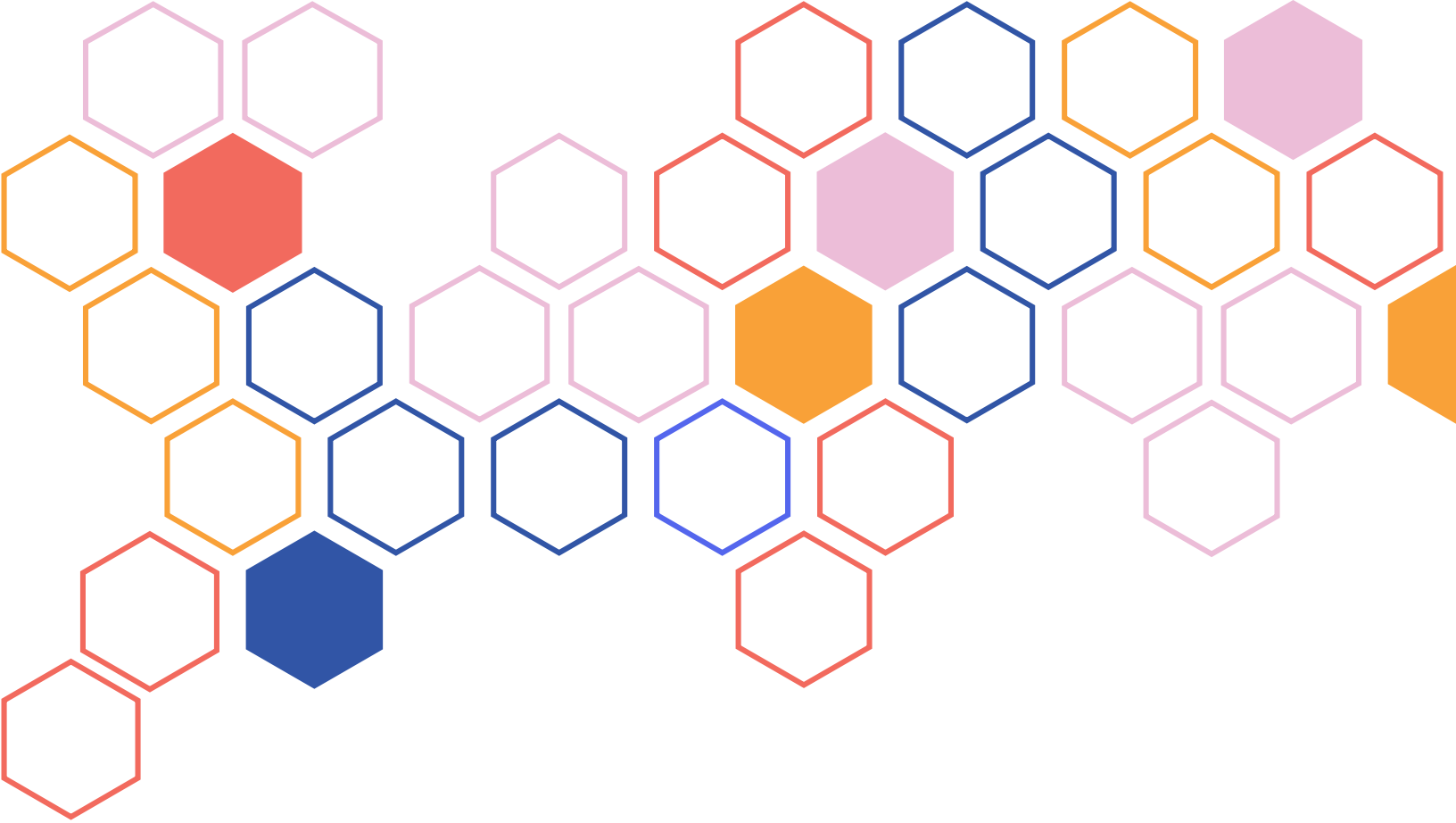

Appendix C

Adjustment for Housing Status

Appendix C
Adjustment for Housing Status

Housing plays a central role in National Academy of Sciences (NAS)-type poverty measures. As noted in Appendix B, housing needs are represented in the creation of the poverty threshold and account for nearly one half of the U.S.-wide Supplemental Poverty Measure (SPM) poverty line. Differences in housing expenditures are also the basis for adjusting SPM poverty thresholds to account for inter-area differences in living costs.

