RESEARCH REPORT

The Housing Affordability Gap for Extremely Low-Income Renters in 2014

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The Housing Affordability Gap for Extremely Low-Income Renters

Since 2000, rents have risen and the number of renters who need low-priced housing has increased. These pressures make finding affordable housing tough for poor households. Nationwide, the market provides only 21 adequate, affordable, and available (AAA) units for every 100 renter households with income at or below 30 percent of the area median income (often called extremely low-income, or ELI, renters). Federal assistance adds another 24 AAA units. Without the support of federal rental assistance, not one county in the United States has enough affordable housing for all its ELI renters.

This report shows national trends in housing affordability for ELI renters, based on data from the 2000 Census and the five-year American Community Surveys for 2005–09 and 2010–14.[1] It updates our 2015 brief, the first publication on housing affordability to combine county-level data for ELI households with data from the US Department of Housing and Urban Development (HUD) rental assistance (Leopold et al. 2015). This report also incorporates new data that show the impact of US Department of Agriculture (USDA) rental assistance programs benefiting ELI renters and a new methodology for integrating survey and administrative data to estimate housing affordability and better isolate the role of federal rental assistance in making housing affordable for ELI households.

Our key findings are as follows:

- **There is not enough affordable housing to meet the needs of extremely low-income households.** The number of adequate, affordable, and available units for every 100 ELI renter households has increased since 2009, when 43 units were available per 100 ELI renters. But it is still lower than the rate in 2000, when 47 units were available per 100 ELI renters. Since the 2007–09 recession, the number of affordable units in the private market has increased slightly, partly as a result of increased household incomes.

- **Federal rental assistance plays a vital role in supporting ELI renter households.** Federal programs help almost 2.9 million ELI renters afford adequate housing. The Housing Choice Voucher Program is the largest program, assisting nearly 1 million renters, followed by Multifamily Section 8 and public housing. US Department of Agriculture rental assistance programs help nearly 280,000 ELI renters afford adequate housing.[2]

- **The shortage of adequate, affordable, and available units for ELI renters is worst in large, urban counties.** Although no part of the country has an adequate supply of affordable housing for ELI renters, the problem is more acute in urban areas and large counties than in rural areas and small counties. Rural counties have 69 adequate and affordable units available for every 100 ELI renters, compared with 42 units in metropolitan counties. The disparity's primary driver is the lack of unassisted, naturally affordable units in metropolitan counties. Extremely low-income renters in metropolitan areas have less than a 20 percent chance of finding an affordable unit without a federal subsidy.

- **Federal rental assistance programs are a critical source of affordable housing in nonmetropolitan counties.** In nonmetropolitan counties, about 150,000 ELI renters live in AAA units through USDA assistance, and another 296,000 are supported through HUD housing assistance. Without these federal programs, the number of affordable and adequate units available for every 100 ELI renters would decline from 69 to 42. In nonmetropolitan areas, USDA assistance accounts for 9 of every 100 AAA units for ELI renter households, and HUD assistance accounts for another 18. Without federal housing assistance, rural areas and small towns would lose about 450,000 affordable rental units, or nearly 40 percent of their AAA housing, for ELI renter households.

To expand on the challenges of housing affordability for ELI renters, our report provides national and county-level estimates of housing affordability. Household-level data on households assisted by federal subsidy programs allow us to show the contribution of federal rental assistance programs by county.

The Affordability Crisis for ELI Renters

The nationwide lack of adequate and affordable housing for poor renters is well documented (HUD 2013; JCHS 2015; Steffen et al. 2015), and it poses particular challenges for ELI households. HUD sets income limits for its programs, adjusting for household size, based on area median income (AMI), and it gives preference to ELI renters in its rental assistance programs. In 2014, the income limit for a household of four ranged from $21,250 to $33,850, depending on location. In most counties, the income limit was below $24,000. At that income level, housing would be considered affordable if the monthly cost was $600 or less.

Without subsidies, developers often cannot build housing for ELI renters that "pencils out." The expected revenue from rents is too low to cover maintenance costs or to pay back the debt incurred in development.[3] In addition, a significant portion of the affordable housing stock is lost to demolition or conversion to newer, more expensive housing each year (JCHS 2015). Creating or preserving affordable housing typically requires the support of a patchwork of subsidy programs.

Federal rental assistance programs run by HUD and the USDA are often the primary support for ELI renters seeking affordable housing. Unlike other safety net programs (e.g., Social Security, Food Stamps, Medicaid, or Medicare), housing assistance is not available to all eligible applicants. Only 24 percent of the 19 million eligible households receive assistance (JCHS 2015). Without rental assistance, millions of low-income individuals and families face serious challenges, ranging from severe cost burdens to overcrowding to evictions and homelessness.

This report and its accompanying interactive map show the availability of adequate and affordable housing for ELI renters nationally and within each county, along with how federal rental assistance changes the availability and the number of affordable units.[4]

Affordable Housing Remains below 2000 Levels Despite a Modest Uptick Nationally

Nationwide, 46 adequate and affordable rentals are available for every 100 ELI renters (figure 1). This represents an increase since 2009, when 43 units were available per 100 ELI renters, but a decrease since 2000, when 47 units were available.[5]

FIGURE 1

Availability of Affordable Housing for Extremely Low-Income Renters Rebounded in 2014 but Remains below 2000 Levels

Affordable units per 100 extremely low-income renter households
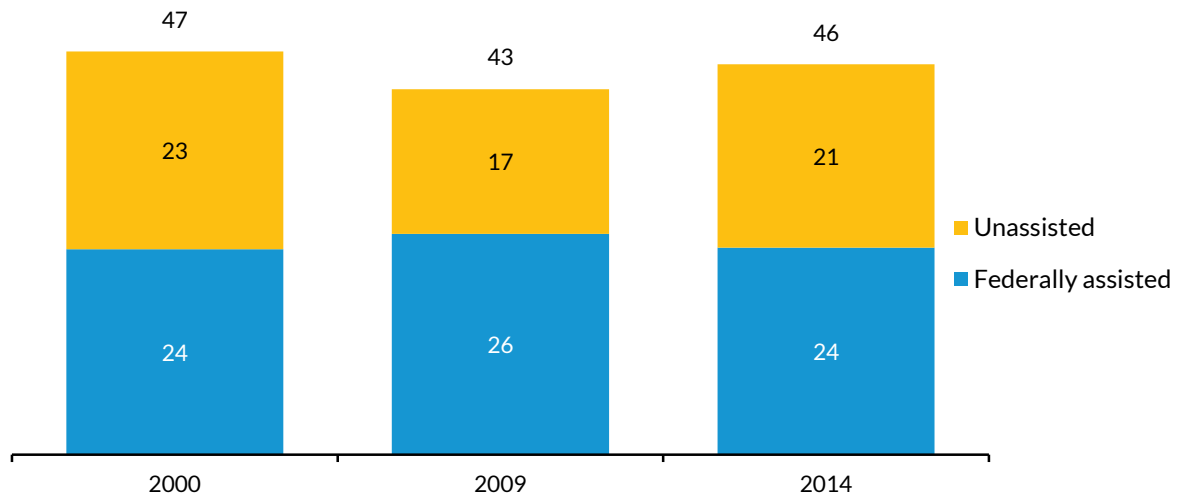
Sources: American Community Survey five-year sample data from the Integrated Public Use Microdata Series merged with HUD data on income limits and HUD and US Department of Agriculture data on households receiving rental assistance.
Notes: HUD = US Department of Housing and Urban Development. US Department of Agriculture data were unavailable for 2000 and were imputed using 2006 and 2012 data.

To accurately measure the supply of affordable units, we separate our total AAA units based on whether they are naturally affordable or federally assisted. *Naturally affordable* units have monthly rents affordable to ELI renters without receiving a federal subsidy through HUD or USDA programs. *Federally assisted* or *subsidized* units are made affordable by the federal housing assistance programs listed in box 1. Each count of total AAA units includes both naturally affordable and federally subsidized units.

Table 1 shows the number of federally assisted units that made housing affordable to almost 2.9 million ELI renters in 2012. The Housing Choice Voucher Program was the largest program, assisting nearly 1 million renters, followed by Multifamily Section 8 and public housing. US Department of Agriculture rental assistance programs helped nearly 280,000 ELI renters afford adequate housing.

An Overview of Federal Rental Assistance

US Department of Housing and Urban Development (HUD)
The Section 8 Housing Choice Voucher Program is the nation's largest federal rental subsidy program, with over $19 billion in spending in 2014. Approximately 2.1 million low-income families use these tenant-based vouchers, administered by 2,230 public housing authorities, to find eligible housing in the private rental market (Rice 2014). Families must contribute 30 percent of their income or the minimum rent up to $50 (whichever is greater) for a unit that meets HUD's housing quality standards. By law, 75 percent of newly admitted households must be extremely low income (ELI).

Section 8 project-based rental assistance operates through an agreement between a private property owner and HUD and serves 1.2 million families (CBPP 2013). Tenants must contribute 30 percent of their income or the minimum rent of $25 (whichever is greater), and the subsidy compensates the landlord for the remaining operating and maintenance costs. At least 40 percent of assisted units in a development must be designated for ELI households. But about 73 percent of units with project-based assistance are occupied by ELI households.

Public housing units are owned and operated by local public housing authorities. The program serves 1.2 million households, 72 percent of whom are extremely low income. New public housing is not being developed, and many existing developments need large capital investments following years of use and deferred maintenance.

US Department of Agriculture (USDA)
Section 515 rural rental housing loans are low-interest mortgage loans to help fund affordable multifamily rental housing for very low, low-, and moderate-income families; elderly people; and people with disabilities. The loans, administered by the Rural Housing Service, can be used for new construction, rehabilitation, or preservation. Households in Section 515 properties may also be eligible for Section 521 rental assistance. No new rental properties have been developed under Section 515 since 2011.

Section 521 rental assistance is project-based assistance available to households living in certain financed properties (Sections 515 and 514/516) with incomes too low to pay the subsidized rent. The assistance covers the difference between 30 percent of the household's income and the monthly rent.

Definitions
Federally assisted households receive HUD or USDA assistance.

Rural and small towns, per the USDA definition, are nonmetropolitan counties.[a]

[a] Rural and urban classifications vary by federal agency. See "What Is Rural?" US Department of Agriculture, National Agricultural Library, accessed April 17, 2017, https://ric.nal.usda.gov/what-rural. For the USDA definition, see "What Is Rural?" US Department of Agriculture, Economic Research Service, last updated March 9, 2017, https://www.ers.usda.gov/topics/rural-economy-population/rural-classifications/what-is-rural.aspx.

TABLE 1

Extremely Low-Income Renters in Adequate, Affordable Federally Assisted Housing in 2012

Program	Renters
Housing Choice Voucher Program	973,870
Multifamily Section 8 program	814,477
Public housing	652,838
Other HUD programs[a]	132,122
USDA rental assistance	277,573
All	**2,850,880**

Sources: HUD administrative data from 2010 to 2014 on subsidized households in five subsidy programs: Housing Choice Vouchers, the Moderate Rehabilitation program, Multifamily Section 8 housing, other multifamily housing, and public housing spending on affordable units for ELI renters; and US Department of Agriculture data on ELI renter households living in Section 515–financed properties and receiving Section 521 rental assistance.
Note: ELI = extremely low-income; HUD = US Department of Housing and Urban Development.
[a] This category includes other multifamily housing and the Moderate Rehabilitation program. It does not include the HUD-assisted units where ELI tenants are paying over 30 percent of their income toward rent.

HUD rental assistance does not guarantee affordability. The data presented in table 1 do not include the HUD-assisted units where ELI tenants are paying more than 30 percent of their income toward rent. Based on our analysis of the HUD data, about 26 percent of the ELI households receiving HUD assistance pay more than 30 percent of their monthly income on housing. The Housing Choice Voucher Program has the highest share of rent-burdened households (42 percent). The majority of these rent-burdened households are paying 30–40 percent of their income on housing.[6] Rent burden is much lower in public housing (14 percent) and the multifamily Section 8 program (9 percent) (Leopold et al. 2015).

HUD programs provide assistance on a sliding scale, with renters paying a minimum of 30 percent of their monthly income, after certain adjustments, on housing. However, assisted households can still be rent-burdened for several reasons:

▪ **Minimum rents:** Public housing authorities can, and most do, establish a minimum monthly rent of up to $50. Private assisted owners typically are required to charge a minimum rent of $25.

▪ **Alternative rents:** Some public housing authorities have been given the flexibility to implement alternative rents such as tiered rents, or rents that require households to pay higher minimum rents or percentages of their incomes.

