



Joint Center for Housing Studies
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Projecting Trends in Severely Cost-Burdened Renters: 2015–2025

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INTRODUCTION

At last measure in 2013, over one in four renters, or 11.2 million renter households, were severely burdened by rents that took up over half their incomes. This total represented a slight reduction from the record level of 11.3 million set in 2011, but remains dramatically higher than the start of the last decade, having risen by more than 3 million since 2000. With substantial growth in renter households expected over the next decade and little sign of a turnaround in the income and rent trends that produced these record levels of cost burdens, there is little prospect for substantial improvement in these conditions over the coming decade.

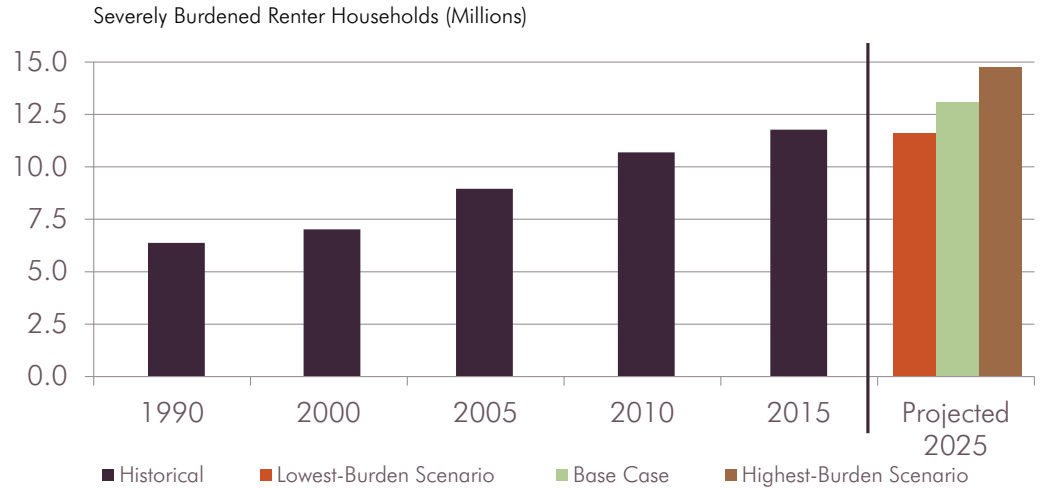
Between 2015 and 2025, the Census Bureau estimates that the adult population in the U.S. will rise by 24.6 million (10 percent) to a total of 272 million people.¹ Bolstered by this expansion, Harvard's Joint Center for Housing Studies (JCHS) projects household growth will top 12.4 million during this period. Based on homeownership rates prevailing as of 2013, JCHS also projects that the number of renter households will be boosted by approximately 4.2 million over this period – which is very likely an underestimate of the expansion of renter households given the continued decline in homeownership rates to the lowest level since 1967. Other research institutions, such as the Urban Institute, project renter household growth over the next decade to be closer to 6 million.

Building off these projections, this white paper projects how many households would be severely rent burdened by 2025 given demographic trends and under differing assumptions about real changes in income and rent levels. In a baseline scenario where both rents and incomes grow in line with inflation (set at 2 percent), we find that demographic trends alone would raise the number of severely burdened renter households by 11 percent from an estimated 11.8 million in 2015 to 13.1 million in 2025 (Figure 1). In addition to the baseline model, we also run four alternative scenarios where income growth increasingly exceeds overall inflation and rents by 0.25 percentage point increments. Only under the most optimistic of these scenarios, where household incomes outpace rent growth by 1 percentage point annually over the next decade, do we project fewer severely cost-burdened renter households than today. Even under that scenario, we only expect a decrease of 169,000 households (1.4 percent), as income gains are largely offset by demographic trends. While the number of severely cost-burdened households would fall slightly under this scenario, it is unlikely that incomes will consistently outpace rent by such a large margin.

On the other hand, if current trends where rent gains outpace incomes continue, we find that for each 0.25 percentage point gain in rents relative to incomes, the number of severely cost-burdened renters will increase by about 400,000. Under the worst-case scenario of real rent gains of 1 percentage point higher than real income gains per year over the decade, the number of severely cost-burdened renters would reach 14.8 million by 2025, an increase of 25 percent above today's levels.

Figure 1: Rent Burdens are Likely to Increase Under All But the Most Optimistic Scenario

Notes: Severe burdens are defined as housing costs of more than 50% of household income. Base case assumes 2% annual growth in rents and incomes in 2015–2025. Lowest-burden scenario increases annual income growth rate to 3% while holding rent growth at 2%. Highest-burden scenario increases annual rent growth rate to 3% while holding income growth at 2%.



SOURCE: JCHS TABULATIONS OF U.S. CENSUS BUREAU DECENNIAL CENSUS AND AMERICAN COMMUNITY SURVEY.

The need for affordable housing is already overwhelming the capacity of federal, state and local governments to supply assistance. At last measure, 11.2 million extremely low-income households competed for 7.3 million units affordable to them – a 3.9 million unit shortfall. And with 7.7 million unassisted very low-income renters with worst case housing needs in 2013 as defined by U.S. Department of Housing and Urban Development (HUD), only just over a quarter (26 percent) of eligible very low-income households received rental assistance.²

Meanwhile, the private sector is unable to supply new units at rents low enough to reach low-income renters. Indeed, as of 2013, the median rent of a newly constructed unit of \$1,290 was equal to about half the median renter’s monthly household income, underscoring the urgent need for policy makers to consider enhanced levels of support for rental housing particularly for lowest-income households but across a range of income levels.

