BENCHMARKING REPORT – CALGARY

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 Calgary. 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 Calgary 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 Raleigh is Calgary'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 Raleigh is also the most similar to Calgary in terms of Population Size (6th), Occupational Structure (8th) and Industrial Structure (4th). In terms of Human Capital, the closest is Oxnard (1st) while the rest of the MSAs have scores greater than 20.

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

Metropolitan Statistical Areas		Indicators				Overall Index
		Population Size	Human Capital	Occupational Structure	Industrial Structure	
Raleigh	NC	6	55	8	4	1
Austin	TX	42	24	15	8	2
Oxnard	CA	24	1	25	60	3
Albuquerque	NM	22	58	41	47	4
Colorado Springs	CO	47	79	23	19	4
Hartford	CT	8	34	14	150	6
Bridgeport	CT	13	26	39	135	7
Omaha	NE	21	116	30	53	8
Oklahoma City	OK	7	74	125	16	9
Albany	NY	18	144	22	44	10

Table 2 below shows the top 10 most similar MSAs to Calgary by indicator. In terms of Population Size, the top 3 closest MSAs to Calgary are Birmingham, Salt Lake City and Rochester with population around 1 million. For Human Capital, the metropolitan area of Oxnard ranks the closest. Considering the Occupational and Industrial Structure indicators, the most similar MSAs to Calgary are Boston and Houston, respectively.

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

Rank	Population			Human Capital		Occupational Structure		Industrial Structure	
	Calgary	**AB**	**(1,079,345)**						
1	Birmingham	AL	(1,089,883)	Oxnard	CA	Boston	MA	Houston	TX
2	Salt Lake City	UT	(1,067,190)	Napa	CA	San Francisco	CA	San Francisco	CA
3	Rochester	NY	(1,035,435)	Santa Barbara	CA	Seattle	WA	Portland	OR
4	New Orleans	LA	(1,024,678)	New York	NY	San Jose	CA	Raleigh	NC
5	Buffalo	NY	(1,137,520)	San Diego	CA	Madison	WI	Dallas	TX
6	Raleigh	NC	(995,662)	Houston	TX	Fort Collins	CO	San Diego	CA
7	Oklahoma City	OK	(1,173,632)	Las Vegas	NV	Minn.-St. Paul	MN	New Orleans	LA
8	Hartford	CT	(1,188,841)	Santa Rosa	CA	Raleigh	NC	Austin	TX
9	Richmond	VA	(1,196,411)	Chicago	IL	Huntsville	AL	Los Angeles	CA
10	Tucson	AZ	(946,362)	Sacramento	CA	Manchester	NH	Baltimore	MD

