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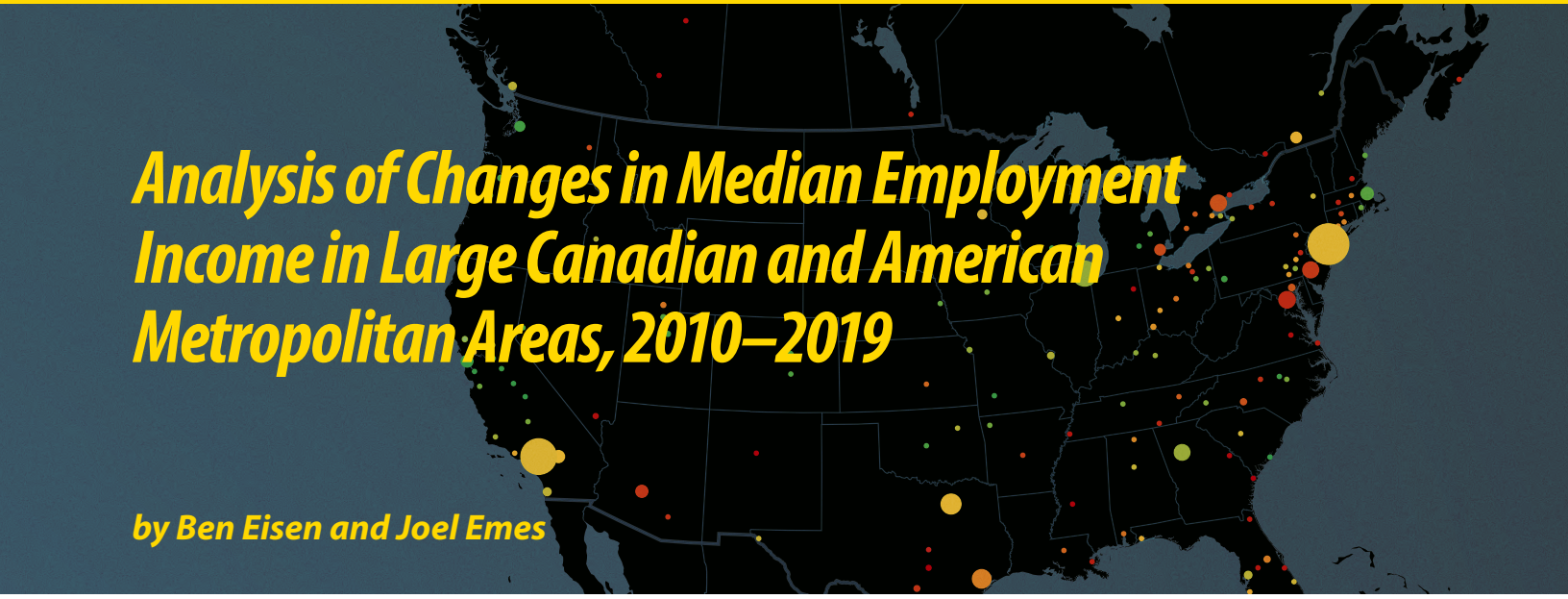


Analysis of Changes in Median Employment Income in Large Canadian and American Metropolitan Areas, 2010–2019

by Ben Eisen and Joel Emes

MAIN CONCLUSIONS

- In this research bulletin, we analyze the growth of median employment income in metropolitan areas of Canada and the United States with populations of over 400, 000 residents, a total of 141 metropolitan areas, 14 of which are Canadian.
- The key finding is that Canadian metropolitan areas are overrepresented at the bottom of the rankings for rates of median employment income growth and absent from the top.
- Six of Canada's 14 metropolitan areas are found in the bottom quartile of the rankings across both countries.
- Only three of Canada's metros are in the top half of the 141 large urban areas measured and none are in the top quartile.
- Generally growth in median employment income in Canadian CMAs has been lower than in American MSAs
- The largest CMA in Canada, Toronto, ranks 102nd, near the bottom of the third quartile. The implications of Toronto's weak growth are discussed in this bulletin.
- Energy-rich jurisdictions do not typically follow the same business cycle as other parts of Canada and the United States. In Canada, many CMAs in resource-rich provinces experienced strong growth in the early 2010s but then suffered severe pullbacks in the middle of the decade.