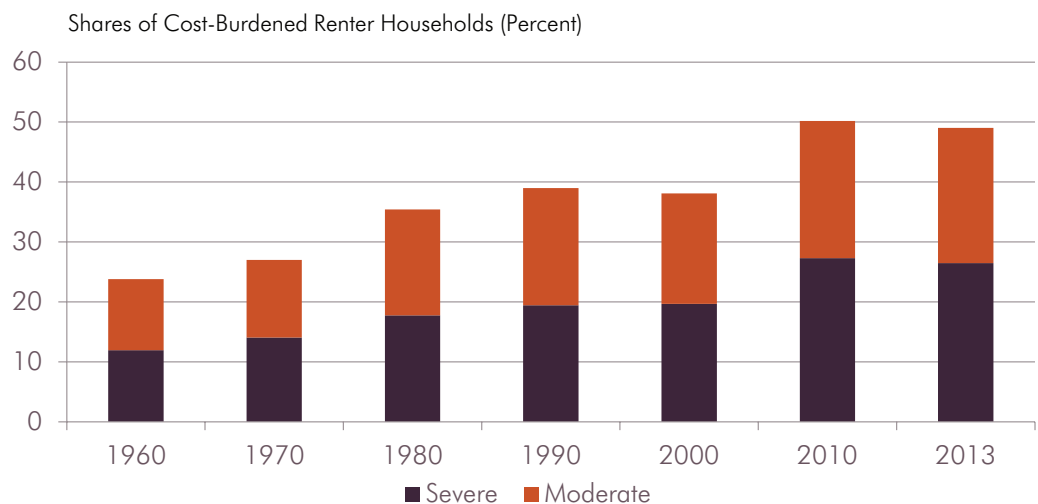
BACKGROUND

At the time of the decennial census in 2000, one in five renters were severely cost burdened, paying more than half of their gross income for rent and utilities (Figure 2). Meanwhile, another 18 percent faced moderate cost burdens, spending between 30 and 50 percent of their income on housing costs, exceeding the widely accepted standard that housing should not command more than 30 percent of a household budget.³ This represented a slight improvement over the shares burdened in 1990 as income gains outpaced growth in rents. But in the years following 2000, gains in typical monthly rental costs exceeded the overall inflation rate, while median income among renters fell further and further behind (Figure 3). As a result, the share of renter households facing severe cost burdens grew dramatically, reaching a new record high of 28 percent in 2011 before edging down to 26.5 percent in 2013. Adding in those with moderate burdens, just under half of all renters were cost burdened in 2013. These rates are substantially higher than a decade ago and roughly twice what they were in 1960.

At the same time that the share of renters facing cost burdens was rising, so too was the share of households opting to rent. Over the last decade, the share of renter households in the United States has increased significantly as homeownership rates have fallen from a high of 69.2 percent in the second quarter of 2004 to 63.4 percent in the second quarter of 2015, the lowest level since 1967. We are now seeing more renters than at any other time in U.S. history.

Figure 2: Renter Cost Burdens Spread at an Unprecedented Pace in the 2000s

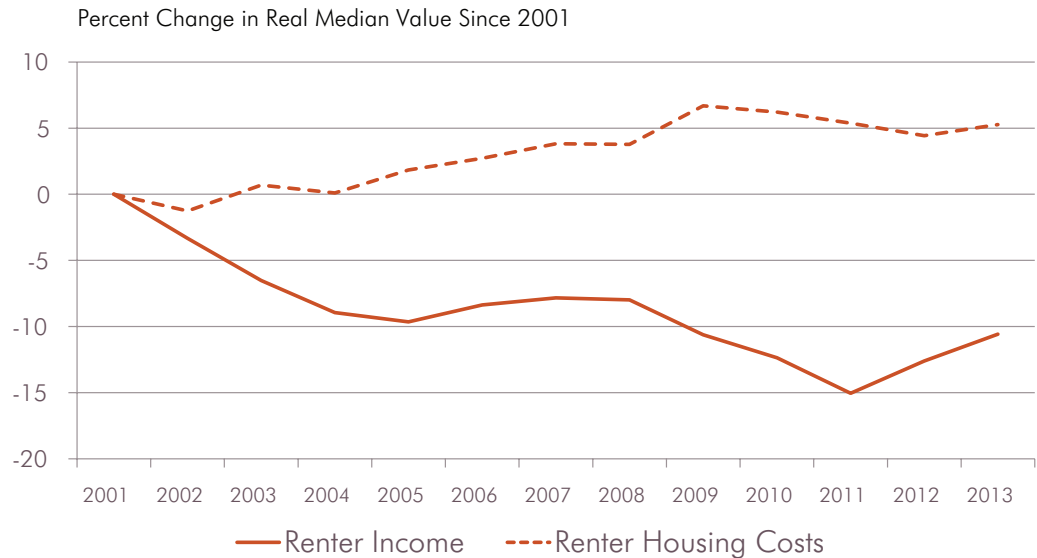
Notes: Moderate (severe) burdens are defined as housing costs of 30–50% (more than 50%) of household income. Households with zero or negative income are assumed to be severely burdened, while renters not paying cash rent are assumed to be unburdened.



SOURCE: JCHS TABULATIONS OF U.S. CENSUS BUREAU DECENNIAL CENSUS AND AMERICAN COMMUNITY SURVEY.

Figure 3: A Key Driver of Worsening Affordability is Falling Incomes Among Renters

Notes: Values are adjusted for inflation by the CPI-U for All Items. Rent data exclude renters paying no cash rent.



JCHS TABULATIONS OF U.S. CENSUS BUREAU AMERICAN COMMUNITY SURVEY.

There are a number of factors contributing to the high rates of renting. Former homeowners who lost their homes to foreclosure are still largely out of the ownership market, and tight lending standards have made it difficult for those with anything but stellar credit to buy a home. Economic uncertainty has made it attractive for many households to stay as renters, unwilling to take on the financial risks of ownership or to be locked into a specific home in a specific place. The combined effect of the rapid rise in both cost-burdened rates and the share of households renting resulted in a nearly 60 percent rise in the number of severely cost-burdened renters from 7 million in 2000 to 11.2 million in 2013, while those with moderate burdens rose from 6.6 to 9.6 million.

Not surprisingly, housing affordability problems are most severe for the lowest-income households. Among very low-income renters (defined as incomes up to 50 percent of their area median), HUD finds that 7.7 million households in 2013 were either living in substandard housing and/or paying more than half their monthly income in rent.⁴ While the number of these households with worst-case housing needs has fallen from its 2011 historic-high of 8.5 million households, the number remains extremely high.

While high rents are often portrayed as a big city problem – notably in places like New York City, Los Angeles and San Francisco – significant numbers of renters are cost burdened in all states across the country. According to the JCHS, the share of renters at least moderately burdened (paying more than 30 percent of income on rent) is 40 percent or higher in all but three states as of 2013.⁵ More than half of all renters in nine states are at least moderately burdened by rental costs.

A similar analysis conducted by Enterprise Community Partners found that the share of severely cost-burdened renters exceeded 20 percent of renter households in all but three states, with one in four renters severely cost burdened across the U.S. as a whole. Analysis by the National Low Income Housing Coalition has also found that there is no state in the U.S. where a minimum-wage worker working full time can afford a one-bedroom apartment at the fair market rent.⁶

However, while a large majority of lowest-income renters are cost burdened in markets across the country, high-cost markets are marked by more significant cost burden challenges among moderate-income renters. In high-cost metro areas, two-thirds of renters earning \$30,000–45,000 and just under half of those earning \$45,000–75,000 had disproportionately high housing costs.

