BENCHMARKING REPORT - MONTRÉAL

I. INTRODUCTION

We conducted an international benchmarking analysis for the members of the Consider Canada City Alliance Inc., consisting of 11 (C11) large Canadian cities or Census Metropolitan Areas (CMAs). This analysis used information from both Canada and the United States which are available in the Local IDEAS database. The database includes an extensive set of social and economic indicators for all the city-regions in both countries.

International benchmarking of cities is generally more complicated than benchmarking within countries. The differences in the definition of indicators and data availability between the two countries imply that the information needed for benchmarking is not necessarily directly comparable. In this analysis, tables of concordance for all the required variables were integrated to the Local IDEAS database to facilitate cross-border comparability.

Benchmarking is one of the effective tools that could be used to provide more meaningful interpretation of data on various indicators available in the city-regions. In benchmarking analysis an appropriate data is created so that more accurate comparisons can be made. For example, if the reported current unemployment rate in the city of Toronto is 8%, with a suitable data or measure to compare to; more precise conclusion regarding its acceptability could be easily deduced. The results of this benchmarking analysis could help local governments generate important assessment of their city's social and economic status, thereby gaining vital information that could lead to improving their performance.

II. METHOD

The primary source of data used for this benchmarking analysis is the Local IDEAS database which includes data from various government and private agencies in Canada and the United States. The data from Canada were mainly taken from Statistics Canada such as the 2006 Census of Population, Labour Force Survey (2003-2010) and the 2006 Canadian Business Patterns database. For the United States, the data sources include the American Community Survey (2003-2010) and the 2006 County Business Patterns.

The idea behind this benchmarking exercise is to compare each of the CMAs' economic performance against a group of "similar" American Metropolitan Statistical Areas (MSAs). The group of similar MSAs was determined by conducting an analysis which involves developing a set of indicators (population size, human capital, occupational structure and industrial structure) and then using a measure of "distance" or "similarity" to identify the 10 closest neighbours or most similar MSAs for each of the CMAs.

The human capital index includes population characteristics such as educational status; age distribution and immigration status. Information on educational status specifically includes: (1) proportion of individuals with less than High School educational attainment, (2) percentage with at least Bachelor of Science degree, and (3) number of PhDs per 1000. The age distribution of the population includes proportion of individuals: (1) under 18 years old, (2) 18-64 years old and (3) 65 year old and over. For immigration status, we used data on proportion of foreign-born individuals.

The occupational and industrial structures include the set of categories that are comparable in both countries. We identified 14 comparable occupational categories in the National Occupational Classification (NOC) and Standard Occupational Classification (SOC) and 19 comparable industrial classifications in the two-digit level North American Industry Classification System (NAICS). Details of these occupational and industrial groups are shown in Figures 3 and 4, respectively.

Using the group of similar MSAs, a detailed benchmarking analysis was performed on each of the C11 member CMAs. The key variables included as measures of economic performance are employment income, employment growth and unemployment level which may be updated annually depending on data availability.

III. RESULTS
A. Similarity (Nearest Neighbour) Analysis

Presented in Table 1 is the result of the analysis conducted for Montréal. It contains the ranking of the MSAs based on the individual indicators and the overall index, with the lower numbers indicating "more similar" or "closer" to Montréal and higher numbers indicating "less similar" or "farther". The overall index is basically the rank of each MSA based on the total score from all the four indicators.

We can observe from Table 1 that Seattle is Montréal's closest city-region among the MSAs in the United States as indicated by the computed Overall Index. Among these top 10 MSAs, we can see that Seattle is also the most similar to Montréal in terms of Population Size (1st), Oxnard based on Human Capital (3rd), Rochester based on Occupational Structure (2nd) and Portland based on Industrial Structure (1st).