An ongoing concern among poverty researchers is how to account for differences in housing status. Two distinct issues need to be resolved. One is the requirement to account for the lower spending needs of homeowners who are free and clear of a mortgage relative to homeowners who carry a mortgage.[1] A second issue is how to value means-tested housing assistance, such as residence in public housing or participation in tenant-based subsidy programs.[2]

The Interagency Technical Working Group (ITWG) observations addressed these concerns. The SPM accounts for the first housing status issue by creating distinct thresholds for owners with a mortgage, owners without a mortgage, and renters. In addition, recent research by U.S. Census Bureau staff has established an approach to valuing means-tested housing assistance that has been incorporated into the SPM.[3]

Appendix B explained why we believe that a household-by-household adjustment on the income side of the poverty measure is the most appropriate way for us to measure the advantages of ownership free and clear of a mortgage, residence in rent-regulated housing units, or participation in a means-tested housing assistance program. This appendix begins with the conceptual issue of how best to define "advantage" in a way that can be measured in dollars that are added to a family's

1 See, for example, Thesia I. Garner and David Betson, Housing and Poverty Thresholds: Different Potions for Different Notions. March 2010. Available at: https://www.bls.gov/pir/spm/spm_pp_housing10.pdf

2 A variety of approaches to valuing housing subsidies are discussed by Trudi Renwick in the working paper, Improving the Measurement of Family Resources in a Modernized Poverty Measurement. U.S. Bureau of the Census. January 2010. Available at: https://www.census.gov/content/dam/Census/library/working-papers/2010/demo/renwicksge2010.pdf

3 See Paul D. Johnson, Trudi Renwick, and Kathleen Short, Estimating the Value of Federal Housing Assistance for the Supplemental Poverty Measure. U.S. Bureau of the Census, SEHSD Working Paper #2010-13. December 2010. Available at: https://cps.ipums.org/cps/resources/spm/SPM_HousingAssistance.pdf. See also Trudi Renwick, Estimating the Value of Federal Housing Assistance for the Supplemental Poverty Measure: Eliminating the Public Housing Adjustment. U.S. Bureau of the Census, SEHSD Working Paper #2017-38. July 2017. Available at: https://www.census.gov/content/dam/Census/library/working-papers/2017/demo/SEHSD-WP2017-38.pdf

income. After describing our approach, the appendix details the steps we take to create the estimates needed to implement it. We conclude with a note about the housing adjustment for homeowners without a mortgage.[4]

Measuring Advantage

Not all New Yorkers require the same level of expenditure to obtain shelter of comparable size and quality. Renters in public housing or rent-regulated units, renters who receive a tenant-based subsidy, and homeowners free and clear of a mortgage have lower housing costs than residents of "market rate" housing. To account for this advantage, the NYCgov poverty measure makes an adjustment to the income of the non-market rate households.[4]

The housing adjustment for non-market rate renters is calculated as the lesser of either:

1. Adjustment = the estimated market rate rent of their housing unit minus their actual out-of-pocket housing expenditures.[5]

   or

2. Adjustment = the housing portion of the threshold minus their actual out-of-pocket housing expenditures.

The estimated market rate rent of non-market rate units such as rent-regulated or subsidized units is what the household would pay for a unit of similar size and quality if it was rented at the market rate. The housing adjustment for homeowners who are free and clear of a mortgage is always calculated using the second alternative. The reason we take a somewhat different approach for this group is discussed in the last section of this appendix.

The approach itself rests on several judgments. The first is that the quality of non-market housing units is not necessarily inferior to market rate units of similar size and quality. If non-market housing residents were simply paying less for their housing because they were living in poorer quality homes, there would be little or no advantage to their housing status. Many non-market renters do occupy housing with an estimated comparable market rent that would be greater than their existing housing cost (see Table C.9).

A second judgment is that residence in non-market rate housing can make resources that would have been devoted to housing available to meet other non-housing needs. However, the advantage of residence in non-market rate housing is not fully fungible.

4 If more than one poverty unit resides in a household, the housing adjustment is prorated across units according to their relative size.

5 Gross rent is used in this adjustment. See the next section for an explanation of gross and contract rent.

By definition, the adjustment cannot exceed the value of the housing portion of the threshold. Even if a household enjoys shelter that would cost many times the value of the housing portion of their threshold, this windfall does not represent a resource that can be used for other purposes. Thus, a family will be counted as poor if its resources after housing costs are still not sufficient to meet its non-housing needs.

