquires into the reasons these businesses locate in the city. The research presented here illuminates the geographic and business character of this important component of Montreal's local economy. This research was guided by the following basic questions: **What kinds of manufacturing have survived and thrived in Montreal and why have they decided to locate or remain there?**

The paper is laid out in five chapters. Following this introduction, the second chapter presents background information placing Montreal's contemporary urban manufacturing sector in its economic, demographic, geographical, methodological and historical context. The third chapter describes the data and the methods used to map the distribution of manufacturers, as well as the rationale behind, construction of, and dissemination methods for the survey distributed to manufacturers. The fourth chapter presents an analysis of the data sample plotted using GIS and organized by industry classification, as well as a summary of the survey results gathered from the study's 95 manufacturer respondents. The final chapter presents a synthesis of the results in the form of a series of planning implications and service recommendations.

It is important to note at the outset that this line of research has its origins in another project called *Made In Montreal*. Spurred on by the fact that there was an absence of easily accessible information about the manufacturing community in Montreal, a group of graduate students including myself, at the School of Urban Planning at McGill University, came together in summer 2010 to create an online index of local manufacturers. This research extends the efforts of *Made in Montreal* by introducing additional data sources as well as survey results to explore in greater detail the geography of and attitudes towards locating in the city center. This paper also provides an opportunity to review some of the important principles in urban economic geography, and illustrate useful and unique characteristics of the contemporary distribution of Small Urban Manufacturers (SUMs) to the broader academic and professional community, using conditions on the island of Montreal as a case study.

OBJECTIVES

The main purpose of this research is to furnish the broader urban planning community with a fine-grain analysis of conditions experienced by small urban manufacturing firms, "[…] many of which are hidden in plain sight in America's [and Canada's] urban areas" (Mystery & Byron 2011 p. 8), and make recommendations as to their future in the urban core. The methodology presented in this paper was developed to help shape an understanding of Montreal's urban manufacturing sector. The methodology comprises two separate research initiatives. The first is an exercise in plotting the locations of a disaggregated sample of urban manufacturers distributed across Montreal's central areas. The second is a survey of the same businesses designed to probe for reasons for their central locational decisions. Each of these exercises was designed to satisfy one of the following two research objectives.

Mapping

The first objective is the identification and mapping of manufacturing firms in Montreal's central areas. The maps (Chapter 3) represent the firms in terms of their geographical location relative to each other, industrial classification, and the city's land use zones. Thus concentrations and tendencies in firm location can be observed according to precise geo-locational data. The intention is to capitalize on a set of highly disaggregated data to show how small manufacturers are integrated into the existing urban fabric. The analysis reveals industrial activity in areas designated residential and commercial as well as those identified as industrial by the municipality's land use regulations, a reality that has bearing on municipal considerations for future land use regulation and local economic development practices. The sample is also organized by industrial classification which, when mapped, provides a detailed picture of the types of firms that are present and how they are distributed within Montreal's central areas.

Survey

The second objective is to gain a better understanding of the character of businesses that choose to locate and/or remain in Montreal's central areas. The survey was designed to reveal whether these firms prioritize 'economic' or 'lifestyle' considerations in their choice of an urban location (see Q. 9, Q10, Q.11. from appendix G). The survey goes further, asking firms to prioritize from a list of potential desired support services (fig 22.), which helps to identify issues that are important in the day-to-day operations of these businesses. The survey results suggest that firms would prioritize measures to help find and navigate existing government support programs, and integrate and access the broader local network of related businesses and professional services. These priorities are then used to help shape policy and services recommendations – also found in the final chapter of the paper.

CHAPTER 2: BACKGROUND

In a policy document jointly published in April 2011 by the *Brookings Institute* and the *Pratt Center for Community Development (Pratt Center),* authors Nisha Mistry and Joan Byron present a fervent case for supporting small urban manufacturers (SUMs) as a critical source of innovation, economic diversity, and job accessibility in 21st century urban economies. The authors synthesize the long-standing position held by the *Pratt Center*, which is most publicly proponed by that institution's web index www.madeinnyc.org. However, in their research they report difficulties in assessing the distribution and composition of this community, explained by the fact that "[…] there is little publicly available data now that allow these businesses to be analyzed by size, sector, and location" (Mistry & Byron, 2011, p. 11). In part as a response to the limitations highlighted by their research, this paper presents a methodology and data set that provides just such an analysis in the context of Montreal's central areas.

LOCATION THEORY OF THE MANUFACTURING SECTOR

There is a long tradition of studying the distribution of manufacturers, a tradition that can be traced back to the well-known 'giants' of location theory such as Von Thunen (1826), Webber (1909), Christaller (1933), Losch (1940), Burgess & Hoyt (1939) and Harris & Ullman (1945). Their theories on the organizational principals of urban development are today known to students of urban planning by their short-hand titles: the bid-rent curve, transportation cost optimisation, central place theory, interdependence and competition, the axial growth & sectoral model, and the multiple nuclei model, respectively. These thinkers established the foundation for their academic successors who continued the legacy of studying the distribution of urban land use. With specific reference to the manufacturing sector, academics have addressed, among other themes, those of decentralization, recentralization, and data availability for analysis of locational dynamics of industry.

Decentralization

The dominant trend in the North American manufacturing sector, well documented in the literature, has been the decentralization of manufacturing activity from within city centers (Pred, 1964; Charney, 1982; Piore and Sable, 1984; Scott, 1988; Philips-Fein, 1998; Walker, 2000; Rantisi, 2003; Glaeser, 2007; Polèse, 2009), pushed by the forces of economies experienced by changes in transportation costs, land & labour costs, transportation and communication technology, and structural changes experienced by the manufacturing sector writ large. In reality this decentralization trend had been occurring since as early as the end of the 19th century (Pred, 1964), as industrial mass production displaced its pre-industrial craft/artisanal predecessor (Pred 1964; Piore & Sable 1984; Walker 2000). Despite these early trends, at

the turn of the 20th century "[…] the metropolitan core and manufacturing were still nearly synonymous. For example, as late as 1910, 75 per cent of the manufacturing employment in New York City […] was in Manhattan […]" (Pred 1964 p.169)

Through the latter half of the 20th century, however, the North American manufacturing sector has shifted from its traditional urban locations first to exurban corporate campuses and industrial parks (Polèse, 2010), then to regional centers through the sun belt states where labour costs were lower and air conditioning enabled work through otherwise stiflingly hot workday, (Polèse, 2010) and finally overseas as avionic, brut diesel, and intermodal shipping technologies enabled large manufacturers to capitalize on even cheaper labour and low regulatory barriers in developing world jurisdictions eager to take part in the industrial era (Bluestone & Harrison, 1982; Dicken, 2007; Sassen 1991) Many North Americans are familiar with the image of a community devastated by the closure of a manufacturing plant.

Recentralization

During the latter decades of the 20th century, a reaction to this pervasive shift in industrial geography focused attention on local economies (Piore & Sabel 1984; Scott 1988; Harrison 1992; Porter 2000). These theorists provided a lexicon for understanding the mechanics of local economies. Flexible production processes, flattened networks of part sourcing and collaboration, and possible return to a craft-based economy (Piore & Sabel, 1984) all received attention in the literature of economic geography. Understanding untraded benefits of agglomeration, like local embeddedness (Shoenberger 1999), tacit information exchange (Howels, 2002) and sharing a specialized labour pool (Harrison 1992) are critical economic benefits known as economic externalities that derive from the local cultural situation of a firm. These have proven to be alluring to many economists and economic geographers (Amin 2003), although these concepts are very hard to measure empirically (Polése 2009). This literature rallied around neo-Marshalian industrial districts, named after the work of Alfred Marshal who pinpointed the ethereal and intangible economic advantage experienced by businesses working in close proximity to one another sharing ideas and knowledge. Industrial districts were a theme popularized by theorists, like Scott (1988) and Harrison (1992); their studies of localities suggested that traditional economic forces that glue places together to form industrial communities had new importance and were countering the prevailing trends towards decentralization.

These ideas concerning industrial districts, community, and the economic potential of localized groupings were then repackaged at the end of the century under the name 'clusters' (Porter 1998;

2000), a term that continues to be widely used to describe concentrations of interdependent businesses today. Amin counters that "…the interest in industrial districts far exceeds their empirical significance…" (Amin 2003, p. 150). Amin states that these approaches reflect an unfounded appetite in the collective academic psyche for theories favouring human scale, reciprocity, evolutionary economics, and the power of place. A return to human scale might offer a sort of redemption to an industrial system that is marked by "…decades of worker alienation and de-skilling under the tight rules of the hierarchically organized large enterprise" (Amin 2003, p.151). The central economic importance of interdependence, support systems, dialogue, trust and reciprocity breaks with traditional neoclassical, rational economics, and is supported by a growing body of case theory (Markusen, 1996). Evolutionary economics suggests that the development potential inherent in the business diversity of industrial districts is considered a formula for innovation – just as the genetic diversity in a natural population of organisms is a formula for survival advantages through genetic mutation (Jacobs 2000). The final reason Amin offers for the interest in industrial districts is particularly interesting to economic geographers and is best expressed in his own words: "[…] the rediscovery of decentralized production has renewed hope in the powers of place and the locality or region as a unit of self-sustaining economic development" (Amin 2003, p. 151). These four critiques thus serve as a four-point synopsis of broader themes in the world of economic geography theory.

Of course, no regression to a preindustrial craft based economy has come about, and the sentiments expressed particularly by the last of Amin's are legitimate in a world governed by a global economy. These reasons do, however, express the intellectual context of industrial district theory that Harrison (1992) refers to as a "[…] reassertion of agglomeration economies" (Harrison 1992, p. 108), which is important to acknowledge for this research, particularly for understanding the motivations of Montreal's urban manufacturers. Agglomeration economies are deftly set out by Polèse (2009) and summarized here as the following seven pillars of agglomeration:

1. Scale economies in production – advantages gained by the firm who is able to capitalize on an available market by increasing production capacity and producing more in order to undercut the competition on price per unit.
2. Scale economies in transportation – advantages gained by a firm that capitalizes on the centralized shipping and storage, maximizing the capacity of distribution.
3. Falling costs of transportation and communication – scale economies experienced by accessibility to the broadest possible market facilitated by the availability of effective and efficient transportation and communication infrastructure.

4. The need for proximity: industry clusters – *localization economies* experienced by the firms that benefit from the externalities of exchange that cannot happen without the physical condition of close proximity (ie. information sharing by face to face contact).
5. The advantage of diversity – *urbanization economies* or those experienced because of the variety of choices available in an urban economy that allow a firm to choose from a vast array of skills, products, services.
6. The quest for the center – a response, universal in urban economic theory, by which a firm seeks a location with the maximum available opportunities.
7. Buzz and bright lights – unlike the other pillars, this refers to the motivations and ambitions of the people behind the firms as they are affected by the city of their choice (Polèse, 2009)

These pillars of agglomeration and the work of the other authors previously cited provided the theoretical foundation which helped in the creation of the two survey questions (See Q.11 & Q.12: Appendix G) aimed at determining the principal reasons manufacturing firms choose to stay in the central areas of Montreal.

Surveys & Maps

With this in mind we can turn back to the matter of examining small urban manufacturers in contemporary Montreal. There is perhaps no perfect method for determining the reasons for the locational decisions of firms. The work of David Doloreux (2004) in Ottawa, measuring innovation potential in small & medium sized businesses (SMEs) in the Metropolitan area presents an instructive example both in scale and structure. Doloreux's telephone survey reached a sample of 54 respondents and was based on an innovation survey used by Statistics Canada. The survey was broken down into three parts. The first dealt with the critical details of the business, while the second and third handled different components of the subject of innovation. The practical and simple survey layout created by Doloreux was emulated in this research (See: p. 25, & Appendix G).

It should be noted that a survey method is not universally accepted as a valid form of data collection for gaining insight into the reasons behind factory locational decisions. Usually this is a consequence of a meager response rates, and so the statistical validity of the data collected can be called into question (Barklay 1994). Surveys are, however, more palatable to a non-academic audience (Barklay 1994). For this reason, it was the approach deemed appropriate for this research, as one of the implied objectives of this research was to help to popularize interest in and the existence of urban manufacturers.

Allan Pred's 1964 article entitled 'The Intra-Metropolitan Distribution of American Manufacturing' helped to shape the methodology for mapping Montreal's manufacturers. A component of his article is a case study of the spatial distribution of manufacturers within the municipal boundaries of San Francisco. In order to make sense of the distribution, Pred categorised his business sample into 7 groups, each possessing unique industrial characteristics and highlighting interesting commonalities of the industries contained there-in. The following is a list of the categories Pred created:

1. "Ubiquitous Industries Concentrated near the CBD" (ibid p. 174) – Commercial and retail uses often requiring some large scale production and warehousing space often found adjacent to central rail yards; examples include butchers, bakers, etc. and other food processing
2. "Centrally located Communication Technology Industries" (Ibid p. 175) – Businesses that capitalize on the external communications economies of agglomeration and require access to frequent face time with clients; the printing industry and the fashion industries fall into this category
3. "Local Market Industries with Local Raw Material Sources" (Ibid p. 176) – "…industries whose primary raw material is nearly ubiquitous, e.g., the manufactured ice, and concrete brick and block industries."(Ibid.)
4. "Non-local Market Industries with High-Value Products" (Ibid.) – businesses producing high value finished goods like high value-added machinery, and chemical products for export
5. "Non Centrally Located Communication Economy Industries" (p. 177 Ibid.) – "…generally highly scientific or technical. They are forced to nucleate in order to keep abreast of the latest innovations and forthcoming contracts; but unlike other industries oriented toward "communication economies" they are virtually independent of the business and service activities associated with the central business district." (Ibid.)
6. "Non-local Market Industries located on the Water Front" (Ibid. p. 178)- Larger businesses producing heavy cargo dependent on deep water shipping to coming in as raw materials and going out as refined goods (from & to) distant markets (Ex. Petrolium refining etc.)
7. "Industries Oriented towards National Markets" (Ibid.) – Businesses whose production is intended for interregional export at the national level, and whose geographic positions in the metro area is outside of the central areas and tends to be oriented in the direction of their most important national clients

The organizational logic in this research does not match that of Pred's exactly, as Montreal firms are categorized according to NAICS industrial classification (see Data methodology in Chapter 2), but the

reasoning Pred used for his classification lent insight to the observations made on the distribution of manufacturers across Montreal.

MANUFACTURING IN MONTREAL

According to the Government of Quebec's 2009 enumeration, the total number of individual manufacturing establishments on the Island of Montreal is 9,017 (see figure 1)(I.S.Q. 2007). This grouping of businesses, that are considered *manufacturing,* cuts across an impressive cross-section of Montreal's business community, with firms specializing in industries from paper products to furniture, from plastics and rubber, to food products, to jewelry and fashion.

Institut de la statistique du Québec

06 - Montréal

Land area (2011)	498.2 km2
Population density (2011)	3,930.8 inhab./km2
Total population (2011)	1,958,257 inhab.
0-14 years	291,675 inhab.
15-24 years	240,397 inhab.
25-44 years	634,275 inhab.
45-64 years	499,528 inhab.
65 years and over	292,382 inhab.
Interregional net migration (2010-2011)	- 22,207 inhab.
Population projections (population changes 2031/2006)	12.1%
Employment (February 2012)[1]	930.0k
Participation rate (February 2012)[1]	64.5%
Employment rate (February 2012)[1]	57.2%
Unemployment rate (February 2012)[1]	11.3%
Per capita disposable income (2010)	$27,646
GDP at basic prices (2010)	$102,985.9M
Capital expenditure (2011)	$12,691M
Exported merchandises (2007)	$25,494.6M
Number of manufacturing establishements (2009)	9,017

1. This data is seasonally adjusted using three-month moving averages.

FIGURE 1: MONTREAL ISLAND AND BASIC STATISTICS

In 2009, manufacturers employed 82,587 production workers, making the manufacturing sector the fourth largest supplier of jobs in the city (I.S.Q. 2011). Only industries in the service sector employ more people: *Trade*, *Professional scientific and technical services*, and *Health care and social services* (141 700, 116 700, and 114 300 respectively) (Ibid.). Employment data for Quebec's economy is typically divided in two. There are goods-producing workers and service-producing workers. In addition to manufacturing, goods-producing workers include those working in construction, forestry and agriculture. All together the goods producing sector employed a total of 136 500 full and part-time workers in Montreal in 2011 (see appendix B). It is a fact that this sector continues to lose employees from one year to the next. Between 2007 and 2011 there was an 11.8% decline in employment in the goods-

producing sector. By contrast, there has been an increase in employment by 3.3% in the service-producing sector over the same period.

Using the same set of statistics (appendix B), but focusing on the difference between full and part time workers, a different component of the local labour story is revealed. In the goods producing sector 92% (126 200 of 136 500) of the workers hold full time positions compared to 78% (629 900 of 803 000) of the workers in the service-producing sector. This bears out one of the well-documented strengths of the goods-producing sector. Typically goods-producing companies offer a high proportion of full-time employment compared to that supplied by the service-producing sector (Philips-Fein 1998). The majority of these goods-producing firms qualify as small urban manufacturers[1], with more than 93% of Montreal's manufacturing firms employing 50 people or less.[2]

For the purposes of this research, it is important to acknowledge that the municipal boundaries for the city of Montreal that were in a state of flux as the city grew to it's current size following a 6 year process of amalgamation and de-amalgamation. This historic definition of the city's political boundaries is useful for two reasons. The data from the *Scott's Directory* provided by the *Chambre de Commerce Montreal Metropolitain* (*CCMM*) conformed to these boundaries. Secondly this old definition of the city focuses attention on the center part of the island of Montreal – the geography that surrounds the city center which traditionally constituted the industrial heartland of the Montreal region.

