BENCHMARKING REPORT – QUÉBEC

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 Québec. 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 Québec 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 see from Table 1 that Springfield is Québec's closest city-region among the MSAs in the United States as indicated by the computed Overall Index. Among these top 10 MSAs; Columbia is the most similar to Québec in terms of Population Size (1st), Rochester for Occupational Structure (3rd) and Syracuse for Industrial Structure (1st). In terms of Human Capital, all the MSAs have scores greater than 20 with Knoxville ranking the closest to Québec.

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

Metropolitan Statistical Areas		Indicators				Overall Index
		Population Size	Human Capital	Occupational Structure	Industrial Structure	
Springfield	MA	5	48	17	19	1
Syracuse	NY	16	46	34	1	2
Knoxville	TN	10	22	52	41	3
Columbia	SC	1	64	57	35	4
Rochester	NY	77	72	3	47	5
Buffalo	NY	110	38	39	18	6
Dayton	OH	25	67	90	23	6
Allentown	PA	19	29	127	31	8
Harrisburg	PA	41	35	125	25	9
Spokane	WA	56	108	69	8	10

Table 2 below shows the top 10 most similar MSAs to Québec by indicator. In terms of Population Size, the top 3 closest MSAs to Québec are Columbia, Akron and McAllen with population around 700 thousand. For Human Capital, the metropolitan area of Salisbury ranks the closest. Considering the Occupational and Industrial Structure indicators, the most similar MSAs to Québec are Huntsville and Syracuse, respectively.

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

Rank	Population			Human Capital		Occupational Structure		Industrial Structure	
	Québec	**QC**	**(715,505)**						
1	Columbia	SC	(701,464)	Salisbury	MD	Huntsville	AL	Syracuse	NY
2	Akron	OH	(700,943)	Willimantic	CT	Madison	WI	Pittsburgh	PA
3	McAllen	TX	(700,634)	Bloomsburg	PA	Rochester	NY	Albany	NY
4	El Paso	TX	(736,310)	Roanoke	VA	Lexington	KY	Fargo	ND
5	Springfield	MA	(686,174)	Wilmington	NC	Champaign	IL	Boston	MA
6	Greensboro	NC	(685,378)	Ogdensburg	NY	Burlington	VT	Lincoln	NE
7	Sarasota	FL	(682,833)	Johnson City	TN	Greenville	NC	New Haven	CT
8	Stockton	CA	(673,170)	Myrtle Beach	SC	Columbia	MO	Spokane	WA
9	Poughkeepsie	NY	(671,538)	Glens Falls	NY	Lansing	MI	Poughkeepsie	NY
10	Knoxville	TN	(667,836)	Winchester	VA	New Haven	CT	Baltimore	MD

