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The NCRP Rental Housing Disadvantage Index (RHDI) An Introduction and Initial Analysis of Eight CMAs

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Last revision of this document: 1 September 2016 The RHDI was created for the NCRP by Richard Maaranen, NCRP Data Analyst, in March 2014.

The Rental Housing Disadvantage Index (RHDI) was developed to identify specific locations of inadequate rental housing and housing-related distress among tenants in Canada's larger metropolitan areas. The RHDI is being used to help the Neighbourhood Change Research Partnership decide where to focus further research on its rental housing research agenda.

The RHDI is based on Canada Mortgage and Housing Corporation's measurement of Core Housing Need, which includes three housing indicators: adequacy, affordability, and suitability. The RHDI uses these three measures, but it also includes average renter household income, which affects people's quality of life beyond housing affordability.

The RHDI uses 2006 census custom housing tenure data at the census-tract level. The 2006 census is the last available long-form census at present: a random 20% mandatory questionnaire. We will update the RHDI when the 2016 census data become available and we plan to draw the same data from the 1981 and 1996 censuses. We will soon be able to track change in the RHDI over a 35-year period for Canada's larger metropolitan areas.

CMHC's Definition of Core Housing Need

A household is said to be in core housing need if its housing falls below one or more of the adequacy, affordability or suitability standards. In addition, a household would have to spend 30% or more of its total before-tax income on the median rent of alternative local housing that is acceptable (that is, it meets all three housing standards).¹

A household is *not* in Core Housing Need if its housing meets all of the following three standards:

- adequate reported by its residents as not requiring any major repairs;
- affordable housing cost is less than 30% of total before-tax household income;
- suitable based on number of bedrooms for the size and make-up of the household, according to National Occupancy Standard definitions;

or, if its housing does not meet one or more of these standards, but the household has sufficient income to obtain alternative local housing that meets all three standards. Non-family households

¹ For CMHC's definitions, see <u>http://cmhc.beyond2020.com/HiCODefinitions_EN.html</u>

led by maintainers 15 to 29 years of age attending school full-time are considered to be in a transitional stage of life and are not included in Core Housing Need, whatever their housing circumstances.

How the Rental Housing Disadvantage Index is Calculated

The RHDI is calculated at the census tract level and comprises four indicators of equal weight.

- Adequate Housing is defined as the percentage of rented occupied dwellings requiring major repairs. Census respondents are asked to judge their own housing condition by choosing one of three possible responses: (1) regular maintenance only required, (2) minor repairs required, or (3) major repairs required. The Census questionnaire gives examples of repairs by their severity. Major repairs refer to the repair of defective plumbing, electrical wiring, structural repairs to walls, floors, or ceilings and other serious problems. Housing problems that are not considered severe include painting; furnace cleaning (considered regular maintenance); missing or loose floor tiles, bricks, or shingles; and defective steps, railings, or siding. Respondents are told to disregard desired remodelling or additions in their response.
- 2. *Affordable Housing* is defined as the percentage of renter households paying 50% or more of income on rent. This is based on rent paid in the census year and the income from the previous calendar year. The percentage is calculated by dividing the occupant's total shelter-related expenses (rent and utilities) by the household's total monthly income and multiplying the result by 100. The census questionnaire does not ask for this percentage from respondents directly; rather, the figures are derived by Statistics Canada from the occupant's self-reported income and shelter costs.
- 3. *Suitable Housing* is defined as the average number of persons per bedroom in rented occupied dwellings. This variable was calculated by dividing the average number of persons in a rented occupied dwelling by the average number of bedrooms. These two input variables are not precise, as they are both rounded off by Statistics Canada to one decimal place in the custom dataset.
- 4. *Income* is defined as average renter household income in dollars for the calendar year prior to the census year, from all sources, before taxes.

These four indicators are general enough to make the index applicable to all Canadian cities at the census-tract level. This facilitates comparisons regardless of regional differences in the characteristics of rented dwellings and their occupants. The index can be expanded to include other indicators to suit various local contexts, depending on data availability. For example, the RHDI could also be calculated separately for a single CMA with a fifth indicator measuring concentrations of specific disadvantaged populations that experience societal discrimination (for example, Aboriginals in Winnipeg or Blacks in Toronto).

To calculate the RHDI, each indicator is standardized or transformed to a standard score (commonly known as a z-score) because they involve incompatible measures such as percentages and dollar amounts. Standard scores are calculated by subtracting a population mean from an individual raw score and then dividing the difference by the population standard deviation. Thus, a standard score indicates how far (in units of standard deviations) a census tract is from the mean, which is represented by a value of zero. For example, an RHDI of +1.1 is 1.1 standard deviations above the mean of zero.

Calculation of the income variable involves an extra step. Its standard scores are multiplied by -1.0 so that the inverted lower incomes contribute to higher disadvantage (that is, lower incomes have a higher positive standard score and higher incomes have a lower negative standard score). The last step to derive the RHDI for each census tract is to calculate the average of the four standardized scores.

