

**Joint Center for Housing Studies  
Harvard University**

# **The Rent Eats First: Rental Housing Unaffordability in the US**

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## **Abstract**

Even before the COVID-19 pandemic, renters in the United States were facing a housing affordability crisis. Nearly a quarter of renter households were spending more than half of their incomes on rent each month, leaving little income to cover other expenses. This paper examines the housing affordability crisis using a residual income approach to identify renter households whose housing expenses are too high and who lack the income to enable them to meet a basic but comfortable standard of living. Traditionally, housing policy has relied on percent of income measures to indicate whether housing is affordable. Over the last three decades, Michael Stone and other researchers have called for the use of a residual income approach to measuring housing affordability, looking instead at the array of expenses that households have and using spending estimates to calculate what a household can actually afford. Our work builds upon this concept, comparing standard cost burden rates for working-age renter households to residual-income cost burdens. The findings reveal both the challenges of high housing costs and insufficient incomes that keep many American households from meeting their basic needs.

Using a modified version of the Economic Policy Institute's Family Budget Calculator and data from the 2018 American Community Survey, we estimate the number of renter households that do not have enough income to afford a comfortable standard of living after paying rent and utilities each month, which we refer to as residual-income housing cost burdens. Descriptive statistics illustrate that 62 percent of working-age renter households (19.2 million) are burdened under the residual-income measure. Logistic regression models indicate that having children, being out of the labor force, and being a person of color are all associated with higher odds of having residual-income cost burdens. Ordinary least squares regression models show that these same characteristics are also associated with having less income left over after accounting for all household spending needs.

Finally, we examine several policy levers, including universal affordable housing, expanded healthcare subsidies, and reduced food costs. We find that a combined policy that addresses both housing and transportation affordability would have the largest impact on reducing residual-income cost burdens, but even this complex policy would reduce burdens only at the margins and only for middle- to higher-income renters. Income supports and/or policies that reduce multiple spending categories will be needed to ensure the lowest-income renters can attain a comfortable standard of living.

## **Acknowledgements**

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## **Introduction**

The US is in a rental affordability crisis. During the Great Recession, renter incomes fell in real terms while rents continued their upward climb. The share of cost-burdened renter households spending more than 30 percent of their incomes on housing rose from 40.6 percent in 2001 to a peak of 50.7 percent in 2011. In the wake of the Great Recession, renter incomes recovered slowly while rents continued at a steady incline. Cost burdens have receded slightly from the peak but remain high at 47.5 percent in 2018 as 20.8 million renter households live in unaffordable housing. The ongoing pandemic will only increase the affordability challenges that renters face and will likely raise the number and share of cost-burdened renter households.

The affordability crisis has serious implications for the stability and well-being of renter households. For most households, rent is the biggest expenditure. Rent is also an expense that occurs on a fixed schedule and must be paid or the household will face eviction. In short, “the rent eats first.”<sup>1</sup> And with high housing costs that consume a substantial portion of household income, there is often little money left over to cover basic needs. In *America’s Rental Housing 2020*,<sup>2</sup> the Center found that the median renter earning less than \$15,000 annually had only \$410 left each month for all other spending after paying for rent and utilities. With so little left over, these households spend less on other basic necessities such as food and healthcare. Further, the Urban Institute found that almost half of renters faced material hardship at some point in the previous twelve months, reflecting difficulty paying rent or utilities, food insecurity, or unmet medical needs.<sup>3</sup>

Identifying cost burdens using the 30 percent of income measure has become the standard method for assessing housing affordability, but it does not fully account for the cost of other basic necessities, nor does it illustrate the hardships and tradeoffs that households likely face. This paper builds on Michael Stone’s conceptualization of shelter poverty<sup>4</sup> to identify households that do not have enough income left over to afford a basic but comfortable standard of living after paying rent and utilities each month, which we refer to as residual-income housing cost burdens.

We use a modified version of the Economic Policy Institute’s (EPI) Family Budget Calculator to create a national-level estimate of residual-income burdens among renter households with working-age adults, excluding households with a person aged 65 and older. We examine how this residual-income

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<sup>1</sup> Desmond, *Evicted*, 302.

<sup>2</sup> Joint Center for Housing Studies, “America’s Rental Housing 2020.”

<sup>3</sup> Scally and Gonzalez, “Homeowner and Renter Experiences of Material Hardship: Implications for the Safety Net.”

<sup>4</sup> Stone, *Shelter Poverty*, 1993; Stone, “Shelter Poverty,” 2004; Stone, “Housing Affordability: One-Third a Nation Shelter-Poor.”

cost burden estimate differs from the traditional 30 percent cost burden standard by household type, household income, and by metropolitan area. We use logistic and ordinary least squares regression to highlight the household and metropolitan characteristics associated with a higher likelihood and larger magnitude of residual-income. Finally, we simulate what would happen to residual-income burdens if different policy interventions were enacted.

## **Housing Burdens and the Residual Income Approach**

The most widely used measure of housing affordability in both research and public policy is the 30 percent standard. Under this standard, households are housing cost burdened if they spend more than 30 percent of their income on housing costs. For renters, housing costs include both rent and utilities. In federal housing policy, the exact percentage has changed over time with the 1981 Brooke Amendment raising the cap that households in public housing programs should spend from 25 percent of income to 30 percent of income (US Department of Housing and Urban Development, n.d.; Pelletiere, 2008).<sup>5</sup> Regardless of the level, the percent or ratio standard has remained the most widely used method for assessing rental housing affordability because it can be easily calculated on a large scale and requires just the household income and the amount they are spending on rent and utilities.

The validity of this standard, however, has long been subject to debate. Michael Stone began formulating the concept of shelter poverty in the 1970s, producing seminal work that argues for a different approach to measuring housing affordability. Stone critiqued the 30 percent standard because it does not account for what a household can actually afford to pay for housing while meeting their other spending needs.<sup>6</sup> A percent standard treats all income levels the same, implying that a lower-income household paying 30 percent of income could meet their non-housing needs just as well as a higher-income household paying 30 percent. The standard also cannot account for variations in non-housing needs, including food, healthcare, and childcare, for different household types, sizes, or ages. The percent standard approach to affordability would thus categorize two households of the same income and paying the same housing costs but of different sizes as equally cost-burdened, even though larger households have higher non-housing expenses.

Stone instead proposed using shelter poverty to assess housing affordability. Unlike a percent or ratio standard, shelter poverty is a residual income approach. Stone refers to residual income as the

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<sup>5</sup> US Department of Housing and Urban Development, "Rental Burdens: Rethinking Affordability Measures"; Pelletiere, "Getting to the Heart of Housing's Fundamental Question."

<sup>6</sup> Stone, "Shelter Poverty," 2004; Stone, "Housing Affordability: One-Third a Nation Shelter-Poor."

amount of income required to cover non-housing expenses after paying for housing.<sup>7</sup> He described the residual income approach as a sliding scale because, unlike the 30 percent standard, this measure of affordability varies by both income and household type. A household is shelter poor if it “cannot meet its nonhousing needs at some minimum level of adequacy after paying for housing.”<sup>8</sup> Stone also distinguishes between absolute poverty and shelter poverty. Households with absolute poverty would not have enough income to meet even basic non-housing needs even if they had no housing costs, while those with shelter poverty would have enough for these basic non-housing needs if not for high housing costs.

Several studies have operationalized a residual income approach, using different methods for determining household expenses and illustrating how the magnitude of housing affordability differs between the percent or ratio standard and residual income approaches. Stone’s short article used the BLS Lower Budgets to estimate shelter poverty, finding that about a third of households nationwide, including both owners and renters, were shelter poor.<sup>9</sup> He expanded the analysis and framework in his 2006 chapter, noting that in comparison to the share of households spending at least 30 percent of income on housing, shelter poverty rates were actually lower.<sup>10</sup> While 32 million households were shelter poor, about 2.5 million more were cost burdened under the 30 percent standard. Stone did point out, however, that the distribution of households was substantially different between the two measures; many shelter-poor households were not traditionally cost burdened while many traditionally cost-burdened households were not considered shelter poor.

Kutty<sup>11</sup> similarly used a residual income approach to identify housing-induced poverty. Kutty assumes that non-housing expenses would cost at least two-thirds of the federal poverty line for a minimum standard of living; she refers to these expenses as a “poverty basket of nonhousing goods.”<sup>12</sup> Kutty then categorized households as being in housing-induced poverty if, after paying for housing, they did not have enough left over to afford the poverty basket of non-housing goods. She used the 1999 American Housing Survey to calculate housing expenditures for different households – including rent, utilities, and insurance for renters, and mortgage, utilities, insurance, and taxes for homeowners. Kutty estimated that a total of 17.2 million households (renters and owners) lived in housing-induced poverty.

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<sup>7</sup> Stone, “Housing Affordability: One-Third a Nation Shelter-Poor.”

<sup>8</sup> Stone, “Housing Affordability: One-Third of a Nation Shelter-Poor,” 44.