B. Population Similarity

Figure 1 below shows the 2006 population size of Québec and its top 10 closest MSAs by Overall Index. As pointed out in the previous Section, Columbia is the most similar MSA to Québec in terms of population size which can be clearly seen in Figure 1. The city of Springfield is close behind with a population almost the same as Knoxville and Syracuse. We can further observe that the metropolitan areas of Spokane and Buffalo are quite "far" from Québec.
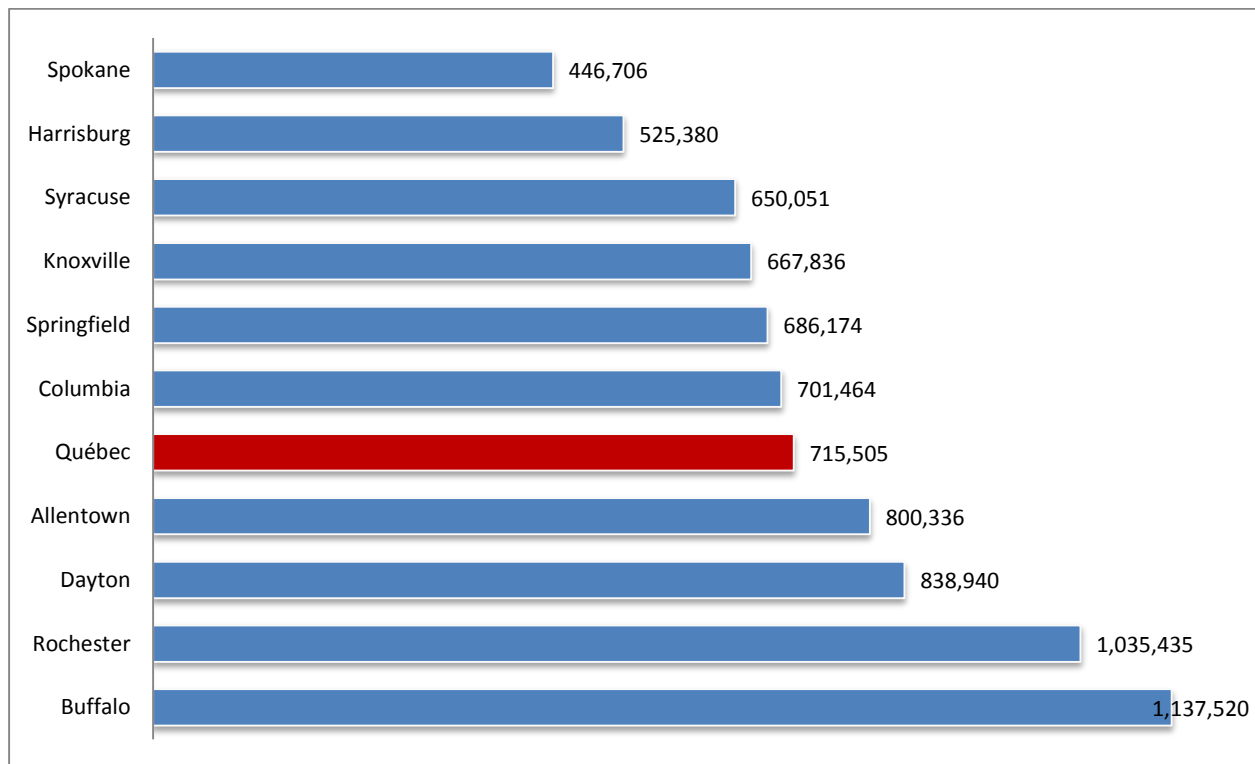

Figure 1: Population Size (2006) of Québec with its top 10 closest MSAs by Overall Index

In the next three sub-sections the actual data on the three indicators for Québec 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 Québec 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 Springfield, Syracuse, Knoxville, Columbia and Rochester. Note that in the graphs for sections C, D and E, a red line is used in plotting the data for Québec 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:

- We can see that the top 5 MSAs have a very similar distribution to Québec in all the variables included in the Human Capital indicator with Knoxville appearing to be with the closest resemblance.

- In terms of the percentage of foreign-born individuals and educational attainment groups all the 5 MSAs have almost equivalent levels with Québec.