Introduction

In June of 2023, the Fraser Institute published a research bulletin that ranked Canada's 41 Census Metropolitan Areas (CMAs) according to the growth rate of median employment income from 2010 to 2019 (Eisen and Emes, 2023a). This analysis was intended to shed light on the relative evolution of the strength of labour markets, specifically of change in employment income, in large metropolitan areas across the country. In this study, we expand our analysis to include a comparison with the United States.

The analysis covers metropolitan areas in Canada and the United States with over 400,000 residents, a total of 141 metropolitan areas, 14 of which are Canadian. We measure the change in median employment income from 2010 to 2019. The start date of 2010 was chosen because it marks the recovery from the global recession of 2008/09. The end date is the most recent year of comparable data that is not badly distorted by the COVID-19 pandemic and recession.

We do not present an analysis of possible causes for the differing growth rates across metropolitan areas. Rather, this bulletin simply provides a ranking of change in median employment income over the course of the 2010s for large metropolitan areas in Canada and the United States. Following the discussion of the results, we do offer a few observations on the data that suggest possible avenues for future research.

Methodology

This research bulletin compares the growth rate of the median employment income of major metropolitan areas (MAs) across Canada and the United States. We restrict our analysis to large metropolitan areas with over 400,000 residents. Many possible variables could be used to compare the metropolitan areas discussed here. Employment income differs from other measures in that it excludes some forms of income such as government transfers and investment and pension income. We use it to focus on what people can earn in the labour market after stripping away the effects of passive income and government policy designed to reduce income inequality. For economy of words and clarity, we use the word "income" here to refer to "median employment income" reported in Canada and "median earnings" reported in the United States.

The methodological choice to focus on median incomes[1] is borne out of the authors' preference for analyzing the health of labour markets for middle-income residents. However, other indicators would shed light on other important dimensions of labour market performance. For instance, a measurement of the mean labour-market income would give very high earners a greater impact on the results. Income at the top end of the distribution matter a lot for many things, especially attracting top talent. An even narrower focus on income for individuals in the top 10% could be very useful in shedding light on these issues. In this bulletin, we focus on median incomes to assess the impact of labour-market performance on middle-income individuals, but the above alternatives are interesting options for future research products.

As a result of differences in the definitions that various statistical agencies use for key concepts, comparing incomes in Canadian and American metropolitan areas is somewhat more complex than our previous comparison of the change in incomes in Canadian census metropolitan areas (CMAs) alone. However, we are confident that the results presented here accurately present employment incomes in large Canadian and American metropolitan areas (MAs).

1 The median is the value in the middle of a dataset; that is, 50% of data points have a value smaller than or equal to the median and 50% of data points have a value higher than or equal to the median.

In Canada, "census metropolitan areas (CMA) … are formed of one or more adjacent municipalities that are centred on and have a high degree of integration with a large population centre, known as the core". A CMA must have a population of at least 100,000 people, with at least 50,000 residents in the core (Statistics Canada, 2022). Similarly, in the United States, "[t]he general concept of a metropolitan … statistical area [MSA] is that of a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core" (US Census Bureau, 2023a). Although the terminology is different in the two countries, the focus is the same. MSAs do not have the 100,000 minimum population that CMAs do, instead relying solely on a core of 50,000, the same as in Canada. However, this does not pose a problem as our analysis excludes MAs below 400,000 people.

The comparison that we present is based on the median level of income for individuals. Specifically, we present data on median employment income for Canadian CMAs and median earnings for American MSAs. Further, we use a median value rather than an average because average incomes can be heavily influenced by a small number of outliers, making median income a more helpful measure in assessing overall performance.