While reports on the state of the economy have become more optimistic in recent years, the number of renters with severe cost burdens is not expected to slow. Even if trends in incomes and rents turn more favorable, a variety of demographic forces will exert continued upward pressure on the number of rent-burdened households. Rapid growth of the minority population is one key factor, driven by past and predicted high levels of immigration. By 2050, the U.S. is expected to have a majority-minority population, meaning a greater share of the population will be non-white racial and ethnic minorities.⁷ The Hispanic population in particular is projected to continue its fast growth, reaching 106 million (or doubling) by 2050.⁸

With that said, racial and ethnic minority households are disproportionately burdened by housing costs, regardless of tenure. According to the Center for Housing Policy's Housing Landscape 2015, working households that are headed by non-white individuals have a significantly higher rate of severe housing cost burden than white-headed households.⁹ According to this analysis, one-quarter of both African-American and Hispanic households were severely housing-cost burdened in 2013, compared to less than 20 percent of white households.

Millennials are also expected to continue experiencing rent burdens as they age. Having entered the labor market during and following the Great Recession, those in the millennial generation have received lower wages and experienced higher rates of unemployment and underemployment than their older counterparts at this point in their lives.¹⁰ As a result, millennials have less wealth accumulated, have delayed forming new households, and are less likely to become owners at the age that older generations had previously. In combination, we are likely to see additional household formation by millennials over the next decade and expect a relatively higher share to remain renters during that period.

However, more than any other generation or racial group, the greatest growth will be among older people. According to the U.S. Census's 2014 National Population Projections, the population aged 65 and older is expected to jump to 74 million by 2030, an increase of 33 million in just two decades.¹¹ Today, 30 percent of elderly renters are paying more than half their incomes on housing. While all older adults face challenges as they age, those who are low-income renters face the greatest difficulties,

as they often have little wealth or savings when they retire. The typical homeowner aged 65 and over has enough wealth to cover nursing home costs for 42 months and enough non-housing wealth to last 15 months.¹² Alternatively, the median older renter cannot afford even one month in a nursing home. As the population of older people grows, so will the number of rent-burdened older households, including many in need of housing with supportive services.

We should also not overlook the Gen Xers and younger baby boomers who were deeply impacted by the Great Recession. While millennials may have delayed household formation and home purchasing, they still have many years to potentially make up for their late start or early setbacks. Not so with these two age groups who had already established their households when the recession and its job losses hit. They were likely to have been homeowners who may have gone through foreclosure and have fewer working years to get back on track. Overall, they haven't benefited as much from the recovery; households 45–64 saw median incomes drop by 7 percent between 2010 and 2013, according to the Federal Reserve Board's most recent Survey of Consumer Finances.¹³

While demographics will exert a significant influence on trends in rent-burdened households over the coming decade, as the experience since the start of this century has demonstrated, future housing affordability will largely be driven by gains or losses in household incomes relative to rental costs. Since 1982, with the exception of a five-year period in the late 1990s, rent growth has consistently outpaced inflation. As noted above, the gap between inflation and rents grew wider in the years following the Great Recession, which contributed to significant renter burdens. If inflation rates continue at today's rates, renter cost burdens will only continue to rise. Over the 30-year period 1982–2012, rent increases outpaced inflation (as measured by the consumer price index for all urban consumers) at an average annual rate of 0.5 percent. More recently, between 2002 and 2012, rent outpaced inflation at a more moderate 0.22 percent annually, with sharp increases during the first half of the period offset by nearly flat growth in the second half.

In order to make up for the substantial ground lost on rental affordability since 2000 and to counter the demographic forces that will expand the ranks of renters most likely to face affordability challenges, the next decade will need to be marked by substantial gains in incomes relative to rents. Whether such a scenario is likely to unfold is difficult to predict. With the unemployment rate having fallen below 6 percent, there may be growing pressure on wages that could help boost household incomes in coming years. The growing movement for increase in the minimum wage may also raise incomes for lower-skilled workers. But even if these gains do materialize, there is still the question of whether they will outpace growth in rents.

With renter household growth at record levels, new construction of rental housing has expanded rapidly – although not enough to keep pace with growing demand. Between 2005 and the end of 2014, only 2.2 million new units intended as rentals were completed. That's the lowest 10-year production rate in records dating back to 1974, occurring at a time when rental demand is

historically high – surging by 7.9 million renters. As a result, vacancy rates have fallen to their lowest level in two decades, and rents have soared. However, multifamily construction starts are now at their highest level since the 1980s, so additional supply is on the way. But it remains an open question whether the growth will be sufficient to slow rent growth below gains in household incomes.

While the future course of incomes and rents is uncertain, we can examine what trends in rent burdens will be under different assumptions about relative gains in incomes and rents over the coming decade to assess the range of outcomes that may come to pass. The following section presents a range of scenarios for the next decade and implications for trends in rental cost burdens.

PROJECTIONS OF SEVERE COST BURDENS IN THE RENTAL MARKET

A detailed description of the methodology used to project cost-burdened renters is presented in the *Methodology* appendix. Succinctly, the baseline projections assume that the share of renters with severe cost burdens by age, race/ethnicity and household type remain constant at their 2013 levels. Changes in the number of severely cost-burdened renters between 2015 and 2025 are estimated by applying these cost-burdened shares to the JCHS's projections of households by age, race/ethnicity and household type over this period. To assess how relative changes in real incomes and rents would affect trends in cost burdens, we use data on individual renter households from the American Community Survey (ACS) in 2013 and inflate actual incomes and housing costs by different inflation factors and then recalculate the share of renters that are severely cost burdened after a decade of change in incomes and rents. These revised shares of cost-burdened households are then applied to the household projections to estimate changes in cost-burdened renters.

BASELINE SCENARIO

Our baseline scenario assumes no real growth in incomes or rents, or in other words that both incomes and rent levels grow at the expected level of inflation, which we take to be 2 percent, following the Federal Reserve's most recent target inflation rate. In essence, this scenario assumes no change in the income distribution or rent levels for each demographic category and that severe renter burden rates for each combination of age, race/ethnicity and household type will remain essentially at 2013 levels between 2015 and 2025. Thus, the only factor driving changes in the number of rent-burdened households is the demographically driven growth (or decline) in the types of households most likely to be cost burdened. Under this model, the number of severely burdened renter households would increase by 11 percent from 11.8 million in 2015 to 13.1 million in 2025. Of these households, a significant share of the burden would be among older adults and millennials. The results point to the fact that, all else equal, the rapid increase in both younger and older households over the coming decade will put upward pressure on the number of cost-burdened renters as both of these age groups face higher than average likelihood of being burdened.

Looking closer into the base case scenario, the number of severely burdened households aged 65-74 as well as those aged 75 and older are projected to rise by 42 percent and 39 percent respectively. These numbers are not surprising given the overall increase in the nation's aging population, although they do illustrate a critical need for elderly housing and services that help individuals age in place. While less dramatic than the increase among older people, the number of severely burdened young adults aged 25-34 and 35-44, mostly millennials (who will be aged 20-39 in 2025), would in combination jump by nearly 12 percent between 2015 and 2025.