<sup>9</sup> Stone, “Shelter Poverty,” 2004.

<sup>10</sup> Stone, “Housing Affordability: One-Third of a Nation Shelter-Poor.”

<sup>11</sup> Kutty, “A New Measure of Housing Affordability.”

<sup>12</sup> Kutty, “A New Measure of Housing Affordability,” 119.

The use of the residual income approach changed the geographic concentration of poverty, suggesting more households were in near poverty in the Northeast and West and in metropolitan areas than the 30 percent standard would indicate. Additionally, more non-white households experienced shelter-induced poverty as compared to the 30 percent measure.

More recently, Herbert, Hermann, & McCue<sup>13</sup> examined how the 30 percent standard and the residual income approaches differ for certain kinds of households in a selection of metro areas. The authors analyzed three metros with high, moderate, and low housing costs (Los Angeles, Phoenix, and Cleveland), and limited the analysis to renter households of up to four adults. The authors measured non-housing needs using the Self-Sufficiency Standard produced at the University of Washington. The Self-Sufficiency Standard encompasses the cost of necessities, including expenses for housing, childcare, food, transportation, healthcare, and miscellaneous expenses. It is meant to capture the amount of income needed for a household to live independently without the use of public or private assistance, such as food stamps or childcare provided by a relative. Herbert, Hermann, & McCue estimated residual income by comparing assumed non-housing expenditures to both household income and rents observed in the 2015 American Community Survey. Relative to the 30 percent standard, the authors found that cost burdens using the residual income approach were higher for lower-income households and households with children in all three markets. The authors also found that residual-income cost burdens might be overstated in high-cost markets like Los Angeles, where higher-income households and households without children are more likely to spend 30 percent of income on housing but typically have enough income to cover non-housing expenses. However, the geographic scope of the analysis was limited.

Finally, Grady<sup>14</sup> quantified the difference between the 30 percent standard of housing affordability and the residual income approach. Grady similarly employed the University of Washington's Self-Sufficiency Standard as the baseline for non-housing expenses, using Pearce's<sup>15</sup> report that details basic expenditures for counties in Ohio. Using microdata from the 2012-2016 American Community Surveys across Ohio public-use microdata areas (PUMAs), Grady calculated the share of renters living in shelter poverty (defined as households whose rent and non-housing expenditures exceed their annual income). He also calculated the amount that household incomes fell short of the combined housing and non-housing expenses, referring to this as the affordability gap.

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<sup>13</sup> Herbert, Hermann, and McCue, "Measuring Housing Affordability: Assessing the 30 Percent of Income Standard."

<sup>14</sup> Grady, "Shelter Poverty in Ohio."

<sup>15</sup> Pearce, "The Self-Sufficiency Standard for Ohio 2015."

Grady found that the shelter poverty rate as well as the median and aggregate affordability gaps were significantly higher than the corresponding measures of cost burdens using the 30 percent standard.

The residual income approach is not necessarily better than a percent standard. The residual income approach can be difficult to calculate, particularly on a large scale. It requires an estimate of necessary non-housing expenses for a range of household configurations. Embedded within these estimates is also a normative determination of what constitutes requisite expenses as well as an assumption about what a decent standard of living should be. However, when the two approaches are compared to each other for the same set of households, they provide a more complete picture of the housing affordability challenges that households face.

Our paper builds upon existing studies by producing a current, national-level estimate of residual-income housing cost burdens for working-age renter households under the age of 65. Similar to studies that have used the Self-Sufficiency Standard, we consider how much income households would need to cover non-housing expenses that would cover a basic but comfortable standard of living rather than trying to estimate an absolute minimum amount needed. This higher standard of living for all households should be the goal, rather than pulling people just above the poverty line or assuming people should just get by.

## **Methods: Estimating Housing Unaffordability**

In this section, we describe how we used EPI Family Budget Calculator data to derive estimated non-housing expenses. We made several modifications to the EPI cost estimates that we describe below. We then describe what households are included in our sample and how well the sample covers all renter households nationally and in metros. Finally, in the last part of this section, we describe our methodological approach, which included descriptive analysis of residual-income burdens, ordinary least squares and logit modeling to examine the characteristics associated with having residual-income burdens and a greater magnitude of burden, and a simulation of policy interventions to identify which policies would reduce residual-income burden rates the most.

### **Data**

Household spending needs vary considerably with circumstances. Household composition, including the number and age of household members, will dictate levels of expenditures on all types of goods, from car ownership to laundry detergent. Expenses also depend on location. Costs of all kinds—rent, groceries, gas, or even a night out—also vary from market to market. Estimates of household



expenditures should account for these differences. Spending also varies with personal preference, health status, means of transportation, distance from social networks, place of employment, and numerous other factors.

The primary data source on household expenditures used in this paper is the EPI Family Budget Calculator. The EPI provides expenditure estimates on housing, food, childcare, transportation, health care, taxes, and other necessities at the county level and with complete geographic coverage of the United States for all household combinations with 1 or 2 adults and 0 to 4 children. In other words, EPI produces estimates of spending that vary by household composition and location. All estimates are adjusted for inflation to 2018 dollars and annualized. These budgets measure the income needed for families to attain a modest standard of living. They aren't meant to calculate some minimum threshold of need—many households could and do survive on much less than the EPI budgets allocate—but instead they allow for a basic but comfortable living standard.<sup>16</sup> Notably, the minimum amount needed for non-housing expenses for the smallest household in the least expensive county is \$18,000, and the average amount is \$40,000, leaving most lower-income households with residual-income burdens. A major limitation of this dataset is that it assumes adults are working-aged and does not translate to the needs of older adults.<sup>17</sup> For this reason, we exclude households with a person aged 65 and older. A second limitation is that it does not specifically include categories for retirement or cash savings, which could lead to downstream quality of life effects as households age.

The EPI budgets are estimated for theoretical households in each county, but we map these expenditures onto actual households in the 2018 1-Year American Community Survey (ACS) Public Use Microdata Sample. The ACS is a large, nationally representative survey conducted annually by the Census Bureau that collects a wealth of information on the housing, demographic, and economic characteristics of the nation's households. To obtain county-level estimates, we reweight the ACS sample using a crosswalk from the Missouri Census Data Center, which accounts for the probability a household resides in a given county. Estimates are summed to the metro and national level for analysis. From the ACS, we observe each household's location, the ages and relationships of household members, as well as each household's income and rent.

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<sup>16</sup> The comfortable standard of living is built into how each expenditure category is calculated in the EPI dataset. While many categories are similar to the Self-Sufficiency Standard, the EPI methodology is more generous in a few areas. For example, the childcare estimate includes the cost of center-based care in metro areas and assumes full-time summer care for school-aged children. Transportation expenditures account for more types of trips than the Self-Sufficiency Standard. The other necessities category also encompasses a wider range of possible needs.

<sup>17</sup> In particular, the transportation costs assume the adults are commuting to work, and the healthcare costs assume the adult is middle-aged.

**Table 1: Economic Policy Institute Spending Categories, Original Sources, and Brief Description of Adjustments**

<b>Expenditure</b>	<b>EPI Source(s)</b>	<b>Adjustment</b>	<b>Description of Adjustment</b>
<b>Transportation</b>	Center for Neighborhood Technology, Housing and Transportation Affordability Index	None	N/A
<b>Health care</b>	Kaiser Family Foundation, 2017 Health Insurance Marketplace Calculator; Department of Health and Human Services, 2017 QHP Landscape Individual Market Medical dataset; Department of Health and Human Services, Medical Expenditure Panel Surveys	None	N/A
<b>Food</b>	Department of Agriculture, Official USDA Food Plans: Cost of Food at Home at Four Levels; Feeding America, Map the Meal Gap 2017	Yes	Food expenditures are calculated by age of household member and adjusted for each county using interpolated adjustment factor from EPI estimates
<b>Childcare</b>	Childcare Aware of America, Parents and the High Cost of Childcare	Yes	Childcare expenditures by age of child for each county are inferred from EPI estimates
<b>Taxes</b>	National Bureau of Economic Research, TaxSim 9.3	Yes	Tax expenditures are recalculated using the NBER TaxSim 27
<b>Other necessities</b>	Bureau of Labor Statistics, 2017 Consumer Expenditure Survey	Yes	Spending on other necessities is recalculated as 40 percent of spending on food and housing
<b>Housing</b>	HUD 2018 fair market rents	Not used	Spending on housing observed in American Community Survey

Most expenditures are derived from EPI’s estimated budgets. Our analysis either takes as given or recalculates the EPI estimates—depending on the expenditure category—to account for the observed ages of household members in the ACS and, for income taxes, the household incomes (**Table 1**).

Transportation and health care expenditures, for example, are taken as given. Transportation estimates are derived from the Center for Neighborhood Technology’s Housing and Transportation affordability index. Transportation includes the cost of auto ownership, use, and maintenance as well as transit use for commuting to work (for the first and second adults) and non-social trips (for the first adult only).