The MSA data has been adjusted to ensure comparability across currencies. We adjust raw MSA data to 2019 dollars using the recommended inflation adjustment method suggested by the US Census Bureau (2020) and convert to Canadian dollars using a Purchasing Power Parity (PPP) exchange rate.[2] We recognize that national PPP conversions are imperfect for this exercise, given that levels of purchasing power differ among cities in the same country. However, the national PPP conversion is the best available reliable tool for comparisons across countries.[3] We adjusted Canadian CMA data for inflation using the national level all-items CPI (Statistics Canada, 2023b, which differs from the provincial level CPI we used in our papers on CMAs only (Eisen and Emes, 2023a, 2023c). We made this switch for a better match to the approach required for the MSA data.

We use a population cut-off of 400,000 people to allow a more meaningful discussion of the performance of the two countries' largest cities. The cut-off is by definition arbitrary but permits the inclusion of major regional and provincial hubs within Canada such as Halifax, London, and Winnipeg.

Results

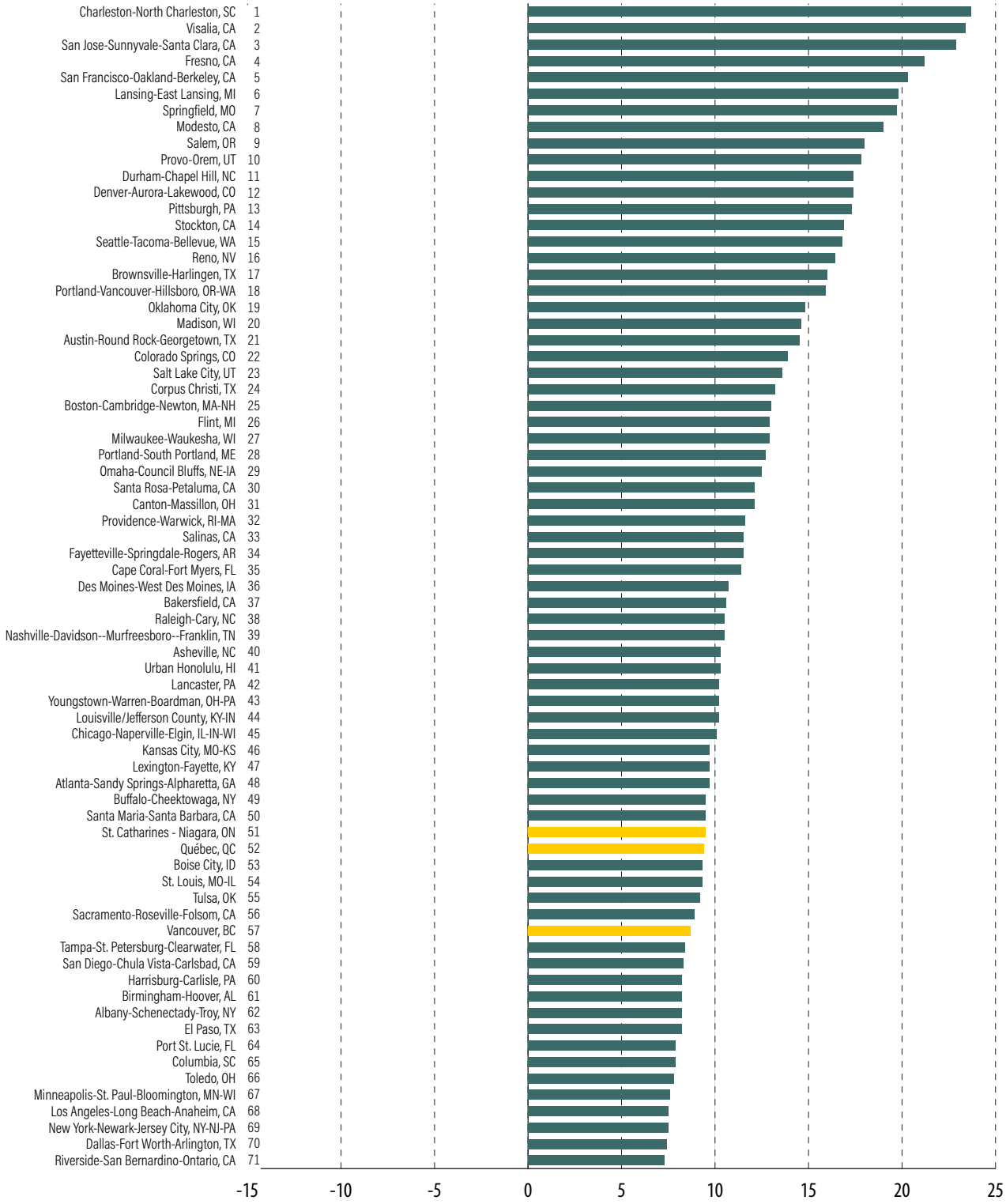
Figures 1A and 1B present the key results of this study, showing the change in median employment income for the 141 metropolitan areas examined. The fastest rate of growth (23.7%) occurred in the Charleston-North Charleston Metro Area of South Carolina. The next four metropolitan areas in the ranking, all of which had growth in income above 20%, are MAs in California: Visalia, San Jose-Sunnyvale-Santa Clara, Fresno, and San Francisco-Oakland-Berkeley.

