

MOUNTAIN DOODLES



Age Disparity in Shelter Cost per Room

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Housing is often portrayed as a generational issue, with younger people facing the brunt of housing affordability challenges. To dig into this we look at shelter cost per room by age group in Canada and observe that costs have increased over time, especially for younger people and in regions with acute housing shortages. We investigate reasons for rising age discrepancies and find that the majority of the age discrepancy seems due to older people locking in prices and rents from the past.

2025-10-25

Residential floor space offers a common denominator for trying to standardize across a range of housing metrics (e.g. price per square foot). Unfortunately we don't have it in the Census in Canada, but we can play around with rooms to get some pretty similar results. Here we investigate how shelter costs per room have changed over time, across various regions, and by age group to construct some comparable figures to those recently coming out of the UK.

Long story short: shelter cost per room has been getting more expensive, especially for young folks, and in those metro areas where we see the greatest housing shortages, and the age discrepancy mostly comes from older folks locking in past prices, especially as they transition into ownership.

New Metric!

We are suckers for experimenting with new metrics to understand housing pressures and got nerd-sniped by figures on shelter cost per square meter of floorspace in the UK put out by the [Resolution Foundation](#), in particular the breakdown of shelter cost per square meter by age groups as flagged by [Ant Breach on Bluesky](#), and referenced by [Deny Sullivan](#) asking for Canadian stats.

Room

In Canada we don't know of a good data source on square footage and shelter costs by age breakdown, but we can achieve something similar by looking at shelter cost per room. Of note for current [Census definitions](#), number of rooms includes "kitchens, bedrooms and finished rooms in the attic or basement" but excludes "bathrooms, halls, vestibules and rooms used solely for business purposes," with specific judgments otherwise left to the respondent. As a specific example, consider a studio apartment where the kitchen was partially behind a wall. The number of rooms might be listed as one or two, depending upon the respondent. This kind of ambiguity is built into the rooms measure. But we have looked at number of rooms as a metric for household tightness before (von Bergmann and Lauster 2023), and while it is far from perfect (with sizes of rooms, as well as how we divide homes into rooms, changing over time and likely differing across regions in addition to inherent ambiguity), we believe it still offers a somewhat decent proxy for the size of homes.

Shelter costs per room

Shelter costs, [as measured in the census](#), capture how much households are directly paying on an ongoing monthly basis to maintain their shelter, including utilities, condominium fees, and property taxes. This differs from measuring the value of housing services consumed, a more theoretical quantity. For example an owner household in a fully paid-off home may have very low ongoing shelter costs, but the value of the housing services they consume is much higher, which we estimate by imputing the rent they pay themselves. Shelter costs can be thought of as capturing how much people feel directly pressured by the housing market rather than measuring the value of their housing services.

To make shelter cost more comparable across homes we normalize it by the number of rooms in the home as a proxy for the size of the home. One could also normalize by the number of bedrooms, but that data is only available for the 2011 through 2021 censuses and we are interested in longer timelines for this post.

One decision we have to make is over what universe we are estimating this metric. There are two natural choices; we can estimate this over people or over households. With an eye to the rest of the post we choose to estimate this over households.

Figure 1 shows the shelter cost per room across time for several large Canadian metro areas.