In our final judgment call, we do not allow for negative adjustments. If out-of-pocket expenditures exceed the housing portion of the threshold, the difference is not deducted from the poverty unit's income. This rule rests on the judgment that housing of adequate quality is available at a level of expenditure equal to the housing portion of the threshold. Or, more simply put, that the housing portion of the threshold is not too low. Expenditures that exceed the housing portion of the threshold, therefore, are discretionary and do not belong in a measure of poverty.

In order to implement this approach, we need to: 1) distinguish market rate from non-market rate housing units; 2) measure out-of-pocket housing costs; and 3) estimate market rate rents for non-market rate units. We begin with a description of how we create the necessary data by making use of the New York City Housing and Vacancy Survey (HVS), a survey conducted every three years by the Census Bureau and sponsored by the New York City Department of Housing Preservation and Development.[6]

Identifying Housing Status and Out-of-Pocket Rents

Participants in means-tested housing assistance programs, tenants in rent stabilized/rent controlled apartments, tenants who pay no rent, and homeowners free and clear of a mortgage receive a housing adjustment to their income. The American Community Survey (ACS) provides some of the information needed to identify these groups. The survey indicates which households own their home and whether they are carrying a mortgage. It also identifies those renter households who do not pay any cash rent.

There are, however, two crucial pieces of information not contained in the ACS, both of which pertain to renters. First, the ACS does not indicate whether the household resides in public housing, a rent-regulated unit, or is receiving a tenant-based subsidy. The second piece of missing information is that the ACS does not identify a tenant-based subsidy recipient's out-of-pocket expenditures for shelter and utilities. The ACS contains two rent variables: contract rent and gross rent. Contract rent is the rent received each month by the landlord. Gross rent is contract rent plus utility payments. These two variables do not represent renter out-of-pocket expenditures for shelter and utilities, *if* the household is participating in a rental subsidy program.

6 A complete description of the HVS can be found at: https://www.census.gov/programs-surveys/nychvs/about.html

To address these deficiencies, we turn to the HVS, which collects detailed information on geographic, demographic, and housing-related characteristics of housing units and their occupants. By matching renter households in the ACS to renter households in the HVS, we are able to impute the missing housing program status and the out-of-pocket expenditures data to the ACS. In order to maintain a housing status distribution that matches that of the HVS as closely as possible, a cap of five donations per HVS household is imposed so that as many HVS households as possible donate data to the ACS. Our matching routine is based on a set of household and head-of-household characteristics that identify corresponding households between the ACS and the HVS. The housing expenses of the small number of ACS renter households that live in non-building structures (e.g., boats, recreational vehicles) are calculated by the same rules as those of market rate renters. This subset of renters is excluded from the match with the HVS, which only tracks households in buildings.

To preserve the geographical, racial, and family composition distribution of the housing statuses found in the HVS, the following characteristics are used to match renter households in the matching algorithm:

1. Neighborhoods: Community District (CD) or Public Use Microdata Area (PUMA).

2. Race/Ethnicity of the householder: Non-Hispanic White, Non-Hispanic Black, Hispanic, Non-Hispanic Asian, and Other Race.

3. Whether the householder was 65 or older.

4. Equivalized household income as a ranking based on the distribution. (Income is banded into septiles, sextiles, quintiles, and quartiles calculated for each respective data set.)

5. Contract rent as a ranking based on the distribution. (Contract rent is also similarly banded to equivalized household income.)

6. Number of bedrooms in the household: Studio, 1 through 4+ bedrooms.

7. Household composition: Husband and wife with and without children, male- and female-headed single households with and without children, households of unrelated people, and single person households.

8. Whether the household had wage income.

Our initial match is an attempt to match on all eight household characteristics. If we do not find a matching household in the HVS, we incrementally remove or relax characteristics and attempt to match again. Donor households from the HVS with a Public Housing, Mitchell-Lama, or "Other Regulated" housing subsidy status are only matched to ACS recipients in PUMAs that, according to the HVS, contain housing with that status.

