Short-term rentals in Canada: Uneven growth, uneven impacts

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Abstract

In the last several years, Airbnb and other short-term rental services have grown precipitously across Canada, but very little is known about the scale and character of this activity or its impact on housing. Relying on spatial analysis of big data, this study presents the first comprehensive analysis of Airbnb in Canada, with an emphasis on the interaction between the short-term rental market and long-term housing. Airbnb activity is highly concentrated geographically—nearly half of all active listings are located in the Toronto, Montréal and Vancouver metropolitan areas—and highly concentrated among hosts, the top 10% of whom earn a majority of all revenue. Contrary to the rhetoric of "home sharing", almost 50% of all Airbnb revenue last year was generated by commercial operators who manage multiple listings. Moreover, between 17,000 to 43,000 entire homes were rented frequently enough last year that they are unlikely to house a permanent resident. This housing pressure disproportionately affects West Coast cities: between 10% and 70% of Vancouver, Victoria, Kelowna, and Abbotsford-Mission residents live in neighbourhoods whose rental vacancy rate is exceeded by the proportion of housing units that are frequently rented on Airbnb. While current Airbnb activity is concentrated in major cities, active listings, total revenue, hosts with multiple listings, and frequently rented entire-home listings are all growing at substantially higher rates in small towns and rural areas.

Keywords: Short-term rentals, Airbnb, housing, spatial analysis

Résumé

Au cours des dernières années, Airbnb et d'autres services de location à court terme ont connu une croissance fulgurante à travers le Canada, mais on en sait très peu sur l'ampleur et le caractère de cette activité ou de son impact sur le logement. S'appuyant sur l'analyse spatiale du big data, cette étude présente la première analyse complète d'Airbnb au Canada, en mettant l'accent sur l'interaction entre les marchés locatif à court terme et logement à long terme. L'activité Airbnb est très concentrée géographiquement - près de la moitié de toutes les inscriptions actives sont situées dans les régions métropolitaines de Toronto, Montréal et Vancouver - et fortement concentrées parmi les hôtes, dont 10% des plus riches gagnent la majorité de tous les revenus. Contrairement à la rhétorique du « partage à domicile », près de 50% de tous les revenus d'Airbnb l'année dernière ont été générés par des opérateurs commerciaux qui gèrent plusieurs inscriptions location à court terme. De plus, 31 000 logements en entiers ont été loués de façon si fréquemment l'an dernier que l'on doute qu'ils sont habité par un résident permanent. Cette pression immobilière affecte de façon disproportionnée les villes de la Colombie-Britannique. Alors que l'activité Airbnb actuelle est concentrée dans les grandes villes, les listes actives, le total les revenus, les hôtes avec plusieurs inscriptions et les annonces de maisons entières souvent louées augmentent tous à des taux sensiblement plus élevés dans les petites villes et les zones rurales.

Mots-clés: locations à court terme, Airbnb, logement, analyse spatiale

Short-term rentals in Canada: An overview

From Haida Gwaii to St. John's, in large cities and in small villages, policymakers are increasingly grappling with the impacts of short-term rental (STR) platforms such as Airbnb. Since 2015, when the province of Quebec became the first Canadian jurisdiction to regulate STRs through a host registration scheme, most major cities and many smaller ones across the country have either implemented, proposed, or undertaken studies of STR regulations. This trend reflects the spread of concerns about STRs beyond policymakers and housing advocates to community members: a Canada-wide poll recently reported that 54% of respondents feel Airbnb should be regulated like a hotel, up from 43% two years prior (AngusReid 2018).

The rapid growth of both STRs themselves and public interest in STRs has not been met with equal growth in research, however. Most significantly, while several studies have examined STR activity in Canada's largest cities (Hohol and Godfrey 2017; Wachsmuth et al. 2017; Wiedetz 2017), there has not yet been a comprehensive analysis of STRs which includes smaller communities. The piecemeal production of knowledge and lack of grounding in comparative context creates an information vacuum for policymakers and researchers. For rural jurisdictions or smaller municipalities, this problem is particularly acute; they face the dual issues of a lack of scholarly attention and comparatively fewer resources than major municipalities with which to conduct their own research.

Accordingly, this study provides the first comprehensive analysis of short-term rental activity in Canada, with a specific focus on Airbnb's impact on Canadian housing. We perform big-data spatial analysis on a dataset of all daily Airbnb activity in Canada since 2015, to answer three questions:

- Where and when is Airbnb activity happening in Canada?
- Who is making money on Airbnb and how?
- Are short-term rentals threatening long-term housing in Canada?

We find that Airbnb activity is highly concentrated geographically—nearly half of all active listings are located in the Toronto, Montréal and Vancouver metropolitan areas—and highly concentrated among hosts, the top 10% of whom earn a majority of all revenue. Contrary to the rhetoric of "home sharing", almost 50% of all Airbnb revenue last year was generated by commercial operators who manage multiple listings. Moreover, at least 17,000 entire homes were rented frequently enough last year that they are unlikely to house a permanent resident. This housing pressure disproportionately affects West Coast cities: between 10% and 70% of Vancouver, Victoria, Kelowna, and Abbotsford-Mission residents live in neighbourhoods whose rental vacancy rate is exceeded by the proportion of housing units that are frequently rented on Airbnb. While current Airbnb activity is concentrated in major cities, active listings, total revenue, hosts with multiple listings, and frequently rented entire-home listings are all growing at substantially higher rates in small towns and rural areas.

Short-term rentals and housing in Canada and abroad

Short-term rentals are not a new phenomenon, but the availability of online peer-to-peer STR platforms such as Airbnb and VRBO has dramatically expanded their availability and popularity. Since its founding in 2008, Airbnb has had over 300 million guest check-ins worldwide (Airbnb 2018b). Currently Airbnb's platform offers over 5 million listings (Airbnb 2018c), which is larger than the number of rooms offered by the top three largest hotel chains combined (Dingman 2018). In Canada alone, Airbnb listings have hosted nearly 5 million guest check-ins (Airbnb 2018a). Despite Airbnb's increasing prominence and use, little is known about how activity is distributed across the country and how it is impacting Canadians.

There is now a growing body of scholarly knowledge regarding short-term rentals and cities, largely organized in a tourism-focused literature and a housing-focused literature. The tourism literature has analyzed the impacts of Airbnb on the accommodation sector (Oskam and Boswijk 2016; Zervas et al. 2017), has examined how hosts set prices (Gibbs et al. 2017), and has investigated Airbnb's relationship to new forms of urban tourism (Füller and Michel 2014). Housing-focused research, meanwhile, has analyzed the impacts of STRs on housing availability and affordability, the broader neighbourhood-scale impacts, and municipal regulatory options. The key finding from this work is that the growth of STRs has come at the expense of both housing availability and affordability in cities around the world, both by facilitating the conversion of apartments and homes into dedicated short-term rentals and by increasing the economic value of properties which host STRs either full-time or part-time (Barron et al. 2017;

BHJ-Advisors 2016; Elíasson and Ragnarsson 2018; Horn and Merante 2017; Lee 2016; Mermet 2017; Samaan 2015; Wachsmuth et al. 2017; Wachsmuth et al. 2018; Wachsmuth and Weisler 2018). Some scholars have further drawn a connection between STRs and gentrification (Gant, 2016; Mermet, 2017; Wachsmuth and Weisler, 2018), arguing that the financial incentives which STRs offer to landlords drives the displacement of low-income residents in favour of tourists, which Wachsmuth and Weisler (2018) describe as a "short-term rent gap". However, this body of work has almost exclusively focused on large urban areas, and the state of research in smaller towns and rural areas is much less well developed.