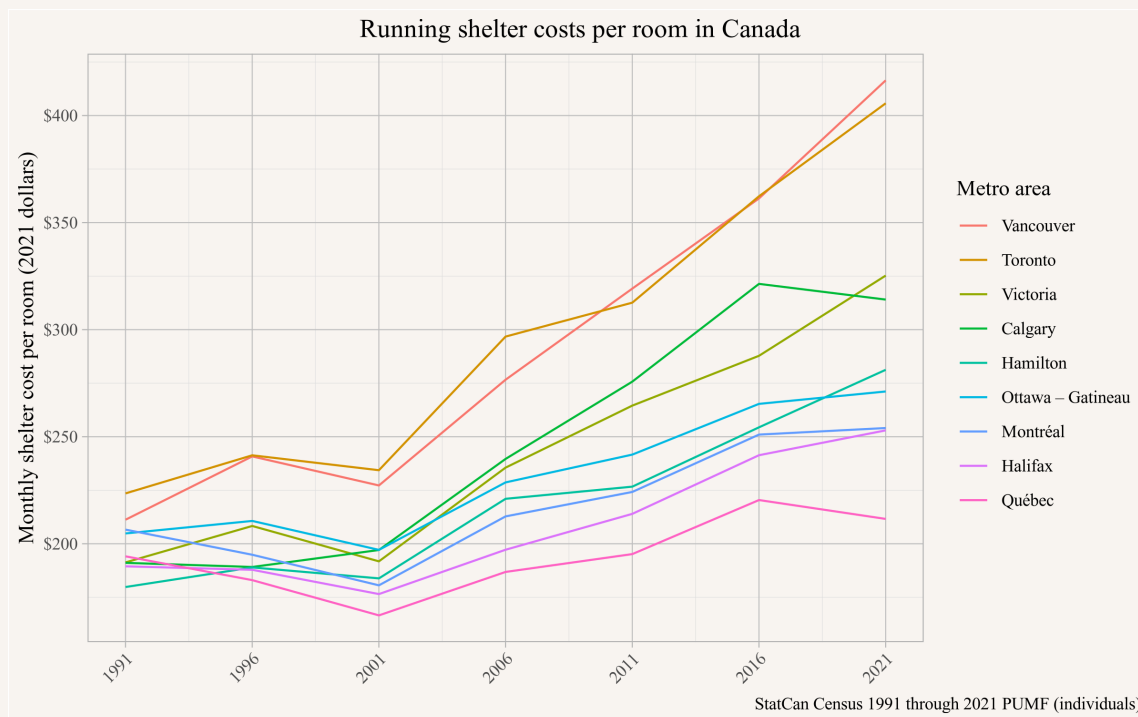


Figure 1

As one might expect, Vancouver and Toronto stand out with particularly high shelter costs per room, and also strong growth in the metric since 1991. At the other end of the spectrum, Québec City metro area shows low and fairly flat shelter cost per room.

Economies of Scale and Location Tradeoffs

Importantly, we shouldn't expect shelter cost per room to linearly scale up with the size of a dwelling overall. After all, we already know that the room metric excludes things like bathrooms - and sometimes even kitchens - which are needed to support a dwelling, but not on a per room

basis. So there should be economies of scale with respect to dwellings where having more rooms becomes cheaper on a per room basis. We illustrate this with Figure 2.

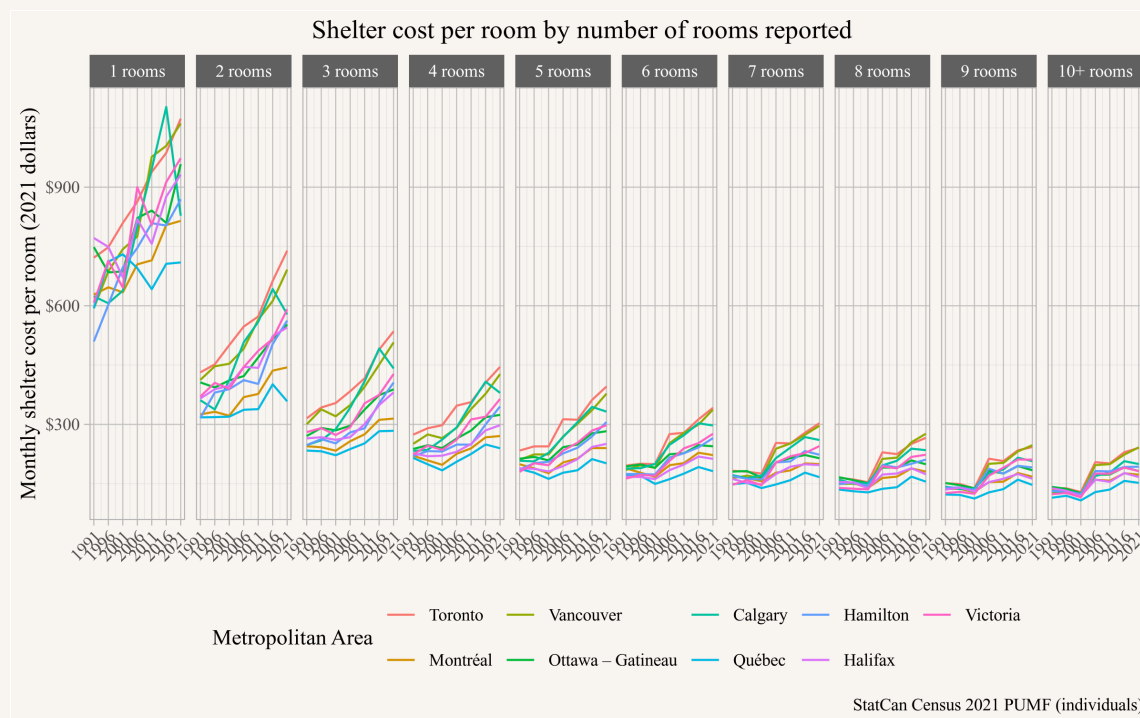


Figure 2

Importantly, we're also probably picking up some within metro area location effects here. That is, more central locations tend to have more studio and 1BR apartments, while locations further out toward the suburbs tend to have larger detached houses. So proximity to jobs and amenities may be folded into our estimates of costs per room as well, and also help explain why they vary over number of rooms. This helps set up our discussion of age effects.

In this context it's also useful to understand how the distribution of the number of rooms per home has changed over time and differs across geographies, as shown in Figure 3.