An RHDI of zero means the renters in the census tract experience a degree of disadvantage equivalent to all renters in the CMA at large. An RHDI below zero indicates below-CMA-average disadvantage (not to be misinterpreted as "no disadvantage," which the index cannot determine). An RHDI above zero indicates above-CMA-average disadvantage. An RHDI value near zero may simply be the result of a combination of positive and negative indicator scores.

Comparison of the RHDI with Core Housing Need

There are a number of differences between the RHDI and CHN.

- 1. The RHDI is a rating of the degree of disadvantage experienced by *people* who rent housing. Unlike Core Housing Need, it is not a classification of the exact quantity and proportion of rented *dwellings* that are disadvantaged. Such a "disadvantaged/not disadvantaged" binary determination would require more detailed custom cross-tabulated census data with indicators that have a common metric.
- The RHDI uses a higher cut-off of affordability: 50% of income spent on rent versus 30% for Core Housing Need. We feel the 30% cut-off is too low, as it is quite common for renters in Canadian cities to spend 30% or more of their income on rent without experiencing serious hardship. For example, 46% of renters in Toronto in 2006 and 44% in Vancouver spend 30% or more of their income on rent.
- 3. The RHDI explicitly includes the income level of renters as one of the indicators; Core Housing Need considers income only indirectly to calculate affordability. Income was included directly by the RHDI because it affects the quality of life for renters in various ways independent of affordability stress.
- 4. For suitability, Core Housing Need uses a better indicator. Due to data limitations, the RHDI uses average number of persons per bedroom. This fails to take into account family status and living arrangements. Generally, the RHDI is biased towards single people living alone (lower disadvantage) rather than families (higher disadvantage). Despite this weakness, the RHDI is still a useful measure of the extent of disadvantage in rental housing and of the occupants of that housing.
- 5. The RHDI does not exclude households led by maintainer's age 15 to 29 years attending school full time. Therefore, RHDI areas with many university students may be rated as highly disadvantaged. By comparison, Core Housing Need considers these households to be in a transitional stage of life and not in core housing need.

A general limitation of the RHDI, like other census-based research, concerns the reliability of the long-form census itself (a 20% random sample of households) in which responses are self-reported. There is possible misreporting in the components of the indicators: income, household size, number of bedrooms, monthly rent, and need for major repairs. In particular, the tables and maps of the RHDI for this project are based on 2006 census data. We do not use the 2011 National Household Survey because of serious concerns about the reliability of its data.

Rental Housing Overview, Eight Census Metropolitan Areas

This study focuses on eight census metropolitan areas in Canada. Toronto, Montréal, Vancouver, Ottawa–Gatineau, and Calgary were chosen because they were the five largest CMAs in Canada by population in 2006. Winnipeg, Hamilton, and Halifax have smaller populations but are included for regional representation. These eight CMAs account for 47% of Canada's total population (see Table 1).

Table 1. Population Rankings, Eight CMAs 2006							
		Percent					
СМА	Population	of Canada					
Toronto	5,113,149	16.2%					
Montréal	3,635,571	11.5%					
Vancouver	2,116,581	6.7%					
Ottawa–Gatineau	1,130,761	3.6%					
Calgary	1,079,310	3.4%					
Winnipeg	694,668	2.2%					
Hamilton	692,911	2.2%					
Halifax	372,858	1.2%					
Total 8 CMAs	14,835,809	46.9%					
Canada	31,612,897	100%					

Source: Statistics Canada, Census Profile Series, 2006.

Table 2. Share of Rental Housing by Percentage in Eight CMAs, 2006									
			Share of						
СМА	Percent Rental	Total Rental	Canada's Rental						
Montréal	46.6%	711,435	18.3%						
Halifax	36.0%	55,850	1.4%						
Vancouver	34.9%	285,045	7.3%						
Ottawa–Gatineau	33.1%	148,690	3.8%						
Winnipeg	32.8%	92,450	2.4%						
Toronto	32.4%	584,130	15.1%						
Hamilton	28.4%	75,630	1.9%						
Calgary	25.9%	107,680	2.8%						
Total 8 CMAs	36.1%	2,060,910	53.1%						
Canada	31.2%	3,878,500	100%						

Source: Statistics Canada, Census Profile Series, 2006.

As indicated in Table 2, rental housing is most common in Montréal, at 47% of the total occupied dwellings, and least common in Calgary, at 26% of the total. In other words, 53% of housing in Montréal is occupied by homeowners compared with 74% in Calgary. Halifax is the smallest metropolitan area of the eight, yet it ranks second, at 36% rented occupied dwellings. Although Toronto is Canada's largest metropolitan area overall, it ranks sixth with 32% rental housing. These

eight CMAs have a disproportionate share of rental housing: together, they account for 47% of Canada's population, but 53% of Canada's rental housing.