According to EPI, the expenditure estimate accounts for 72 percent of vehicle miles traveled on average nationally for the first adult, and 45 percent of vehicle miles traveled for the second.

Health care spending in the EPI Family Budget Calculator assumes households obtain health insurance through the Affordable Care Act (ACA) exchanges and includes two primary components. The first is monthly premiums, which assume the purchase of the lowest-cost bronze plan for a 40-year-old adult nonsmoker.<sup>18</sup> These estimates vary by ACA rating areas, which are usually comprised of multiple counties. The second component is out-of-pocket costs. Using the Medical Expenditure Panel Survey from 2012 to 2014, average out-of-pocket spending is calculated separately for children under age 18 and adults aged 18–64 by region and metro area status. These costs are averaged across the three survey years and combined with the estimated premiums.<sup>19</sup>

The remaining expenditures on food, childcare, taxes, and other necessities are altered to better reflect the observed characteristics of households in the ACS. Spending on food, for example, varies significantly with age. Children age 5 and younger, aged 6–11, and aged 12–18, while adults aged 19–50 and aged 51–64 have differential spending needs in our estimates with respect to food. Food expenditures assume use of the USDA’s low-cost meal plan in June 2017.<sup>20</sup> All estimates are averaged for males and females in the relevant age ranges, and household size multipliers are used.<sup>21</sup> The low-cost meal plan itself assumes all meals and snacks are prepared at home and follow nutritional

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<sup>18</sup> These rates are obtained from the Kaiser Family Foundation’s *Health Insurance Marketplace Calculator* (2017).

<sup>19</sup> Direct health care spending is likely overstated for many households in this analysis. Nearly half of the US population has employer-based health insurance and another one-fifth are Medicaid beneficiaries. Moreover, many households who purchase insurance through the ACA exchanges are eligible for subsidies not accounted for here. However, sensitivity analyses show that no single expenditure category drives our results.

<sup>20</sup> For Alaska and Hawaii, detailed, monthly low-cost food plans are unavailable. Thrifty food plan estimates for the first and second half of 2017 are averaged together for these states by age category. Age groups not provided in the data are imputed by calculating expense proportions between age groups reported in the national thrifty food plan and multiplying known values in Alaska and Hawaii by that proportion.

<sup>21</sup> The basic USDA food plan costs are for individuals in four-person households. The multiplier for smaller households is higher while larger households are assumed to have an economy of scale that makes the individual costs lower. We use USDA’s recommended multiplier based on household size to account for this.

guidelines. A county-level multiplier is then applied to all estimates using the ratio of county food costs to national food costs implied by the EPI estimates for two-adult households with two children.

Likewise, childcare spending also varies with the age of children, and our estimates of childcare spending are recalculated given the observed ages of children in each household. Our estimates assume that children age 5 and under require intensive full-time care, school-age children aged 6–11 require after school and summertime care, children age 12 require only summertime care, and children aged 13–17 require no additional care. We calculated the cost for each child using the EPI calculator as a starting point. The EPI data assume that a household with one child requires childcare for a 4-year-old, two children requires care for a 4-year-old plus an additional school-age child (age 8), and three children requires additional summer care for a school-age child (age 12). Households with four children are assumed to require no additional care (age 16). We use EPI's number of children in household and age assumptions to calculate the cost of care for children in each age group. The difference between a household with one child and a household with two children in the same county, for example, provides the additional childcare estimate for school-age children.<sup>22</sup>

The EPI's estimates of miscellaneous costs are calculated from the 2017 Consumer Expenditure Survey and include spending on clothing, school supplies, reading materials, household cleaning supplies, and other essential household items. For families in the 20<sup>th</sup> to 40<sup>th</sup> percentile of income, miscellaneous costs comprise about 40 percent of the household's spending on food and housing, on average, according to EPI tabulations. Using this share, we recalculate spending on miscellaneous necessities as 40 percent of the re-estimated food and housing expenditures.

Estimates of federal and state taxes are also recalculated using TaxSim 27 from the National Bureau of Economic Research. TaxSim estimates federal and state tax liabilities for households based on NBER's microsimulation models of the US tax system. Both state and federal tax liabilities are combined to estimate each household's total liability. EPI's own tax estimates used an earlier version of TaxSim, with income pegged to the assumed family budget expenditure total. However, we observe pre-tax household income in the ACS and allow our estimates to vary with a household's specific circumstances. Producing tax estimates requires several important assumptions, similar to those made by EPI:

- One-adult households are single-filers and two-adult households are joint filers.

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<sup>22</sup> Because infant and toddler care is generally much more expensive than 4-year-old childcare, our estimates will be more conservative for households with very young children.

- The household head in the ACS is treated as the primary wage earner. The age of the taxpayer is the age of the household head. Moreover, all household income is treated as wage and salary income and attributed to the primary taxpayer.
- The number of dependents is equivalent to the number of children in the household.
- Rent paid is equivalent to the annualized contract rent for the household.
- The amount spent on childcare is the assumed expenditures on childcare for the household.

The final budget line item is housing costs. EPI's estimates of housing costs are derived from HUD's fair market rents, which are generally the 40<sup>th</sup> percentile of housing costs within a given county or metro area. However, we observe actual spending on housing in the ACS, which reflects the rent paid directly to the landlord plus any spending on utilities.

We also observe actual household incomes in the ACS. The income variable in the ACS includes income from a variety of sources, including wages, self-employment, interest, dividends, public assistance (through programs like Supplemental Security Income and Temporary Assistance for Needy Families), and all other income.

### **Sample**

Our primary sample of interest is renter households<sup>23</sup> in the US with one or two working-age adults and with zero to four children. These restrictions are applied to comport with the EPI Family Budget Calculator estimates. We exclude any households with a member age 65 and over, given the differential spending needs for older adults that are not accounted for in this analysis. The head of household is treated as an adult regardless of age. We also exclude a small number of households where the married or unmarried partner is under age 18.

With these exclusions, we capture 71 percent (30.9 million) of the nation's renter households. Of the remaining 29 percent, 18 percent have an older-adult living in the home, nearly 11 percent have three or more adults, and less than 1 percent are excluded for other reasons (primarily households with more than 4 children).<sup>24</sup> The share in our sample varies considerably across the country. In the nation's 383 metro areas, for example, the sample captured varies from 56 percent in Prescott, AZ to 84 percent

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<sup>23</sup> We focus on renter households because renters consistently face larger affordability challenges and are more likely to make budget tradeoffs on necessities than owners.

<sup>24</sup> Categories reported here are mutually exclusive, but in practice a household with a member age 65 and older can also have three or more adults and/or five or more children.

in Hinesville, GA. Among the nation's largest 100 markets, the sample ranges from 58 percent of renters in North Port-Sarasota to 79 percent in Austin. The share of renters in sample correlates negatively with median gross rent and the age of renter households, such that we capture a smaller share of potential renters in markets that either have higher rents or have a greater share of renters age 65 and over. In the nation's non-metro areas, 71 percent of renter households are in the sample, in line with the national share.

## **Methods**

For each household in our sample, we subtract spending on housing in the ACS from the household's reported income. We classify households that do not have enough income left over to cover the combined non-housing expenditures as having residual-income housing cost burdens. Those that do have enough left over do not have residual-income burdens. For all estimates in this study, household weights provided by the Census Bureau, adjusted at the county level, are used to account for variations in sampling across subpopulations.

Using this estimate of residual-income housing cost burdens, this study first produces descriptive estimates of the share of working-age renter households with such burdens by different household characteristics across the nation and in different market contexts.

Next, this study uses multivariate analyses to identify the household and market-level characteristics associated with having residual-income cost burdens and the magnitude of those burdens. Such an analysis helps disentangle the complex web determining housing affordability; income and housing costs are deeply correlated with education, race, geography, and more. To do this, we use logistic regression with residual-income burden status set as the dependent variable. We present three models: the first includes household characteristics only, the second includes metro-level dummies, and the third includes metro-level characteristics (such as median rent and the rentership rate). The full set of variables is shown in the results section below. We also model the amount of income households have left over using OLS regression and the same control variables as in the logistic regression. The outcome variable is calculated as the household's income minus the household's housing and annual budget needs, which we refer to as the residual income. Negative values indicate that households do not have enough to cover their basic needs while positive values indicate that they have sufficient incomes. The initial model fit was poor, primarily due to extreme outliers with very high incomes. To produce a plausible model, we limit the households to those with an income surplus or deficit below \$100,000. The sample subset used for the continuous models includes 98 percent of the unweighted

observations amounting to a weighted total of 30.2 million households. For each model, we present the Akaike information criterion (AIC) as a relative indicator of model performance. The models with metro-level dummies have the lowest AIC values, and we primarily focus on these regressions when discussing the modeling results.