▪ **Renting above the payment standard:** Households may rent units that cost more than the local payment standard.

More than half the affordable units for ELI renters in 2014 were made affordable through a federal subsidy (figure 2). But the share of affordable units supported by federal subsidies declined from 60 percent in 2009 to 53 percent in 2014, comparable with the share of federally assisted affordable units in 2000.

Share of Affordable Housing Units for Extremely Low-Income Renters Supported by Federal Subsidies Declined in 2014
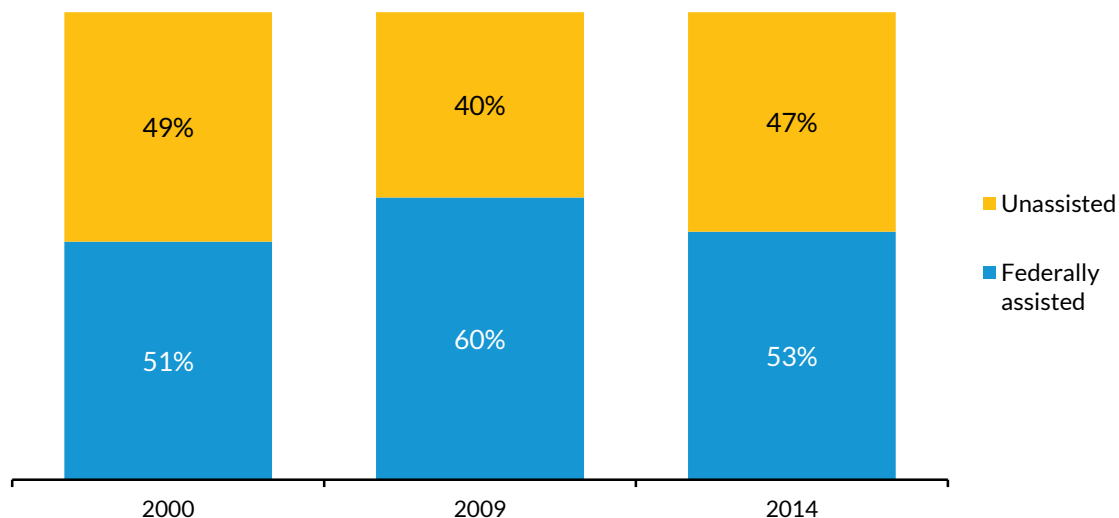
Sources: American Community Survey five-year sample data from the Integrated Public Use Microdata Series merged with data from HUD on income limits and HUD and US Department of Agriculture data on households receiving rental assistance.
Notes: HUD = US Department of Housing and Urban Development. Numbers of adequate, affordable, and available units are as follows: 3.8 million in 2000, 4.2 million in 2007, and 5.3 million in 2012.

Table 2 shows factors driving the change in affordability between 2009 and 2014. During this period, the country added nearly 1.9 million ELI renters and more than 1.1 million rentals affordable to these renters. Those increases are partly because new legislation mandated the ELI income limit could not be below the federal poverty level (see appendix C for more details). For every 100 new ELI renter households, the country added 60 units of affordable ELI rental housing. The gap between ELI renters and ELI affordable units grew in absolute terms, but the gap in rental housing per 100 ELI renters decreased—in other words, the problem continued to get worse, but at a slower rate. Table 2 also shows an increase in naturally affordable units and modest increases in HUD and USDA affordable units. By 2014, the number of rental housing units naturally affordable to ELI renters (2.52 million) almost equaled the number affordable through HUD assistance (2.57 million). US Department of Agriculture programs accounted for a smaller proportion (277,000).

TABLE 2

Increase in Extremely Low-Income Renters Outpaced Increase in Affordable Housing from 2009 to 2014

In thousands

	2009	2014	Change
Extremely low-income renters	9,899	11,775	1,876
Affordable units	**4,237**	**5,374**	**1,137**
Naturally affordable units	1,680	2,523	843
HUD affordable units	2,294	2,573	279
USDA affordable units	262	277	15

Sources: American Community Survey five-year sample data from the Integrated Public Use Microdata Series merged with HUD data on income limits and HUD and US Department of Agriculture data on households receiving rental assistance.
Notes: HUD = US Department of Housing and Urban Development.

Figure 3 shows changes in the number of ELI renters and affordable units by type from 2000 to 2014. Increases in the number of affordable units (naturally affordable and federally subsidized) were overwhelmed by the larger increase in ELI renters. During this period, the United States gained 3.6 million ELI renter households and increased its stock of affordable rental housing by 1.5 million, with the bulk of those additional units coming from federal assistance programs. Thus, the gap between the number of ELI renter households and the stock of adequate, affordable housing increased by 2.1 million.

FIGURE 3

Increases in Affordable Units Have Not Kept Pace with Increases in ELI Renters from 2000 to 2014

Federally subsidized units: 890,526
Naturally affordable units: 634,112
Sum of affordable units: 1,524,638
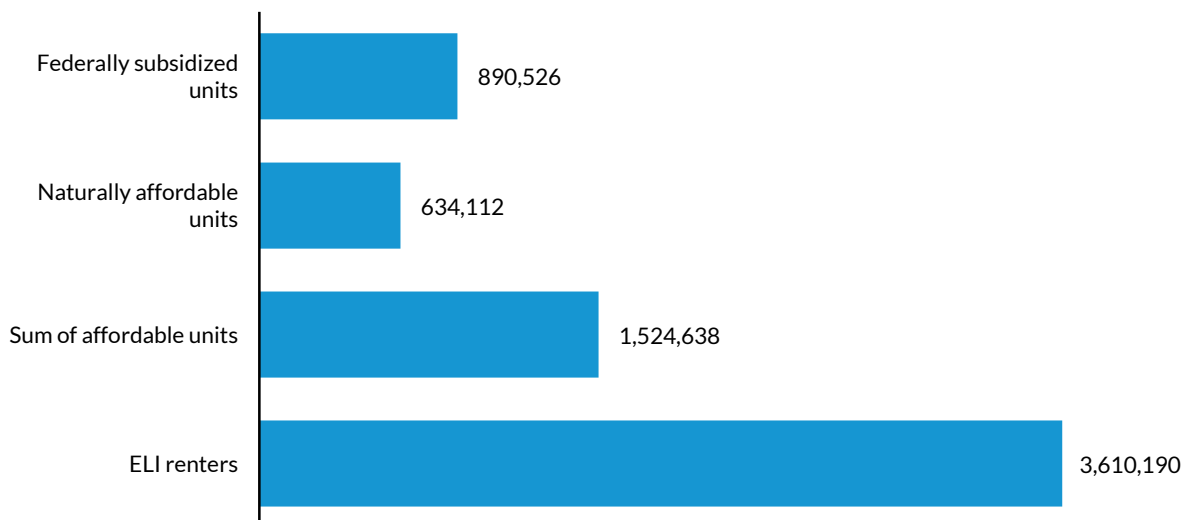ELI renters: 3,610,190

Sources: American Community Survey five-year sample data from the Integrated Public Use Microdata Series merged with HUD data on income limits and HUD and US Department of Agriculture data on households receiving rental assistance.
Notes: ELI = extremely low-income; HUD = US Department of Housing and Urban Development.

The Affordable Housing Shortage for Extremely Low-Income Renters Is Worst in Large, Urban Counties

Trends in the availability of adequate, affordable housing for ELI renters vary in different parts of the country. Data on USDA rental assistance programs reveal how federal assistance programs help address the affordable housing shortage, particularly in rural and small towns. Although no part of the county has an adequate supply of affordable housing for ELI renters, the problem is more acute in urban areas and large counties than in rural areas and small counties.

USDA and HUD Assistance Target Different Geographies

Table 3 shows the distribution of HUD- and USDA-assisted ELI renters by county designation (metropolitan versus nonmetropolitan) and county size. The differences are stark. Almost 90percent of HUD rental assistance supports ELI renters in metropolitan areas, while the majority of USDA rental assistance (54 percent) supports ELI renters in nonmetropolitan areas. The plurality of USDA-assisted units is in counties with populations below 35,000 while70 percent of HUD-assisted ELI renters live in counties with populations of 250,000 or more.

TABLE 3

HUD- and USDA-Assisted ELI Renters by County Size and Metropolitan Designation, 2014

	ELI renter households	%	AAA units	%	HUD-assisted units	%	USDA-assisted units	%
National	11,775,631	100	5,374,785	100	2,573,307	100	277,573	100
County designation								
Metropolitan	10,145,657	86	4,253,219	79	2,277,249	88	128,373	46
Nonmetropolitan	1,628,599	14	1,129,044	21	295,900	12	149,156	54
Population								
< 35,000	848,587	7	617,245	11	157,625	6	101,747	37
35,000–49,999	467,327	4	317,163	6	87,225	3	32,168	12
50,000–99,999	975,670	8	605,301	11	180,109	7	53,542	19
100,000–249,999	1,701,238	14	828,704	15	343,571	13	46,221	17
≥ 250,000	7,781,434	66	3,005,707	56	1,804,619	70	43,851	16

Source: American Community Survey five-year sample, USDA, and HUD data for 2014.
Notes: AAA = adequate, affordable, and available; ELI = extremely low-income; HUD = US Department of Housing and Urban Development; USDA = US Department of Agriculture.

The programs' geographic differences are expected, given the USDA's priority of targeting rural areas. Extremely low-income renters are heavily concentrated in metropolitan areas (86 percent) and counties with populations of 250,000 or more (66 percent). Relative to the distribution of ELI renters, affordable units are more prevalent in nonmetropolitan or rural counties. Though 14 percent of ELI renters live in nonmetropolitan counties, 21 percent of affordable units for ELI renters are located there. Conversely, 66 percent of ELI renters live in counties with populations of 250,000 or more, but only 56 percent of affordable units are located there.

In counties of all sizes, federal rental–assisted units make up a significant portion of the adequate and affordable rental units available to ELI households (figure 4). Nationwide, 48 percent of adequate units affordable and available to ELI renters are HUD subsidized, 47 percent are naturally affordable, and 5 percent are subsidized by USDA programs. Counties with populations of 250,000 or more rely most heavily HUD assistance. In counties with populations below 250,000, the private market supplies a larger share of affordable and adequate units. The portion of adequate and affordable units provided by USDA housing assistance is greatest in communities with populations below 35,000. In the 1,837 counties with such populations, 16 percent of ELI renters with adequate and affordable housing receive USDA assistance. In the 319 counties with populations between 35,000 and 50,000, 10 percent of ELI renters with adequate and affordable housing receive USDA assistance.

Extremely low-income renters in rural counties have a better chance of finding adequate, affordable housing than ELI renters in metropolitan counties (figure 5). Sixty-nine adequate, affordable units are available to ELI renters in rural counties compared with 42 units in metropolitan counties. The disparity's primary driver is the lack of unassisted, naturally affordable units in metropolitan counties. Extremely low-income renters in these counties have less than a 20 percent chance of finding an affordable unit without a federal subsidy. In small counties, USDA assistance contributes significantly to the affordable housing stock. Without USDA assistance, the number of AAA units per 100 ELI renters decreases from 69 to 60.

FIGURE 4

USDA Assistance Provides an Important Share of Affordable Housing in Small Counties

Extremely low-income households in adequate and affordable housing by county population and nationally

Legend: ■ HUD assistance ■ USDA assistance ■ No assistance

County population	HUD assistance	USDA assistance	No assistance
≥ 250,000	60%	1%	39%
100,000–249,999	41%	6%	53%
50,000–99,999	30%	9%	61%
35,000–49,999	28%	10%	62%
< 35,000	26%	16%	58%
National	48%	5%	47%
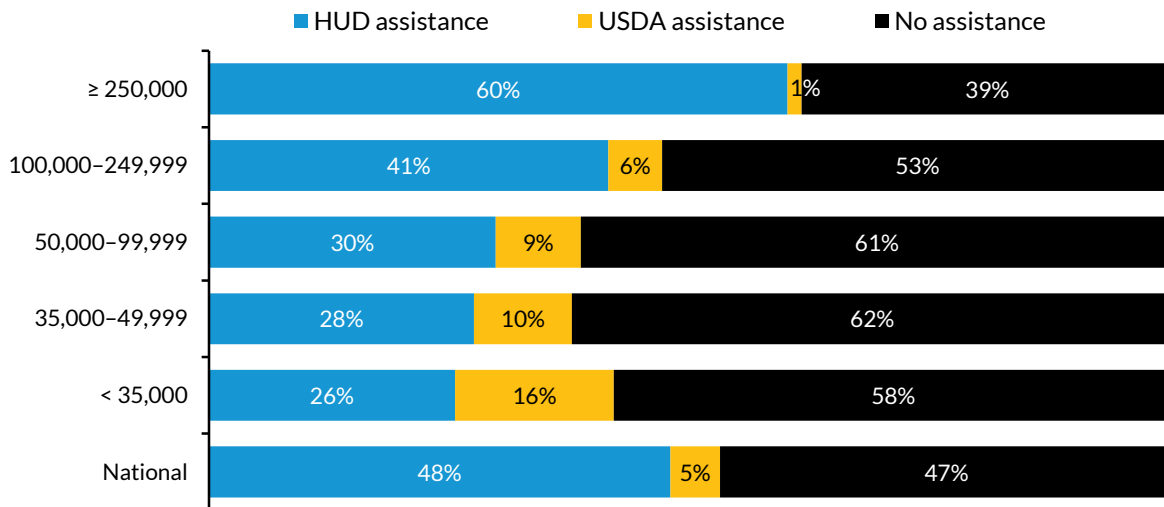
Sources: American Community Survey five-year sample, USDA, and HUD data for 2010–14.
Notes: HUD = US Department of Housing and Urban Development; USDA = US Department of Agriculture. Adequate, affordable, and available units by county population and nationally are as follows: ≥ 250,000 = 3,005,707; 100,000–249,999 = 828,704; 50,000–99,999 = 605,301; 35,000–49,999 = 317,163; < 35,000 = 617,245; national = 5,374,785.