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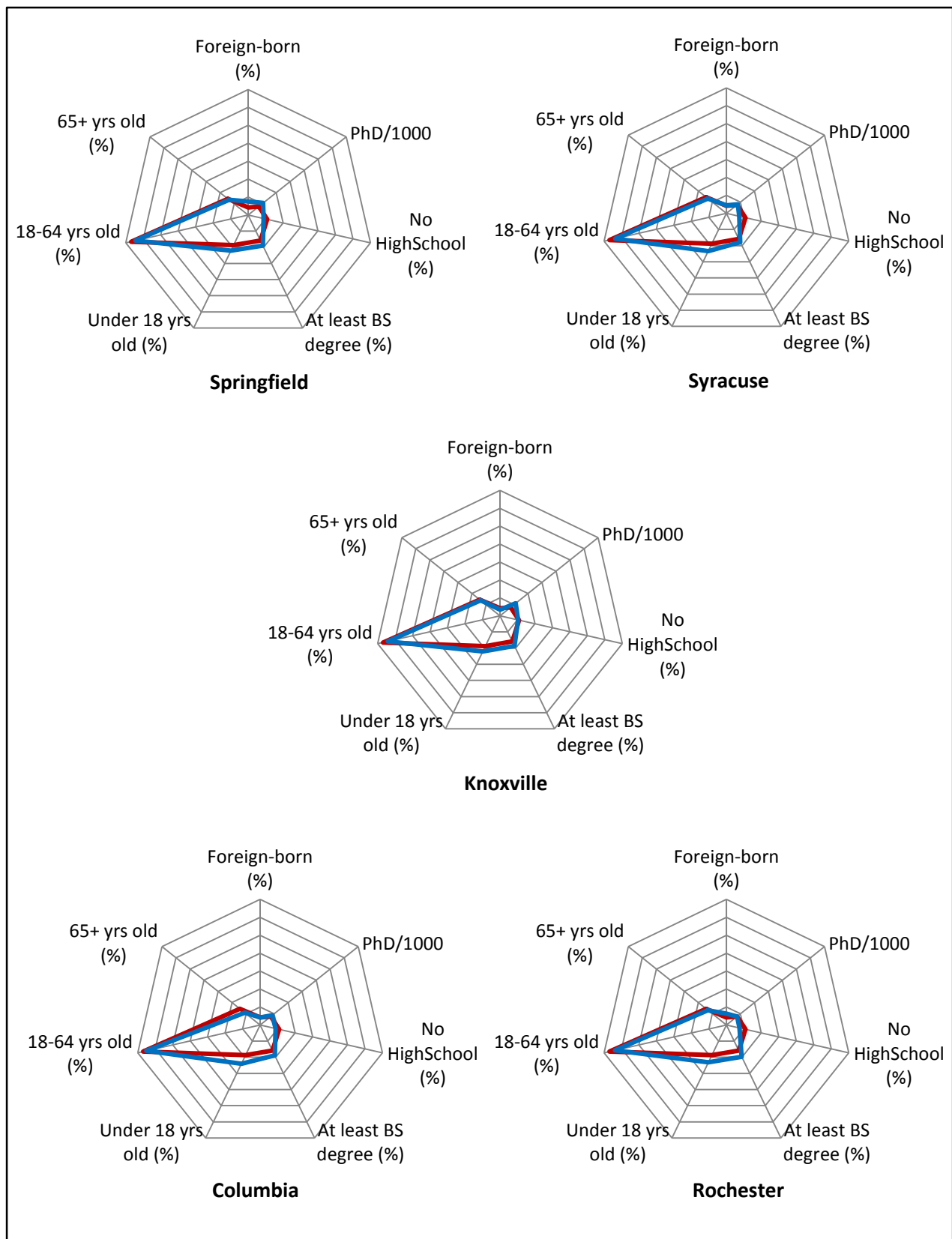
Figure 2: The actual data on the Human Capital indicator for Québec and its top 5 most similar MSAs

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 the employment level in various occupational groups of Québec shows a close resemblance with that of the top 5 MSAs.

- 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).