As more jurisdictions have moved to regulate STRs, questions concerning the appropriate regulatory mix and the impacts of regulations have increasingly been on the scholarly agenda (Gurran and Phibbs 2017; Crommelin et al. 2018; Leshinsky and Schatz 2018; Guttentag 2015; Schäfer and Braun 2016; Wegmann and Jiao 2017). While Guttentag (2015) and Leshinsky and Schatz (2018) focus on the difficulty in regulating STRs generally, the remaining literature tends to evaluate STR regulations in individual jurisdictions (Gurran and Phibbs 2017; Schäfer and Braun 2016) or compare STR regulations across several major cities (Crommelin et al. 2018; Wegmann and Jiao 2017). While several policy reports have addressed the Canadian STR regulatory context (Jamasi 2017; Wachsmuth et al. 2017; Wieditz 2017), there has not yet been any peer reviewed research to do so.

In fact, with the partial exception of an industry study (Hohol and Godfrey 2017), there has been no comprehensive research on the state of STRs and Airbnb in Canada and no scholarly research on possible implications of STRs for the housing markets in Canadian cities and rural areas. The limited scholarly research that does exist focuses on the relationship between STRs and tourism. Gibbs et al. (2017) examine how Airbnb listings set nightly price, while Sovani and Jayawardena (2017) examine how the sharing economy impacts Canadian tourism broadly. Grey literature has investigated the relationship between STRs and housing availability in Canada, but only in the country's largest cities. In their study of the impact of Airbnb on housing in Montréal, Toronto and Vancouver, Wachsmuth et. al (2017) found that Airbnb is likely removing thousands of units of housing from the long-term rental market in each of these cities, and found an increasing commercialization of Airbnb operators. Other third party reports have likewise argued that Airbnb is having a negative effect on housing markets in Montréal and Toronto respectively (Desmirarais 2016; Wieditz 2017). To address these gaps, in this study we apply a housing-focused analysis to all Airbnb activity across Canada.

Methods

The analysis in this study was conducted using a comprehensive dataset of all Airbnb activity in Canada through April 2018. The data was compiled by the consulting firm Airdna, on the basis of daily "scrapes" of Airbnb's public website. It provides canonical information about individual listings (e.g. the listing title, whether it is an entire home, private room or shared room, the number of bedrooms, and the cancellation policy), and daily estimates for listing activity (reserved, available or blocked) and daily reported prices.[2] While the data covers activity as far back as October 2014 for some of the major census metropolitan areas (CMAs), complete data for the entire country became available as of September 2016.[3] From then through April 30, 2018, 211,000 unique Airbnb listings received at least one booking, over 150,000 of which received a booking in the last twelve months (May 1, 2017 to April 30, 2018). In total, we aggregated and analyzed 117 million data points concerning daily Airbnb transactions, using a set of custom functions written in R.

An inherent limitation of spatial analysis of Airbnb data is that the exact location of properties cannot be ascertained, because the publicly displayed latitude and longitude coordinates of a listing on Airbnb's website are randomly shifted up to 200 metres from their true location. To compensate for this obfuscation, we aggregate listings at the dissemination area scale, and use a Bayesian spatial inference technique which uses the distribution of housing units across a city to weight the probability that a given listing came from a given dissemination area (described in Wachsmuth et al. 2018b). We then further aggregate listings at the census metropolitan area (CMA) or census agglomeration (CA) scales for cross-country comparisons. In order to avoid overestimating the impacts of STRs on housing and neighbourhood issues, we exclude non-housing listings such as igloos, vans, boats, parking spaces, hotels, and bed and breakfasts. We excluded approximately 6,000 such listings, which generated 2.7% of Airbnb host revenue in Canada in the last year.

In addition to the Airbnb listings data from Airdna, the other data sources we rely on are the Canadian Census and the Canada Mortgage and Housing Corporation (CMHC) Comprehensive Rental Market Survey. For the

Census, 2016 data has been used. The CMHC data is from the October 2016 Comprehensive Rental Market Survey, supplemented with data from earlier years where relevant.

Where and when is Airbnb activity happening in Canada?

Airbnb activity in Canada spans the entire country. Figure 1 shows the 154,000 Airbnb listings that received at least one booking between May 1, 2017 and April 30, 2018. The distribution of Airbnb activity roughly mirrors Canada's distribution of population, as shown by the high concentration of Airbnb activity in the Windsor to Québec corridor and other major urban areas, and the comparative lack of activity in remote northern portions of the country. Nearly half (47%) of all active Airbnb listings are located in Montréal, Toronto or Vancouver, despite the fact that these CMAs only house 36% of Canada's population (Table 1). In total, 78% of Airbnb listings are located in one of Canada's 35 CMAs (which house 69% of the country's population), 7% are located in one of its 117 CAs (which house 11% of the country's population) and the remaining 19% are located in rural areas (which house 19% of the population). Based on Canada's distribution of population alone, CMAs have a higher percentage of the country's Airbnb listings than expected, while CAs have less than expected. However, the annual growth rate of active listings in CAs (86%) and rural areas (74%) is significantly higher than in CMAs (28%), indicating that today's high concentration of Airbnb activity within CMAs is giving way to a future of more evenly dispersed activity.
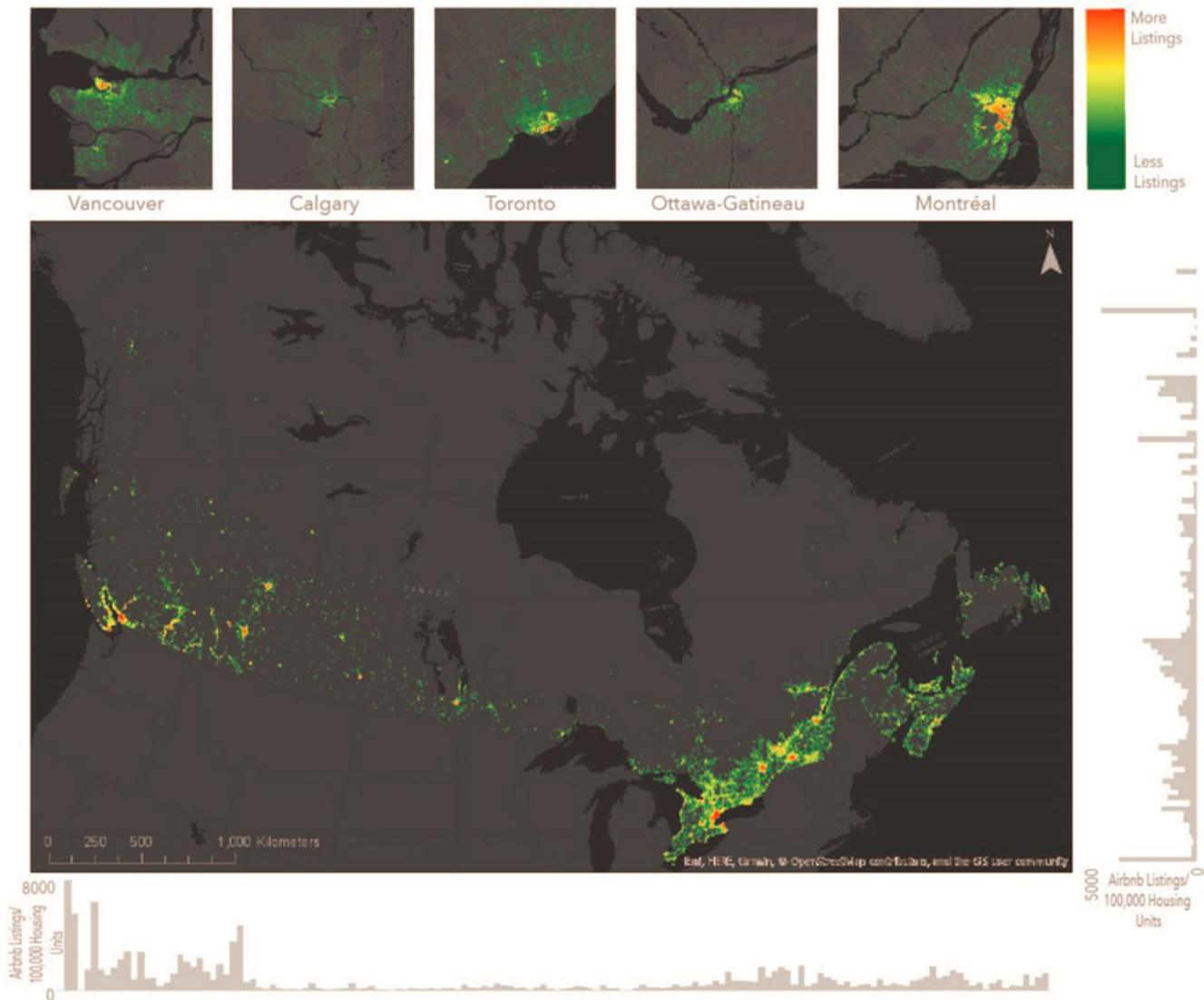

