Appendix E

Estimating the Value of Nutritional Assistance

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Supplemental Nutrition Assistance Program (SNAP)

The very limited data in the American Community Survey (ACS) about Supplemental Nutrition Assistance Program participation causes several issues to arise. First, starting with the data year 2008, the ACS only indicates whether a member of a household received SNAP benefits at any time in the prior 12 months. It provides no information on the value or duration of the benefit; that amount must be estimated. NYC Opportunity makes use of administrative data from the NYC Department of Social Services (DSS) to generate such an estimate. Second, imputing the data into the ACS presents some difficulties. SNAP participation at the household level is reported in the ACS as all the people who share residence in a housing unit. A SNAP case, by contrast, includes only those household members who purchase and prepare food in common. This distinction shows up clearly in the data. In 2018, for example, the average New York City SNAP case had 1.82 members while the average ACS household reporting SNAP receipt had 2.81 members. Finally, there is the problem of underreporting of program participation by ACS respondents.

NYC Opportunity remedies these issues by imputing SNAP values through the following steps:

1. Creating SNAP units within ACS households and simulating program rules to identify potentially eligible SNAP units in the ACS

2. Estimating the predicted value of annual SNAP benefits that provide matching distance between ACS and administrative SNAP households

3. Matching the ACS SNAP households to administrative SNAP cases using the nearest neighbor algorithm while ensuring that the statistical property of administrative SNAP data is replicated in the ACS

Starting with this year's report we implemented two notable changes to the imputation process. We have included one-time SNAP benefits for the years 2017 and 2018, based on advice from DSS. These are benefits granted while eligibility is being determined and comprise a share of annual SNAP allotments that should be included in the total value of this benefit.[1] In addition, we have expanded the matching criteria for 2013–2018 to include the presence of children and elderly in the household.

These two changes create breaks in our historical data series and we urge caution in interpreting time trends in our SNAP data. Further details of the changes are provided in the sections below.

Creating SNAP Units

To create units commensurable to administrative data, NYC Opportunity developed a method to divide ACS households into the maximum number of "SNAP units" allowed by program rules. The following rules determine who in a household must be in the same SNAP case:

1. Spouses
2. Parents and children under 22, including spouses of these children, and grandchildren
3. A child under 18 living with, and under the parental control of, an adult that provides 50 percent or more of the minor child's support
4. Anyone else in the household who purchases and prepares food together

The first three rules noted above are based on familial relationships within the household. To supplement relationship data in the ACS we use the concept of the minimal household unit, which is designed to parse an ACS household into its smallest family units.[2] The program loops through the data, linking individuals within the household by kinship and marriage. This work creates SNAP units that conform to the first three rules. There is no information in the ACS about who in the household is purchasing and preparing food together. NYC Opportunity does not attempt to model this relationship but instead creates the maximum number of hypothetical SNAP units within each household allowable under SNAP rules.

The size and composition of SNAP cases produced with this method accurately reproduces the number of cases reported in the administrative data. In 2018, for example, the proportion of single-person SNAP cases created (65.8 percent) is quite close to the proportion of single-person cases in the administrative data (58.5 percent, data not shown in tables). Using the SNAP unit rather than the ACS

1 See discussion of Figure E.2, below, for the difference this method makes and our plans to update data for years prior to 2013.

2 See Jeffrey Passel, "Editing Family Data in Census 2000 Public-Use Microdata Samples: Creating Minimal Household Units (MHUs)." August 2002.

household also increases the estimated number of SNAP cases in the 2018 ACS from the self-reported total of 607,632 (57.8 percent of the administrative total) to 1,394,873 (132.8 percent of the total administrative cases with complete information). The total number of these units ultimately assigned SNAP values is determined in the matching process. (See Table E.1.)

Estimating SNAP Values

Once commensurable units are created, we begin the SNAP value estimation process by compiling administrative data on SNAP cases in New York City from the DSS internal database. The data include all cases in New York City that were active for any period between July and June of the appropriate year, including issuance of one-time benefits. This period is chosen because it represents the midpoint in the ACS rolling sample, helping to ensure that the timeframe for the administrative data is comparable to the ACS data. The administrative data set contains demographic information about SNAP case heads and their families, as well as relevant budget information such as household income. For each case we sum the total amount of SNAP payments over the reference period.