MANUFACTURING & SUMS

Defining the term 'Manufacturing'

It is important to assign a clear definition to the term manufacturer in order to begin making distinctions between the wide ranges of assumptions this word conjures up. The Association of North American Industrial classification System (NAICS) defines manufacturers as "…establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products." (NAICS Association n.d.). As many familiar mental images involve the great machines and factory floors associated with industrial scale manufacturing it is important to also consider the second half of the NAICS definition that describes smaller more compact and everyday forms of manufacturers.

[1] See the next section for a comprehensive definition of this term.

[2] This calculation was derived according to analysis of the employment figures for 5,438 individual manufacturing firms on Island of Montreal Hoover's index showing. This analysis confirmed that 5,075 firms employ 50 people or less. It is also important to note that according to this same data a total of 39,924 people are employed by small firms, while a total of 68,185 are employed by firms employing more than 50 people.

> "…establishments that transform materials or substances into new products by hand or in the worker's home and those engaged in selling to the general public products made on the same premises from which they are sold, such as bakeries, candy stores, and custom tailors, may also be included in this sector."(Ibid)

Many, but by no means all, of the businesses that are operating on the island of Montreal fit into the category of small business described by this latter part of the NIACS definition. Similarly, the majority of the businesses presented in the *Made in Montreal* index are best described thus, and would be considered by *Industry Canada* to be micro enterprise (small businesses employing one to four people).[3] Very often these do not even appear in Quebec's official database of manufacturers.[4] In fact, despite the fact that they fit the NAICS description of a manufacturer, some of these businesses would prefer the designation of artist or creator. These smaller manufacturers would often be colloquially described as artisans. Artisans, for the purposes of this research are considered manufacturers, and fall into the broader category defined as SUMs.

For the purposes of this research it is important to take note of the difference between manufacturing workers and production workers. Although the ISQ states that each of the 9017 firms located on the island engage production labour, the definition provided in the methodological notes makes the precision that this includes "[…] workers engaged in production and assembling activities, these [also] include employees engaged in storing, inspecting, handling, packing, warehousing, maintenance, repair, janitorial and watchman services, and working foremen doing similar work to that of employees they supervise." (Quebec, 2012 [online])

A further selective restriction concerning firm size was put on sample of businesses analyzed in this study. The character of the businesses identified by the work of *Made in Montreal* fits best with the SUM category of business. Businesses from this category typically include firms of between 1 & 100 employees and those engaged in "[…] the production and assembly of products (NAICS Codes 31-33), including commodities (consumer goods), high technology (such as medical imaging equipment), and artisanal production (such as artisanal foods and custom furniture)." (Mistry & Byron, 2011 p. 11). This research was concerned with smaller manufacturers so the SUMs were broken into two groups, those

[3] Taken from a study of growth determinants for micro businesses. It contains a definition for the size parameter of Industry Canada's standard for micro business.

[4] A conclusion arrived at by analyzing the *Made in Montreal* manufacturers against the web index for the *Center de Recherce Indusrielle du Québec* (CRIQ)

with fewer than 50 employees and those with between 50-100 is on firms of a size between 1 & 50 employees. This paper focuses specifically on the latter of the two groups.

MONTREAL'S INTRA-URBAN GEOGRAPHY

Defining the area or areas that would constitute central Montreal began with the idea of creating a general travel-to-work area boundary around the city. The resulting zone was ultimately based on geography identified in a 2009 paper by Shearmur and Motte. These researchers looked at "…interactions and exchanges between firms..." across five of Montreal's principal labour sheds in order to determine the extent to which these areas are bound together by commuting patterns. This piece was useful because it identified Montreal's major employment centers, their corresponding labour sheds and the islands main concentration of manufacturing jobs (See Figure 2). This paper made the important finding that "except for the CBD (and to some extent the Marché Central), no employment center has a truly metropolitan wide labour shed." (Shearmur and Motte 2009 p. 507). In other words peripheral employment centers do not attract labour from other peripheral employment centers to the same extent as the CBD. This is a significant observation which reinforced a focus on Montreal's central areas because it indicates that labour is inclined to come from anywhere in the metro area if the enterprise is located near the center.

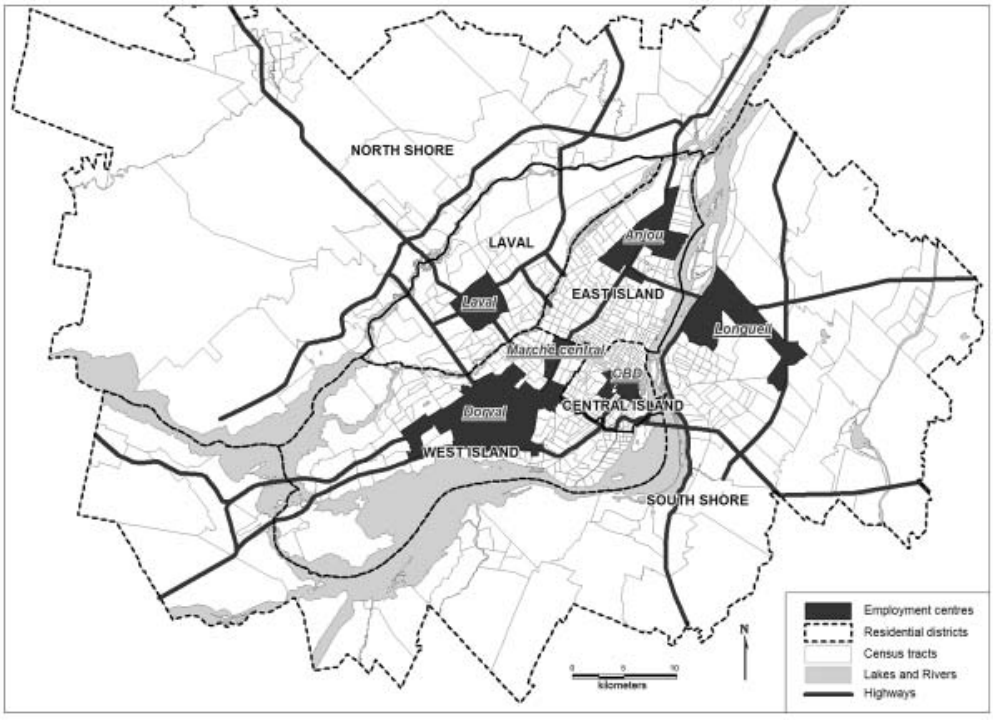

FIGURE 2: SHEARMUR & MOTTE: MONTREAL EMPLOYMENT CONCENTRATIONS

Research focusing on actual factory floor jobs in the CBD is often deliberately overlooked, because by

conventional thinking on land value and the building stock typical of the central CBD, manufacturing is considered to be an unsuitable use because the land is too expensive for the space requirements of manufacturing processes, and office towers are inappropriate for the heavy uses of manufacturing interests. In fact Montreal's CBD, as delineated by Shearmur and Motte (Fig. 2), is quite large and encompasses an enormous range of built form and land values.

Doubts as to whether or not to include the CBD in this research were put to rest with research conducted by the Made in Montreal team. Many of the manufacturers discovered in our research were indeed located within Montreal's CBD and so surprisingly this area became an important zone to examine. The geographic limits that are used in this paper focus on the central areas of the island of Montreal including the CBD. The geographic limitations of this study loosely resemble those chosen for of a similar study of the distribution of the printing publishing and clothing industries in Montreal and Toronto by Guy Steed in 1976 (fig. 3).

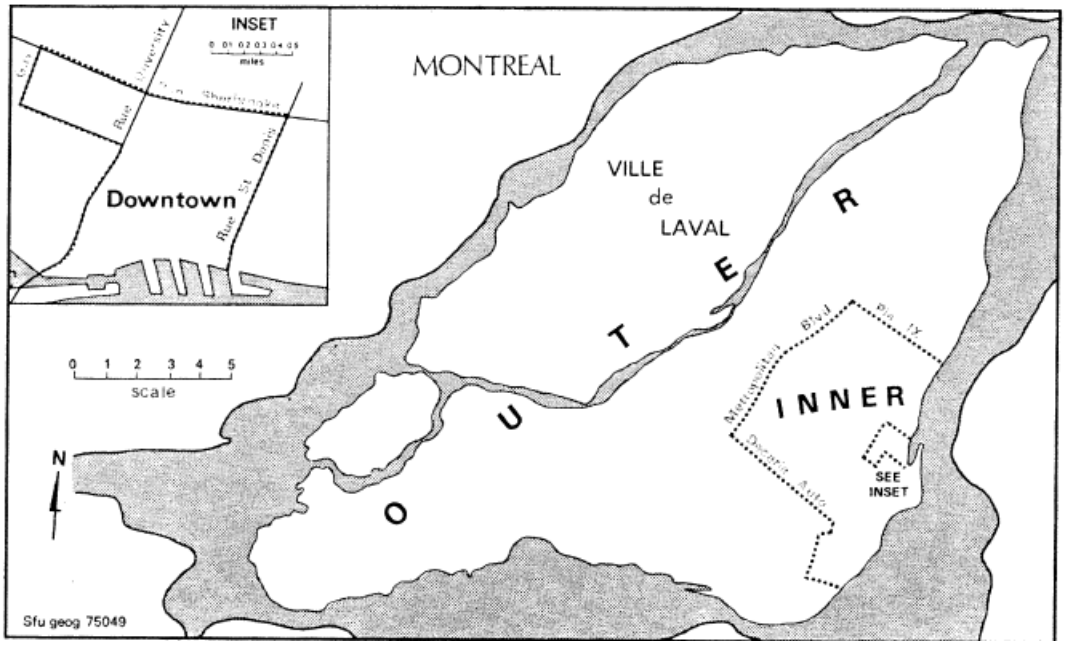

FIGURE 3:GEOGRAPHIC LIMITS OF STEED 1976

MONTREAL LAND-USE

The territory on the island of Montreal is divided into highly variegated patchwork of land-use. In other words there is a wide variety and mixture in the arrangements of the land-use zones. Though there are wide areas dominated by one or another zoning designation, these are deeply penetrated by the other land-uses.

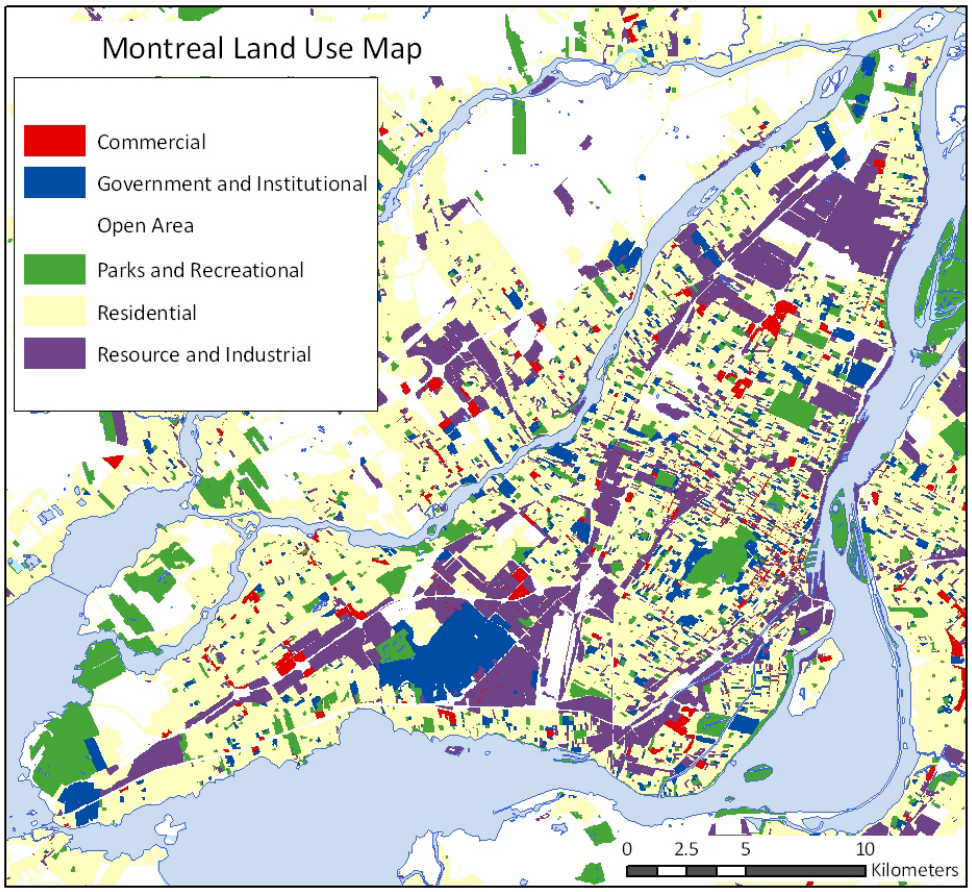

FIGURE 4:MONTREAL ZONING DESIGNATIONS 2007

The largest tracts of industrial land (shown in purple) are concentrated in the Eastern and Western ends of the island – a configuration typical for larger industrial processes that concentrate near important transportation terminals (the Airport in the West and the Seaport in the East and important points of highway access on and off the island). These correspond closely with the employment centers of Dorval and Anjou respectively (Also identified by Shearmur and Coffee above: fig. 4). Otherwise the industrial land penetrates right to the heart of the city along rail and highway transportation corridors and around the traditional industrial lands flanking the Lachine Canal and the old port area it the center of town (see

inset in Steed Map Fig. 5). There is also a fair distribution of purple showing through the predominantly residential areas in the city's central areas.

In Montreal, changes to the zoning code are administered at the borough level. In the bylaws of the South-West Borough for example[5] the land-use regulations provide for a reasonably wide array of what are considered "complimentary uses" allowed in dwellings otherwise zoned residential (Arts: 160- 167 s.X ss.2 Reglements d'urbanisme S.O.) and these include uses such as office space and artist or artisanal studios. Space restrictions apply to how much of the floor can be devoted to such professional activities, the smaller of either one third or 50m^2 (approximately 340 ft^2) (Art: 163 s.X ss.2 Ibid.), and these uses are meant to not disrupt neighbours with excessive noise or the emission of harmful gasses etc. (Art: 165 s.X ss.2 Ibid.) Still it can be said that there is a fair degree of allowance in the zoning bylaws to provide for a mixed form of residential zoning. In the event that there is a conflict between the proposed use of a business, and that imposed by the city's land-use regulation it is necessary for a business owner to apply for a change to the zoning code affecting the chosen site. The fact that the city handles these requests at the borough level means that there is, in theory, a high level of local accessibility to the planning authorities and so, quick responsiveness to requests.[6]

TRADITIONAL & CONTEMPORARY MANUFACTURING SPACES

The subdivision of old industrial buildings supplies the inexpensive and durable space that is suitable for this generation of small manufacturers. It also represents a substantial shift in how space is used within the city limits. Industrial reuse is a prevalent feature of Montreal's built form. There are many well-known examples of industrial architecture that once housed large manufacturers, now converted to accommodate smaller activities. Many of these buildings retain the names of their former corporate tenants: the *Belgo* building, the *Nordelec* building, the *Redpath* building and the *RCA* building are prime examples. For a better sense of the character of this transformation it is useful to look at a specific example.

The RCA building is an instructive case of contemporary industrial reuse. The characteristics of its form are helpful for the purposes of this research because, unlike some of the others, it is primarily occupied by manufacturers. Located in Montreal's Southwest Borough it is made up of 5 different but interconnected buildings. This complex was once a main manufacturing facility for the Berliner

[5] Author's neighbourhood.

[6] In practice also: From personal experience the author can report quick responsiveness service from the South-West Borough's planning office in several interactions and one permitting process.

Gramophone Company of Montreal, later the Victor Talking machine company, finally acquired by the Radio Corporation of America (RCA) (Musée des ondes Emile Berliner. 2011)

FIGURE 5 FROM CARPENTRY TO ELECTRONICS
Source: Musée des ondes Emile Berliner

RCA was a manufacturing enterprise typical of early 20th century Fordist mass production where all activities involved in building the final product took place under one roof. The multiple components of RCA's radios and phonographs employed a wide range of materials and skilled labourers. Cabinet-makers and carpenters built wood box frames that housed the electrical components. Electricians and circuit and wire technicians did everything from insulating the wires, to building the circuit boards and transmission assemblies (Musée des ondes Emile Berliner, 2011). The whole production process took place on enormous shop floors in which workers in one department could literally see the labourers in another department or were, at most, separated by minimal dividers or one of the building's thick floors made from concrete and wood. (fig. 6)

FIGURE 6 RCA PRODUCTION FLOOR OLD AND NEW.
Source: Musée des Ondes Emile Berliner (img left) & Alex Carruthers (img right)

This form of organization stands in stark contrast to the contemporary spatial division of these same buildings. Today the vast shop floors have been subdivided to accommodate a new industrial era and new realities of production. Today the RCA still houses manufacturers making a wide variety of goods

from masks to furniture, but they are mixed in with musicians, yoga studios and entrepreneurs using the spaces for research and development. The units in the current RCA complex are small, adaptable and inexpensive. The variety of enterprises that can be accommodated by this cellular configuration of industrial space represents the predominant form of space occupied by urban manufacturing firms today.

MUNICIPAL ASSISTANCE FOR MANUFACTURING

In Montreal there are two main top-down methods by which the manufacturing sector is encouraged in the city. The first is the practice of protecting existing land under the industrial land-use designation often called exclusionary zoning, and the second are forms of direct investment by the city in industrial land which takes the form of subsidies for industry, such as the PR@M Industry investment program. There also exists a well-established bottom-up approach in the city's network of CDECs (*corporation de développement économique communautaire*). None of these devices focus explicitly on the manufacturing sector, but all are poised to offer benefits to local business people with the central goal of local economic development.