Figure 1: Airbnb listings across Canada and in the five largest CMAs, with histograms of the distribution of listings by longitude and latitude.

Table 1: Airbnb listings across Canada

Geography	Listings active May 1, 2017 to April 30, 2018 (% of total)	Percent year-over-year growth in active listings	Revenue generated between May 1, 2017 and April 30, 2018 (% of total)	Percent year-over-year growth in revenue
CMAs	112,700 (74%)	28%	$823.3 million (63%)	63%
Montréal, Toronto, Vancouver	*72,900 (48%)*	*27%*	*$555.2 million (42%)*	*88%*
CAs	11,400 (7%)	86%	$107.0 million (8%)	163%
Rural	29,800 (19%)	74%	$383.6 million (29%)	160%
All of Canada	*153,800 (100%)*	*38%*	*$1,314.0 million (100%)*	*90%*

The histograms bordering the density map in Figure 1 offer a view of Airbnb activity in Canada normalized by population, showing the number of active listings per unit of housing at different latitudes and longitudes. The large spikes in the number of listings per unit in the western portion of the country indicate that, while activity may be concentrated in southern Ontario and Québec in absolute terms, the West Coast sees higher levels of activity relative to population. Numbers of listings per unit also peak around the southernmost tip of the country, near Windsor, and farther north by Calgary and Edmonton.

In general, listings in rural regions earn more revenue than listings in CMAs (Figure 2). Despite accounting for 74% of the active listings in Canada, listings in CMAs only generate 63% of the country's revenue. Conversely, rural listings earn proportionately more than their share of income, producing 29% of revenue in the last year despite hou-
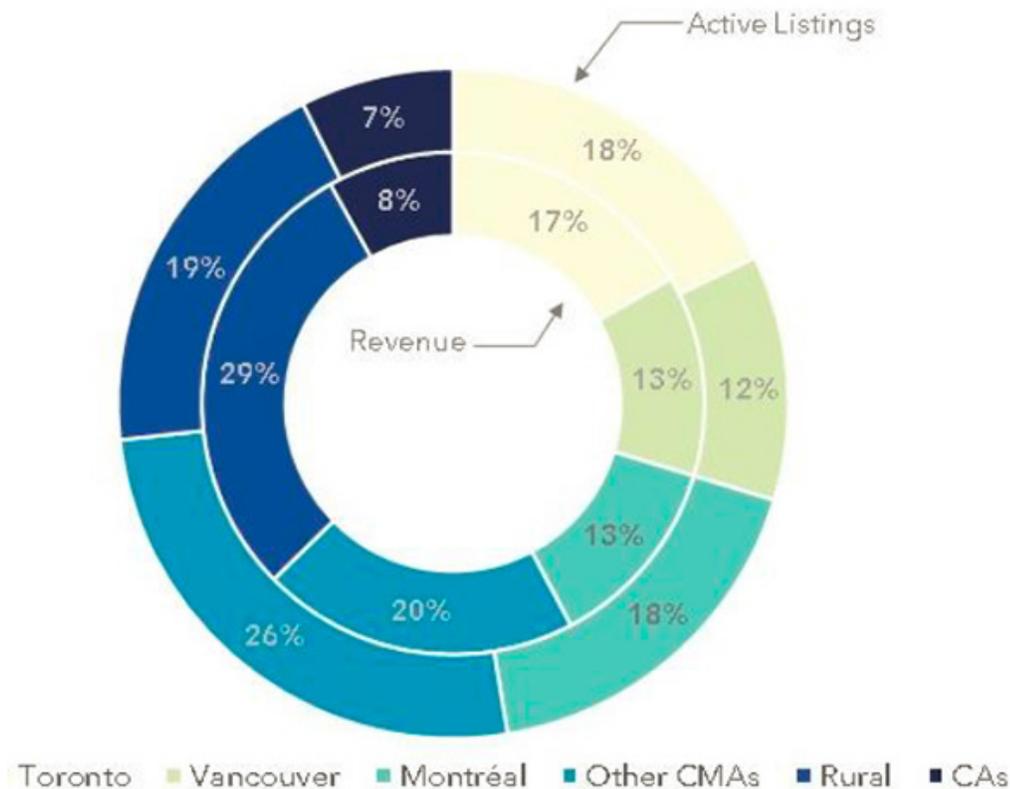

Figure 2: Share of active listings and of revenue (last twelve months) among different settlement types

sing only 19% of active listings. This disparity between the distribution of activity and the distribution of revenue is explained by higher average nightly prices in rural areas. Despite higher occupancy rates within CMAs—on average listings are rented for 40% of the time that they are available in CMAs and 30% of the time that they are available in rural areas—the average nightly price in rural areas is almost double that in CMAs (approximately $243 as compared to $128). The revenue generated by listings in CAs is relatively proportionate to their share of active listings; they are responsible for 8% of total revenue and 7% of active listings. As with active listings, the growth rate of revenue generated by listings in CAs (163%) and by listings in rural areas (160%) is substantially higher than it is for revenue generated by listings in CMAs (42%), once again demonstrating that these areas are attracting increased amounts of Airbnb activity and shifting the previous pattern of concentration within CMAs.