- We can also observe that Québec has slightly higher employment level in the Professional and Related Occupations (OC15) and Management, Business, Financial Occupations (OC11) compared to all the 5 MSAs.
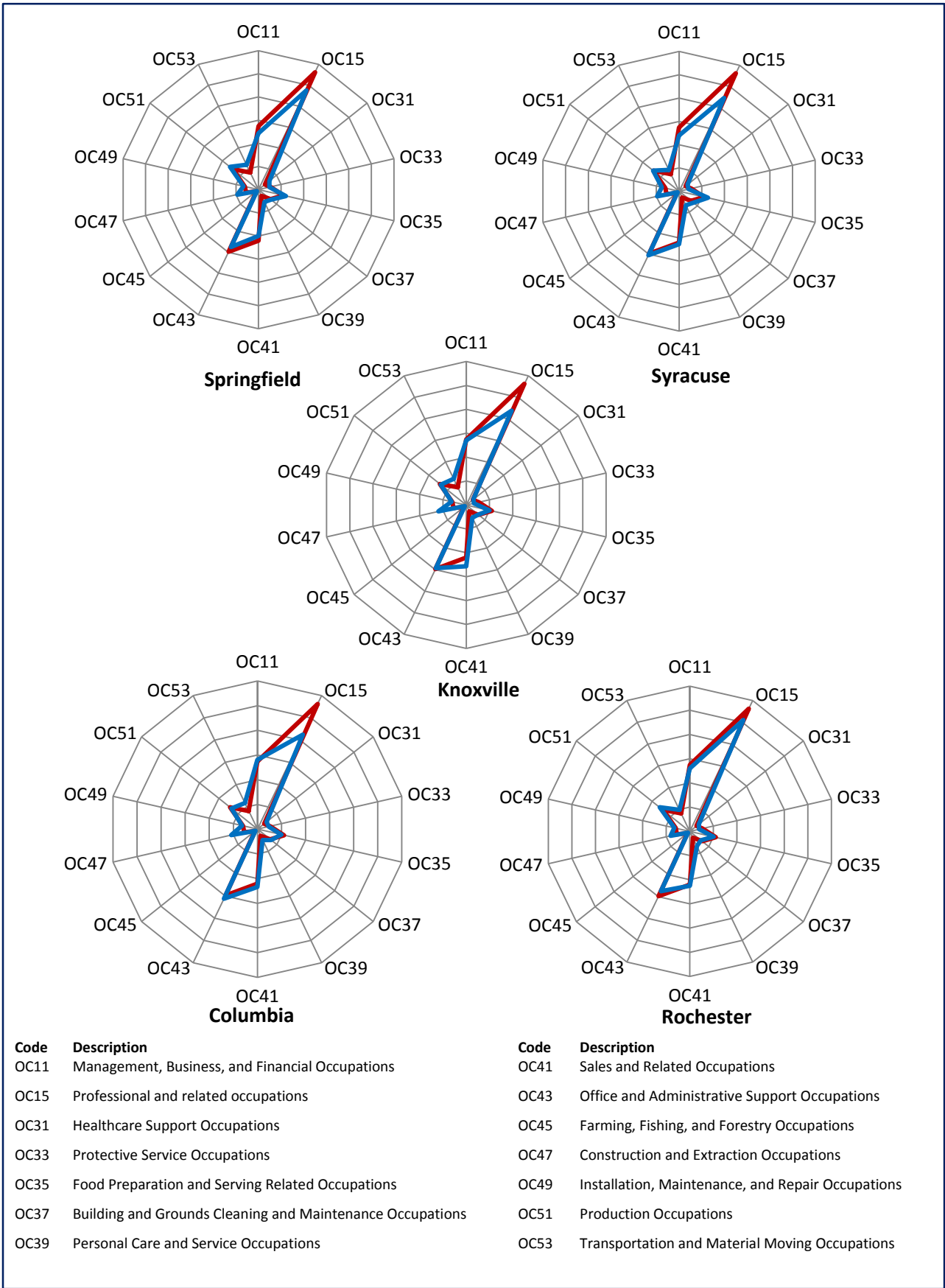
Figure 3: The actual data on Occupational Structure for Québec and its top 5 most similar MSAs

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

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, Syracuse appears to have the most similar distribution of employment levels in various industries to Québec.

- The majority of the MSAs appear to be similar to Québec in terms of having a higher employment level in Healthcare and Social Assistance (62); Retail Trade (44) and Manufacturing (31) and lower in Agriculture, Forestry, Fishing & Hunting (11); Mining Oil and Gas Extraction (21) and Utilities (22).