Once the ACS and HVS renter households are matched, a housing status variable is created to categorize the ACS households. This categorical scheme is derived from variables that are unique to the HVS[7] and others that are common to the ACS and HVS: renter with no rent, homeowner free and clear of a mortgage, and homeowner with a mortgage. The housing status categories are summarized in Table C.1. It is important to note that when a household lives in public housing or Mitchell-Lama rental housing and receives tenant-based subsidies, it is characterized as a tenant-based subsidy household. We use housing expenditures reported in the ACS for all housing statuses except subsidy recipients, whose out-of-pocket rent is derived from variables in the HVS. A more detailed description of our ACS-HVS match can be found in the housing appendix of our poverty report for 2005–2009, published in 2011.[8]

Table C.2 provides the results of the match between the 2017 HVS (the most recent available) and the 2018 ACS (also the most recent available). The percentage distribution of households between the donor HVS and the recipient ACS by housing status categories is extremely close. In no case does the difference between the distributions exceed 1.9 percentage points, and for the imputed rental statuses, no percentage point difference exceeds 1.3 percentage points.

Estimating Market Rents

Market value is a hypothetical level of expenditure that must be estimated. In economics literature, the value of housing services is often thought of as a bundle of different physical and location-specific characteristics of a given unit. We can, therefore, estimate the market rent of non-market rate housing by fitting a hedonic regression model accounting for these factors to a sample composed of market rate units, and then applying the resulting coefficients to the same set of characteristics of non-market rate units.

A clarification should be made before describing the model. The dependent variable in the regression is the gross rent currently paid for the unit. Thus, in this context, market value is not necessarily equal to the amount a unit would rent for if it were placed on today's market. Since our concern is differences in current spending needs between residents of market rate and non-market rate housing units, the former sense of market value is what we need to measure.

7 The variable used was Control Status, which indicates what type of housing development the unit is in and identifies whether that household participated in at least one of the several tenant-based subsidy programs that are available to low-income renters.

8 Policy Affects Poverty: The CEO Poverty Measure, 2005–2009, is available at: https://www1.nyc.gov/assets/opportunity/pdf/11_poverty_measure_report.pdf

To estimate market rate rents we rely on the 2005, 2008, 2011, 2014, and 2017 New York City Housing and Vacancy Surveys, which contain detailed information on the location and physical condition of rental units. For these years, we estimate a regression model on the subset of observations that are in market rate rental units. We employ variables that measure housing quality at three levels: the unit/tenant, the building, and the neighborhood. The unit/tenant-specific indicators are the number of rooms and the length of the tenant's tenure, which captures the negotiating power accrued by long-term tenants. At the building level we use measures of building conditions, building size, building age, and whether the owner lives in the building. To capture neighborhood effects we include a subjective "neighborhood quality" measure as reported by the tenant, as well as median PUMA income and dummy variables for the super-PUMA in which the building is located.[9] We use super-PUMA dummies rather than PUMA dummies due to the limited number of market rate units in some PUMAs. By including median PUMA income in the model, however, we are able to capture some of the variation in neighborhood effects at the PUMA level.

The relationship between gross rent and many of its predictor variables is complex and nonlinear. To achieve the best possible fit to the data, we employ nonparametric techniques via a Generalized Additive Regression Model (GAM). The GAM allows different functional forms for each independent variable. Some of the variables used in the regression are included as dummy variables while others are fit nonparametrically using smoothing spline functions.[10] The regression variables are defined in Table C.3.[11]

The results of the regression for 2017 are shown in Table C.4.[12] The models for 2005, 2008, 2011, and 2014 (not shown) have a similar fit. In particular, the relationship between gross rent and median PUMA income is quite close in the models for all four years. The widest divergence in coefficients across the years is in variables that are not statistically significant.

We then use the regression models to compute estimated market rate rent values for the non-market rental units. Table C.5 shows the reported gross rent, estimated market rent, and their difference for various categories of renters in the 2017 HVS. The data are presented as rent per bedroom since the average number of bedrooms tends to vary across rental groups. The small difference between the reported and estimated rents for market rate units highlights the predictive accuracy of our model. By contrast, large per-bedroom differences exist between the reported out-of-pocket rent and the estimated market rate rents for all the non-market rate groups. This is especially the case for public housing units, with a mean per-room difference of $477 in 2017. The average differences between the predicted market values and their

9 Super-PUMAs are Census-defined geographic units that each represent approximately 400,000 residents. At their level of geographic detail, New York City's 15 super-PUMAs stand between the city's five boroughs and its 55 PUMAs.

10 Smoothing splines are a particular type of nonparametric smoothing technique. For an overview of smoothing spline functions and GAM, see Luke John Keele, Semiparametric Regression for the Social Sciences. West Sussex, England: John Wiley and Sons, Ltd. 2008.

11 Nonparametric variables do not have reported coefficients, but rather have smoothed bivariate plots. These plots are available upon request.

