



Appendix I

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The principal data set for the NYC Opportunity poverty estimate is the American Community Survey (ACS) Public Use Micro Sample (PUMS). The ACS is designed to sample approximately 3 percent of United States households each year. The PUMS is a subset of the full ACS sample. It provides information annually collected from roughly 26,000 households in New York City. Because the ACS is a survey, it is subject to two types of error: non-sampling error and sampling error.

Non-sampling Error: Non-sampling error is the error within survey data that is not specifically associated with the statistical sampling procedures of the sample data. Examples of non-sampling error include erroneous responses by survey respondents or mistakes in the processing of the data by the U.S. Census Bureau, such as when data are edited or recoded.

Non-sampling error may affect the data in two ways: either randomly, which increases the variability of the data, or systematically, which introduces bias into the results. To minimize bias in the survey, the Census Bureau conducts extensive research of sampling techniques, questionnaire design, and data collection and processing procedures.¹

Sampling Error: Sampling error occurs in the ACS, as in other sample survey data, because inferences about the entire population, such as the poverty rate for New York City, are derived from a sample of individuals and housing units. Another sample drawn from the same population would provide a different estimate of the poverty rate. The sampling error is estimated by the standard error, which can be thought of as a measure of the deviation of an estimate drawn from one sample from the average estimate of all possible samples.

¹ A relevant example related to SNAP reciprocity can be found in: John Hisnanick, Tracy Loveless, and John Chesnut, "2006 American Community Survey Content Test Report H.6: Evaluation Report Covering Receipt of Food Stamps, Final Report." U.S. Census Bureau. January 3, 2007. https://www.census.gov/content/dam/Census/library/working-papers/2007/acs/2007_Hisnanick_01.pdf

For this report NYC Opportunity employed the replicate weight method recommended by the Census Bureau to compute standard errors for our estimated poverty rates. The standard errors provide a measure of sampling error and some types of non-sampling error.² Using the standard errors, we tested the statistical significance of differences and changes in the report's poverty rates at the 10 percent level of significance. In the report's tables we use bold font and asterisks to highlight statistically significant differences between poverty rates over one-year and five-year time periods.

An additional source of error in the data results from NYC Opportunity's need to impute information on items such as the value of Supplemental Nutrition Assistance Program (SNAP) benefits, housing status, childcare expenditures, and medical out-of-pocket expenditures from other survey data into the ACS sample. We do not, however, account for the associated imputation error in this report.

Changes to the Poverty Model in This Report

The data shown here for 2013–2017 are slightly different from what was reported in previous releases of this report. Changes are due to the inclusion of more recently available data, changes in data used for imputation estimates, as well as changes in methodology that require updating of prior year imputations. These changes include:

- The SNAP imputation was changed to include additional data from the NYC Department of Social Services, and additional household characteristics were added to matching criteria.
- Imputation of heating assistance benefits (HEAP) was expanded to include benefits to homeowners. Heating Equipment Repair and Replacement (HERR) benefits were included in heating assistance payments.
- A redesign of the Survey of Income and Program Participation (SIPP) by the Census Bureau necessitated a revision of childcare cost estimates and creates a break in the continuity of childcare estimates beginning in 2013.
- Estimates of medical out-of-pocket (MOOP) expenditures included changes to the public premium imputation.
- The 2017 MOOP estimates were revised to include the 2017 Medical Expenditure Survey Panel (MEPS). The 2017 MOOP was previously estimated using the 2016 MEPS, the most recent available at the time of publication.

Further information on changes can be found in the relevant appendices.

² U.S. Bureau of the Census, Public Use Microdata Sample (PUMS) Accuracy of the Data (2018). https://www2.census.gov/programs-surveys/acs/tech_docs/pums/accuracy/2018AccuracyPUMS.pdf