B.   Population Similarity

Figure 1 below shows the 2006 population size of Calgary and its top 10 closest MSAs by Overall Index. As pointed out in the previous Section, Raleigh is the most similar MSA to Calgary in terms of population size which can be clearly seen in Figure 1. The city of Oklahoma is close behind with a population almost the same as Hartford. We can further observe that the metropolitan area of Colorado Springs is quite "farther" from Calgary with a population just above half a million.
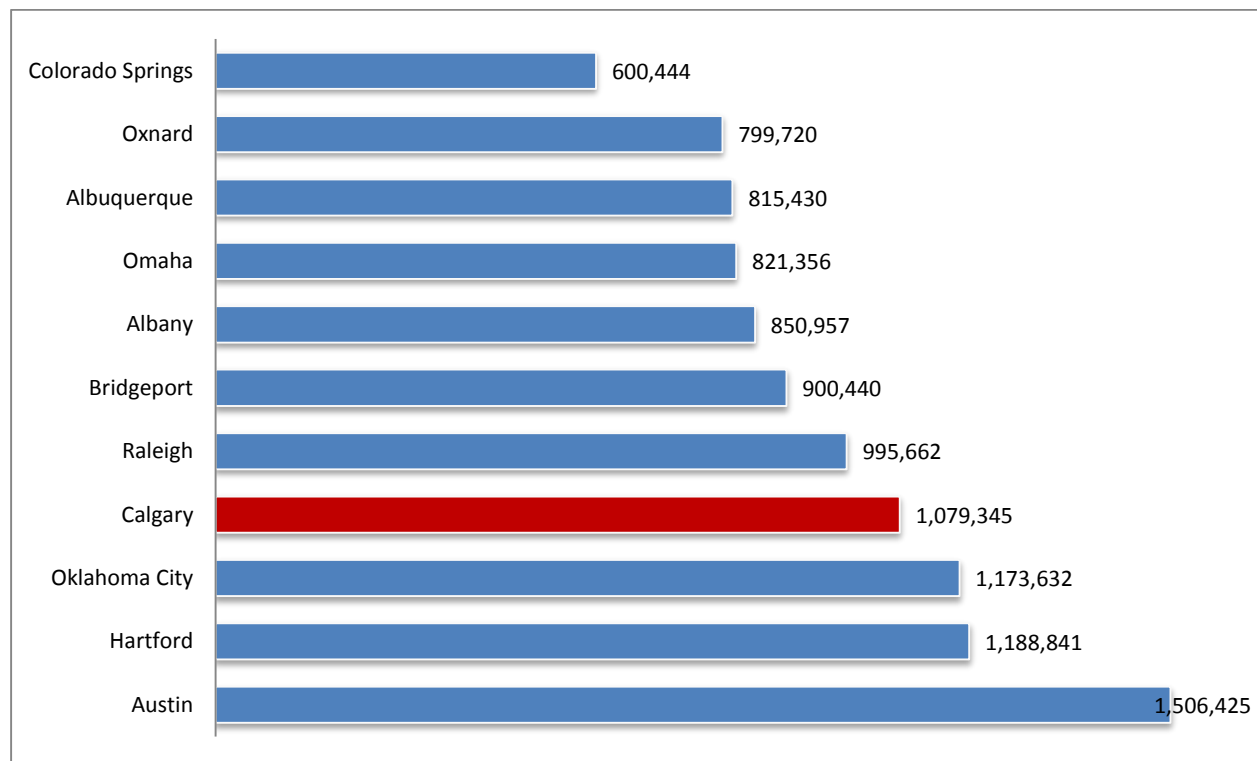

Figure 1: Population Size (2006) of Calgary with its top 10 closest MSAs by Overall Index

In the next three sub-sections the actual data on the three indicators for Calgary 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 Calgary 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 Raleigh, Austin, Oxnard, Albuquerque and Colorado Springs. Note that in the graphs for sections C, D and E, a red line is used in plotting the data for Calgary 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 majority of the top 5 closest MSAs have significantly lower percentage of foreign-born individuals compared to Calgary.

- In terms of the groups of educational attainment considered, all the 5 MSAs seem to have a fairly close distribution to Calgary.

- Excluding the percentage of foreign-born individuals in the set of indicators, the top 5 MSAs in general appear to have a similar distribution to Calgary.