The reference period of July 2017 to June 2018 included a total of 1,249,259 administrative cases. However, a small subset of these cases lack the key variables needed for imputation (e.g., community district of residence) or simply are not included in our poverty universe (e.g., SNAP recipients in group quarters). Those cases are screened out of the final administrative data set. Using these data, we developed a regression model that employs the demographic characteristics present in both the administrative and ACS data sets to predict the yearly value of SNAP payments to families in New York City.

We focus on variables that are strongly predictive of SNAP benefits and for which high quality data exist in both the ACS and the administrative data sets. Case size is, unsurprisingly, the strongest predictor of benefit level. Further, the number of children, and the dummy variables for elderly case head and elderly or disabled member in the case, are also predictive of the benefit level. This is partly because these groups tend to have longer spells of benefit receipt since they are not subject to work requirements. Age of the case head is included as a proxy for factors such as work status.[3] The coefficient on the age of the case head is positive even when controlling for elderly status. This may be because the probability of employment among low-income New Yorkers declines after age 50, which would lead to an increasing benefit with age in the administrative data that are independent of elderly status.

3 The New York City administrative database does contain information on work status of SNAP recipients, but these data generally contain large numbers of missing observations. As a result, we use age as a proxy for work status in the regression model.

The ACS and administrative data are constructed differently and are designed for different purposes, a fact that complicates the development of a regression model. This is a particular issue with regard to measuring income, an important determinant of benefit levels. While the ACS reports yearly cash income from all sources, the administrative data only contain the monthly income reported on the SNAP application. This creates two challenges. First, families often apply for SNAP after an income shock such as a job loss, which yields a potentially biased estimate of the family's income over the past year. Second, SNAP applicants are allowed to make deductions from their gross income to qualify for the program, further complicating comparisons of the two variables.

To address the comparability issue, we construct a net income measure in the ACS that represents an estimate of what a SNAP unit would report on a SNAP application. We aggregate personal income to the SNAP unit and divide it by 12 to get a monthly estimate. We then apply the various income deductions allowed on the SNAP application, including a standard deduction and deductions for childcare expenses and medical expenses for elderly applicants.

The constructed net income measure has a similar distribution to that of the income reported in the administrative data, with positive values beginning at the 75th percentile. Given the highly skewed nature of the distribution, where most observations have a value of 0 a linear model would produce incoherent results. Instead, we convert the income data into a variable with three categories: 1) income between 0 and the 74th percentile (intercept); 2) income between the 75th and 89th percentile; and 3) income at or above the 90th percentile. We tested numerous regression specifications and evaluated them based on fit. The final model is generally consistent over the years 2005–2018, as shown in Table E.2.

We next match the administrative data into the ACS through a predictive mean match (PMM).[4] First we use the regression coefficients to estimate SNAP values for observations in the ACS and in the administrative data. These ACS and administrative cases are then matched using a nearest neighbor algorithm, whereby an ACS case is matched with the administrative case that has the closest estimated value. There is an added constraint of both host and donor cases being in the same allocation cell, defined as a combination of community district of residence and the presence of children and elderly in the household.[5] This additional match criterion is designed to preserve the geographic and demographic distribution of SNAP recipients. The ACS case is then given the actual SNAP value from the administrative case. Once an administrative case donates its value to an ACS case it is removed from the donor pool. As Figure E.1 illustrates, the PMM method reproduced the actual distribution of SNAP benefits.

4 See Sharon O'Donnell and Rodney Beard, "Imputing Medical Out-of-Pocket (MOOP) Expenditures using SIPP and MEPS," 2009, for an application of this method in a similar context: https://www.census.gov/library/working-papers/2009/demo/odonnell-01.html

5 The ACS Public Use Micro Sample Areas (PUMAs) are approximations of New York City's Community Districts.

Table E.3 illustrates how well our SNAP imputation replicates the joint distribution of SNAP and other important demographic characteristics – which is crucial to our accurate classification of the poor. Panel A of Table E.3 suggests that our approach under-allocated the receipts to households with children but assigned slightly higher SNAP values than those in administrative data. All together the imputation yielded aggregate SNAP values in the ACS that match values in administrative data (101 percent of the administrative aggregate values). On the other hand, Panel B of Table E.3 shows that our method over-allocated SNAP receipts to households with elderly or disabled members (14 percent higher than the administrative data). With no sign of overstatement of SNAP values received, aggregate total SNAP values for this group were rendered 20 percent higher in the ACS than in the administrative data.

