

## An Annual Look at the Housing Affordability Challenges of America's Working Households

By Keith Wardrip

February 2011

This brief summarizes the key findings of an analysis of housing affordability trends for working households (see sidebar) between 2008 and 2009.<sup>1</sup> The analysis shows that nearly one in four working households spends more than half of their income on housing costs. And despite falling home values, housing affordability worsened significantly for working owners and renters between 2008 and 2009.

### National Findings

**Some 10.5 million working households had a severe housing cost burden in 2009 – an increase of nearly 600,000 in one year.<sup>2</sup>**

Of the 46.2 million working households in the United States in 2009, roughly 10.5 million – or 22.8 percent – had a severe housing cost burden, spending more than 50 percent of their income on housing costs. Compared to 2008, this represents an overall increase of nearly 600,000 households.<sup>3</sup> As Table 1 shows, this increase occurred even as the overall number of working households fell by 1.1 million, presumably due at least in part to the difficulty that many had finding work in the down economy.<sup>4</sup>

**TABLE 1. Working Households and Severe Housing Cost Burden**

	2009	2008	Difference
Working Households	46.2	47.3	-1.1 million
With a Severe Cost Burden	10.5	10.0	+0.6 million
% with a Severe Cost Burden	22.8%	21.1%	+1.8%

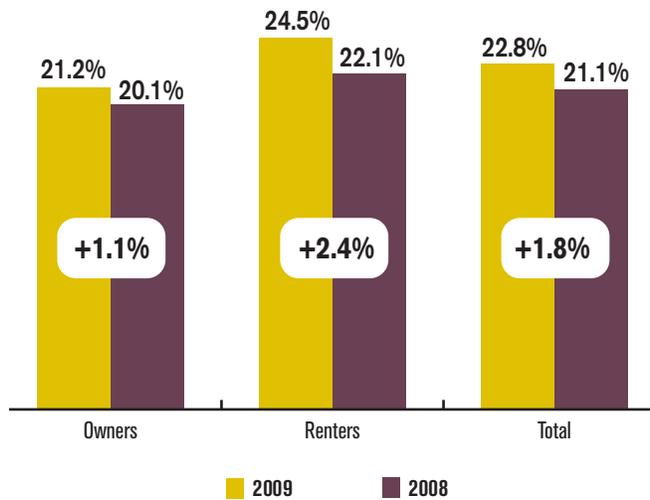
This report focuses on housing affordability for **working households**. For the purposes of this report, working households are those that report household members working at least 20 hours per week, on average, with incomes no higher than 120 percent of the median income in their area.

There were approximately 46.2 million working households in the United States in 2009, almost evenly split between homeowners (23.4 million) and renters (22.7 million).

In 2009, one-third of all owner-occupied households met the working household definition; this group typically earned between 50 percent and 120 percent of the area median income (AMI). Nationally, the median income for working household owners in 2009 was just over \$42,000 – or about two-thirds of the median income for all U.S. homeowners. Due to their lower incomes, working household owners faced greater affordability challenges than higher-income homeowners.

On the other hand, roughly 60 percent of all renter-occupied households met the working household definition in 2009. The remaining U.S. renters were nearly evenly split between those that earned more than 120 percent of AMI and those that earned less but did not average at least 20 hours of work each week. Occupying this socioeconomic middle ground, working renter households were similar to all renters in the United States in terms of incomes and housing affordability.