Finally, we simulate the effect that various policy interventions (including universal childcare, healthcare subsidies, more affordable transportation options, and housing subsidies) would have on residual-income burden rates. To do this, we set the associated expenditure to 0 or 50 percent of the current estimate and repeat the burden calculation. In the case of the housing affordability intervention, we set the percentage at 30 percent unless the household is already paying less than 30 percent of its income on housing. For the affordable housing and transportation policy intervention, we similarly set the threshold at 45 percent of income unless the observed housing costs and estimated transportation costs are already below that level.

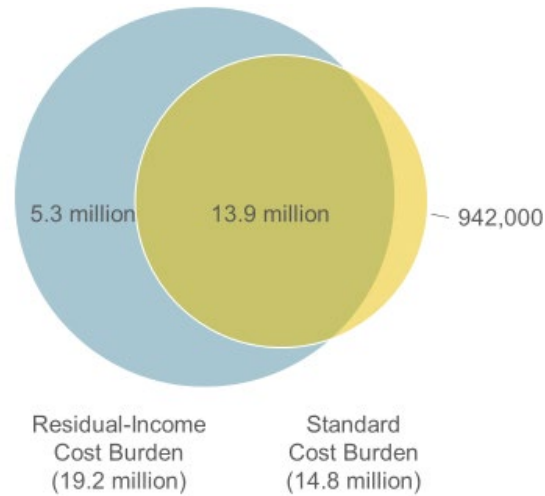
## **Results: Residual-Income Housing Cost Burdens and Income Deficits**

We find that 62 percent of our sample is cost burdened under the residual-income measure. Across metro areas, residual-income burden rates are highest in the nation's lowest-income metro areas and comparably low in some high-income, high-cost markets often thought to have the nation's greatest affordability challenges. However, cost-burden rates are relatively high for middle-income renters in these more expensive metro areas, predominately along the east and west coast. Unsurprisingly, having children, being out of the labor force, and being a person of color are all associated with higher odds of having residual-income cost burdens. In this section, we present these findings in detail before discussing how different policy interventions would change residual burden rates for renter households.

### **Residual-Income Housing Cost Burdens and the 30 Percent Standard**

In our sample of 30.9 million renter households, 19.2 million (62.1 percent) are cost burdened using the residual income measure while 14.8 million (47.9 percent) have standard cost burdens (**Figure 1**). In total, 13.9 million households are burdened under both the residual-income and the standard cost burden measures. This amounts to 94 percent of households who have standard cost burdens also have residual-income burdens. Of the 942,000 households who have standard cost burdens but not residual-income burdens, 65 percent are single person households, an additional 26 percent are two adult households with no children, and 88 percent make more than \$45,000 annually. It's therefore plausible that these households have lower non-housing expenses and may live in more expensive housing by

**Figure 1: Most Cost-Burdened Households Also Have Residual-Income Cost Burdens**



Sources: Author tabulations of US Census Bureau, 2018 American Community Survey 1-year estimates; and Economic Policy Institute Family Budget Calculator.

choice. On net, 4.4 million more households are residual-income burdened as compared to the standard 30 percent measure, and the burden rate is also a full 14 percentage points higher.

Residual-income cost burden rates are higher across all household types (**Figure 2**). The two measures are closest for single-person and two-adult households. The differences become much larger when children are present in the household. For single-parent households, the residual-income burden rate is 88 percent, as compared to a standard burden rate of 70 percent. Relative to single-parent households, two-adult households with children have lower burden rates under both measures. However, the gap between residual and standard cost burdens is widest for two-adult households. This is primarily because two-adult households are more likely to have two or more children, which are associated with higher expenses despite a greater likelihood of having multiple wage earners. Seventy-four percent of two-adult households with children have residual-income burdens, which is 32 percentage points higher than their standard cost burden rate.



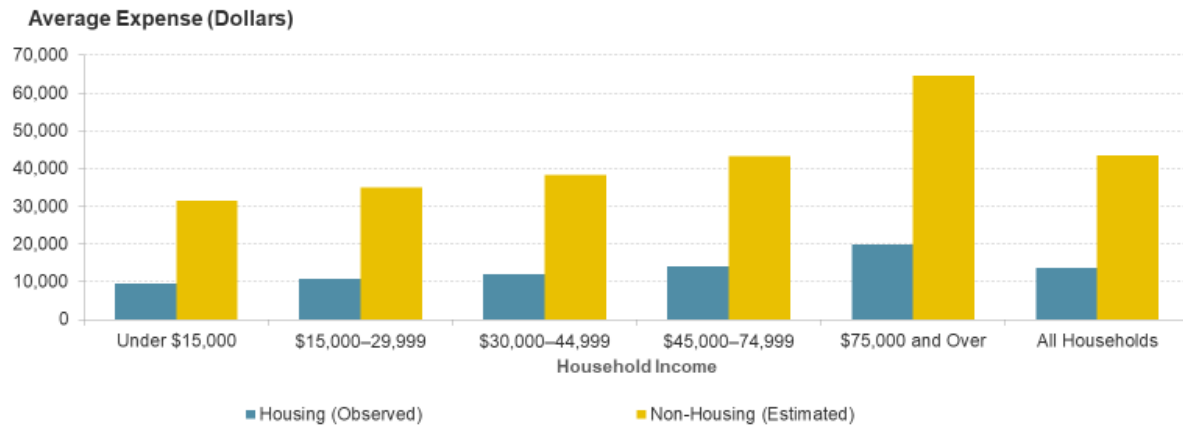
**Figure 2: Residual-Income Cost Burdens Are Much Higher Than the Standard Measure for Households with Children and Middle-Income Renters**



Sources: Author tabulations of US Census Bureau, 2018 American Community Survey 1-year estimates; and Economic Policy Institute Family Budget Calculator.

A criticism of the traditional cost burden measure is that it does not account for other household spending needs. The residual income approach accounts for non-housing expenditures in a way that the 30 percent standard does not. As a result, low-income renters, and even many middle-income renters, have little or insufficient income left over to cover their multitude of expenses after accounting for their housing payments. The minimum non-housing expenditure needed for a decent standard of living for even the smallest household in the least expensive county is just over \$18,000. On average, renter households need more than \$40,000 to cover their non-housing expenses alone (**Figure 3**). As a result, nearly all of the households making less than \$30,000 have residual-income burdens. These households also have high burden rates by the standard measure at 84 percent. The largest gap between the 30 percent standard and the residual-income burden measure is among middle-income

**Figure 3: On Average, Working-Age Renter Households Need More Than \$40,000 Just to Cover Non-Housing Expenses**



Notes: Actual monthly housing expenses are observed in the American Community Survey and include rent and utilities. Non-housing expenses are estimated based on the modified Economic Policy Institute Family Budget Calculator data.

Sources: Author tabulations of US Census Bureau, 2018 American Community Survey 1-year estimates; and Economic Policy Institute Family Budget Calculator.

households making between \$30,000 and \$45,000. Just over half of these households are cost burdened, but 81 percent have residual-income burdens. The residual burden measure indicates that housing affordability challenges are more widespread among middle- and lower-income renter households than the traditional measure would suggest.

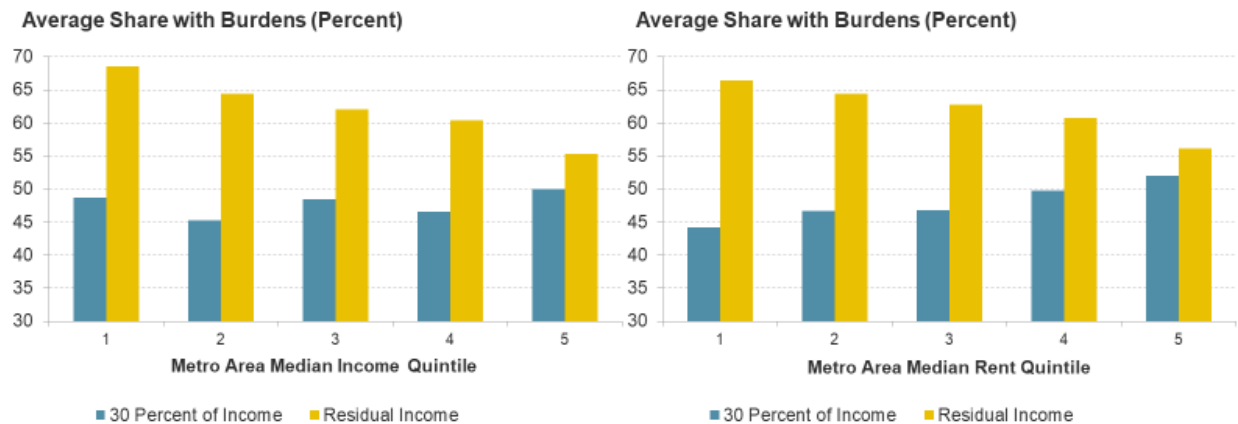
Households with residual-income burdens have a large gap between their incomes and the cost of a basic standard of living. For middle- and higher-income households, the cost of housing and basic expenses are just too high. For lower-income households, the gap highlights both the high cost of housing and basic needs on one hand and the simply insufficient amount of income on the other. The average residual-income burdened household is short by nearly \$25,000 per year, adding up to a total national deficit for working-age renters of just under \$471 billion. The lowest-income households making less than \$15,000 would need \$34,000 on average to cover the difference between their incomes and a basic cost of living. Those making between \$15,000 and \$30,000 would need \$24,000 on average. Even the highest-income households who have residual-income burdens are short by \$14,000 on average.