Trends in total SNAP benefit amounts from 2005 to 2018 are shown in Figure E.2. Administrative data on SNAP indicate that total SNAP benefits distributed in NYC doubled between 2008 and 2013 and have steadily declined since. The rapid rise between 2008 and 2013 corresponds with the beginning of the Great Recession and subsequent economic stimulus programs put in place at the time. NYCgov SNAP data track the overall time trend but appear to diverge greatly from administrative data for the years 2010–2012. During this timeframe, NYCgov SNAP data leveled off before sharply increasing in 2013. The pattern reflects a break in our data series due to the previously mentioned methodology updates. Most noteworthy in this time trend comparison is that with the use of the new imputation method, the gap between administrative and NYCgov data is much narrower. Our next report will extend the new method to all years in our data series, extending back to 2005.

Subsidized School Meals

The National School Lunch Program (NSLP) and the School Breakfast Program (SBP) offer free and reduced-price meals to low-income students. Both breakfast and lunch have been provided free to all New York City public school students since September 2017. Prior to that, free lunches were provided to children with family income below 130 percent of the poverty guidelines (sometimes referred to as the federal poverty level or FPL). Reduced-price lunches were provided to children with family income between 130 and 185 percent of the FPL. Free breakfast has been served in New York City public schools since 2003.[6] The ACS does not contain information on whether children receive free or reduced-price school meals; therefore, we use a regression-based imputation method to augment the missing information on children's participation in the subsidized school meal program.

6 Our estimates of the benefit of school meals include the free/reduced-price costs in relevant calendar years as well as Provision 2 of the NSLP in years prior to 2017. (Provision 2 is further discussed below). For 2017 and subsequent years, students eligible for reduced-price lunch were categorized as receiving free lunch for the entire school year.

Our predictive model of program participation is built using New York State families that are included in the Census Bureau's Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS). The CPS is a survey at the national level with a very limited sample for local areas. We pool six years of data to muster a sufficiently large number of observations. For this report's analysis we use the 2014 through 2019 ASEC, which provides information on participation from 2013 through 2018. The model's householder characteristics and household variables, as well as their coefficient values and their statistical significance, are provided in Table E.4.

In the ACS, we flag as eligible for free or reduced-price meals poverty units with school-age children[7] that have incomes below 185 percent of the FPL or receiving SNAP benefits, or those with a member receiving public assistance. We then apply the model's coefficients to calculate each eligible poverty unit's probability of participation. These values fall between 0 and 1, with 1 being the highest probability of participation. Once probability is calculated, we use New York City Department of Education (DOE) administrative data as our target number for assigning participation.

For data years 2012–2016, our estimates also account for those students that participated in Provision 2 of the NSLP. The program reduces the administrative cost of determining eligibility by allowing schools to provide universal free lunch, regardless of eligibility, for up to four years. Provision 2 required us to assign free meal values to some students who – given their families' income – would otherwise be receiving reduced-price school meals. However, we still estimate the number of children receiving reduced-price meals in order to match DOE accounting of meals received. Table E.5 compares the NYCgov measure's modeled estimates of participation in the two school meal programs with the administrative data. As the table illustrates, the overall performance of our approach appears to be satisfactory. It successfully replicated the administrative distribution of receipts by grade level for each program except for elementary school age children participating in the free school lunch program (about 30 percent lower than the administrative total).

The final step in our modeling is to assign a dollar value to each free and reduced-price meal received in a year. For 2018, free lunch was valued at $3.50. For free breakfast value we use $1.75.[8] We assume that students receive 175 school meals per year.[9] Table E.6 provides the estimated number of families receiving a free or reduced-price school meal and the mean, median, and sum of the school meal value for 2018.

The addition of school meals to family resources decreases the citywide poverty rate by 0.6 percentage points, as illustrated by Table E.7. The effect is much larger for persons in families receiving school meals, a 3.0 percentage point decrease.

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7 Children were defined as school age if they were 5 years of age or older and less than 18.

8 This is the "Non-severe Need" value of a free school breakfast for the school year 2017–2018, provided by the Food and Nutrition Service, USDA. See: https://www.federalregister.gov/documents/2017/07/28/2017-15956/national-school-lunch-special-milk-and-school-breakfast-programs-national-average-paymentsmaximum

9 The school year is required to be no less than 180 days; we used 175 days to account for occasional absences.

Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)

The Special Supplemental Nutrition Program for Women, Infants, and Children provides support for low-income pregnant and breastfeeding women, plus infants and children, who are at nutritional risk. To account for this additional income, we include the value of WIC benefits in our measure of family income.