**FIGURE 1.** Share of Working Households with a Severe Housing Cost Burden

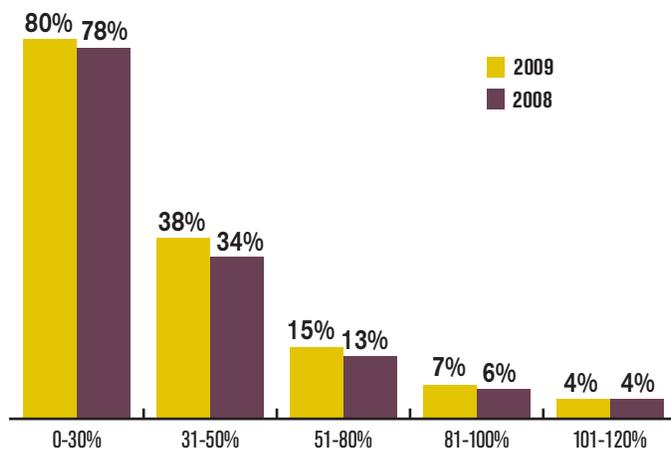


Housing affordability worsened more dramatically for working renters than for working owners (Figure 1). Nearly one-fourth (24.5 percent) of working renters had a severe housing cost burden in 2009, up from 22.1 percent in 2008. For working owners, the increase was less drastic but nonetheless significant, rising from 20.1 percent in 2008 to 21.2 percent in 2009.

**Four out of five working households with extremely low incomes had a severe housing cost burden in 2009.**

As Figure 2 illustrates, the vast majority of working households with extremely low incomes (0 to 30 percent of area median income, or AMI) were severely burdened by their housing costs in 2009. The level was much lower for the other income categories, but even so, housing costs severely burdened more than one-third of working households earning 31 to 50 percent of AMI.

**FIGURE 2.** Share of Working Households with a Severe Housing Cost Burden by Percent of AMI



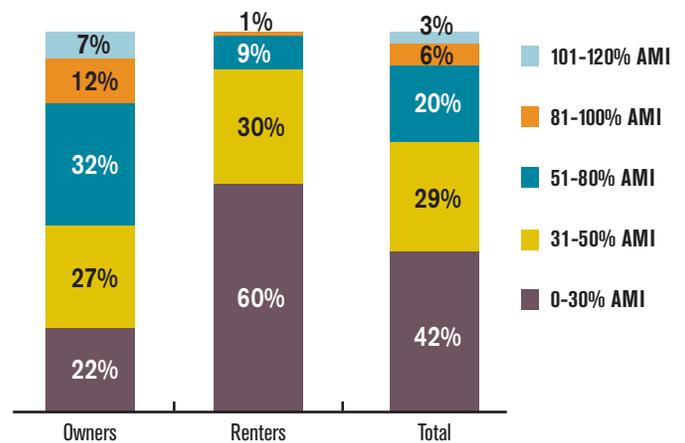
**AREA MEDIAN INCOMES VARY** significantly from one metro area to another. To help put the numbers in perspective, the following are percentages of the national median household income, which was roughly \$50,200 in 2009:

30 percent = \$15,100    80 percent = \$40,200  
 50 percent = \$25,100    120 percent = \$60,200

Between 2008 and 2009, the level of severe housing cost burden increased the greatest for working households earning 31 to 50 percent of AMI, climbing four percentage points in only one year (34 percent in 2008 to 38 percent in 2009). Year to year increases for all income categories were statistically significant with the exception of those earning 101 to 120 percent of AMI.