## Metro Variations in Residual-Income Cost Burdens

Residual-income burdens varied considerably across markets. The share of renters with incomes insufficient to cover their housing and non-housing expenditures ranged from 38 percent in Midland, TX to 86 percent in Vineland-Bridgeton, NJ. Compared to the traditional 30 percent measure of housing cost burdens, residual-income burdens were higher in all but two of the nation’s 383 metro areas, Los Angeles and San Jose, where the differences in the burden rates were minimal. Residual-income burdens were generally higher in low-income metro areas and lower in high-income metro areas, despite the higher housing and non-housing costs associated with living in these markets. However, middle-income renters in these locales had relatively high burden rates on average; indeed, only the highest-income households were likely to avoid residual-income burdens in many of these markets. Meanwhile, lower-income renters had almost universally high burden rates in both low- and high-income metro areas.

Higher-income markets had a lower share of renters with residual-income cost burdens. Among the nation’s 100 largest markets, the share of renters with residual burdens averaged 69 percent in the bottom quintile for median household income, down to 55 percent in the top quintile (**Figure 4**). The share of renters spending more than 30 percent of their income on housing is not as strongly tied to household income. Indeed, cost-burden rates in the first-income quintile were 49 percent on average, 48 percent in the middle-income quintile, and 50 percent in the top quintile.

**Figure 4: The Share of Renters with Residual-Income Cost Burdens Is Much Lower, on Average, in High-Income and High-Cost Markets**



Notes: Data are for the 100 largest metro areas by population in 2018.  
 Sources: Author tabulations of US Census Bureau, 2018 American Community Survey 1-year estimates; and Economic Policy Institute Family Budget Calculator.

Residual-income burdens are lower in these markets because the growth in household incomes, between lower- and higher-income markets, is greater than the growth in average expenditures. The average household income in the top income quintile was \$75,100, about 84 percent higher than the mean household income in the bottom quintile (**Table 2**). By contrast, total expenses—including housing and non-housing expenditures—were 47 percent higher on average. The increase in average rent kept pace with the increase in household income, while the increase in most non-housing expenses did not. Households in the highest-income markets spent \$18,900 on rent and utilities on average, fully 83 percent higher than average housing costs in the bottom quintile. Meanwhile, non-housing expenses were \$51,100 on average in the top quintile; 37 percent higher than the lowest-income markets. The increase in non-housing expenses was driven by greater spending on income taxes (increased 330 percent), miscellaneous costs (62 percent), childcare (35 percent), and food (19 percent). Average health care and transportation costs were roughly flat across markets, with average transportation costs actually 7 percent lower than the mean spending in the bottom income quintile.

**Table 2: Average Income and Expenses by Metro Area Household Income Quintile**

Median Income Quintile	Income	Total Expenses	Housing	Non-Housing Expenses						
				All Non-Housing	Transportation	Health Care	Food	Misc.	Childcare	Taxes
1	40,793	47,610	10,331	37,279	11,403	7,503	6,415	6,151	3,258	2,549
2	45,301	49,322	10,774	38,548	11,469	7,443	6,293	6,186	3,502	3,655
3	51,456	54,313	13,549	40,764	11,185	7,657	6,893	7,227	3,550	4,253
4	55,957	57,100	13,763	43,337	11,424	8,228	6,809	7,335	3,782	5,759
5	75,117	69,911	18,857	51,055	10,557	7,576	7,620	9,960	4,391	10,951
<b>Total</b>	60,520	60,165	15,184	44,981	11,027	7,702	7,064	8,162	3,915	7,111

Notes: Median income quintiles are by metro. Data are for the top 100 metro areas by population in 2018. Sources: Author tabulations of US Census Bureau, 2018 American Community Survey 1-year estimates; and Economic Policy Institute Family Budget Calculator.

The increase in average income similarly outpaced the increase in non-housing expenditures even when selecting metros by their rent level. As a result, residual-income burden rates declined steadily with metro area median rent as well, though less sharply. The share of renters with residual burdens was 66 percent on average in metros in the bottom rent quintile and 56 percent in the top quintile. However, using the traditional measure, the share of households spending more than 30

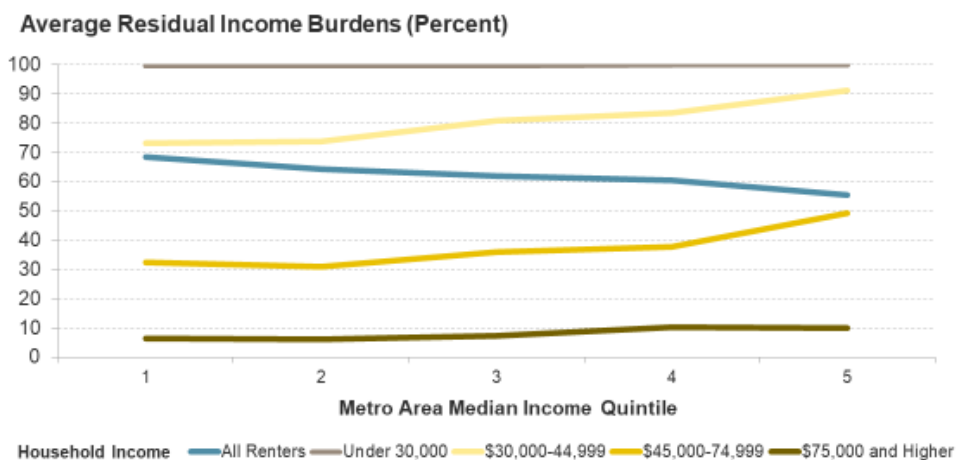
percent of their income on housing in fact rose with metro area median rent. Fully 44 percent of renters were cost burdened on average in the bottom rent quintile up to 52 percent in the top quintile.

Looking at specific markets, 11 large metros had a burden rate of 70 percent or higher, including Bakersfield (76 percent), Jackson (71 percent), Syracuse (71 percent), and New Orleans (71 percent). While geographically diverse, these markets all had relatively low median rents and non-housing costs, but even lower household incomes. The median household income among renters in these metros ranged from \$23,000 in McAllen to \$34,000 in Fresno. The national median income for renters in our sample was \$40,000 (and \$44,000 for renters in large metro areas).

Conversely, higher-income markets had the lowest burden rates under the residual income measure. Under half of renter households did not have residual burdens in just four large markets: San Jose (43 percent), San Francisco (45 percent), Seattle (47 percent), and Washington DC (48 percent). Residual burdens were low in these markets despite higher median rents, ranging from \$1,575 per month in Seattle to \$2,375 in San Jose. The national median monthly rent in our sample was just \$1,040, and was only modestly higher in large markets (\$1,160). But the high incomes in these markets significantly offset the higher costs for many renters. The four markets above had the four highest median incomes in the country among top 100 metros, ranging from \$60,000 in Seattle to \$100,000 in San Jose. In San Jose, more than 61 percent of renters earned at least \$75,000. The small share of lower-income renters, for whom residual-income cost burdens are nearly universal, drove down the overall burden rate considerably. Indeed, about one-fifth of renters or less in these metros earned under \$30,000. In San Jose, just 14 percent of renters were lower income.

Unlike the overall residual-burden rate, for middle-income renters the share of households with burdens increases with the metro area's income, highlighting the stress on middle-income renters, especially in higher-cost markets. The fact that residual-income burdens still decrease, despite increasing at every level of income, reflects the greater share of high-income renters in these markets. For renters earning between \$30,000 and \$44,999, for example, the residual-income burden rate is 73 percent on average in markets in the bottom quintile of median household income, 81 percent in the third quintile, and 91 percent in the highest-income metros (**Figure 5**). There's a similar rise when looking at renters earning between \$45,000 and \$74,999. Such renters living in in the lowest-income markets had a residual-income burden rate of 32 percent on average, compared with 36 percent in the third quintile, and 49 percent in the fifth quintile. The burden rate for highest-income households also increases, though less dramatically, with metro area median income. On the other hand, nearly all renters with incomes below \$30,000 have incomes insufficient to cover their costs, regardless of market.

**Figure 5: Residual-Income Cost Burdens Are High for Lower-Income Renters in All Markets, Increasing Considerably for Modest- and Higher-Income Renters in High-Income Metro Areas**



Notes: Data are for the 100 largest metro areas by population in 2018.

Sources: Author tabulations of US Census Bureau, 2018 American Community Survey 1-year estimates; and Economic Policy Institute Family Budget Calculator.