Table 3. Population in Major Regions of the Toronto CMA, 2006							
		Share of					
Region	Population	Toronto CMA					
City of Toronto	2,503,281	49.0%					
CMA excluding City of Toronto	2,609,868	51.0%					
Peel Region	1,159,405	22.7%					
York Region	892,712	17.5%					
Suburbs (minus Peel and York)	557,751	10.9%					
Toronto CMA Total	5,113,149	100%					

Source: Statistics Canada, Census Profile Series, 2006

Table 4. Share of Rental Housing by Percentage in Major Regions of the Toronto CMA, 2006

			Share of
Region	Rental Percent	Rental Total	Toronto CMA
City of Toronto	45.6%	446,850	76.5%
CMA excluding City of Toronto	16.7%	137,280	23.5%
Peel Region	21.9%	78,595	13.5%
York Region	11.7%	32,360	5.5%
Suburbs (minus Peel and York)	14.1%	26,325	4.5%
Toronto CMA Total	32.4%	584,130	100%

Source: Statistics Canada, Census Profile Series, 2006

We also examine major regions within the Toronto CMA, because with 5.1 million people, it is by far the largest of Canada's CMAs (Table 1).

Most of the rented occupied housing in the CMA is concentrated in the City of Toronto, which has 77% of the CMA's rental total, but 49% of the population (Tables 3 and 4). Outside the City of Toronto, the suburban "905 region" has comparatively little rental housing, as homeownership is commonplace (83% of housing).

Peel Region is the largest suburban region, with 23% of the CMA population but only 14% of the CMA rental total. York Region is the second largest suburban region, with 18% of the CMA population but only 6% of the CMA rental total. Housing occupied by renters in the remaining suburbs (partially covering the Durham, Halton, Dufferin, and Simcoe census divisions) is even less common, with just 5% of the CMA total, as homeownership is the dominant housing tenure in these areas.

The RHDI in Eight Census Metropolitan Areas

The RHDI was first calculated for 3,107 (99%) of a total of 3,145 census tracts with at least some rental housing in the eight CMAs (data were not available for the remaining 38 CTs). Calculations are based on a custom census 2006 cross-tabulation involving the characteristics of renter-

occupied dwellings.² Since many of these CTs have a very small share of rented-occupied housing compared with owner-occupied housing, we decided to map and analyze a sample of 1,720 census tracts where rental housing makes up a substantial share of total occupied dwellings (defined as 25% or more rental or no more than 75% homeownership). The RHDI sample includes 1,765,425 rented occupied dwellings: 86% of total rented occupied dwellings in the 8 CMAs and 46% of Canada's rental total. Note, as shown in Table 2, that the 25% rental threshold is below the 36% rental share for all eight CMAs combined.

After limiting the sample to census tracts with only 25% or more rental housing, the next step was to categorize the RHDI distribution according to the degree of disadvantage. The lower the RHDI score, the lower the level of disadvantage. The higher the RHDI score, the more severe the disadvantage. The mean RHDI for all eight CMAs is zero when all rental housing is considered (the direct result of indicator standardization), rising to 0.24 once census tracts with less than 25% rental housing are filtered out (Table 5).

After examining the overall distribution of RHDI values in the sample, we classified each census tract as low disadvantage (RHDI below 0.26), moderate disadvantage (RHDI 0.26 to 0.50), or high disadvantage (RHDI above 0.50); 52% of the sample tracts were categorized as low disadvantage, 22% as moderate disadvantage, and 26% as high disadvantage.

Initially, we sorted the census tracts into five groups, using +1.0 and -1.0 as critical thresholds determining the highest and lowest levels of disadvantage (one standard deviation above or below the mean). These groups corresponded with percentiles, as the indicators for all renters were standardized to a normal distribution:

- the highest disadvantage cut-off of 1.0 standard deviation is equivalent to the 85th percentile (the top 15%);
- the mean RHDI of zero is equivalent to the 50th percentile (i.e. the median);
- the lowest cut-off of -1.0 is equivalent to the 15th percentile (the bottom 15%).

The initial five groups were reduced to three, as too few CTs were found to have very high disadvantage (RHDI above +1.0). This makes data analysis and mapping easier, with a focus on CTs with above-CMA-average disadvantage (RHDI values of 0.26 or higher). The high disadvantage cut-off of 0.51 is nearly equivalent to the 70th percentile (the top 30% in terms of rental disadvantage). The low disadvantage cut-off of 0.25 is nearly equivalent to the 60th percentile, and the moderate disadvantage range (0.26 to 0.50) is nearly equivalent to the 60th percentile range.

The distribution of rental disadvantage in the sample (after removing CTs with less than 25% rental housing) is not even across the eight CMAs and bears little association with the rankings by rental housing percentage (Table 5). The top three CMAs by highest mean RHDI in the sample are Hamilton (0.35), Ottawa (0.30), and Toronto (0.29). Rental housing neighbourhoods in those three CMAs are rated the most disadvantaged of the eight. In contrast, Montréal (0.19), Winnipeg (0.20), and Vancouver (0.20) show the least disadvantage among rental neighbourhoods, on average.

² Table reference E01790

Table 5. Distribution of Rental Housing Disadvantage in Eight CMAs, 2006

Figures limited to census tracts with 25% or more rental housing. Low disadvantage is RHDI below 0.26; Moderate is 0.26 to 0.50; High is above 0.50.