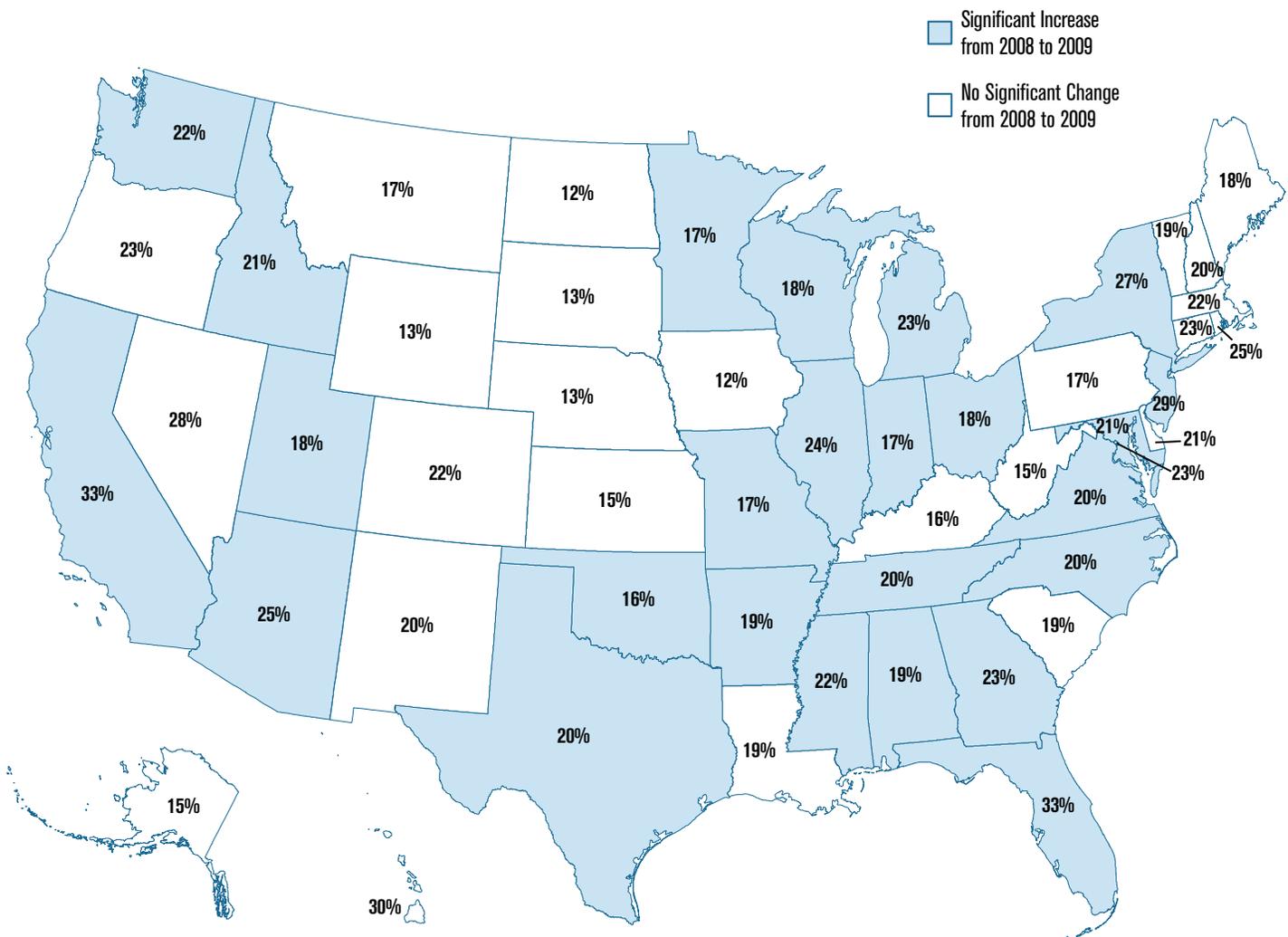
As shown in Figure 3, roughly 71 percent of working households with a severe housing cost burden in 2009 earned no more than 50 percent of AMI. Working renters with a severe housing cost burden were even more concentrated in the lower income categories; by comparison, working owners with unaffordable housing costs were more evenly distributed across the low- and moderate-income spectrum.

**FIGURE 3.** Distribution of Severely Burdened Working Households by Percent of AMI (2009)



**THIS REPORT FOCUSES** on working households, but significant shifts in the broader housing market should not be ignored. The United States grew by 0.5 million households from 2008 to 2009 – a period marked by a rising number of renter households (+0.9 million) and a falling number of homeowners (-0.4 million). A combination of factors – including the foreclosure crisis, falling home values, tighter lending standards, a wary pool of potential homebuyers, and possibly a more general rediscovery of the benefits of renting – are likely responsible for this pattern of growth, which reduced the homeownership rate from 66.6 percent in 2008 to 65.9 percent in 2009.

