



AMERICAN HOUSING
SURVEY

HUD-Assisted Renter Oversample: 2015 and Beyond

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U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
U.S. CENSUS BUREAU
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PD&R



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1. Purpose

The purposes of this guide are to:

1. Describe the process of embedding an oversample of U.S. Department of Housing and Urban Development (HUD)-assisted housing units into the American Housing Survey (AHS) integrated national longitudinal sample for 2015 and future years of the survey.
2. Describe the process for matching HUD-assisted housing units to the AHS integrated national longitudinal sample for 2015 and future years.
3. Describe the weighting process to ensure HUD-assisted housing units in the AHS are representative of the entire population of HUD-assisted housing units.

Section 2 discusses the different approaches to HUD-assisted units in 2011 and 2013 versus 2015 and later. **Section 3** describes the revised HUD-assisted oversample process, including frame development and selection of the HUD-assisted oversample units. **Section 4** discusses the process of matching HUD-assisted administrative records to the AHS samples. It is important to note that this process is entirely separate from the process described in section 3. **Section 5** describes the weighting process for the HUD-assisted units in the 2015 and later AHS integrated national longitudinal samples.

2. Historical Overview

Since 1989, HUD has attempted to identify HUD-assisted renters in the AHS by address matching AHS housing units to HUD-assisted housing unit administrative records. The HUD administrative records were derived from the Public and Indian Housing Information Center system for Public Housing and Housing Choice Voucher (HCV) Programs and the Tenant Rental Assistance Certification System for project-based Section 8 programs, hereinafter referred to as privately owned multifamily.

The matched AHS-HUD data was used to produce *Characteristics of HUD-Assisted Renters and Their Units* reports for 1989, 1991, 1993, and 2009.¹ A retrospective analysis of these efforts reveals that HUD and the U.S. Census Bureau's ability to accurately match AHS housing units to HUD-assisted housing unit administrative records was limited due to poor quality HUD addresses, leading to many failures to identify AHS units that were truly receiving HUD assistance.

To help overcome these issues, HUD and the U.S. Census Bureau decided to integrate an oversample of HUD-assisted housing units directly into the 2011 AHS and 2013 AHS national longitudinal samples. The integration of a HUD-assisted oversample into the 2011 AHS and 2013 AHS, combined with significant improvements in HUD-assisted housing unit administrative records that address data quality and the record matching process, resulted in more than 6,000 AHS housing units identified as HUD-assisted into both 2011 and 2013.

Data from the AHS-HUD match was used to produce *Characteristics of HUD-Assisted Renters and Their Units* reports for each of 2011 and 2013. Additionally, HUD and the U.S. Census Bureau produced a

¹ HUD did not conduct the data match from 1995 through 2005. HUD conducted the data matching in 2007 but decided not to publish a report due to data quality concerns.



report² detailing the HUD-assisted oversample integration and matching processes, including early problems that required revising published data.

In 2015, HUD and the U.S. Census Bureau selected a new AHS longitudinal sample. Building on the success of the 2011 and 2013 AHS HUD-assisted oversample and lessons learned in matching HUD administrative records to the AHS, HUD and the U.S. Census Bureau used this opportunity to embed a new HUD-assisted oversample in the 2015 AHS sample. Additionally, weighting adjustments were incorporated into the AHS sample to ensure the AHS housing units identified as HUD-assisted were representative of the known population of HUD-assisted housing units. This improvement eliminated the need for the separate weight for analyzing the HUD-assisted AHS housing units.

3. The 2015 and 2021 AHS HUD-Assisted Oversample Process

The following sections detail all aspects of the process for the 2015 and 2021 HUD-assisted oversample, including frame development and selection of the HUD-assisted oversample units.

3.1. The 2015 AHS HUD-Assisted Oversample Frame Development

HUD and the U.S. Census Bureau selected the 2015 HUD-assisted oversample from a listing of HUD-assisted housing unit administrative records created in late 2013. This list is referred to as the 2015 HUD-assisted oversample frame.

Like most survey frames, the 2015 HUD-assisted oversample frame had several limitations. First, and most importantly, the source for the frame—the 2013 administrative records from HUD—contained many unusable addresses that had to be removed. Second, the source for the frame was a snapshot of HUD administrative records in late 2013, so it may have lacked new housing units entering HUD programs between the specific processing date for the administrative records in 2013 and the selection of the HUD-assisted oversample, and it may have contained HUD-assisted housing units that were demolished sometime after 2013.