12 In estimating housing adjustments for 2018, market rate rents in the 2017 HVS are inflated to reflect 2018 price changes. The inflator is derived from rents paid by ACS households imputed as market rate in 2017 compared to ACS households imputed as market rate in 2018. This price adjustment is reflected in all analysis of regression results and estimated rents.

corresponding gross rents are considerably higher for all non-market rental categories. This illustrates our measure of advantage for non-market renters as defined by the regression model.

Table C.6 reports the mean difference between households' out-of-pocket housing expenditures and two values: 1) the housing portion of the threshold, and 2) the estimated market rent. These two differences correspond to the two income adjustment equations as described above in the section on Measuring Advantage. The differences that are based on the estimated market rate rents are uniformly higher (on average) than those using the housing portion of the threshold for all groups.[13] When we apply the rule that takes the smaller of the two differences to compute the housing adjustment to income, Equation 2 (threshold adjustment) is used in the majority of cases, ranging from 71.8 percent of the time for renters receiving a tenant-based subsidy such as Section 8 to 92.3 percent of the time for renters in Mitchell-Lama housing.

Impact of the Housing Adjustment on the Poverty Rate

The housing adjustment continues to have the largest impact on the NYCgov poverty rate of all the non-cash resource components. In 2018 it reduced the citywide poverty rate by 5.4 percentage points. As Table C.7 indicates, the reductions for recipients of means-tested assistance are particularly large. For example, valuing housing assistance reduces the poverty rates for individuals in public housing and those receiving tenant-based subsidies by 24.3 and 25.3 percentage points, respectively.

The effect of our housing status adjustment on the poverty rate has not been constant over time. The second column of Table C.8 shows a housing adjustment effect from as low as 5.3 percentage points in 2010 to as high as 6.7 percentage points in 2013. What may account for this swing in the impact of the housing adjustment?

One possible explanation would be the occurrence of an unusual jump in the housing portion of the NYCgov threshold. Because the threshold determines the cap on the value of the housing adjustment, an unusually large rise in this part of the poverty threshold may explain a rise in the value of the housing adjustment and its effect on the poverty rate. However, no such jump occurred. The first column of Table C.8 shows the growth in the housing portion of the NYCgov threshold. When compared to the marginal impact of the housing adjustment in the second column, there is no apparent discernable relationship between the two.

13 The mean adjustment using the housing portion of the threshold for rent stabilized and controlled units is negative, indicating that a majority of these households' housing expenditures exceed that standard. This is not surprising, as rent control and stabilization are not means-tested programs.

Another possible explanation is the timeliness of the source data from which we generate imputed values. The HVS is conducted every three years to comply with New York State and New York City rent regulation law. Since the inception of the NYCgov poverty measure, there have been five releases of the HVS: 2005, 2008, 2011, 2014, and 2017. The 2005 HVS was used to impute the 2005–2007 housing data; the 2008 HVS was used to impute the 2008–2010 housing data; and the 2011 HVS was originally used for the years 2011–2013.

Because HVS data have a three-year gap, there is a risk that introducing a new survey can cause an abrupt shift in the distribution of housing statuses and a marked change in the influence of the housing status on the poverty rate. For this reason we test the influence of each new HVS release.

We noted an anomaly in the housing impact for 2013. Based on the 2011 HVS, the housing adjustment for 2013 was larger than in 2012, 2014, and 2015, which caused an unusually large drop in the poverty rate only in that year. A review of administrative rent data provided further insight. Collected rents from regulated units grew faster on average from 2012 to 2014 (4.7 percentage points) than from 2009 to 2011 (2.6 percentage points).[14] The 2014 HVS reported more realistic rent levels for 2013 than did the 2011 HVS, clearly due to the economic recovery following the Great Recession. A cyclical upswing in rents had occurred midway through the three-year HVS time gap. The 2013 poverty rate accordingly was revised to incorporate the 2014 HVS.

The new 2017 HVS release was used to revise the 2016 poverty rate. We matched the 2016 ACS to both the 2017 and 2014 HVS and computed the before and after housing status adjustment poverty rates. We found a 1 percentage point difference (6.2 percentage points compared to 5.2 percentage points) in the effect of the adjustment on the New York City poverty rate.

The 2017 HVS provides other important information. Between 2014 and 2017 there is an 11 percent increase in market rate units and nearly a 9 percent decline in stabilized and controlled units. The increased share of market rate units means that more people are paying market rate rent and thus not eligible for a housing adjustment. This is reflected in the 2016 revised housing adjustment.