FIGURE 5

Lack of Naturally Affordable Rental Housing Makes Affordable Housing Shortage More Acute in Metropolitan Areas

Adequate, affordable, and available units per 100 extremely low-income renter households with and without HUD and USDA assistance, by metropolitan and nonmetropolitan counties and nationally

Legend: ■ No assistance ■ USDA assistance ■ HUD assistance

	No assistance	USDA assistance	HUD assistance	Total
National	21	2	22	46
Metropolitan counties	18	1	22	42
Nonmetropolitan counties	42	9	18	69

Source: American Community Survey five-year sample, USDA, and HUD data for 2010–14.
Note: HUD = US Department of Housing and Urban Development; USDA = US Department of Agriculture.

Figure 6 looks at the supply of AAA units for ELI renters by county size rather than metropolitan status. The differences by county size are starker. In the least-populous counties, nearly 73 adequate, affordable units are available for every 100 ELI renters, compared with 39 units in the most-populous counties. Less-populous counties have more naturally affordable units and more USDA-assisted units.

Affordable Housing Shortage Gets Worse as County Population Increases

Adequate, affordable, and available units per 100 extremely low-income renter households with and without HUD and USDA assistance, by county population and nationally
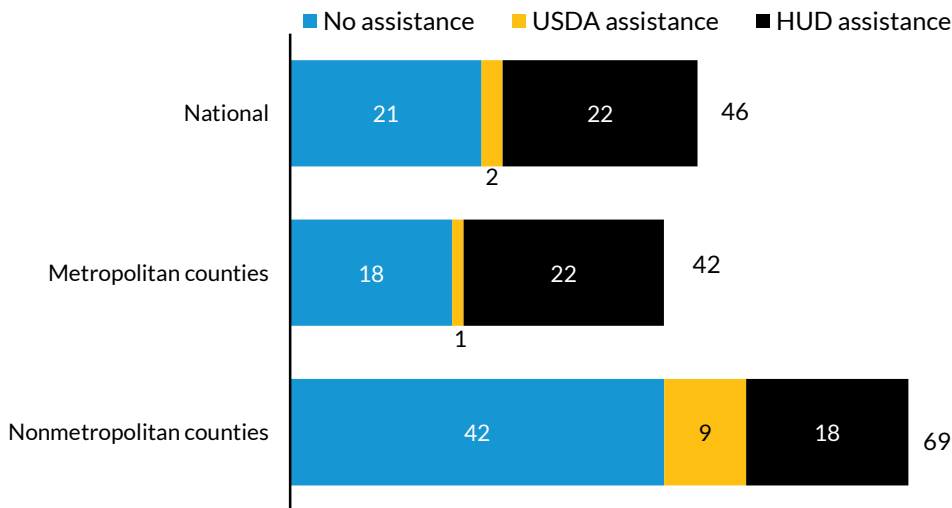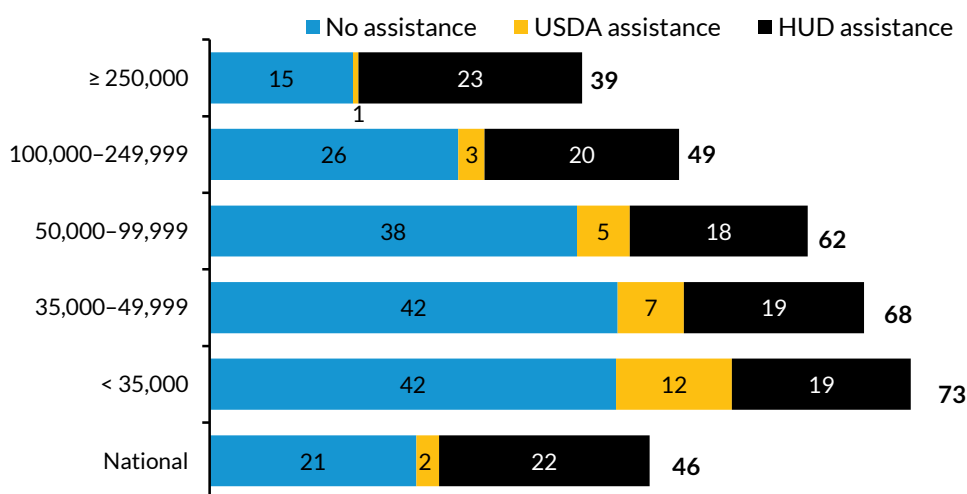

Sources: American Community Survey five-year sample, USDA, and HUD data for 2010-14.
Note: HUD = US Department of Housing and Urban Development; USDA = US Department of Agriculture.

County Estimates of Adequate and Affordable Rental Housing

Our interactive map shows the number of AAA housing units for ELI renters in each county with more than 20,000 residents and more than 50 sampled ELI renters. In each county, we estimate the supply of affordable housing and compare it with the count of ELI renters to understand how the county's supply meets demand and how that has changed from 2000 to 2014. In this section, we discuss the number of AAA units and estimate the number of affordable units per 100 ELI renters in the 100 largest counties and in counties where USDA assistance has the greatest impact.

FIGURE 7

Number of Adequate, Affordable, and Available Rental Units per 100 Extremely Low-Income Households by County, 2014

With federal assistance
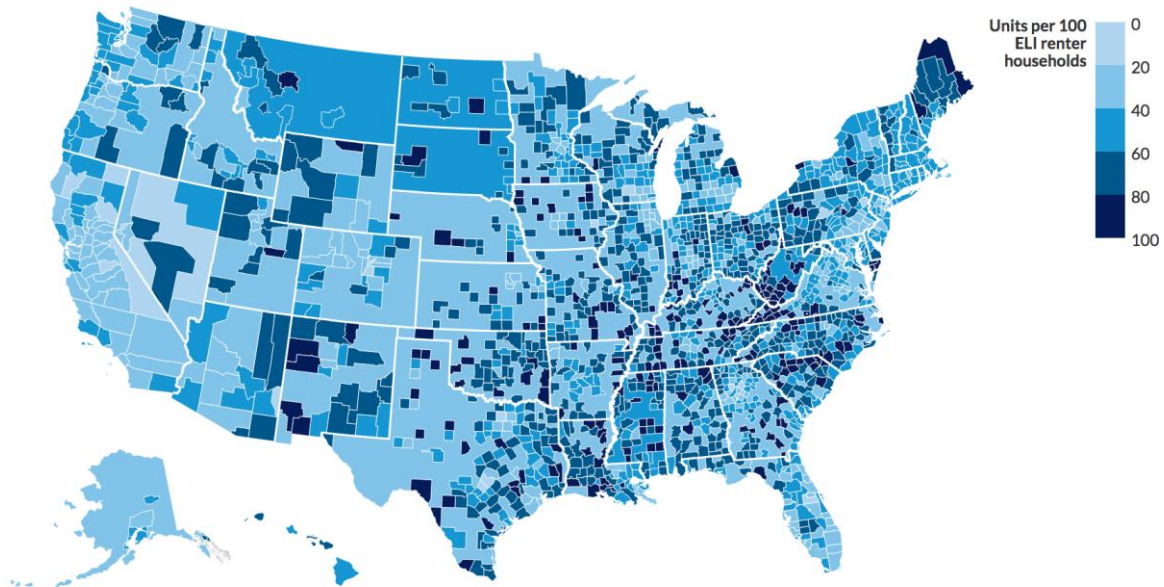
Without federal assistance
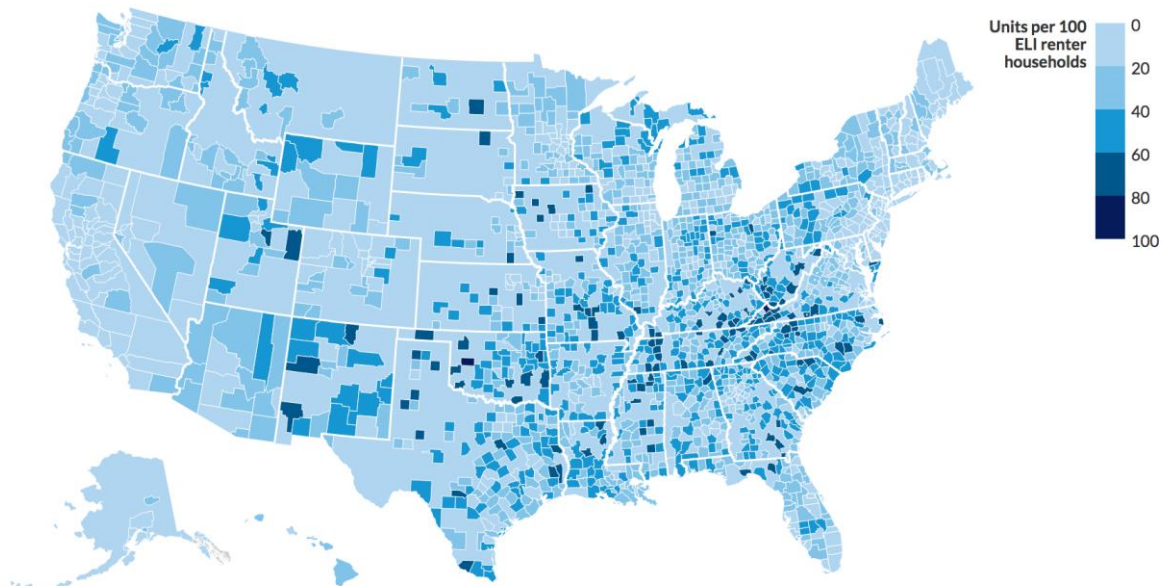
Source: Erika Poethig, Liza Getsinger, Josh Leopold, Graham MacDonald, Lily Posey, Pamela Blumenthal, Reed Jordan, and Katya Abazajian, "Mapping America's Rental Housing Crisis," Urban Institute, updated April 27, 2017, http://apps.urban.org/features/rental-housing-crisis-map/.

No Large County Has an Adequate Supply of Affordable Units for Its ELI Renters

Figure 7 shows the gap between the number of ELI renter households and the number of AAA rental units in each county nationwide. The lightest areas have the least available and affordable housing for ELI renters, and the darkest areas have the most. The variation demonstrates the interplay between federal, state, and local policies and programs; local housing markets; and the number of ELI renter households.

Table 4 shows which of the 100 largest US counties have the greatest share of AAA rental units for ELI renters. Hildalgo County, Texas, ranks first with the smallest affordable rental housing gap (71 units per 100 ELI renters). Half the 10 counties with the smallest affordability gap are in the Northeast, three are in the South, and one is in the Midwest. Massachusetts counties with the most expensive housing markets, mostly surrounding Boston, have some of the smallest gaps in units affordable to ELI renters. Suffolk County, Massachusetts, has the highest number of ELI renters of any county in the top 10 and has affordable housing for 61 in 100 ELI renters. These results reflect a higher proportion of rental units targeted to ELI renters, not fewer ELI renters. Although some low-cost housing markets have a large share of units supplied by the private market, federal rental assistance plays a crucial role in closing the ELI rental affordability gap. Without federal rental assistance, no county in the top 10 would have more than 50 AAA units per 100 ELI renter households. The higher share of affordable units in some counties also may reflect a state or local decision to focus attention and resources on ELI renters. For more on how we produce the counts shown in table 4, see appendixes A and C.