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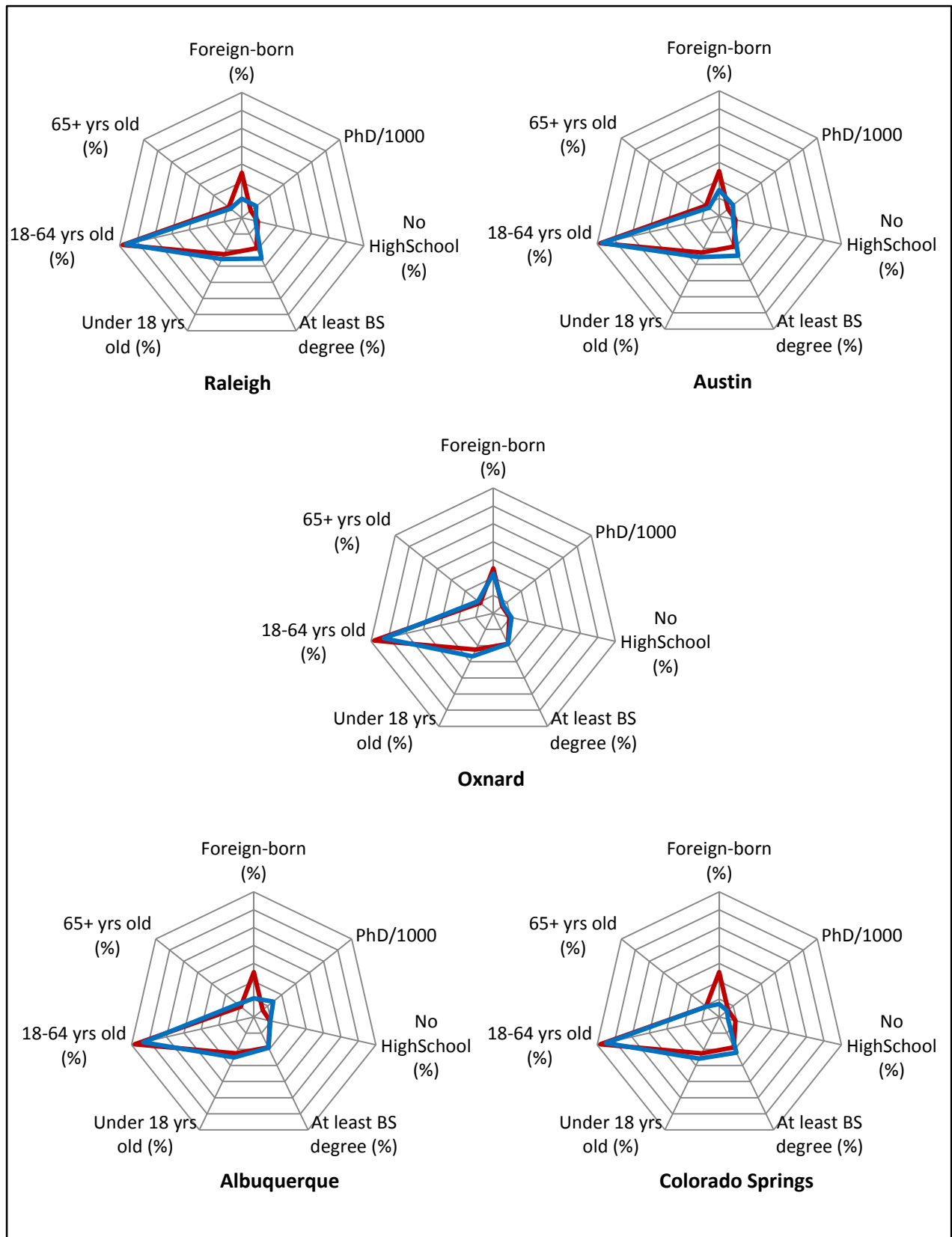
Figure 2: The actual data on the Human Capital indicator for Calgary and its top 5 most similar MSAs

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 levels in various occupational groups of the top 5 MSAs appears to be similar to Calgary.

- 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 Calgary has slightly higher employment level in the Professional and Related Occupations (OC15); Management, Business, Financial Occupations (OC11) and Production Occupations (OC51) compared to all the 5 MSAs.