Exclusionary land-use practices, or in this case protecting industrially zoned areas from being re-zoned to accommodate other uses are not unique to the city of Montreal. New York City has recently set in motion an active program of industrial land retention (City of New York, 2005). Under this initiative the city created 16 Industrial Business Zones (IBZs) that retain approximately 22,500 acres of land (Hills & Schleicher, 2012) expressly for industrial and manufacturing businesses. In Montreal, the City's Master Plan has identified industrial terrain under the ambiguous title employment zones. These include a variety of different commercial and industrial areas (fig. 8).

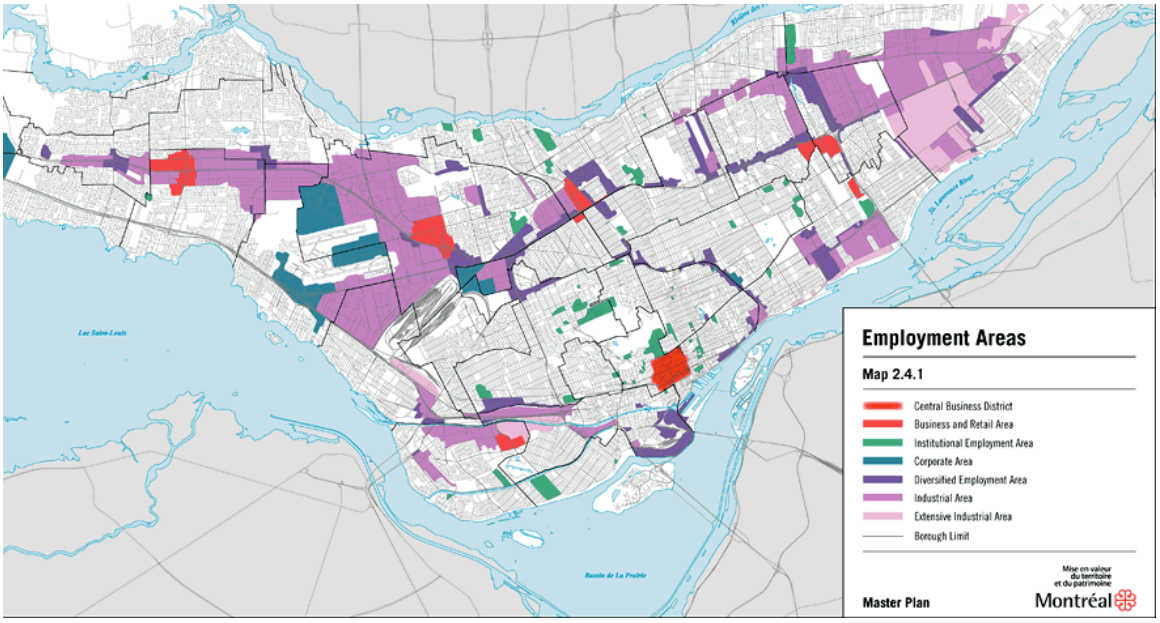

FIGURE 7: MONTREAL EMPLOYMENT AREAS
Source: Ville de Montréal 2011

In Montreal a recent bylaw passed in the Plateau borough provides a good example of how exclusionary bylaw amendments can work by exercising practical restrictions to shield small businesses from speculation. This bylaw places restrictions on floor area (500m^2) and use for new tenants of several industrial buildings in the former garment district of the Mile-End neighbourhood (Scott, 2012). This zoning amendment is intended to protect the buildings for small "cultural industries" mostly artists in this case. However in other instances, particularly in the Griffintown and St Henri neighbourhoods of the South-West Borough, the city has proven to be very quick to turn large tracts of previously industrial land over to residential and mixed use zoning.[7]

The other of the main top-down approach is best exemplified[8] by the direct investment subsidy known as PR@M Industry. The acronym PR@M stands for: *Program Réussir @ Montréal*. This is a subsidy offered to owners of industrial buildings for work carried out on the building especially work performed in construction of additional structures, upgrades towards attaining LEED standard certification, work carried out in a specific territory (fig. 9) or upgrades catering to accommodating artists (Art. 3 S. II ss. 2 By-law Concerning Subsidies for Industrial Buildings), and according to the bylaw in order to be

[7] As my colleague Stephen Charters put it, quoting the CMHC in his recent paper on industrial land retention: "Decisions on industrial land use in Montreal are being made on a case-by-case basis without the benefit of a comprehensive strategy or the basic information needed for understanding the opportunity costs of rezoning industrial land (Canada Mortgage and Housing Corporation n.d.)

[8] This is the best example because, with the exception of the brown-field revitalization strategies *Rivasol* and *Climasol,* there really are few others.

admissible for the subsidy applicants to must have filed for their applications before Dec 2009 (Ibid). This was a five year program initiated in 2007 and slated for expiration in Dec 2012 or when funds were exhausted (Art. 20 s. VI Ibid). It is not clear if the program will be renewed. Applicants could receive up to $1,000,000 toward eligible work (Art. 8 S. III SS. 1 Ibid). This was the industrial component (PR@M Industrie) of the two-tiered program for economic development. The other was aimed at supporting commerce (PR@M Commerce).

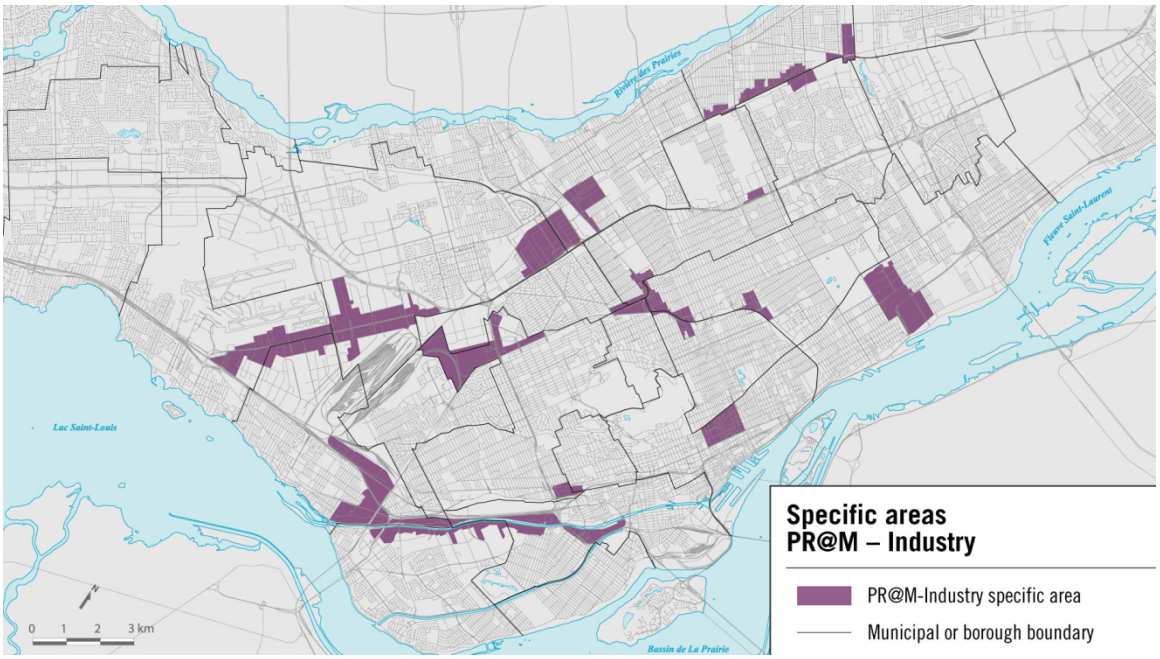

FIGURE 8:PR@M SPECIFIC INDUSTRIAL AREAS
Source: Ville de Montréal 2011

CDECs are institutions in Montreal's social economy sector that provide employment and entrepreneurial support, and community building for local commercial development. Montreal's original CDEC, the *Regroupment Économique et Social du Sud-Ouest (RESO)* began in the South-West borough offering support and job-force reinsertion to manufacturing workers who were laid off as the factories lining the Lachine Canal closed down during the area's period of deindustrialization (Personal Communication: Pierre Morisette). The *RESO* is funded in part through offices concerned with economic development at the Municipal, Provincial and Federal levels of Government, as well as special funding through the *Commission Scholaire de Montreal* and the *Center des Resources Éducatives et Pédagogiques (PALÉE 2011-2014).* While manufacturing was once their specialty by dint of the area's historic rash of factory closures, their mandate today focuses on unemployment through all industrial sectors and also includes community education and advocacy work for immigrating & underprivileged area residents (Ibid.)

CHAPTER 3: METHODOLOGY

This chapter outlines the methodology employed in this study. As stated above, there were two complementary components to the research: the use of data on manufacturers to document what activities are happening where; the use of data from survey respondents to assess the rationale for locational choices and, in association, potential locational assets that exist or could be further strengthened. The methods employed and their strengths and limitations are discussed below for each of the two components.

DATA

The analysis of manufacturing activities in Montreal – firm characteristics, activities, employment levels and location – rested on a series of methodological steps: the collection of new data on SUMs; its amalgamation with existing data (from Scott's Directory); and its projection onto maps of the city.

The unit of observation for this study is the SUM with 50 or fewer employees located on the island of Montreal geographic jurisdiction 66 (figure 1). Based on constraints imposed by the data sources and a desire to focus on the central areas of Montreal, the old municipal boundaries of Montreal provided a further geographic restriction of the sample area (see appendix E). The data set used for mapping the community and for defining the targeted survey population was built using two sets of highly disaggregated data. The first was generated by *Made in Montreal*, and the other was obtained from the *Montreal Metropolitan Chamber of Commerce* (MMCC) based on information gathered by the *Scott's business directories* service. Each data set specifies precise details about firm identity, location, contact information, and respective industrial sector, on a firm-by-firm basis.

The *Made in Montreal* team collected the first data set over a period of a year (2010-11) in a process of mining personal and professional contacts, following leads, and searching other online business indices.[9] The team also attended a number of local events and met a wide range of manufacturers whose businesses were mentioned by friends or industry colleague, appeared online or appeared in traditional print media. The resulting list comprised a total of 268 businesses, many concentrated in the central part of Montreal, in part because the working location of the team was also the CBD and travel by team members was limited by public transit, bicycle, and foot transportation. Because of a focus on very

[9] Other indices such as: servepro.ca, canpages.ca, icriq.com, weblocal.ca, and Google.

small, nascent and local businesses, and the geographic focus on the central city, most of the businesses listed in the *Made in Montreal* index do not appear in the Scott's index, which is described below.[10] This core group of businesses represented a community of trusted contacts; indeed they served as the pilot group for the first mailing of the survey, as discussed in the next section.

The second dataset was collected by the *Scott's Directories* and accessed through the *MMCC's* business information branch *Info Entrepreneurs*. The Scott's database is supposed to be updated on a monthly basis however, according to a Scott's representative, it has been at least 3 years since the CCMM updated its information; this gap was confirmed during analysis, as the most recent entries in the data set come from the year 2009. The Scotts information is comprised of 1,409 individual firms on the island of Montreal, 1,191 of which are firms of fewer than 50 employees. This group represents 15.6% of the reported 9,017 firms on the island[11]. The Scott's data includes up to five separate NAICS codes per firm. As such, it provided a very deep account of a firm's secondary and tertiary functions as well as the primary product, allowing a very accurate identification of those engaging in manufacturing.

The Scott's data points are concentrated in the center and East end of Montreal. This geographic distribution conforms to the pre-amalgamation municipal boundaries of the city, which apparently up to 2009, was the chamber's primary area of interest for data collection for the Scott's index. This sample and geographic limit was highly suitable for this research given the focus on the city's central areas, however a substantial industrial area in the western end of the island is not represented in this sample. Montreal's West Island, particularly the towns of Dorval and Saint-Laurent (Shearmur & Coffee, 2002), are home to many manufacturing firms, including some very large ones, which will not be a part of this study.

[10] Upon analysis, it became clear that many of these firms are not represented in the Province's own archive of manufacturing firms.

[11] Refer to Appendix C for statistics enumerating the total number of establishments (9017) engaged in manufacturing activity on the island of Montreal.

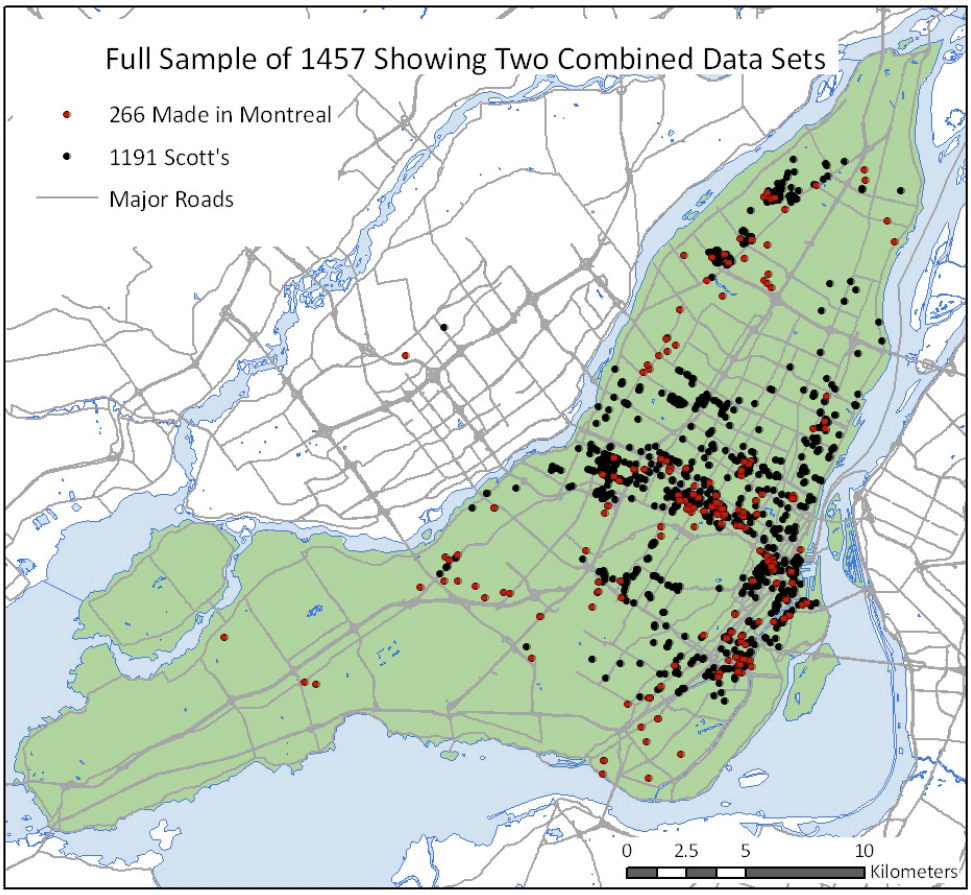

FIGURE 9:FULL SAMPLE COMBINED DATASETS

The points displayed above (fig. 10) represent slightly less than the full sample of businesses; those firms with no address or other locational data were excluded. It is also important to note that the survey could not include all of these firms; many of these businesses did not have viable email addresses. The following table (Table 1) summarizes scope of these constraints, and provides totals of those businesses actually represented in the mapping portion of this study as well as those who had sufficiently reliable contact information to play a role in the survey portion of the study.

TABLE 1:SUMMARYTABLE OF USABLE DATA

	Made in Montreal	Scott's	Sample Totals
Full	266	1191	1457
Reliable location	206	1149	
Total Mapped	206	1149	1355
Reliable contact	158	733	
Email success	158(sent) 27(bounced[12])	733(sent)49(bounced)	
Total Surveyed	132	684	816

[12] The term 'bounced' refers to emails that were returned to the sender because they were somehow not valid.

In order to develop an industry-based geography of the businesses, the data were organized into six separate categories based on the NAICS codes of the individual firms. The categories were based on broad themed industrial groupings that are expected in an intra-metropolitan context according to the literature, and the experience of the Made in Montreal team. The following table (Table 2) shows the categories used to organize the data by industry, their respective NAICS code ranges, and examples of the types of products manufactured by firms in each of the categories.