TABLE 4

Large Counties with the Smallest Affordability Gap for ELI Renters, 2014

County, state	Population	ELI renter households	AAA units	Federally assisted units per 100 renters	Naturally affordable units per 100 renters	Units per 100 renters	Rank
Hidalgo , TX	806,447	33,439	23,584	21	50	71	1
El Paso, TX	823,862	33,479	20,522	22	39	61	2
Suffolk, MA	747,928	70,700	43,230	48	13	61	3
Essex, MA	757,395	37,721	21,665	34	23	57	4
Norfolk, MA	682,860	21,145	11,772	28	27	56	5
Providence, RI	629,280	38,846	21,143	44	10	54	6
Middlesex, MA	1,539,832	56,590	30,771	35	19	54	7
Jefferson, AL	658,834	31,232	16,855	34	20	54	8
Hamilton, OH	803,272	51,110	27,580	25	29	54	9
Allegheny, PA	1,229,172	51,459	27,132	33	20	53	10

Sources: American Community Survey five-year sample from 2010 to 2014 from the Integrated Public Use Microdata Series merged with HUD data on income limits and HUD and US Department of Agriculture data on households receiving rental assistance.
Note: AAA = adequate, affordable, and available; ELI = extremely low-income; HUD = US Department of Housing and Urban Development.

Gwinnett County, Georgia, part of the Atlanta–Sandy Springs–Roswell metropolitan area, has 14 AAA units for every 100 ELI renters, the greatest gap of any large county (table 5). The 10 counties with the biggest gap in affordability are all located in Arizona, California, Florida, Georgia, or Texas.

A larger affordability gap is not necessarily because of a larger population of ELI renter households. Jefferson County, Alabama, has a similar number of ELI renter households as DeKalb County, Georgia, (31,232 versus 31,310), but more than double the number of AAA units. Wide variations also exist within states. Denton County, Texas, just north of the Dallas/Fort Worth area, has an ELI population less than half the size of Hidalgo County, Texas (15,068 versus 33,439), but one-tenth the number of AAA units. Consistent across large counties with the largest gaps is the limited supply of federally assisted units. This disparity is partly because federal rental assistance is not keeping pace with population growth in the South and Southwest. For example, Suffolk County, Massachusetts, has over 33,800 federally assisted units, and Gwinnett County, Georgia, has roughly 1,200, partly because of different state and local investments in affordable housing development and preservation. Massachusetts has state-run programs to supplement federal rental assistance.[7]

TABLE 5

Large Counties with the Largest Affordability Gap for ELI Renters, 2014

County, state	Population	ELI renter households	AAA units	Federally assisted units per 100 renters	Naturally affordable units per 100 renters	Units per 100 renters	Rank
Gwinnett, GA	842,091	17,649	2,476	7	7	14	1
Denton, TX	708,627	15,068	2,443	8	8	16	2
Cobb, GA	708,920	18,746	3,408	7	11	18	3
Orange, FL	1,200,241	42,172	7,687	10	8	18	4
Travis, TX	1,092,810	49,805	9,645	11	8	19	5
San Bernardino , CA	2,078,586	65,000	13,014	10	10	20	6
Collin, TX	836,947	13,085	2,720	11	9	21	7
Maricopa, AZ	3,947,382	129,656	29,060	11	12	22	8
DeKalb, GA	707,185	31,310	7,520	14	10	24	9
San Joaquin, CA	701,050	25,436	6,209	15	9	24	10

Sources: American Community Survey five-year sample from 2010 to 2014 from the Integrated Public Use Microdata Series merged with data from HUD on income limits and HUD and US Department of Agriculture data on households receiving rental assistance.
Note: AAA = adequate, affordable, and available; ELI = extremely low-income; HUD = US Department of Housing and Urban Development.

El Paso, McAllen, Fresno, and Miami Made the Most Progress in Closing the Affordability Gap from 2000 to 2014; Joliet, Detroit, and Milwaukee Fell the Furthest Behind

Only 25 of the 100 largest counties increased the number of affordable units available per 100 ELI renters from 2000 to 2014 (table 6). Each county with a positive trend closed the gap by increasing the number of units affordable to ELI renters rather than decreasing the number of ELI renter households. El Paso County, Texas, led the way, increasing the number of units available for every 100 ELI renters from 42 to 61. Although these counties improved the proportion of rentals affordable to ELI renters, none added enough units to match the increase in ELI renters. Miami added roughly 41,100 units affordable to ELI renters between 2000 and 2014, but had an increase of 48,900 ELI renter households.

Will County, Illinois, which is part of the Chicago metropolitan area, and Wayne County, Michigan, which includes Detroit, provide contrasting examples of counties losing ground (table 7). In Wayne County, the negative trend is because the supply of affordable housing for ELI renters dropped from about 53,500 units to about 40,500. In Will County, the number of units affordable to ELI renters stayed the same, but the number of ELI renter households increased from 5,900 to 9,000. Five of the top 10 counties that have lost the most affordable housing per 100 ELI renters are Midwestern counties: Cook County, Illinois; Macomb County, Michigan; Milwaukee County, Wisconsin; Wayne County, Michigan; and Will County, Illinois.

TABLE 6

Large Counties with the Most Positive Affordability Trends for ELI Renters, 2000–14

County, state	ELI Renter Households		AAA Units		Units per 100 Renters		Difference	Rank
	2000	2010–14	2000	2010–14	2000	2010–14		
El Paso, TX	16,929	33,479	7,088	20,522	42	61	19	1
Hidalgo, TX	13,559	33,439	7,626	23,584	56	71	14	2
Fresno, CA	25,350	47,117	5,940	16,489	23	35	12	3
Miami-Dade, FL	87,982	121,931	23,115	43,888	26	36	10	4
San Mateo, CA	13,898	21,332	2,985	6,408	21	30	9	5
Kern, CA	17,459	34,316	3,044	8,729	17	25	8	6
Orange, CA	71,254	96,280	18,447	32,084	26	33	7	7
Pierce, WA	17,212	24,701	4,759	8,087	28	33	5	8
New York, NY	589,726	630,856	249,714	298,662	42	47	5	9
Erie, NY	35,378	42,296	16,301	21,196	46	50	4	10

Sources: American Community Survey five-year sample from 2010 to 2014 from the Integrated Public Use Microdata Series merged with HUD data on income limits and HUD and US Department of Agriculture data on households receiving rental assistance.

Notes: ELI = extremely low-income; HUD = US Department of Housing and Urban Development. Four of the 100 most-populous counties in the United States are in New York City. The five New York City counties are combined in this analysis.

TABLE 7

Large Counties with the Worst Affordability Trends for ELI Renters, 2000–14

County, state	ELI Renter Households		AAA Units		Units per 100 Renters		Difference	Rank
	2000	2010–14	2000	2010–14	2000	2010–14		
Will, IL	5,921	8,976	3,739	3,156	63	35	-28	97
Wayne, MI	88,945	101,259	53,509	40,453	60	40	-20	96
Milwaukee, WI	47,944	62,953	23,444	19,515	49	31	-18	95
District of Columbia	52,474	49,956	34,024	23,602	65	47	-18	94
Duval, FL	23,391	33,926	13,904	14,292	59	42	-17	93
Contra Costa, CA	21,642	34,383	10,548	11,263	49	33	-16	92
Macomb, MI	13,249	22,897	6,140	7,043	46	31	-16	91
Davidson, TN	26,492	32,232	14,480	12,607	55	39	-16	90
Cook, IL	249,920	243,179	123,211	82,406	49	34	-15	89
Fulton, GA	43,626	48,336	26,152	22,362	60	46	-14	88

Sources: American Community Survey five-year sample from 2010 to 2014 from the Integrated Public Use Microdata Series merged with HUD data on income limits and HUD and USDA data on households receiving rental assistance.
Notes: ELI = extremely low-income; HUD = US Department of Housing and Urban Development. Four of the 100 most-populous counties in the United States are in New York City. Because the five New York City counties are combined in this analysis, the lowest-ranking number is 97.

USDA Rental Assistance Plays a Critical Role in Rural and Small Towns

Table 8 shows the 10 counties where USDA assistance provides the greatest share of AAA housing for ELI renters. The USDA had the greatest impact in Bingham County, Idaho. Without USDA assistance, the affordable housing gap widens from 63 to 14 units per 100 ELI renter households. Three of the counties most reliant on USDA programs for affordable housing contain Native American reservations: Churchill County, Nevada; Elko County, Nevada; and Flathead County, Montana. Only one of the most affected counties is in the Northeast; the rest are scattered in the Midwest, South, and West Coast.

TABLE 8

Rural and Small Town Counties where USDA Assistance Most Affects Affordability for Extremely Low-Income Renters, 2014

County, state	Population	ELI renter households	AAA rentals	Affordable units per 100 ELI renter households (A)	Affordable units per 100 ELI renter households *without* USDA assistance (B)	A−B	Rank
Bingham, ID	45,558	918	580	63	14	49.5	1
Churchill, NV	24,347	583	363	62	24	38.4	2
Sunflower, MS	28,314	1,611	1,098	68	32	36.1	3
Lawrence, SD	24,478	1,051	771	73	38	35.4	4
Elmore, ID	26,349	689	467	68	35	32.5	5
Payette, ID	22,658	677	399	58.9	29	30.0	6
Adams, IN	34,533	562	449	80.0	50	29.9	7
Flathead, MT	92,373	3,160	2,147	67.9	40	28.0	8
Elko, NV	50,991	1,045	613	58.7	31	27.7	9
Yankton, SD	22,580	811	510	62.9	36	27.4	10

Sources: ACS five-year sample data for 2010–14 from the Integrated Public Use Microdata Series merged with data from HUD on income limits and HUD and USDA data on households receiving rental assistance.

Notes: ACS = American Community Survey; ELI = extremely low-income; HUD = US Department of Housing and Urban Development; USDA = US Department of Agriculture. Because of ACS sample size limitations, only rural and small counties with populations above 20,000 and ELI renter sample sizes over 50 are shown.

Conclusion

Housing affordability is a major challenge for extremely low-income renters. Since 2000, the stock of adequate, affordable, and available rental units has not kept pace with the increase in the number of extremely low-income renters. The widening affordability gap is driven by the continued loss of affordable market-rate housing and budget cuts to rental assistance programs at the US Department of Housing and Urban Development and the US Department of Agriculture.

Without federal rental assistance, the magnitude of this problem would be greater. Simply put, virtually no affordable housing units would be available to ELI households absent continued investment in federally assisted rental housing.

If market trends continue, funding for HUD and the USDA must increase to fill the gap in suitable units for ELI renters. If additional funding is not provided, all counties, including rural communities with vulnerable populations and Native American communities, will struggle to provide adequate, affordable housing for ELI renter households.

Appendix A. Where Our Numbers Come From

Our methodology has changed since we published our 2015 report.

- **New data**. This report includes administrative data on the US Department of Agriculture's (USDA) Section 521 rental assistance. To increase the confidence in our estimates, we changed the underlying American Community Survey (ACS) data from three-year files to five-year files. We also received more refined data from HUD on rents and tenant payments.

- **Updated income limits**. In the 2015 report, the US Department of Housing and Urban Development (HUD) income limits for five-year ACS data matched the midpoint year. In this update, the HUD income limits are matched to the correct years—the 2000 data are unchanged, the 2005–09 data have slightly more ELI renters and affordable units, and the 2010–14 data have a large increase in ELI renters and affordable units. The changes are prevalent in counties that had the lowest ELI levels in the previous report because these counties experienced the biggest shifts in income limits.

- **Refined methodology and updated assumptions**. Updated data from HUD on tenant payments and gross rent allow us to better isolate the number of adequate, affordable, and available (AAA) units that HUD adds to the housing stock. Similar to previous years, we assume that units with project-based rental assistance, including public housing, project-based Section 8, Moderate Rehabilitation, other multifamily units, and USDA, report an affordable gross rent in the ACS, and are thus subtracted from the naturally affordable count. This assumption decreased the count of naturally affordable units, especially in rural areas, where the USDA assistance has a stronger presence. This generates a higher per 100 count than in prior years.

Abbreviated Methodology

The primary data source for this analysis is household-level records from the 2000 Census and American Community Survey five-year estimates for 2005–09 and 2010–14. This dataset provides information on households' income, demographics, housing units, and housing-related expenses. We applied HUD's standard on income limits to identify renters with extremely low incomes.

