

BENCHMARKING REPORT - VANCOUVER

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 Vancouver. 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 Vancouver 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 Vancouver’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 Portland is the most similar to Vancouver in terms of Population Size (3rd) and Industrial Structure (1st), San Jose based on Human Capital (4th) and Minneapolis-St. Paul based on Occupational Structure (1st).

Table 1: Top 10 most “similar MSAs” to Vancouver by Overall Index

| Metropolitan Statistical Areas | | Indicators | | | | Overall Index |
|--------------------------------|----|-----------------|---------------|------------------------|----------------------|---------------|
| | | Population Size | Human Capital | Occupational Structure | Industrial Structure | |
| Seattle | WA | 37 | 35 | 2 | 3 | 1 |
| Portland | OR | 3 | 56 | 19 | 1 | 2 |
| San Diego | CA | 23 | 9 | 39 | 11 | 3 |
| San Jose | CA | 10 | 4 | 17 | 53 | 4 |
| Austin | TX | 20 | 46 | 29 | 6 | 5 |
| Oxnard | CA | 49 | 10 | 18 | 50 | 6 |
| Minneapolis-St. Paul | MN | 33 | 88 | 1 | 15 | 7 |
| Sacramento | CA | 4 | 23 | 80 | 35 | 8 |
| Baltimore | MD | 17 | 103 | 16 | 10 | 9 |
| Raleigh | NC | 36 | 72 | 34 | 13 | 10 |

Table 2 below shows the top 10 most similar MSAs to Vancouver by indicator. In terms of Population Size, the top 3 closest MSAs to Vancouver are Cleveland, Cincinnati and Portland. Considering the Human Capital indicator, the metropolitan area of Miami is the closest to Vancouver followed by Los Angeles and New York. For Occupational Structure, the most similar MSA is Minneapolis-St. Paul and for Industrial Structure the closest is Portland as also shown in Table 1 above.

Table 2: Top 10 most “similar MSAs” to Vancouver by Indicator

| Rank | Population | | | Human Capital | | Occupational Structure | | Industrial Structure | |
|------|------------------|-----------|--------------------|---------------|----|------------------------|----|----------------------|----|
| | Vancouver | BC | (2,116,560) | | | | | | |
| 1 | Cleveland | OH | (2,114,155) | Miami | FL | Minn.-St. Paul | MN | Portland | OR |
| 2 | Cincinnati | OH | (2,105,010) | Los Angeles | CA | Seattle | WA | Los Angeles | CA |
| 3 | Portland | OR | (2,137,599) | New York | NY | Hartford | CT | Seattle | WA |
| 4 | Sacramento | CA | (2,067,117) | San Jose | CA | Boston | MA | Indianapolis | IN |
| 5 | Orlando | FL | (1,984,855) | San Francisco | CA | Manchester | NH | Houston | TX |
| 6 | Kansas City | MO | (1,966,790) | Salinas | CA | Lexington | KY | Austin | TX |
| 7 | San Antonio | TX | (1,948,437) | Napa | CA | San Francisco | CA | San Francisco | CA |
| 8 | Pittsburgh | PA | (2,370,776) | Santa Barbara | CA | Worcester | MA | Kansas City | MO |
| 9 | Denver | CO | (2,408,622) | San Diego | CA | Huntsville | AL | New Orleans | LA |
| 10 | San Jose | CA | (1,784,826) | Oxnard | CA | Rochester | NY | Baltimore | MD |

B. Population Similarity

Figure 1 below shows the 2006 population size of Vancouver and its top 10 closest MSAs by Overall Index. As pointed out in the previous Section, Portland is the most similar MSA to Vancouver in terms of population size which can be clearly seen in Figure 1. The metropolitan area of Sacramento is close behind with a population almost at par with Portland and Vancouver. We can further observe that the metropolitan areas of Oxnard and Raleigh are quite “farther” from Vancouver with population below one million.