	Low	Low	Moderate	Moderate	High	High	Total	Mean
СМА	Total	Share	Total	Share	Total	Share	CTs	RHDI
Halifax	27	56%	7	15%	14	29%	48	0.22
Montréal	348	57%	119	19%	145	24%	613	0.19
Ottawa–Gatineau	47	40%	42	36%	27	23%	117	0.30
Toronto	209	44%	104	22%	166	35%	479	0.29
Hamilton	35	44%	22	28%	23	29%	79	0.35
Winnipeg	48	60%	14	18%	18	23%	80	0.20
Calgary	49	59%	19	23%	14	17%	83	0.22
Vancouver	138	62%	43	19%	42	19%	223	0.20
Sample Total CTs	901	52%	370	22%	449	26%	1720	0.24

Source: Statistics Canada, Census 2006 Custom Tabulation EO1790.

The average degree of disadvantage is a summary statistic that masks differences in the distribution of rental disadvantage within each CMA. As noted in Table 5:

- Low disadvantage is most commonly found among rental neighbourhoods in Vancouver (62%), Winnipeg (60%), and Calgary (59%).
- Moderate disadvantage is most common in Ottawa (36%), Hamilton (28%), and Calgary (23%).
- High disadvantage is most common in Toronto (35%), Halifax (29%), and Hamilton (29%).

Halifax appears to have the most bipolar distribution of renter disadvantage in the sample with 56% of CTs rated as low, 29% as high, and only 15% as moderate. This suggests there are two distinct rental neighbourhood groups in Halifax with little in-between.

Table 6. Distribution of Rental Housing Disadvantage in Major Regions of the Toronto CMA,2006

Figures limited to census tracts with 25% or more rental housing. Low disadvantage is RHDI below 0.26; Moderate is 0.26 to 0.50; High is above 0.50.

	Low	Low	Moderate	Moderate	High	High	Total	Mean
Region	Total	Share	Total	Share	Total	Share	CTs	RHDI
City of Toronto	139	36%	93	24%	152	40%	384	0.34
Suburbs Outside the City	71	74%	11	11%	14	15%	96	0.05
Peel Region	37	64%	8	14%	13	22%	58	0.18
York Region	16	80%	3	15%	1	5%	20	-0.05
Suburbs minus Peel and York	17	100%	0	0%	0	0%	17	-0.26
Toronto CMA Sample Total	210	44%	104	22%	166	35%	480	0.29

Source: Statistics Canada, Census 2006 Custom Tabulation EO1790.

In the City of Toronto, renters are much more disadvantaged than in the suburbs of the Toronto CMA. The City of Toronto's mean RHDI of 0.34 is 6.8 times higher than the suburban "905 region," which has a mean RHDI of 0.05 (Table 6). Renters in Peel Region are noticeably more disadvantaged than elsewhere in the "905 region." with a mean RHDI of 0.18, but they are still better off compared with renters in the City of Toronto. In York Region, the mean RHDI is -0.05, indicating below-average disadvantage. In the remaining outer suburbs, the mean RHDI is very low at -0.26.

In terms of the distribution of rental disadvantage, 40% of rental neighbourhoods in the City of Toronto have high disadvantage. This is more than double the percentage in the "905 suburbs" outside the City (40% vs. 15%). Renters within the City of Toronto appear to be polarized between low disadvantage (36%) and high disadvantage (40%), with only 24% in the moderate range.

In contrast, rental neighbourhoods in the "905 region" have mostly low disadvantage scores (74%) with few neighbourhoods in the moderate or high range, which occur solely in Peel or York Regions. Rental neighbourhoods in the remaining suburbs of the Toronto CMA (parts of Durham, Halton, Dufferin, and Simcoe regions) are all in the low disadvantage range. Renters living in these outer suburban renters are much better off compared with those in the City of Toronto, or the Regions of Peel and York.

Comparing Indicators of Disadvantage within Highly Disadvantaged Rental Housing Census Tracts

This section compares the indicators of disadvantage among those CTs with high-RHDI status within each CMA. As previously noted, these CTs scored a RHDI of 0.51 or higher and have 25% or more rental housing. This score is equivalent to the 70th percentile (the top 30% most disadvantaged census tracts). Table 7 provides the four indicator benchmarks for renters overall and Table 8 shows the unstandardized indicator means for high-RHDI CTs only.

СМА	Total Rental	Adequate Housing	Affordable Housing	Suitable Housing	Household Income
Halifax	55,850	9%	22%	1.06	\$37,000
Montréal	711,435	10%	18%	1.12	\$38,000
Ottawa	148,690	10%	19%	1.11	\$43,000
Toronto	584,130	10%	22%	1.44	\$46,000
Hamilton	75,630	11%	20%	1.11	\$39,000
Winnipeg	92,450	10%	15%	1.19	\$34,000
Calgary	107,685	9%	17%	1.05	\$49,000
Vancouver	285,045	9%	22%	1.31	\$45,000
Total: 8 CMAs	2,060,915	10%	20%	1.23	\$42,000

Table 7. Rental Housing Disadvantage Benchmarks for Rental Housingin Eight CMAs, 2006

Source: Statistics Canada, Census Custom Tabulation EO1790, 2006.