We counted the number of ELI households who reported that monthly rent and utilities were less than or equal to 30 percent of the cost for the upper limit of area ELI households, which gave us a count of ELI renter-occupied affordable units. We then added vacant units affordable to ELI renters and subtracted vacant and occupied substandard units, defined as those with incomplete plumbing or missing kitchen or cooking facilities. Finally, we subtracted the number of project-based federally assisted units, including project-based Section 8, Moderate Rehabilitation, other multifamily, public housing units, and Section 521 USDA units to attribute those units to a federal subsidy rather than to natural affordability based on monthly rent. This provided the number of nonsubsidized AAA units.

Nonsubsidized units adequate, affordable, and available to ELI renters =

Affordable occupied units + affordable vacant units – units occupied by high-income renters – substandard occupied units – substandard vacant units – project-based Section 8 – Mod Rehab – other multifamily – public housing units – Section 521

To examine the role of HUD's rental assistance programs, we used HUD administrative data. The dataset provided the number of units affordable to ELI renters before and after HUD subsidies. We took the affordable units for each HUD rental assistance program and subtracted the units that were affordable before the HUD subsidy.

To examine the role of the USDA's rental assistance programs, we used USDA administrative data. The dataset provided information by county on the number of ELI households living in USDA Section 515–financed properties and receiving USDA Section 521 Rental Assistance.

Subsidized units affordable, and available to ELI renters =

USDA-assisted affordable and available units + HUD-assisted affordable and available units

The sum of subsidized and nonsubsidized AAA units is the total count of AAA units. We divided the number of AAA units by the number of ELI renter households, and then multiplied by 100. The result was the number of units per 100 ELI renter households. This number estimates the portion of the ELI renter population that has access to AAA housing.

Total adequate, affordable, and available units per 100 ELI renters =

[(Total ELI renters – units affordable to ELI renters) / Total ELI renters] * 100

Comparing with Other National Estimates

Our methodology for estimating the number of ELI households and the supply of AAA housing differs from other published estimates:

- **HUD's Worst Case Housing Needs.** HUD's biennial *Worst Case Housing Needs* report to Congress relies on the American Housing Survey (AHS). This biennial survey sponsored by HUD and conducted by the Census Bureau provides nationally representative estimates on housing, demographic, and market conditions. The differences between data sources used in *Worst Case Housing Needs* (AHS) and our analysis (ACS) lead to slightly different national estimates of the number of ELI households and housing available to those households. *Worst Case Housing Needs* assumes any household receiving federal assistance is unaffordable based on contract or gross rent. The report may slightly underestimate the natural availability of affordable housing because of this assumption. We use more detailed HUD administrative data to include subsidized households with affordable gross rent in our count of AAA units.

- **National Low Income Housing Coalition's Affordable Housing Gap Analyses:** These reports on housing affordability for ELI households use data from the ACS Public Use Microdata Sample. The analyses do not include the HUD or USDA data, and thus do not fully estimate the impact of housing assistance programs in creating affordable units, so the estimates should be lower.

Appendix B. Top 100 Counties

Availability of Adequate and Affordable Rental Housing for ELI Renters in the Largest 100 US Counties, 2014

County, state	Population	ELI renter households	AAA units	Federally assisted units per 100 renters	Naturally affordable units per 100 renters	Units per 100 renters	Rank
Hidalgo, TX	806,447	33,439	23,584	20.6	50.0	70.6	1
El Paso, TX	823,862	33,479	20,522	22.5	38.8	61.3	2
Suffolk, MA	747,928	70,700	43,230	47.9	13.2	61.1	3
Essex, MA	757,395	37,721	21,665	34.4	23.1	57.5	4
Norfolk, MA	682,860	21,145	11,772	28.2	27.5	55.7	5
Middlesex, MA	1,539,832	56,590	30,771	35.0	19.3	54.3	6
Jefferson, AL	658,834	31,232	16,855	34.2	19.7	53.9	7
Hamilton, OH	803,272	51,110	27,580	25.3	28.7	54.0	8
Allegheny, PA	1,229,172	51,459	27,132	33.0	19.7	52.7	9
Westchester, NY	962,319	34,565	17,943	41.8	10.1	51.9	10
Jefferson, KY	751,485	36,921	18,775	26.6	24.3	50.9	11
Jackson, MO	678,167	36,034	18,263	27.2	23.5	50.7	12
Hartford, CT	897,374	41,708	20,994	38.3	12.1	50.4	13
Cuyahoga, OH	1,267,513	74,910	37,659	26.6	23.7	50.3	14
Erie, NY	920,694	42,296	21,196	27.6	22.5	50.1	15
Worcester, MA	806,804	36,326	17,690	38.1	10.6	48.7	16
New York, NY	1,618,398	630,856	298,662	38.0	9.3	47.3	17
Fairfield, CT	934,215	39,084	18,491	30.7	16.6	47.3	18
District of Columbia	633,736	49,956	23,602	34.8	12.5	47.3	19
New Haven, CT	863,148	40,150	18,848	40.1	6.9	47.0	20
Fulton, GA	967,100	48,336	22,362	30.4	15.9	46.3	21
Oklahoma, OK	743,145	33,364	15,136	24.5	20.8	45.3	22
Franklin, OH	1,197,592	63,006	28,159	22.0	22.7	44.7	23
Essex, NJ	789,616	53,380	23,255	39.4	4.2	43.6	24
Lake, IL	703,170	15,768	6,855	28.4	15.1	43.5	25
Duval, FL	880,750	33,926	14,292	30.2	11.9	42.1	26
Hudson, NJ	654,878	39,027	16,363	37.4	4.5	41.9	27
Ventura, CA	835,790	21,875	9,128	26.2	15.6	41.8	28
St. Louis, MO	1,000,423	27,145	11,277	26.1	15.5	41.6	29
Philadelphia, PA	1,546,920	113,351	46,732	22.3	18.9	41.2	30
Nassau, NY	1,350,601	25,092	10,311	29.8	11.3	41.1	31
Bexar, TX	1,789,088	66,082	26,968	21.0	19.8	40.8	32
San Francisco, CA	829,072	62,940	25,629	26.2	14.5	40.7	33
Santa Clara, CA	1,841,569	59,627	24,175	23.8	16.8	40.6	34
Montgomery, MD	1,005,087	24,005	9,707	30.2	10.2	40.4	35
Suffolk, NY	1,500,373	29,227	11,796	25.1	15.3	40.4	36
Honolulu, HI	975,690	30,327	12,206	28.9	11.4	40.3	37
Snohomish, WA	735,351	22,416	9,005	24.1	16.1	40.2	38
Shelby, TN	936,130	44,610	17,906	20.8	19.3	40.1	39
Hennepin, MN	1,184,091	54,134	21,644	29.9	10.1	40.0	40
Wayne, MI	1,790,078	101,259	40,453	20.4	19.5	39.9	41
Alameda, CA	1,559,308	71,041	28,213	24.2	15.5	39.7	42
King, WA	2,008,997	82,390	32468	25.5	14.0	39.5	43

County, state	Population	ELI renter households	AAA units	Federally assisted units per 100 renters	Naturally affordable units per 100 renters	Units per 100 renters	Rank
Davidson, TN	648,048	32,232	12607	24.9	14.2	39.1	44
Bernalillo, NM	671,429	29,433	11501	18.9	20.2	39.1	45
Denver, CO	633,777	40,100	15458	30.8	7.8	38.6	46
Baltimore, MD	817,720	22,952	8,825	26.9	11.5	38.4	47
Fort Bend, TX	632,946	6,520	2,497	13.1	25.2	38.3	48
Bergen, NJ	920,456	25,502	9,749	25.8	12.5	38.3	49
Miami-Dade, FL	2,600,861	121,931	43,888	24.0	12.0	36.0	50
Fairfax, VA	1,117,072	21,329	7,512	24.2	11.0	35.2	51
Will, IL	682,108	8,976	3,156	21.5	13.6	35.1	52
Fresno, CA	948,844	47,117	16,489	16.9	18.1	35.0	53
Monroe, NY	748,076	34,446	11,973	22.3	12.5	34.8	54
Tarrant, TX	1,881,469	62,408	21,372	15.0	19.3	34.3	55
Prince George's, MD	884,764	27,390	9,370	19.8	14.5	34.3	56
Middlesex, NJ	824,046	25,916	8,829	25.5	8.5	34.0	57
Marion, IN	919,336	50,429	17,155	14.7	19.3	34.0	58
Lee, FL	647,554	16,408	5,570	14.2	19.7	33.9	59
Cook, IL	5,227,827	243,179	82,406	23.2	10.7	33.9	60
Orange, CA	3,086,331	96,280	32,084	20.5	12.8	33.3	61
Contra Costa, CA	1,081,232	34,383	11,263	20.4	12.4	32.8	62
Pierce, WA	812,689	24,701	8,087	21.8	10.9	32.7	63
Pinellas, FL	925,030	29,631	9,521	16.6	15.5	32.1	64
Pima, AZ	993,144	41,275	13,259	13.3	18.9	32.2	65
Dallas, TX	2,448,943	106,111	34,039	16.9	15.2	32.1	66
Hillsborough, FL	1,279,668	47,090	15,010	15.4	16.5	31.9	67
Oakland, MI	1,220,798	30,989	9,827	19.4	12.3	31.7	68
Montgomery, PA	809,372	17,024	5,381	22.1	9.5	31.6	69
Milwaukee, WI	953,401	62,953	19,515	23.5	7.5	31.0	70
Macomb, MI	849,344	22,897	7,043	19.8	11.0	30.8	71
Palm Beach, FL	1,359,074	36,812	11,263	16.8	13.8	30.6	72
San Mateo, CA	739,837	21,332	6,408	17.2	12.8	30.0	73
Salt Lake, UT	1,063,670	27,994	8,347	16.9	12.9	29.8	74
San Diego, CA	3,183,143	111,041	32,561	19.2	10.1	29.3	75
Multnomah, OR	757,371	39,943	11,388	19.5	9.0	28.5	76
El Paso, CO	645,707	19,417	5,411	16.4	11.5	27.9	77
Harris, TX	4,269,608	164,065	45,048	12.9	14.5	27.4	78
Mecklenburg, NC	968,500	35,828	9,743	16.7	10.5	27.2	79
Wake, NC	952,513	28,387	7,706	15.9	11.3	27.2	80
DuPage, IL	926,485	15,334	4,125	18.3	8.6	26.9	81
Sacramento, CA	1,450,277	63,329	16,880	18.6	8.0	26.6	82
Los Angeles, CA	9,974,203	501,951	128,310	17.4	8.2	25.6	83
Kern, CA	857,730	34,316	8,729	10.5	14.9	25.4	84
Riverside, CA	2,266,899	58,620	14,784	13.3	11.9	25.2	85
Clark, NV	2,003,613	67,907	16,852	12.3	12.5	24.8	86
Broward, FL	1,815,269	54,914	13,430	14.5	10.0	24.5	87
San Joaquin, CA	701,050	25,436	6,209	15.1	9.3	24.4	88
DeKalb, GA	707,185	31,310	7,520	14.3	9.7	24.0	89
Maricopa, AZ	3,947,382	129,656	29,060	10.7	11.8	22.5	90
Collin County, TX	836,947	13,085	2,720	11.5	9.3	20.8	91
San Bernardino, CA	2,078,586	65,000	13,014	10.5	9.6	20.1	92
Travis, TX	1,092,810	49,805	9,645	11.2	8.2	19.4	93
Orange, FL	1,200,241	42,172	7,687	10.4	7.8	18.2	94
Cobb, GA	708,920	18,746	3,408	7.4	10.7	18.1	95

County, state	Population	ELI renter households	AAA units	Federally assisted units per 100 renters	Naturally affordable units per 100 renters	Units per 100 renters	Rank
Denton, TX	708,627	15,068	2,443	8.0	8.2	16.2	96
Gwinnett, GA	842,091	17,649	2,476	6.6	7.4	14.0	97

Notes: AAA = adequate, affordable, and available; ELI = extremely low-income. Because the five New York City counties are combined in this analysis, the lowest-ranking number is 97.

