# Urban Population Densities in Canada and Abroad—an Update

*by Steven Globerman and Milagros Palacios*

## MAIN CONCLUSIONS

- Affordable housing in cities is a major public-policy issue in Canada.

- Zoning and related restrictions on increased construction of multi-family housing in urban centres have been identified by the federal government and several provincial governments as major impediments to affordable housing.

- Governments are promoting increased population density in urban areas through financial incentives and other initiatives but face opposition from homeowners and other interest groups concerned that density will bring a diminished quality of living.

- In fact, urban population densities in Canada are relatively low compared to medium- and large-sized cities in other wealthy countries.

- Moreover, there is no consistent evidence showing that increased urban density leads to a lower quality of living.

## Introduction

Affordable housing has emerged as a major public-policy issue in Canada, and zoning and related restrictions on the construction of multi-family housing have become a prominent focus of recent government efforts to address the this problem. To this end, the federal government has offered cities money to ditch zoning restrictions that thwart denser residential construction. In particular, the Trudeau government is targeting municipal government regulations that, among other things, limit the number of units and living spaces that can be built per lot size (Vieira, 2024).

At the same time, governments at different levels are adopting legislation to boost density. For example, British Columbia implemented legislation requiring municipalities to allow multi-unit homes to be built on single-family lots, while the Vancouver City Council voted to up-zone most single-family areas in the city to permit up to six units per lot (Gold, 2024).

The emerging political consensus about how to improve housing affordability in Canada involves increasing population density in urban centres. The focus on density is driven, in part, by related government goals that include reducing greenhouse gas emissions from automobiles. Increasing housing construction in urban centres, particularly when much of the housing is constructed along transportation corridors, ostensibly will reduce the use of automobiles. There are also economies of scale in constructing floor space in mid-rise and high-rise buildings, because the land cost is divided among a larger number of housing units. As well, there are economies of scale in the provision of service infrastructure such as water and sewage facilities (Antweiler, 2023).

To be sure, not everyone agrees that densification is a good approach to providing affordable housing. In particular, some think that increasing population density in urban cores will simply drive up the cost of land and thereby nullify any benefit from lower per-unit building costs for mid-rise and high-rise multi-family units.[1] Others worry about the adverse impact of high-rise housing construction on the "quality of life" in established urban areas with single-family housing and advocate limiting new construction to low-rise buildings with accompanying restrictions on increases in population densities (Burda and Haley, 2023).

The debate surrounding the role of increased population density in addressing the lack of affordable housing in Canada can be informed by the experience of cities outside Canada. Specifically, a comparison of densities in Canadian cities to urban densities in other countries might be seen as indirect evidence of whether there is scope for increasing the density of Canadian cities without sacrificing quality of life.

This Research Bulletin provides evidence from recent international patterns of urban density and updates data reported in an earlier study by Filipowicz (2018). The update reinforces Filipowicz's conclusion that urban population densities in Canada are relatively low compared to those of a sample of medium- and large-sized cities outside Canada. It also highlights the apparent difficulty facing housing policies designed to increase urban density through construction of "infill" housing.

The second section of the Bulletin presents and discusses data comparing population densities in a number of "urban cores" in Canada to population densities in a sample of cities outside Canada for selected years over roughly the past decade.[2] The third section offers

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1 See Xu, Jiao, Yuan, Dong, and Zhang, 2019 for a discussion of the economics of urban densification.

2 The choice of years for the comparisons is dictated by the availability of census data in Canada and other countries.

concluding comments that include a brief discussion of how a measure of urban quality of living is related to urban density in a subset of our sample cities.

## Population densities—2018 and 2024

Filipowicz (2018) identifies alternative measures of urban density. The simplest and most commonly used measure of density is the division of a jurisdiction's population by its land area. If one is interested specifically in the density of the urban core, one must remove rural land areas and their populations from geographical areas included in measures designated by statistical authorities as standard metropolitan areas. In other words, city boundaries must be consistently defined over time so as to hold geographical areas constant, even though city and metropolitan area boundaries may change over time. Filipowizc (2018) discusses how he holds geographical areas constant in his comparison of population densities across 30 cities located in high-income countries primarily for the years 2016 and 2017, and we replicate his methodology to compare population densities across the same sample of cities using more recent data, primarily for 2021 and 2022.[3]

**Table 1** reports population density measured as inhabitants per square kilometre for 30 cities as reported by Filipowicz (2018), as well as our estimates for the same 30 cities using the most recent data. This comparison enables us to evaluate whether Canadian cities have grown more or less densely populated than their counterparts in other high-income countries.