### Characteristics Associated with Residual-Income Housing Cost Burdens

To understand the household characteristics associated with a higher likelihood of having residual-income housing cost burdens, we conduct a series of regression analyses. Next, we use ordinary least squares regression to examine the household characteristics associated with having more income left over after meeting household expenses. The variables used in both models are presented in **Table 3**. The first two columns show the percent of households that fall into each logistic regression outcome for categorical variables and the mean value of continuous variables for each outcome. The third column shows the average amount of income left over after accounting for all estimated expenses for the full sample. Positive values indicate that the household income is greater than the estimated expenditures needed. For continuous variables, this column shows the average leftover income amount at the mean value for that variable. The logistic regression results are presented below in **Table 4** and the ordinary least squares regression results follow in **Table 5**.

Household composition and the presence of children is significantly associated with both residual-income burdens and the magnitude of income left over after meeting spending needs. Single person households have the lowest odds of being burdened while households with children have the highest odds. Two adult households with children are 4.4 times as likely to be burdened as single person households, and single parent households are 3.1 times as likely. Households with children also have less left over after accounting for expenditure needs when controlling for all other factors in the model,

**Table 3: Household-Level Independent Variable Descriptive Statistics**

	Percent or Mean		Mean Income Left Over After All Estimated Expenses
	Not Residual-Income Burdened	Residual-Income Burdened	
<b><i>Household Type</i></b>			
Single person	40.0	60.0	782
Two adult	57.2	42.9	15,238
Single parent	11.9	88.1	-26,234
Two adult with children	26.1	73.9	-14,684
Number of children	0.3	0.8	-5,248
<b><i>Race/Ethnicity of Householder</i></b>			
White	45.0	55.0	4,281
Black	27.7	72.3	-10,813
Hispanic	26.4	73.6	-13,956
Asian/Other	45.3	54.7	4,754
<b>Age of householder</b>	39.3	39.0	-4,362
<b><i>Nativity</i></b>			
Native-born	38.9	61.1	-1,197
Foreign-born	33.2	66.8	-7,086
<b><i>Household Income</i></b>			
80% AMI or Under	6.8	93.3	-23,931
Above 80% AMI	84.7	15.3	30,296
<b><i>Education</i></b>			
No high school diploma	13.4	86.6	-22,796
High school diploma/GED	25.0	75.0	-12,886
Some college	33.3	66.7	-7,375
Bachelor's or higher	62.6	37.4	19,614
<b><i>Employment Status</i></b>			
Employed	49.2	50.8	6,486
Unemployed	19.5	80.5	-17,390
Out of labor force	8.2	91.8	-24,353
<b><i>Recent Mover</i></b>			
Did not move in last year	37.7	62.4	-2,465
Moved in last year	38.5	61.6	-1,836
<b><i>Overcrowding Status</i></b>			
Not overcrowded	42.9	57.1	3,320
Overcrowded	28.7	71.3	-12,504
<b><i>Structure Type</i></b>			
Single-family/manufactured	35.6	64.4	-4,725
2 to 19 units	36.5	63.5	-4,489
20 or more units	44.9	55.1	6,741

**Table 3 (continued): Household-Level Independent Variable Descriptive Statistics**

	Percent or Mean		Mean Income Left Over After All Estimated Expenses
	Not Residual-Income Burdened	Residual-Income Burdened	
<b><i>Year Structure Built</i></b>			
pre-1950	37.0	63.0	-2,605
1950-1970	34.5	65.5	-5,506
1970-1990	35.5	64.5	-4,917
1990-present	43.1	56.9	2,716

Notes: For continuous variables, the mean income left over is taken at the average value for that variable. Sources: Author tabulations of US Census Bureau, 2018 American Community Survey 1-year estimates; and Economic Policy Institute Family Budget Calculator.

and the addition of one child is associated with about an \$8,000 reduction in leftover income. While two adult households without children are more likely than single person households to be burdened, their leftover income tends to be the highest of all household types.

The race and nativity of the householder are also significantly associated with greater burdens. Householders of color, particularly Black and Hispanic renters, are more likely to be burdened. As compared to white households, the odds of being residual-income burdened is 1.2 times higher for Black households and 1.1 times higher for Hispanic households. The amount of leftover income for these two groups are also more than \$1,000 less than that of white households. The likelihood of being burdened and the amount of leftover income are not significantly different between white householders and the Asian/another householder of color category.<sup>25</sup> Foreign-born householders are more likely to be burdened and have significantly lower amounts of income left over after meeting spending needs than native-born householders.

Socioeconomic status is also significantly associated with the likelihood and degree of residual-income cost burdens. The odds of having residual burdens is lower for more educated households. For households in which the householder has at least a bachelor's degree, their likelihood of being burdened is half that of a householder with no high school degree. More education is also associated with larger amounts of income left over. This finding is likely related to educated households having higher incomes. Similarly, householders who are out of the labor force are about 5 times as likely to be burdened as those who are employed. Household income is a key component of the residual income

<sup>25</sup> This category includes people who do not identify as white, Black, or Hispanic, including people who are biracial, Native American, Pacific Islander, or any other race/ethnicity.



**Table 4: Logistic Regression Results**

Outcome: Household has residual-income burden						
	Model 1: Household Characteristics		Model 2: Household Characteristics with Metro Dummies		Model 3: Household Characteristics with Metro Variables	
	Odds Ratio	<i>p</i>	Odds Ratio	<i>p</i>	Odds Ratio	<i>p</i>
<b>Household Type</b>						
Single person	reference category		reference category		reference category	
Two adult	1.51	0.00	1.59	0.00	1.60	0.00
Single parent	3.14	0.00	3.08	0.00	3.11	0.00
Two adult with children	3.91	0.00	4.40	0.00	4.32	0.00
Number of children in hh	1.87	0.00	1.99	0.00	1.92	0.00
<b>Race/Ethnicity of Householder</b>						
White	reference category		reference category		reference category	
Black	1.14	0.00	1.18	0.00	1.20	0.00
Hispanic	1.18	0.00	1.11	0.00	1.08	0.01
Asian/Other	0.98	0.63	1.04	0.25	1.04	0.25
<b>Nativity</b>						
Native-Born	reference category		reference category		reference category	
Foreign-born	1.06	0.04	1.13	0.00	1.16	0.00
Age of householder	0.98	0.00	0.99	0.00	0.99	0.00
<b>Household Income</b>						
80% AMI or Under	reference category		reference category		reference category	
Above 80% AMI	0.01	0.00	0.01	0.00	0.01	0.00
<b>Education</b>						
No high school diploma	reference category		reference category		reference category	
High school diploma/GED	0.85	0.00	0.88	0.00	0.87	0.00
Some college	0.69	0.00	0.75	0.00	0.74	0.00
Bachelor's or higher	0.38	0.00	0.47	0.00	0.47	0.00
<b>Employment Status</b>						
Employed	reference category		reference category		reference category	
Unemployed	2.53	0.00	2.56	0.00	2.48	0.00
Out of labor force	5.08	0.00	4.94	0.00	4.73	0.00
<b>Recent Mover</b>						
Did not move in last year	reference category		reference category		reference category	
Moved in last year	1.18	0.00	1.21	0.00	1.18	0.00
<b>Overcrowding Status</b>						
Not overcrowded	reference category		reference category		reference category	
Overcrowded	1.03	0.20	1.04	0.13	1.04	0.14

**Table 4 (continued): Logistic Regression Results**

Outcome: Household has residual-income burden						
	Model 1: Household Characteristics		Model 2: Household Characteristics with Metro Dummies		Model 3: Household Characteristics with Metro Variables	
	Odds Ratio	<i>p</i>	Odds Ratio	<i>p</i>	Odds Ratio	<i>p</i>
<b>Structure Type</b>						
Single-family/manufactured	reference category		reference category		reference category	
2 to 19 units	0.75	0.00	0.93	0.00	0.89	0.00
20 or more units	0.75	0.00	1.04	0.26	1.00	0.97
<b>Year Structure Built</b>						
pre-1950	reference category		reference category		reference category	
1950-1970	1.11	0.00	1.03	0.39	1.00	0.99
1970-1990	1.24	0.00	1.06	0.04	1.04	0.17
1990-present	1.36	0.00	1.17	0.00	1.15	0.00
<b>Metro Characteristics</b>						
Median rent					1.00	0.00
Median Income					1.00	0.00
Renter share					0.99	0.00
Vacant share					1.00	0.73
Share black or Hispanic					0.99	0.00
Share single-family housing					1.00	0.06
Share fully-employed					0.97	0.00
Share of housing built before 1950					1.00	0.81
Share with college education					0.98	0.00
<b>Constant</b>	13.20	0.00	32.45	0.00	2380.70	0.00
<b>AIC</b>	15,773,336		14,561,049		15,002,916	
<b>n (unweighted)</b>	496,724		496,724		496,724	
<b>n (weighted)</b>	30,927,233		30,927,233		30,927,233	
<b>Chi2</b>	61,508		61,373		60,806	
<b>Log Likelihood</b>	-7,886,645		-7,279,568		-7,501,426	
<b>Pseudo R-squared</b>	0.62		0.65		0.63	

Sources: Author tabulations of US Census Bureau, 2018 American Community Survey 1-year estimates; and Economic Policy Institute Family Budget Calculator.