Aside from the timeliness of housing data, there are still large variances in the housing status adjustment effect. This suggests that something intrinsic to our method for valuing housing status leads to a gap between the market-equivalent value of the non-market rate rental units and what these renters are paying out of pocket for their housing. We see evidence of this in Table C.9. Across nearly all the renter groups that receive a housing status adjustment, the estimated market rent continues to be higher than what is being paid out of pocket for housing.

14 New York City Rent Guidelines Board, 2016 Income and Expense Study. April 7, 2016. https://rentguidelinesboard.cityofnewyork.us/wp-content/uploads/2019/08/2016-IE.pdf

A Note on Accounting for the Advantage of Home Ownership Free and Clear of a Mortgage

As noted above, we do not take the same approach to valuing the advantage of owning a home free and clear of a mortgage as we do for non-market rate renters. We only use the difference between the housing portion of the threshold and out-of-pocket housing expenditures to make the housing adjustment for this group. In effect, we assume that the market value of the units that are owned free and clear would at least be equal to the housing portion of the threshold.

We attempted to test this assumption by applying our hedonic regression model to the housing units that are owned free and clear. The results we obtained were not credible. Table C.10 provides the distribution of estimated market rate rents for market rate units and units that are owned free and clear.

The monthly per-bedroom market rate rent estimates for the free-and-clear homeowners are below those for the market rate renters, by $221 for the mean and $139 for the median. This would suggest that the housing services consumed by New York City homeowners are inferior to those of market rate renters. There are reasons to be skeptical of this result. As a group, homeowners enjoy higher incomes than do renters. Table C.11 shows the distributions of family-size and composition-adjusted NYCgov income (net of the housing adjustment) for market rate renters and homeowners without a mortgage.

Free-and-clear homeowners enjoy considerably higher incomes than do market rate renters: $25,883 higher at the mean and $19,646 higher at the median. Despite this, the hedonic model predicts that the rental value of their housing is inferior to that of the renters. This seems highly implausible, suggesting that the hedonic model does not produce valid market rate rent estimates for this group. Hedonic models will only yield accurate estimates if the market rate apartments are sufficiently similar in physical characteristics and geographic distribution to those in the city owned free and clear. This does not appear to be the case. For example, only a small percentage of market rate rental units are in single-unit buildings compared to homes free and clear of a mortgage.

A second important difference is geographic location of housing. Homes that are owned free and clear tend to be located on the periphery of the city, in Staten Island or Eastern Queens, for example. They are less likely to be located in the city's core, especially Manhattan. There we are more likely to find market rate rental units. Given the limitations of our model, we conclude that simply using the difference between the housing portion of the threshold and out-of-pocket housing expenditures is a less error-prone approach to the housing adjustment for the free-and-clear homeowners than the method we use for the non-market rate renters.

Table C.1
Definition of NYC Opportunity Housing Status

Renter	
Public Housing	Living in a building that is NYCHA-operated public housing.
Mitchell-Lama	Living in Mitchell-Lama rental housing.
Tenant-Based Subsidy	Receiving Federal Section 8, Public Assistance Shelter Allowance, Senior Citizen Rent Increase Exemption, “Jiggets” rent supplement program, Employee Incentive Housing Program, Work Advantage Housing program for the homeless, or some other Federal, State, or City subsidy program.
Stabilized/Controlled	Living in an apartment under rent stabilization or rent control status.
Other Regulated	Living in an apartment under Article 4 or 5, HUD or Loft Board regulated building, or building owned by the City in “In Rem” status.
Market Rate	Living in a rental apartment that is neither public housing nor stabilized/controlled, and whose occupants do not receive a subsidy.
No Cash Rent	Does not pay cash rent to occupy apartment.
Owner	
Owned Free and Clear	Living in a housing unit that is owned with no mortgage.
Paying Mortgage	Living in a housing unit that is owned and has a mortgage.
No Mortgage Status Reported	There is no mortgage status reported in the HVS.

Sources: New York City Housing and Vacancy Survey and the American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.
Note: Tenant-based subsidy takes precedence over all other housing statuses. For example, if someone lives in public housing and also receives a subsidy, they are categorized as receiving a subsidy.