The worst performers for this indicator are the 15 jurisdictions that experienced negative growth. Killeen-Temple (Texas), San Juan-Bayamón-Caguas (Puerto Rico), and Savannah (Georgia) had the most severe negative growth. Of the 15 MAs with negative growth, three are Canadian: Ottawa-Gatineau (–0.3%); Edmonton (–0.8%); and Calgary (–3.0%).

2 We use PPP rather than the exchange rate because: [1] PPPs are relatively stable (from 2010 to 2021 the PPP fluctuated by 3.4% compared to 35.8% for the exchange rate; and [2] although imperfect, they do correct for price differences (OECD, 2023).

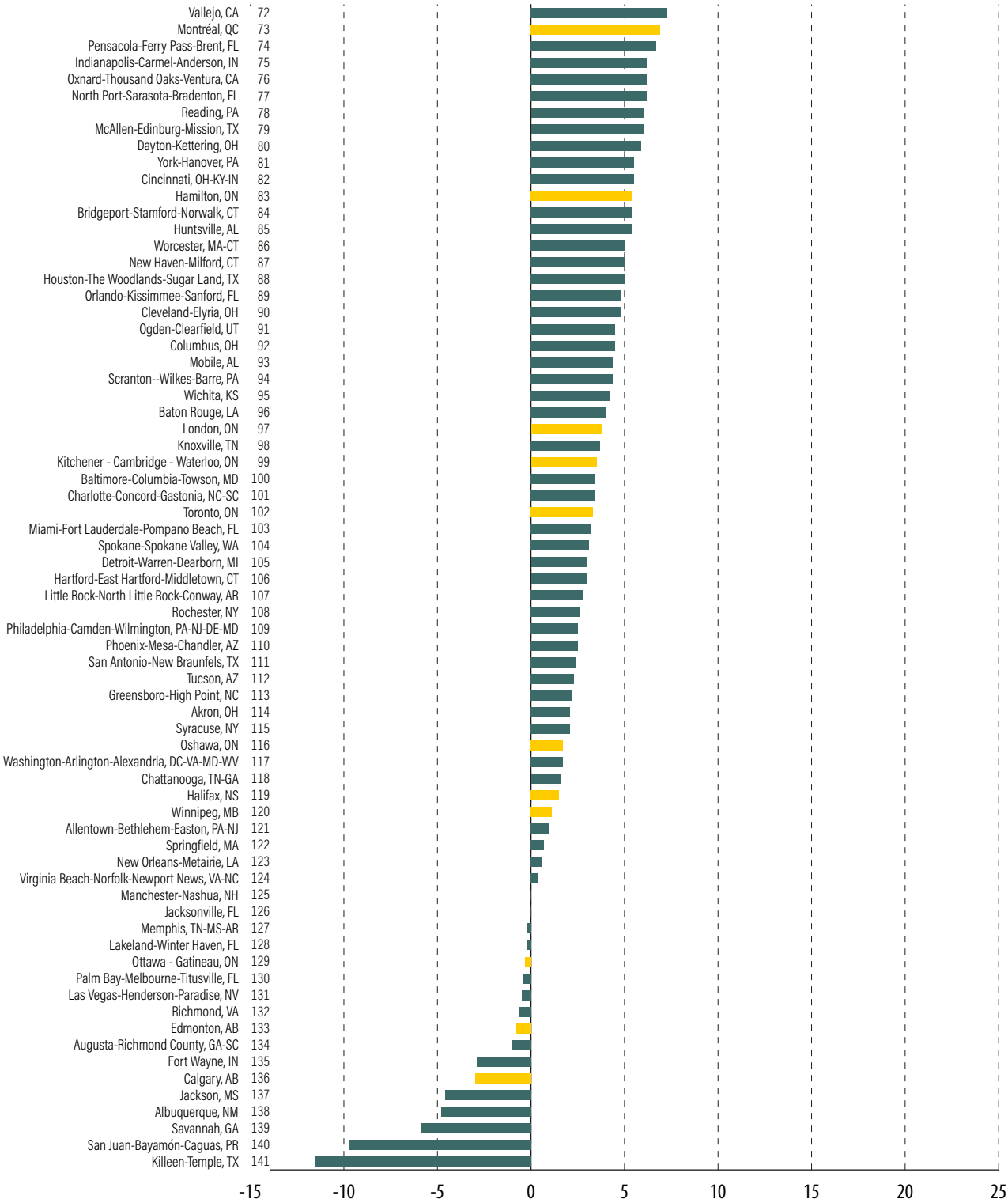
3 The Bureau of Economic Analysis produces PPPs for state and metro areas but, as PPPs are not available for CMAs, we chose to use the national conversion rate.

Figure 1A: Compound annual growth in employment income, 2010–2019, and rank, Canadian CMAs and American MSAs with population over 400,000



Sources: Statistics Canada, 2023a, 2023b; OECD, 2023; US Bureau of Labor Statistics, 2023; US Census Bureau, 2023b, 2023c; calculations by authors.

Figure 1B: Compound annual growth in employment income, 2010–2019, and rank, Canadian CMAs and American MSAs with population over 400,000



Sources: Statistics Canada, 2023a, 2023b; OECD, 2023; US Bureau of Labor Statistics, 2023; US Census Bureau, 2023b, 2023c; calculations by authors.

Additional observations