Table 1: Top 10 most "similar MSAs" to Montréal by Overall Index

Metropolitan Statistical Areas		Indicators				Overall Index
		Population Size	Human Capital	Occupational Structure	Industrial Structure	
Seattle	WA	1	40	20	8	1
Portland	OR	14	37	28	1	2
Detroit	MI	8	71	13	22	3
Oxnard	CA	60	3	41	19	4
Providence	RI	30	16	45	32	4
New Haven	CT	55	49	6	44	6
Milwaukee	WI	32	107	12	9	7
Rochester	NY	46	102	2	10	7
Worcester	MA	61	55	8	36	7
Minneapolis-St. Paul	MN	4	149	3	7	10

Table 2 below shows the top 10 most similar MSAs to Montréal by indicator. In terms of Population Size, the top 3 closest MSAs to Montréal are Seattle, Riverside and Phoenix. Considering the Human Capital indicator, the metropolitan area of Napa is the closest to Montréal followed by Santa Barbara and Oxnard. For Occupational Structure, the most similar MSA is Huntsville and for Industrial Structure the closest is Portland as also shown in Table 1 above.

Table 2: Top 10 most "similar MSAs" to Montréal by Indicator

Rank	Population			Human Capital		Occupational Structure		Industrial Structure	
	Montréal	**QC**	**(3,635,610)**						
1	Seattle	WA	(3,263,497)	Napa	CA	Huntsville	AL	Portland	OR
2	Riverside	CA	(4,026,135)	Santa Barbara	CA	Rochester	NY	Los Angeles	CA
3	Phoenix	AZ	(4,039,182)	Oxnard	CA	Minn.-St. Paul	MN	Lexington	KY
4	Minn.-St. Paul	MN	(3,175,041)	Santa Rosa	CA	Hartford	CT	Syracuse	NY
5	San Francisco	CA	(4,180,027)	Las Vegas	NV	Manchester	NH	Dayton	OH
6	San Diego	CA	(2,941,454)	Reno	NV	New Haven	CT	Cedar Rapids	IA
7	Boston	MA	(4,455,217)	Orlando	FL	Madison	WI	Minn.-St. Paul	MN
8	Detroit	MI	(4,468,966)	Houston	TX	Worcester	MA	Seattle	WA
9	St. Louis	MO	(2,793,988)	Sacramento	CA	Lexington	KY	Milwaukee	WI
10	Tampa	FL	(2,697,731)	Atlantic City	NJ	Lincoln	NE	Rochester	NY

B.   Population Similarity

Figure 1 below shows the 2006 population size of Montréal and its top 10 closest MSAs by Overall Index. As pointed out in the previous Section, Seattle is the most similar MSA to Montréal in terms of population size which can be clearly seen in Figure 1. The metropolitan area of Minneapolis-St. Paul is the next closest with a population almost equal to that of Seattle's. Furthermore, we can observe that the metropolitan areas of Worcester, Oxnard and New Haven are quite "farther" from Montréal with population below one million.