Table 8. Rental Housing Disadvantage Indicator, Unstandardized Meansfor High Disadvantage Census Tracts in Eight CMAs, 2006

Figures limited to census tracts with 25% or more rental housing. High disadvantage is RHDI > 0.50. Incomes shown are rounded.

	Total	Adequate	Affordable	Suitable	Household
СМА	Rental	Housing	Housing	Housing	Income
Halifax	13,405	12%	29%	1.09	\$32,000
Montréal	175,495	13%	23%	1.30	\$33,000
Ottawa	34,655	11%	23%	1.27	\$36,000
Toronto	183,495	13%	24%	1.59	\$38,000
Hamilton	20,760	14%	23%	1.22	\$31,000
Winnipeg	15,525	16%	18%	1.35	\$25,000
Calgary	22,215	9%	18%	1.22	\$48,000
Vancouver	60,025	10%	26%	1.59	\$34,000
Total: 8 CMAs	525,575	13%	23%	1.33	\$35,000

Source: Statistics Canada, Census Custom Tabulation EO1790, 2006.

- **Adequate housing** refers to the proportion of rental housing in need of major repairs. Rental housing in high-RHDI CTs is in the worst condition in Winnipeg (16%), Hamilton (14%), and Montréal (13%) and in the best condition in Calgary (9%), Vancouver (10%), and Ottawa-Gatineau (11%).
- **Affordable housing** refers to the percentage of occupants paying 50% or more of income on rent. Rental housing in high-RHDI CTs is the least affordable in Halifax (29%), Vancouver (26%), and Toronto (24%) and most affordable in Winnipeg (18%) and Calgary (18%).
- **Suitable housing** refers to the number of persons per bedroom in rental housing. Rental housing in high-RHDI CTs is the least suitable in Toronto (1.59), Vancouver (1.59), and Winnipeg (1.35) and most suitable in Halifax (1.09), Hamilton (1.22), and Calgary (1.22).
- **Household income** refers to the average income (from all sources, before tax) of renters. Rental households in high-RHDI CTs are most poor in Winnipeg (\$25,000), Hamilton (\$31,000), and Halifax (\$32,000) and the least poor in Ottawa–Gatineau (\$36,000), Toronto (\$38,000), and Calgary (\$48,000).

Next, we examine how the standardized indicators compare to each other for high-status RHDI CTs within each CMA.

Figure 1 plots the standard scores based on the values in Table 14 (in the appendix). The vertical scale measures the indicator standard scores which can take on positive (above-average) or negative (below-average) values in relation to the specific CMA's mean of zero (the original benchmarks for all renters are show in Table 7). For example, affordability is statistically the biggest problem faced by Halifax renters living in high-RHDI CTs versus renters in all other Halifax CTs, and adequacy is the smallest problem. These values are all fairly high, above 0.5 and below 1.0 standard deviation. The vertical scale can also be interpreted in terms of percentiles with 0.0 at the bottom equivalent to the 50th percentile (the median), 0.5 as the 70th percentile (the top 30%), and 1.0 as the 85th percentile (the top 15% of all renters).

With reference to Figure 1:

- Adequate housing refers to the proportion of rental housing in need of major repairs. Higher indicator scores on Figure 1 represent higher percentages of housing in poor condition for high-RHDI CTs in relation to other renters in the same CMA. Figure 1 shows that this indicator has the greatest statistical impact in Montréal, Toronto, and Halifax and a lesser impact in Ottawa, Calgary, and Vancouver. Compared with the other indicators on the same standardized scale, however, adequate housing scores appear to be the lowest of the four.
- Affordable housing refers to the percentage of occupants paying 50% or more of income on rent. Higher indicator scores represent higher percentages of renters experiencing affordability difficulty. This indicator is rated the highest in Halifax, Montréal, and Winnipeg and lowest in Calgary, Toronto, and Vancouver. Affordable housing scored as the second-highest indicator overall after suitable housing for high-RHDI CTs.
- **Suitable housing** refers to the number of persons per bedroom in rental housing. Higher indicator scores represent more crowded rental housing conditions. Figure 1 shows that this is the most severe indicator within high-RHDI CTs for seven out of eight CMAs. Suitable housing scores for seven CMAs are in the very high range above 1.0. Only in Halifax does another indicator (affordability) score higher than suitability. In Calgary, Vancouver, and Ottawa, there is a large gap between the severity of the suitable housing score and the other three indicators.
- Household income refers to the average income (from all sources, before tax) of renters. Higher indicator scores represent lower household incomes as the inversed incomes are used in the RHDI. Household income scores are in the middle of the pack within high-RHDI CTs. This indicator is highest in Winnipeg, Halifax, and Ottawa and lowest in Calgary, Vancouver, and Montréal.

Affordability and household income indicators in the RHDI may seem redundant, but they each make a unique contribution to the RHDI, as seen in Montréal and Toronto. Renters with a household income problem do not necessarily have an affordability problem as well.



Figure 1. Rental Housing Disadvantage Index by Standardized Indicator, High Disadvantage Census Tracts

In **Halifax**, the biggest problem for high-RHDI CTs is affordable housing, followed by suitable housing, household income, and adequate housing. These indicators score close together in the high range.