Exhibit 3.1 shows the total number of unique housing units obtained from HUD-assisted housing unit administrative records. For estimation purposes, assisted housing units were broadly classified into three groups of HUD programs; public housing, privately owned multifamily, and Housing Choice Voucher (HCV)³. Of this total, more than 2.3 million housing unit records contained unusable addresses and were therefore not eligible for inclusion in the oversample.

Exhibit 3.1. Summary of the 2015 HUD-Assisted Oversample Frame

HUD Program	Total Housing Units in Raw 2013 HUD Files	Unusable Addresses That Were Deleted	2015 HUD-Assisted Oversample Frame Housing Units
Public Housing	1,195,000	501,000	695,000
Privately Owned Multifamily	1,539,000	986,000	554,000
Housing Choice Voucher	2,446,000	859,000	1,587,000
Total	5,180,000	2,345,000	2,835,000

² www.census.gov/programs-surveys/ahs/tech-documentation/help-guides/1985-2013/renter_oversample.html

³ For more information on assisted housing visit: <https://www.huduser.gov/portal/datasets/assths.html> .



The 2015 HUD-assisted oversample frame development process yielded 2,835,000 HUD-assisted housing units initially eligible for sample selection. Some of these units were removed from eligibility due to being located in counties that were not part of the 2015 AHS integrated national longitudinal sample.

Exhibit 3.2 shows the total number of HUD-assisted housing units in the initial 2015 frame and the number of housing units eligible for the final 2015 HUD-assisted oversample frame.

Exhibit 3.2. 2015 HUD-Assisted Oversample Frame

HUD Program	Initial 2015 HUD-Assisted Oversample Frame Housing Units	Final 2015 HUD-Assisted Oversample Frame Housing Units
Public housing	695,000	508,000
Privately Owned Multifamily	554,000	419,000
Housing Choice Voucher	1,587,000	1,239,000
Total	2,835,000	2,166,000

3.2. The 2021 AHS HUD-Assisted Oversample Frame Development

HUD and the U.S. Census Bureau selected the 2021 HUD-assisted oversample from a listing of HUD-assisted housing unit administrative records created in April 2020. This list is referred to as the 2021 HUD-assisted oversample frame.

HUD’s administrative records were a snapshot of April 2020, so it may also have lacked new housing units entering HUD programs between April 2020 and the selection of the 2021 HUD-assisted oversample. It may also have contained HUD-assisted housing units that were demolished sometime after April 2020.

Exhibit 3.3 shows the total number of unique housing units obtained from HUD-assisted housing unit administrative records. Of this total, about 1 million housing unit records contained unusable addresses and were therefore not eligible for inclusion in the oversample.

Exhibit 3.3. Summary of the 2021 HUD-Assisted Oversample Frame

HUD Program	Total Housing Units in Raw 2020 HUD Files	Unusable Addresses That Were Deleted	2021 HUD-Assisted Oversample Frame Housing Units
Public Housing	916,000	148,000	768,000
Privately Owned Multifamily	1,479,000	456,000	1,023,000
Housing Choice Voucher	2,355,000	368,000	1,987,000
Total	4,750,000	972,000	3,778,000

The 2021 HUD-assisted oversample frame development process yielded 3,778,000 HUD-assisted housing units initially eligible for sample selection. Some more of these units were removed from eligibility due to being located in counties that were not part of the 2015 AHS integrated national longitudinal sample. There is an additional, much smaller set of housing units that had to be removed from the 2021 frame because they had already been selected in other surveys administered by the US Census Bureau, including prior AHS cycles.

Exhibit 3.4 shows the total number of HUD-assisted housing units in the initial 2021 frame and the number of housing units eligible for the final 2021 frame—those units not selected within other surveys.



Exhibit 3.4. 2021 HUD-Assisted Oversample Frame

HUD Program	Initial 2021 HUD-Assisted Oversample Frame Housing Units	Final 2021 HUD-Assisted Oversample Frame Housing Units
Public Housing	768,000	550,000
Privately Owned Multifamily	1,023,000	762,000
Housing Choice Voucher	1,987,000	1,580,000
Total	3,778,000	2,892,000

3.3. HUD-Assisted Oversample Selection

From the nearly 2.2 million and 2.9 HUD-assisted housing units on the 2015 and 2021 HUD-assisted oversample frames, HUD and the U.S. Census Bureau drew 12,000 housing units for the HUD-assisted oversamples. Exhibit 3.5 shows how many units were drawn from each program for each of the oversamples.