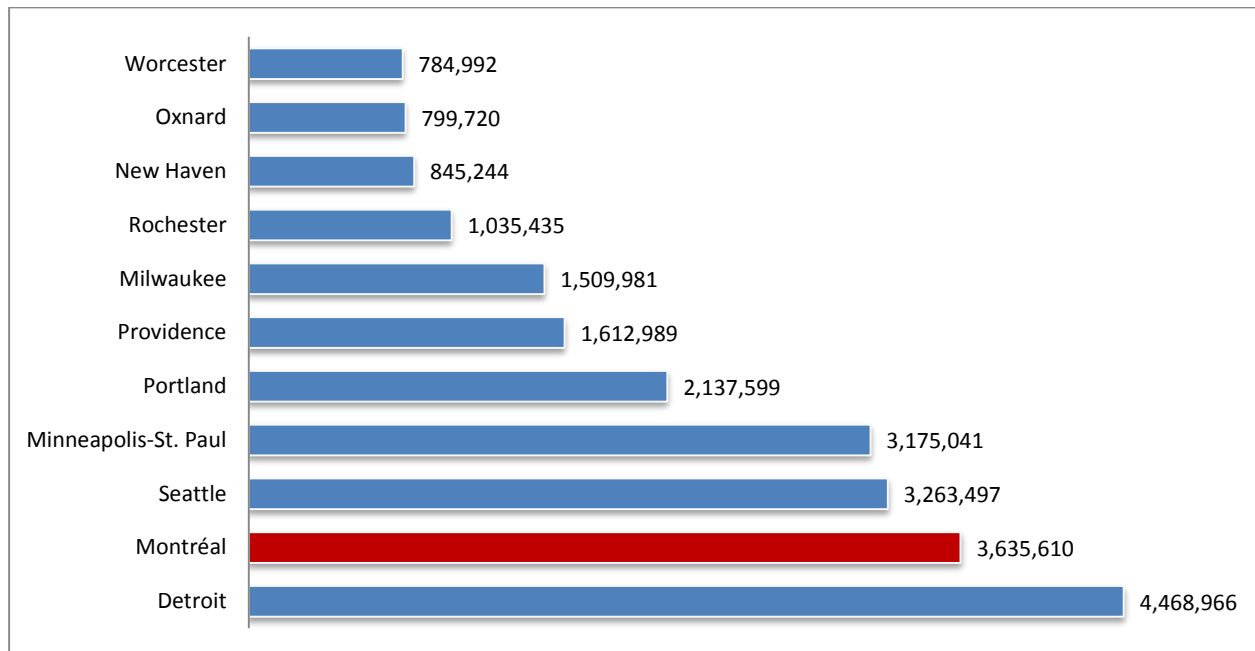| MSA	Population
Worcester	784,992
Oxnard	799,720
New Haven	845,244
Rochester	1,035,435
Milwaukee	1,509,981
Providence	1,612,989
Portland	2,137,599
Minneapolis-St. Paul	3,175,041
Seattle	3,263,497
Montréal	3,635,610
Detroit	4,468,966

Figure 1: Population Size (2006) of Montréal with its top 10 closest MSAs by Overall Index

In the next three sub-sections the actual data on the three indicators for Montréal and its top 5 closest MSAs are plotted in radial diagrams. These diagrams will give us an overview of the degree of closeness of the top 5 closest MSAs to Montréal in terms of Human Capital, Occupational Structure and Industrial

Structure. As shown in Table 1, the top 5 closest city-regions based on the Overall Index include Seattle, Portland, Detroit, Oxnard and Providence. Note that in the graphs for sections C, D and E, a red line is used in plotting the data for Montréal and a blue line for the other 5 city-regions.

C.   Human Capital Similarity

The Human Capital index as described in the methodology section includes three population characteristics: educational attainment, immigration level and age distribution. All of these are in percent except for the number of PhDs per 1000 population.

The following information can be deduced from Figure 2:

- The top 5 MSAs generally appear to have a distribution similar to Montréal, except for slightly lower percentages of foreign-born individuals and less than High School (No High School) educational attainment.

- Among the MSAs, Seattle appears to have the highest percentage of individuals with at least BS degree educational attainment and is noticeably higher than Montréal's.