TABLE B.2

Trends in Affordability for ELI Renters in 100 Largest US Counties, 2000–2014

County, state	ELI renter households, 2000	ELI renter households, 2014	AAA units, 2000	AAA units, 2014	Units per 100 renters, 2000	Units per 100 renters, 2014	Per 100 difference	Rank
El Paso, TX	16,929	33,479	7,088	20,522	41.9	61.3	19.4	1
Hidalgo, TX	13,559	33,439	7,626	23,584	56.2	70.5	14.3	2
Fresno, CA	25,350	47,117	5,940	16,489	23.4	35.0	11.6	3
Miami-Dade, FL	87,982	121,931	23,115	43,888	26.3	36.0	9.7	4
San Mateo, CA	13,898	21,332	2,985	6,408	21.5	30.0	8.5	5
Kern, CA	17,459	34,316	3,044	8,729	17.4	25.4	8.0	6
Orange, CA	71,254	96,280	18,447	32,084	25.9	33.3	7.4	7
Pierce, WA	17,212	24,701	4,759	8,087	27.6	32.7	5.1	8
New York, NY	589,726	630,856	249,714	298,662	42.3	47.3	5.0	9
Erie, NY	35,378	42,296	16,301	21,196	46.1	50.1	4.0	10
Monroe, NY	26,270	34,446	8,105	11,973	30.9	34.8	3.9	11
Westchester, NY	38,451	34,565	18,568	17,942	48.3	51.9	3.6	12
Pima, AZ	25,419	41,275	7,293	13,259	28.7	32.1	3.4	13
Suffolk, MA	57,132	70,700	33,000	43,230	57.8	61.1	3.3	14
Suffolk, NY	23,300	29,227	8,643	11,796	37.1	40.4	3.3	15
Los Angeles, CA	383,332	501,950	86,660	128,310	22.6	25.6	3.0	16
Hudson, NJ	34,344	39,027	13,432	16,363	39.1	41.9	2.8	17
Oklahoma, OK	21,613	33,364	9,240	15,136	42.8	45.4	2.6	18
St. Louis, MO	16,638	27,145	6,492	11,277	39.0	41.5	2.5	19
Ventura, CA	15,984	21,875	6,322	9,128	39.6	41.7	2.1	20
King, WA	57,032	82,390	2,208	32,468	38.7	39.4	0.7	21
Sacramento, CA	40,354	63,329	10,519	16,880	26.1	26.7	0.6	22
Bernalillo, NM	17,002	29,433	6,576	11,501	38.7	39.1	0.4	23
Montgomery, MD	18,104	24,005	7,256	9,707	40.1	40.4	0.3	24
San Francisco, CA	48,847	62,940	19,795	25,629	40.5	40.7	0.2	25
San Diego, CA	77,359	111,041	22,610	32,561	29.2	29.3	0.1	26
Prince George's, MD	22,879	27,390	7,918	9,370	34.6	34.2	-0.4	27
Nassau, NY	20,527	25,092	8,620	10,311	42.0	41.1	-0.9	28
Essex, MA	30,254	37,721	17,681	21,665	58.4	57.4	-1.0	29
Riverside, CA	31,695	58,620	8,379	14,784	26.4	25.2	-1.2	30
Bergen, NJ	19,474	25,502	7,685	9,749	39.5	38.2	-1.2	31
San Joaquin, CA	15,032	25,436	3,855	6,209	25.6	24.4	-1.2	32
Middlesex, MA	42,927	56,590	24,015	30,771	55.9	54.4	-1.5	33
New Haven, CT	32,360	40,150	15,732	18,848	48.6	46.9	-1.7	34
Hennepin, MN	35,793	54,134	14,911	21,644	41.7	40.0	-1.7	35

County, state	ELI renter households, 2000	ELI renter households, 2014	AAA units, 2000	AAA units, 2014	Units per 100 renters, 2000	Units per 100 renters, 2014	Per 100 difference	Rank
Travis, TX	31,237	49,805	6,581	9,645	21.1	19.4	-1.7	36
Norfolk, MA	14,382	21,145	8,251	11,772	57.4	55.7	-1.7	37
Clark, NV	35,284	67,907	9,486	16,852	26.9	24.8	-2.1	38
Santa Clara, CA	43,116	59,627	18,373	24,175	42.6	40.5	-2.1	39
Baltimore, MD	16,236	22,952	6,579	8,825	40.5	38.4	-2.1	40
Broward, FL	42,510	54,914	11,422	13,430	26.9	24.5	-2.4	41
El Paso, CO	9,876	19,417	2,992	5,411	30.3	27.9	-2.4	42
Salt Lake, UT	16,215	27,994	5,247	8,347	32.4	29.8	-2.6	43
Franklin, OH	43,838	63,006	20,795	28,159	47.4	44.7	-2.7	44
Hillsborough, FL	26,607	47,090	9,256	15,010	34.8	31.9	-2.9	45
Tarrant, TX	38,937	62,408	14,497	21,372	37.2	34.2	-3.0	46
Honolulu, HI	29,315	30,327	12,755	12,206	43.5	40.2	-3.3	47
San Bernardino, CA	41,253	65,000	9,804	13,014	23.8	20.0	-3.8	48
Fairfax, VA	14,104	21,329	5,512	7,512	39.1	35.2	-3.9	49
Dallas, TX	78,282	106,111	28,489	34,039	36.4	32.1	-4.3	50
Harris, TX	119,594	164,065	38,023	45,048	31.8	27.5	-4.3	51
Worcester, MA	25,148	36,326	13,413	17,690	53.3	48.7	-4.6	52
Allegheny, PA	39,794	51,459	22,865	27,132	57.5	52.7	-4.8	53
Maricopa, AZ	69,925	129,656	19,088	29,060	27.3	22.4	-4.9	54
Jefferson, AL	25,237	31,232	15,023	16,855	59.5	54.0	-5.5	55
Cuyahoga, OH	61,369	74,910	34,277	37,659	55.9	50.3	-5.6	56
Essex, NJ	53,310	53,380	26,237	23,255	49.2	43.6	-5.6	57
Jefferson, KY	24,944	36,921	14,095	18,775	56.5	50.9	-5.6	58
Hartford, CT	30,870	41,708	17,295	20,994	56.0	50.3	-5.7	59
DuPage, IL	10,603	15,334	3,459	4,125	32.6	26.9	-5.7	60
Alameda, CA	54,253	71,041	24,763	28,213	45.6	39.7	-5.9	61
Jackson, MO	24,501	36,034	13,935	18,263	56.9	50.7	-6.2	62
Palm Beach, FL	24,940	36,812	9,233	11,263	37.0	30.6	-6.4	63
Hamilton, OH	35,445	51,110	21,494	27,580	60.6	54.0	-6.6	64
Middlesex, NJ	19,015	25,916	7,753	8,829	40.8	34.1	-6.7	65
Denver, CO	29,865	40,100	13,543	15,458	45.3	38.5	-6.8	66
Montgomery, PA	11,340	17,024	4,357	5,381	38.4	31.6	-6.8	67
Gwinnett, GA	6,684	17,649	1,420	2,476	21.2	14.0	-7.2	68
Lee, FL	7,568	16,408	3,118	5,570	41.2	33.9	-7.3	69
Orange, FL	21,150	42,172	5,412	7,687	25.6	18.2	-7.4	70
Fort Bend, TX	3,436	6,520	1,572	2,497	45.8	38.3	-7.5	71
Oakland, MI	20,764	30,989	8,148	9,827	39.2	31.7	-7.5	72
Denton, TX	10,341	15,068	2,459	2,443	23.8	16.2	-7.6	73
Marion, IN	29,319	50,429	12,230	17,155	41.7	34.0	-7.7	74
Philadelphia, PA	89,798	113,351	44,096	46,732	49.1	41.2	-7.9	75
Bexar, TX	36,710	66,082	17,908	26,968	48.8	40.8	-8.0	76
Shelby, TN	33,966	44,610	16,406	17,906	48.3	40.1	-8.2	77
Multnomah, OR	25,553	39,943	9,511	11,388	37.2	28.5	-8.7	78
Pinellas, FL	21,268	29,631	8,696	9,521	40.9	32.1	-8.8	79
Cobb, GA	10,728	18,746	2,907	3,408	27.1	18.2	-8.9	80
Snohomish, WA	13,008	22,416	6,393	9,005	49.1	40.2	-8.9	81
Fairfield, CT	30,154	39,084	17,265	18,491	57.3	47.3	-10.0	82
DeKalb, GA	19,051	31,310	6,555	7,520	34.4	24.0	-10.4	83
Wake, NC	15,633	28,387	6,015	7,706	38.5	27.1	-11.4	84
Lake, IL	9,759	15,768	5,417	6,855	55.5	43.5	-12.0	85

County, state	ELI renter households, 2000	ELI renter households, 2014	AAA units, 2000	AAA units, 2014	Units per 100 renters, 2000	Units per 100 renters, 2014	Per 100 difference	Rank
Collin, TX	5,347	13,085	1,770	2,720	33.1	20.8	-12.3	86
Mecklenburg, NC	17,733	35,828	7,149	9,743	40.3	27.2	-13.1	87
Fulton, GA	43,626	48,336	26,152	22,362	59.9	46.3	-13.7	88
Cook, IL	249,920	243,180	123,211	82,406	49.3	33.9	-15.4	89
Davidson, TN	26,492	32,232	14,480	12,607	54.7	39.1	-15.6	90
Macomb, MI	13,249	22,897	6,140	7,043	46.3	30.8	-15.5	91
Contra Costa, CA	21,642	34,383	10,548	11,263	48.7	32.8	-15.9	92
Duval, FL	23,391	33,926	13,904	14,292	59.4	42.1	-17.3	93
District of Columbia	52,474	49,956	34,024	23,602	64.8	47.2	-17.6	94
Milwaukee, WI	47,944	62,953	23,444	19,515	48.9	31.0	-17.9	95
Wayne, MI	88,945	101,259	53,509	40,453	60.2	40.0	-20.2	96
Will, IL	5,921	8,976	3,739	3,156	63.1	35.2	-27.9	97

Notes: AAA = adequate, affordable, and available; ELI = extremely low-income. Because the five New York City counties are combined in this analysis, the lowest-ranking number is 97.

TABLE B.3

Top Rural and Small Town Counties where USDA Assistance Impacts Affordability for Extremely Low-Income Renters, 2014

County, state	Population	ELI renter households	AAA rentals	Affordable units per 100 ELI renter households (A)	Affordable units per 100 ELI renter households *without* USDA assistance (B)	A−B	Rank
Bingham, ID	45,558	918	580	63.2	13.7	49.5	1
Churchill, NV	24,347	583	363	62.4	23.9	38.5	2
Sunflower, MS	28,314	1,611	1,098	68.2	32.0	36.2	3
Lawrence, SD	24,478	1,051	765	72.8	37.4	35.4	4
Elmore, ID	26,349	689	467	67.8	35.3	32.5	5
Payette, ID	22,658	677	399	58.9	28.9	30.0	6
Adams, IN	34,533	562	449	80.0	50.1	29.9	7
Flathead, MT	92,373	3,160	2,147	67.9	40.0	27.9	8
Elko, NV	50,991	1,045	613	58.7	31.0	27.7	9
Yankton, SD	22,580	811	508	62.6	35.2	27.4	10
St. Joseph, MI	60,998	1,650	1,064	64.5	37.5	27.0	11
Codington, SD	27,598	1,021	757	74.2	47.7	26.5	12
Pontotoc, MI	30,374	562	458	81.5	55.2	26.3	13
Nye, NV	42,938	1,786	1,116	62.5	36.6	25.9	14
McKinley, NV	73,082	1,971	1,684	85.4	59.7	25.7	15
Grafton, NH	89,360	2,738	1,132	41.3	15.8	25.5	16
Texas, OK	21,495	603	530	87.9	64.0	23.9	17
Mahaska, IA	22,420	852	706	82.8	59.8	23.0	18
Platte, NE	32,485	774	562	72.5	50.0	22.5	19
Blaine, ID	21,269	759	422	55.6	33.8	21.8	20