**Table 5: Ordinary Least Squares Regression Results**

Outcome: Household income minus all estimated expenses						
	Model 1: Household Characteristics		Model 2: Household Characteristics with Metro Dummies		Model 3: Household Characteristics with Metro Variables	
	Odds Ratio	<i>p</i>	Odds Ratio	<i>p</i>	Odds Ratio	<i>p</i>
<b>Household Type</b>						
Single person	reference category		reference category		reference category	
Two adult	1247.85	0.00	1260.53	0.00	1195.19	0.00
Single parent	-1580.70	0.00	-1471.49	0.00	-1548.91	0.00
Two adult with children	-3303.57	0.00	-3283.56	0.00	-3397.70	0.00
Number of children in hh	-8075.95	0.00	-8116.86	0.00	-8108.23	0.00
<b>Race/Ethnicity of Householder</b>						
White	reference category		reference category		reference category	
Black	-1230.98	0.00	-1524.92	0.00	-1555.73	0.00
Hispanic	-1494.72	0.00	-1394.90	0.00	-1404.66	0.00
Asian/Other	9.49	0.96	-124.24	0.51	-150.02	0.42
<b>Nativity</b>						
Native-Born	reference category		reference category		reference category	
Foreign-born	-2046.21	0.00	-2082.98	0.00	-2175.35	0.00
<b>Age of householder</b>	168.47	0.00	169.81	0.00	166.91	0.00
<b>Household Income</b>						
80% AMI or Under	reference category		reference category		reference category	
Above 80% AMI	37214.33	0.00	37505.54	0.00	37444.67	0.00
<b>Education</b>						
No high school diploma	reference category		reference category		reference category	
High school diploma/GED	806.64	0.00	816.38	0.00	827.92	0.00
Some college	1693.69	0.00	1722.18	0.00	1687.41	0.00
Bachelor's or higher	7413.55	0.00	6984.61	0.00	6997.51	0.00
<b>Employment Status</b>						
Employed	reference category		reference category		reference category	
Unemployed	-8940.03	0.00	-8726.17	0.00	-8699.53	0.00
Out of labor force	-12389.57	0.00	-12089.87	0.00	-11989.25	0.00
<b>Recent Mover</b>						
Did not move in last year	reference category		reference category		reference category	
Moved in last year	-1020.04	0.00	-1113.51	0.00	-1049.35	0.00
<b>Overcrowding Status</b>						
Not overcrowded	reference category		reference category		reference category	
Overcrowded	-1219.29	0.00	-1215.01	0.00	-1198.92	0.00

**Table 5 (continued): Ordinary Least Squares Regression Results**

Outcome: Household income minus all estimated expenses						
	Model 1: Household Characteristics		Model 2: Household Characteristics with Metro Dummies		Model 3: Household Characteristics with Metro Variables	
	Odds Ratio	<i>p</i>	Odds Ratio	<i>p</i>	Odds Ratio	<i>p</i>
<b>Structure Type</b>						
Single-family/manufactured	reference category		reference category		reference category	
2 to 19 units	681.55	0.00	191.42	0.06	190.46	0.06
20 or more units	1491.03	0.00	722.91	0.00	694.80	0.00
<b>Year Structure Built</b>						
pre-1950	reference category		reference category		reference category	
1950-1970	-404.56	0.00	-180.77	0.17	-44.88	0.74
1970-1990	-570.12	0.00	-141.12	0.26	-52.19	0.68
1990-present	-576.73	0.00	-199.62	0.14	-157.21	0.25
<b>Metro Characteristics</b>						
Median rent					-14.33	0.00
Median Income					0.39	0.00
Renter share					-1.09	0.92
Vacant share					-11.41	0.75
Share black or Hispanic					62.78	0.00
Share single-family housing					-47.42	0.00
Share fully-employed					90.43	0.00
Share of housing built before 1950					-23.33	0.00
Share with college education					-27.42	0.00
<b>Constant</b>	-19572.66	0.00	-21250.31	0.00	-35411.46	0.00
<b>AIC</b>	10,943,791		10,929,109		10,935,479	
<b>n (unweighted)</b>	488,463		488,463		488,463	
<b>n (weighted)</b>	30,227,657		30,227,657		30,227,657	
<b>Chi2</b>	12,910		324		9,493	
<b>Prob &gt; F</b>	0.00		0.00		0.00	
<b>R-squared</b>	0.67		0.68		0.67	

Sources: Author tabulations of US Census Bureau, 2018 American Community Survey 1-year estimates; and Economic Policy Institute Family Budget Calculator.

equation, making it difficult to entirely control for household incomes. However, we are able to control for households who are above or below the low-income threshold at 80 percent of area median income. Unsurprisingly, low-income households are substantially more likely to be burdened and have much less income left over after meeting spending needs; the difference between estimated necessary expenditures and incomes is about \$37,000 greater for lower-income households than it is for households with middle to high incomes.

Some housing characteristics are related to higher odds of being burdened. In model 2, households living in small multifamily buildings have the lowest likelihood of residual-income burden with an odds ratio of 0.93 as compared to the reference group of single-family/manufactured rentals. There is no significant difference between single-family/manufactured rentals and larger multifamily units, which may reflect the higher rents that these unit types command. Larger multifamily households do have more income left over though, likely reflecting the typically higher incomes of residents in these units. Being a recent mover has a significant but small association with greater burdens as does the age of the building. However, households living in new units built after 1990 are 1.2 times more likely to be burdened than those living in units built before 1950. This is likely a function of housing costs as older units tend to filter over time while new units are more expensive. The age of housing does not have a significant relationship with the amount of income a household would have after meeting spending needs.

In models 3 and 6, we also included metro-level variables to see if there are housing market characteristics that might affect household-level burdens. In the logistic regression model, the odds ratios all come out very close to one. The continuous model shows that a one dollar increase in monthly rent at the metro level is associated with a statistically significant but unsubstantial \$14 decrease in how much a household has after meeting estimated spending needs. Metros with higher incomes, more diversity, and greater attachment to the labor force are associated with more leftover income for renter households.

### **Areas for Policy Intervention**

The standard cost burden approach implies that there are two possible interventions: reducing housing costs or increasing household incomes. Residual-income burdens offer several points of intervention, including decreasing any of the expenditure categories through different policy levers. We start with housing and then examine four other categories—transportation, childcare, healthcare, and food—to understand how a change in those expenses would shift the number of working aged households with

residual-income burdens. Each intervention by itself would help to reduce burdens only at the margins and only for middle- to higher-income households (**Table 6**). A combination of policies or household income supports would be needed to substantially reduce burdens, particularly for the lowest-income households.

Housing is of course the largest household expense for most renters. On average, the households in our sample spent nearly \$14,000 annually on rent and utilities (**Table 7**). Housing makes up 24 percent of needed household expenditures. If all households who spent more than 30 percent of their income instead paid 30 percent on housing, meeting the traditional standard for housing affordability, housing expenses would fall by 22 percent on average. The number of renters with residual-income burdens would drop by 521,000 households and the rate would fall by a modest 2 percentage points to 60 percent. For households who would still have residual-income burdens, their average income deficit would fall by \$4,000. While housing expenses under this policy would decrease the most for households making less than \$15,000, who are more likely to be spending more than 30 percent on housing, the subsidy would not move the needle on residual-income burdens for this group because they would still lack enough income to cover most basic expenses. However, it would reduce their average income deficit by nearly \$7,500. As with all of these interventions, a housing subsidy would most benefit households making \$30,000 to \$45,999 who are right on the margin of being able to afford a comfortable lifestyle. Their residual-income burden rate would fall by 4 percentage points.

Aside from housing, transportation is the largest estimated expense for working-age renter households. The average estimated household transportation expenditure is \$11,000, and estimated transportation needs make up a fifth of all household expenses and just over a quarter of non-housing expenses. Transportation expenditures could be reduced through carpooling to work, through cities and regions building more robust and reliable public transportation systems, or through a transportation subsidy. We estimate what residual-income burdens would be if the combined housing and transportation expenses did not exceed 45 percent of household income.<sup>26</sup> Under this scenario, the number of renter households with residual burdens would decrease by 2.4 million, the burden rate would fall to 54 percent, and the average income deficit for those still burdened would drop \$9,500. This policy intervention, which effectively targets two of the largest household expenses through transportation networks and/or housing subsidies, would have the largest impact on reducing

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<sup>26</sup> The 45 percent of income rule is used as the benchmark for housing and transportation in the Center for Neighborhood Technology's Housing and Transportation Affordability Index. As noted above, EPI uses this data source to estimate transportation costs.