The concentration of Airbnb activity within CMAs varies significantly between cities, as shown in Figure 3, which depicts concentration of revenue across the ten largest CMAs. In general, CMAs that earn larger proportions of total national Airbnb revenue (as represented by the width of the bar) also exhibit higher levels of revenue concentration, suggesting that the costs and rewards of the platform's use are highly localized. Montréal, which generates roughly 12% of all Canadian Airbnb revenue, produces half of its revenue in census tracts that house only 2% of the CMA's population. Similarly, Toronto, which generates over 16% of Airbnb revenue in Canada, produces 50% of its own revenue in census tracts that house only 4% of the CMA's population. On the other end of the spectrum are Hamilton and Kitchener-Cambridge-Waterloo; each CMA produces less than 1% of Canada's revenue, but gene-
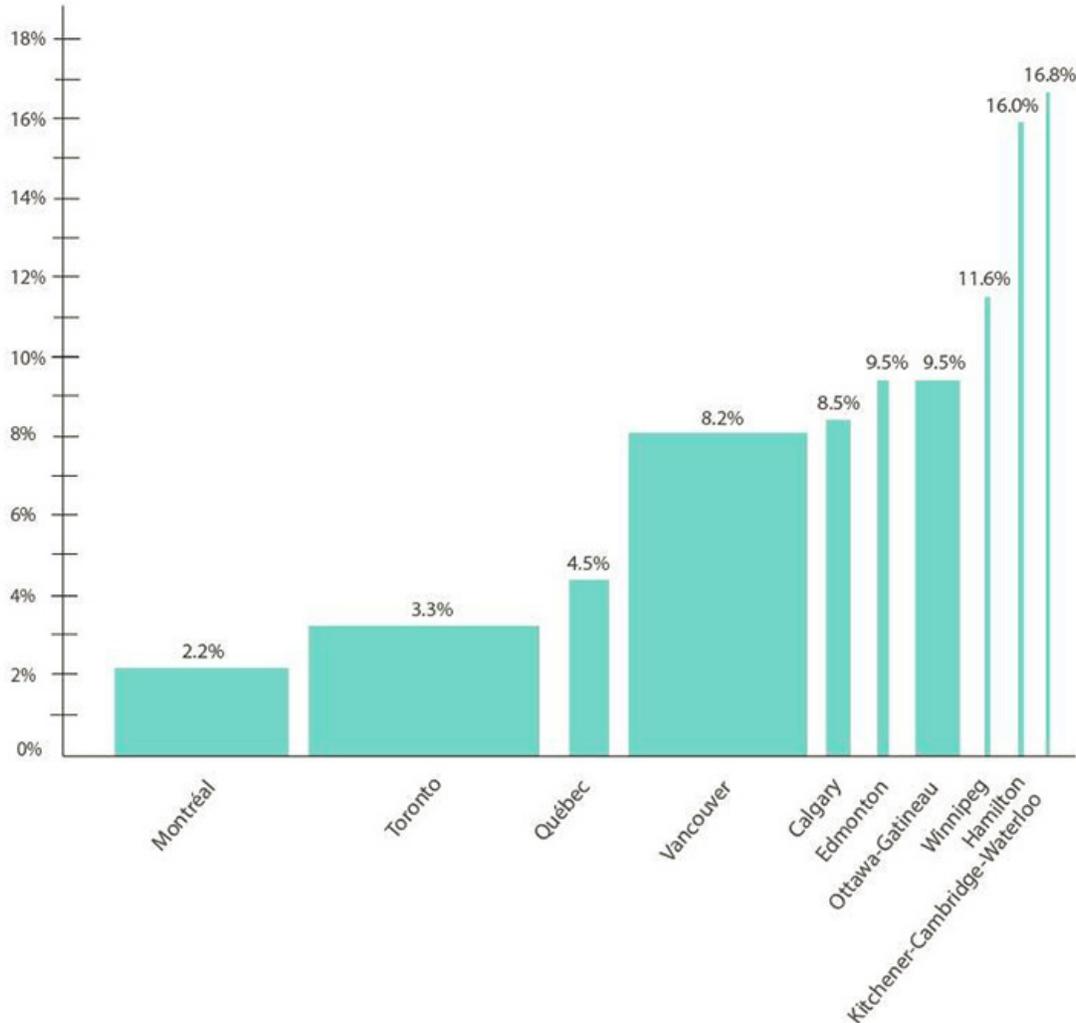

Figure 3: Percentage of the CMA's population living within census tracts that earned 50% of the CMA's Airbnb revenue in the last year, weighted by (as shown by the width of the bar) the percentage of Canada's total Airbnb revenue earned by the CMA

rates 50% of its own revenue in census tracts that house over 16% of their populations. Québec and Vancouver both stand out as exceptions to this pattern. In Québec, there is a significantly higher level of revenue concentration than is expected based on the small proportion of Canada's revenue it earns, while in Vancouver, there is less concentration of revenue than expected based on the large proportion of the country's revenue it earns.

The concentration of revenue within CMAs also exhibits distinctive spatial patterns. In Montréal—the CMA with the highest level of spatial concentration—census tracts with high levels of revenue concentration are clustered in one central location near the downtown region. Ottawa-Gatineau, which, like Montréal, shows very high levels of spatial revenue concentration, has two centres of revenue generation, one around downtown and one to the north in Gatineau. In other cities, especially those in the prairie region, both revenue and activity are far more dispersed. In general, Airbnb activity in CMAs within central Canada (Ontario and Québec) is more concentrated than Airbnb activity in CMAs in western Canada.

Airbnb activity also exhibits temporal concentration; on average, after adjusting for secular growth patterns, listings earn the largest share of their total yearly revenue in July and August (Figure 4). The intensity of this pattern varies by region. In Atlantic Canada, Airbnb revenue is highly seasonal: listings earn almost 50% of their total yearly revenue in July and August alone. The strong concentration of Airbnb revenue in the summer period suggests a larger dependence on seasonal leisure tourists in Atlantic Canada, as opposed to business travellers who require lodging year-round. Conversely, while listings in CMAs still generate larger amounts of revenue in summer months than in winter months, their annual earnings do not exhibit the more extreme seasonal variations seen for listings in CAs and rural areas. Constant demand for housing from business tourists likely explains the more equitable share of monthly Airbnb activity in CMAs.
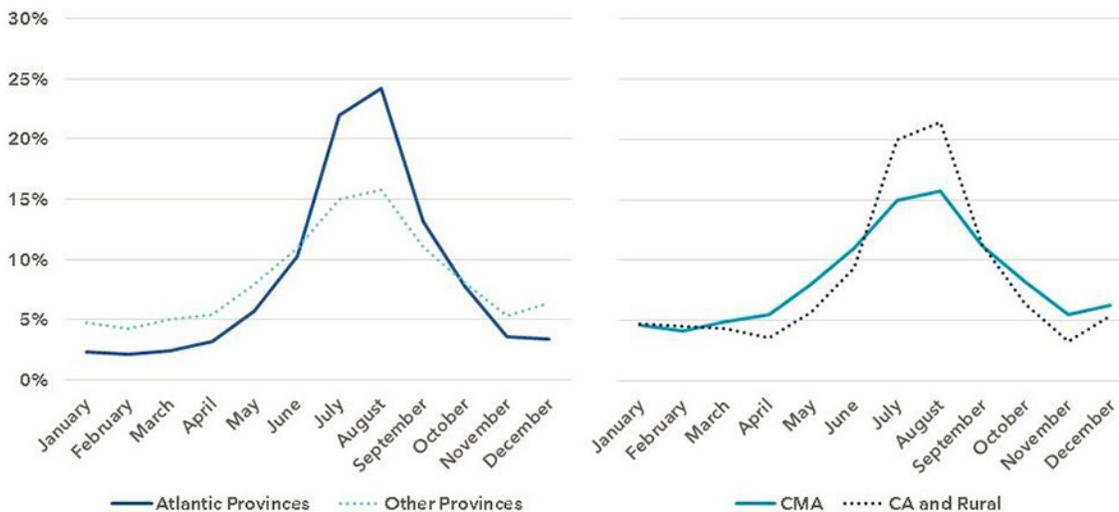

Figure 4: Percentage of annual Airbnb revenue earned each month (growth adjusted)

Who is making money on Airbnb and how?