As with the school meals programs, participation in WIC is not included in the ACS. Additionally, not every eligible family participates in the WIC program. Using the 2013–2019 CPS ASEC, we model participation with a similar statistical match. The model's householder characteristics and household variables, as well as their coefficient values and their statistical significance, are provided in Table E.8. For more detailed information about our methodology, see Appendix E of an earlier NYC Opportunity report on poverty, 2005–2010.[10]

After identifying WIC participants we assign an annual benefit value of $630.24, which is the annualized U.S. Department of Agriculture (USDA) Food and Nutrition Services average monthly WIC benefit for New York State residents.[11] We then aggregate all individual WIC benefits to arrive at a family benefit value. Table E.9 shows that $630 is also the median benefit per family, indicating that the majority of poverty units contain only one WIC recipient.

The addition of WIC benefits to resources has a negligible effect on the citywide poverty rate: a 0.2 percentage point fall, as Table E.10 indicates.[12] However, for families receiving WIC the poverty rate drops by 2.6 percentage points. Prior to 2010, the effect of WIC on the poverty rate was small. For the years 2005 to 2009, the poverty rate would have been 0.1 percent higher if not for WIC benefits. However, with new administrative data available from New York State for data years beginning with 2009, the impact of WIC is to decrease poverty by an average of 0.3 percentage points.

Impact of Nutritional Assistance on the NYCgov Poverty Rate

Nutritional assistance is an important component of NYCgov income and has a considerable impact on the poverty rate. Table E.11 pulls together the effects of SNAP, school meals, and WIC programs on the NYCgov poverty rate for the years 2014–2018. SNAP accounts for the bulk of the impact of nutritional assistance, reducing poverty by 3.7 percentage points in 2018. School meals and WIC have more modest impacts for the city as a whole at 0.6 and 0.2 percentage points, respectively. This is unsurprising, given that the latter two programs are targeted toward specific populations while SNAP is more broadly available.

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11 The average monthly WIC benefit for New York State residents for fiscal year 2018 is $52.52. We assume that WIC recipients participate for 12 months. This overstates the value of the benefit, but given the program's modest effect we do not believe we have introduced much distortion in our poverty estimates. See USDA Food and Nutrition Service data at: http://www.fns.usda.gov/pd/wic-program

12 This echoes the effect of WIC benefits for the nation in the new Federal Supplemental Poverty Measure. See Kathleen Short, "The Research on Supplemental Poverty Measure, 2010." U.S. Census Bureau, Current Population Reports, Consumer Income, pp. 60–241. U.S. Government Printing Office, Washington, DC. November 2011.

Table E.1

Percentage Distribution of SNAP Cases by Size, 2018

	ACS Households		NYCgov SNAP Units		Administrative Cases	
Size	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	193,664	31.9	902,937	65.8	614,704	58.5
2	140,797	23.2	230,921	17.0	214,492	20.4
3	96,517	15.9	117,022	8.2	113,633	10.8
4	66,256	10.9	75,369	4.9	60,149	5.7
5	53,250	8.8	44,928	2.6	26,274	2.5
6	26,640	4.4	16,002	1.0	10,667	1.0
7	14,643	2.4	6,422	0.4	4,679	0.4
8	6,030	1.0	1,272	0.1	2,560	0.2
9	3,616	0.6	0	0.0	1,604	0.2
10 or More	6,219	0.0	0	0.0	1,884	0.2
Total	**607,632**	**100.0**	**1,394,873**	**100.0**	**1,050,646***	**100.0**

Sources: New York City Department of Social Services and the American Community Survey (ACS) Public Use Micro Sample as augmented by NYC Opportunity.
* Excludes incomplete records and cases in group quarters for the purpose of imputation (see text for full explanation). Note that the total number of administrative SNAP households issued payments during the period July 2017 to June 2018 were 1,249,250.