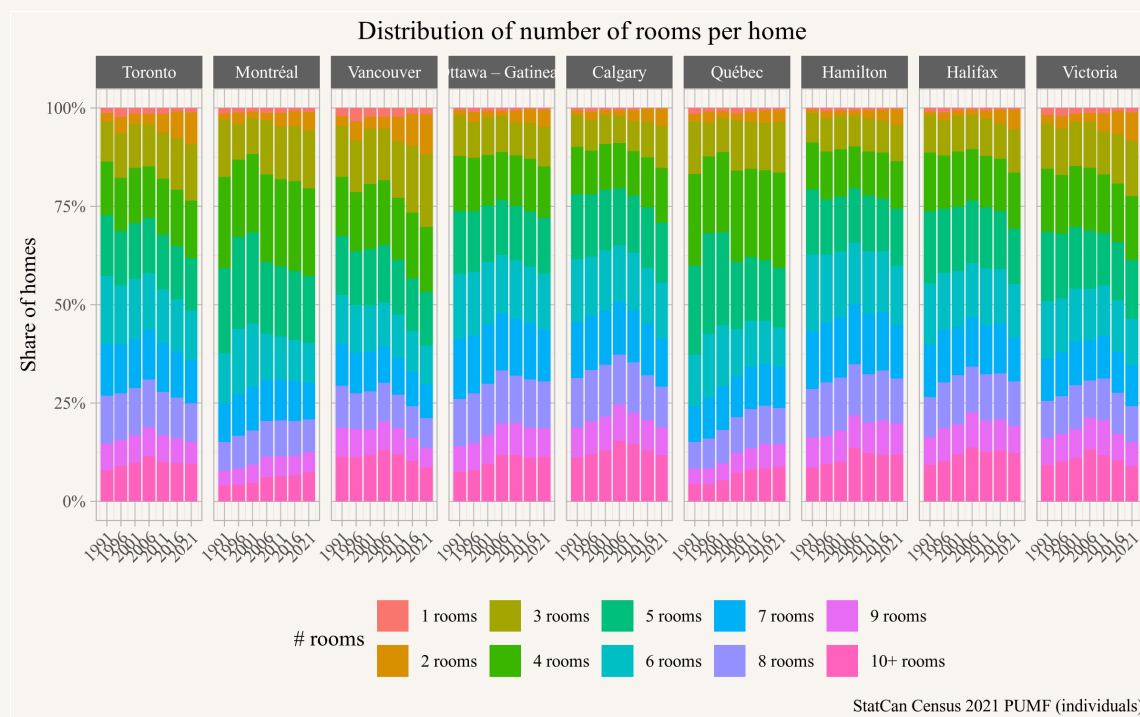


Figure 3

The low share of especially 1-room homes in some regions explains the volatility in the shelter cost per room metric for 1-room homes. We also note that the share of low-room count homes increases especially in regions with growing housing shortages, which likely contributes to the increase in shelter cost per room over time. This is consistent with the explanation that the increase in the number of low-room homes is driven by people's desire for privacy of their own home, and being forced to economize on size where they face less competition from people economizing by doubling up.

This suggests that adjusting for the changing distribution of the number of rooms per home across geographies and time might be useful to account for the economies of scale relating overall floor space to the number of rooms, while at the same time cautioning against doing this because of higher rent/sf for smaller units and variations in the distribution of the number of rooms being driven by housing shortages. For the rest of the post we will keep it simple and not adjust for the number of rooms, but Figure 4 shows the shelter cost per room adjusted for the changing distribution of the number of rooms per home to help gauge the potential impacts of doing such adjustment to our baseline Figure 1.