County, state	Population	ELI renter households	AAA rentals	Affordable units per 100 ELI renter households (A)	Affordable units per 100 ELI renter households *without* USDA assistance (B)	A–B	Rank
Gila, AZ	53,242	1,799	912	50.7	29.1	21.6	21
Minidoka, ID	20,191	432	248	57.3	35.8	21.5	22
Jennings, IN	28,223	579	424	73.2	51.8	21.4	23
Graham, AZ	37,311	868	502	57.8	36.6	21.2	24
Labette, KS	21,225	691	550	79.6	58.8	20.8	25
Boone, IA	26,326	766	234	30.6	10.5	20.1	26
Cassia, ID	23,275	602	362	60.2	40.3	19.9	27
Marion, MO	28,844	1,234	1,038	84.1	64.5	19.6	28
Uinta, WY	20,989	451	306	67.7	48.2	19.5	29
Buena Vista, IA	20,460	510	526	100.0	80.5	19.5	30
Marlboro, SC	28,294	1,235	1,114	90.2	70.9	19.3	31
Noble, IN	47,497	1,038	758	73.0	54.0	19.0	32
Jackson, AL	53,012	1,891	1,833	96.9	78.2	18.7	33
Fremont, WY	40,739	977	612	62.7	44.2	18.5	34
Allegan, MI	112,266	2,232	1,352	60.6	42.3	18.3	35
Nobles, MN	21,589	685	563	82.2	64.0	18.2	36
Otter Tail, MN	57,417	1,860	1,400	75.3	57.2	18.1	37
Grant, WA	91,458	3,159	1,874	59.3	41.3	18.0	38
Anderson, TX	58,084	1,261	753	59.8	41.9	17.9	39
Luna, NM	24,947	1,137	1,126	99.0	81.3	17.7	40
Lassen, CA	33,356	1,289	565	43.9	26.3	17.6	41
Carbon, UT	21,118	617	521	84.4	66.9	17.5	42
DeKalb, IN	42,321	859	627	73.0	55.6	17.4	43
Lyon, MN	25,724	1,027	748	72.9	55.5	17.4	44
Bee, TX	32,462	553	468	84.8	67.4	17.4	45
Sheridan, WY	29,578	1,010	901	89.2	72.4	16.8	46
Orange, VT	28,927	641	333	51.9	35.4	16.5	47
Beaufort, NC	47,587	1,892	1,492	78.9	62.6	16.3	48
Hillsdale, MI	46,282	1,142	555	48.6	32.4	16.2	49
Bureau, IL	34,361	965	573	59.4	43.5	16.0	50
Lawrence, TN	42,084	1,310	1,114	85.0	69.1	16.0	51
Clinton, PA	39,611	1,236	516	41.7	25.8	15.9	52
Hood River, OR	22,620	590	304	51.6	35.6	15.9	53
Hardee, FL	27,549	690	459	66.6	50.8	15.8	54
Belknap, NH	60,252	1,349	858	63.6	48.1	15.5	55
Abbeville, SC	25,100	966	699	72.4	57.2	15.2	56
Jackson, OH	32,952	1,638	1,125	68.7	53.6	15.1	57
Stark, ND	27,038	960	669	69.7	54.6	15.1	58
Branch, MI	43,965	1,148	754	65.7	50.7	15.0	59
Mercer, OH	40,789	1,053	735	69.8	54.9	14.9	60
Alpena, MI	29,242	962	697	72.5	57.6	14.9	61
Lee, IL	35,248	814	482	59.2	44.3	14.9	62
Grant, WI	51,272	1,491	973	65.3	50.5	14.8	63
Cooke, TX	38,558	1,092	702	64.3	49.5	14.8	64
Marshall, TN	30,977	937	534	57.0	42.3	14.7	65

County, state	Population	ELI renter households	AAA rentals	Affordable units per 100 ELI renter households (A)	Affordable units per 100 ELI renter households *without* USDA assistance (B)	A−B	Rank
Beltrami, MN	45,236	1,916	1,131	59.0	44.3	14.7	66
Kennebec, ME	121,507	4,757	2,232	46.9	32.3	14.6	67
Tuolumne, CA	54,347	1,871	745	39.8	25.3	14.5	68
Mason, WA	60,728	1,754	720	41.1	26.7	14.4	69
Nevada, CA	98,606	2,831	897	31.7	17.4	14.3	70
Jasper, IA	36,715	1,168	629	53.9	39.6	14.3	71
Seward, KS	23,319	703	461	65.6	51.3	14.3	72
Bolivar, MS	33,961	2,379	1,535	64.5	50.4	14.1	73
Summit, UT	37,877	906	557	61.5	47.4	14.1	74
Marshall, IN	47,032	1,106	543	49.1	35.0	14.1	75
Montgomery, KS	34,602	1,278	1,053	82.3	68.3	14.0	76
Morehouse, LA	27,319	1,539	1,419	92.2	78.4	13.8	77
Madison, NE	35,103	1,471	1,087	73.9	60.1	13.8	78
Wabash, IN	32,492	1,133	762	67.2	53.6	13.6	79
Dawson, NE	24,205	856	747	87.3	73.7	13.6	80
Gallia, OH	30,763	1,006	593	58.9	45.4	13.5	81
San Miguel, NM	28,899	1,598	1,138	71.2	57.9	13.3	82
Lincoln, KY	24,546	954	557	58.4	45.1	13.3	83
Seneca, NY	35,232	933	389	41.7	28.4	13.3	84
McPherson, KS	29,308	551	383	69.5	56.3	13.2	85
Rice, MN	64,829	1,536	907	59.0	45.8	13.2	86
Tazewell, VA	44,331	1,955	1,719	87.9	74.7	13.2	87
Fremont, CO	46,879	1,214	791	65.2	52.0	13.2	88
Tehama, CA	63,284	2,254	70	47.5	34.3	13.2	89
McLeod, MN	36,172	850	606	71.3	58.1	13.2	90
Cibola, NM	27,392	1,079	932	86.4	73.2	13.2	91
Ouachita, AR	25,421	1,206	861	71.4	58.3	13.1	92
Brookings, SD	32,647	1,531	1,190	77.7	64.6	13.1	93
Kandiyohi, MN	42,316	1,366	1,010	74.0	60.9	13.1	94
Teton, WY	21,956	807	585	72.5	59.5	13.0	95
Logan, OH	45,564	1,389	898	64.7	51.7	13.0	96
Champaign, OH	39,628	1,036	641	61.9	49.0	12.9	97
St. Francis, AR	27,642	1,800	1,612	89.5	76.7	12.8	98
Transylvania, NC	32,943	712	525	73.8	61.1	12.7	99
Lee, IA	35,552	1,171	907	77.5	64.8	12.7	100

Note: AAA = adequate, affordable, and available; ELI = extremely low-income; USDA = US Department of Agriculture.

Appendix C. Detailed Methodology

Overview

This appendix summarizes the methodology behind the affordability gap calculations by county area median income (AMI). The calculation relies on three primary datasets:

- **Census and American Community Survey data from the University of Minnesota's Integrated Public Use Microdata Series (IPUMS)** for county-level estimates of the number of ELI renter households paying affordable rents and living in adequate housing conditions.

- **Rental housing assistance programs from the US Department of Housing and Urban Development** for county-level estimates of ELI households served by HUD rental assistance programs, including Housing Choice Vouchers, project-based Section 8, Moderate Rehabilitation, public housing, and other multifamily assistance programs.

- **Rental housing assistance programs from the US Department of Agriculture (USDA)** for county-level estimates of ELI households served by USDA Section 521 rental assistance.

The HUD and USDA datasets were created by the originating federal agency using non-public-use data files. Each agency provided the data to the Urban Institute at the county level. The Urban Institute designed the parameters for creating each dataset. This section details those parameters and the formulas used to create the affordability estimates.

To create adjustments and to supplement the methodological processes below, the Urban Institute used HUD's income limits data.

Census and American Community Survey Data

HUD Income Limits Calculation

The affordability gap analysis relies on identifying households at various area median income–level "bands." HUD's income limit data classify individual-level survey responses from the IPUMS database

into income bands for further analysis. We matched each year of HUD income limit data to the year of ACS or Census data. For example, the ACS data for the five-year period 2010–14 represents 2014, and we use fiscal year 2014 HUD income limits.

BOX C.1

AMI Band Definitions

- Extremely low income: 0 to 30 percent of area median income (AMI)
- Very low income: 30.1 to 50 percent of AMI
- Low income: 50.1 to 80 percent of AMI
- Middle income: 80.1 to 120 percent of AMI
- High income: greater than 120 percent of AMI

PUMA-to-County Data Transformation

We used IPUMS data and HUD income limits data to develop a weighted crosswalk to carry out the Public Use Microdata Area (PUMA)–to-county transformation. The crosswalk was created only once and is not a part of the iterative process of updating affordability gap data and maps. It takes into account PUMA definitions before and after 2012, when new PUMA geographies were created, resulting in two crosswalks, one from the old PUMA geographies (2011 and earlier) to current (2012) counties, and the other from current PUMA geographies to current counties. The steps for creating the crosswalk are as follows:

1. Using 2000 renter household units as the weight for the 2000 PUMAs and 2010 renter household units as the weight for 2012 PUMAs, we assign 2000 block centroids to 2000 PUMAs and current counties and 2010 block centroids to 2012 PUMAs and current counties. Because census blocks are contained within counties and their identifiers have the county code within the first five digits, tracts are already assigned counties.
2. Merging each file by the block ID gives us two files, which we use to calculate the share of renter households in a PUMA who come from each county that is entirely or in part within that PUMA. These shares represent weights that we use to apply HUD AMI levels.

3. In the 2006 ACS and later, PUMAs 2201801, 2201802, and 2201905 were merged because of demographic changes resulting from Hurricane Katrina. We use the same methodology to weight counties to the new PUMA, which is a combination of the three, 2277777.
4. In the 2000 HUD income limits, 1990 counties are used. For simplicity, counties are assumed to match 2000 county boundaries, even though a few did change. In assigning AMI levels to households in 2000, we may be slightly off in areas where the Census Bureau changed county geographic boundaries significantly between 1990 and 2000.[8] For a list of counties not included in the dataset that have been appended to the 2000 data by assigning values from 1990 counties, contact the authors.

Nonsubsidized Affordability Calculations

The Number of Renter Households by AMI Band (RH)

The AMI band for each household is determined by the number of people in the household and the household's income level, along with the county-level cutoffs for each band. We examine the AMI band income categories defined in the HUD income limits section. The middle-income and high-income categories are not included in the HUD income limits file but can be generated by calculating 80 and 120 percent of AMI as AMI * 0.8 and AMI * 1.2, respectively.

For households with 9 to 30 people, we calculate the AMI level per HUD guidance.[9] The formula is (AMI level cutoff for a four-person family * (1 + ((Number of peoples in the household – 4) * 8) / 100)). For a nine-person household at the 30 percent AMI level, this calculation is (0.3 AMI level cutoff for a four-person family * (1 + ((9 – 4) * 8) / 100)) or (0.3 AMI for a four-person family * 1.4). Effectively, for each person in the household, increase the factor by 0.08, or 8 percentage points, so the factor is 1.4 times the AMI level for a four-person family for a 9-person household, 1.48 for a 10-person household, 1.56 for an 11-person household, and so on up to a 30-person household. The result is the number of renter households **(RH)** in each income band adjusted by household size.

The Number of Households Renting at Levels Affordable to a Given AMI Band without Federal Subsidy That Have Income within That Band or Below (AFF_AT), and Those with Income above That Band (AFF_ABOVE):

The affordability level for each household is determined per HUD guidance (Vandenbroucke 2011, 11) by using the AMI level cutoff for a four-person household (the "base" level) and applying an adjustment factor for the number of bedrooms in the unit and the gross rent the household pays. The rent at which a unit is affordable to renter households is higher for larger units. Basic affordability at an AMI level is defined as 30 percent of income. The base-level affordability calculation is Annual HUD AMI level cutoff for a family of four * 0.3 / 12. This is a standard formula for calculating affordable monthly rent as a percentage of annual income.

Affordability is adjusted by bedroom size using the adjustment in table C.1. If the value for bedrooms is not available or missing, we do not apply this adjustment. The formula for determining the unit's affordability level is as follows: (Annual HUD AMI cutoff for a family of four * 0.3 / 12) * *adjustment*. For ELI affordability level for a three-bedroom apartment, the formula is (0.3 AMI for a family of four * 0.3 / 12) * 1.04.

TABLE C.1

Number of Bedrooms Adjustments to Income

Bedrooms	Adjustment
0	0.70
1	0.75
2	0.90
3	1.04
4	1.16
5	1.28
6	1.40
7+	1.40 + 0.12(bedrooms - 6)

Note the formula for calculating the adjustment for units with over seven bedrooms. After calculating these affordability-level cutoffs for each household, classify the affordability level of each unit by grouping gross rent into the calculated affordability levels (affordable to ELI through affordable to HI). Because the gross rent takes into account contract rent and utilities, we call these affordable units *nonsubsidized* affordable units because their gross rents are affordable based on contract rent. These units are not necessarily without subsidies, but they are affordable with or without subsidies. Using the income level and affordability level for each household, we flag whether the income level is below or the same as the rent affordability level **(AFF_AT)** or above the rent affordability level **(AFF_ABOVE)**. This breakout determines how many renter households in each county pay rent that is

less expensive, appropriately expensive, or more expensive than what they can afford. By only including **(AFF_AT)** in our calculations moving forward, we determine that the affordable occupied units in our calculation are *affordable and available* to ELI renter households.