Table E.2

Regression Model to Predict Yearly SNAP Benefit Value, 2005–2018

Variable	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Intercept	-393.60 [-7.85]	-394.60 [-7.82]	-411.40 [-7.98]	-472.90 [-9.12]	-615.10 [-12.35]	-748.10 [-14.23]	-638.20 [-12.93]	-942.70 [-19.42]	-956.17 [-42.23]	-877.30 [-40.12]	-853.60 [-37.53]	-951.80 [-39.5]	-1003.00 [-43.48]	-923.60 [-39.52]
Income between 75th and 89th Percentile	-215.30 [-12.54]	-173.30 [-10.06]	-195.40 [-10.8]	-128.80 [-6.96]	-609.90 [-32.62]	-498.60 [-25.79]	-451.00 [-25.14]	-575.80 [-31.88]	-440.51 [-53.44]	-447.50 [-57.59]	-527.70 [-65.96]	-594.30 [-71.35]	-578.20 [-71.29]	-586.90 [-72.24]
Income at or above 90th Percentile	-1376.00 [-61.3]	-1375.00 [-60.47]	-1427.00 [-62.06]	-1435.00 [-60.85]	-1675.00 [-73.12]	-1826.00 [-73.94]	-1795.00 [-76.16]	-1830.00 [-82.42]	-1733.14 [-162.03]	-1674.00 [-166.88]	-1714.00 [-165.71]	-1811.00 [-167.72]	-1848.00 [-176.08]	-1854.00 [-175.79]
Household Size	849.20 [101.48]	846.10 [102.01]	829.60 [95.88]	838.80 [93.62]	1037.00 [115.21]	1251.00 [132.68]	1209.00 [133.57]	1245.00 [142.74]	1276.02 [319.32]	1158.00 [302.04]	1137.00 [283.06]	1164.00 [260.55]	1161.00 [262.65]	1137.00 [253.3]
Number of Children	110.90 [15.01]	111.50 [14.97]	136.90 [17.25]	169.10 [20.23]	164.90 [19.67]	163.20 [18.54]	161.30 [18.95]	154.20 [18.75]	101.50 [27.29]	151.90 [41.83]	139.20 [36.11]	158.80 [36.37]	160.20 [36.58]	147.60 [33.01]
Elderly Household Head	74.73 [2.6]	47.37 [1.65]	59.19 [2.01]	32.12 [1.08]	53.26 [1.75]	98.18 [3.04]	54.00 [1.76]	-0.25 [-0.01]	28.08 [2.16]	27.20 [2.28]	29.92 [2.51]	4.56 [0.38]	-31.90 [-2.73]	5.94 [0.52]
Elderly or Disabled Person in Unit	75.33 [4.54]	57.89 [3.44]	146.70 [8.54]	138.90 [7.97]	322.20 [18.84]	449.20 [25.13]	426.70 [24.81]	414.20 [25]	486.17 [63.04]	411.90 [56.71]	402.50 [53.51]	411.90 [52.24]	393.30 [50.6]	442.30 [56.42]
Age of Household Head	18.99 [9.2]	21.33 [10.33]	21.10 [9.96]	23.65 [11.09]	28.16 [13.38]	36.48 [16.16]	33.66 [15.95]	42.05 [20.54]	41.26 [43.89]	40.24 [45.12]	37.29 [40.98]	40.95 [42.96]	40.56 [44.45]	37.79 [41.27]
Age of Household Head Squared	-0.13 [-5.86]	-0.14 [-6.63]	-0.14 [-6.36]	-0.16 [-7.19]	-0.20 [-9.08]	-0.29 [-11.97]	-0.24 [-10.82]	-0.30 [-14.05]	-0.30 [-31.12]	-0.29 [-31.75]	-0.25 [-27.99]	-0.28 [-30.29]	-0.26 [-29.6]	-0.25 [-28.46]
R^2	0.58	0.57	0.56	0.54	0.59	0.60	0.58	0.59	0.56	0.58	0.56	0.56	0.56	0.54