Revenue is highly concentrated amongst a small number of hosts at all scales of analysis. In general, CMAs, CAs, and rural areas show similar levels of concentration; for each settlement type, the top 1% of hosts earn 20% of all revenue and the top 10% of hosts earn more than half of all revenue (Figure 5). However, discrepancies in host revenue concentration exist between CMAs. Specifically, the cities which exhibit high levels of geographically concentrated revenue—notably Montréal, Québec, and Toronto—also exhibit high levels of revenue concentration amongst hosts. The parallels between different metrics of revenue concentration serve to highlight the uneven patterns of inequality across Canada. Of the ten largest CMAs, Montréal shows the highest amount of revenue concentration amongst hosts—the top 1% of hosts earn 30% of all revenue—whereas Kitchener-Cambridge-Waterloo has the lowest amount of concentration —the top 1% of hosts only earn 10% of all revenue.
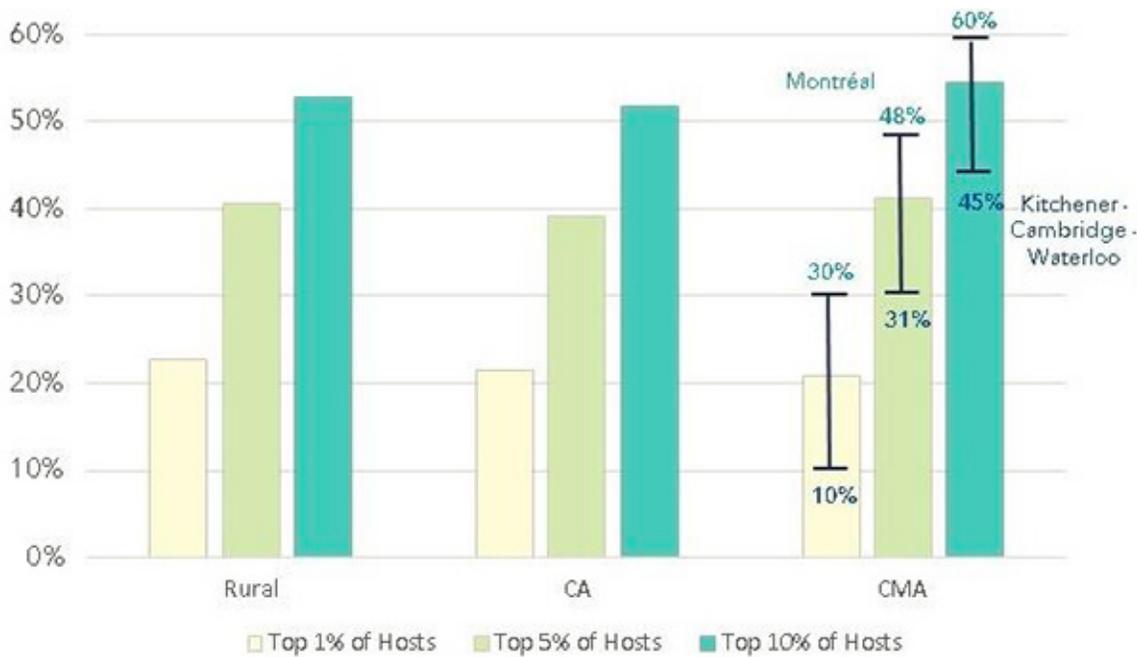
Figure 5: Percentage of revenue earned by the top 1%, 5%, and 10% of hosts in CMAs, CAs, and rural areas over the last twelve months (hosts with no revenue in the last twelve months are excluded)

An important policy question for short-term rentals is the extent to which STR operators are part-time home sharers or dedicated commercial operators. Indeed, Airbnb frequently asserts that most of its hosts are families engaging in part-time home sharing to supplement their regular income (e.g. Bannerjee 2017). The preceding host revenue analysis shows this claim to be at minimum misleading, since most revenue is earned by the top 10% of hosts while the bottom 80% of hosts only earn a small fraction of total platform revenue in nearly every jurisdiction in the country. However, another way to approach the question of host revenue concentration is by identifying STR commercial operators—those whose listings are dedicated STRs as opposed to their primary residences. While there is no practical way to exhaustively identify commercial operators (a survey of hosts would be necessary), a conservative minimal definition is hosts with "multilistings"—two or more entire-home listings or three or more private-room listings. This definition will likely produce many false negatives—e.g. a host who owns a condo as an investment property and rents it on Airbnb as an entire-home listing, but who does not have any other listings on the platform—but will produce very few false positives. By this minimal definition, commercial operators are nevertheless earning large and growing amounts of all Airbnb revenue in Canada. CMAs and rural areas are more commercialized than CAs: 45% of all revenue is earned by commercial operators in the former, while in the latter they earn 40% of all revenue. However, the proportion of total revenue generated by commercial operators in CAs is growing at roughly three times the rate of that in CMAs and rural areas, despite relatively consistent increases in the percent of total active listings that are managed by commercial operators.

Across CMAs, Montréal, Québec, and Moncton show the most commercialization, with 55%, 51%, and 51% of their revenue derived from multilistings respectively. In general, larger CMAs with more mature Airbnb markets have higher levels of commercialization: Toronto (48%), Windsor (47%), St. Catharines - Niagara (43%), Edmonton (42%) and Halifax (41%) are also among the CMAs with the largest proportion of their revenue derived from multilistings, while Abbotsford-Mission (5%), Belleville (14%), and Oshawa (17%) are at the bottom of the list. Within CMAs, there is no strong spatial pattern of revenue generated by commercial operators; rather than being concentrated in a particular portion of the cities, multilisting hosts generate revenue with similar spatial distributions to other hosts. In all CMAs except for Vancouver and Victoria, the percentage of total revenue generated by commercial operators increased in the last year, with particularly high growth rates in Montréal and several smaller CMAs which already had high levels of commercialization. This suggests that already-commercialized markets are continuing their commercialization at a faster rate than less-commercialized markets.

Across Canada, there are ten hosts that managed over 100 active listings each in the past year, two of whom managed over 250 active listings each. Four of these hosts have listings stretching from Ontario to British Columbia, while the listings of four other hosts are hyper-concentrated within specific CMAs. The remaining two hosts have less distinctive spatial patterns. The vast majority of these hosts also earned over $1 million in the last year. In total, 25 hosts earned more than $1 million last year.