TABLE 2:INDUSTRY CATEGORIZATION

Cat. Title	Cat. #	Industry	Product type examples	NAICS range
Food & Beverage	1.1	Processing	Prep, Canning, milling, butcher, confec., frozen…	3112-7; 31182…
	1.2	Bakeries & Dry goods	Retail & Commercial, bread, pastries, Pasta, coffee, tea…	31181…3119…
	1.3	Beverage	Soft drinks, breweries, distilleries…	31211-4…
Apparel & Fabric	2.1	Textile	Large/small batch cloth & fiber milling, carpet milling…	31311-31; 314110-5190
	2.2	Cut and sew apparel	Apparel, large batch piece work, men's women's wear…	315210-291
	2.3	Apparel & Accessories	Leather prep., fasteners, hats, furs, shoes…	315292-6110
	2.4	Jewelry	Precious semiprecious stones and metal…	339910
Metal & Machine	3.1	Metal work	Cutlery, hand-tool, stamping, metal frame, plating, spring…	331110-2611
	3.2	Machine	Machine shops, engraving, moulds, refrigeration, heating…	333291-990
	3.3	Equipment	Electronic, computer, medical, lighting, transportation…	334110-6990; 339110
Home & Building	4.1	Wood milling & Furniture	Cabinet, counter, home & inst. Furniture, mattress...	321111-999; 337110-920
	4.2	Misc. architectural	Detailing, windows, doors, plumbing, ext/int stone, glass	327110-990
	4.3	Tools, Toys, Gifts	Non-metal hand tool, mus. Instruments, toys/games…	339920-30
	4.4	Misc. décor	Home-wares, ceramics, candles, wall hangings…	33990
Plastics & Chemical	5.1	Chemical products	Paints, solvents, adhesives, petroleum, cleaning	324121-190; 325189; 325520-999
	5.2	Plastics	Plastic bags, film, wrappers, molded items…	326111-290
	5.3	Pharma	Medicine, health care compounds…	325410
	5.4	Misc. cosmetics	Soaps, creams, makeup, personal care, hand-made…	
Printing & Media	6.1	Printing	Screen, quick, digital, printing support,	323113-20; 325510
	6.2	Signs	Polymer, wood, neon, metal, glass, advertising, displays…	339950
	6.3	Media	Paper, stationary, cardboard, lamination, photo mounting…	322121-299

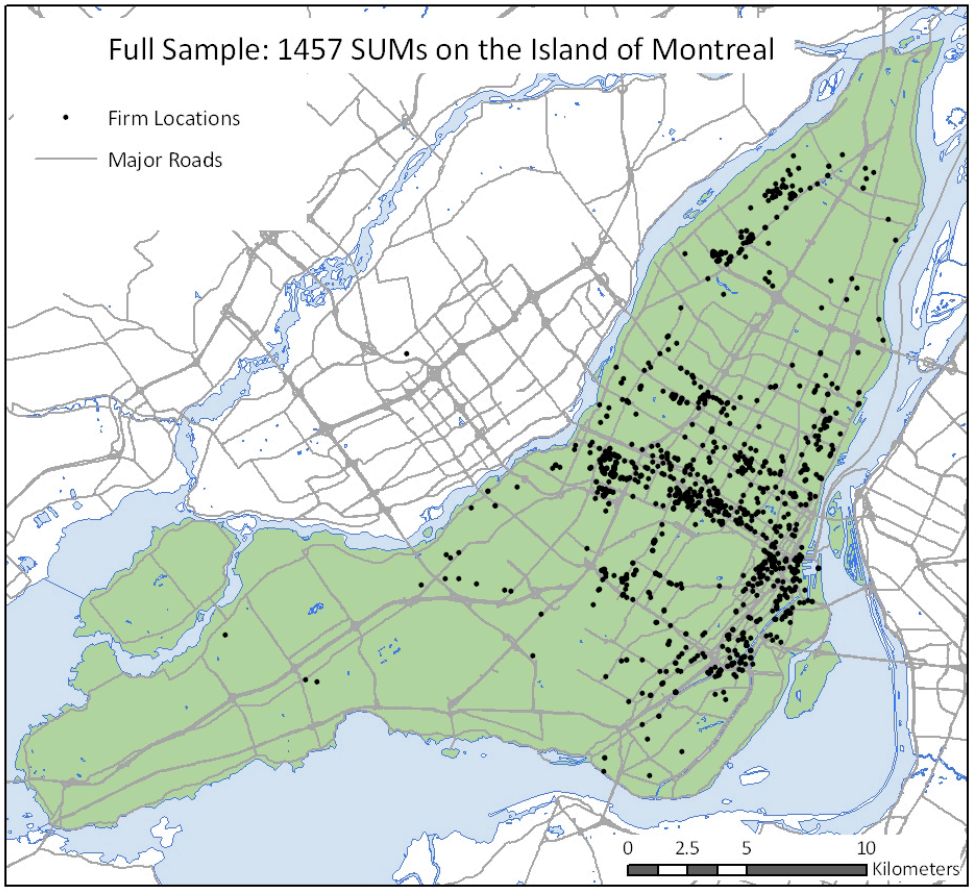

FIGURE 10: FULL DATASET GEOLOCATED PROJECTED ON BASE MAP SHAPEFILES[13]

Organizing the Data

In order to be able to represent and organize the points the desired firm characteristics (location and industry) the separate data sets described above were amalgamated onto a single spreadsheet and their information was normalized. All of the entries for their various characteristics (postal codes, firm name, NAICS number, etc.) were formatted uniformly in order for the mapping program to easily recognize the information and plot it correctly on the map. Within this single spreadsheet, the industrial organization referred to above (Table 2) was used to create categories for mapping.

[13] Due to the fact that these points were geo-located using postal-codes many of the points actually represent multiple firms.

Projecting the Data

This spreadsheet was then added as a data table to the base map. In order to provide the data table with consistent geo-locational attributes, it was "joined" to a postal code shape file, which associates postal code with a corresponding longitude and latitudinal value. Next, the data points in the table were displayed as a layer on the base map by selecting the "plot x y coordinates" tool and the resulting data points were exported as their own shape file. This master shape file then had all of the geographic positions of each of the businesses in the original spreadsheet (by postal code) as well as all of the original attributes provided in the original Scott's and Made in Montreal Data sets.

This resulting master shape file was used in the ArcGIS program to represent the data in the various configurations found in this document the simplest of which is presentation of all the data points (fig.10). To display the data points provided by the two separate data sources (fig. 9) selection was made using the "select by attributes" for only those businesses that possessed "Scott's ID" numbers. To map firm location by industry (figs. 12-18), new map layers were created for the 6 different categories and, using the "select by attributes" feature, new shape files were exported into each of these layers representing the sub categories for each (ex. 1.1Processing, 1.2Bakeries & 1.3Dry goods Beverage for category 1). Each of these subcategories was assigned its own colour by adjusting the layer's 'symbology'. Once these layers were created, maps of the data points for the different industrial categories could be projected as layers over the existing base map. The resulting maps allowed for an accurate count and a presentation of the geographic distribution of each respective industry.

The data were projected by their geo-locational data using *ESRI*'s ArcGIS. The data were imported using the coordinate they were projected against a base map of Montreal's island its surrounding water features and it's main road ways. Most of the Base Map was accessed through the *Transportation Research at McGill* (TRAM) website. The following is a chart presenting the shapefiles used and their original provenance.

TABLE 3:MAPPING DATA SOURCES

Title	File Type	Source
Montrealoutline	.shp	TRAM team
MajorRoads	.shp	DMTI Spatial inc.
Water	.shp	DMTI Spatial inc.
LandUse	.shp	DMTI Spatial inc.
ManufacturerSample	.xls	Alex Carruthers

SURVEY

The intended outcome of the survey was to discover why manufacturing firms chose to locate in Montreal. The survey was divided into three separate parts entitled: 'who' 'why' and 'what' (See appendix G for the full question sheet). The first part dealt with basic information to identify the company, its size, industry, location etc. This section served mostly to place the respondent company within the context of the larger sample.

The second part dealt with why the company chose to locate in Montreal. This part was divided into three questions. The first asked respondents to identify the primary overarching reason, either economic or quality of life, for the company's location. The two following questions probed these overarching reasons in greater detail. The first asked respondents to choose the three most important of 8 possible 'economic' considerations and an open-ended 'other' category. The next question asked respondents to choose the three most important of 7 possible 'quality of life' considerations, and an open-ended 'other' category.

The third part of the survey asked respondents to prioritize the three most important community and economic development services from a list of options. This last question was intended to determine what businesses find valuable as services provided by local private sector community and economic development planning professionals.

The survey was translated into French,[14] and disseminated by email, using the *Survey Gizmo* service.[15] The dissemination took place over the course of three weeks in the month of February 2012. First it was sent out as a trial to the 132 businesses from the *Made in Montreal* dataset. It was sent to these businesses first in three consecutive rounds of e-mails. An initial e-mail introducing the project was followed by two 'reminder' emails politely asking for respondents to "…consider filling it out" (See appendix H) and offering respondents the opportunity to share in the results once compiled as an incentive for participation. Each round of emailing produced roughly 9 responses (or 6% of the total) for a total of 25 responses.

[14] A handy html rule was incorporated into the mailing service (see note below), which allowed the survey to appear in the language used by the browser on the respondent's computer.

[15] www.surveygizmo.com service was chosen for their offer to provide those with valid student identification free access to the privileges of one of their more exclusive professional packages.

After determining the system's successful functioning, and altering the correspondence emails to cater to a population who had never before been contacted, it was sent to 684 active contacts taken from the Scott's database. After the initial mailing (yielding 42 responses or 6% of the total) two additional 'reminder' emails were sent out. Each of these yielded approximately (14 responses or 2% of the total) responses each. There did not appear to be a significant difference between those businesses who had been chosen by the opportunity sampling of the Made in Montreal method and those chosen by the more directed random sampling method used in contacting those from the Scott's data list.

Though the sample is not very large, it is typical for this type of research. This level of response was expected as it matches very closely a similar study (Doloreux 2004), in which a total of 52 responses allowed researchers to present interesting findings on innovation among SME's in Ottawa, Ontario. . In all, the survey was sent by email to 816 businesses, all on the island near the center and towards the East end of the island. At the end of the month, a total of 95 complete survey responses were tallied. This represents a response rate of 10.5%.

Possible Bias

Since a number of the survey respondents came from the work of *Made in Montreal,* it was important to consider possible biases in the sample. For instance, it was expected that this portion of the sample would be sensitive to the types of services (i.e., social media services and networking events) that would be expected of Made in Montreal, and it was possible that some respondents might make choices that fit the profile of what might be offered by a group offering an internet index as its principle service. However, no preponderant tendency to highlight types of networking services was apparent among of the 25 respondents from the *Made in Montreal* index. It was also possible that more firms from the *Made in Montreal* portion of the sample would be willing to complete the survey, perhaps feeling bound by professional or platonic obligation. Again this was not found to present bias. As previously mentioned, with each round of questioning between 2 and 6% of those contacted would respond despite the source of contact details (*Made in Montreal* or *Scott's*).

The firms discovered by the *Made in Montreal* team were discovered by opportunity selection. In other words there was a high degree of randomness to those that were selected. The only criterion employed in the selection process was that they manufacturer goods in Montreal. No preference was made regarding industry, ideology, production method, or product quality. The Scott's data is truly exemplary of a partially filtered random selection of firms. The sole filter applied pertained to firm size.

CHAPTER 4: RESULTS

This chapter is also divided in two parts. The first presents of the data plotted on maps of the island of Montreal and the second presents results from the survey.

MAPPING MONTREAL'S MANUFACTURERS

This first map (see Fig. 11) projects all of the data points in the sample according to the designated land use. Table 4 states the proportions of the sample located in each land use category. It is notable that small urban manufacturers are locating in industrial zones and non-industrial ones. Figures 12 –xx depict the locations of businesses within a given industrial sector. It is worth noting again that data for the west island businesses were not included in the sample. General observations for each sector are as follows.

TABLE 4: LAND-USE PROP.

Open	2%
Institutional	2%
Commercial	20%
Industrial	54%
Residential	22%

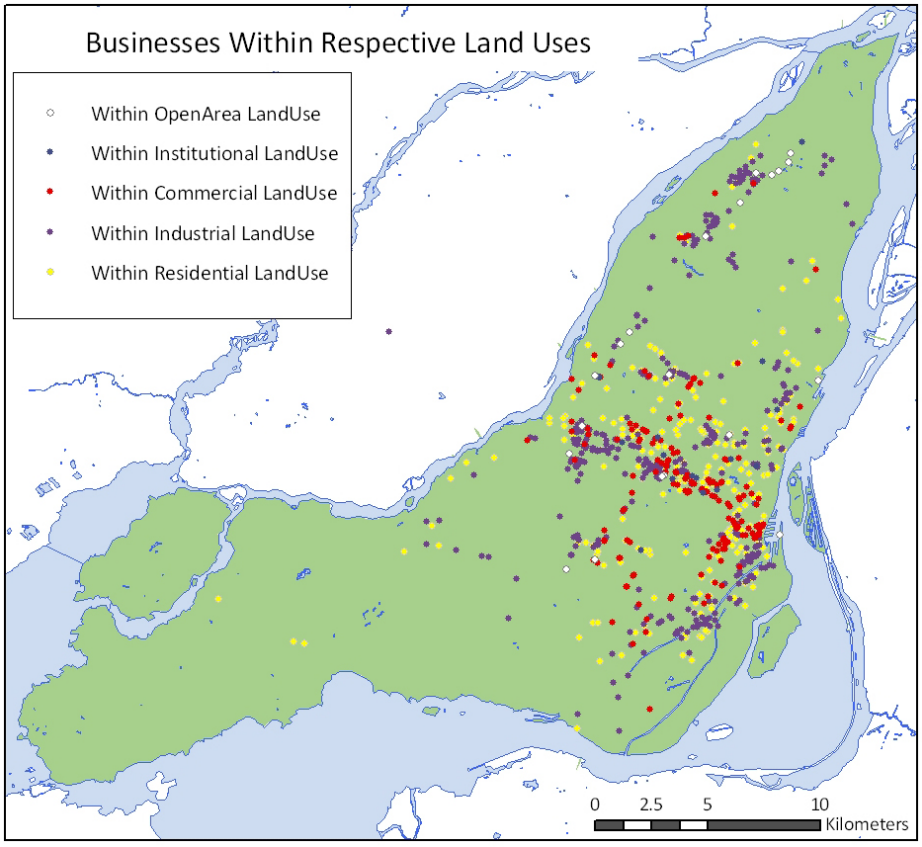

FIGURE 11: IN WHAT KIND OF ZONING DOES EACH FIRM LOCATE?

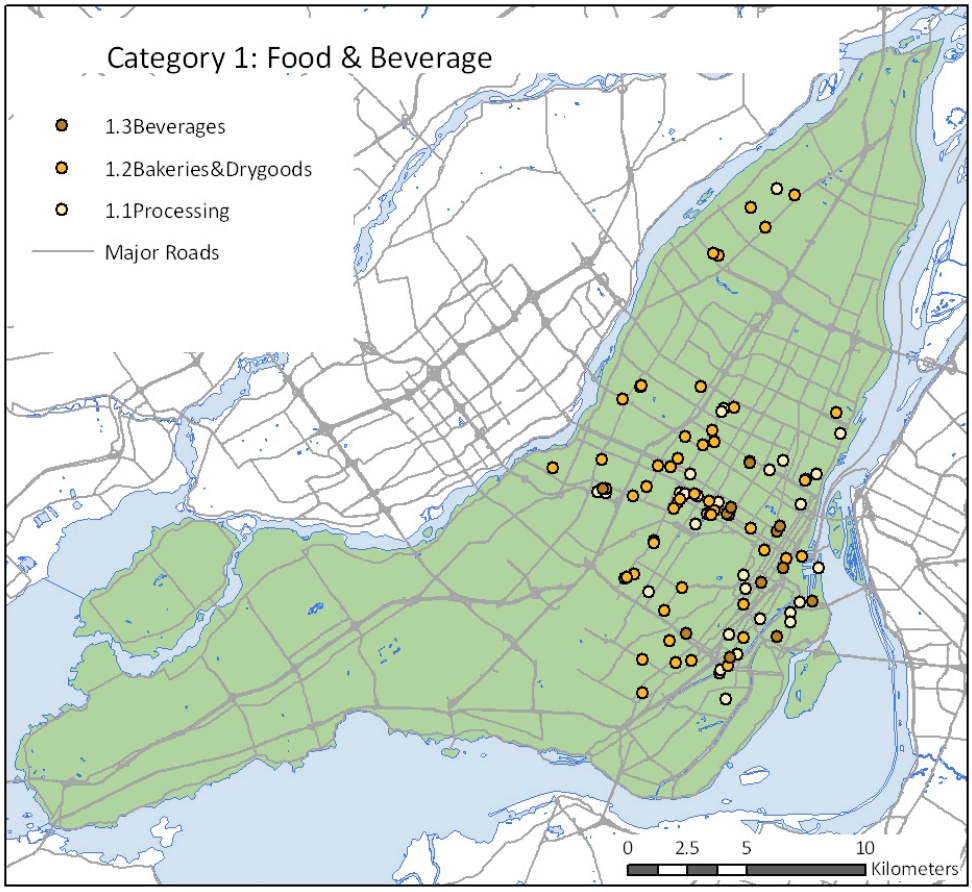

FIGURE 12:LOCATIONS OF CATEGORY 1

Of the six categories, food and beverages ranks as the 5th smallest category in terms of number of firms, with only 'Plastics and Chemicals' having fewer businesses (see Table 5). Within food and beverages, bakeries and dry goods is the most numerous, with 54 firms. There are 31 commercial bakeries in the sample and 16 retail bakeries. The dry goods manufacturers mostly make pasta, coffee, tea, and seasonings. Six of the firms in the beverages category are breweries and the rest are mineral water, soft drink or ice manufacturers. The processing category includes products from kosher meats, chocolates, tomato sauce, granola, and ice-cream.

TABLE 5: CATEGORY 1 FIRM COUNT BY SUBCATEGORY

1.1 Processing	38
1.2 Bakeries & Dry goods	54
1.3 Beverages	14
Total Food & Beverage	106

Survey data provide limited insight into the types of firms operating in the food and beverage sector in Montreal. *Bilboquet Inc.,* a famous local ice-cream manufacturer, *Les Fourmi Bionique*, a popular granola manufacturers, *Blue Spike Beverages*, and Crepes Gourmet inc. were the only 4 companies from this category that answered the survey.