Raleigh

Austin

Oxnard

Albuquerque

Colorado Springs

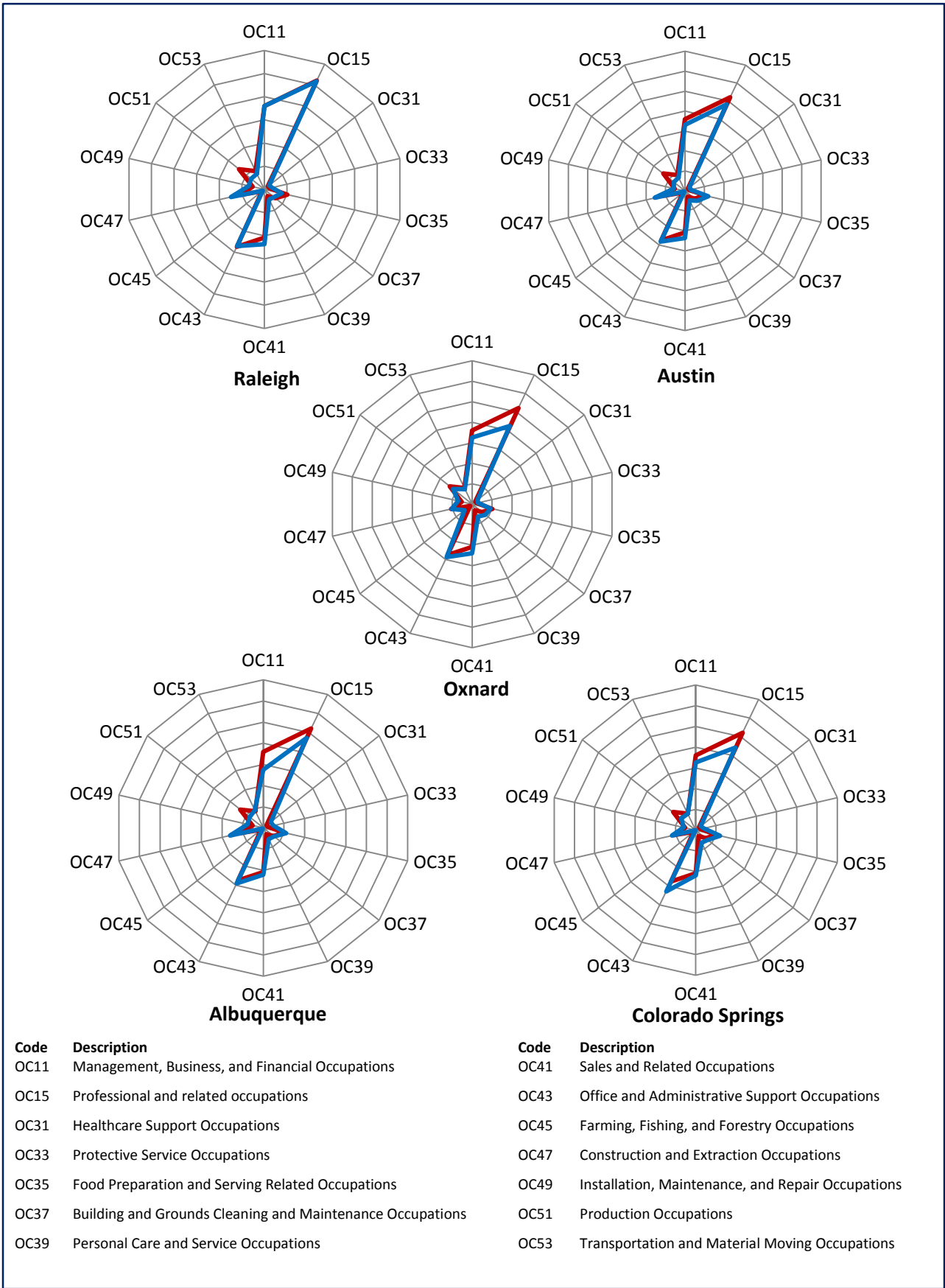| Code	Description	Code	Description
OC11	Management, Business, and Financial Occupations	OC41	Sales and Related Occupations
OC15	Professional and related occupations	OC43	Office and Administrative Support Occupations
OC31	Healthcare Support Occupations	OC45	Farming, Fishing, and Forestry Occupations
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 Calgary 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, Raleigh and Austin appear to have a more similar distribution of employment levels in various industries to Calgary.

- The majority of the MSAs appear to be similar to Calgary in terms of having a higher employment level in Retail Trade (44) and Professional, Scientific and Technical Services (54) compared to other industry groups. We can also observe that all the MSAs have slightly higher levels for Retail Trade than Calgary, while Calgary has generally higher level for Professional, Scientific and Technical Services than the MSAs.

- All the MSAs have higher percentage of individuals employed in Healthcare and Social Assistance (62) and Accommodation and Food Services (72) than Calgary.