- Considering the various age groups, these city-regions are similar to Montréal with a higher percentage of individuals in the 18-64 years old age group.
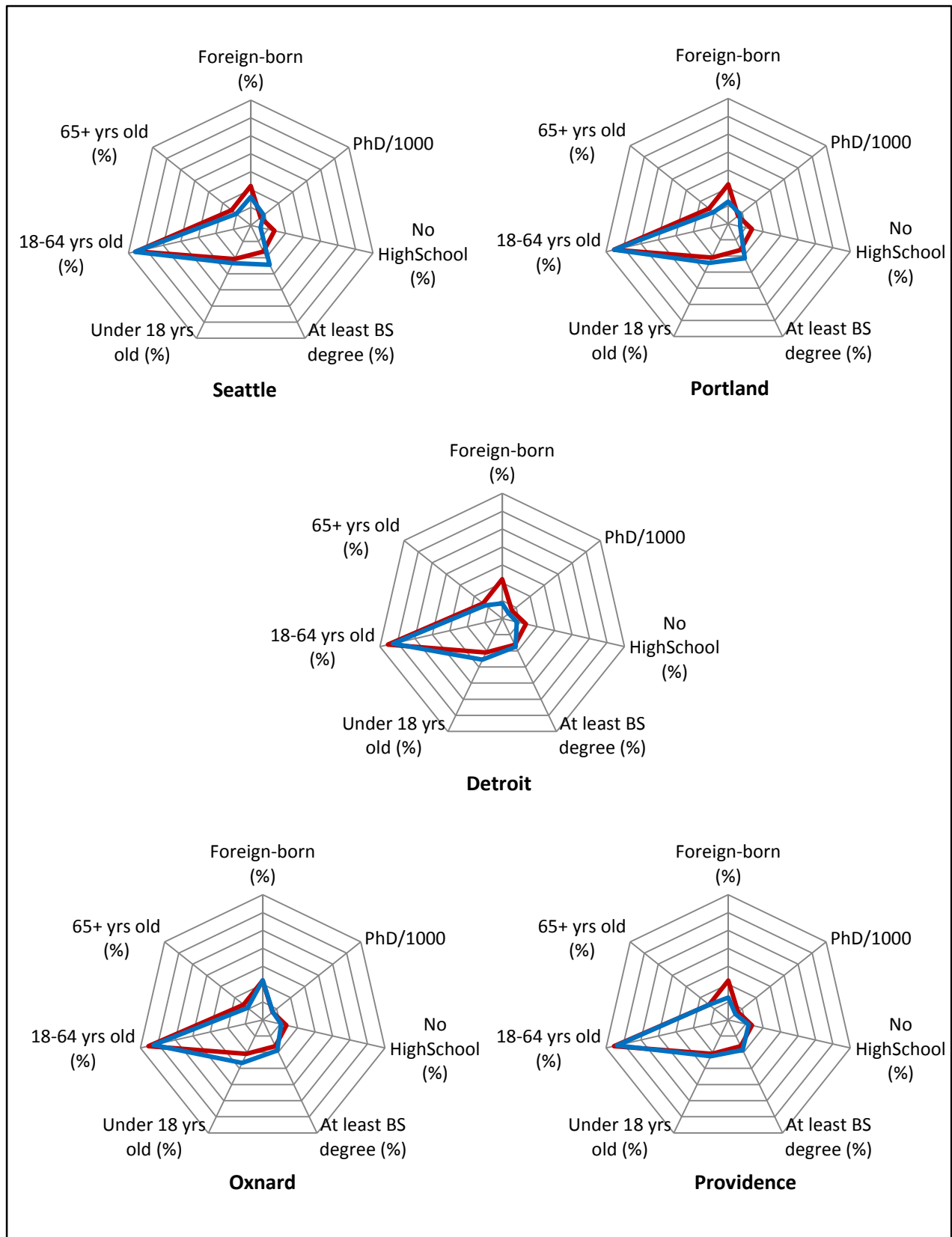
Figure 2: The actual data on the Human Capital indicator for Montréal and its top 5 most similar MSAs

D. Occupational Similarity

The Occupational Structure covers 14 occupational categories which are comparable for both Canada and the United States. The list of occupational categories is included in Figure 3 below.

We can see from the radial diagrams in Figure 3 that:

- The distribution of Detroit's occupational groups appears to be the most similar to Montréal except that Montréal has a slightly higher percentage of individuals involved in Management, Business and Financial Occupations (OC15) and Professional and Related Occupations (OC11).

- The majority of the MSAs appear to have a lower proportion of people involved in Productions Occupation (OC51) than Montréal.

- The five MSAs tend to have a higher proportion of individuals in the Professional and Related Occupations (OC15); Management, Business, Financial Occupations (OC11); Office and Administrative Support Occupations (OC43); and Sales and Related Occupations (OC41). On the other hand, these MSAs have lower proportion of individuals in the Healthcare Support Occupations (OC31) and Farming, Fishing, and Forestry Occupations (OC45).