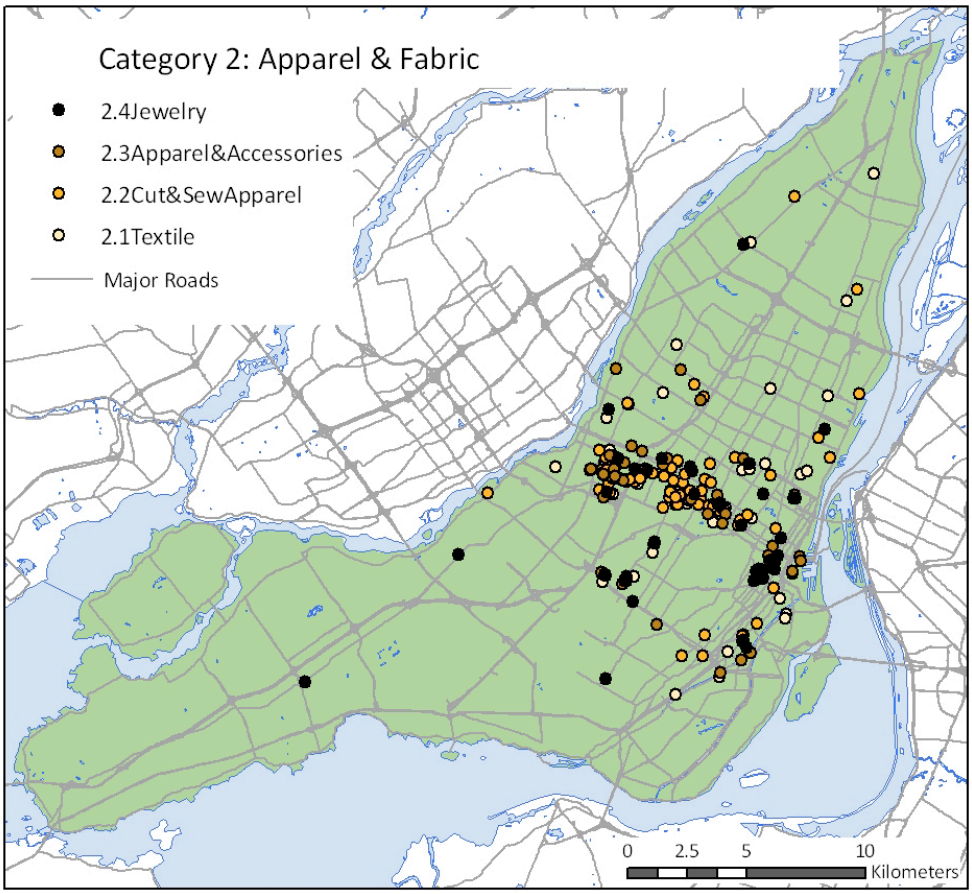

FIGURE 13: LOCATIONS OF CATEGORY 2

Apparel, category 2, is tightly clustered along traditional vectors for the apparel industry. The close grouping of Jewelry, denoted by the black dots, corresponds with the traditional Jeweler's district, which in Montreal is known to concentrate around Phillips Square near the historic *Birk*'s store downtown.

TABLE 6: CATEGORY 2 FIRM COUNT BY SUBCATEGORY

2.1Textile	91
2.2Cut&SewApparel	200
2.3Apparel&Accessories	78
2.4Jewelry	94
Total Apparel & Fabric	463

Table 6 shows that cut&sew businesses are clearely the most numerous in this category. An example from the survey respondents representing the dominant cut and sew category is a business called *Bummis inc*., which makes baby diapers and diaper covers. They employ 30 fulltime staff in a factory on Mt.-Royal Avenue and have a boutique a few blocks away on St. Laurence Boulevard, a historic locus of wholesale garment manufacturing. *Bummis* inc. is surrounded by a number of local designers, who fall into the Apparel&Accessories category, with workshops at workshops at the back or in the basement of their retail spaces.

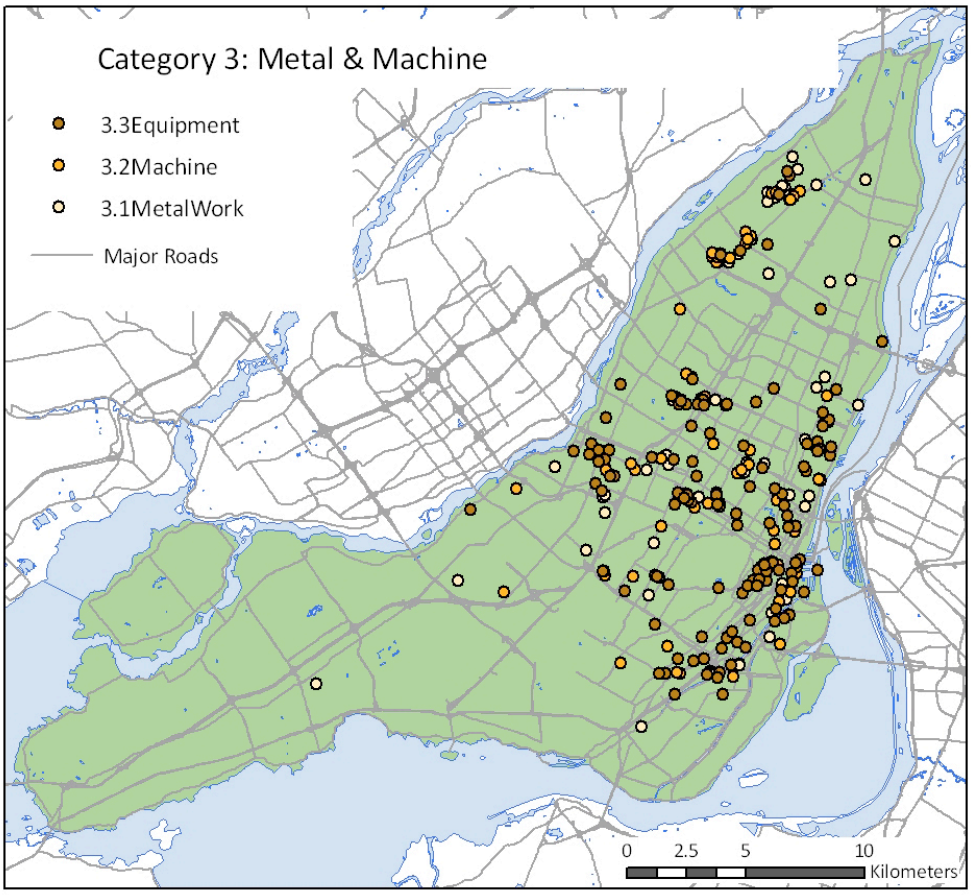

FIGURE 14: LOCATIONS OF CATEGORY 3

The machine and metals sector displays a high level of localized clustering of the equipment firms, as indicated by the darker brown dots (see Fig. 15). Upon closer analysis, many of those in clusters manufacture specialized products for local healthcare, dental prostheses, surgical implants, eye-glasses, etc. Equipment firms making lights and small parts for the automotive industry also account for a substantial share of the sector (see Table 7). The general metalworking and machine shops seem to have a much wider distribution and are less apt to be clustered together.

TABLE 7: CATEGORY 3 FIRM COUNT BY SUBCATEGORY

3.1Metalwork	99
3.2Machine	81
3.3Equipment	147
Total Metal & Machine	327

The majority of survey respondents from this category are French-speaking, longtime residents of Montreal, with strong ties to the local economy. These businesses – whether making alabaster lamps, ornaments for churches, injection moulds, industrial bags, or tools – are tightly bound to a localized client base. Part of the high incidence of French speakers in the sample is likely due to the orientation of the sample to the East end of the Island, the traditionally French side of Montreal.

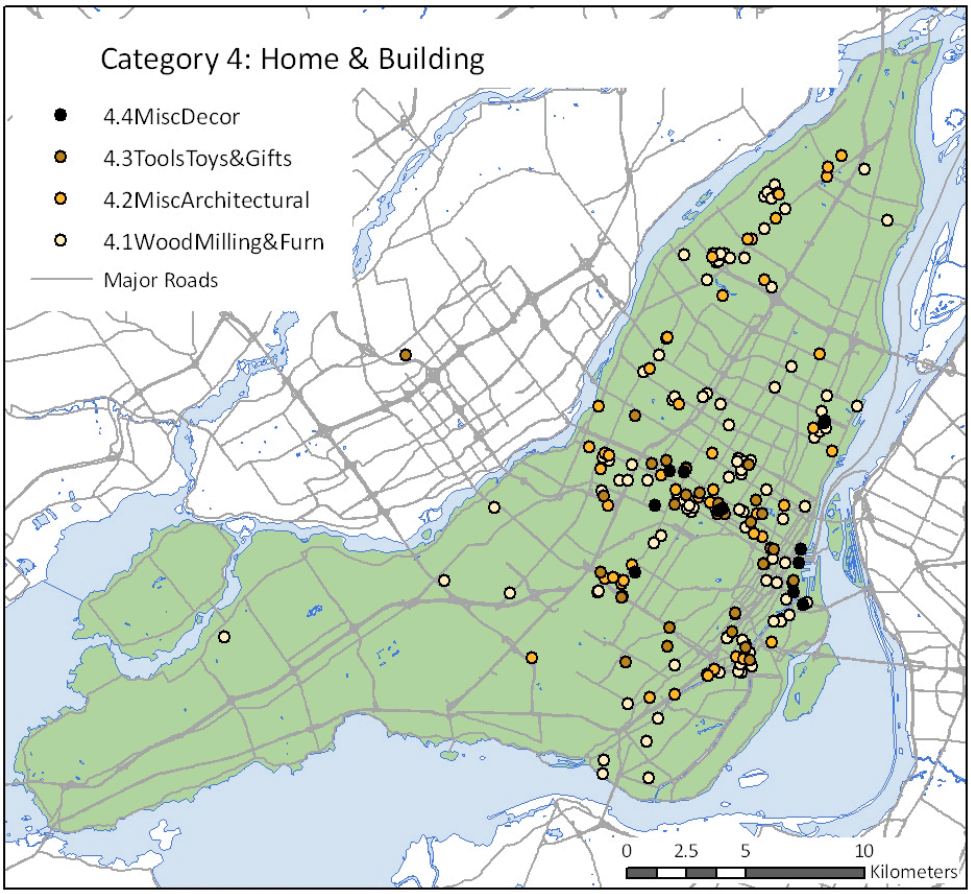

FIGURE 15: LOCATIONS OF CATEGORY 4

The location pattern of firms in the home and building sector exhibits a tendency to locate along main transportation corridors, particularly the commercial boulevard s of St Laurent and St Denis (see Fig. 16). At the high end of Boul. St Laurent (indicated by the highest density of points mid-island), there is a well-known furniture retail cluster. Notice also the stringing along highways and major thoroughfares to the East and clusters at major intersections.

TABLE 8: CATEGORY 4 FIRM COUNT BY SUBCATEGORY

4.1WoodMilling&Furniture	153
4.2MiscArchitectural	51
4.3ToolsToys&Gifts	37
4.4MiscDecor	14
Total	255

Table 8 shows the WoodMilling&Furniture subcategory to be the largest. The tendency for these businesses to locate along major transportation corridors was confirmed in the survey responses. 6 of the 17 firms in the survey who identified '…proximity to regional transportation networks' as one of their priorities (see fig. 24) were from the home & building category. This level of detailed does not present conclusive evidence of a locational trend, but opens an avenue for possible future study.

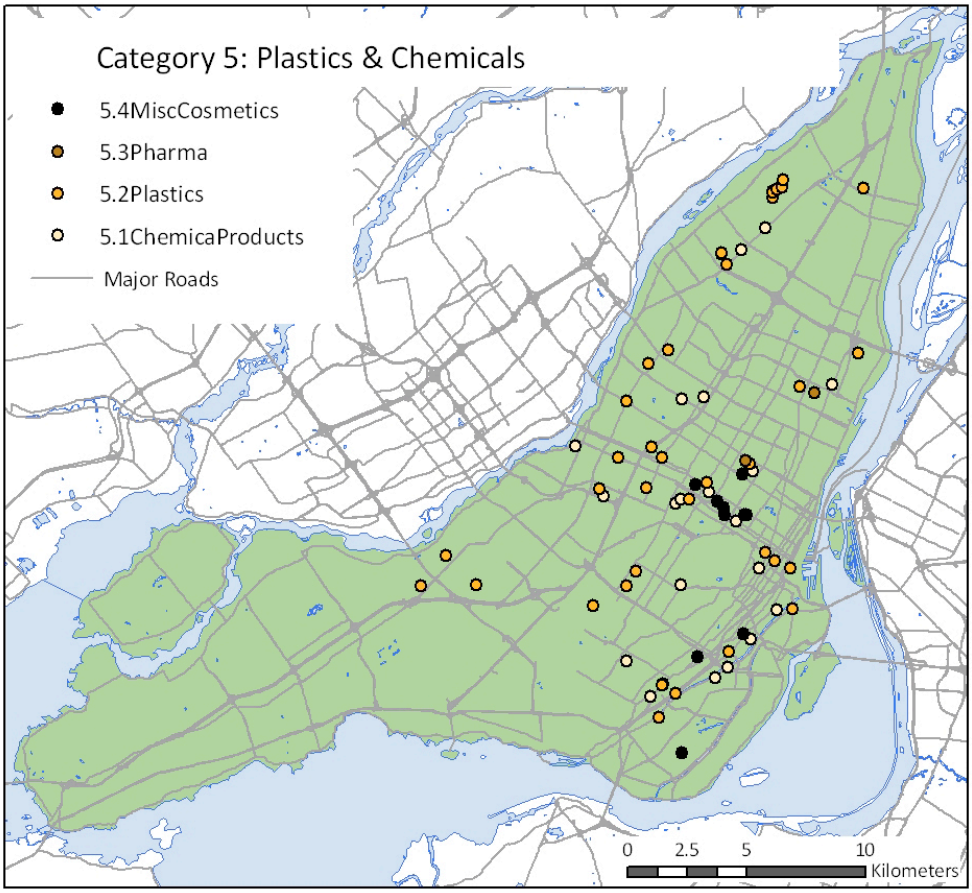

FIGURE 16: LOCATIONS OF CATEGORY 5

Plastic and chemicals manufacturing constitute the smallest numeric group of firms in the sample. As with the other categories, there is a concentration mid-island mostly from the 'Misc. Cosmetics' category (denoted by the black dots on Fig. 16). The largest sub-category, 'Plastics', seems to be distributed fairly evenly across the territory with the notable concentration in the East.

TABLE 9: CATEGORY 5 FIRM COUNT BY SUBCATEGORY

5.1ChemicalProducts	25
5.2Plastics	39
5.3Parma	2
5.4MiscCosmetics	11
Total	77

Only one business from this category responded to the survey, Cosmetiques Bionomie Inc. Bionomie is a new firm (under 2 years old) that has 1-5 employees who manufacture and sell cosmetics to a local consumer base (90% of their sales). This is a typical artisanal manufacturer.

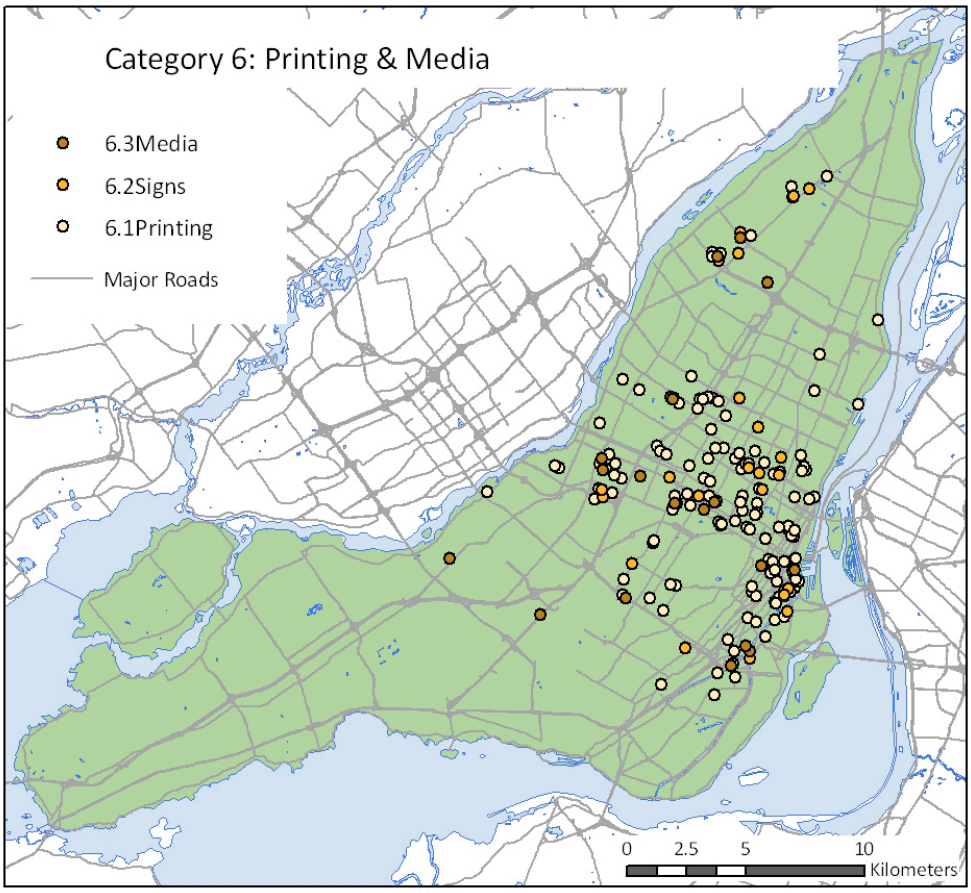

FIGURE 17:LOCATIONS OF CATEGORY 6

The printing and media category shows consistently high concentrations throughout the central areas, particularly in and near the CBD. Known as 'centrally located communication economy industries' in Allan Pred's (1964) piece, this category caters to local business, design and commerce firms. The media firms make containers or surfaces in paper, cardboard or similar materials for use by other industries. As such, they are not to be confused with other uses of the term media (such as news or electronic media). It follows that this category of manufacturers serves the local market.