Table C.2
Comparison of Housing Status Between 2017 HVS and 2018 ACS

Housing Status	2017 HVS		2018 ACS		Percentage Point Difference
	Frequency	Percent	Frequency	Percent	
Renter					
Public Housing	159,218	5.1%	152,074	4.8%	0.3
Mitchell-Lama	27,701	0.9%	27,689	0.9%	0.0
Tenant-Based Subsidy	259,394	8.3%	262,179	8.2%	0.1
Stabilized/ Controlled	789,193	25.4%	814,713	25.6%	-0.2
Other Regulated	14,922	0.5%	56,854	1.8%	-1.3
Market Rate	788,222	25.3%	770,801	24.2%	1.1
No Cash Rent	65,223	2.1%	54,735	1.7%	0.4
Owner					
Owned Free and Clear	387,800	12.5%	456,339	14.4%	-1.9
Paying Mortgage	618,281	19.9%	584,297	18.4%	1.5
Total	**3,109,955**	**100.0%**	**3,179,681**	**100.0%**	

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

Table C.3
Regression Variables

Variable	Description	Variable	Description
Tenant Tenure	Years in Apartment	Number of Units	
Rooms	Number of Rooms	Super-PUMA Indicators	Northern Bronx Omitted
4+ Stories, No Elevator	Dummy (1 = Four or More Stories and No Elevator)		Southern Bronx
Median PUMA Income	Median Income within PUMA, in Thousands of Dollars		Northern Kings
Tenant Rating Indicators	Rated Fair Omitted		Western Kings
Rated Excellent	Buildings in Neighborhood Rated by Tenant		Central Kings
Rated Poor	Buildings in Neighborhood Rated by Tenant		Eastern Kings
			South Kings
Year Built Indicators	Built before 1947 Omitted		Eastern Manhattan
	Built 2000+		Northern Manhattan
	Built 1990–1999		Western Manhattan
	Built 1980–1989		Richmond
	Built 1970–1979		Northern Queens
	Built 1960–1969		Eastern Queens
	Built 1947–1959		South Eastern Queens
	Built 1930–1946		Southern Queens
	Built 1920–1929		
	Built 1901–1919		
	Built 1900 and Earlier		

Table C.4
Regression Models of Market Rate Rents, 2017

Dummy Variables	Estimate	t-Statistic
Intercept	1,811.43	24.99
4+ Stories, No Elevator	-212.72	-3.19
Rated Excellent	87.31	2.37
Rated Poor	-85.10	-0.66
Southern Bronx	38.97	0.28
Northern Kings	402.21	4.64
Western Kings	444.18	4.58
Central Kings	160.88	1.71
Eastern Kings	-78.48	-0.89
South Kings	65.52	0.70
Northern Manhattan	724.01	6.93
Eastern Manhattan	1,202.52	11.68
Western Manhattan	1,531.02	13.44
Richmond	-529.92	-5.01
Northern Queens	181.87	2.05
Eastern Queens	-35.43	-0.36
South Eastern Queens	-223.31	-2.26
Southern Queens	-179.16	-1.85
Non-Parametric Variables	**EDF**	**F-Statistic**
Log of Median PUMA Income	3.40	19.54
Tenant Tenure	7.66	24.90
Year Built	4.90	12.58
Number of Rooms	5.32	140.12
Number of Units	6.05	19.00
N		3,264
R^2		0.59

Source: 2017 New York City Housing and Vacancy Survey.
Notes: Dependent variable is monthly gross rent. Data weighted with the New York City Housing and Vacancy Survey household weight.

Table C.5
Mean Reported Gross Out-of-Pocket Rent and Estimated Market Rate Rent, Per Bedroom

Housing Status	Gross Out-of-Pocket Rent	Estimated Market Rent	Difference
Market Rate	$911	$915	-$4
Public Housing	$220	$697	-$477
Mitchell-Lama Housing	$556	$878	-$322
Tenant-Based Subsidy	$587	$694	-$106
Stabilized/Controlled	$725	$875	-$150
Other Regulated	$287	$931	-$644
No Cash Rent	$0	$672	-$672

Source: 2017 New York City Housing and Vacancy Survey.

Table C.6
Housing Portion of the Threshold vs. Estimated Market Rate Rent, 2018

Housing Status	(1) Adjustment using Housing Portion of the Threshold		(2) Adjustment using Estimated Market Rate		Share using Housing Portion of the Threshold
	Mean	Median	Mean	Median	
Public Housing	$6,909	$6,674	$16,287	$15,584	86.3%
Mitchell-Lama	$1,183	$1,514	$12,977	$12,636	92.3%
Tenant-Based Subsidy	$7,360	$6,827	$12,814	$12,692	71.8%
Rent-Stabilized/ Controlled	-$3,167	-$2,086	$6,147	$4,543	80.3%
Other Regulated	$6,473	$6,554	$17,015	$17,319	85.6%
No Cash Rent	-$633	$3,594	$7,407	$12,184	74.5%

Source: American Community Survey (ACS) Public Use Micro Sample as augmented by NYC Opportunity.
Note: Data weighted by the ACS household weight.