- It is noticeable that Calgary has the highest level of employment in Mining Oil and Gas Extraction industries as opposed to very low levels for all the MSAs.
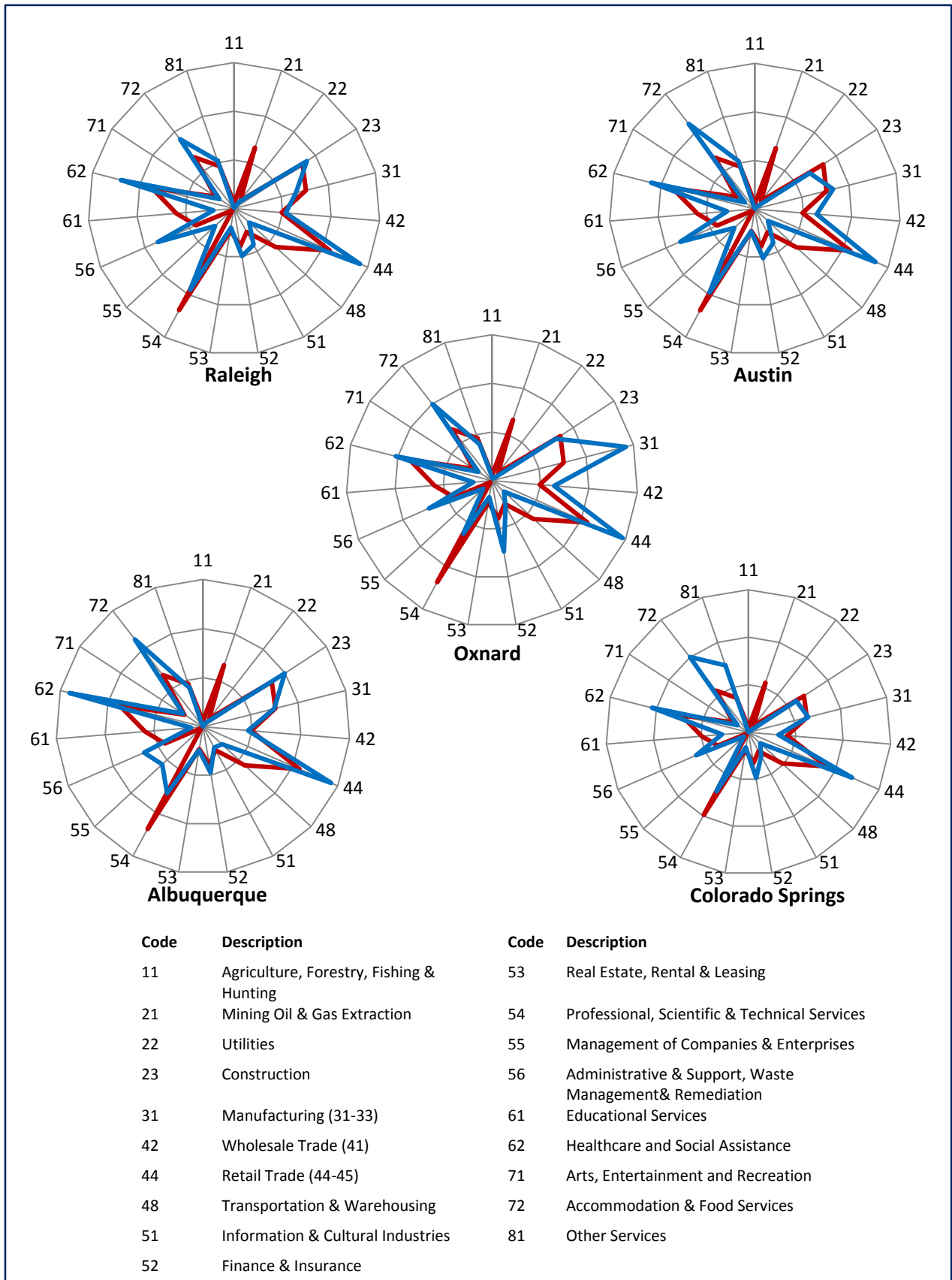
Figure 4: The actual data on the industrial structure for Calgary and its top 5 most similar MSAs

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 Calgary 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:

- Calgary appears to perform better than its closest neighbours. It has the highest in employment growth rate from 2003 to 2009, the lowest unemployment rate and the 3rd highest median employment income in 2010.

- The metropolitan area of Bridgeport has the highest median employment income among the city-regions. However, it has the highest unemployment rate and the lowest employment growth rate.

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

Table 3: Benchmarking survey for the city of Calgary

City-Regions (CMAs/MSAs)		Employment Growth Rate (2003-2009)		Employment Income in USD (2010)		Unemployment Rate (2010)	
Calgary	**AB**	**3.26%**	**(1)**	**$36,128**	**(3)**	**6.8%**	**(1)**
Raleigh	NC	1.67%	(3)	$32,231	(4)	10.1%	(7)
Austin	TX	2.87%	(2)	$30,610	(7)	8.3%	(5)
Oxnard	CA	-0.37%	(10)	$31,062	(6)	10.2%	(8)
Colorado Springs	CO	0.98%	(5)	$27,199	(10)	10.6%	(10)
Albuquerque	NM	0.16%	(7)	$28,787	(9)	8.6%	(6)
Hartford	CT	-0.36%	(9)	$36,495	(2)	10.4%	(9)
Bridgeport	CT	-2.08%	(11)	$38,128	(1)	10.7%	(11)
Omaha	NE	0.19%	(6)	$30,279	(8)	7.3%	(2)
Oklahoma City	OK	1.28%	(4)	$26,473	(11)	7.7%	(3)
Albany	NY	0.10%	(8)	$32,057	(5)	8.1%	(4)