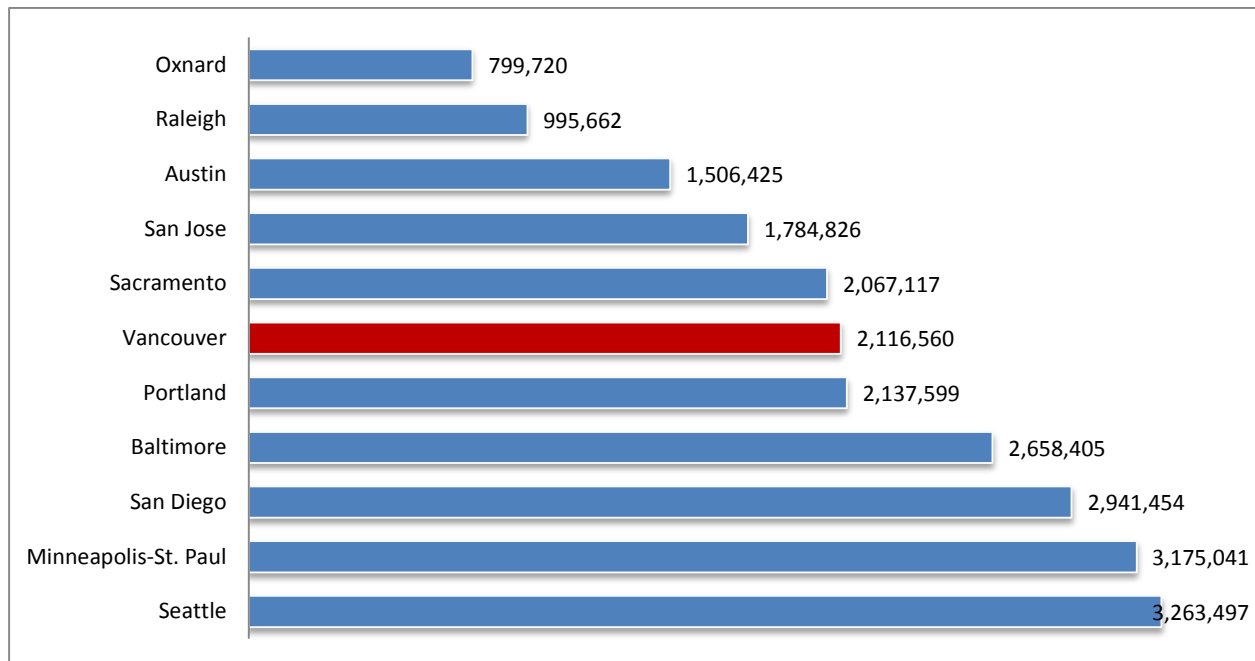


Figure 1: Population Size (2006) of Vancouver with its top 10 closest MSAs by Overall Index

In the next three sub-sections the actual data on the three indicators for Vancouver 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 Vancouver 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, San Diego, San Jose and Austin. Note that in the graphs for sections C, D and E, a red line is used in plotting the data for Vancouver 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 Vancouver.
- 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 Vancouver.
- In terms of the educational attainment categories considered, these MSAs tend to have a higher percentage of individuals with at least Bachelor of Science degrees.
- The metropolitan area of San Jose has the highest number of PhDs per 1000 among the top 5 MSAs. This number is also noticeably higher compared to Vancouver.
- Considering the various age groups, these city-regions are similar to Vancouver with a higher percentage of individuals in the 18-64 years old age group.