Seattle

Portland

Detroit

Oxnard

Providence

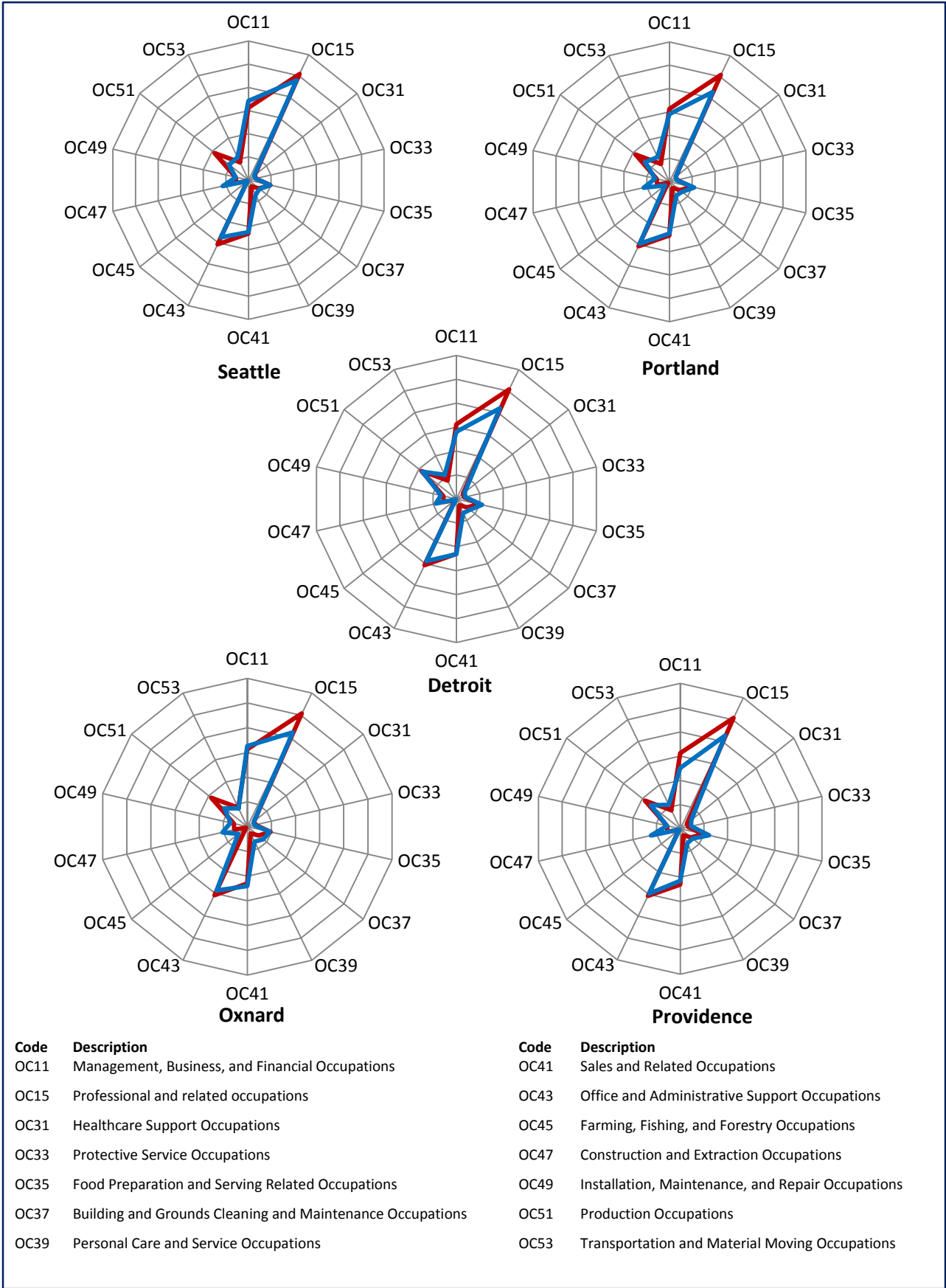| Code	Description		Code	Description
OC11	Management, Business, and Financial Occupations		OC41	Sales and Related Occupations
OC15	Professional and related occupations		OC43	Office and Administrative Support Occupations
OC31	Healthcare Support Occupations		OC45	Farming, Fishing, and Forestry Occupations
OC33	Protective Service Occupations		OC47	Construction and Extraction Occupations
OC35	Food Preparation and Serving Related Occupations		OC49	Installation, Maintenance, and Repair Occupations
OC37	Building and Grounds Cleaning and Maintenance Occupations		OC51	Production Occupations
OC39	Personal Care and Service Occupations		OC53	Transportation and Material Moving Occupations