Exhibit 3.5. HUD-Assisted Oversample Size

HUD Program	AHS HUD-Assisted Oversample Housing Units (2015)	AHS HUD-Assisted Oversample Housing Units (2021)	Total
Public Housing	1,300	2,600	3,900
Privately Owned Multifamily	2,900	2,800	5,700
Housing Choice Voucher	1000	1,600	2,500
Total	5,200	6,900	12,000

4. The HUD-Assisted Administrative Data Matching Process and Outcomes

Each survey year, HUD provides the U.S. Census Bureau a current snapshot of all HUD-assisted housing unit administrative records that received HUD assistance at any time during the AHS data collection period. For each survey year, this snapshot of HUD-assisted housing unit administrative records is matched to the AHS using both address matching and person-level matching. This matching process is used to officially identify AHS housing units as receiving HUD assistance.⁴

There are two reasons for matching HUD-assisted housing unit administrative records to the AHS integrated national longitudinal sample for each year. The first goal is to identify all HUD-assisted housing units in the AHS integrated national longitudinal sample, including those that were *not* part of the oversample. The second goal is to determine if HUD-assisted oversample housing units are still receiving HUD assistance. The number of HUD-assisted units in the public housing program has been steadily decreasing over time, so some attrition is expected. Due to the design of the HCV program, in which vouchers are portable, about 20 percent of voucher holders move each year. As such, attrition is expected in the HCV portion of the HUD-assisted oversample.

Exhibit 4.1 provides details concerning how many HUD-assisted units were identified in each of 2015, 2017, 2019, and 2021 AHS National samples including units that were part of the HUD-assisted oversamples. Occasionally owner-occupied, Usual Residence Elsewhere (URE), and vacant units match

⁴ It is important to note that the matching process is applied to (1) AHS national longitudinal sample, which includes samples from the 15 largest metropolitan areas, and (2) the Next 20 group of metropolitan area longitudinal oversamples. The weight process described in section 5, however, is only applied to the housing units in the national longitudinal sample.



to HUD-assisted administrative records, however these matches are considered out of universe and are edited on the final AHS user files.⁵ A few statistics are worth noting. First, of the 5,200 HUD-assisted housing units in the 2015 oversample, only 3,200 were still HUD-assisted housing units in 2015 and responded to the survey. In other words, about 38 percent of the HUD-assisted oversample either was attrited before the 2015 AHS data collection period or did not respond to the 2015 survey. An additional 10 percent attrited or did not respond between 2015 and 2017 AHS data collection periods.

Second, about 2,300 HUD-assisted housing units were identified in the 2015 AHS and responded to the survey but were not part of the 2015 HUD-assisted oversample. In the 2017 AHS, this number was more than 2,200, and in 2019 AHS, nearly 2,000.

Third, when considering attrition and non-response, the total number of HUD-assisted households responding to the AHS has decreased from about 5,500 in 2015 to about 4,200 in 2019. In response to this decrease, the 2021 HUD-assisted oversample was designed to ensure that at least 2,000 housing units of each program type responded by survey cycle year 2025.

Exhibit 4.1. Status of HUD-Assisted Housing Units in the AHS National Sample

	Public Housing	Housing Choice Voucher	Privately Owned Multifamily	Total HUD-Assisted
2015 HUD-Assisted Oversample	1,300	2,900	1,000	5,200
2021 HUD-Assisted Oversample	2,600	2,800	1,600	6,900
2015 AHS HUD-Assisted Units				
In 2015 oversample	600	1,900	800	3,200
Not in oversample	450	1,100	650	2,300
<i>Total</i>	<i>1,000</i>	<i>3,000</i>	<i>1,500</i>	<i>5,500</i>
Renter-occupied unit	1,000	2,900	1,400	5,300
Owner-occupied, URE, or vacant units	20	100	20	150
<i>Total</i>	<i>1,000</i>	<i>3,000</i>	<i>1,500</i>	<i>5,500</i>
2017 AHS HUD-Assisted Units				
In 2015 oversample	500	1,400	750	2,700
Not in oversample	400	1,100	700	2,200
<i>Total</i>	<i>900</i>	<i>2,500</i>	<i>1,400</i>	<i>4,900</i>
Renter-occupied unit	900	2,400	1,400	4,700
Owner-occupied, URE, or vacant units	20	100	30	150
<i>Total</i>	<i>900</i>	<i>2,500</i>	<i>1,400</i>	<i>4,900</i>
2019 AHS HUD-Assisted Units				
In 2015 oversample	450	1,100	700	2,200
Not in oversample	350	1,000	600	2,000
<i>Total</i>	<i>750</i>	<i>2,100</i>	<i>1,300</i>	<i>4,200</i>
Renter-occupied unit	750	2,000	1,300	4,100
Owner-occupied, URE, or vacant unit	<15	100	30	150
<i>Total</i>	<i>750</i>	<i>2,100</i>	<i>1,300</i>	<i>4,200</i>