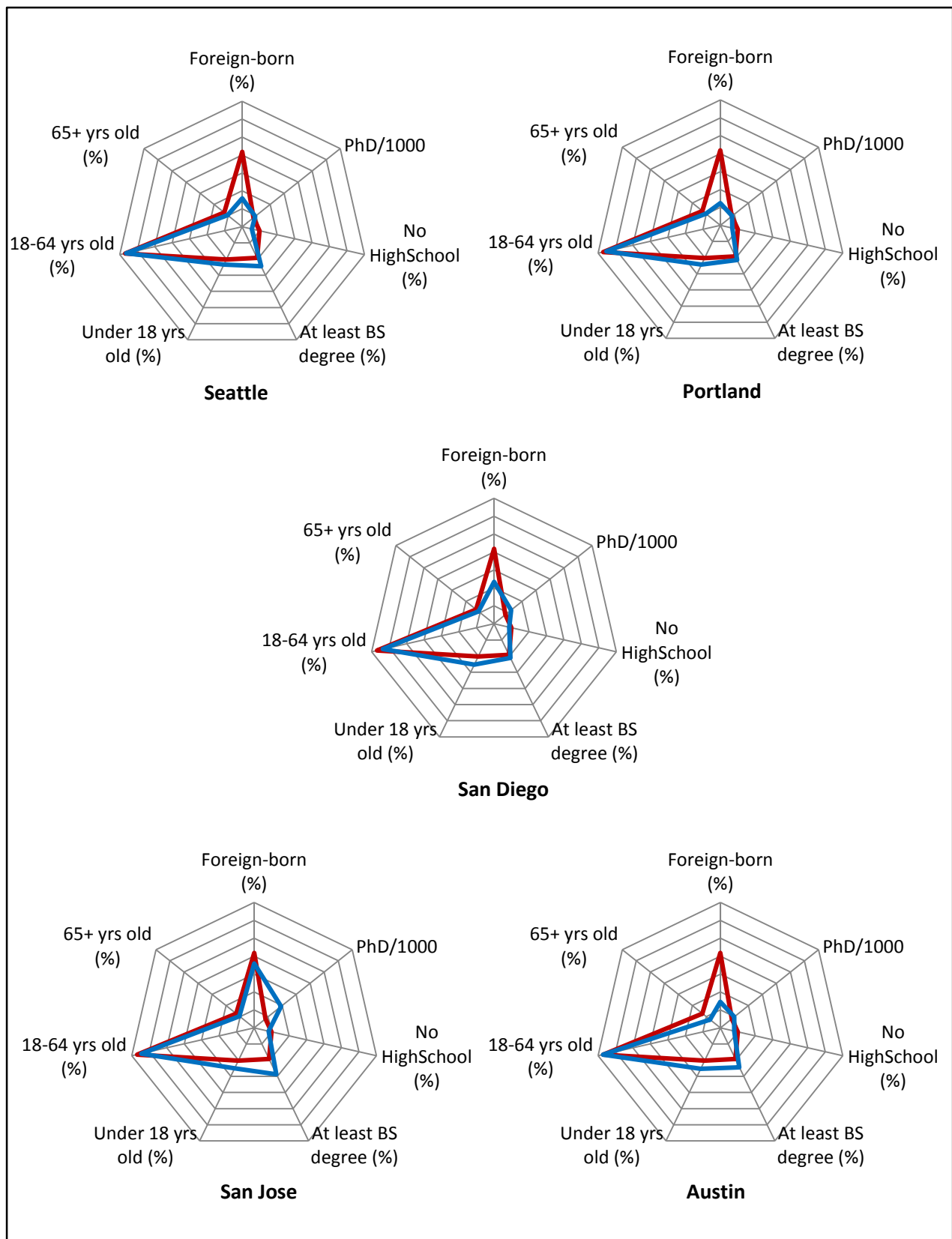


Figure 2: The actual data on the Human Capital indicator for Vancouver and its top 5 most similar MSAs

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 Seattle's occupational groups appears to be the most similar to Vancouver except that Vancouver has a slightly higher percentage of individuals involved in Production Occupations (OC51).
- All the MSAs appear to have a lower proportion of people involved in Productions Occupation (OC51) than Vancouver.
- 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).