Across household types, the largest percent growth is expected to be in the number of severely burdened married couples without children, which are projected to increase by 17.6 percent. This growth is mostly attributable to the baby boomer–driven growth in older couples whose children have grown up and moved out. Meanwhile, millennial-driven growth in the number of younger adults will drive the number of married couples with children up by a projected 12.6 percent. These numbers indicate that even households with the potential to earn two incomes likely contribute to increases in renter burdens over the next decade.

Figure 4: Summary of Scenarios for Projected Change in Number of Severely Burdened Households

	Severely Burdened Renter Households (in millions)	Change 2015-25 (# in millions)	Change 2015-25 (%)
2015	11.8		
Baseline scenario (annual rent growth of 2.00%; annual income growth of 2.00%)	13.1	1.3	11%
Rent growth outpaces income growth			
Annual rent growth of 2.25%; annual income growth of 2.00%	13.5	1.7	14%
Annual rent growth of 2.50%; annual income growth of 2.00%	13.9	2.1	18%
Annual rent growth of 2.75%; annual income growth of 2.00%	14.3	2.5	22%
Annual rent growth of 3.00%; annual income growth of 2.00%	14.8	3.0	25%
Income growth outpaces rent growth			
Annual rent growth of 2.00%; annual income growth of 2.25%	12.7	0.9	8%
Annual rent growth of 2.00%; annual income growth of 2.50%	12.3	0.5	5%
Annual rent growth of 2.00%; annual income growth of 2.75%	12.0	0.2	2%
Annual rent growth of 2.00%; annual income growth of 3.00%	11.6	-0.2	-1%

Single-person households would also grow by a sharp 12 percent and perhaps more importantly would account for fully 47 percent of the total share of newly burdened households by 2025 in the base case scenario. As with the growth in married couples without children, this large growth in severely cost-burdened single-person households would be driven by the projected growth in the number of older adults, who with age are more likely to live alone. Older women in particular are increasingly likely to live alone and face severe cost burdens. However, due to the size of their generation as well as delays in marriage and household formation, many millennials are also still expected to be single and renting by 2025 and therefore are also expected to contribute to the growth in single-person households with severe burdens.

More than any other racial or ethnic group, Hispanic households are projected to have the largest increases in severe renter burdens in the next decade under the base case scenario. Overall, the number of severely burdened Hispanic households is expected to increase by 27 percent, followed by Asians and other non-black minorities expected to grow by 23 percent, while the number of severely burdened non-Hispanic blacks would increase by nearly 11 percent. Growth in severe burdens among non-Hispanic whites, on the other hand, would grow by just 0.5 percent in this scenario, but in terms of absolute numbers, white households would still represent the greatest number of severely burdened renters at 5.2 million.

SCENARIOS: RENTS OUTPACE INCOMES

We ran four scenarios in which rent increases will outpace income growth over the next decade by 0.25 percentage point increments. We believe these scenarios to be extremely plausible, given that rents have consistently outpaced incomes over the last 15 years. As expected, these scenarios result in significant increases in the number of severely cost-burdened renter households by 2025 over the baseline.

With every additional 0.25 percentage point increase in rent growth above gains in income, approximately 400,000 more renters will become severely cost burdened relative to the base case scenario. For example, if annual rent growth were to outpace annual income growth by 0.25 percent over the next 10 years, the total number of burdened households would rise by 1.7 million to 13.5 million renters, compared to a gain of 1.3 million in the base case. In our most extreme scenario with rents outpacing incomes by 1 percent annually, the total number of severely burdened renting households would rise by 3 million, an increase of 25.4 percent.

When broken out by age, race/ethnicity and household type, we find that the numbers of severely burdened households increase across all categories. However, we also see that the numbers become more evenly distributed between categories. For example, severely cost-burdened Hispanic households continue to lead other racial groups in these four scenarios, but they make up a smaller share of total change compared to the baseline scenario, primarily due to increases in burdened white families.

Under the baseline scenario, white households make up only 2 percent of the total growth in severely burdened renters. However, when annual rent growth exceeds annual income growth in these projections, the white share of the gains in households experiencing severe cost burdens jumps from 12 to 25 percent under this range of scenarios. Significantly more minority households experience cost burdens under all scenarios, but white households experience the worst impacts when rent growth outpaces income growth. This increase in burdened white households is indicative of the growing elderly population experiencing severe burdens.

Consistent with the baseline scenario, the elderly population sees the greatest increases in severely burdened renters compared to other age groups in these scenarios. When rent growth exceeds income growth by 0.25 percent, there is a 46.7 percent rise in burdened households ages 65–74 and a 42.6 percent rise ages 75 and up. Those percentages only continue to rise as rent growth increases. This is most likely due to a heavy reliance on fixed incomes among this population, and if rents significantly outpace Social Security cost of living adjustments over time, the incidence of severe rent burdens will rise dramatically.

Also consistent with the baseline scenario is the rising rent burdens among aging millennials that is visible in the growth in burdens in the 25–34- and 35–44-year-old age groups. These data demonstrate that millennial renter burdens will worsen significantly if rent growth continues to outpace their incomes.

The groups experiencing the most severe renter burdens within household type are similar to the baseline scenario. Married couples without children and those with children continue to have the greatest increases in severely burdened households, compared to other household types. And single people continue to have the greatest number of total burdened households, which is primarily driven by significant burdens among elderly people and aging millennials living alone.

SCENARIOS: INCOMES OUTPACE RENTS

These four scenarios assume that income growth will outpace rent growth by 0.25 percentage point increments over the next decade. While we do not expect income to outpace rent over this period, given that rents have grown consistently faster than incomes since the late 1990s, such circumstances are possible, and we wanted to test the sensitivity of the model to this outcome.

Under three of these four scenarios, we find that the number of severely burdened renters would still continue to rise over the next decade, until income growth exceeds rent growth by 1 percentage point. In that case, the number of severely rent-burdened households would drop by 169,000 households, or 1.4 percent. While this scenario is unlikely given current income and rent trends, it is critical that we identify at what income and rent levels the number of burdened households will begin to fall. Overall in the scenarios where incomes outpace rents, growth in the number of severely cost-burdened renters declines by about 350,000 relative to the base case scenario with each incremental 0.25 percent increase in income growth over rent growth.

While these scenarios would result in fewer severely burdened renters overall than the baseline scenario, there would still be a considerable increase in the number of severely burdened elderly people. Consistent with the baseline scenario, households aged 65–74 and 75 and older would see the largest increases of any age group, but the magnitude would be significantly smaller compared to the base case scenario.