As is discussed below, this bulletin's key finding is that Canadian MAs are over-represented at the bottom of the rankings and absent from the top. However, beyond this key point, we do not present an overarching argument or narrative about the data presented. Rather, the project's aim is to simply provide the relevant data on the growth of labour income in metropolitan areas across Canada and the United States. However, we do in this section discuss a few noteworthy dimensions of our results that may provide avenues for future research. In future analyses, we will provide more detailed comparisons of cities with shared key features, such as geographical proximity or the makeup of the industrial sectors.

Canadian CMAs generally have lower growth in median employment income than US MSAs

As noted, three of the 15 MAs with negative growth are Canadian. Several other Canadian MAs had negligible growth during this period. **Table 1** illustrates this point by showing the compound annual growth rate (CAGR)[4] in employment income from 2010 to 2019 of the 14 Canadian MAs examined in this study as well as their rank for this indicator out of the 141 metropolitan areas in Canada and the United States.

Table 1 shows that six of Canada's 14 metropolitan regions are in the bottom quartile (ranking 106 and worse) of the MAs examined. Toronto, which is by far the largest Canadian MA ranks 102, near the bottom of the third quartile. These data show that Canada is highly over-represented at the bottom of the rankings for this indicator of labour market health. Meanwhile, Canadian MAs are entirely absent from the top of the rankings.