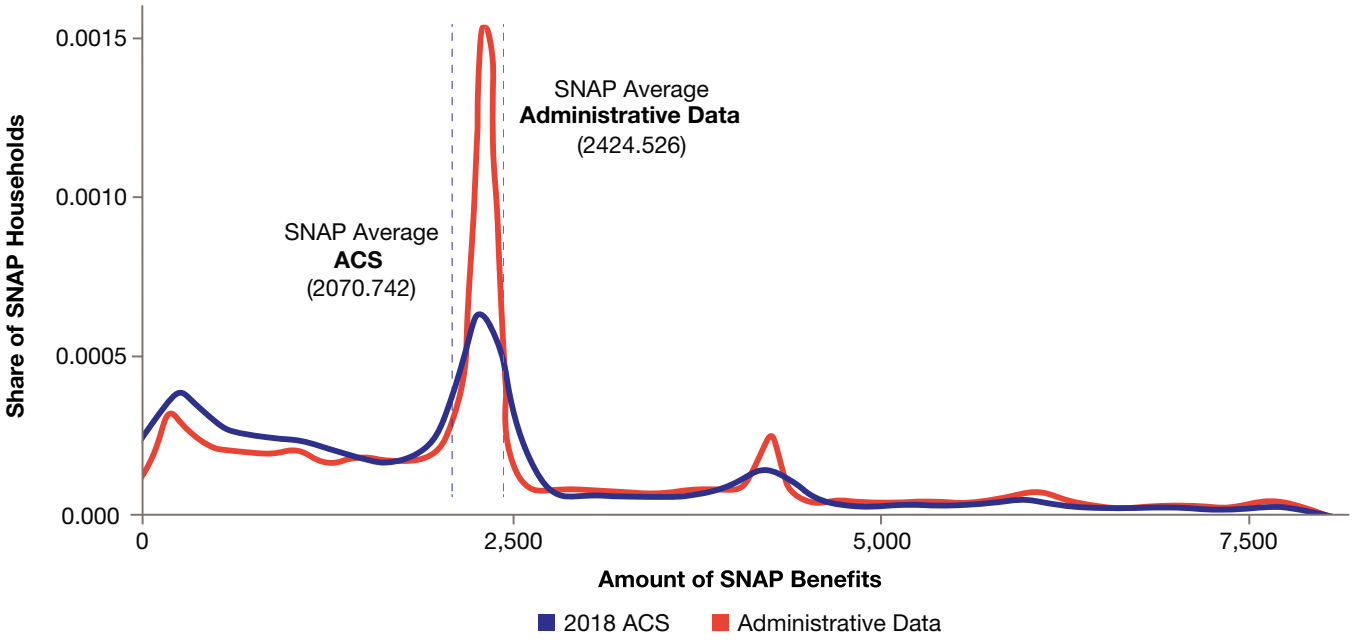
Source: New York City Department of Social Services.
Notes: The dependent variable is the annual value of SNAP benefits. "Income" is net of deductions allowable by SNAP program rules.

Table E.3
Comparison of NYCgov and DSS Administrative Data SNAP Values, 2018

	2018 NYCgov Estimates	2018 SNAP Administrative Data	Ratio: NYCgov/ Administrative Data
Panel A. Households with Children			
Aggregate SNAP Values	$1,283,977,243	$1,265,326,654	101.5%
Percent of Citywide Aggregate SNAP Values	44%	51%	85.5%
Mean	$3,694	$3,475	106.3%
Median	$3,577	$3,178	112.6%
Number of SNAP Households	347,441	375,821	92.4%
Panel B. Households with Aged or Disabled Members			
Aggregate SNAP Values	$1,476,355,657	$1,233,987,519	119.6%
Percent of Citywide Aggregate SNAP Values	50%	50%	100.8%
Mean	$2,289	$2,210	103.6%
Median	$2,310	$2,310	100.0%
Number of SNAP Households	641,772	563,604	113.9%
Aggregate SNAP Values in New York City	$2,943,512,506	$2,480,474,807	118.7%
Number of SNAP Households in New York City	1,394,873	1,050,628*	132.8%