Due to the sheer size of the millennial generation, there would also be an increase in the number of renters age 35–44 with burdens under these higher income growth scenarios, though to a much lesser extent than under the baseline scenario. Conversely, the relatively smaller size of the Gen Xers relative to baby boomers will lead to fewer rent-burdened households age 45–54 if incomes do outpace rents in the decade ahead.

The findings from these scenarios also illustrate the fact that married couples without children, single people and single parents with non-partner adults will see the largest percentage increases in renters with burdens, compared to other household types.

Consistent with the baseline is the fact that single people with severe cost burdens will make up the greatest share of newly burdened households by household type. Again, this significant share reflects the disproportionate burden increases among older and millennial households.

When broken down by race/ethnicity, the shares of households burdened by rent costs look similar to the baseline scenario, except for white households. Under these scenarios, the number of white households experiencing severe renter burdens would actually drop between 2015 and 2025. This finding demonstrates that there are far more white households that are closer to escaping severe renter burdens than other races. In this scenario, Hispanic households would still see the greatest increases (largely due to overall growth), followed by Asian/other and black households.

CONCLUSION

Overall, our analysis projects a fairly bleak picture of severe renter burdens across the U.S. for the coming decade. Under nearly all of the scenarios performed, we found that the renter affordability crisis will continue to worsen without intervention. According to our projections, annual income growth would need to exceed annual rent growth by 1 percent in order to reduce the number of severely burdened renters in 10 years. Importantly, that decline would have a net impact on fewer than 200,000 households, only because continued increases in burdens among minorities would be offset by declines among whites. Under the more likely scenario that rents will continue to outpace incomes, the number of severely rent-burdened households would increase by a range of 1.7–3 million, depending on the magnitude.

Given these findings, it is critical for policymakers at all levels of government to prioritize the preservation and development of affordable rental housing. Even if the economy continues its slow recovery and income growth improves, there are simply not enough quality, affordable rental units to house the millions of households paying over half their income in rental costs.

APPENDIX A: METHODOLOGY

BASELINE PROJECTION OF RENTER HOUSEHOLDS

The underlying renter household counts used in this study as the basis for projecting counts of severely cost-burdened renters are from the 2013 JCHS household projections by tenure.¹⁴ The JCHS tenure projections provide counts of renter households by 5-year age group, race/ethnicity and household type, and were derived by holding current homeownership rates constant within each of these categories and applying them to the baseline household projection. The homeownership rates used are from Current Population Surveys and are averages from the two most recent years, 2012 and 2013, to reduce volatility.

PROJECTING BURDENED RENTERS - BASE CASE

For the base case projection of severely cost-burdened renters, we apply constant severe cost-burden rates by 5-year age, race/ethnicity and household type to the renter household projection. The rates are calculated using household-level data for gross rents and incomes from the 2013 American Community Survey, and are the share of renter households whose monthly housing costs for rents and residential utilities exceed 50 percent of their total household income. Households with zero or negative incomes are assumed to be severely burdened, while renters reporting “no cash rent” are assumed to be unburdened.

SCENARIOS

Whereas the base case holds current cost-burden rates constant, the alternative scenarios apply different cost burden rates that result from different assumptions about what growth in rents and incomes will be over the next 10 years. These alternative burden rates are recalculated for each of our demographic groupings after making across-the-board adjustments to incomes and rents at the household level in the 2013 ACS to proxy 10 years of growth at the annual rates of growth for that scenario. For example, in the scenario where incomes increase 2 percent per year for 10 years and rents increase 3 percent, we first compound a 2 percent annual income growth rate for 10 years to get an income multiplier of 21.9 percent and then compound a 3 percent annual rent growth rate for 10 years to get a rent multiplier of 34.39 percent. Then, for each renter household we inflate 2013 ACS household incomes by 21.9 percent and rents by 34.39 percent to obtain their projected future income and rent levels. Next, having inflated both rents and incomes of all renter households to their projected future levels, we recalculate the resulting severe cost-burden rates for each 5-year age, race/ethnicity and household type. The last step is then to apply those new cost-burden rates obtained for each of our demographic groups to the projected future renter household counts for each group and then sum up to obtain the total projected number of severely cost-burdened renters.

APPENDIX B: SCENARIOS**PROJECTED BASELINE RENTER SEVERE COST BURDENS, MIDDLE-SERIES**

Baseline Scenario 1: Assuming 2015-2025 annual rent growth of 2.00% and annual income growth of 2.00%

	2015	2025	Change 2015-25 (#)	Change 2015-25 (%)
Total				
All Renter Households	11,777,878	13,070,918	1,293,040	11.0%
Age				
15–24	1,956,092	1,890,213	-65,879	-3.4%
25–34	2,826,363	3,093,308	266,945	9.4%
35–44	2,029,267	2,331,262	301,995	14.9%
45–54	1,739,303	1,713,971	-25,332	-1.5%
55–64	1,510,052	1,631,065	121,013	8.0%
65–74	829,700	1,179,332	349,632	42.1%
75+	887,103	1,231,767	344,664	38.9%
Race/Ethnicity				
White, NH	5,210,273	5,236,343	26,070	0.5%
Black, NH	2,958,097	3,277,794	319,697	10.8%
Hispanic	2,609,028	3,321,847	712,819	27.3%
Asian/Other	1,000,481	1,234,933	234,452	23.4%
Household Type				
Married without Children	729,127	857,159	128,032	17.6%
Married with Children	1,178,917	1,327,851	148,934	12.6%
Partnered without Children	315,837	324,431	8,594	2.7%
Partnered with Children	372,440	403,936	31,496	8.5%
Single Parent without Other Adults	2,024,953	2,216,965	192,012	9.5%
Single Parent with Other Non-Partner Adults	475,729	530,171	54,442	11.4%
Single Person	5,072,080	5,679,257	607,177	12.0%
Other	1,608,796	1,731,150	122,354	7.6%

SOURCE: JCHS TABULATIONS OF 2013 JCHS MIDDLE-SERIES HOUSEHOLD PROJECTIONS AND U.S. CENSUS BUREAU, 2013 AMERICAN COMMUNITY SURVEY.

Note: Severe cost burden rates for 2025 differ from 2015 and are recalculated after projecting 10 years of differential growth in rents and incomes, where incomes grow at 2.00% per year and rents grow at 2.00% per year. After 10 years, total income inflation is 21.90%, and rent inflation is 21.90%.