In **Montréal**, the biggest problem for high-RHDI CTs is suitable housing, followed by affordable housing, adequate housing, and household income. The scores for the four indicators are more spread out than in Halifax. The mean RHDI for high-RHDI CTs is highest in Montréal overall (0.89).

In **Ottawa-Gatineau**, the biggest problem for high-RHDI CTs is suitable housing, followed by affordable housing, household income, and adequate housing. The mean score for adequate housing is very low, near the CMA average of zero. There is a large gap between the mean suitable housing score and the mean adequate housing score.

In **Toronto**, the biggest problem for high-RHDI CTs is suitable housing, followed by adequate housing, household income, and affordable housing.

In **Hamilton**, the biggest problem for high-RHDI CTs is suitable housing, followed by affordable housing, household income, and adequate housing.

In **Winnipeg**, the biggest problem for high-RHDI CTs is suitable housing, followed by affordable housing, household income, and adequate housing.

In **Calgary**, the biggest problem for high-RHDI CTs by far is suitable housing, followed by affordable housing, adequate housing, and household income, which have mean scores in the low to moderate range. Suitable housing in high-RHDI CTs is only relatively high in the Calgary context, not absolutely high within the eight CMAs, since the mean persons per bedroom for all Calgary renters is very low (1.05; see Table 7). The mean RHDI for high-RHDI CTs is lowest Calgary overall (0.70) due to smaller households (less crowding), higher incomes, and newer housing in better condition.

In **Vancouver**, the biggest problem for high-RHDI CTs by far is suitable housing, followed by affordable housing, household income, and adequate housing. Vancouver appears to be similar to Calgary in terms of the relative severity of the four indicators.

Selected Characteristics of Highly Disadvantaged Rental Housing Census Tracts, 2006

The structural type of rental housing in high-RHDI CTs varies by CMA (see Table 9). In Montréal and Vancouver, high-RHDI housing is most likely to consist of low-rise apartments in buildings under five storeys. In Toronto, Ottawa, and Calgary, it is most likely to be found in high-rise buildings (five or more storeys). Ottawa is unusual for having a higher percentage (14%) of high-RHDI row housing compared with the other CMAs. Winnipeg appears to have the greatest structural diversity within high-RHDI CTs, with 29% existing in structural types such as single-detached houses, semi-detached houses, and movable dwellings.

Table 9. Rental Housing by Structural Dwelling Type,High-Disadvantage Census Tracts in Eight CMAs, 2006

Total Low-rise High-rise Other Row CMA **Apartments Apartments** Types Rental Housing Halifax 45% 13,405 38% 5% 12% 175,495 Montréal 70% 22% 1% 7% 34,655 Ottawa 22% 57% 14% 7% 183,495 69% Toronto 21% 4% 6% Hamilton 20,760 27% 52% 3% 18% 15,525 37% 29% Winnipeg 31% 2% Calgary 22,215 31% 53% 6% 10% 60,025 59% 31% 2% 8% Vancouver 525,575 44% 45% 3% Total: 8 CMAs 8%

Figures limited to census tracts with 25% or more rental housing. High disadvantage is RHDI > 0.50.

Source: Statistics Canada, Census Custom Tabulation EO1790, 2006.

Figures limited to census tracts with 25% of more rental housing. Figh disadvantage is RFDI > 0.50.								
	Total Built Before 1946 to 1961 to		1971 to	1981 to				
СМА	Rental	1946	1960	1970	1980	2006		
Halifax	13,405	14%	12%	22%	26%	25%		
Montréal	175,495	20%	28%	24%	14%	13%		
Ottawa	34,655	10%	16%	24%	27%	23%		
Toronto	183,495	11%	18%	30%	23%	18%		
Hamilton	20,760	26%	20%	22%	20%	10%		
Winnipeg	15,525	34%	20%	15%	17%	14%		
Calgary	22,215	6%	11%	22%	34%	26%		
Vancouver	60,025	13%	11%	21%	23%	31%		
Total: 8 CMAs	525,575	15%	20%	25%	21%	18%		

Table 10. Rental Housing by Periods of Construction, High-DisadvantageCensus Tracts in Eight CMAs, 2006

Figures limited to census tracts with 25% or more rental housing. High disadvantage is RHDI > 0.50

Source: Statistics Canada, Census Custom Tabulation EO1790, 2006.

Winnipeg has the oldest rental housing in high-RHDI CTs with 34% of the units built before 1946. Rental housing built in the 1950s is most commonly found in Montréal (28%), while the 1960s is Toronto's most prominent period of construction (30%). In the 1970s, rental housing construction shifted to Halifax (26%), Ottawa (27%), and Calgary (34%). For the most recent period (1981 to 2006), Vancouver has the highest percentage of high-RHDI housing built (31%).

The period of construction profile of high-RHDI CTs is related to the adequate housing indicator. Winnipeg's high-RHDI housing is the oldest and therefore in the worst physical condition (see Table 8), while Calgary and Vancouver have newer rental housing in better physical condition.