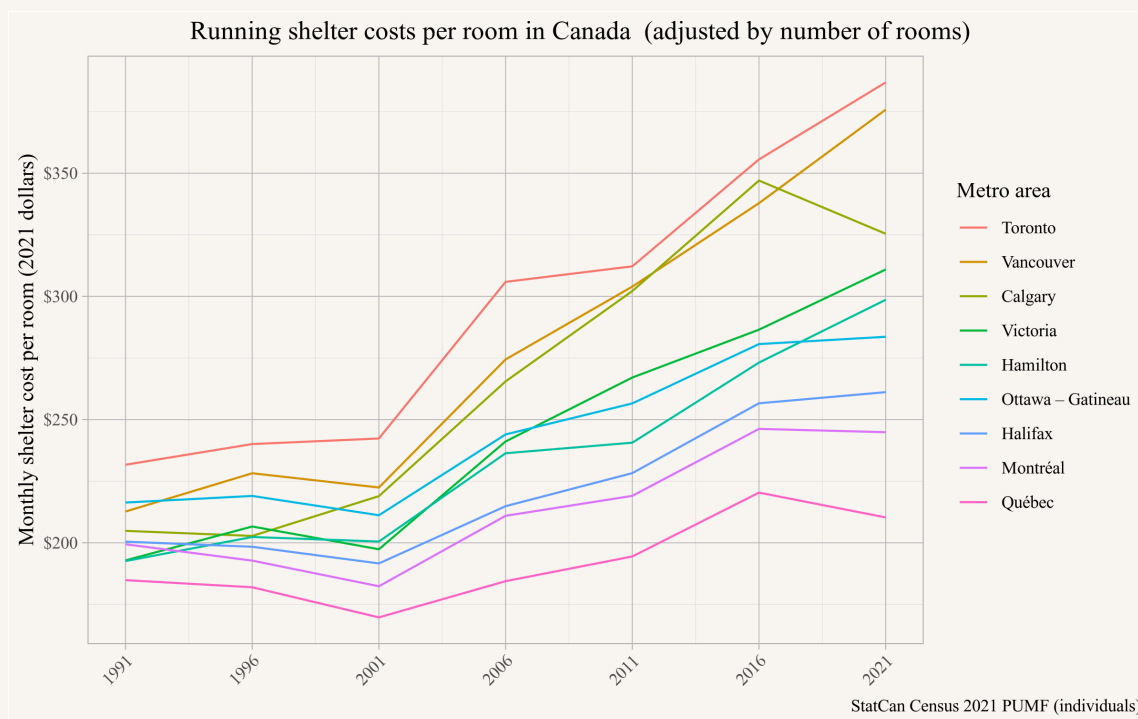


Figure 4

As one would expect, adjusting for the distribution of number of rooms dampens the growth in shelter cost per room for Toronto and Vancouver, which saw the largest increases in the share of low-room count homes, and increases the relative position of Calgary, which has a large share of high-room count homes. But the overall patterns remain similar to the unadjusted results.

If one wanted to refine the results of this post one could take a more principled approach and choose a more structured way to adjust for the changing distribution of the number of rooms, similar to what we did when constructing first-time buyer Lorentz curves. (Stewart and von Bergmann 2020, 2024)

Age

We were drawn into this because of the age disparity in the UK data, and we want to understand the shelter cost per room by age. How do running shelter costs per room differ for people in different age groups? Here we first need to revisit the question of the universe over which we are estimating this metric. For example, for 25 to 29 year olds, do we mostly care about the experience of those who formed independent households or do we also want to consider the experience of those living with their parents? We expect these two groups to face very different shelter cost pressures. In this post we mostly care about the former, so we again look at the household level and code the

age group based on the age of the primary household maintainer, with the breakdown shown in Figure 5.

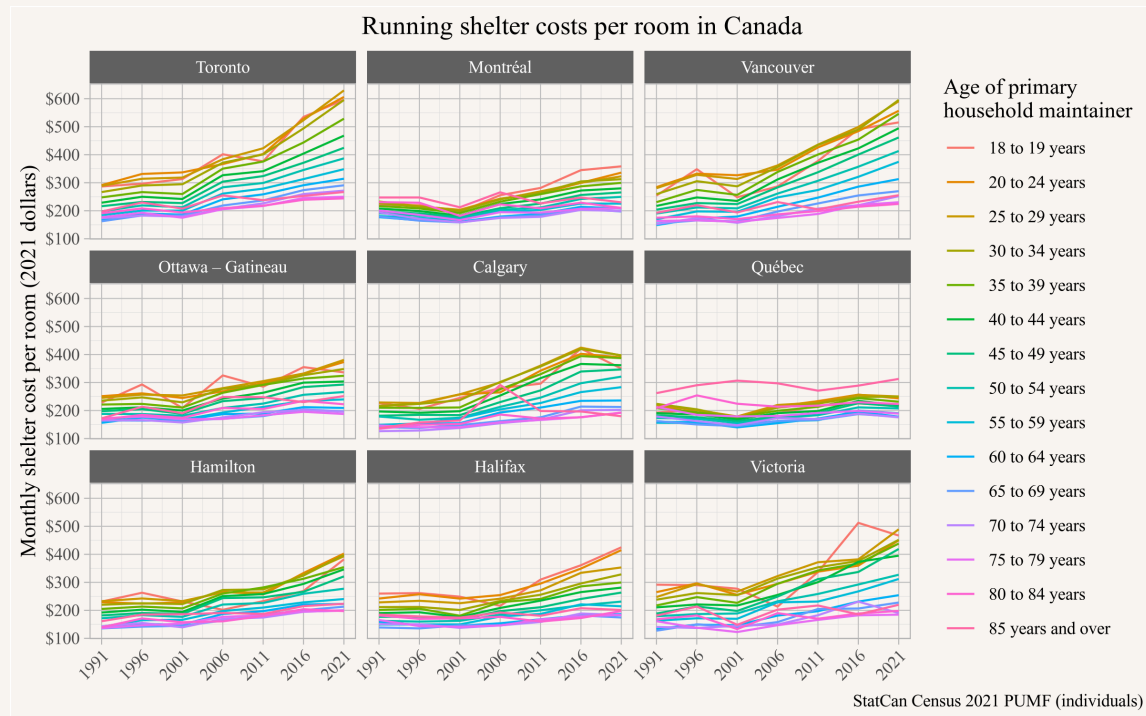


Figure 5

This shows a fairly consistent pattern with younger people having higher shelter costs per room, and shelter costs per room declining as we move upward through the age groups. There is variance in the size of the spread, as well as how it increased over time. And the sample gets thin for some age groups in some regions, in particular the 18 to 19 year old bracket, leading to some noise. The Québec City metro area again stands out with its low spread and fairly flat development over time. Toronto and Vancouver again show the largest spread and largest increase.