⁵ Reflects completed interviews. Noninterviews are not included in these totals.



2021 AHS HUD-Assisted Unit				
In 2015 oversample	500	1,200	850	2,500
In 2021 oversample	1,600	1,600	1,000	4,200
Not in oversamples	400	1,400	750	2,500
<i>Total</i>	<i>2,500</i>	<i>4,200</i>	<i>2,700</i>	<i>9,300</i>
Renter-occupied unit	2,200	3,300	2,200	7,700
Owner-occupied, URE, or vacant unit	300	850	450	1,600
<i>Total</i>	<i>2,500</i>	<i>4,200</i>	<i>2,700</i>	<i>9,300</i>

5. HUD-Assisted Weighting

Weighting adjustments are applied to HUD-assisted housing units identified in each year of the AHS integrated national longitudinal sample to ensure the weighted sum of HUD-assisted housing units is consistent with the independent counts of HUD-assisted housing units provided by HUD.

Unlike in 2011 and 2013, this weight adjustment is embedded in the AHS integrated national longitudinal sample weights. As such, there is no need to generate the separate HUD-assisted weight *SUBWGT* that was produced in 2011 and 2013.

Exhibit 5.1 compare the known program control totals provided by HUD to the weighted totals. Differences are due to a process that collapses small cells during the weighting procedure.

Exhibit 5.1. 2015 and Beyond AHS National Sample HUD Program Totals Before and After HUD-Assisted Controls Adjustment

HUD Program	Known Program Control Total	Total Housing Units Using WEIGHT
2015 AHS		
Public Housing	1,010,000	1,015,000
Privately Owned Multifamily	1,352,000	1,340,000
Housing Choice Voucher	2,112,000	2,120,000
<i>Total</i>	<i>4,474,000</i>	<i>4,474,000</i>
2017 AHS		
Public Housing	944,000	968,000
Privately Owned Multifamily	1,428,000	1,403,000
Housing Choice Voucher	2,167,000	2,169,000
<i>Total</i>	<i>4,539,000</i>	<i>4,540,000</i>
2019 AHS		
Public Housing	884,000	906,000
Privately Owned Multifamily	1,445,000	1,410,000
Housing Choice Voucher	2,203,000	2,184,000
<i>Total</i>	<i>4,532,000</i>	<i>4,500,000</i>
2021 AHS		
Public Housing	827,000	842,000



Privately Owned Multifamily	1,453,000	1,431,000
Housing Choice Voucher	2,227,000	2,218,000
<i>Total</i>	4,507,000	4,491,000



References

Bucholtz, Shawn, and Ash, S. 2015. *Sample Sizes Determination and Decision for the 2015 American Housing Survey and Beyond*. Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research. <https://www.census.gov/content/dam/Census/programs-surveys/ahs/publications/AHS%20Sample%20Determination%20and%20Decisions.pdf>

U.S. Census Bureau, Department of Commerce and the Department of Housing and Urban Development. 2015. *American Housing Survey: 2015 AHS National Sample Design, Weighting, and Error Estimation*, September 6, 2018.

<https://www2.census.gov/programs-surveys/ahs/2015/2015%20AHS%20National%20Sample%20Design,%20Weighting,%20and%20Error%20Estimation.pdf?#>

U.S. Census Bureau, Department of Commerce and the Department of Housing and Urban Development. 2019. *The HUD-Assisted Renter Oversample and Administrative Data Matching for the 2011 and 2013 AHS*, April 2019.