TABLE 10: CATEGORY 6 FIRM COUNT BY SUBCATEGORY

6.1Printing	156
6.2Signs	23
6.3Media	22
Total	201

Table 10 shows that the printing subcategory is the largest numerically. All 9 of the respondents from the printing category identified proximity to clients among their economic priorities. A wide array of services was offered by some of the printers who responded to the survey. For instance, Charles Boulanger 2000 inc. offers digital printing as well as offset printing, dye cutting, embossing, foil stamping, book-binding, heat treating, laminating, and engraving.

Although selected survey results are presented above to illustrate activities and priorities in each sector, it is worthwhile reviewing the survey results systematically. To reiterate, the survey was divided into three sections, the first section identifying the manufacturer and firm characteristics ('who'), the second identifying the main reason – economic or life-style – behind the choice of location in Montreal ('why'), and the third addressing respondent's priorities for local economic development services ('how').

WHO

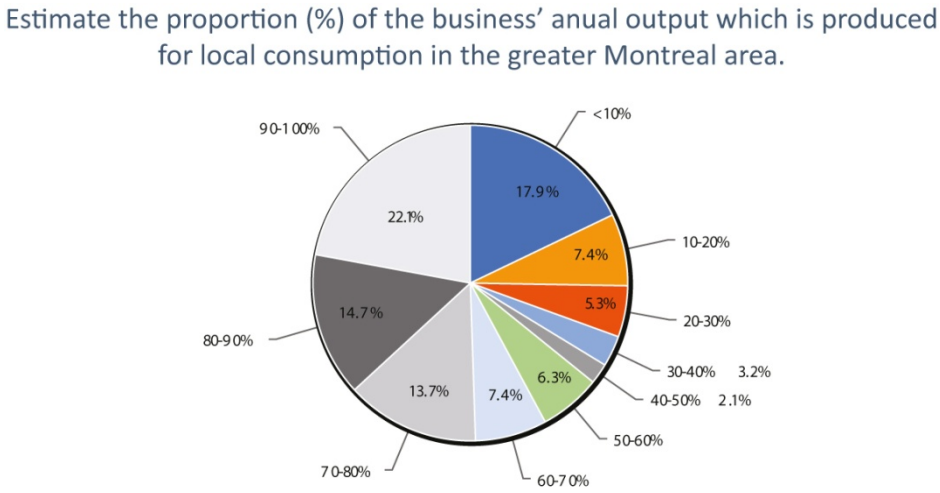

FIGURE 18: Q3.PROPORTION OF ANUAL PRODUCTION INTENDED FOR LOCAL CONSUMPTION

Over 50% of these SUMs surveyed manufacture over 70% of their output for local consumption. The right side of the graph represents firms who primarily export their manufactured goods. A sizable proportion of respondents, 17.9%, export over 90% of their output to areas outside of the city.

Note that while the exact meaning of 'local' was not specified in the survey, it was assumed that respondents would share a general understanding that local consumption is defined by a range of distance including everything from a firm's immediate vicinity (neighbourood) to the wider metropolitan area, but rarely, if ever, would interregional (between extra-metropolitan areas), national (interprovincial) or international consumers fall under the definition of local.

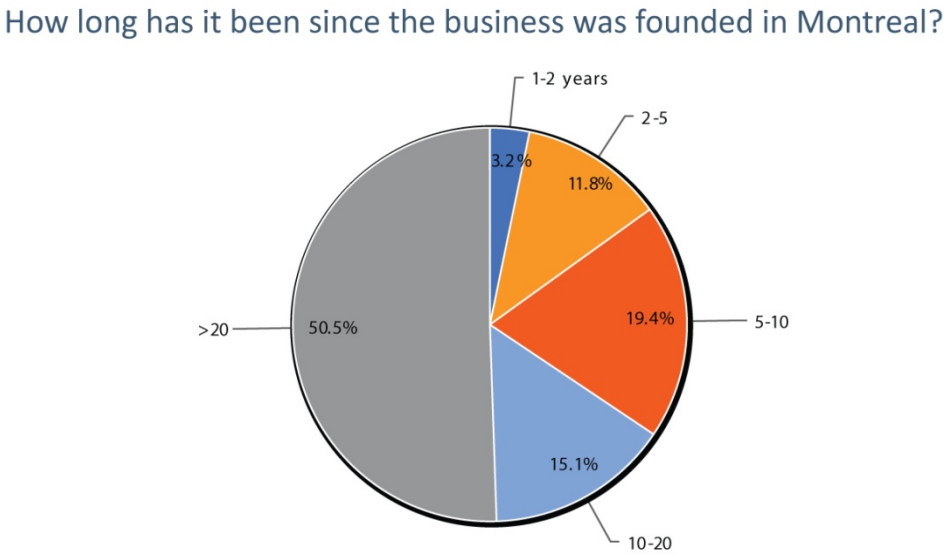

FIGURE 19: Q.4 TIME IN BUSINESS

About 50% of respondents have been in business for over 20 years. The comparatively small recent start-up (1-2 year) category is at least in part due to constraints in the data sample because the data for the largest part of the survey (Scott's) is 3 years old (2009). Recall that the data that came from the *Made in Montreal* project were more recent (2011). Therefore, firms that would appear in the first category 1-2 years (3.2%), a duration typically considered a start-up period, came uniquely from the *Made in Montreal* data sample.

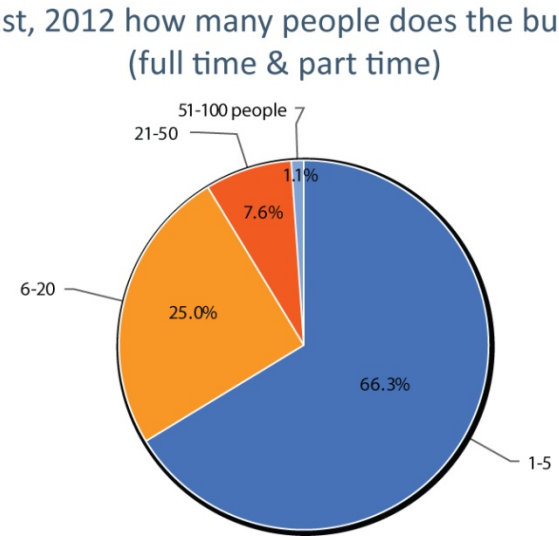

FIGURE 20: Q.5 FIRM SIZE

A majority (66.3%), 63 of the 95 firms, employ 5 people or fewer (Fig. 21). These, then, fall into the category of micro-enterprises[16], which often slip under the radar as a significant contributor to local employment. Although only firms of 1-50 employees were included in the sample to be surveyed, a few firms had increased employment levels and show up in the 51-100 employee category.

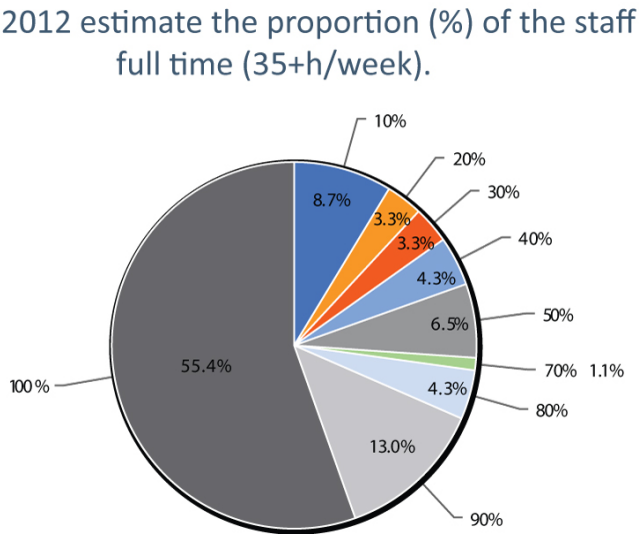

FIGURE 21: Q.6 PROPORTION OF FULL TIME STAFF

Most firms generally employ staff on a full-time basis. 55.4% of respondent businesses report that they employ a 100% full-time staff. 72.7% of respondent companies report that they employ at least 80% full

[16] Normally SMEs employing between 10 and 100 people is the standard for employment studies (see: Doloreux, 2004)

time staff. According to observations found in other literature (Philips-Fein, 1998), such findings correspond with reports that the goods-producing sector supplies a comparatively high proportion of full-time jobs compared to the service-producing sector.

To understand the other end of the spectrum, where majority staff are part-time, one may turn to an anecdotal scenario presented during a casual interaction with a local designer. The designer mostly makes the clothing by herself, but employs many part-time workers to fill other roles within her enterprise, such as assistant seamstresses, printers, finishers, handlers, inspectors, and shippers. This type of situation is reflected in the experience of workers in the fashion industry in other cities as well[17]

WHY?

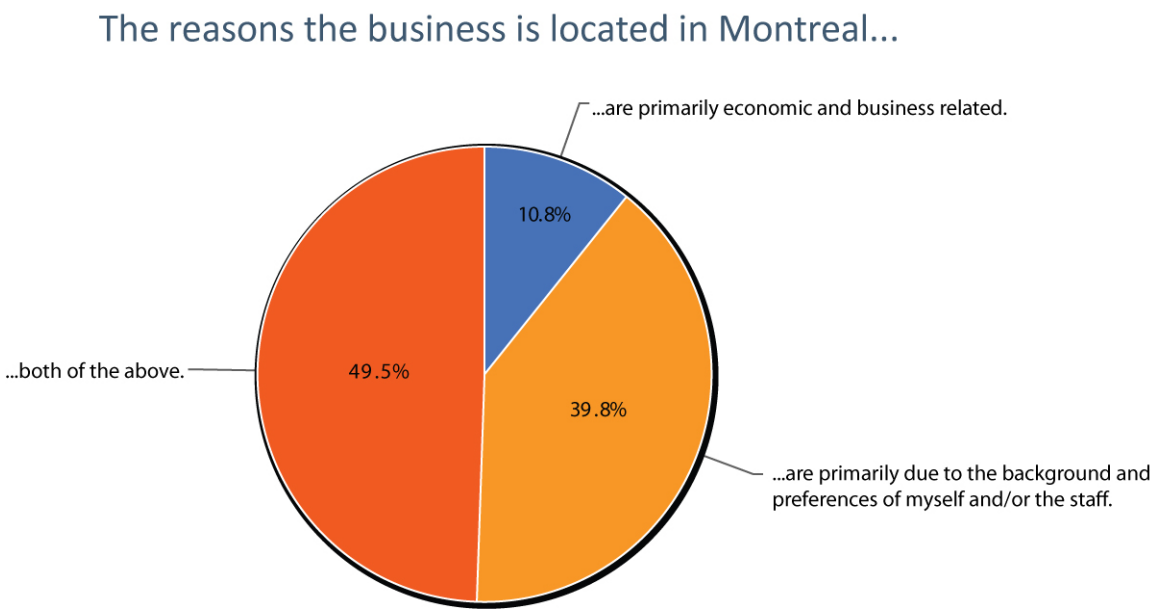

FIGURE 22: Q.8 ECONOMIC VS. PERSONAL & LIFE STYLE LOCATIONAL DECISIONS

Nearly half (49.5%) selected 'both'. Of those who chose between one and the other, the great majority said that background and personal preferences were the primary reasons for locating in Montreal. Only 10.8% of respondents claimed that their reasons for locating in Montreal were primarily due to considerations of business and economics, confirming claims in the literature that small firms were more likely to "…let personal factors determine their location" (Ewing 1977 p. 194).

[17] A similar scenario is portrayed in the following piece profiling San Francisco Designer Noah Guy of Joshu + Vela …" Guy employs a rotating cast of part-time, skilled workers. When asked if he hired fashion-school grads, he answered, "Never!" The best type of garment worker in San Francisco tends to be an aging breed of older, career garment worker…" Rouseau, A. (2012)

The following 3 histograms present results from questions that gathered information in the same way. For each question respondents were asked to choose the top three most valuable services from the list. The percentage values above each of the bars in this histogram indicate the proportion of respondents that chose the respective selection as one of their three most valuable. The three options from a given respondent were not given a ranking.

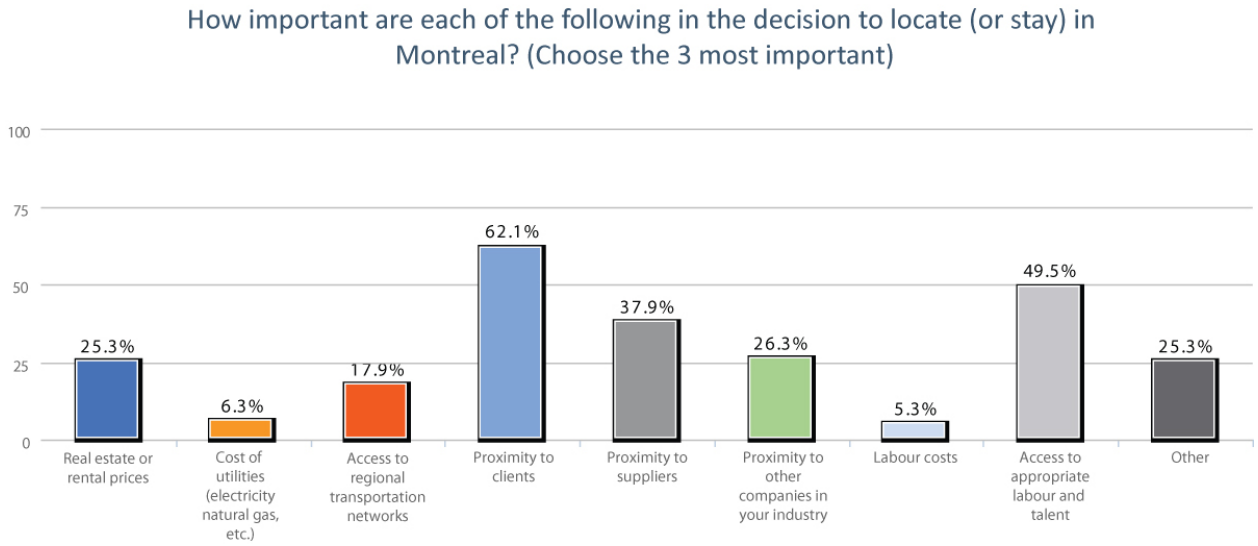

FIGURE 23: Q.9 ECONOMIC REASONS

Proximity to clients (62.1%), access to appropriate labour and talent (49.5%), and proximity to suppliers (37.9%) are the most important economic priorities of the respondents. Interestingly the other options, 'proximity to suppliers' (37.9%) and 'proximity to other companies in your industry' (26.3%) far outweigh the economies realized by considerations for costs of utilities, real estate, and labour, which are considered to be relatively low in Montreal compared to other North American cities. This shows that respondents are more sensitive to the economies gained by geographic position relative to labour market, markets served, and associated businesses, rather than costs associated with the expenses of inputs. Indeed, Montreal is widely recognized to have very favourable costs of utilities, rent and labour compared to other North American cities of a similar size (Stolorik & Florida 2006).

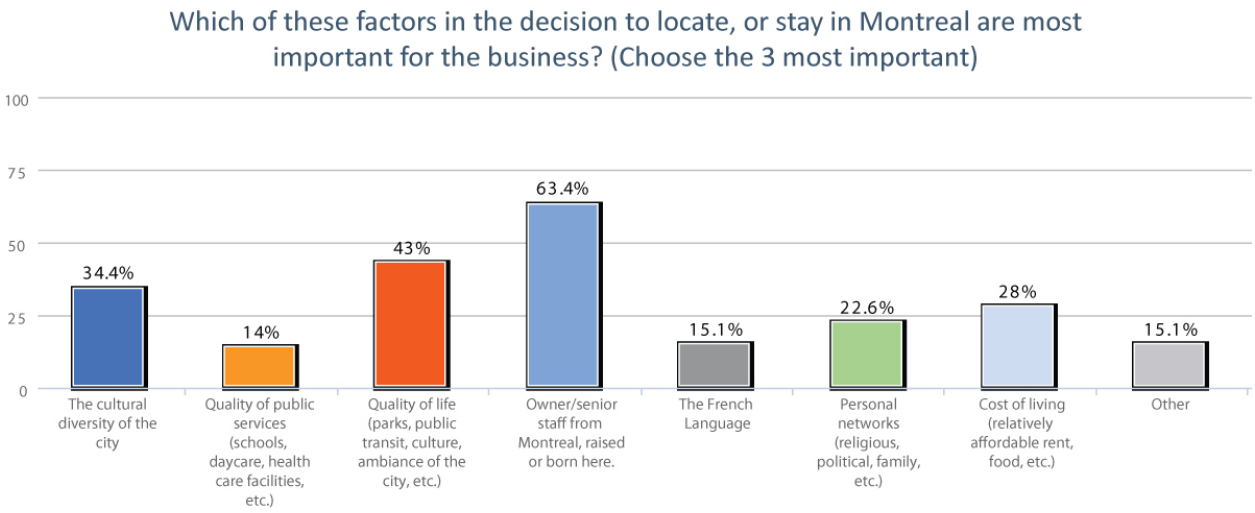

FIGURE 24: Q. 10 PERSONAL AND LIFESTYLE

Figure 25 depicts results of the second list of rankings, those related to life-style considerations. 63.4% of respondents identified the reason that "Owner/senior staff [were] from Montreal…" as the most important of these lifestyle/personal reasons. The very general "Quality of life" category was ranked second, with 43% of respondents choosing it among their top three. It includes a very broad range of urban characteristics including "…parks, public transit, culture, [and] the ambiance of the city…" and is considered by this researcher to represent a vote for Montreal's particular urban spirit. 34% of the respondents identified the cultural diversity of the city, which might be considered a nod to the presence of both the French and English majorities, a cultural dichotomy that is indeed rare in the North American context.

Although it was among the least prioritized of the options, it is interesting to note that 'the French Language' option was chosen by 15.1 % of respondents. This is interpreted as representing the portion of the survey population whose principal language is French and who would find it difficult to operate in another language.