Following the lead of how the UK data was sliced, Figure 6 arranges the information into coarser age groups for easier readability.

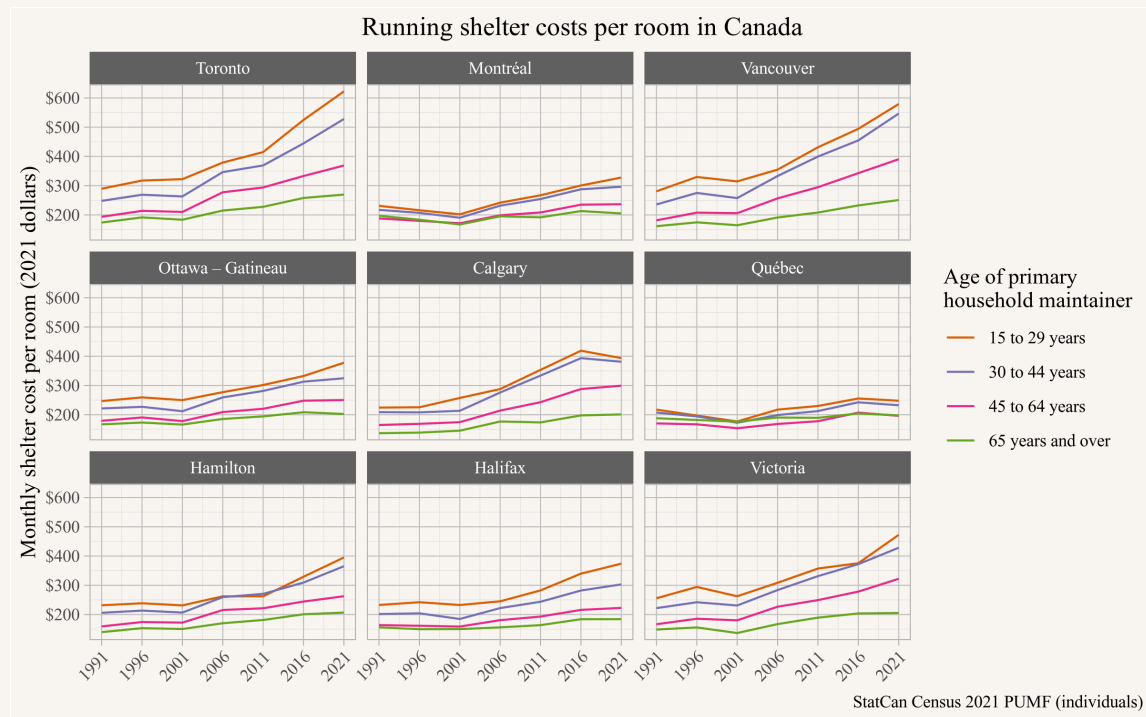


Figure 6

This is a good time to pause and think about how one might interpret this information. Increases in cost over time track fairly well with our understanding of housing shortages, with Québec City demonstrating very little shortage and Vancouver and Toronto demonstrating a lot. (Lauster Nathanael and von Bergmann 2024) The differences by age are more difficult to interpret, they could be due to older people having been able to lock in housing costs in the past, having bought a home quite some time ago or benefiting from rent control after renting for a long time. But it could also be that older people tend to live in roomier places in the suburbs, benefiting from economies of scale, while younger people choose to live in more central locations, near more amenities, or in higher quality homes, which tend to have higher rents and prices. To disentangle this we can condition on renters, which removes the effects of e.g. people having low shelter costs because they have paid down their mortgage. We can also condition on recent movers to remove most of the effect of rent control. Figure 7 shows how this group fares over time.