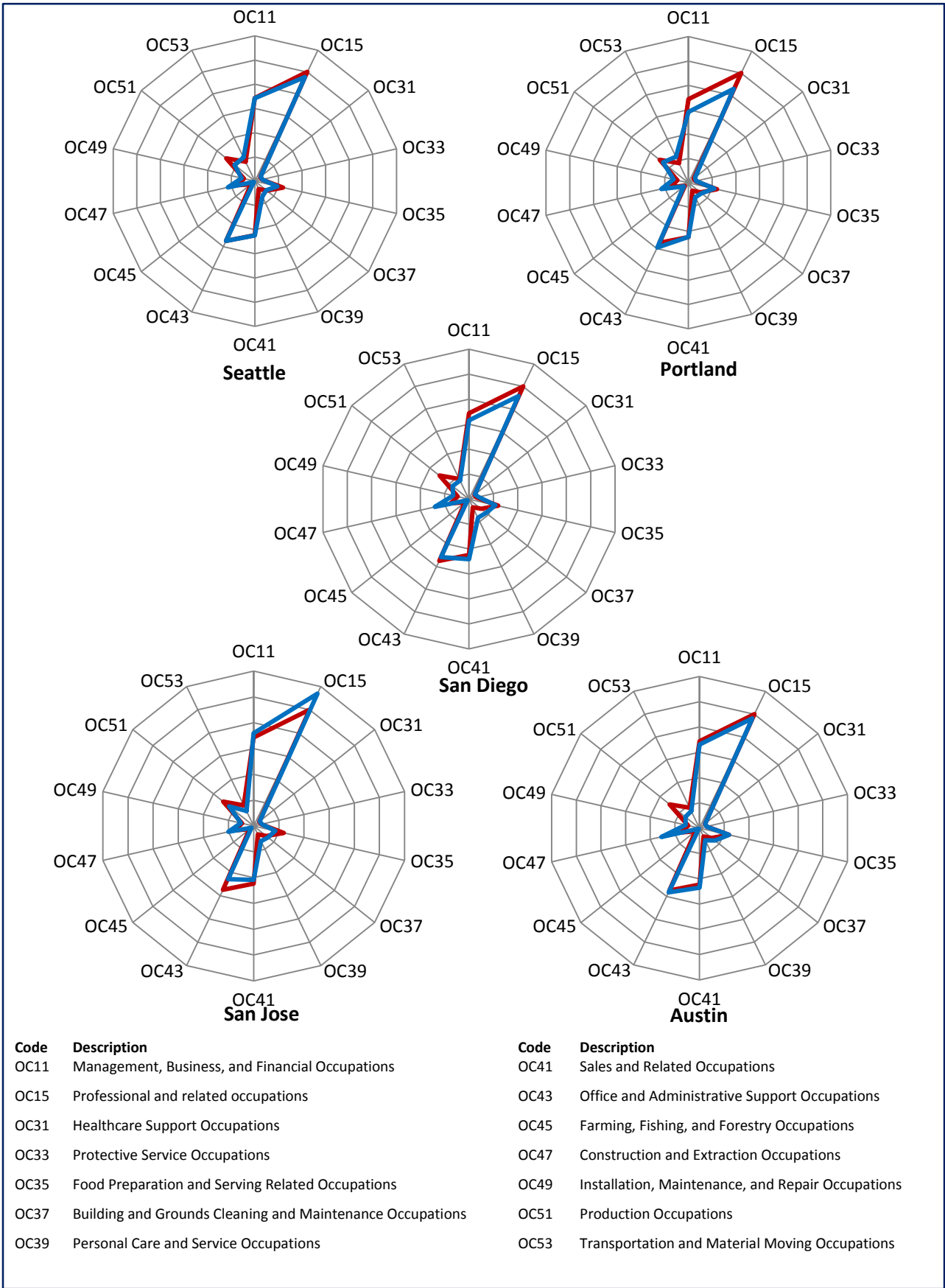


Figure 3: The actual data on Occupational Structure for Vancouver and its top 5 most similar MSAs

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 Vancouver.
- The majority of the MSAs appear to be similar to Vancouver in terms of having a higher employment level in Retail Trade (44), Professional, Scientific and Technical Services (54) and Healthcare and Social Assistance (62) and Accommodation and Food Services (72).
- The metropolitan area of San Jose has the highest percentage of individuals employed in Professional, Scientific and Technical Services (54) and is significantly higher than that of Vancouver.