On average, entire-home listings make up a higher proportion of active listings (75%) and revenue (90%) in rural areas than in CMAs (62% of listings and 84% of revenue) or CAs (63% of listings and 83% of revenue). The percentage of revenue earned from entire-home listings is also growing at a higher year-over-year rate in rural areas (9%) than in CMAs (4%). Figure 6 shows the relationship between city size, revenue, and percentage of revenue generated by entire-home listings. The largest, highest-earning cities (including CMAs and CAs) consistently earn very large proportions of their revenue from entire-home listings, suggesting that home sharing is not the predominant form of revenue generation in these areas. Conversely, low-earning cities show a much larger range of revenue generated by entire home listings (from 0% to 100%). Within urban areas, the spatial pattern of revenue generated from entire home listings is relatively weak, aside from the fact that central cities tend to earn slightly higher percentages of their revenue from entire home listings than their surrounding regions.
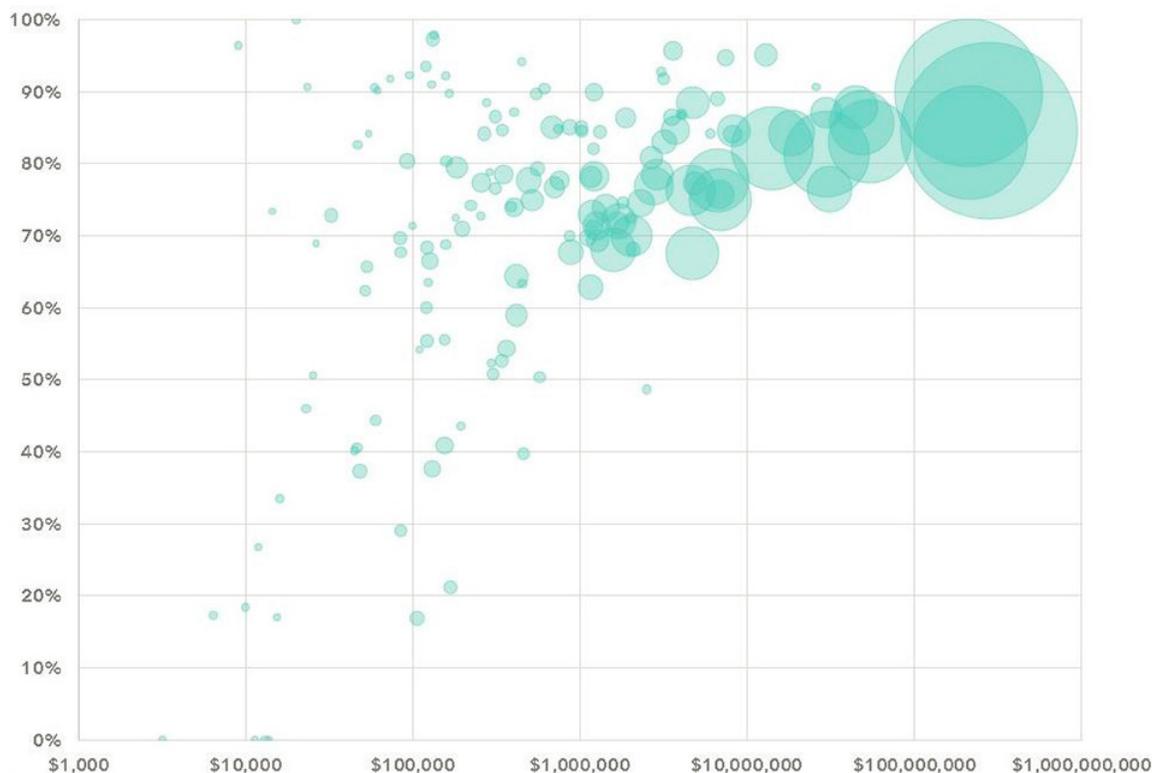

Figure 6: Percentage of revenue derived from entire home listings by revenue earned in the last year for each CMA and CA, weighted by population

Are short-term rentals threatening long-term housing in Canada?

Arguably the most important policy question associated with the rise of short-term rentals has been the extent to which they are increasing housing unaffordability and unavailability. The two plausible channels through which this could occur are 1) that long-term housing could be converted to full-time STRs and thus directly reduce the stock of housing available for residents; and 2) that STRs could increase the prevailing economic value of housing both through scarcity-inducing unit conversions and, even in the absence of unit conversions, because homeowners and tenants who are willing to host part-time STRs can bid up the price of housing. The latter channel requires comparative econometric modelling to measure; while this has not been conducted in Canada (and is outside the scope of this paper), Barron et al. (2017) analyzed the 100 largest metropolitan areas in the United States to determine that an

increase in the number of Airbnb listings in a neighbourhood results in a systematic increase in both rents and house prices, an effect which was stronger in neighbourhoods with low rates of owner occupation. Since the US and Canada have similar housing systems and similar STR dynamics, it is likely that Canadian housing has likewise become more expensive due to the growth of STRs.

The first channel—conversions of long-term housing units to short-term rentals—is amenable to estimation if not direct measurement. If an entire-home unit is rented for 365 nights in a year, it cannot possibly also be available in the long-term housing market, while an entire-home unit rented 30 nights in a year is more likely to be a long-term residence whose occupant was frequently out of town. To estimate STR-induced housing loss, we define two thresholds of activity for entire-home listings. Frequently rented entire-home listings (FREH) are those which were available for rent at least 120 nights last year, and actually rented at least 60 nights. FREH listings represent the highest plausible estimate for housing either directly converted to STR or under serious threat of conversion. Very frequently rented entire-home listings (VFREH) are those which were available for rent at least 240 nights last year, and actually rented at least 120 nights. VFREH listings are very likely to be dedicated STRs, and thus represent a plausible low-end estimate for housing converted to STRs.

Using these two estimates as a likely range, Airbnb has removed between 17,000 (VFREH) and 43,000 (FREH) units of housing from the long-term rental market (Table 2). These listings are concentrated in Montréal, Toronto, and Vancouver metropolitan areas: in the last year, these three CMAs housed 44% of FREH listings and 46% of VFREH listings, while only housing 36% of the country's population. Canada-wide, the number of FREH listings grew by 65%, and the number of VFREH listings doubled. The slowest growth rates, although still substantial, were in Canada's three largest cities. In rural areas, the number of FREH listings grew by 159% last year; for VFREH listings the growth rate was even higher, at 455%. Indeed, at every scale, VFREH listings are growing faster than FREH listings, which themselves are growing faster than occasionally rented listings. As VFREH listings represent housing units that have almost certainly been removed from the long-term rental market, such high growth rates predict a future of increased STR pressure on housing availability.

Table 2: Frequently rented entire home listings and very frequently rented entire home listings across Canada last year

Geography	Number of FREH listings in the last year	Percent year-over-year growth	Number of VFREH listings in the last year	Percent year-over-year growth
CMAs	29,100 (68%)	42%	12,000 (71%)	69%
Montréal, Toronto, and Vancouver	*18,900 (44%)*	*43%*	*7,800 (46%)*	*66%*
CAs	3,200 (8%)	147%	1,200 (7%)	194%
Rural	10,300 (24%)	159%	3,700 (22%)	290%
All of Canada	*42,700 (100%)*	*65%*	*16,900 (100%)*	*100%*

FREH listings are proportionately more common in rural areas (35% of total listings) than in either CAs (29%) or CMAs (26%). Despite this difference, all three settlement types derive 70% of their total revenues from FREH listings. This means that FREH are relatively more lucrative in large cities (compared to other infrequently rented entire-home listings and to private-room listings) and relatively less lucrative in rural areas. The percentage of revenue derived from FREH listings is growing faster in rural areas and CAs than it is in CMAs: the former two had year-over-year growth rates of 29% and 26% respectively and the latter had a growth rate of 5%. There is significant variation between CMAs in the proportion of revenue generated by all entire-home listings, by FREH listings and by VFREH listings (Figure 7). The percentage of revenue generated by FREH listings within a CMA ranges from 73% (Victoria) to 48% (Oshawa). Large CMAs tend to have proportionately more FREH revenue than smaller CMAs. The same patterns are visible with VFFREH listings. In general, high proportions of revenue from FREH listings or VFREH listings reflect a comparatively more commercialized STR market.