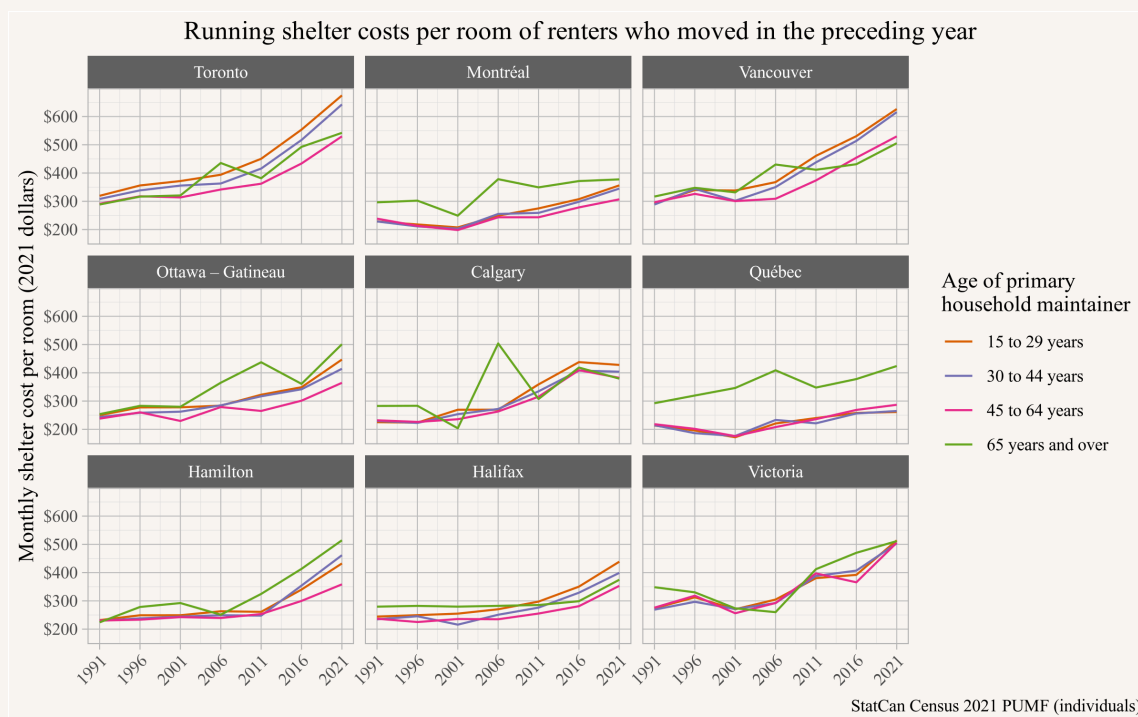


Figure 7

This considerably narrows the spread across age groups. Data on recent renter movers in the senior age bracket should be interpreted with some caution due to the low number of cases in our sample, but overall trends indicated an interesting reversal for the senior age bracket which now shows up on top in many metro areas. Given our selection, it's possible that in some cases shelter costs here might be picking up on ways that seniors newly moving into retirement communities and assisted living facilities see the costs of extra services bundled into their rents. Nevertheless, Toronto and Vancouver still show younger age groups with higher shelter costs per room, which is consistent with the hypothesis that some of the spread could be due to different preferences in location and roominess tradeoffs.

But there are some other factors that might play into this too. Household formation and tenure choice are both downstream of housing pressures, so conditioning on them can lead to collider bias, as we have previously explained. (von Bergmann and Lauster 2023; N. Lauster and Bergmann 2025; Lauster Nathanael and von Bergmann 2024). We have proposed two measures of *housing frustration* based on household formation and tenure choice that can help quantify these pressures (von Bergmann and Lauster 2024), as shown in Figure 8 that we include here again for convenience. The housing frustration metric shows very high levels of suppressed household formation especially in Vancouver and Toronto that could explain some of the age patterns we see here via selection of richer folks into independent households among younger age groups. The question about tenure choice is more complicated and the relationship to the different spreads between age groups is less clear.