Because residents of federally assisted units (where the rent subsidy is tied to the unit) report their monthly rent as affordable in the ACS, we assume these housing units are included in the ACS count of affordable units and should be subtracted out. In the calculation below, we subtract out project-based federally assisted units, including project-based Section 8 (**PBS8**), Moderate Rehabilitation (**MR**), other multifamily (**OMF**), public housing units (**PH**), and Section 521 USDA units (**USDA**).

Finally, we determine whether any units in this tabulation are substandard **(SUB_O)**. Units without complete kitchen or cooking facilities or without complete plumbing are considered substandard and should not be included in any final counts provided in these tabulations. Households with shared kitchens are considered to have complete cooking facilities, so units are substandard only if there is no kitchen (no shared use). Shared plumbing facilities are also considered complete. Units are substandard if any of the following criteria apply: lacks only hot water, lacks other or all plumbing facilities, has some facilities, or has no facilities. By calculating the number of substandard affordable units, we determine whether an affordable unit is *adequate*.

The Number of Affordable Vacant Units with Contract Rent within Each AMI Band

For vacant units, we calculate affordability based on HUD AMI figures for a family of four. The ACS only provides contract for vacant units. Because gross rent is not reported in the ACS for vacant units, and contract rent may not be the same as gross rent in many cases because contract rent may include no utilities, some utilities, or all utilities, we adjust the contract rent using a "hot-deck" procedure similar to HUD guidance (Vandenbroucke 2011, 4–5). Because the ACS does not include a variable that indicates whether utility costs are included in the rent, we calculate the difference in gross rent and contract rent for each renter-occupied household and create an allocation matrix by calculating the median of this difference along the following dimensions:

- Rent (31 categories, increments of $100 starting at $0, with the last increment being > $3,000)

- Structure type (2 categories): single-unit (including single-unit attached) or multiunit.

- State (51 categories): all 50 states and the District of Columbia.

This allocation matrix is created using data from renter-occupied units. To begin, ensure the three dimensions above are known for each vacant unit so the allocation matrix can be merged later. The allocation matrix includes the following information taken from the renter-occupied units data: rent category as described in this step, structure type equal to single unit or multiunit, state, and median utility for each rent category. The median utility is taken by first calculating the utility cost to each household (utility = rent – gross rent) and then calculating the median within each assigned rent category. After merging the allocation matrix to vacant units data, we calculate gross rent by adding contract rent to median utility costs.

Using the calculated gross rent for each vacant unit, we calculate affordability for vacant units as in the first bullet of part B to determine each unit's affordability level **(AFF_V)**.

Finally, we determine whether any **vacant units** are substandard **(SUB_V)**. We use the same standards for substandard units as defined in the third bullet of part B.

Box C.1 shows the calculation of nonsubsidized AAA units. This calculation is the number of households renting at levels affordable to a given AMI band without federal subsidy that have income at the affordability level for their unit or below **(AFF_AT)**, less the number of substandard units rented by households at that AMI level who pay rent that is affordable given their AMI level **(SUB_O)**, plus the number of vacant units available and affordable (based on rent and imputed utilities) at that AMI level **(AFF_V)**, less the number of substandard vacant units at that AMI level **(SUB_V)**.

BOX C.1

Calculation of Nonsubsidized Adequate, Affordable, and Available Units

- The number of *nonsubsidized* adequate, affordable, and available (**AFF_ACS**) units is calculated as
AFF_AT – SUB_O + AFF_V – SUB_V – PBS8 – MR – OMF – PH – USDA

Subsidized Housing Data

HUD-Subsidized Affordability Calculations

In the initial calculation of the housing affordability gap in 2014, counts of subsidized housing units were approximated using A Picture of Subsidized Housing data, a public dataset provided by HUD cataloging national subsidized housing properties. In the 2015 and 2017 versions, Urban received data from HUD on the count of subsidized households for five HUD subsidy programs. The data include counts of households using the following programs:

- Housing Choice Vouchers **(HCV)**

- Moderate Rehabilitation housing **(MR)**

- Multifamily Section 8 housing **(PBS8)**

- Other multifamily housing **(OMF)**

- Public housing **(PH)**

HUD compiles these counts from individual-level data from the PIH Information Center and Tenant Rental Assistance Certification System databases.

For each subsidy program, the data include counts of households at income levels less than or equal to 30 percent of AMI, 30.1 to 50 percent of AMI, 50.1 to 80 percent of AMI, and over 80 percent of AMI. Within those subgroups, HUD also classified households into three levels of cost burden: those not cost burdened or paying 30 percent or less of income on rent, those paying more than 30 and less than 50 percent on rent, and those paying 50 percent or more on rent. In our calculations, we use ELI households with no rent burden.

For this report, HUD also provided data on tenant payments and gross rent that allow us to remove units that were affordable before the HUD subsidy and only include units that are made affordable by HUD rental assistance.

USDA-Subsidized Affordability Calculations

In the 2014 and 2015 versions of the affordability gap map, Urban could not obtain county-level data on rental housing programs funded through the USDA, resulting in an undercount of federal assistance to ELI renter households. For the 2017 map, the USDA provided Urban county-level counts of ELI renter households living in USDA Section 515–financed properties and receiving USDA Section 521 Rental Assistance. These ELI renter households automatically pay no more than 30 percent of their income on rent and experience no cost burden. We consider this aggregate count the number of ELI households living in affordable units by receiving a USDA subsidy **(AFF_USDA)**.

Affordability Gap Calculation

Box C.2 shows the calculation of adequate, affordable, and available **(AAA)** units, subsidized and nonsubsidized. For this calculation, we add the number of nonsubsidized affordable units to the counts of subsidized affordable USDA and HUD units. Subsidized affordable units are only affordable because of a federal subsidy or provide affordable tenant payments even when gross rent is not affordable. They are not included in the ACS data.

BOX C.2

Calculation of Adequate, Affordable, and Available Units and Affordability Gap

- The number of adequate, affordable, and available units **(AAA)** by income band is calculated as **AFF_ACS + AFF_HUD + AFF_USDA**.
- The affordability gap is then calculated by income band as **RH – AAA**.

The Number of AAA Units without Federal Subsidies

To estimate the combined effect of USDA and HUD subsidies on the affordability gap in each county, we adjust the gap calculation to remove units that are affordable only because of a federal subsidy program under HUD or the USDA.

Box C.3 shows the calculation of AAA units *absent* HUD or USDA subsidies. For this calculation, we remove from the AAA unit count households paying affordable rent only because of a HUD or USDA subsidy. We consider this the estimate of the number of AAA units without federal assistance.

Calculation of Adequate, Affordable, and Available Units and Affordability Gap *absent* a HUD or USDA Subsidy

- The number of adequate, affordable, and available units without HUD assistance **(AAA, No HUD)** is calculated as **AFF_ACS + AFF_USDA**.
- The number of adequate, affordable, and available units without USDA assistance **(AAA, No USDA)** is calculated as **AFF_ACS + AFF_HUD**.
- The number of adequate, affordable, and available units without HUD or USDA assistance **(AAA, No HUD, No USDA)** is calculated as **AFF_ACS.**
- The affordability gap is then calculated as **RH – [AAA, No HUD** or **AAA, No USDA** or **AAA, No HUD, No USDA].**

Limitations

Our methodology has limitations that we will address in future analyses. The first limitation is small sample sizes for county-level estimates. The ACS typically samples 1 percent of the total population (Census Bureau 2013). This process yields a large sample for national analysis, but the sample size for a county is smaller. The sample for a subset within that county, such as extremely low income renter households, is even smaller. For smaller counties with fewer than 20,000 residents, we cannot reliably provide a county estimate and instead rely on statewide county averages. We attempted to account for this limitation by making only statewide averages available for those counties with unreliably small sample sizes.

Second, the Census Bureau does not include a question about households' receipt of government housing assistance in either the ACS or the decennial census. This creates a problem when using ACS data to measure housing affordability. The question does not state whether Housing Choice Voucher recipients should report to the ACS the gross rent (including what the voucher covers) or their rent contribution. An internal Census Bureau analysis of subsidized renter households in California

estimated that 40 percent of these households reported their rent contribution to the ACS, 32 percent reported the total monthly rent, and the other 28 percent reported an amount that did not match either. Some households receiving tenant-based rental assistance reported the value of their voucher as part of their income to the Census Bureau, overstating the impact of rental assistance on households' rent burden. In the future, we propose an adjustment to bring the ACS-generated value closer to the true value, which we believe may be captured in the AHS. After this adjustment, we could more reliably base our calculations on the assumption that subsidized renter households report their gross rent to the ACS rather than their tenant payments.

Third, our data do not include homeless people, which constituted 564,708 people at 2015's point-in-time count (Henry et al. 2015). We have no way to account for this limitation.

Although not a limitation, the methodology for this report changed significantly from the methodology for the 2014 and 2015 maps. Changes resulted from the addition of USDA data, a change in the definition of Extremely Low Income by HUD that took effect in 2014, and refined assumptions about units in HUD included in the ACS.

Notes

1. For simplicity, we use 2009 as shorthand for the 2005–09 data and 2014 as shorthand for the 2010–14 data.

2. This total is for the USDA's rental assistance programs. The USDA provides other housing supports through loans and grants, but we were unable to isolate the tenant income in these programs because of data limitations and thus did not include them in our calculations. As a result, we may be underestimating the number of AAA units that the USDA provides to ELI renter households

3. See Pamela Blumenthal, Reed Jordan, Amy Clark, Ethan Handelman, and Rebekah King, "The Cost of Affordable Housing: Does It Pencil Out?" Urban Institute and National Housing Conference, July 2016, http://apps.urban.org/features/cost-of-affordable-housing/.

4. Counties with a total population of less than 20,000 or where fewer than 50 household observations were included in the unweighted IPUMS dataset.

5. Our estimate of availability in all years is significantly higher than the estimates from our 2015 brief (Leopold et. al. 2015). The increase is primarily driven by revised assumptions about how renters with a Housing Choice Voucher report their rent to the Census. A full description of changes to our methodology is provided in appendix A.

6. Based on an unpublished CBPP analysis of 2015 HUD administrative microdata.

7. Matthew Johnson, "Stepping Up: How Cities Are Working to Keep America's Poorest Families Housed," Urban Institute, June 16, 2017, http://www.urban.org/features/stepping-how-cities-are-working-keep-americas-poorest-families-housed.

8. For a full list of geographic changes during this period, see "Substantial Changes to Counties and County Equivalent Entities: 1970–Present," US Census Bureau, accessed April 17, 2017, https://www.census.gov/geo/reference/county-changes.html.

9. See pages 3 and 4 in Carol J. Galante and Sandra B. Henriquez, "Transmittal of Fiscal Year (FY) 2014 Income Limits for the Public Housing and Section 8 Programs," notice issued to directors and economists, December 18, 2013, http://www.huduser.gov/portal/datasets/il/il14/HUD_sec8_14.pdf.

References

CBPP (Center on Budget and Policy Priorities). 2013. "Section 8 Project-Based Rental Assistance." Washington, DC: CBPP. http://www.cbpp.org/sites/default/files/atoms/files/PolicyBasics-housing-1-25-13PBRA.pdf.

Henry, Meghan, Azim Shivji, Tanya de Sousa, and Rebecca Cohen. 2015. The 2015 Annual Homeless Assessment Report (AHAR) to Congress, Part 1: Point-in-Times Estimates of Homelessness. Washington, DC: US Department of Housing and Urban Development, Office of Community Planning and Development.

HUD (US Department of Housing and Urban Development). 2013. "Picture of Subsidized Households." Washington, DC: HUD.

JCHS (Joint Center for Housing Studies). 2015. *America's Rental Housing: Expanding Options for Diverse and Growing Demand*. Cambridge, MA: Joint Center for Housing Studies of Harvard University.

Leopold, Josh, Liza Getsinger, Pamela Blumenthal, Katya Abazajian, and Reed Jordan. 2015. "The Housing Affordability Gap for Extremely Low-Income Renters in 2013." Washington, DC: Urban Institute.

Rice, Douglas. 2014. "Sequestration's Rising Toll: 100,000 Fewer Low-Income Families Have Housing Vouchers." Washington, DC: CBPP.

Steffen, Barry L., George R. Carter, Marge Martin, Danilo Pelletiere, David A. Vandenbroucke, and Yun-Gann David Yao. 2015. *Worst Case Housing Needs: 2015 Report to Congress*. Washington, DC: HUD.

US Census Bureau. 2013. "An Overview of the American Community Survey." Washington, DC: US Census Bureau.

Vandenbroucke, David A. 2011. "Housing Affordability Data System." Washington, DC: US Department of Housing and Urban Development.

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