The Rental Housing Disadvantage Index (RHDI)

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The RHDI is based on CMHC's conceptual definition and measurement of Core Housing Need. Core Housing Need (CHN) typically includes three measures: adequate, affordable and suitable housing. Conceptually, both the CMHC version of CHN and the RHDI index are based on these three measures but the measurement of CHN for RHDI differs from CMHC, primarily because we do not have access to the same level of detailed data. In addition to the three housing measures, the RHDI also includes average renter household income. The RHDI uses custom housing tenure data at the census tract level that was purchased by the NCRP under a previous SSHRC grant from Statistics Canada. Specific details are provided below.

1. The NCRP's Rental Housing Disadvantage Index

The RHDI is comprised of four indicators given equal weight:

1. *Adequate Housing*: Percentage rental requiring major repairs.

2. *Affordable Housing*: Percentage of renter households paying 50% or more of income on rent. This involves rent paid in the census year and the income from the previous calendar year.

3. *Suitable Housing*: Average number of persons per bedroom in rented dwellings.

4. *Income*: Average renter household income in dollars. This is income for the calendar year prior to the census year.

These four basic indicators are general enough to make the index applicable to all Canadian cities and for census tracts within these cities. This facilitates comparisons regardless of regional differences in the characteristics of the rental stock and is residents. The index can easily be expanded to include other indicators, depending on data availability.

To calculate the RHDI, each indicator is standardized, that is transformed to standard scores (commonly known as z-scores. The income variable has an extra step. Its standard scores are multiplied by negative one so that lower incomes contribute to a higher disadvantage measure in the index. The RHDI for each census tract is simply the mean of the four standardized indicators.

Standard scores are a dimensionless quantity obtained by subtracting the population mean from the individual raw score and dividing the difference by the population standard deviation. This is a necessary step because of the different metrics involved (dollars, ratio, percentage).

A standard score is the number of standard deviations an observation is above or below the mean. They have a mean of zero and a standard deviation of positive one or negative one. Positive scores are above the mean, negative values are below the mean.

An RHDI of zero means an average degree of disadvantage. An RHDI below zero indicates below average disadvantage (not to be misinterpreted as zero disadvantage). An RHDI above zero indicates above average disadvantage with values of 1.0 or higher indicating very high disadvantage.

2. CMHC's Definition of Core Housing Need

Source: http://cmhc.beyond2020.com/HiCODefinitions_EN.html

A household is said to be in Core Housing Need if its housing falls below at least one of the adequacy, affordability or suitability standards and it would have to spend 30% or more of its total before-tax income to pay the median rent of alternative local housing that is acceptable (meets all three housing standards).

- *Adequate housing* is reported by their residents as not requiring any major repairs.

- *Affordable housing* costs less than 30% of total before-tax household income.

- *Suitable housing* has enough bedrooms for the size and make-up of resident households, according to National Occupancy Standard (NOS) requirements.

A household is not in Core Housing Need if its housing meets all of the adequacy, suitability and affordability standards OR, if its housing does not meet one or more of these standards, but it has sufficient income to obtain alternative local housing that is acceptable (meets all three standards).

NOTE: Regardless of their circumstances, non-family households led by maintainers 15 to 29 years of age attending school full-time are considered to be in a transitional stage of life and therefore not in Core Housing Need.

3. Comparison of the RHDI with Core Housing Need

The RHDI was developed to identify areas with relatively high incidence of affordability, adequacy, suitability issues, as well as lower income, subjects that define Core Housing Need. Core Housing Need, however, is calculated at the individual household level and is not available for small geographic areas such as census tracts. The RHDI is calculated for geographic areas such as census tracts, not household-by-household. The affordability and suitability parameters are calculated slightly differently than in Core Need. The income parameter captures general prevalence of low income, but not whether the specific households that have affordability, adequacy, suitability issues are low-income.

In summary, there are a number of differences between the RHDI and CMHC's Core Housing Need.

1. The RHDI is a rating of the degree of disadvantage in rental housing with no minimum or maximum level. Unlike CHN, it is not a classification of how many and what share of rented dwellings / households are specifically disadvantaged. Such a determination would require more detailed custom cross-tabulated census data with indicators that have a common metric.

2. The RHDI uses a higher cutoff of affordability, 50% of income spent on rent versus 30% for CHN. We believe that the 30% cutoff is too low as many renters are now paying this much without experiencing great hardship.

3. For suitability, Core Housing Need is a better index. Due to data constraints, the RHDI uses average number of persons per bedroom that fails to take into account family status and living arrangements. Generally, the RHDI is biased towards single people living alone (lower disadvantage) and against families (higher disadvantage). Despite this weakness in one of the four indicators the RHDI is still a useful measure of disadvantage in rental housing and the occupants of that housing.

4. The RHDI does not exclude households led by maintainers age 15 to 29 years attending school full time. It is possible that areas with lots of university students renting may be rated as highly disadvantaged. In CHN, these households are considered to be in a transitional stage of life and not in Core Housing Need.

4. Limitations of the RHDI

A general limitation of the RHDI, like other census-based research, concerns the reliability of the Census (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, it should be noted that the tables and maps of the RHDI for this project are based on 2006 census data rather than the 2011 National Household Survey (NHS). Until demonstrated otherwise we have concerns about the reliability of the NHS.