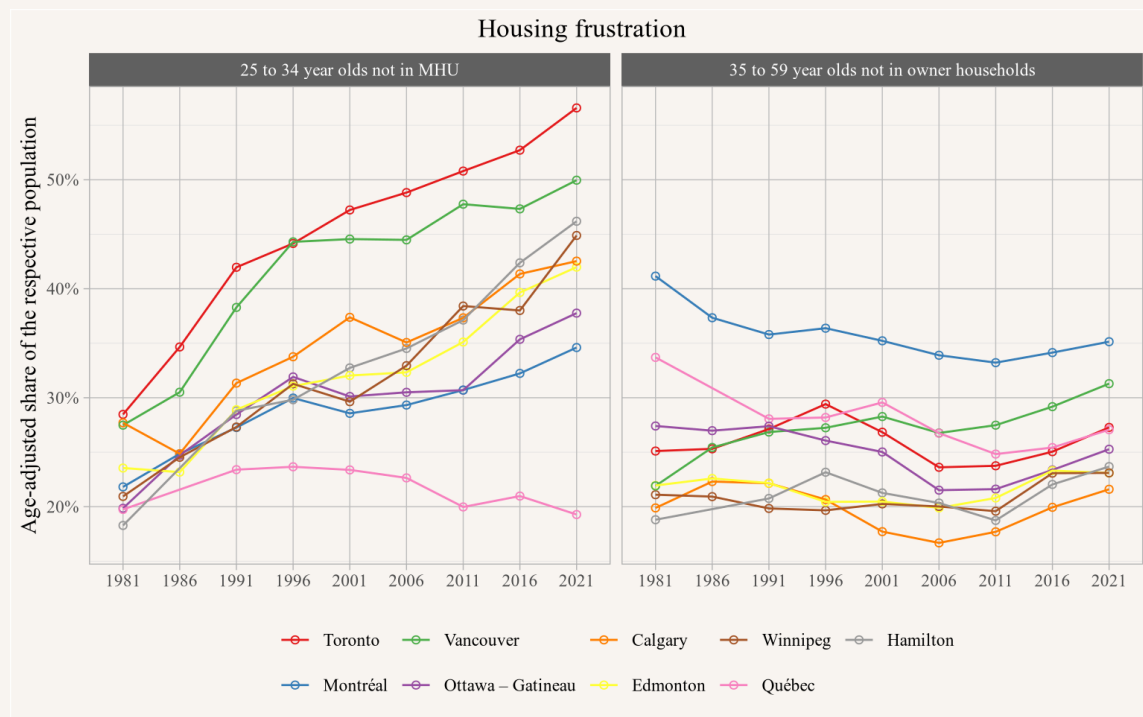


Figure 8: Housing frustration

We can dig down a little deeper by examining how owners and renters differ in their ability to lock in lower shelter costs over time. Figure 9 splits the data by tenure, for a smaller selection of metro areas to keep things simple.

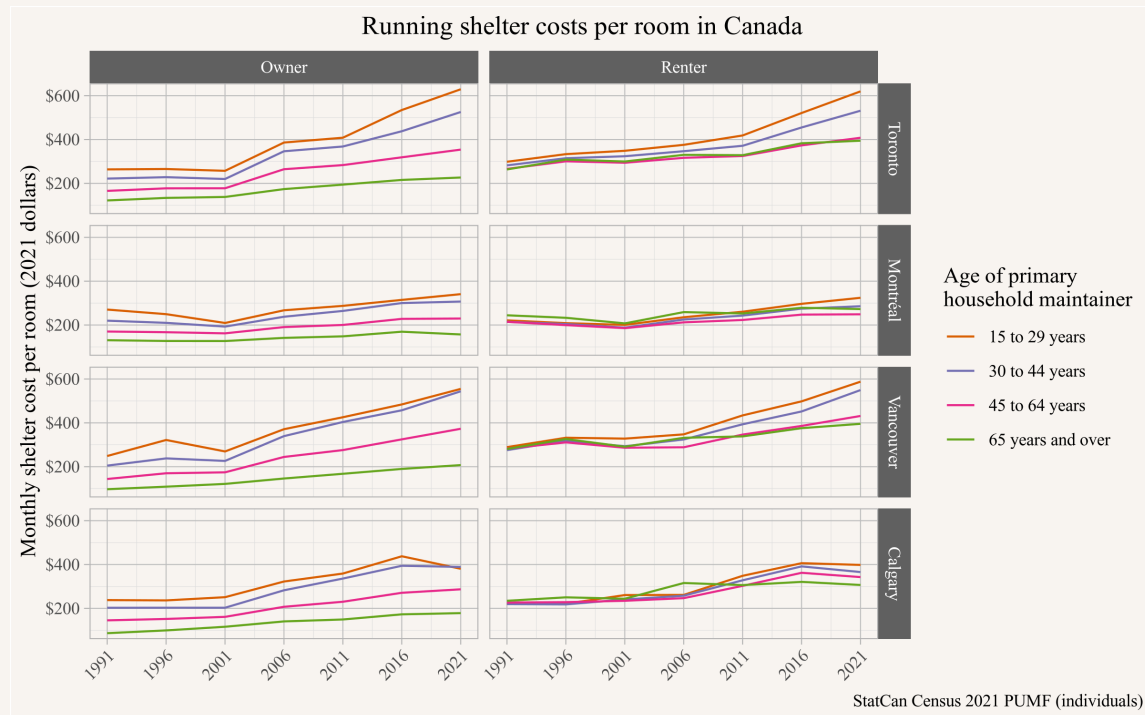


Figure 9

Here we see how owners diverge more than renters. Some of this divergence may reflect the effects of the roominess-location tradeoff and economies of scale, insofar as households tend to move toward the suburbs as they age. But it's also the case that older owners are especially likely to have locked in lower shelter costs by buying increasingly expensive properties earlier in time than in younger owners, and they've also had longer to pay down their mortgages. For renters, by contrast, both young and old are relatively more exposed to the current housing market. Nevertheless, comparing back to Figure 7 it does appear that older renters in Toronto and Vancouver may still be benefiting from a cushion due to rent control interacting with longer term tenancies.

Figure 10 offers another way to look at age variation for owners. As noted earlier, actual shelter costs are distinct from housing services consumed, with the latter incorporating a measure of rent that owner-occupiers are understood to be paying to themselves. Here we compare the value of housing services consumed, as measured by imputed rent - which we estimate by applying a 4% CAP rate to the reported value of each home - to the reported running shelter costs that we have been using so far.