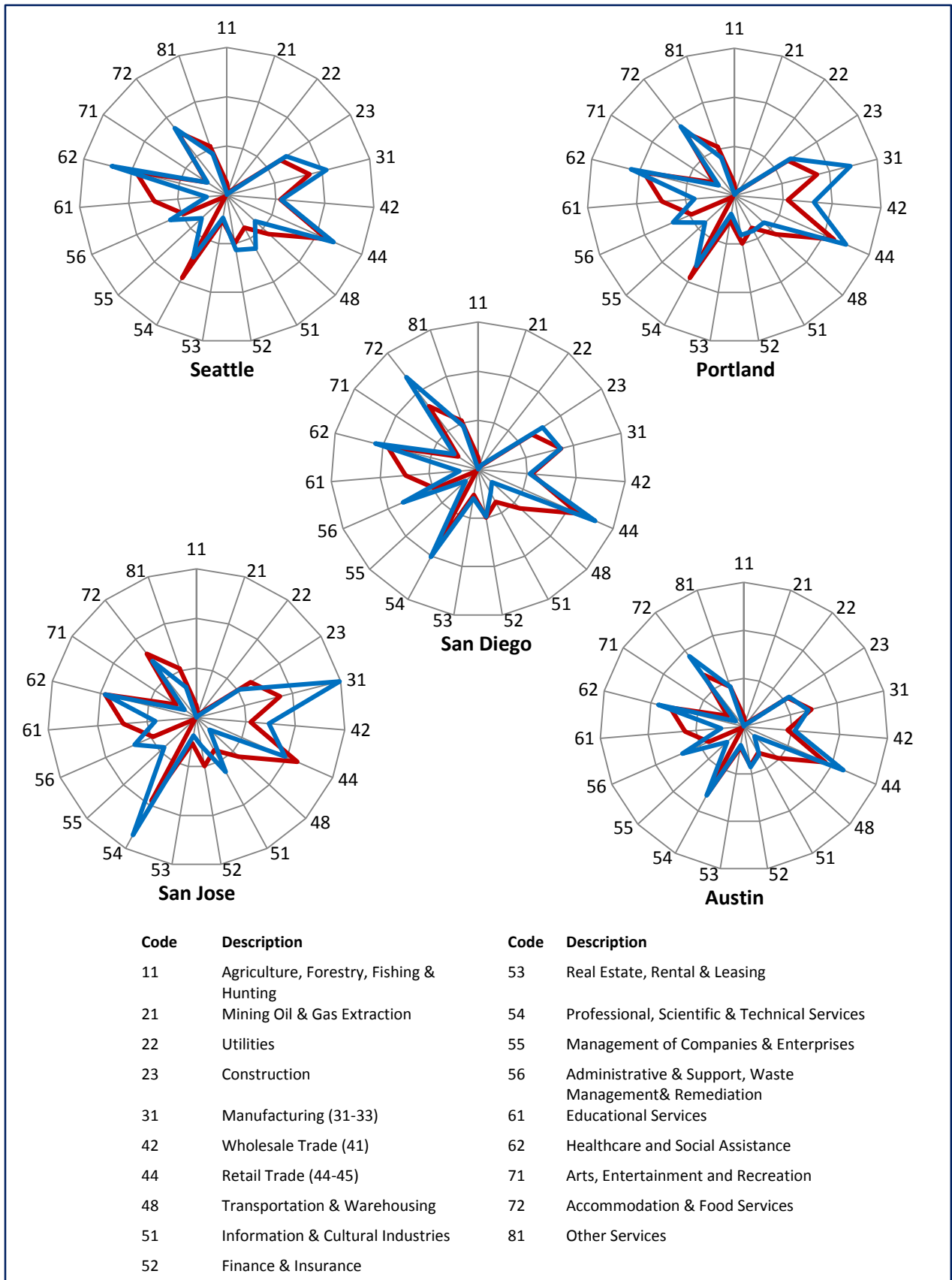


Figure 4: The actual data on the industrial structure for Vancouver and its top 5 most similar MSAs

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 Vancouver 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:

- Vancouver has the third highest employment growth rate from 2003 to 2009 and has the lowest unemployment rate in 2010.
- Considering the median employment income of the city-regions, San Jose is leading the group while Vancouver ranks the lowest with its median earnings below 30 thousand US dollars in 2010.
- Among Vancouver's closest neighbours, Sacramento seems to be performing poorly in terms of employment growth rate (lowest) and unemployment rate (highest).

Table 3: Benchmarking survey for the city of Vancouver

| City-Regions (CMAs/MSAs) | | Employment Growth Rate (2003-2009) | Employment Income in USD (2010) | Unemployment Rate (2010) |
|--------------------------|-----------|------------------------------------|---------------------------------|--------------------------|
| Vancouver | BC | 1.66% (3) | \$26,616 (11) | 7.5% (1) |
| Seattle | WA | 0.29% (5) | \$36,031 (3) | 10.4% (7) |
| Portland | OR | 0.66% (4) | \$30,281 (10) | 12.5% (10) |
| San Diego | CA | -0.04% (8) | \$31,354 (7) | 11.3% (8) |
| San Jose | CA | -0.11% (9) | \$41,428 (1) | 11.3% (8) |
| Austin | TX | 2.87% (1) | \$30,610 (9) | 8.3% (2) |
| Oxnard | CA | -0.37% (10) | \$31,062 (8) | 10.2% (6) |
| Minneapolis-St. Paul | MN | 0.28% (6) | \$35,118 (4) | 8.8% (3) |
| Sacramento | CA | -0.73% (11) | \$31,811 (6) | 13.8% (11) |
| Baltimore | MD | 0.19% (7) | \$38,629 (2) | 8.9% (4) |
| Raleigh | NC | 1.67% (2) | \$32,231 (5) | 10.1% (5) |