**FIGURE 4.** Share of Working Households with a Severe Housing Cost Burden



## State and Local Findings

**The share of working households with a severe housing cost burden increased significantly in 25 states across the nation and decreased significantly in none.**

The 25 states where housing cost burdens worsened significantly (shaded blue in Figure 4) are found in many parts of the country, including the Mid-Atlantic, the South, the Midwest, and the West. While the share of working households with a severe cost burden is high in many of these states, some have relatively low levels. For example, less than 18 percent of working households had a severe housing cost burden in four states where the rate increased significantly: Oklahoma, Missouri, Minnesota, and Indiana. At the other end of the spectrum are the five states where the share of cost-burdened working households both exceeded the national average and experienced a statistically significant increase between 2008 and 2009: Arizona, California, Florida, New Jersey, and New York.<sup>5</sup>

Housing costs represented a severe burden for at least one in 10 working households in every state in the United States in 2009 and exceeded 30 percent in a handful. As shown in Figure 4 and Appendix A, the share of working households with a severe housing cost burden in Florida and California (33 percent) was nearly three times the rate observed in North Dakota and Iowa (12 percent).

**The share of working households with a severe housing cost burden increased significantly in 16 of the 50 largest metropolitan areas and decreased significantly in none.**

Fourteen of the 16 metro areas that experienced a significant increase in the share of severely cost-burdened working households are located in the Midwest and the South. In six of the 16, the share of severely burdened working households was significantly lower than the national average (22.8 percent), even after rising in 2009,

**TABLE 2. Percent of Working Households with a Severe Housing Cost Burden by Metro Area (2009)**

Highest		Lowest	
Miami-Fort Lauderdale-Pompano Beach, FL*	42%	Pittsburgh, PA	15%
Los Angeles-Long Beach-Santa Ana, CA*	37%	Louisville/Jefferson County, KY-IN	15%
Orlando-Kissimmee, FL	35%	Kansas City, MO-KS	16%
Riverside-San Bernardino-Ontario, CA	35%	Cincinnati-Middletown, OH-KY-IN	16%
San Diego-Carlsbad-San Marcos, CA	34%	Raleigh-Cary, NC	17%

\*Significantly higher in 2009 than in 2008 (at the 90% confidence level).

suggesting that places with relatively low levels of housing cost burden were not immune to rising housing costs, falling incomes, or both between 2008 and 2009.

The level of severe housing cost burden among working households exhibited remarkable variation at the metropolitan level, ranging from a high of 42 percent in Miami to a low of 15 percent in Pittsburgh and Louisville in 2009 (see Table 2 and Appendix B). Nine of the 11 metro areas with the highest rates were in Florida and California, with New York City (#6) and Las Vegas (#8) as the only exceptions.

## Supporting Data: Employment, Income, and Housing Costs

The findings presented above demonstrate that housing affordability worsened for low- and moderate-income households between 2008 and 2009. To shed light on the underlying causes, this section briefly explores national employment, income, and housing cost trends over these two years.

### For working households, the typical number of hours at work per week fell from 47 in 2008 to 45 in 2009.<sup>6</sup>

This figure held steady at 50 hours for working owners but fell from 44 to 40 hours for working renters (Table 3). While preferable to being unemployed, a reduction in hours can have a real impact on household income and thus affect a household's ability to find housing it can afford.

**TABLE 3. Hours Worked Per Week for the Typical Working Household**

	2009	2008	Difference
Working Renters	40	44	-9%
Working Owners	50	50	0%
All Working Households	45	47	-4%

### In just one year's time, nominal household income<sup>7</sup> fell sharply for working households.

The median income for working renters fell 5 percent from 2008 to 2009, while the median income for working owners dropped just under 4 percent (Table 4).

**TABLE 4. Median Household Income for Working Households**

	2009	2008	Difference
Working Renters	\$29,988	\$31,570	-5%
Working Owners	\$42,178	\$43,791	-4%
All Working Households	\$36,701	\$38,190	-4%

NOTE: Incomes are nominal (i.e., not adjusted for inflation).

For working renters, the magnitude of the decline was consistent with national trends for all renter households. However, incomes declined less than 3 percent for all owners, suggesting that the economic downturn has hurt low- and moderate-income owners more than those earning above 120 percent of AMI.

### Housing costs for renters rose. Costs for homeowners retreated slightly, but not enough to compensate for falling incomes.

From 2008 to 2009, the median monthly housing cost for working owners fell, but by only 1 percent, or \$11 (from \$1,058 to \$1,047). During the same period, the number of households paying on a second mortgage or home equity loan dropped by 1.2 million, and the typical second mortgage payment fell from \$320 to \$300 per month. With the exception of a slightly lower monthly gas bill, other homeowner costs (e.g., first mortgage, insurance, condo fees, etc.) remained largely unchanged.