Table 11. Rental Housing by Age and Sex of Primary Household Maintainer,High-Disadvantage Census Tracts in Eight CMAs, 2006

Figures limited to census tracts with 25% or more rental housing. High disadvantage is RHDI > 0.50.

	Total			Age	Age	Age	Age	Age
СМА	Rental	Male	Female	18-24	25-34	35-44	45-64	65+
Halifax	13,405	47%	53%	19%	28%	17%	25%	11%
Montréal	175,495	54%	46%	9%	24%	21%	28%	17%
Ottawa	34,655	50%	50%	15%	25%	20%	28%	13%
Toronto	183,495	55%	45%	6%	21%	27%	32%	14%
Hamilton	20,760	53%	47%	9%	21%	22%	31%	17%
Winnipeg	15,525	49%	51%	12%	20%	22%	31%	15%
Calgary	22,215	59%	41%	14%	31%	19%	22%	14%
Vancouver	60,025	58%	42%	9%	23%	24%	31%	13%
Total: 8 CMAs	525,575	54%	46%	9%	23%	23%	30%	15%

Source: Statistics Canada, Census Custom Tabulation EO1790, 2006.

Table 11 shows distinct age and sex differences in household maintainers living in high-RHDI CTs between the eight CMAs. The Census 2006 dictionary defines a household maintainer as "the

person or persons in the household who pay the rent, or the mortgage, or the taxes, or the electricity, etc., for the dwelling. If no person in the household is responsible for such payments, Person 1 is considered to be the only household maintainer."

Household maintainers are most likely to be male in Calgary (59%) and Vancouver (58%) and female in Halifax (53%) and Winnipeg (51%). Young adults (18 to 24 years) were more likely to be living in high-RHDI CTs in Halifax (19%) and Ottawa (15%) than elsewhere. Maintainers age 25 to 34 were most concentrated in Calgary (31%) and Halifax (28%). Middle-older age adults age 45 to 64 are most common in Toronto (32%) followed by Hamilton, Winnipeg, and Vancouver (31% each). Seniors age 65 and over are most common in high-RHDI CTs in Montréal and Hamilton (both at 17%).

Table 12. Rental Housing by Household Family Types, High-Disadvantage Census Tracts inEight CMAs, 2006

Figures limited to census tracts with 25% or more rental housing. High disadvantage is RHDI > 0.50. Child status based on 18 years of age. "Family with child" includes both couples and lone parents.

			Couple			
		Family with	Family,	Multi-		Lone-Parent
СМА	Total Rental	Child	No Child	Family	Non-Family	Family
Halifax	13,405	15%	20%	2%	63%	11%
Montréal	175,495	20%	21%	4%	56%	10%
Ottawa	34,655	20%	20%	3%	56%	13%
Toronto	183,495	30%	22%	7%	41%	16%
Hamilton	20,760	22%	19%	4%	55%	14%
Winnipeg	15,525	25%	14%	6%	55%	19%
Calgary	22,215	12%	18%	4%	66%	5%
Vancouver	60,025	16%	21%	4%	59%	8%
Total: 8 CMAs	525,575	23%	21%	5%	52%	12%

Source: Statistics Canada, Census Custom Tabulation EO1790, 2006.

As Table 12 indicates, single-family households that rent, have at least one child under 18 years of age, and live in high-RHDI CTs are most common in Toronto (30%) and Winnipeg (25%) and least common in Halifax (15%).

Couple families with no children under 18 years of age present are most common in Toronto (22%) and least in Winnipeg (14%).

Multi-family households are most common in Toronto (7%) and Winnipeg (6%) and least common in Halifax (2%).

Non-family households consisting of single persons and non-couple persons sharing rent payments are highly concentrated in Calgary (66%) and less so in Toronto (41%).

Finally, lone-parent families, a subset of the families with children category, are highest in Winnipeg (19%) and Toronto (16%) and lowest in Calgary (5%) and Vancouver (8%).

Table 13. Rental Housing by Immigrant Status, Visible Minority Status, Aboriginal Status, and Mobility Status of Primary Household Maintainers, High-Disadvantage Census Tracts in Eight CMAs, 2006

Figures limited to census tracts with 25% or more rental housing. High disadvantage is RHDI > 0.50. Recent immigrants are maintainers who arrived 2001–2006. Immigrants and visible minorities are overlapping categories. Visible minority status excludes Aboriginals. Mobility status refers to household maintainers who changed place of residence in previous five years.

	Total		Recent	Visible		Mobility
CMA	Rental	Immigrants	Immigrants	Minorities	Aboriginals	Status
Halifax	13,405	9%	3%	15%	2%	71%
Montréal	175,495	43%	14%	33%	1%	57%
Ottawa	34,655	35%	9%	31%	2%	65%
Toronto	183,495	66%	17%	56%	1%	59%
Hamilton	20,760	31%	7%	21%	4%	63%
Winnipeg	15,525	24%	8%	21%	31%	67%
Calgary	22,215	30%	10%	25%	4%	78%
Vancouver	60,025	43%	12%	38%	5%	66%
Total: 8 CMAs	525,575	48%	14%	40%	3%	61%

Source: Statistics Canada, Census Custom Tabulation EO1790 and EO2359, 2006.