APPENDIX B: SCENARIOS**PROJECTED RENTER SEVERE COST BURDENS, MIDDLE-SERIES**

Scenario 2: Assuming 2015-2025 annual rent growth of 2.25% and annual income growth of 2.00%

	2015	2025	Change 2015-25 (#)	Change 2015-25 (%)
Total				
All Renter Households	11,777,878	13,477,620	1,699,742	14.4%
Age				
15–24	1,956,092	1,934,320	-21,772	-1.1%
25–34	2,826,363	3,195,679	369,316	13.1%
35–44	2,029,267	2,411,541	382,274	18.8%
45–54	1,739,303	1,768,501	29,198	1.7%
55–64	1,510,052	1,684,744	174,692	11.6%
65–74	829,700	1,217,438	387,738	46.7%
75+	887,103	1,265,397	378,294	42.6%
Race/Ethnicity				
White, NH	5,210,273	5,406,950	196,677	3.8%
Black, NH	2,958,097	3,366,297	408,200	13.8%
Hispanic	2,609,028	3,433,455	824,427	31.6%
Asian/Other	1,000,481	1,270,918	270,437	27.0%
Household Type				
Married without Children	729,127	895,969	166,842	22.9%
Married with Children	1,178,917	1,393,482	214,565	18.2%
Partnered without Children	315,837	337,722	21,885	6.9%
Partnered with Children	372,440	418,329	45,889	12.3%
Single Parent without Other Adults	2,024,953	2,270,237	245,284	12.1%
Single Parent with Other Non-Partner Adults	475,729	550,750	75,021	15.8%
Single Person	5,072,080	5,829,339	757,259	14.9%
Other	1,608,796	1,781,791	172,995	10.8%

SOURCE: JCHS TABULATIONS OF 2013 JCHS MIDDLE-SERIES HOUSEHOLD PROJECTIONS AND U.S. CENSUS BUREAU, 2013 AMERICAN COMMUNITY SURVEY.

Note: Severe cost burden rates for 2025 differ from 2015 and are recalculated after projecting 10 years of differential growth in rents and incomes, where incomes grow at 2.00% per year and rents grow at 2.25% per year. After 10 years, total income inflation is 21.90%, and rent inflation is 24.92%.

APPENDIX B: SCENARIOS**PROJECTED RENTER SEVERE COST BURDENS, MIDDLE-SERIES**

Scenario 3: Assuming 2015-2025 annual rent growth of 2.50% and annual income growth of 2.00%

	2015	2025	Change 2015-25 (#)	Change 2015-25 (%)
Total				
All Renter Households	11,777,878	13,897,256	2,119,377	18.0%
Age				
15–24	1,956,092	1,985,512	29,420	1.5%
25–34	2,826,363	3,291,730	465,367	16.5%
35–44	2,029,267	2,490,543	461,276	22.7%
45–54	1,739,303	1,827,493	88,190	5.1%
55–64	1,510,052	1,735,769	225,717	14.9%
65–74	829,700	1,258,478	428,778	51.7%
75+	887,103	1,307,731	420,628	47.4%
Race/Ethnicity				
White, NH	5,210,273	5,572,476	362,203	7.0%
Black, NH	2,958,097	3,464,290	506,193	17.1%
Hispanic	2,609,028	3,554,147	945,119	36.2%
Asian/Other	1,000,481	1,306,342	305,861	30.6%
Household Type				
Married without Children	729,127	933,423	204,296	28.0%
Married with Children	1,178,917	1,454,947	276,030	23.4%
Partnered without Children	315,837	352,447	36,610	11.6%
Partnered with Children	372,440	434,383	61,943	16.6%
Single Parent without Other Adults	2,024,953	2,327,715	302,762	15.0%
Single Parent with Other Non-Partner Adults	475,729	569,965	94,236	19.8%
Single Person	5,072,080	5,987,599	915,519	18.1%
Other	1,608,796	1,836,776	227,980	14.2%

SOURCE: JCHS TABULATIONS OF 2013 JCHS MIDDLE-SERIES HOUSEHOLD PROJECTIONS AND U.S. CENSUS BUREAU, 2013 AMERICAN COMMUNITY SURVEY.

Note: Severe cost burden rates for 2025 differ from 2015 and are recalculated after projecting 10 years of differential growth in rents and incomes, where incomes grow at 2.00% per year and rents grow at 2.50% per year. After 10 years, total income inflation is 21.90%, and rent inflation is 28.01%.

APPENDIX B: SCENARIOS**PROJECTED RENTER SEVERE COST BURDENS, MIDDLE-SERIES**

Scenario 4: Assuming 2015-2025 annual rent growth of 2.75% and annual income growth of 2.00%

	2015	2025	Change 2015-25 (#)	Change 2015-25 (%)
Total				
All Renter Households	11,777,878	14,323,471	2,545,593	21.6%
Age				
15–24	1,956,092	2,025,639	69,547	3.6%
25–34	2,826,363	3,404,997	578,634	20.5%
35–44	2,029,267	2,575,938	546,671	26.9%
45–54	1,739,303	1,886,109	146,806	8.4%
55–64	1,510,052	1,784,393	274,341	18.2%
65–74	829,700	1,297,769	468,069	56.4%
75+	887,103	1,348,626	461,523	52.0%
Race/Ethnicity				
White, NH	5,210,273	5,762,388	552,115	10.6%
Black, NH	2,958,097	3,556,017	597,920	20.2%
Hispanic	2,609,028	3,663,847	1,054,819	40.4%
Asian/Other	1,000,481	1,341,219	340,738	34.1%
Household Type				
Married without Children	729,127	974,165	245,038	33.6%
Married with Children	1,178,917	1,523,028	344,111	29.2%
Partnered without Children	315,837	366,904	51,067	16.2%
Partnered with Children	372,440	449,628	77,188	20.7%
Single Parent without Other Adults	2,024,953	2,383,739	358,786	17.7%
Single Parent with Other Non-Partner Adults	475,729	589,683	113,954	24.0%
Single Person	5,072,080	6,146,460	1,074,380	21.2%
Other	1,608,796	1,889,865	281,069	17.5%

SOURCE: JCHS TABULATIONS OF 2013 JCHS MIDDLE-SERIES HOUSEHOLD PROJECTIONS AND U.S. CENSUS BUREAU, 2013 AMERICAN COMMUNITY SURVEY.

Note: Severe cost burden rates for 2025 differ from 2015 and are recalculated after projecting 10 years of differential growth in rents and incomes, where incomes grow at 2.00% per year and rents grow at 2.75% per year. After 10 years, total income inflation is 21.90%, and rent inflation is 31.17%.