% revenue from entire home listings
% revenue from frequently rented entire home listings
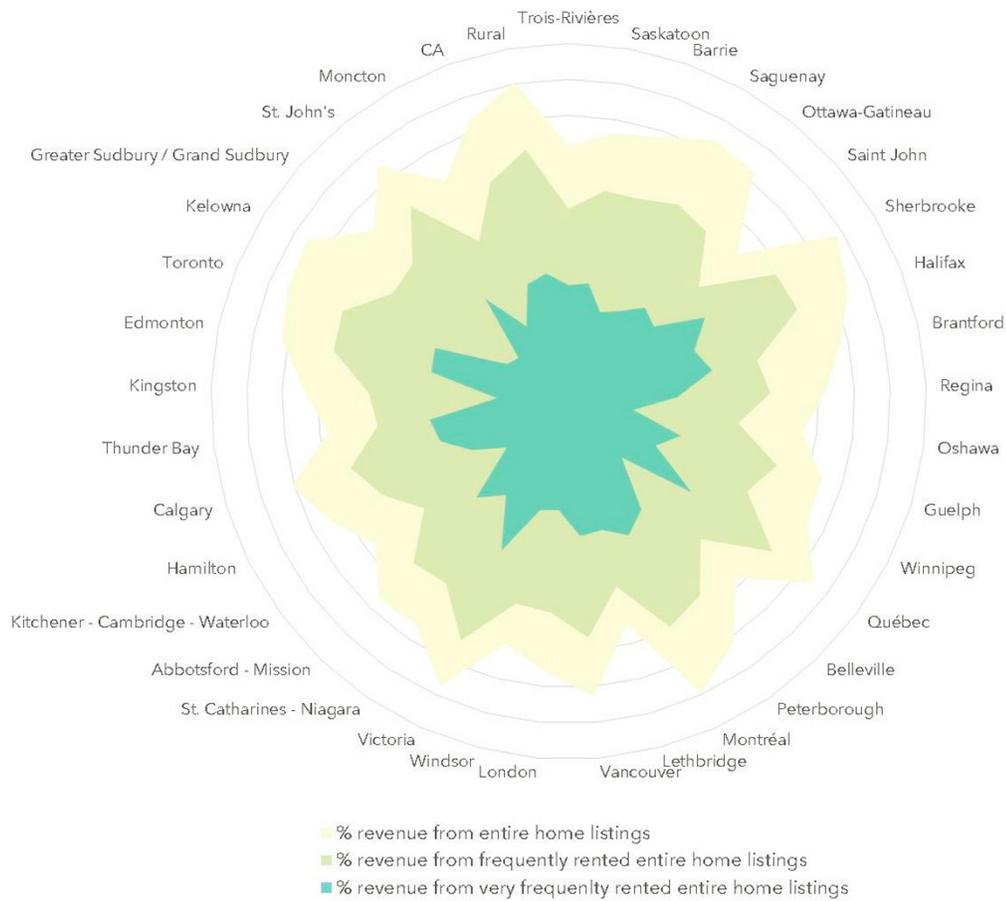% revenue from very frequenlty rented entire home listings

Figure 7: Percentage of revenue derived from entire-home listings, frequently rented entire-home listings, and very frequently rented entire-home listings

As shown by Table 3, despite substantial growth relative to other Airbnb listings, FREH and VFREH listings are still a small fraction of total housing; they do not exceed more than 0.5% of the total private housing units in any of Canada's five largest CMAs. However, this fact disguises significant variation within CMAs. For example, in some census tracts in downtown Montréal one in ten housing units is frequently rented on Airbnb (Figure 8). Similarly high rates of housing frequently rented on Airbnb can be seen outside major cities. In the small coastal vacation

Table 3: Number of frequently rented entire homes (as a percent of total housing units)

Geography	FREH Listings	VFREH Listings
Toronto	7,000 (0.3%)	2,900 (0.1%)
Montréal	6,900 (0.4%)	2,800 (0.2%)
Vancouver	5,000 (0.5%)	2,100 (0.1%)
Calgary	1,000 (0.2%)	400 (0.1%)
Ottawa - Gatineau	1,600 (0.3%)	600 (0.1%)

community of Tofino, British Columbia, approximately 21% of all housing units are frequently rented and 14% are very frequently rented. In contrast, less than 0.05% of housing is frequently rented on Airbnb in Lethbridge, Alberta. This suggests that STR pressures on housing availability and affordability are highly localized.
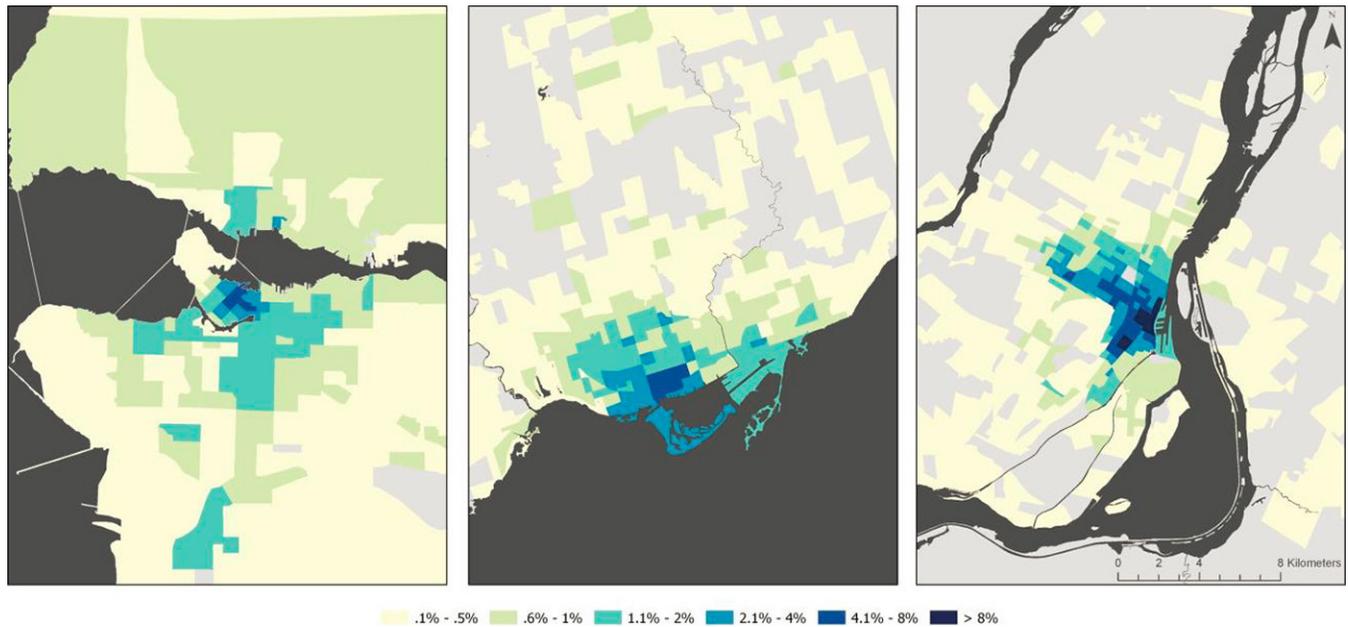

Figure 8: The proportion of housing units frequently rented on Airbnb as entire homes