Figure 3: The actual data on Occupational Structure for Montréal and its top 5 most similar MSAs

E.   Industrial Similarity

The Industrial Structure indicator covers the 2-digit level NAICS codes that are comparable in both countries. The list of industrial categories included in the analysis is shown in Figure 4.

From Figure 4 we can observe the following:

- Among the 5 MSAs, Portland has the most comparable distribution of employment level in various industries to Montréal.

- The majority of the MSAs appear to be similar to Montréal in terms of having a higher employment level in Manufacturing Industries (31), Retail Trade (44), Professional, Scientific and Technical Services (54) and Healthcare and Social Assistance (62).

- All the five MSAs have noticeably higher employment level in Accommodation and Food Services (72) compared to Montréal.

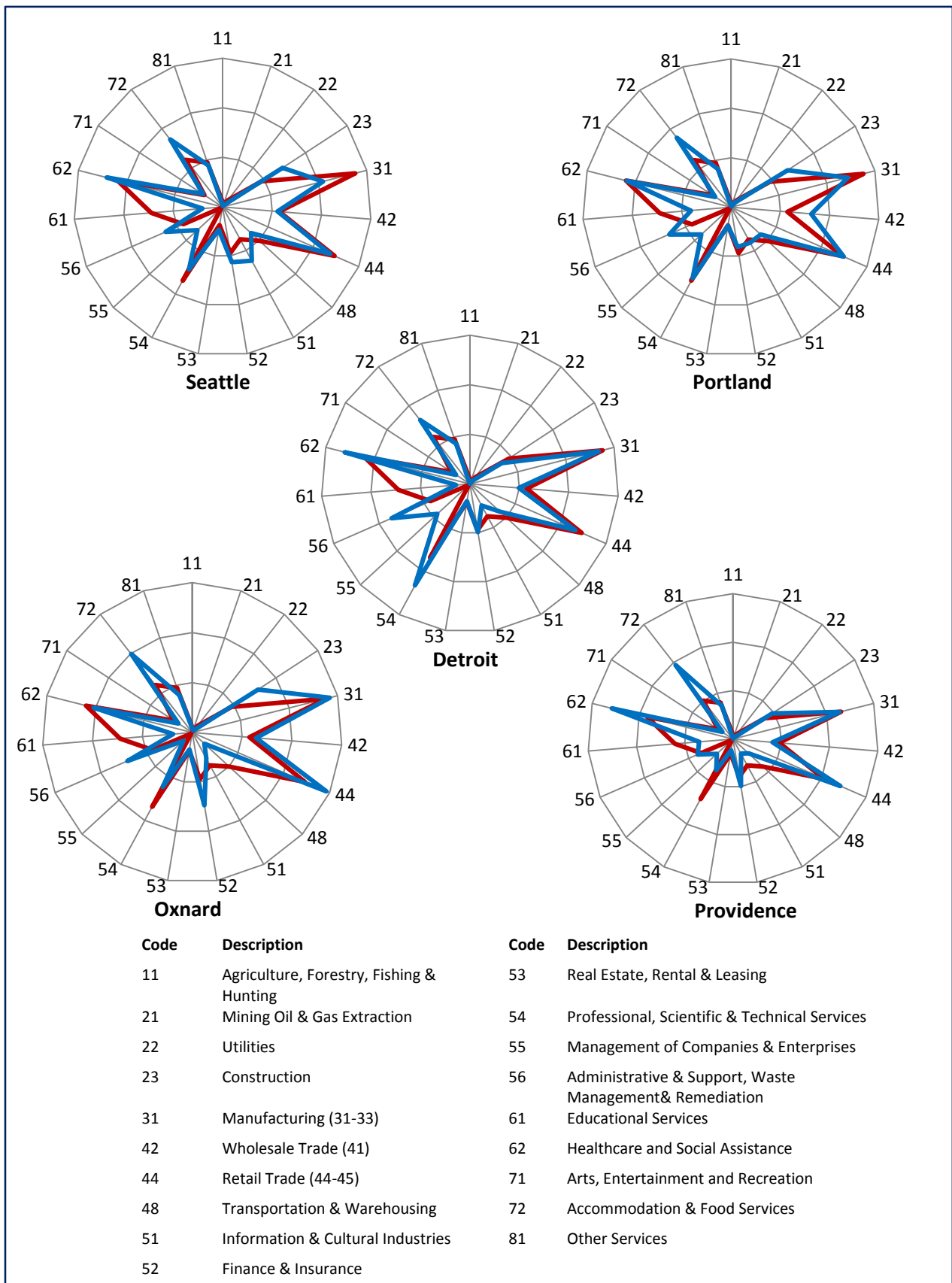| Code	Description	Code	Description
11	Agriculture, Forestry, Fishing & Hunting	53	Real Estate, Rental & Leasing
21	Mining Oil & Gas Extraction	54	Professional, Scientific & Technical Services
22	Utilities	55	Management of Companies & Enterprises
23	Construction	56	Administrative & Support, Waste Management & Remediation
31	Manufacturing (31-33)	61	Educational Services
42	Wholesale Trade (41)	62	Healthcare and Social Assistance
44	Retail Trade (44-45)	71	Arts, Entertainment and Recreation
48	Transportation & Warehousing	72	Accommodation & Food Services
51	Information & Cultural Industries	81	Other Services
52	Finance & Insurance		