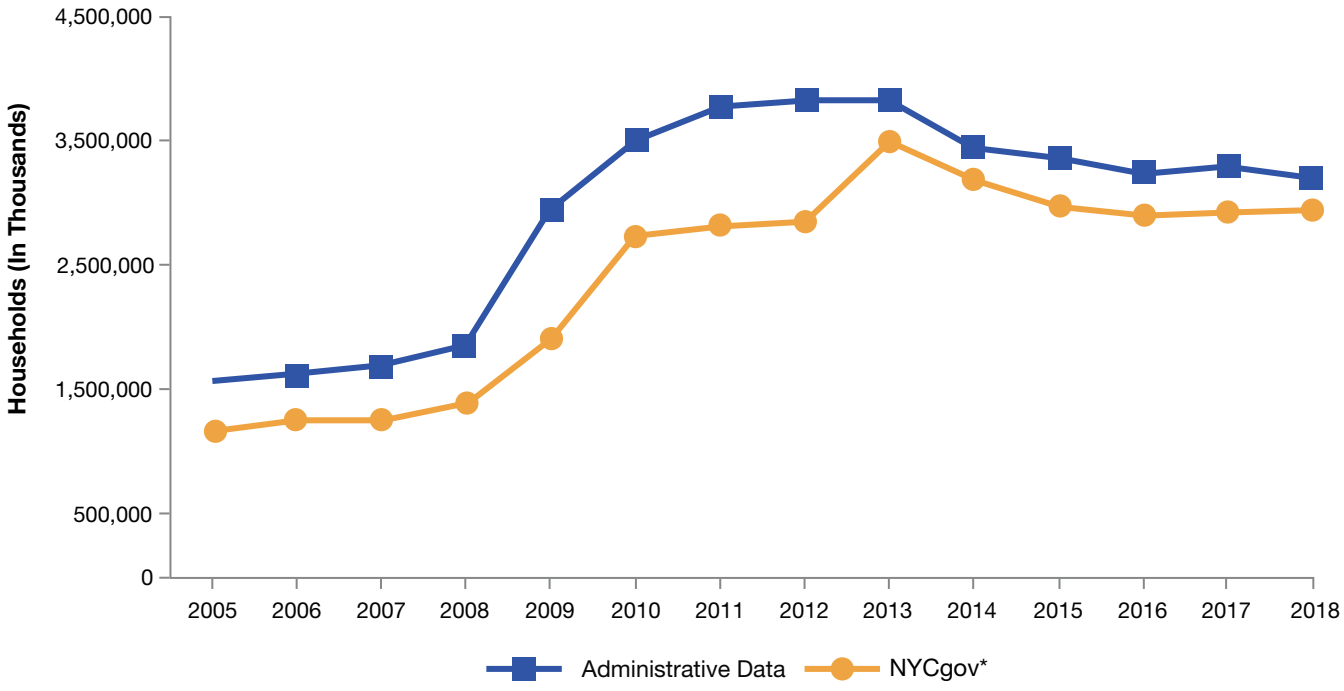
Sources: New York City Department of Social Services and the American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.
Note: "Ratio" compares the estimated value to administrative data. Data presented in Panel A and Panel B are not estimated from mutually exclusive categories of households. Some with children may also have aged or disabled members.
*Total caseload, excluding incomplete records for imputation purpose or cases in group quarters.

Figure E.1
SNAP Benefits Received by Households in 2018



Sources: New York City Human Resources Administration and the American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.

Figure E.2
Total SNAP Benefits, 2005–2018



Sources: American Community Survey Public Use Micro Sample as augmented by NYC Opportunity, NYC Department of Social Services.
* Sharp increase in SNAP values between 2012 and 2013 reflects a break in our data series due to methodological changes.

Table E.4

Logit Regression Model to Predict School Meals Participation, Coefficient Definitions and Values, 2014–2018

Variable			Estimate		
			B	S.E.	Exp(B)
Household Head Characteristics	Race/Ethnicity	Non-Hispanic White	-0.318	0.006	0.728
		Non-Hispanic Black	-0.382	0.006	0.682
		Hispanic	**0.434**	**0.005**	**1.544**
		Other Race/Ethnicity (Omitted Variable)			
	Education	High School Graduate through College Graduate	**0.326**	**0.004**	**1.386**
		Masters Degree or Higher	**-0.075**	**0.010**	**0.927**
		Less Than High School (Omitted Variable)			
	Citizenship	Foreign Born, Citizen by Naturalization	**-0.169**	**0.004**	**0.844**
		Foreign Born, Not a Citizen	**0.544**	**0.005**	**1.724**
		Citizen by Birth (Omitted Variable)			
	Work Experience	Works Less Than Full-Time, Year Round	**-0.134**	**0.005**	**0.875**
		Does Not Work	**0.077**	**0.004**	**1.080**
		Works Full-Time, Year Round (Omitted Variable)			
Household Characteristics		Female Householder	**-0.068**	**0.004**	**0.934**
		Age of Householder	**0.001**	**0.000**	**1.001**
		Age of Youngest School-aged Child	**-0.101**	**0.000**	**0.904**
		Single Householder	**0.426**	**0.004**	**1.531**
		Number of Persons in Household	**-0.074**	**0.001**	**0.929**
		Household Receives Food Stamps	**0.904**	**0.004**	**2.470**
		Household Income/Poverty Guideline Ratio	**-0.059**	**0.001**	**0.942**
		Constant	**1.735**	**0.012**	**5.668**

Source: Current Population Survey Annual Social and Economic Supplement, New York City Sample, 2013–2018.
Notes: All coefficients significant at $p < 0.01$. Analysis used the household weight. Dependent variable, HFLUNCH, recoded to a binary. N = 980.

