

NHS DATA AND LOW-INCOME RESEARCH: A PRIMER

Produced by the [Surrey Poverty Reduction Coalition](#) January 2015

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MEASURING POVERTY

THE NATIONAL HOUSEHOLD SURVEY

In 2010, Statistics Canada introduced sweeping alterations to its census design and methodology, effectively splitting the Population Census into two distinct products: the voluntary National Household Survey (NHS), and the mandatory short-form Census. The NHS replaced what was known, prior to 2010, as the long census questionnaire, also widely known as Census Form 2B.

The NHS provides comprehensive information about the social, demographic and economic profile of Canadians and the dwellings in which they live. Like its predecessor, the NHS is a random sample survey administered to roughly 30% of all households in Canada.¹ But unlike the long-form census, the NHS is a voluntary survey and is thus subject to higher and more varied non-response rates.

At every stage of the data collection and reporting process, Statistics Canada has made considerable effort to ensure that 2011 NHS estimates are representative of the actual population, and in line with established data quality standards.² Nonetheless, there are a few points that need to be considered when using NHS statistics.

KEY POINTS ABOUT THE 2011 NHS

- 1) The 2011 NHS is prone to higher *non-response bias* than previous census years. Non-response bias occurs when a survey's non-respondents are different from its respondents.
- 2) Generally, the risk of error increases for lower levels of geography and for smaller populations. This is especially true for census-tract level data, and for minority groups.
- 3) Statistics Canada uses the *Global Non-response Rate* (GNR) as its primary tool for calculating the quality of NHS data. The GNR is a statistical weighted measure used to ascertain the level of non-response to the voluntary survey.

4) Users should always cite GNR measures when using NHS statistics, and read any quality notes that may be included in Statistics Canada dissemination products.

5) Statistics Canada finds it necessary to publicly suppress NHS data where the global non-response rate is 50% or more. Such data is deemed of insufficient quality. Note, however, that prior to 2011, thresholds for publication were set at 25% GNR (a more rigorous standard).³

6) The changes made to survey method and content affect the comparability of 2011 NHS data over time. Users must exercise great caution when comparing 2011 NHS data with previous census years, as *"it is impossible to determine with certainty whether, and to what extent, differences in a variable are attributable to an actual change or to non-response bias."*⁴

7) After a rigorous and complex assessment of the risk bias associated with NHS data, Statistics Canada ensures users that all published 2011 standard products do in fact meet statistical quality standards.

THE LOW-INCOME CUT-OFF (LICO)

LICO statistics are no longer available as a standard product from Statistics Canada, but are only being released upon request. Statistics Canada is discouraging users from using LICO for low-income analysis.⁴ The reasons provided include:

- LICO measures cannot be adequately compared to other household surveys such as the Labour and Income Dynamics (SLID) or the T1 Family File (T1FF), making attempts at data triangulation and validation impossible.
- 2011 LICO data suggest markedly different trends than those derived from other government surveys, but this difference cannot be properly validated or explained.
- To prevent misleading conclusions arising from comparisons of 2011 LICO data with earlier censuses.

¹ Statistics Canada (2013) *The 2011 NHS User Guide* Catalogue no. 99-011-x2011001.

² A variety of measures were taken to minimize inaccuracies, including follow-ups with non-respondents, imputation techniques that replaced invalid and missing responses with plausible values, weighted functions to calibrate sampled data against census totals, and a complex quality assessment process to test the reliability and consistency of NHS results. For more see Statistics Canada (2013) *The 2011 NHS User Guide* and Statistics Canada (2013) *The 2011 NHS: Data Quality and Confidentiality Standards and Guidelines* www12.statcan.gc.ca

³ Statistics Canada has increased the GNR threshold from 25% in 2006 to 50% in 2010 in light of the higher incidence of non-response which has resulted with having a voluntary survey. See Statistics Canada (2013) *The 2011 NHS User Guide* and Statistics Canada (2010) *The 2006 Census Dictionary* Catalogue no. 92-566-x.

⁴ Statistics Canada (2013) *The 2011 NHS User Guide*.

⁵ Statistics Canada (2013) *NHS 2011: Persons Living in Low-Income Neighbourhoods* Catalogue no. 99-014-x2011003.

NHS DATA AND LOW-INCOME RESEARCH: A PRIMER (CONT'D)

THE LOW-INCOME MEASURE (LIM)

With the new methodology of the NHS, Statistics Canada has identified the Low-Income Measure (LIM) as the best tool for the analysis of low income in Canada. This marks a significant change from previous census years when the Low-Income Cut-Off (LICO) was used as the standard measure for studies on poverty.⁶

According to Statistics Canada, the Low Income Measure (LIM) is better suited to the analysis of low income in the NHS because the threshold level of income below which one is considered to have low income is itself derived from the households that responded to the survey.⁷

Three key characteristics help describe the LIM:

- *A household has low income if its income is less than half of the median income of all households.*
- The LIM is adjusted for household size but not for geographic area.
- The LIM comes in two measures “after tax” and “before tax” (LIM-AT and LIM-BT).

THE LIMITS OF NHS DATA FOR LOW-INCOME STUDIES

Statistics Canada explicitly states that, in light of the changes made to census methodology, “2011 NHS data on low-income is **not** comparable to census data of previous years.”⁸ However, Statistics Canada does ensure that it is statistically valid to compare 2011 low-income data across population groups and across geographic areas for that same year, that is for 2011.

REFERENCE DOCUMENTS

- Statistics Canada (2013) *The 2011 NHS User Guide* Catalogue no. 99-011-x2011001.
- Statistics Canada (2013) *NHS 2011: Persons Living in Low-Income Neighbourhoods* Catalogue no. 99-014-x2011003.
- Statistics Canada (2013) *The 2011 NHS Dictionary* Catalogue no. 99-000-x2011001
- Statistics Canada (2013) *NHS 2011: Income Reference Guide* Catalogue no. 99-014-x2011006.
- Statistics Canada (2013) *The 2011 NHS: Data Quality and Confidentiality Standards and Guidelines* www12.statcan.gc.ca
- Statistics Canada (2010) *The 2006 Census Dictionary* Catalogue no. 92-566-x

⁶ Statistics Canada (2013) *The 2011 NHS Dictionary* Catalogue no. 99-000-x2011001.

⁷ Statistics Canada (2013) *NHS 2011: Persons Living in Low-Income Neighbourhoods*.

⁸ Statistics Canada (2013) *NHS 2011: Income Reference Guide* Catalogue no. 99-014-x2011006.