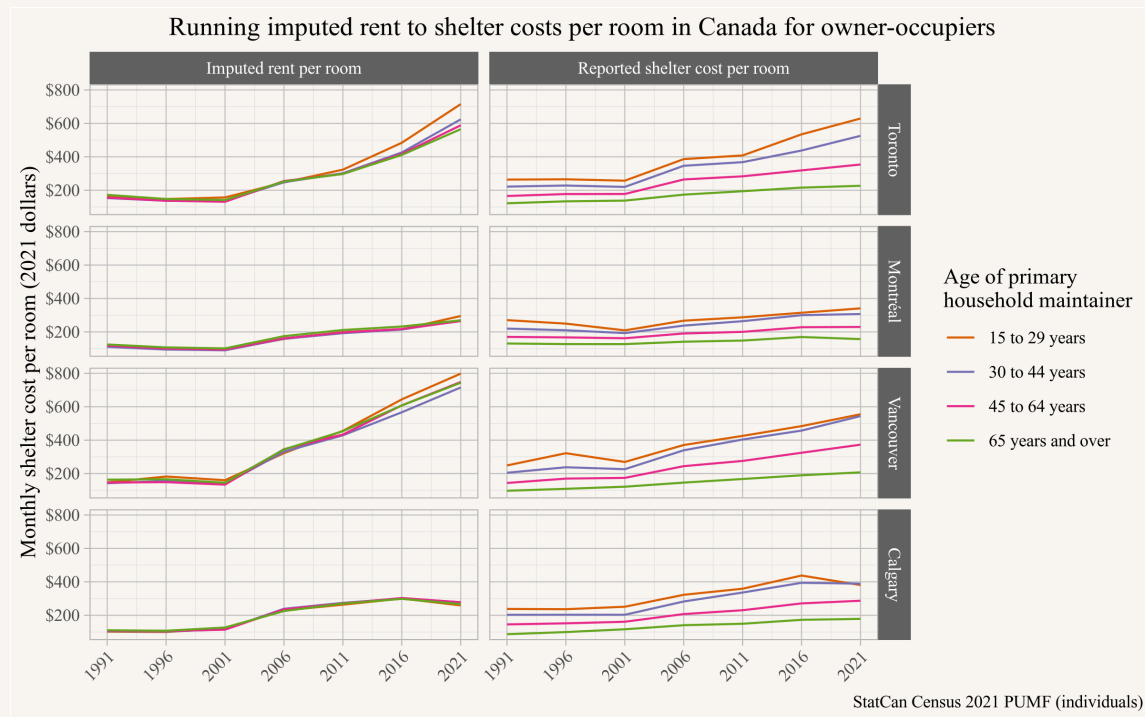


Figure 10

The age divergence mostly disappears when we look at housing services consumed by owners. This underscores the takeaway from Figure 7 that the main driver of the spread between age groups is not a preference effect, but rather how renters tend to gradually become owners and longer term owners are able to lock in lower shelter costs over time. Savings, including building up equity, can also help older owners cash out when they move and put up large downpayments on new homes. So even if older owners are theoretically paying themselves high rents as owner-occupiers of their new homes, the mortgage payments contributing directly to their shelter costs stay lower than for younger homeowners.

Upshot

What does all of this mean for our understanding of housing pressures faced by different age groups in Canada? We know from a lot of our previous work, and as shown in Figure 8, that younger people are forming households at successively lower rates in areas with growing housing shortages. At the same time, we see that young people increasingly face higher shelter costs per room compared to their older compatriots. Figure 7 leads us to believe that this cannot be simply explained by changing preferences of younger people. Instead, the divergence shown in Figure 5 and Figure 6 seems mostly due to older people having on average lived in their homes longer and having locked in lower shelter costs in the past, often while transitioning from renter to homeowner. This means

that older people are, on average, still somewhat insulated from current pressures in the housing market, and younger people, on average, face the brunt of the current housing shortage in Canada. Worth noting that these averages, of course, still hide a great deal of variability within each age group.

Household formation and housing costs are connected. Rising housing costs depress household formation, and in turn shortages that mechanically lead to depressed household formation also heighten competition for any housing coming to market. These are two sides of the same coin, as evidenced when directly comparing housing costs to household formation. (von Bergmann and Lauster 2025)

At the same time it's important to recognize that this is not a Canada-wide problem. The Québec City metro area has managed to avoid housing shortages, and real prices per room have remained fairly flat. Rising incomes in Québec City have allowed households to form at increasing rates, with the result being improved housing outcomes. This may in part be due to the Québec City metro area not facing the same population pressures as some of the other regions. But we can also see that Calgary, the metro area with the highest population growth among our sample, has done a much better job at keeping up with demand and mitigating housing shortages than some of the lower growth regions.

As usual, the code for this post is [available on GitHub](#) for anyone to reproduce or adapt for their own purposes.

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