The typical working renter, on the other hand, faced a higher monthly payment in 2009. The median gross rent (contract rent and utilities) increased from \$800 in 2008 to \$820 (+2.5 percent).

## Methodology

This report is based on American Community Survey (ACS) data collected by the U.S. Census Bureau in 2008 and 2009. Estimates in this report were generated using Public-Use Microdata Sample (PUMS) population and housing files made publicly available by the Census Bureau. Each file includes roughly 40 percent of the full ACS sample for its respective year, resulting in over 3 million records in each population file and over 1.2 million records in each housing file. There is a unique identifier that links individuals in the population file to households in the housing file. The only geographic identifiers are the state, the census region, and the Public-Use Microdata Area (PUMA) of residence. PUMAs are locally defined geographic areas that allow researchers to produce socioeconomic and demographic estimates with ACS data for sub-state geographies. Each PUMA has a minimum population of 100,000.

The remainder of this section explains how the PUMS files and constituent variables were used to develop the estimates in this report.

**Metropolitan Area Estimates:** The ACS PUMS files were used to generate metropolitan area statistics by associating each PUMA with the metropolitan area (or non-metropolitan area) in which it is located.<sup>8</sup> These PUMA-to-metropolitan area relationships were generated using the Missouri Census Data Center's MABLE/Geocorr2K online application.<sup>9</sup> Because not all PUMAs are entirely contained within a metropolitan area, each PUMA was assigned to a metro area if at least 50 percent of its housing units fell within the area's boundaries. PUMAs that did not fall at least 50 percent within a metropolitan area were coded as non-metropolitan.

One consequence of using this "50 percent rule" is that where metropolitan area and PUMA boundaries are not coterminous, either too few or too many households are assigned to the metro area (i.e., if a PUMA falls 75 percent within a metro area, all of its households are considered to reside in the metro area even though 25 percent do not, in actuality). For the 50 metropolitan areas listed in the report, this methodology produced housing unit totals equal to anywhere from 91 percent to 106 percent of each area's actual housing unit counts, suggesting that, by and large, the PUMAs do a sufficiently good job of approximating the metropolitan areas. In fact, for 15 metro areas, PUMAs nested exactly within their borders and housing unit totals matched control totals exactly.

### **Household Income Relative to Area Median Income:**

For each household assigned to a metropolitan area, household income (variable HINCP in the PUMS file) was multiplied by the income adjustment variable (ADJINC) and compared to the area's median family income estimate (ACS detailed table B19113), adjusted for household size.<sup>10,11</sup> The ratio of household income to this adjusted area median income (AMI) was used to determine the income category for each household, as well as whether or not it met the income requirements of the working household definition (i.e., no more than 120 percent of the AMI). The roughly 1.2 million households reporting zero or negative income in each of the study years were excluded from these analyses.

### **Housing Costs:**

The PUMS housing files include two variables that aggregate monthly housing costs for owners and renters. For owner-occupied households, this variable (SMOCP) includes first and second mortgage payments, property taxes, insurance, homeowner association fees, and utilities; for renter-occupied households, this variable (GRNTP) includes cash rent and utility costs. This analysis used the Census Bureau's aggregation for owner-occupied households but replaced the renter housing cost aggregation with a custom-calculated variable. This was necessary because the PUMS housing file does not aggregate housing costs for renters that do not pay cash rent, even if they pay utilities. Because using the PUMS variable would have excluded these households from the analysis, a replacement variable was calculated that sums utility costs for renter-occupied households that do not pay cash rent.

### **Hours Worked:**

Estimates of hours worked for each household were derived from the PUMS population files by summing the "usual hours worked per week in the last 12 months" (variable WKHP) for each household member. In this report, a working household is one with members that combined to work at least 20 hours per week, but with a household income at or below 120 percent of the AMI.