- Knoxville appears to have the highest employment level in Professional, Scientific and Technical Services (54) and is noticeably higher than that of Québec's.
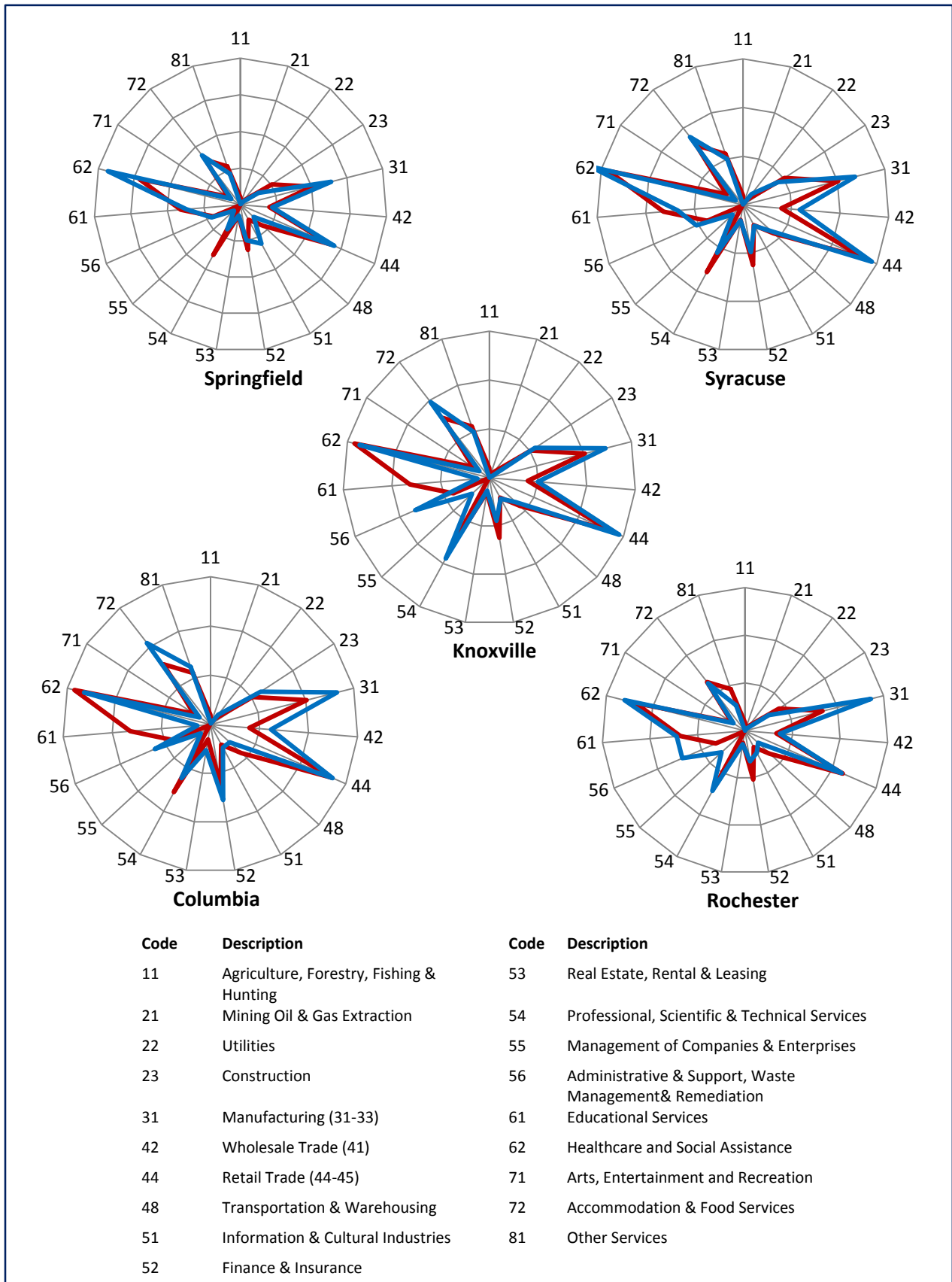
Figure 4: The actual data on the industrial structure for Québec and its top 5 most similar MSAs

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		

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 Québec 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:

- Québec performs better than all its closest neighbours. It has the highest in employment growth rate from 2003 to 2009, the lowest unemployment rate and the highest median employment income in 2010.

- The metropolitan area of Dayton has the lowest median employment income and the lowest employment growth rate among the city-regions. It also has the second highest unemployment rate.

- Aside from Dayton, the metropolitan area of Columbia also seems to be not performing so well, having the highest unemployment rate and the second lowest median employment income.

Table 3: Benchmarking survey for the city of Québec

City-Regions (CMAs/MSAs)		Employment Growth Rate (2003-2009)		Employment Income in USD (2010)		Unemployment Rate (2010)	
Québec	**QC**	**1.51%**	**(1)**	**$34,408**	**(1)**	**4.9%**	**(1)**
Springfield	MA	0.07%	(6)	$30,068	(5)	10.3%	(7)
Syracuse	NY	-0.71%	(10)	$30,247	(4)	8.7%	(4)
Knoxville	TN	0.47%	(3)	$27,094	(9)	8.7%	(4)
Columbia	SC	0.40%	(4)	$26,281	(10)	11.5%	(11)
Rochester	NY	-0.47%	(8)	$29,977	(6)	8.3%	(3)
Buffalo	NY	-0.50%	(9)	$28,954	(7)	9.7%	(6)
Dayton	OH	-2.06%	(11)	$25,877	(11)	11.3%	(10)
Allentown	PA	0.20%	(5)	$30,736	(3)	10.8%	(8)
Harrisburg	PA	-0.41%	(7)	$31,067	(2)	6.8%	(2)
Spokane	WA	1.04%	(2)	$27,717	(8)	11.2%	(9)