APPENDIX B: SCENARIOS**PROJECTED RENTER SEVERE COST BURDENS, MIDDLE-SERIES**

Scenario 5: Assuming 2015-2025 annual rent growth of 3.00% and annual income growth of 2.00%

	2015	2025	Change 2015-25 (#)	Change 2015-25 (%)
Total				
All Renter Households	11,777,878	14,766,055	2,988,176	25.4%
Age				
15–24	1,956,092	2,073,537	117,445	6.0%
25–34	2,826,363	3,522,082	695,719	24.6%
35–44	2,029,267	2,655,806	626,539	30.9%
45–54	1,739,303	1,945,017	205,714	11.8%
55–64	1,510,052	1,835,457	325,405	21.5%
65–74	829,700	1,343,740	514,040	62.0%
75+	887,103	1,390,414	503,311	56.7%
Race/Ethnicity				
White, NH	5,210,273	5,949,395	739,122	14.2%
Black, NH	2,958,097	3,653,175	695,078	23.5%
Hispanic	2,609,028	3,785,069	1,176,041	45.1%
Asian/Other	1,000,481	1,378,416	377,935	37.8%
Household Type				
Married without Children	729,127	1,016,022	286,895	39.3%
Married with Children	1,178,917	1,591,937	413,020	35.0%
Partnered without Children	315,837	386,314	70,477	22.3%
Partnered with Children	372,440	470,353	97,913	26.3%
Single Parent without Other Adults	2,024,953	2,439,711	414,758	20.5%
Single Parent with Other Non-Partner Adults	475,729	608,038	132,309	27.8%
Single Person	5,072,080	6,304,932	1,232,852	24.3%
Other	1,608,796	1,948,748	339,952	21.1%

SOURCE: JCHS TABULATIONS OF 2013 JCHS MIDDLE-SERIES HOUSEHOLD PROJECTIONS AND U.S. CENSUS BUREAU, 2013 AMERICAN COMMUNITY SURVEY.

Note: Severe cost burden rates for 2025 differ from 2015 and are recalculated after projecting 10 years of differential growth in rents and incomes, where incomes grow at 2.00% per year and rents grow at 3.00% per year. After 10 years, total income inflation is 21.90%, and rent inflation is 34.39%.

APPENDIX B: SCENARIOS**PROJECTED RENTER SEVERE COST BURDENS, MIDDLE-SERIES**

Scenario 6: Assuming 2015-2025 annual rent growth of 2.00% and annual income growth of 2.25%

	2015	2025	Change 2015-25 (#)	Change 2015-25 (%)
Total				
All Renter Households	11,777,878	12,697,122	919,243	7.8%
Age				
15–24	1,956,092	1,850,250	-105,842	-5.4%
25–34	2,826,363	3,000,208	173,845	6.2%
35–44	2,029,267	2,265,196	235,929	11.6%
45–54	1,739,303	1,666,933	-72,370	-4.2%
55–64	1,510,052	1,582,951	72,899	4.8%
65–74	829,700	1,140,082	310,382	37.4%
75+	887,103	1,191,501	304,398	34.3%
Race/Ethnicity				
White, NH	5,210,273	5,068,291	-141,982	-2.7%
Black, NH	2,958,097	3,197,333	239,236	8.1%
Hispanic	2,609,028	3,223,091	614,063	23.5%
Asian/Other	1,000,481	1,208,406	207,925	20.8%
Household Type				
Married without Children	729,127	822,881	93,754	12.9%
Married with Children	1,178,917	1,275,490	96,573	8.2%
Partnered without Children	315,837	311,408	-4,429	-1.4%
Partnered with Children	372,440	386,190	13,750	3.7%
Single Parent without Other Adults	2,024,953	2,171,871	146,918	7.3%
Single Parent with Other Non-Partner Adults	475,729	516,650	40,921	8.6%
Single Person	5,072,080	5,534,966	462,886	9.1%
Other	1,608,796	1,677,665	68,869	4.3%

SOURCE: JCHS TABULATIONS OF 2013 JCHS MIDDLE-SERIES HOUSEHOLD PROJECTIONS AND U.S. CENSUS BUREAU, 2013 AMERICAN COMMUNITY SURVEY.

Note: Severe cost burden rates for 2025 differ from 2015 and are recalculated after projecting 10 years of differential growth in rents and incomes, where incomes grow at 2.25% per year and rents grow at 2.00% per year. After 10 years, total income inflation is 24.92%, and rent inflation is 21.90%.

APPENDIX B: SCENARIOS**PROJECTED RENTER SEVERE COST BURDENS, MIDDLE-SERIES**

Scenario 7: Assuming 2015-2025 annual rent growth of 2.00% and annual income growth of 2.50%

	2015	2025	Change 2015-25 (#)	Change 2015-25 (%)
Total				
All Renter Households	11,777,878	12,308,509	530,631	4.5%
Age				
15–24	1,956,092	1,808,498	-147,594	-7.5%
25–34	2,826,363	2,905,869	79,506	2.8%
35–44	2,029,267	2,184,174	154,907	7.6%
45–54	1,739,303	1,619,032	-120,271	-6.9%
55–64	1,510,052	1,536,130	26,078	1.7%
65–74	829,700	1,098,218	268,518	32.4%
75+	887,103	1,156,589	269,486	30.4%
Race/Ethnicity				
White, NH	5,210,273	4,908,370	-301,903	-5.8%
Black, NH	2,958,097	3,114,928	156,831	5.3%
Hispanic	2,609,028	3,111,415	502,387	19.3%
Asian/Other	1,000,481	1,173,796	173,315	17.3%
Household Type				
Married without Children	729,127	786,860	57,733	7.9%
Married with Children	1,178,917	1,215,177	36,260	3.1%
Partnered without Children	315,837	297,413	-18,424	-5.8%
Partnered with Children	372,440	368,768	-3,672	-1.0%
Single Parent without Other Adults	2,024,953	2,124,577	99,624	4.9%
Single Parent with Other Non-Partner Adults	475,729	503,106	27,377	5.8%
Single Person	5,072,080	5,388,808	316,728	6.2%
Other	1,608,796	1,623,801	15,005	0.9%

SOURCE: JCHS TABULATIONS OF 2013 JCHS MIDDLE-SERIES HOUSEHOLD PROJECTIONS AND U.S. CENSUS BUREAU, 2013 AMERICAN COMMUNITY SURVEY.

Note: Severe cost burden rates for 2025 differ from 2015 and are recalculated after projecting 10 years of differential growth in rents and incomes, where incomes grow at 2.50% per year and rents grow at 2.00% per year. After 10 years, total income inflation is 28.01%, and rent inflation is 21.90%.