The Canadian metropolitan area with the highest rank for growth in median employment income, St. Catherines-Niagara (Ontario), had an annualized growth rate of 1.0% over this time period, placing it 51st out of the 141 metropolitan areas measured. Only three Canadian MAs—St. Catherines-Niagara, Quebec City (Quebec), and Vancouver (British Columbia)—were in the top half of the metropolitan areas measured. Finally, there are no Canadian MAs found in the top quartile of the metropolitan areas considered in this study.

Table 1: 2010-2019 Compound annual growth (CAGR) in employment income ($2019 Canadian) and rank, Canadian CMAs with population over 400,000

CMA	2010–2019 CAGR	Total population, 2020	2010–2019 CAGR, rank of 141	CMA	2010–2019 CAGR	Total population, 2020	2010–2019 CAGR, rank of 141
St. Catharines - Niagara	1.0	418,490	51	Toronto	0.4	6,303,220	102
Québec	1.0	808,450	52	Oshawa	0.2	403,310	116
Vancouver	0.9	2,605,120	57	Halifax	0.2	412,680	119
Montréal	0.7	4,205,800	73	Winnipeg	0.1	808,280	120
Hamilton	0.6	759,680	83	Ottawa - Gatineau	0.0	1,377,780	129
London	0.4	523,010	97	Edmonton	–0.1	1,396,110	133
Kitchener-Cambridge-Waterloo	0.4	564,000	99	Calgary	–0.3	1,482,050	136

Sources: Statistics Canada, 2023a, 2023b; calculations by authors.

4 The compound annual growth rate is calculated using the formula CAGR = [(Value, final/Value, beginning) to the power of 1/number of time periods] – 1. The CAGR takes account of compounding (growth on previous growth) and smooths out volatility.

Taken together with the results of our earlier study (Eisen and Emes, 2023b) that showed that median employment income is generally higher in American MSAs than in Canadian CMAs, these results provide the troubling insight that the gap between the two countries' large metropolitan areas is generally growing.

Canada's largest metropolitan area is not a major growth driver

Canada's largest CMA is central to the performance of the Canadian economy in a way that no American MSA is. The Toronto CMA alone represents 23.6% of the population residing in all CMAs. By comparison, the largest MSA in America, the New York area, represents just 6.8% of the US population living in large urban areas. The performance of Toronto, Canada's largest CMA, is of greater importance to Canada's overall economic performance than any single American MSA.

Table 2 provides information on the specific performance on this indicator in the largest Canadian CMAs and US MSAs. To make an easy comparison between Canada's largest metropolitan areas and similar or larger US MAs, we cut off the list to include all jurisdictions as large or larger than Vancouver (British Columbia).

We see that Vancouver and Montreal show middling growth. Of the 26 CMAs and MSAs shown, they belong to a large group of nine MAs that have a compounded annual growth rate (CAGR) between 0.7% and 0.9%. Vancouver is in the top half of the list but it should be noted that it nevertheless has the second-lowest level of median income of this list of large cities (Eisen and Emes, 2023b).

The performance of the Toronto CMA is particularly concerning. Median employment income in Canada's largest city increased at an average annual rate of just 0.4% during this time, essentially putting it into a tie with the MSAs of Charlotte-Concord-Gastonia (North Carolina) and Baltimore-Columbia-Towson (Maryland) near the bottom for the lowest growth rates of cities above 2.6 million people. Conversely, the United States' largest MSA, New York City, had a growth rate of double that (0.8%) during this period.

In summary, given heavy concentration of Canada's population in its largest metropolitan area, strong growth in Toronto is crucial to the country's overall prosperity. These data show that Toronto is near the bottom of the list of the largest MAs in Canada and the United States.