Estimates for the two years were tested for statistical significance (at the 90 percent confidence level) using documentation developed by the U.S. Census Bureau.<sup>12</sup>

STATE	2009 WORKING HOUSEHOLDS		% WITH SEVERE HOUSING COST BURDEN		
	Total	With Severe Housing Cost Burden	2009	2008	Significant Difference*
Alabama	679,845	129,456	19%	15%	Higher in '09
Alaska	122,536	17,828	15%	12%	
Arizona	903,957	225,384	25%	22%	Higher in '09
Arkansas	410,208	77,518	19%	16%	Higher in '09
California	5,023,075	1,666,245	33%	32%	Higher in '09
Colorado	861,781	192,790	22%	21%	
Connecticut	561,778	127,583	23%	22%	
Delaware	133,732	27,885	21%	21%	
District of Columbia	119,877	27,676	23%	22%	
Florida	2,575,180	855,373	33%	30%	Higher in '09
Georgia	1,432,961	322,621	23%	19%	Higher in '09
Hawaii	194,797	58,357	30%	28%	
Idaho	234,747	48,233	21%	17%	Higher in '09
Illinois	1,956,156	460,051	24%	22%	Higher in '09
Indiana	1,043,776	180,819	17%	15%	Higher in '09
Iowa	546,697	67,541	12%	13%	
Kansas	473,058	71,886	15%	15%	
Kentucky	617,285	99,783	16%	15%	
Louisiana	671,850	130,235	19%	18%	
Maine	211,478	38,332	18%	18%	
Maryland	954,580	203,518	21%	20%	Higher in '09
Massachusetts	1,001,111	224,082	22%	23%	
Michigan	1,423,407	333,906	23%	21%	Higher in '09
Minnesota	919,244	157,991	17%	15%	Higher in '09
Mississippi	394,360	85,655	22%	18%	Higher in '09
Missouri	961,733	161,408	17%	15%	Higher in '09
Montana	157,139	26,445	17%	16%	
Nebraska	326,300	43,860	13%	12%	
Nevada	408,369	112,663	28%	26%	
New Hampshire	224,797	44,037	20%	18%	
New Jersey	1,167,348	343,516	29%	28%	Higher in '09
New Mexico	277,856	56,122	20%	18%	
New York	2,866,567	784,677	27%	26%	Higher in '09
North Carolina	1,467,453	293,728	20%	17%	Higher in '09
North Dakota	130,300	15,333	12%	10%	
Ohio	1,786,343	327,122	18%	17%	Higher in '09
Oklahoma	586,752	95,443	16%	14%	Higher in '09
Oregon	596,388	138,734	23%	22%	
Pennsylvania	1,927,552	323,499	17%	16%	
Rhode Island	162,539	41,109	25%	22%	
South Carolina	675,119	131,335	19%	18%	
South Dakota	141,101	18,701	13%	11%	
Tennessee	942,798	187,995	20%	17%	Higher in '09
Texas	3,718,907	758,272	20%	19%	Higher in '09
Utah	405,610	74,148	18%	15%	Higher in '09
Vermont	106,985	20,181	19%	19%	
Virginia	1,235,360	248,877	20%	18%	Higher in '09
Washington	1,095,983	236,899	22%	20%	Higher in '09
West Virginia	244,544	37,753	15%	13%	
Wisconsin	982,416	179,039	18%	16%	Higher in '09
Wyoming	98,913	13,019	13%	13%	
United States	46,162,648	10,544,663	23%	21%	Higher in '09

\*Where 2008 and 2009 estimates of the percentage of working households with a severe housing cost burden are deemed significantly different (at the 90% confidence level), the direction of the difference is indicated. This field is blank where the difference is not deemed significant.

Source: Center for Housing Policy tabulations of the 2008 and 2009 American Community Survey PUMS files.