One obvious inference that can be drawn from the data reported in table 1 is that Canadian cities are generally

**Table 1: Cities in high-income countries, by population density (inhabitants per square kilometre), 2018, 2024**

| City | 2018 | | 2024 | |
| | Population density | Year of analysis | Population density | Year of analysis |
| --- | --- | --- | --- | --- |
| Hong Kong | 25,719 | 2016 | 22,297 | 2022 |
| Paris | 21,067 | 2014 | 20,360 | 2020 |
| Athens | 17,036 | 2011 | 16,514 | 2021 |
| Barcelona | 15,873 | 2016 | 16,339 | 2022 |
| Tokyo | 14,796 | 2015 | 15,531 | 2020 |
| Osaka | 11,952 | 2015 | 12,216 | 2020 |
| Singapore | 11,245 | 2016 | 11,327 | 2022 |
| New York City | 10,935 | 2016 | 10,712 | 2022 |
| London | 11,054 | 2016 | 10,663 | 2021 |
| Naples | 8,151 | 2017 | 7,739 | 2022 |
| San Francisco | 7,171 | 2016 | 6,656 | 2022 |
| Turin | 6,821 | 2017 | 6,528 | 2022 |
| Vancouver | 5,493 | 2016 | 5,750 | 2021 |
| Boston | 5,376 | 2016 | 5,197 | 2022 |
| Amsterdam | 4,916 | 2017 | 5,074 | 2021 |
| Montreal | 4,916 | 2016 | 4,833 | 2021 |
| Toronto | 4,457 | 2016 | 4,552 | 2021 |
| Chicago | 4,594 | 2016 | 4,526 | 2022 |
| Philadelphia | 4,512 | 2016 | 4,510 | 2022 |
| Washington | 4,301 | 2016 | 4,242 | 2022 |
| Seattle | 3,244 | 2016 | 3,451 | 2022 |
| Baltimore | 2,932 | 2016 | 2,719 | 2022 |
| Mississauga | 2,458 | 2016 | 2,453 | 2021 |
| Calgary | 2,112 | 2016 | 2,100 | 2021 |
| Portland | 1,851 | 2016 | 1,837 | 2022 |
| Detroit | 1,872 | 2016 | 1,726 | 2022 |
| Dallas | 1,493 | 2016 | 1,472 | 2022 |
| Houston | 1,395 | 2016 | 1,395 | 2022 |
| Austin | 1,170 | 2016 | 1,203 | 2022 |
| Charlotte | 1,065 | 2016 | 1,135 | 2022 |

Sources: Filipowicz, 2018; see "Data sources for table 1", p. 6–7.

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3   The precise years used for each city included in the two samples is reported in table 1. See Filipowicz (2018) for a discussion of how he holds land area constant. See Fee and Hartley (2011) for a similar approach to comparing population densities across a sample of US cities.

much less densely populated than sample cities outside of Canada. Filipowicz found that the average population density of Canada's four largest cities (Toronto, Montreal, Vancouver, and Calgary) plus Mississauga was 3,887 inhabitants per square kilometre, whereas it averaged 8,022 in the remainder of the sample cities. For the latest year available, the average for the five Canadian cities is 3,938, whereas it is 7,815 for the 25 non-Canadian cities. Hence, the average population density of Canadian cities increased in absolute terms, as well as relative to non-Canadian cities. Still, according to the latest data available, Canadian cities had only slightly more than half the average population density of non-Canadian cities.

Another inference that can be drawn is that population densities change only slowly over time given an unchanging geographical area. By way of illustration, the Spearman Rank Order Correlation Coefficient between the city densities for the two samples in table 1 equals .99, which indicates that the population-density distribution of cities presented in Filipowicz (2018) was virtually identical to the density distribution for the more recent period examined in this study.[4] Among Canadian cities, Toronto's rank moves up from the 18th most densely populated city of the sample in Filipowicz (2018) to 17th in the current analysis using the most recent census of 2021. The ranks of other Canadian cities remain unchanged in the ranking of 2024.

It might seem surprising that more than half the sample cities experienced a decline in population density between the 2018 study and this one. In fact, Xu, Jiao, Yuan, Dong, and Zhang (2019) report that urban densities in cities have generally declined throughout the world since WWII. Fee and Hartley (2011) look at the population densities of 180 Metropolitan Statistical Areas (MSAs) in the United States for the years 1980, 1990, 2000, and 2010. They use city and MSA boundaries from the 2000 census to hold the geographical area constant and find that, in economically growing cities, population density remained the same or increased in most areas. In contrast, in economically faltering cities, formerly high-density city centres saw the biggest drop in density. The obvious and sensible inference to draw is that populations are more likely to increase in urban centres in which demand for workers is increasing, while populations are more likely to decline in areas where employment opportunities are stagnant or declining.