A useful measure of STR impacts on housing availability is the ratio of the percentage of housing units in a CMA that are Airbnb FREH listings to the local rental vacancy rate. Neighbourhoods with high percentages of the housing stock frequently rented on Airbnb and simultaneously low rental vacancy rates are areas with heightened STR-induced housing pressure—areas where fewer renters can find apartments to rent while those who can pay higher rents. Of Canada's 35 CMAs, 11 have census tracts in which the proportion of housing units that are frequently rented on Airbnb exceeds the city's vacancy rate (Figure 9). Seven of these cities are in the Windsor-Quebec corridor,
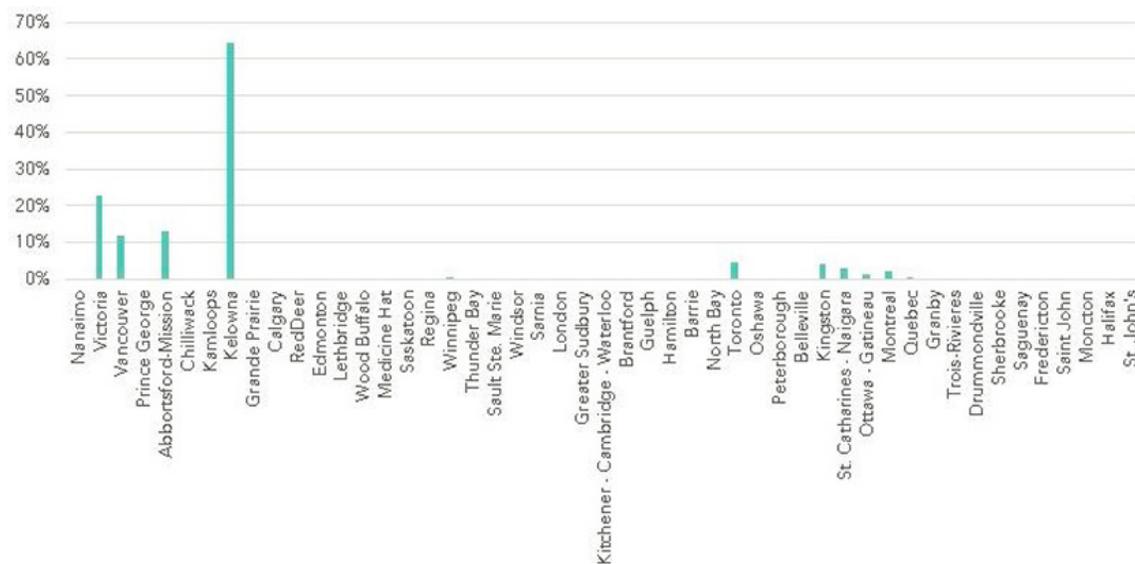

Figure 9: Percentage of population living in census tracts with a vacancy rate lower than the proportion of housing units that are frequently rented on Airbnb

and each have fewer than 5% of their populations living in such census tracts. But the four British Columbia cities have incredibly highest proportions of their population living within these census tracts (over 10% in each city and over 60% in Kelowna), suggesting that the impacts of Airbnb on housing loss are strongest on the West Coast.

Through removing housing that would otherwise be available on the long-term rental market Airbnb is reducing housing supply and, in turn, housing affordability. These impacts are unevenly felt. While the three largest Canadian cities have lost between 7,800 and 18,900 housing units removed from their long-term rental markets, housing loss in smaller west-coast CMAs such as Kelowna and Abbotsford-Mission is compounded by low vacancy rates and therefore may be more acutely felt. In other communities, Airbnb appears to have so far had at most a minor impact on housing availability, but these patterns may soon change, as Airbnb growth in rural communities substantially exceeds growth in the major cities. Particularly alarming is the high growth rate of FREH and VFREH listings. Across all settlement types, this growth exceeds the growth in other listings, suggesting an increasing commercialization of STRs and a correspondingly increasing threat to housing affordability across Canada.

Conclusions: Decreasing housing availability, increasing commercialization, and the way forward

This study has provided the first comparative analysis of Airbnb activity in communities across Canada. It reveals highly uneven impacts. Across multiple metrics, Canada's largest CMAs have more concentrated and commercialized Airbnb activity than CAs and rural areas. A larger share of CMA revenue is derived from frequently rented entire-home (FREH) listings and commercial multilistings, and both revenue and activity are more concentrated within specific neighbourhoods and census tracts. Montréal in particular has highly concentrated Airbnb activity, with over 30% of all Airbnb revenue earned by just 1% of its hosts, and census tracts where one in ten total housing units is frequently rented on the platform. In total, Airbnb has likely removed between 17,000 and 43,000 housing units from Canada's long-term rental markets. Of the 43,000 FREH listings, 44% of these are located in Canada's three largest CMAs and 68% are located within a CMA, although FREH listings are growing much more quickly in CAs and rural areas. Due in part to low rental vacancy rates, British Columbia's cities may be feeling the impact of high levels of Airbnb activity most acutely.

Five years ago, short-term rentals in cities—both in Canada and abroad—were almost universally illegal with the exception of licenced bed and breakfasts. STRs were illegal either through bans on commercial uses in residential areas, through fire codes and regulations on lodgings, or through explicit bans on rentals below a certain threshold of nights. Despite operating in a legal grey area at best, STRs facilitated by platforms such as Airbnb have proliferated. Public regulations are arguably now starting to catch up. In April 2016, the Province of Québec became the first Canadian jurisdiction to introduce a law regulating short-term rentals. They have since been followed by a increasingly long list of provinces and municipalities. Notably, in 2018 both Toronto and Vancouver introduced new short-term rental regulations, as did Montréal's largest borough Ville-Marie. As of the end of 2018, Calgary, Ottawa, Edmonton, and Saskatoon were studying the possibility of new regulations, and a number of smaller cities and towns across Canada have introduced new regulations or are in the process of doing so.

While the number of jurisdictions moving to regulate short-term rentals suggests the perceived scope and size of the public policy issues they pose, the effectiveness of regulation remains to be seen. Québec's path-breaking regulations required STR hosts to register with the province; however, as of March 2017 fewer than 5% were certified and paying Québec's provincial accomodation tax, contributing to the province missing out on a reported $3.7 million in tax revenue for 2016 (CBC News, 2017). (In August 2017 the Province signed a deal with Airbnb under the terms of which the latter began collecting the tax automatically.) These problems are not unique to Canada; in New York City, where most entire-home short-term rentals have been illegal for decades, one recent estimate suggested that two thirds of Airbnb platform revenue is earned from these illegal rentals (Wachsmuth et al. 2018). Broadly speaking, the experience of cities around the world which have attempted to aggressively regulate STRs suggests the difficulty of effective regulation, particularly in instances where Airbnb and the other platforms have attempted to resist or obstruct the regulation.

As challenging, therefore, as developing effective regulations will be for major Canadian cities, the challenges will be much greater in smaller communities with less governance capacity. After all, while Airbnb activity is currently concentrated in major cities, our analysis suggests this is changing. STRs are growing faster, concentrating faster, and removing housing from the long-term market faster in rural areas and CAs than in CMAs. These trends mean that, increasingly, it will not just be Canada's largest cities struggling with both the positive and negative impacts of STRs on communities. The result will almost certainly be an increased push to regulation among jurisdictions which

have fewer resources and less leverage to exert over Airbnb and other STR platforms, this could make it difficult to prevent increasing housing affordability issues. Higher orders of government—particularly the provinces, which in two cases (British Columbia and Québec) have already struck deals with Airbnb regarding tax revenues—may therefore need to intervene on behalf of smaller communities. As new STR regulatory regimes are introduced across the country, evaluating the conditions for their success or failure should accordingly become an important priority for Canadian urban research.

Notes

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[2] For a more thorough discussion of this data source, along with its strengths and limitations, see Wachsmuth and Weisler (2018).

[3] Complete data for the last two years (May 1, 2016 to April 30, 2018) is available for 12 of the 35 CMAs (Toronto, Montréal, Vancouver, Calgary, Ottawa-Gatineau, Winnipeg, St. Catharines - Niagara, Halifax, Victoria, Windsor, Moncton, and Brantford) and 14 of the 117 CAs (Chilliwack, Sault Ste. Marie, Medicine Hat, Charlottetown, Cornwall, Penticton, Salaberry-de-Valleyfield, Brockville, Thetford Mines, Miramichi, Kentville, Yellowknife, Summerside, and Bay Roberts). The subset of CMA listings with complete data contains 86.7% of all CMA listings, the subset of CA listings with complete data contains 14.8% of all CA listings, and the subset of rural listings with complete data contains 18.6% of all rural listings. All discussions of year-over-year growth for CMAs, CAs, and rural areas refer to this subset of the national data.

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