METROPOLITAN STATISTICAL AREA	2009 WORKING HOUSEHOLDS		% WITH SEVERE HOUSING COST BURDEN		
	Total	With Severe Housing Cost Burden	2009	2008	Significant Difference*
Atlanta-Sandy Springs-Marietta, GA	804,530	195,590	24%	21%	Higher in '09
Austin-Round Rock, TX	312,586	68,472	22%	20%	
Baltimore-Towson, MD	417,840	85,966	21%	19%	
Birmingham-Hoover, AL	165,931	33,516	20%	15%	Higher in '09
Boston-Cambridge-Quincy, MA-NH	749,105	168,988	23%	23%	
Buffalo-Niagara Falls, NY	171,071	30,198	18%	17%	
Charlotte-Gastonia-Concord, NC-SC	302,682	62,542	21%	17%	Higher in '09
Chicago-Naperville-Joliet, IL-IN-WI	1,430,097	377,271	26%	25%	
Cincinnati-Middletown, OH-KY-IN	336,481	55,116	16%	16%	
Cleveland-Elyria-Mentor, OH	330,691	69,757	21%	19%	
Columbus, OH	291,725	57,071	20%	16%	Higher in '09
Dallas-Fort Worth-Arlington, TX	1,014,133	207,005	20%	19%	Higher in '09
Denver-Aurora, CO	454,003	96,360	21%	22%	
Detroit-Warren-Livonia, MI	609,103	156,537	26%	22%	Higher in '09
Hartford-West Hartford-East Hartford, CT	191,868	36,667	19%	21%	
Houston-Sugar Land-Baytown, TX	901,521	194,202	22%	19%	Higher in '09
Indianapolis-Carmel, IN	289,035	51,950	18%	15%	Higher in '09
Jacksonville, FL	212,244	53,324	25%	19%	Higher in '09
Kansas City, MO-KS	323,134	51,493	16%	15%	
Las Vegas-Paradise, NV	300,424	87,329	29%	28%	
Los Angeles-Long Beach-Santa Ana, CA	1,717,857	637,223	37%	35%	Higher in '09
Louisville/Jefferson County, KY-IN	193,464	29,812	15%	15%	
Memphis, TN-MS-AR	178,716	48,419	27%	24%	
Miami-Fort Lauderdale-Pompano Beach, FL	752,041	316,320	42%	39%	Higher in '09
Milwaukee-Waukesha-West Allis, WI	262,275	58,506	22%	18%	Higher in '09
Minneapolis-St. Paul-Bloomington, MN-WI	562,595	99,648	18%	16%	
Nashville-Davidson-Murfreesboro-Franklin, TN	247,510	46,149	19%	16%	
New Orleans-Metairie-Kenner, LA	186,017	49,075	26%	21%	Higher in '09
New York-Northern New Jersey-Long Island, NY-NJ-PA	2,626,658	848,959	32%	30%	Higher in '09
Oklahoma City, OK	217,818	37,840	17%	15%	
Orlando-Kissimmee, FL	299,314	103,883	35%	33%	
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	915,137	184,701	20%	19%	
Phoenix-Mesa-Scottsdale, AZ	626,178	159,887	26%	23%	
Pittsburgh, PA	366,634	54,049	15%	14%	
Portland-Vancouver-Beaverton, OR-WA	371,310	85,115	23%	21%	
Providence-New Bedford-Fall River, RI-MA	236,801	58,160	25%	21%	
Raleigh-Cary, NC	201,752	33,843	17%	15%	
Richmond, VA	180,080	35,543	20%	15%	Higher in '09
Riverside-San Bernardino-Ontario, CA	497,039	171,691	35%	36%	
Rochester, NY	163,363	30,105	18%	17%	
Sacramento--Arden-Arcade--Roseville, CA	314,839	89,082	28%	26%	
San Antonio, TX	291,746	56,563	19%	19%	
San Diego-Carlsbad-San Marcos, CA	436,946	147,236	34%	35%	
San Francisco-Oakland-Fremont, CA	662,838	190,213	29%	29%	
San Jose-Sunnyvale-Santa Clara, CA	255,481	72,292	28%	26%	
Seattle-Tacoma-Bellevue, WA	609,197	135,534	22%	21%	
St. Louis, MO-IL	447,861	76,750	17%	16%	
Tampa-St. Petersburg-Clearwater, FL	378,203	110,603	29%	26%	Higher in '09
Virginia Beach-Norfolk-Newport News, VA-NC	265,612	56,797	21%	19%	
Washington-Arlington-Alexandria, DC-VA-MD-WV	945,557	200,724	21%	22%	
Total for the 50 Largest Metro Areas	25,019,043	6,364,076	25%	24%	Higher in '09

\*Where 2008 and 2009 estimates of the percentage of working households with a severe housing cost burden are deemed significantly different (at the 90% confidence level), the direction of the difference is indicated. This field is blank where the difference is not deemed significant.