Frey (2022) documents another reason for a decline in population density in many large US cities in recent years. Specifically, the COVID-19 pandemic began to affect population growth in US cities in 2019/20 with the effect increasing in 2020/21. In 2020/21, large US cities in the aggregate registered a population loss of about one percent. The decline in urban growth during the pandemic's prime year did not generally lead to equivalent rises in suburban growth in the major metropolitan areas because those areas suffered a substantial slowing of economic growth that affected the suburbs as well as the cities. This recent experience differs from the experience over the period from 2010 to 2021, when most suburban portions of US metropolitan areas grew more rapidly than those of cities.

The main point to highlight is that urban centres compete with regions outside those centres for population and allowing for more housing to be built within the geographical limits of urban cores may not achieve the population density objectives of government planners if residents prefer living outside urban centres for any

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4  The Pearson correlation coefficient is also .99 indicating that the numerical values of the population densities are essentially identical across the two samples. The Spearman coefficient reports how closely the rankings of two sets of variables correspond to each other. The Pearson coefficient reports how closely the absolute values of two sets of variables correspond to each other.

number of reasons.[5] In this regard, Frey (2022) posits that the pattern of telecommuting that took hold during the COVID-19 pandemic may make a return to the city less likely than would otherwise be the case.

## Infill housing, density, and the quality of living

Infill housing within urban centres is emerging as the preferred strategy on the part of Canadian policy-makers to help address a perceived crisis in housing affordability. A comparison of population densities in Canadian cities to medium and large cities in other wealthy countries shows that Canadian cities are significantly less densely populated than large cities outside of Canada. Therefore, one might draw an inference that there is ample opportunity to increase the supply of residential housing units within Canadian urban centres without compromising the "quality of life" of existing residents.

For a subset of the cities in his sample, Filipowicz (2018) compares the population densities of the cities to Mercer's 2017 *Quality of Living Ranking* and finds that cities of comparable density vary significantly in Mercer's ranking. We updated his analysis using the rankings from the *Quality of Living City Ranking 2023* (Mercer, 2024) for 22 cities in the sample for which Mercer's rankings are available (**table 2**). The Spearman Rank Order Correlation Coefficient between the ranking of the 22 cities by their most updated urban densities and the ranking by the 2023 Mercer index equals .22, which suggests, if anything, that there is a slight positive correlation between urban density and quality of living. Hong Kong is a major outlier in the analysis as it has the highest ranking for urban density and the lowest for quality of living. When Hong Kong is dropped from the sample, the Spearman Rank Order Correlation Coefficient increases to .39.

**Table 2: Rankings for urban density compared to Mercer's quality of living, 2024**

| City | Rank for density | Quality of living |
|---|---|---|
| Hong Kong | 1 | 22 |
| Paris | 2 | 7 |
| Barcelona | 3 | 12 |
| Tokyo | 4 | 13 |
| Osaka | 5 | 17 |
| Singapore | 6 | 6 |
| London | 7 | 11 |
| New York City | 8 | 9 |
| San Francisco | 9 | 8 |
| Vancouver | 10 | 1 |
| Boston | 11 | 10 |
| Amsterdam | 12 | 2 |
| Montreal | 13 | 4 |
| Chicago | 14 | 18 |
| Philadelphia | 15 | 19 |
| Toronto | 16 | 3 |
| Washington | 17 | 16 |
| Seattle | 18 | 14 |
| Calgary | 19 | 5 |
| Detroit | 20 | 21 |
| Portland | 21 | 15 |
| Dallas | 22 | 20 |

Sources: Mercer, 2024; see "Data sources for table 1", p. 6–7.

It is interesting to note that Vancouver, Toronto, Montreal, and Calgary are ranked among the top six cities in Mercer's *Quality of Living City Ranking 2023*. As noted earlier, these major Canadian cities also have below-average urban densities across the full sample of cities. It is therefore understandable that residents of largely single-family neighbourhoods in major Canadian cities are concerned about the impact of increasing population density on their relatively high quality of life. Calls from numerous city planners for building low-rise mixed-use projects rather than high rise towers are also understandable

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5   See De Marco (2022) for a brief discussion of factors influencing residential location choice, including demography.

in this context. While the absence of a consistent negative relationship between urban density and perceived quality of living characterizes non-Canadian urban centres, provincial and municipal governments in Canada should be mindful of the concerns surrounding significant increases in urban density on the part of existing Canadian homeowners. Otherwise, governments may face concerted efforts on the part of those homeowners to thwart planned densification of their neighbourhoods.

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