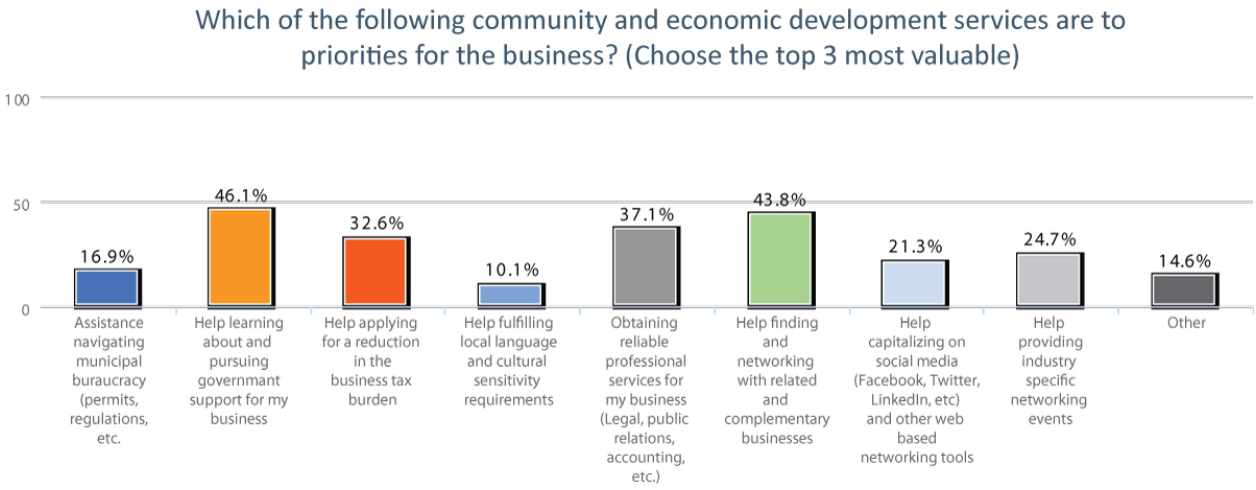

FIGURE 25: Q.11 MOST VALUABLE SERVICES

Results related to the ranking of important business services are presented in Figure 26. Help "…pursuing government support…" (46.1%) was the most popular, followed closely by help "…networking with related and complementary businesses" (43.8%) and help "Obtaining reliable professional services…"(37%). These latter two responses are somewhat surprising; one might assume that business people would already have a good handle on them. This may be interpreted as evidence of the time constraints felt by small manufacturers, in other words these business people are occupied mostly with the daily affairs of handling the operations of their enterprise and see government support, networking with associated businesses and even finding reliable professional services as peripheral activities that too often get neglected. This is an anecdote that was often encountered in casual interaction with the members of this community. Such responses may also reflect what they think is generally most important to the business, and not what is currently lacking or needed.

As the responses to these last 3 survey questions relate directly to professional requirements and priorities of the sample population, they are helpful for guiding the policy recommendations in the next and final chapter this paper.

CHAPTER 5: INTERPRETATION & CONCLUSION

This chapter consists of two corresponding parts that together place this study in a broader context of urban planning theory and policy. The first part summarises the planning implication and the lessons learned in this research while the second highlights some practical devices and services by which public and private sector planning professionals can respond to the issues identified in this paper.

PLANNING IMPLICATIONS

Land-use and classification mix

This research shows that various manufacturing firms continue to exist within Montreal's central areas, including the CBD. Some firms, like those in the apparel industry, continue to concentrate in traditional industrial areas that are designated as such in official City plans. Others cluster together locally, but are distributed fairly evenly throughout the various types of land uses including residential areas. Manufacturing firms are not only using the traditional spaces of production marked by built form (old factories) designed to accommodate heavy use, but are also incorporated into the finer residential and commercial fabric of Montreal's urban neighbourhoods.

An additional related conclusion worth drawing is the nuanced definition of what constitutes a 'manufacturing firm'. Just as the businesses described in this paper are not all located on industrial land, they do not all conform to conventional paradigm of a manufacturing enterprise. Many closely resemble what would be considered artisanal production and, due to their small size and variety, are able to adapt themselves to various scales and typologies of spaces in the urban setting. Indeed, the variety of industry types present in the sample exceeded the expectations of the author and will undoubtedly surprise many readers.

Culture & Capacity Building

This manufacturing diversity presents the city with substantial employment and entrepreneurial opportunities spread with remarkable regularity throughout the city center. The businesses in this sample are in very close proximity to the resident urban population. This proximity means that the local urban labour pool is availed of a wide variety of employment options. The opposite is also true. Firms located in the central areas have access to a wide variety of employees. One of the top priorities identified by respondents in Q. 9 (fig. 24) was access to appropriate labour and talent. A consequence of

the business and talent diversity will necessarily be that the local labour force has experience in various industries, a good feature for ensuring the capacity of a local economy to adjust as economic tides change.

Some industries are represented by higher numbers of firms. Fashion, furniture, metal work, and equipment (such as dental appliances) were some of the larger categories represented. As an example, it may be that Montreal has an exceptional concentration of small fashion houses and so gains a reputation for being a particularly strong player as a fashion center internationally, despite overall job losses and firm closures in the sector. This is indeed true of Montreal. It is a city that is recognized as an important fashion center, illustrating that the quality a given product manufactured in a city contribute to the character and reputation of that city. The culture of the place will necessarily be infused by and represented in the goods that are being made there. In Montreal this could also mean capitalizing on abundant local specialties, everything from maple syrup to aluminum.[18]

City Branding

The reputations of products that inherently express the local culture become a symbol of the city itself (the firm, dense, wood oven baked Montreal-style bagel is a prime example). Durable and non-durable products alike get exported or given as gifts and travel beyond the municipal boundaries, carrying with them an indelible stamp of their provenance. A municipality must be sensitive to opportunities for branding the city as a result of the reputation the city's products carry with them.

Transportation

Although transportation issues were not explored directly by the survey, the implications of enabling walk-to-work commuting were implicit in this research's focus on Montreal's central areas. Given what can be seen from the distribution of the data points these small firms are located in the immediate proximity some of Montreal's highest concentrations of urban residential population. Variety of employment opportunities close to the highest concentration of urban population bodes well for encouraging alternative modes of transportation for the daily commute. Health implications of encouraging employment opportunities in close proximity to residential population are widely acknowledged (sources). It is also important to note the tendency of many SUMs to locate along major transportation corridors - locations that offer high accessibility to workers (fig. 14) but also to multiple modes of transport.

[18] Material used for Montreal's well known fleet of bike-share bicycles *Bixi Bikes* - actually manufactured in Saguenay Quebec

Gentrification

The location of SUMs in areas with rapidly increasing property values is probably most important from a taxation angle. Small firms (particularly those that fit the SUM description) seem not to be subject to the locational decisions one would expect of profit maximization, and so are not as likely to be influenced by the natural disincentives of higher property values closer to the center of the city. Despite the evidence that these businesses are staying in Montreal primarily because of the personal preferences and history of their management and employees, they are certainly not immune to the forces of gentrification either. Finney (1994) presents compelling empirical evidence that higher property taxes – as well as land values and rents – can dissuade firms from locating in intra-metropolitan areas with high-income populations. Many of the areas that were once forgotten continue to experience increasing property values, as has been well documented in other traditional metropolitan centers like New York (Zukin 1982; Curran 2004). The Montreal areas that have experienced the highest increases in property value in the most recent property valuation are those traditionally industrial areas (particularly the Plateau borough and the South-West borough) close to the city center (Direction de l'évaluation foncière 2011). As we have seen, these areas possess high concentrations of SUMs raising important questions as to how land values will affect these firms in the long term?

POLICY & SERVICE RECOMMENDATIONS

In addition to the PR@M policy that targets property owners of industrial buildings, there is legislation that targets small cultural producers – *By-law concerning subsidies for professional artists in visual arts, and in arts and crafts*. Like the one that was recently implemented in the Plateau Borough, these policies assist small manufacturers by providing assistance in securing appropriate workspace, and it prioritizes artists and craft workers as eligible applicants (Vile de Montreal, 2011). The definition for the craft producers[19] neglects to acknowledge their role as manufacturers in the local economy. Additionally it excludes those small manufacturers who do not conform to the legislation's definition of a cultural producer (See footnote 19). It would, for instance, be difficult for a manufacturer of mattresses, reusable diapers or dental apparatus to appear as artists under the *By-law,* and so qualify for a subsidy on the real estate they rent. And nowhere in the promotional literature for the subsidy is there mention of the scope of the assistance in a dollar figure or as a percentage of the rent paid on the space (see pamphlet: Ville de Montreal, 2011). The city would be wise to either adopt a more nuanced definition of those small firms or develop policies that address SUMs directly.

[19] "**Arts and Crafts** The production of original works which are unique or in multiple copies, intended for a utilitarian, decorative or expressive purpose and conveyed by the practice of a craft related to the working of wood, leather, textiles, metals, silicates or any other material" (Art. 2.2 Chapter 1: R.S.Q., chapter S-32.01)

Bureaurocratic Transparency / Locating and Navigating Services

Survey respondents identified "…help identifying and pursuing government support for my business" as their second-most important priority (see fig. 24). This response is interpreted, in part, as a statement that it is not easy to find the public resources available to business people. The language issue in Montreal is one of the most important factors. Many of the documents available on the website for the City's property valuation, for instance, are only available in French, making it difficult for English speakers to access. This problem is equally and ironically true of the information available on programs enabling businesses to improve their bilingualism. The *Carrefour Francisation,* an intergovernmental agency devoted to encouraging French language usage in the work place (and offering generous subsidies to companies willing to do so), refuses to translate information on their programs into English, rendering their subsidies inaccessible to many in the English-speaking community who would most benefit from their services.

These difficulties with the presentation of government programs highlights both (a) a need for local levels of government to improve their dissemination of information on available programs and (b) a possible niche for private planning firms to assist manufacturers in accessing support from public funds for the real estate they occupy. For the private sector planner, such a role means acting as consultant, linking business to appropriate public sector funding opportunities. For the manufacturers occupying industrial space, it would mean pursuing tax benefits for their landlords through the PR@M program, and for the smaller craft based manufacturers. It is important that a municipality with a progressive stance on local economic development endeavors to ensure that the services available to the local business community are as accessible as possible.

Education & local labour

> "Notre petite enterprise a un seul besoin; de la Main d'oeuvre califié (soit machinists) capables de travailler en machines conventionelles et avec expérience." Survey Respondent: Atelier D'Usinage Gagné Inc.

Many urban manufacturers find that they spend a large amount of time training new employees to perform the tasks required in the given trade (Renault, 2012). According to Question 9 of the survey (Fig. 24), as well as comments as that above, "Access to appropriate labour and talent" was the second most important economic reason given for locating in the city. Kate Sophis, the executive director of San Francisco's SFMade[20], is currently advocating for a municipal subsidy that helps firms pay for the training

[20] SFmade is a firm devoted to the local economic development of that city's urban manufacturing community. Their activity is promoted through the website www.SFmade.org which has an online web directory for San Francisco's SUM community.

period that comes with hiring new untrained staff. SFMade has found that there is a strong need for such a program in San Francisco's community of SUMs. Following these examples and the numerous collaborative initiatives set up by *RESO,* the city could implement a similar apprenticeship subsidy by collaborating with the municipal and provincial boards of education, as well as *Emplois Quebec* and the *Ministère de Développement économique, Innovation et Exportation*. An urban manufacturing apprenticeship initiative would alleviate the costs incurred by SUM's in training new staff, at the same time as reinstating a time-honoured method of education and building the skill base of the local economy.

FURTHER STUDY

The disaggregated data presented in this report offer a wide range of opportunities for future research on where manufacturing firms are located in Montreal. It would for instance be interesting to examine the firm distribution patterns relative to transportation infrastructure in greater detail. Montreal is fortunate enough to have access to very detailed data representing the local population's travel to work habits. Analyzing the travel habits of the workers employed in these firms could provide insight into the types of labour that benefit from the urban manufacturers. Additionally it would be interesting to expand this methodology to incorporate firms of all sizes from a wider geographic distribution, and a natural extension to that would be multiple city comparisons using similarly disaggregated data.

Remaining within the context of the Montreal case study, finer cartographic analysis of the data points could allow for more sophisticated cluster analysis, and ideally would include better coverage of the entire territory. In response to another of the high priorities identified by respondents, '…Finding and networking with related and complimentary businesses' (fig. 24), exploring methods using both GIS and web based applications for discovering cross linkages and associations within existing industrial clusters could reveal important academic as well as commercial insights. Evidently such an investigation could be useful for the apparel and textile industry, which continues to cluster in its traditional industrial districts. Relationships between industries would also be important to discover. Analysis at a wider scale, such as how the different industries are grouped together and whether or not they have any observable universal interdependencies, would be equally interesting. The SUM business community offers researchers a broad and exciting range of opportunities to learn about the local economy, particularly the simple act of continuing to discover in greater detail the things that are made in Montreal.

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APPENDIX A: EMPLOYMENT BY SECTOR 2007 – 2011

Full-time and part-time employment by major activity sector, Montréal and all of Québec, 2007-2011

	2007	2008	2009	2010	2011	Variation '11/07
			k			%
Montréal						
All sectors	**932.3**	**950.0**	**919.8**	**949.6**	**939.4**	**0.8**
Full-time	744.3	768.8	748.8	759.4	756.1	1.6
Part-time	188.0	181.2	171.0	190.2	183.4	-2.4
Goods-producing sector	154.7	147.8	140.6	132.6	136.5	-11.8
Full-time	148.4	139.2	129.8	125.7	126.2	-15.0
Part-time	6.2	8.6	10.8	6.9	10.3	66.1
Services-producing sector	777.6	802.2	779.2	817.0	803.0	3.3
Full-time	595.9	629.6	619.0	633.7	629.9	5.7
Part-time	181.8	172.6	160.2	183.3	173.1	-4.8
All of Québec						
All sectors	**3,834.1**	**3,880.4**	**3,848.4**	**3,915.1**	**3,953.6**	**3.1**
Full-time	3,119.8	3,152.9	3,125.7	3,154.9	3,194.0	2.4
Part-time	714.3	727.5	722.7	760.2	759.6	6.3
Goods-producing sector	872.6	888.5	865.1	848.3	847.2	-2.9
Full-time	825.1	841.6	815.9	799.2	794.7	-3.7
Part-time	47.6	46.9	49.2	49.2	52.5	10.3
Services-producing sector	2,961.5	2,991.9	2,983.3	3,066.8	3,106.4	4.9
Full-time	2,294.8	2,311.3	2,309.8	2,355.8	2,399.2	4.5
Part-time	666.7	680.6	673.5	711.0	707.1	6.1

Source: Statistics Canada, *Labour Force Survey*.

Compilation: Institut de la statistique du Québec.

APPENDIX B: EMPLOYMENT BY INDUSTRY 2007 – 2011

	2007	2008	2009	2010	2011	Variation 2011/2007
			k			%
Montréal	**932.3**	**950.0**	**919.8**	**949.6**	**939.4**	**0.8**
Goods-producing sector	**154.7**	**147.8**	**140.6**	**132.6**	**136.5**	**-11.8**
Agriculture	—	1.6	—	—	—	...
Forestry, fishing, mining, oil and gas	1.5	—	—	—	2.0	33.3
Utilities	6.2	4.3	5.5	5.2	7.5	21.0
Construction	28.8	33.0	30.4	30.4	33.0	14.6
Manufacturing	116.8	107.8	103.2	94.8	93.1	-20.3
Services-producing sector	**777.6**	**802.2**	**779.2**	**817.0**	**803.0**	**3.3**
Trade	152.7	140.2	141.0	147.0	141.7	-7.2
Transportation and warehousing	43.8	48.5	40.3	43.2	44.4	1.4
Finance, insurance, real estate and leasing	63.8	69.1	67.6	79.1	65.1	2.0
Professionnal, scientific and technical services	104.1	103.6	101.8	112.5	114.3	9.8
Business, building and other support services	42.5	40.1	41.5	37.6	43.1	1.4
Educational services	70.5	76.0	75.8	76.2	80.6	14.3
Health care and social assistance	102.8	112.5	108.9	120.9	116.6	13.4
Information, culture and recreation	63.1	68.6	68.4	65.3	61.4	-2.7
Accomodation and food services	62.0	68.2	57.5	57.9	62.7	1.1
Other services	38.2	39.2	42.6	37.0	37.7	-1.3
Public administration	34.0	36.1	34.0	40.3	35.3	3.8
All of Québec	**3,834.1**	**3,880.4**	**3,848.4**	**3,915.1**	**3,953.6**	**3.1**
Goods-producing sector	**872.6**	**888.5**	**865.1**	**848.3**	**847.2**	**-2.9**
Agriculture	65.0	61.0	57.5	53.6	57.0	-12.3
Forestry, fishing, mining, oil and gas	35.7	33.4	29.3	30.1	33.9	-5.0
Utilities	32.7	33.2	35.3	33.3	31.4	-4.0
Construction	198.3	217.3	209.8	230.7	237.5	19.8
Manufacturing	540.9	543.5	533.1	500.7	487.4	-9.9
Services-producing sector	**2,961.5**	**2,991.9**	**2,983.3**	**3,066.8**	**3,106.4**	**4.9**
Trade	645.0	629.7	630.6	637.6	643.9	-0.2
Transportation and warehousing	178.3	183.8	169.1	165.6	178.3	–
Finance, insurance, real estate and leasing	229.1	230.6	224.8	235.9	225.0	-1.8
Professionnal, scientific and technical services	252.8	264.2	273.8	296.7	304.1	20.3
Business, building and other support services	147.2	137.6	143.3	143.5	145.1	-1.4
Educational services	254.3	255.4	257.0	257.8	275.0	8.1
Health care and social assistance	452.1	469.1	481.6	506.0	511.7	13.2
Information, culture and recreation	169.1	174.5	171.7	174.7	164.9	-2.5
Accomodation and food services	236.8	244.6	231.1	243.5	252.4	6.6
Other services	176.3	174.3	175.7	166.5	170.1	-3.5
Public administration	220.4	228.0	224.4	238.9	235.9	7.0

Source: Statistics Canada, *Labour Force Survey*.