Energy jurisdictions require additional attention

Our analysis of the growth rate for the CMAs and MSAs discussed here focuses on the period from 2010 to 2019 because it captures the speed of each jurisdictions' recovery during a specific phase of the business cycle, following the 2008/09 global recession and prior to the COVID recession and pandemic.

However, both Canada and the United States are geographically vast, with important differences in sectoral composition from one region to another. For this reason, some regions track less cleanly with overall national business cycles than others. This is particularly true in Canada, where the economies of large, populous regions of the country are greatly affected by developments in the natural resource industry. This is the reason that, for instance, Alberta suffered a steep recession and a large drop in median employment income starting in 2015 that did not occur elsewhere in the country. This is illustrated in **figure 2**, which shows how many CMAs in resource-rich provinces experienced strong growth in the early 2010s but then suffered severe pullbacks in the middle of the decade.

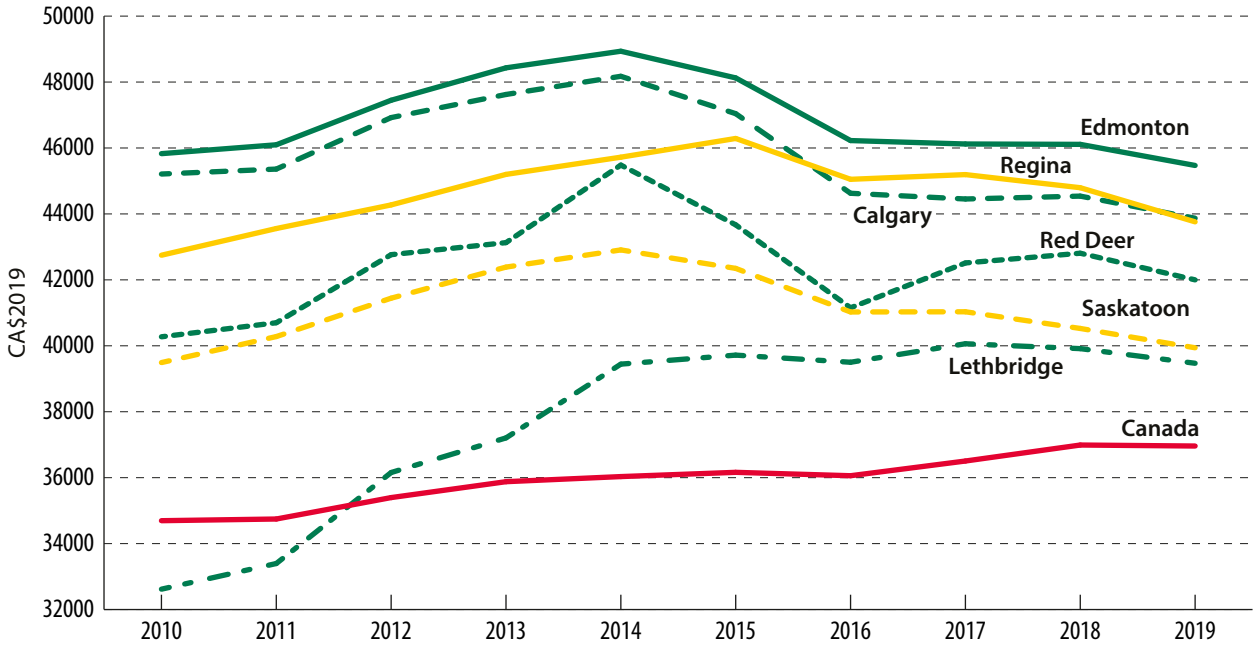
Results for energy-intensive jurisdictions should therefore be interpreted with caution, and additional research will follow focused on specific developments in median employment income in those provinces over the past decade.

