New York City Government Poverty Measure 2005–2016

An Annual Report from the Office of the Mayor

Appendix I:
Accuracy of the Data

Mayor's Office of Operations
The City of New York
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NYC
Opportunity

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Accuracy of the Data

The principal data set for NYC Opportunity poverty estimates is the American Community Survey (ACS) Public Use Micro Sample (PUMS). The ACS is designed to sample 3 percent of U.S. households each year and the PUMS is a subset of the full ACS sample. It provides information collected from roughly 26,000 households in New York City annually. 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 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. For instance, after identifying a systematic underreporting of Supplemental Nutrition Assistance Program (SNAP) receipt and benefit dollar values in the ACS, the Census Bureau researched methods to increase the reported participation rate. The Census Bureau concluded through this research that changing the SNAP question to include the words "SNAP benefit card," as well as not asking about the SNAP benefit value, would significantly increase the number of households responding to whether they have received SNAP.[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

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[1] John Hisnanick, T. Loveless, and J. Chesnut. U.S. Bureau of the Census. 2006 American Community Survey Content Test Report H.6- Evaluation Report Covering Receipt of Food Stamps. January 3, 2007. See: https://www.census.gov/content/dam/Census/library/working-papers/2007/acs/2007_Hisnanick_01.pdf

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.

For this report, NYC Opportunity employed the replicate weight method recommended by the Census Bureau to compute direct 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 highlight, using bold font and asterisks, 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 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.

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2. U.S. Bureau of the Census. PUMS Accuracy of the Data (2016). Available at: https://www2.census.gov/programs-surveys/acs/tech_docs/pums/accuracy/2016AccuracyPUMS.pdf