Toronto, Montréal, and Vancouver are Canada's top three destinations for new immigrants, many of whom are likely to be housed in high-RHDI CTs (see Table 13). In Toronto, 17% of rental households in Toronto's high-RHDI CTs have a recent immigrant maintainer who arrived between 2001 and 2006. By contrast, only 3% of rental households in Halifax's high-RHDI CTs have a recent immigrant maintainer. Immigrants overall, regardless of period of arrival, are a clear majority of households in Toronto's high-RHDI CTs (66%).

The visible minority population in high-RHDI CTs is particularly high in Toronto (56%) and Vancouver (38%). In Halifax, rental households in high-RHDI CTs are more likely to be maintained by visible minority persons than immigrants (15% vs. 9%), indicating that natural increase in Halifax plays a greater role than immigration in population change. In the seven other CMAs, the reverse is true.

Households maintained by persons who self-identified as Aboriginal are highest in Winnipeg's high-RHDI CTs (31%), with smaller shares in Vancouver (5%), Calgary (4%), and Hamilton (4%).

The propensity of renters in high-RHDI CTs to have moved from one dwelling to another within the previous five years (which could be in the same or in a different CT) is highest in Calgary (78%), Halifax (71%), and Winnipeg (67%). Meanwhile, renters in Montréal and Toronto have greater difficulty in relocating to alternative (possibly better-quality) housing, at 57% and 59% mobility rates, respectively.

While the RHDI uses average household income instead of "poverty" in its calculation, Figure 2 shows that the index does capture noticeably higher low-income rates (as measured by the Low-Income Measure or LIM) for highly disadvantaged census tracts compared with low to moderate disadvantage CTs. In high-RHDI CTs, low-income rates vary from a low of 49% in Vancouver up to 62% of rental households in Winnipeg. By contrast, the CTs with a low to moderate RHDI have

substantially lower low-income rates, varying from 37% in Montréal to 47% in Ottawa–Gatineau and Hamilton. Low-income status is not exclusive to high-RHDI status. Not all rental households living in high-RHDI CTs are low-income and not all low-income rental households are living in high-RHDI CTs.





Summary and Conclusion

The rental housing disadvantage index is a composite rating of neighbourhood (census tract) disadvantage consisting of four standardized indicators measuring housing adequacy, affordability, and suitability as well as household income.

The RHDI offers a complementary perspective to Canadian Housing and Mortgage Corporation's measure of Core Housing Need for neighbourhoods in Canadian cities. Although it is valuable to know how many renter households have and do not have adequate, affordable, and suitable

housing (the information provided by Core Housing Need), it is also constructive to recognize that there are different degrees of advantage and disadvantage faced by people who rent housing.

For every neighbourhood with at least some rental housing, the RHDI categorizes the level of disadvantage from lowest to highest based on how far the four indicators are from the situation of a typical renter in the metropolitan context at large. The highest disadvantage category chosen (RHDI of 0.51 or more) is nearly equivalent to the 70th percentile (the top 30% in terms of rental disadvantage) of CTs ranked by RHDI.

In this study, renter disadvantage by census tracts in eight Canadian census metropolitan areas in 2006, we found that highly disadvantaged CTs contained close to 526,000 rented dwellings, or 14% of Canada's total renter-occupied dwellings and 26% of the eight CMAs' total. Census tracts with an RHDI of 0.51 or more were most common in Toronto (35% of the sample), Hamilton (29%), and Halifax (29%) and least common in Calgary (17%) and Vancouver (19%). High-RHDI CTs are the most disadvantaged in Montréal (0.89), Winnipeg (0.83), and Halifax (0.80), with lower but still high levels in Calgary (0.70) and Toronto (0.74).

Suitability and affordability are generally the biggest problems faced by renters overall in high-RHDI CTs, followed by income and adequacy, with some differences in order among the CMAs. Maps of the locations of high-RHDI CTs reveal that rental housing disadvantage is largely a centralcity phenomenon, occurring throughout old inner-city and older suburban districts. Winnipeg and Hamilton are the only CMAs to show spatial clusters of disadvantage exclusive to inner-city areas. While aging rental housing in poor condition does contribute to high-RHDI status, adequacy has the least statistical impact on the RHDI, with suitability being the leading source of disadvantage.

In the eight metropolitan areas analyzed, most tenants of high-RHDI CTs lived in apartment buildings (90%), many of which were built before 1970 (60%). These dwellings are maintained by renters of all ages, both male and female, except for Calgary and Vancouver, where male maintainers are markedly over-represented. Non-family households are by far the most common household family type in high-RHDI CTs; however, there were concentrations of lone-parent families in Winnipeg and Toronto. Finally, high-RHDI CTs often house many immigrants, recent immigrants, and visible minorities, particularly in Toronto and Vancouver, which attract the most immigrants in all of Canada. Winnipeg's situation is unique for being the only CMA of the eight with a large Aboriginal population living in highly disadvantaged census tracts.

References

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NOTE: An appendix with additional tables, a chart, and maps of high RHDI in eight CMAs is available as a separate file.