Table 2: 2010–2019 compound annual growth (CAGR) in employment income ($2019) and rank, Canadian CMAs and US MSAs with population greater than the Vancouver CMA

CMA/MSA	2010–2019 CAGR	Total population, 2020	2010–2019 CAGR, rank of 141)
San Francisco-Oakland-Berkeley, CA Metro Area	2.1	4,623,264	5
Denver-Aurora-Lakewood, CO Metro Area	1.8	2,972,567	12
Seattle-Tacoma-Bellevue, WA Metro Area	1.7	4,011,553	15
Boston-Cambridge-Newton, MA-NH Metro Area	1.4	4,899,932	25
Chicago-Naperville-Elgin, IL-IN-WI Metro Area	1.1	9,510,390	45
Atlanta-Sandy Springs-Alpharetta, GA Metro Area	1.0	6,144,970	48
St. Louis, MO-IL Metro Area	1.0	2,806,615	54
Vancouver	***0.9***	***2,605,120***	***57***
Tampa-St. Petersburg-Clearwater, FL Metro Area	0.9	3,219,514	58
San Diego-Chula Vista-Carlsbad, CA Metro Area	0.9	3,286,069	59
Minneapolis-St. Paul-Bloomington, MN-WI Metro Area	0.8	3,690,512	67
Los Angeles-Long Beach-Anaheim, CA Metro Area	0.8	12,997,353	68
New York-Newark-Jersey City, NY-NJ-PA Metro Area	0.8	19,768,458	69
Dallas-Fort Worth-Arlington, TX Metro Area	0.8	7,759,615	70
Riverside-San Bernardino-Ontario, CA Metro Area	0.8	4,653,105	71
Montréal	***0.7***	***4,205,800***	***73***
Houston-The Woodlands-Sugar Land, TX Metro Area	0.5	7,206,841	88
Orlando-Kissimmee-Sanford, FL Metro Area	0.5	2,691,925	89
Baltimore-Columbia-Towson, MD Metro Area	0.4	2,838,327	100
Charlotte-Concord-Gastonia, NC-SC Metro Area	0.4	2,701,046	101
Toronto	***0.4***	***6,303,220***	***102***
Miami-Fort Lauderdale-Pompano Beach, FL Metro Area	0.3	6,091,747	103
Detroit-Warren-Dearborn, MI Metro Area	0.3	4,365,205	105
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metro Area	0.3	6,228,601	109
Phoenix-Mesa-Chandler, AZ Metro Area	0.3	4,946,145	110
Washington-Arlington-Alexandria, DC-VA-MD-WV Metro Area	0.2	6,358,652	117

Sources: Statistics Canada, 2023a, 2023b; OECD, 2023; US Bureau of Labor Statistics, 2023; US Census Bureau, 2023b, 2023c; calculations by authors.

Figure 2: Median employment income, Canada and selected CMAs, Alberta and Saskatchewan, 2010–2019



Sources: Statistics Canada, 2023a, 2023b; calculations by authors.

Conclusion

This research bulletin has compared the growth rate in median employment income in large metropolitan areas in Canada and the United States. We do not consider explanations for the developments shown; we do, however, make a small number of observations and suggest avenues for future research.

We note the weak performance of Canada's largest city. Toronto is uniquely important to the Canadian economy in a way that no single US MSA is becasue of the share of the Canadian population and economy that is based in Toronto. Toronto's weak growth on this metric is therefore an issue deserving further study.

Further, we note that energy-rich jurisdictions do not typically follow the same business cycle as other parts of Canada and the United States. In Canada, these jurisdictions experienced rapid growth for the indicator presented here and then in many cases steep declines in the second half of the 2010s. The decade-long measure used here to provide a broad overview of CMA/MSA performance, therefore, may be less illustrative of the trajectory of these metropolitan areas than is the case for MAs in other areas that track more closely with the national business cycle. Additional research is needed to assess developments in these regions and make comparisons between Canada and the United States.

However, this caveat notwithstanding, the central result of this finding is that Canadian CMAs have generally experienced a lower rate of growth in median employment income than US MSAs during this period. Previous research has suggested a "prosperity gap" in favour of US MSAs for the current level employment income. The data in this paper suggest that this gap is generally growing instead of shrinking.

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