APPENDIX B: SCENARIOS**PROJECTED RENTER SEVERE COST BURDENS, MIDDLE-SERIES**

Scenario 8: Assuming 2015-2025 annual rent growth of 2.00% and annual income growth of 2.75%

	2015	2025	Change 2015-25 (#)	Change 2015-25 (%)
Total				
All Renter Households	11,777,878	11,956,000	178,121	1.5%
Age				
15–24	1,956,092	1,769,239	-186,853	-9.6%
25–34	2,826,363	2,825,641	-722	0.0%
35–44	2,029,267	2,116,468	87,201	4.3%
45–54	1,739,303	1,571,316	-167,987	-9.7%
55–64	1,510,052	1,487,235	-22,817	-1.5%
65–74	829,700	1,063,652	233,952	28.2%
75+	887,103	1,122,448	235,345	26.5%
Race/Ethnicity				
White, NH	5,210,273	4,753,067	-457,206	-8.8%
Black, NH	2,958,097	3,038,862	80,765	2.7%
Hispanic	2,609,028	3,015,362	406,334	15.6%
Asian/Other	1,000,481	1,148,708	148,227	14.8%
Household Type				
Married without Children	729,127	751,540	22,413	3.1%
Married with Children	1,178,917	1,168,174	-10,743	-0.9%
Partnered without Children	315,837	285,160	-30,677	-9.7%
Partnered with Children	372,440	355,255	-17,185	-4.6%
Single Parent without Other Adults	2,024,953	2,076,639	51,686	2.6%
Single Parent with Other Non-Partner Adults	475,729	488,648	12,919	2.7%
Single Person	5,072,080	5,250,634	178,554	3.5%
Other	1,608,796	1,579,951	-28,845	-1.8%

SOURCE: JCHS TABULATIONS OF 2013 JCHS MIDDLE-SERIES HOUSEHOLD PROJECTIONS AND U.S. CENSUS BUREAU, 2013 AMERICAN COMMUNITY SURVEY.

Note: Severe cost burden rates for 2025 differ from 2015 and are recalculated after projecting 10 years of differential growth in rents and incomes, where incomes grow at 2.75% per year and rents grow at 2.00% per year. After 10 years, total income inflation is 31.17%, and rent inflation is 21.90%.

APPENDIX B: SCENARIOS**PROJECTED RENTER SEVERE COST BURDENS, MIDDLE-SERIES**

Scenario 9: Assuming 2015-2025 annual rent growth of 2.00% and annual income growth of 3.00%

	2015	2025	Change 2015-25 (#)	Change 2015-25 (%)
Total				
All Renter Households	11,777,878	11,608,580	-169,299	-1.4%
Age				
15–24	1,956,092	1,737,246	-218,846	-11.2%
25–34	2,826,363	2,736,726	-89,637	-3.2%
35–44	2,029,267	2,041,981	12,714	0.6%
45–54	1,739,303	1,527,959	-211,344	-12.2%
55–64	1,510,052	1,452,593	-57,459	-3.8%
65–74	829,700	1,022,938	193,238	23.3%
75+	887,103	1,089,136	202,033	22.8%
Race/Ethnicity				
White, NH	5,210,273	4,605,910	-604,363	-11.6%
Black, NH	2,958,097	2,962,628	4,531	0.2%
Hispanic	2,609,028	2,918,378	309,350	11.9%
Asian/Other	1,000,481	1,121,664	121,183	12.1%
Household Type				
Married without Children	729,127	721,943	-7,184	-1.0%
Married with Children	1,178,917	1,120,590	-58,327	-4.9%
Partnered without Children	315,837	274,827	-41,010	-13.0%
Partnered with Children	372,440	341,495	-30,945	-8.3%
Single Parent without Other Adults	2,024,953	2,022,609	-2,344	-0.1%
Single Parent with Other Non-Partner Adults	475,729	467,751	-7,978	-1.7%
Single Person	5,072,080	5,122,383	50,303	1.0%
Other	1,608,796	1,536,981	-71,815	-4.5%

SOURCE: JCHS TABULATIONS OF 2013 JCHS MIDDLE-SERIES HOUSEHOLD PROJECTIONS AND U.S. CENSUS BUREAU, 2013 AMERICAN COMMUNITY SURVEY.

Note: Severe cost burden rates for 2025 differ from 2015 and are recalculated after projecting 10 years of differential growth in rents and incomes, where incomes grow at 3.00% per year and rents grow at 2.00% per year. After 10 years, total income inflation is 34.39%, and rent inflation is 21.90%.

REFERENCES

1. United States Census Bureau. *2014 National Population Projections: Summary Tables*. <http://www.census.gov/population/projections/data/national/2014/summarytables.html>
2. Joint Center for Housing Studies of Harvard University. *The State of the Nation's Housing 2015*. http://www.jchs.harvard.edu/research/state_nations_housing
3. Pelletiere, D. *Getting to the Heart of Housing's Fundamental Question: How Much Can a Family Afford? A Primer on Housing Affordability Standards in U.S. Housing Policy*. Available at SSRN: <http://ssrn.com/abstract=1132551> or <http://dx.doi.org/10.2139/ssrn.1132551>
4. Steffen, B., et al. *Worst Case Housing Needs: 2015 Report to Congress*. Washington, DC: HUD (2015). http://www.huduser.org/portal/publications/affhsg/wc_HsgNeeds15.html
5. Joint Center for Housing Studies of Harvard University. *The State of the Nation's Housing 2015*. http://www.jchs.harvard.edu/research/state_nations_housing
6. National Low Income Housing Coalition. *Out of Reach 2015*. <http://nlihc.org/oor>
7. Teixeira, R., et al. *States of Change: The Demographic Evolution of the American Electorate, 1974-2060*. Center for American Progress. 2015. <https://www.americanprogress.org/issues/progressive-movement/report/2015/02/24/107261/states-of-change/>
8. Krogstad, J.M. *With Fewer New Arrivals, Census Lowers Hispanic Population Projections*. Pew Research Center. 2014. <http://www.pewresearch.org/fact-tank/2014/12/16/with-fewer-new-arrivals-census-lowers-hispanic-population-projections-2/>
9. Ault, M., et al. *Housing Landscape 2015*. Center for Housing Policy. 2015. <http://www.nhc.org/#!2015-housing-landscape/d9ata>
10. Drake, B. *6 New Findings About Millennials*. Pew Research Center. 2014. <http://www.pewresearch.org/fact-tank/2014/03/07/6-new-findings-about-millennials/>
11. United States Census Bureau. *2014 National Population Projections: Summary Tables*. <http://www.census.gov/population/projections/data/national/2014/summarytables.html>
12. Joint Center for Housing Studies of Harvard University. *Housing America's Older Adults—Meeting the Needs of an Aging Population*. 2014. http://www.jchs.harvard.edu/research/housing_americas_older_adults
13. Bricker, J., et al. *Federal Reserve Bulletin: Changes in US Family Finances from 2010 to 2013: Evidence from the Survey of Consumer Finances*. Washington, DC: Board of Governors of the Federal Reserve System (2014). <http://www.federalreserve.gov/pubs/bulletin/2014/pdf/scf14.pdf>
14. For more on the JCHS 2013 household and tenure projections, see McCue (2014) *Baseline Household Projections for the Next Decade and Beyond*. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/w14-1_mccue_0.pdf



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