Compilation: Institut de la statistique du Québec.

APPENDIX C: PRINCIPAL STATS ON MANUFACTURING ACTIVITY BY INDUSTRY 2009

	Establishments	Number of production workers	Production workers wages	Revenue from goods manufactured	Value added by manufacturing activity
	n			$k	
Montréal					
All industries	**9,017**	**82,587**	**3,424,810**	**41,763,267**	**16,020,935**
Food manufacturing	735	10,397	376,689	4,869,094	1,779,500
Beverage and Tobacco Product Manufacturing	50	1,954	101,540	2,359,146	1,634,276
Textile Mills	171	1,143	37,833	239,848	106,879
Textile Product Mills	176	892	27,512	175,481	77,352
Clothing manufacturing	1,127	7,911	208,659	1,203,822	582,092
Leather and Allied Product Manufacturing	106	850	19,915	108,875	46,096
Wood Product Manufacturing	372	803	29,925	183,339	81,623
Paper Manufacturing	110	2,910	149,428	1,260,849	475,016
Printing and Related Support Activities	837	4,982	200,909	1,095,049	594,473
Petroleum and Coal Products Manufacturing	27	x	x	x	x
Chemical Manufacturing	257	4,490	223,957	3,574,521	1,629,605
Plastics and Rubber Products Manufacturing	243	4,619	172,613	1,452,767	648,552
Non-Metallic Mineral Product Manufacturing	188	1,539	70,000	507,283	266,871
Primary Metal Manufacturing	74	2,053	108,566	3,733,070	920,576
Fabricated Metal Product Manufacturing	906	6,898	272,312	1,497,853	739,163
Machinery Manufacturing	449	5,731	331,599	2,370,423	1,056,243
Computer and Electronic Product Manufacturing	298	4,056	185,137	1,440,634	778,739
Electrical Equipment, Appliance & Component Manuf.	190	4,917	183,200	1,423,722	618,057
Transportation Equipment Manufacturing	216	x	x	x	x
Furniture and Related Product Manufacturing	1,350	4,011	114,762	695,869	325,655
Miscellaneous Manufacturing	1,135	4,493	139,816	897,662	486,142
All of Québec					
All industries	**21,154**	**290,049**	**12,008,704**	**125,584,485**	**47,545,954**
Food manufacturing	1,860	39,145	1,381,394	18,122,989	5,922,014
Beverage and Tobacco Product Manufacturing	147	3,228	163,417	3,507,620	2,450,334
Textile Mills	288	3,368	121,414	840,016	363,729
Textile Product Mills	349	1,947	59,527	512,480	269,668
Clothing manufacturing	1,512	11,295	282,476	1,655,052	798,788
Leather and Allied Product Manufacturing	172	1,522	35,135	183,155	84,109
Wood Product Manufacturing	1,493	21,544	731,402	5,630,590	2,063,657
Paper Manufacturing	291	15,422	864,181	8,657,143	3,226,852
Printing and Related Support Activities	1,692	12,369	492,139	2,878,378	1,623,992
Petroleum and Coal Products Manufacturing	114	2,303	149,950	13,900,641	1,643,585
Chemical Manufacturing	748	11,217	517,253	7,761,782	3,330,062
Plastics and Rubber Products Manufacturing	735	18,159	689,892	5,386,307	2,313,036
Non-Metallic Mineral Product Manufacturing	735	9,726	390,493	2,898,888	1,383,613
Primary Metal Manufacturing	263	16,151	1,062,769	15,119,557	4,460,693
Fabricated Metal Product Manufacturing	2,619	29,473	1,154,881	7,077,751	3,296,874
Machinery Manufacturing	1,462	18,279	855,710	5,620,537	2,611,945
Computer and Electronic Product Manufacturing	623	10,495	461,638	3,330,880	1,758,516
Electrical Equipment, Appliance & Component Manuf.	428	10,612	402,993	3,682,455	1,436,560
Transportation Equipment Manufacturing	691	22,448	1,285,084	13,364,743	5,702,330
Furniture and Related Product Manufacturing	2,727	19,985	561,993	3,138,985	1,612,469
Miscellaneous Manufacturing	2,205	11,361	344,963	2,314,536	1,193,128

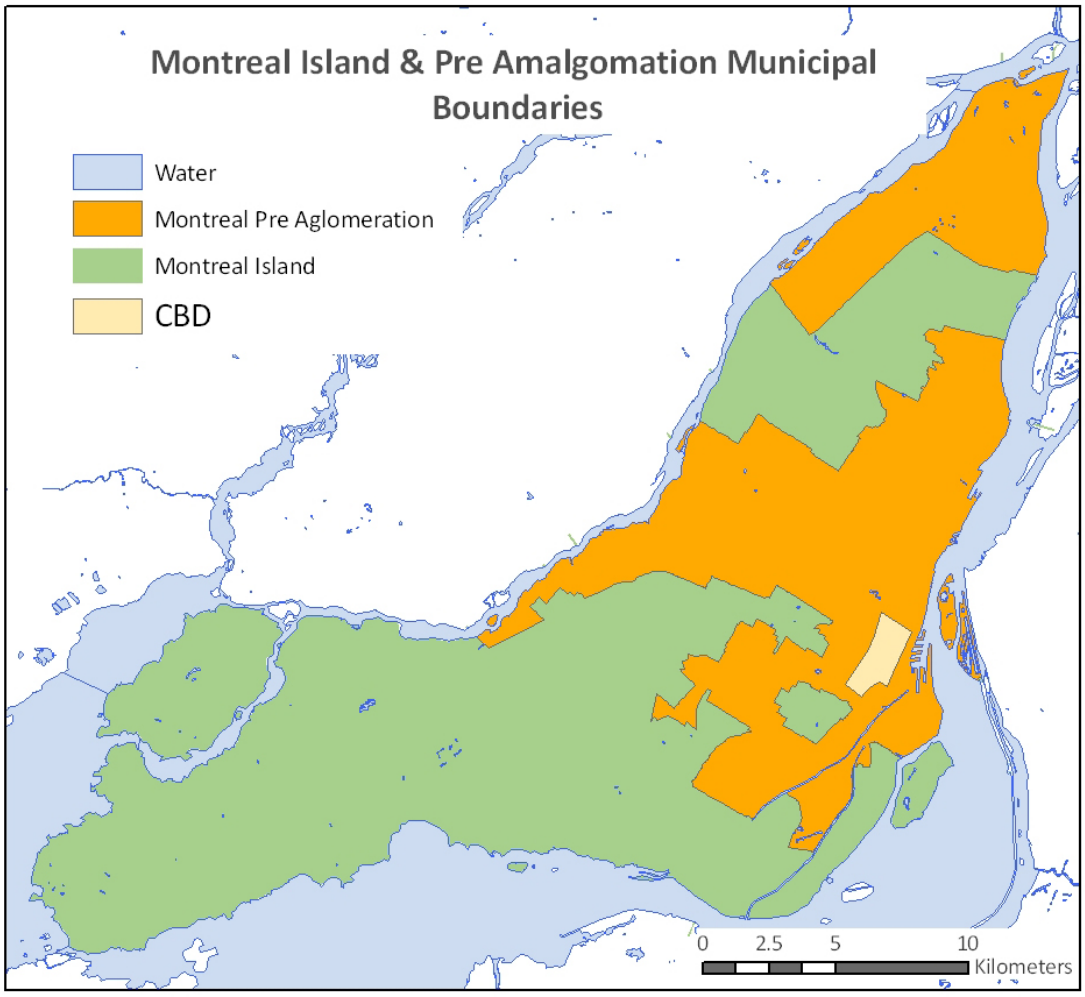
1. North American Industry Classification System (NAICS).

APPENDIX D: QUEBEC & MONTREAL MOTHER TONGUE

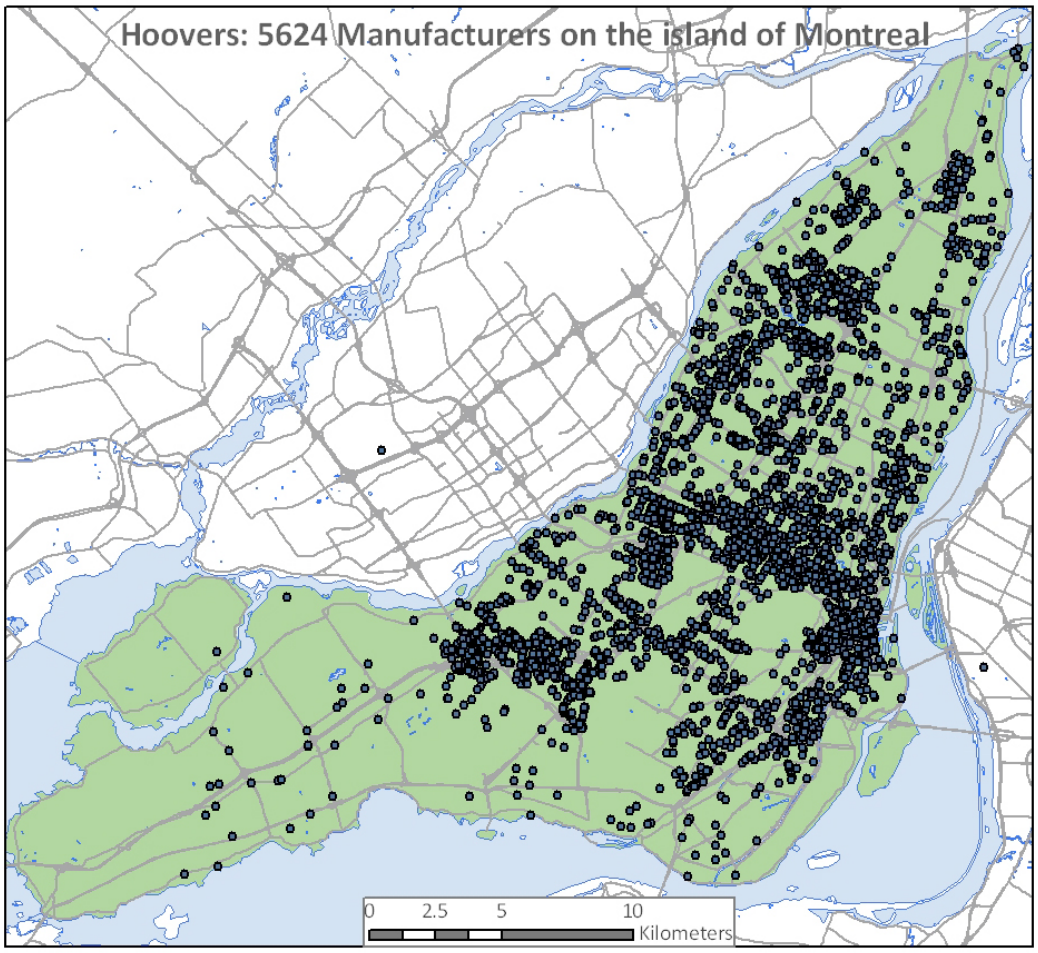
Figure
Mother tongue

	Montréal, Ville			Quebec		
	Total	Male	Female	Total	Male	Female
Total population [32]	1,031,465	503,660	527,805	7,435,905	3,645,975	3,789,925
English only	109,230	54,325	54,905	575,555	282,845	292,710
French only	572,375	276,080	296,290	5,877,660	2,875,665	3,001,990
English and French	7,230	3,460	3,765	43,335	21,135	22,200
Other language(s) [33]	342,635	169,795	172,840	939,350	466,330	473,020

APPENDIX E: PRE-AMALGAMATION MUNICIPAL BOUNDARIES



APPENDIX F: HOOVERS DATA[21]



[21] Hoovers is a subsidiary of the well-known American data collection firm: *Dun and Bradstreet*

APPENDIX G: INTERNET SURVEY

Urban manufacturers in Montreal: Who are they? Why do they stay central? What services do they find valuable?

PAGE 1: WHO?

Thank you for helping with this research.

This survey is primarily an academic tool to help with the Master's research of our colleague Alex Carruthers. It should take 5 - 10 min. to fill out. The feedback you provide will help us understand a little more about Montreal's urban manufacturers. We appreciate the opportunity to learn from you!

Completion of this survey indicates that you have given Alex your permission for the use of the data submitted. No personal information will be shared with any third party and the data collected by this survey will be reserved exclusively for use in this research, future publication in industry journals and to help Made in Montreal design useful services to serve this community.

1) What is the name of the business?*

2) What does the business manufacture?*

3) Estimate the proportion (%) of the business' annual output which is produced for local consumption in the greater Montreal area.

( ) <10%
( ) 10-20%
( ) 20-30%
( ) 30-40%
( ) 40-50%
( ) 50-60%
( ) 60-70%
( ) 70-80%
( ) 80-90%
( ) 90-100%

4) How long has it been since the business was founded in Montreal?
( ) 1-2 years

( ) 2-5
( ) 5-10
( ) 10-20
( ) >20

5) Where is the business located? (postal code)

6) As of January 1st, 2012 how many people does the business employ? (full time & part time)
( ) 1-5
( ) 6-20
( ) 21-50
( ) 51-100
( ) 101-500
( ) 501+

7) As of January 1st 2012 estimate the proportion (%) of the staff that works full time (35+h/week)?
( ) 10%
( ) 20%
( ) 30%
( ) 40%
( ) 50%
( ) 60%
( ) 70%
( ) 80%
( ) 90%
( ) 100%

8) What language is used for the day-to-day operation of the business?
[ ] French
[ ] English
[ ] Other

PAGE 2: WHY?

9) The reasons the business is located in Montreal...
( ) ...are primarily economic and business related.
( ) ...are primarily due to the background and preferences of myself and/or the staff.
( ) ...both of the above.

10) How important are each of the following in the decision to locate (or stay) in Montreal? (Choose the 3 most important)
[ ] Real estate or rental prices
[ ] Cost of utilities (electricity, natural gas, etc.)
[ ] Access to regional transportation networks
[ ] Proximity to clients
[ ] Proximity to suppliers
[ ] Proximity to other companies in your industry
[ ] Labour costs
[ ] Access to appropriate labour and talent
[ ] other

11) Which of these factors in the decision to locate, or stay in Montreal are most important for the business? (Choose the 3 most important)
[ ] The cultural diversity of the city
[ ] Quality of public services (schools, daycare, health care facilities, etc.)
[ ] Quality of life (parks, public transit, culture, ambiance of the city, etc.)
[ ] Owner/senior staff from Montreal, raised or born here.
[ ] The French language
[ ] Personal networks (religious, political, family, etc.)
[ ] Cost of living (relatively affordable rent, food, etc)
[ ] Other

PAGE 3: WHAT?

12) Which of the following community and economic development services are top priorities for the business. (Choose the top 3 most valuable)
[ ] Assistance navigating municipal bureaucracy (permits, regulations etc.)
[ ] Help learning about and pursuing government support for my business
[ ] Help applying for a reduction in the business' tax burden
[ ] Help fulfilling local language and cultural sensitivity requirements
[ ] Obtaining reliable professional services for my business (Legal, public relations, accounting, etc)
[ ] Help finding and networking with related and complementary businesses
[ ] Help capitalizing on social media (Facebook, Twitter, LinkedIn, etc.) and other web based networking tools.
[ ] Help providing industry-specific networking events.
[ ] Other
13) If the company has any additional positions on the subjects raised in this questionaire please include them here:

Thank You!

Your survey has been recorded and emailed to the appropriate individuals. We really appreciate your time to help us learn about what makes manufacturers like yourself stay in Montreal!

The results will be included as a part of Alex Carruthers' Master's thesis components of which may be published in academic journals & on the www.madeinmontreal.org website.

If you have any questions please do not hesitate to contact Alex directly at alexander.carruthers@mail.mcgill.ca

For more information on Made in Montreal contact: info@madeinmontreal.org

APPENDIX H: CORRESPONDENCE

E-mail Campaign

First Mailing:

Hello, Bonjour,

I am pleased to send you a short survey (3 pages; 5-10 minutes). It is intended to help me with my master's research and to help me understand the kinds of planning services local manufactures might find valuable. I would be grateful if you filled it out and would be very happy to share the results with you.

Je suis heureux de vous présenter ce court sondage (3 pages; 5-10 minutes). Il est destiné à m'aider pour mon projet de recherche final de maîtrise et aussi à nous aider à découvrir quels services de planification intéressent le plus les fabricants locaux.Je serais très heureux de partager les résultats du sondage avec vous en contrepartie de votre collaboration.

[invite("survey link")]

Thank You! Merci!

Alex

Reminder notice:

Hello, Bonjour,

This is a friendly reminder, about the survey that I sent you. Please consider filling it out. I would greatly appreciate your input. It shouldn't take more than 5-10 minutes, and if you are interested I would be glad to share the results with you.

Voici un rappel amical par rapport au sondage qui vous a été envoyé récemment. S'il vous plaît gardez en tête que votre participation serait extrêmement appréciée. Il ne devrait prendre que 5 à 10 minutes de votre temps, et si vous êtes intéressé, je serais heureux de partager les résultats avec vous.

[invite("survey link")]

Merci, Thank you,

Alex

Document Colour Note:

orange: FF9933

Grey1: 676767

Grey2: 363639

Light blue: 81A4D6

Green: A7D08D

TomRed: F15C22

Mtl Org: F89724