Table E.5

Comparison of Administrative to Estimated Data on Participation in Subsidized School Meal Programs, 2018

	DOE Data Receiving Free or Reduced-Price Meals		NYCgov Modeled Data Receiving Free or Reduced-Price Meals	
Grade Level	**School Lunch**	**School Breakfast**	**School Lunch**	**School Breakfast**
Elementary	389,427	200,498	271,608	200,515
Middle	116,261	33,035	116,309	32,874
High	101,515	37,557	101,524	37,570
Total	607,202	271,090	489,441	270,959

Sources: New York City Department of Education (DOE) and the American Community Survey as augmented by NYC Opportunity.
Note: "Receiving" in the DOE data is measured as the average number of meals served per day in the 2017–2018 school year.

Table E.6
Participation and Value of Free and Reduced-Price School Meals, 2018

	School Lunch	School Breakfast
Number of Families	367,206	165,713
Mean Value	$998	$493
Median Value	$613	$306
Aggregate Value	$366,493,663	$81,738,125

Source: American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.

Table E.7
Impact of School Meals on NYCgov Poverty Rate, 2018
(Numbers are Percent of the Population)

	Total Population	Persons in Participating Families
Panel A. Poverty Rates		
Total NYCgov Income	19.1	27.8
Net of School Meals	19.7	30.8
Panel B. Marginal Effect		
School Meals	**-0.6**	**-3.0**

Source: American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.

Table E.8

Logit Regression Model to Predict WIC Participation, Coeffecient Definitions and Values, 2014–2019

Variable			Estimate		
			B	S.E.	Exp(B)
Household Head Characteristics	Race/Ethnicity	Non-Hispanic White	0.790	0.008	2.204
		Non-Hispanic Black	1.202	0.007	3.328
		Hispanic	1.039	0.007	2.826
		Other Race/Ethnicity (Omitted Variable)			
	Education	High School Graduate through College Graduate	0.187	0.005	1.205
		Masters Degree or Higher	0.209	0.011	1.232
		Less Than High School (Omitted Variable)			
	Citizenship	Foreign Born, Citizen by Naturalization	-0.370	0.006	0.691
		Foreign Born, Not a Citizen	0.100	0.005	1.106
		Citizen by Birth (Omitted Variable)			
	Work Experience	Works Less Than Full-Time, Year Round	0.274	0.005	1.316
		Does Not Work	0.183	0.005	1.200
		Works Full-Time, Year Round (Omitted Variable)			
Household Characteristics		Single Female Household Head	-0.273	0.005	0.761
		Infant Present in Household	1.009	0.005	2.742
		Number of Persons in Household	-0.043	0.001	0.958
		Household Receives Food Stamps	0.444	0.004	1.559
		Household Income/ Poverty Guideline Ratio	0.517	0.002	1.677
		Constant	-2.182	0.011	0.113

Source: Current Population Survey Annual Social and Economic Supplement, New York City Sample, 2014–2019.
Notes: All coefficients significant at the p< 0.01 level. Analysis used the household weight. Dependent Variable = HRWICYN, "Does anyone in household participate in WIC program." N = 519.

Table E.9
Participation and Value of WIC, 2018

Number of Families	128,668
Mean Value	$968
Median Value	$630
Aggregate Value	$124,536,054

Source: American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.

Table E.10
Impact of WIC Benefits on NYCgov Poverty Rate, 2018
(Numbers are Percent of the Population)

	Total Population	Persons in Participating Families
Panel A. Poverty Rates		
Total NYCgov Income	19.1	36.2
Net of WIC	19.3	38.8
Panel B. Marginal Effect		
WIC	-0.2	-2.6

Source: American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.

Table E.11

Impact of Nutritional Assistance on the NYCgov Poverty Rate, 2014–2018

(Numbers are Percent of the Population)

	2014	2015	2016	2017	2018
Panel A. Poverty Rates					
Total NYCgov Income	20.2	19.6	19.0	19.3	19.1
Net of:					
SNAP	25.0	23.9	23.3	23.2	22.7
School Meals	20.8	20.3	19.6	19.9	19.7
WIC	20.6	19.8	19.3	19.5	19.3
Total Nutritional Assistance	25.7	25.0	24.3	24.0	23.6
Panel B. Marginal Effects					
SNAP	-4.8	-4.3	-4.3	-4.0	-3.7
School Meals	-0.6	-0.7	-0.6	-0.7	-0.6
WIC	-0.4	-0.2	-0.3	-0.3	-0.2
Total Nutritional Assistance	-5.5	-5.4	-5.2	-4.8	-4.5

Source: American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.