Figure 4: The actual data on the industrial structure for Montréal and its top 5 most similar MSAs

F.   Benchmarking Analysis

The data on economic measures such as employment growth rate (compound annual growth rate), employment income (median employment earnings) and unemployment rate of the top 10 closest MSAs to Montréal were gathered and is summarized in Table 3 below. Included in the table are the rankings of the city-regions data which are located on the right side of each value. Based on the information presented in Table 3, we can see that:

- Montréal has the highest employment growth rate from 2003 to 2009 and has the second lowest unemployment rate in 2010.

- Considering the median employment income of the city-regions, Seattle is leading the group while Montréal ranks the lowest with its median earnings below30 thousand US dollars in 2010.

- Among Montréal's closet neighbours, Detroit seems to be performing poorly in terms of employment growth rate (lowest) and unemployment rate (highest).

Table 3: Benchmarking survey for the city of Montréal

City-Regions (CMAs/MSAs)		Employment Growth Rate (2003-2009)	Employment Income in USD (2010)	Unemployment Rate (2010)
Montréal	**QC**	**0.96% (1)**	**$27,729(11)**	**8.6% (2)**
Seattle	WA	0.29% (3)	$36,031 (1)	10.4% (5)
Portland	OR	0.66% (2)	$30,281 (9)	12.5% (10)
Detroit	MI	-3.02% (11)	$30,382 (7)	17.0% (11)
Providence	RI	-0.56% (8)	$30,692 (6)	11.5% (9)
Oxnard	CA	-0.37% (6)	$31,062 (5)	10.2% (4)
New Haven	CT	-0.64% (9)	$32,994 (4)	10.9% (7)
Worcester	MA	-1.19% (10)	$33,573 (3)	11.4% (8)
Milwaukee	WI	-0.18% (5)	$30,313 (8)	10.4% (5)
Rochester	NY	-0.47% (7)	$29,977(10)	8.3% (1)
Minneapolis-St. Paul	MN	0.28% (4)	$35,118 (2)	8.8% (3)