Source: Center for Housing Policy tabulations of the 2008 and 2009 American Community Survey PUMS files.

As the research affiliate of the National Housing Conference (NHC), the Center for Housing Policy specializes in developing solutions through research. In partnership with NHC and its members, the Center works to broaden understanding of the nation's housing challenges and to examine the impact of policies and programs developed to address these needs. Combining research and practical, real-world expertise, the Center helps to develop effective policy solutions at the national, state and local levels that increase the availability of affordable homes.

## HOUSING LANDSCAPE 2011

The Housing Landscape series uses the most current information available to understand the relationship between housing costs and incomes for working households in the United States.

### Center for Housing Policy and National Housing Conference

1900 M Street, NW

Suite 200

Washington, DC 20036

Phone: (202) 466-2121

Fax: (202) 466-2122

Email: [chp-feedback@nhc.org](mailto:chp-feedback@nhc.org)

Website: [www.nhc.org](http://www.nhc.org)

## Endnotes

<sup>1</sup> Findings are based on an analysis of 2008 and 2009 American Community Survey Public-Use Microdata Sample (PUMS) files. With the exception of the homeownership rate calculation, findings exclude households reporting zero or negative household income. Please see the methodology section for a complete discussion of data and methods.

<sup>2</sup> Unless otherwise noted, differences from 2008 to 2009 reported in this brief are statistically significant at the 90 percent confidence level.

<sup>3</sup> Calculations in this report are based on unrounded values.

<sup>4</sup> Between 2008 and 2009, the share of all low- and moderate-income owners and renters that reported averaging at least 20 hours of work per week fell by 1.7 percent and 1.4 percent, respectively.

<sup>5</sup> Nevada and Hawaii also had rates of severe housing cost burden among working households statistically higher than the United States, but their rates did not increase significantly between 2008 and 2009.

<sup>6</sup> Significant differences for medians have not been calculated due to methodological constraints.

<sup>7</sup> Incomes are not adjusted for inflation.

<sup>8</sup> Metropolitan area definitions are consistent with those defined by the Office of Management and Budget in *Update of Statistical Area Definitions and Guidance on Their Uses*, OMB Bulletin No. 08-01, issued November 20, 2007 (available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/bulletins/fy2008/b08-01.pdf>).

<sup>9</sup> Available at <http://mcdc2.missouri.edu/websas/geocorr2k.html>.

<sup>10</sup> Similar to the way HUD develops income limits for households of various sizes, the median family income is used as the benchmark to which the income of a four-person household is compared. Incomes of larger households are compared to an upwardly adjusted median family income, and the benchmark for smaller households is adjusted downward. For a detailed description of the adjustments used by HUD and in this report, see p. 10 in HUD's *FY2010 HUD Income Limits Briefing Material*, available at [http://www.huduser.org/portal/datasets/il/il10/IncomeLimitsBriefingMaterial\\_FY10.pdf](http://www.huduser.org/portal/datasets/il/il10/IncomeLimitsBriefingMaterial_FY10.pdf).

<sup>11</sup> Median family incomes for non-metropolitan areas in each state were derived from the household records classified as non-metropolitan in the PUMS files.

<sup>12</sup> Standard errors were calculated using the U.S. Census Bureau's *PUMS Accuracy of the Data* files for 2008 and 2009, available at [http://www.census.gov/acs/www/Products/PUMS/pumsaccuracy\\_archived.html](http://www.census.gov/acs/www/Products/PUMS/pumsaccuracy_archived.html). Statistical significance was calculated at the 90 percent confidence level and was based on the z-test described in the U.S. Census Bureau's *Instructions for Applying Statistical Testing to ACS Data*, available at [http://www2.census.gov/acs2006/ACS\\_2006\\_Statistical\\_Testing.pdf](http://www2.census.gov/acs2006/ACS_2006_Statistical_Testing.pdf).