Table C.7
Effect of Housing Adjustment on the Poverty Rate, 2018

	Poverty Rate Based on Total NYCgov Income	Poverty Rate without Housing Adjustment	Percentage Point Difference
Total Population	19.1%	24.4%	-5.4
Renter			
Public Housing	34.5%	58.7%	-24.3
Mitchell-Lama Rental	24.9%	36.3%	-11.4
Tenant-Based Subsidy	38.5%	63.8%	-25.3
Stabilized/Controlled	20.1%	24.3%	-4.2
Other Regulated	28.9%	48.5%	-19.6
Market Rate	21.3%	21.3%	0.0
No Cash Rent	21.7%	32.1%	-10.4
Owner			
Owned Free and Clear	8.9%	15.0%	-6.1
Paying Mortgage	10.6%	10.6%	0.0

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

Table C.8
Growth in the Housing Portion of the Threshold and Marginal Impact of the Housing Adjustment

Year	(A) Year Over Year Growth in Housing Portion of the NYCgov Threshold	(B) Marginal Effect of the Housing Adjustment on NYCgov Poverty Rate
2010	3.4%	-5.3
2011	2.7%	-6.2
2012	-0.2%	-6.5
2013*	1.4%	-6.7
2014	1.9%	-6.5
2015	0.3%	-6.0
2016	1.9%	-6.0
2017	4.0%	-6.1
2018	4.1%	-5.4

Sources: U.S. Bureau of Labor Statistics and U.S. Department of Housing and Urban Development. American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.
* Marginal effect for years 2013–2017, revised from prior publication.

Table C.9
Mean Actual Gross Out-of-Pocket Rent and Estimated Market Rate Rent of Households

	2017			2018			Percentage Change from 2017		
Housing Status	Actual Out-of-Pocket Gross Rent	Estimated Market Rent	Difference	Actual Out-of-Pocket Gross Rent	Estimated Market Rent	Difference	Actual Out-of-Pocket Gross Rent	Estimated Market Rent	Difference
Public Housing	$584	$1,978	$1,394	$648	$1,930	$1,282	11.1%	-2.4%	-8.1%
Mitchell-Lama Housing	$970	$2,205	$1,235	$1,062	$2,090	$1,028	9.4%	-5.2%	-16.7%
Tenant-Based Subsidy	$572	$1,638	$1,066	$614	$1,625	$1,011	7.4%	-0.8%	-5.2%
Stabilized/ Controlled	$1,450	$1,963	$512	$1,531	$1,964	$433	5.6%	0.1%	-15.5%
Other Regulated	$647	$2,020	$1,373	$720	$2,074	$1,354	11.3%	2.7%	-1.4%
No Cash Rent	$112	$1,811	$1,699	$1,361	$1,909	$548	1,116.5%	5.4%	-67.7%

Sources: 2017 and 2018 American Community Survey as augmented by NYC Opportunity.

Table C.10
Distribution of Per-Bedroom Estimated Market Rent by Housing Status

	Renters Market Rate	Owners Free and Clear	Difference
Mean	$915	$694	-$221
Percentile			
5	$364	$330	-$34
10	$408	$367	-$42
25	$499	$431	-$68
50	$672	$533	-$139
75	$1,157	$804	-$353
90	$1,834	$1,305	-$529
95	$2,131	$1,553	-$578

Source: NYC Opportunity estimates from the 2017 NYC Housing and Vacancy Survey.

Table C.11

Distribution of Family-Size Adjusted NYCgov Income by Housing Status, 2018

	Renters Market Rate	Owners Free and Clear	Difference
Mean	$84,779	$110,662	$25,883
Percentile			
5	$13,554	$17,252	$3,698
10	$24,310	$28,316	$4,006
25	$37,468	$46,491	$9,023
50	$59,088	$78,734	$19,646
75	$99,986	$126,614	$26,628
90	$169,393	$222,452	$53,059
95	$237,791	$338,331	$100,540

Source: 2018 American Community Survey Public Use Microsample as augmented by NYC Opportunity.
Note: Income is measured before the addition of the housing adjustment.