**Table 6: Effect of Policy Interventions on Residual-Income Cost Burdens**

	<b>Share (Percent) and Number (in Millions) of Households with Residual-Income Cost Burdens</b>											
	<b>Existing</b>		<b>With Policy Intervention</b>									
			<b>Affordable Housing</b>		<b>Affordable Housing and Transportation</b>		<b>Half Healthcare Subsidy</b>		<b>Half Food Subsidy</b>		<b>Full Childcare</b>	
	<b>Share</b>	<b>Number</b>	<b>Share</b>	<b>Number</b>	<b>Share</b>	<b>Number</b>	<b>Share</b>	<b>Number</b>	<b>Share</b>	<b>Number</b>	<b>Share</b>	<b>Number</b>
<b>Single Person</b>	60.0	7.1	56.9	6.7	45.7	5.4	56.3	6.6	57.3	6.7	60	7.1
<b>Two Adult</b>	42.9	3.5	41.4	3.4	35.8	2.9	37.2	3.1	38.9	3.2	42.85	3.5
<b>Single Parent</b>	88.1	3.3	87.5	3.3	85.0	3.2	85.3	3.2	85.7	3.2	83.34	3.2
<b>Two Adult with Children</b>	73.9	5.3	73.6	5.3	73.1	5.2	68.3	4.9	68.6	4.9	65.13	4.7
<b>All working-age renter households</b>	62.1	19.2	60.4	18.7	54.2	16.8	57.6	17.8	58.5	18.1	59.49	18.4
	<b>Average Income Deficit (Dollars) for Households With Residual-Income Cost Burdens</b>											
	<b>Existing</b>		<b>With Policy Intervention</b>									
			<b>Affordable Housing</b>		<b>Affordable Housing and Transportation</b>		<b>Half Healthcare Subsidy</b>		<b>Half Food Subsidy</b>		<b>Full Childcare</b>	
<b>Single Person</b>	16,400		11,800		6,300		15,100		15,500		16,400	
<b>Two Adult</b>	19,100		14,800		8,900		17,300		17,900		19,100	
<b>Single Parent</b>	32,900		27,800		20,600		29,500		29,300		24,500	
<b>Two Adult with Children</b>	33,700		30,200		24,000		29,500		29,200		25,400	
<b>All working-age renter households</b>	24,500		20,400		15,000		22,100		22,100		20,600	

**Table 6 (continued): Effect of Policy Interventions on Residual-Income Cost Burdens**

	Share (Percent) and Number (in Millions) of Households with Residual-Income Cost Burdens											
	Existing		With Policy Intervention									
			Affordable Housing		Affordable Housing and Transportation		Half Healthcare Subsidy		Half Food Subsidy		Full Childcare	
	Share	Number	Share	Number	Share	Number	Share	Number	Share	Number	Share	Number
<b>Less than \$15,000</b>	100.0	5.7	100.0	5.7	100.0	5.7	100.0	5.7	100.0	5.7	100	5.7
<b>\$15,000–29,999</b>	99.5	5.7	99.5	5.7	91.3	5.3	98.7	5.7	99.0	5.7	99.5	5.7
<b>\$30,000–44,999</b>	81.3	4.4	77.4	4.2	57.7	3.1	71.3	3.9	74.5	4.1	80.3	4.4
<b>\$45,000–74,999</b>	39.1	2.7	35.2	2.5	30.2	2.1	30.4	2.1	32.3	2.3	33.4	2.3
<b>\$75,000 or more</b>	8.3	0.6	7.8	0.5	7.8	0.5	5.5	0.4	5.1	0.4	3.3	0.2
<b>All working-age renter households</b>	62.1	19.2	60.4	18.7	54.2	16.8	57.6	17.8	58.5	18.1	59.5	18.4
	Average Income Deficit (Dollars) for Households With Residual-Income Cost Burdens											
	Existing		With Policy Intervention									
			Affordable Housing		Affordable Housing and Transportation		Half Healthcare Subsidy		Half Food Subsidy		Full Childcare	
<b>Less than \$15,000</b>	34,000		26,600		16,900		30,600		31,200		30,800	
<b>\$15,000–29,999</b>	24,200		19,500		12,900		20,500		20,900		20,100	
<b>\$30,000–44,999</b>	18,300		15,900		14,300		16,000		15,800		13,600	
<b>\$45,000–74,999</b>	17,800		17,200		16,800		16,300		15,100		11,400	
<b>\$75,000 or more</b>	14,000		13,500		13,200		12,500		11,800		8,000	
<b>All working-age renter households</b>	24,500		20,400		15,000		22,100		22,100		20,600	

Sources: Author tabulations of US Census Bureau, 2018 American Community Survey 1-year estimates; and Economic Policy Institute Family Budget Calculator.



**Table 7: Average Estimated Expenses by Household Type**

	Single person	Two adult	Single parent	Two adult with children	All households
<b><i>Average Estimated Expense (\$)</i></b>					
Housing	11,852	15,229	12,047	15,457	13,609
Transportation	9,604	11,909	11,495	13,839	11,429
Healthcare	4,375	8,728	8,466	12,995	8,029
Food	3,287	6,108	8,468	13,196	6,967
Misc.	5,229	7,112	8,916	11,329	7,594
Childcare	0	0	9,284	11,308	3,756
Taxes	6,501	10,243	-2,127	3,587	5,764
All non-housing	28,995	44,100	44,501	66,254	43,539
Total	40,847	59,329	56,548	81,710	57,148
<b><i>Share of All Expenses (Percent)</i></b>					
Housing	29.0	25.7	21.3	18.9	23.8
Transportation	23.5	20.1	20.3	16.9	20.0
<b><i>Share of Non-housing Expenses (Percent)</i></b>					
Transportation	33.1	27.0	25.8	20.9	26.3
Healthcare	15.1	19.8	19.0	19.6	18.4
Food	11.3	13.9	19.0	19.9	16.0
Misc.	18.0	16.1	20.0	17.1	17.4
Childcare	0.0	0.0	20.9	17.1	8.6
Taxes	22.4	23.2	-4.8	5.4	13.2

Notes: Negative tax expenses occur when households receive a tax credit (such as EITC).

Sources: Author tabulations of US Census Bureau, 2018 American Community Survey 1-year estimates; and Economic Policy Institute Family Budget Calculator.

residual-income burdens but still would only result in an 8 percentage point decrease in the overall burden rate. For the lowest-income households who would still have residual-income burdens, it would reduce the deficit income amount by \$17,000.

Healthcare is another point of intervention that has appeared frequently in policy discussions over the last several years, particularly around expanding Medicaid and other public health insurance options. Healthcare is the second largest non-housing expenditure at \$8,000 on average. A subsidy that covered half of healthcare expenses would bring the residual-income burden rate of working-age renters down to 58 percent. A half healthcare subsidy would pull 1.4 million renter households out of residual-income burden and reduce income deficits among those who are burdened by almost \$2,500. Aside from the combined housing and transportation intervention, a partial healthcare subsidy would

have the most substantial impact on reducing residual-income burden rates, decreasing burdens by 5 percentage points.

On average, working-age renter households spend \$7,000 each year on food costs. The existing Supplemental Nutrition Assistance Program (SNAP) helps subsidize the cost of food for low-income households. According to the Center on Budget and Policy Priorities (2019), the average SNAP benefit for a single-person household is \$131 monthly or about \$1,600 annually, half of the average estimated food expenditure for this household type. If SNAP were expanded universally so that all households' food expenses were halved,<sup>27</sup> the residual-income burden rate would fall 4 percentage points to just under 59 percent, a decrease of 1.1 million households. The income deficit for those who are still burdened would be reduced by \$2,400 annually on average.

Finally, childcare is a significant expense for households with children. On average, the estimated childcare expense for single-parent households is about \$9,000 annually, amounting to 21 percent of their non-housing expenditures. Given that they typically have more children, the childcare cost is \$2,000 higher for two-adult households with children but makes up a smaller share (17 percent) of their non-housing costs. The childcare costs assume that paid care would be needed, but some households may be able to rely on unpaid care from family members and friends. Policy proposals for universal childcare would also cut this household expense considerably. Under the best case scenario, in which all households with children see their childcare costs go to zero, the overall residual-income burden rate would not move much, going from 62 percent to 60 percent. The effect is of course larger for households with children. The burden rate for single-parent households would go from 88 percent to 83 percent while the rate for two adult households with children would drop most dramatically from 74 percent to 65 percent. Households with children who are still residual-income burdened would have their income deficits reduced by about \$8,000. This policy would most benefit higher-income households making more than \$45,000.

## **Conclusions**

The housing affordability crisis in the US may be even worse than traditional cost burden statistics indicate. When accounting for other household needs, 62 percent of working-age renter households

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<sup>27</sup> Household income in the American Community Survey includes public assistance income from the SNAP program. However, there is no way to accurately identify which households have SNAP income specifically. The policy intervention estimate would therefore double-count the subsidy for some low-income households, meaning that it assumes an even deeper subsidy for the lowest-income who already receive SNAP.

can't afford a basic but comfortable standard of living. These households are likely making significant tradeoffs in spending, housing quality, or location to make ends meet. The potential effects on the health and well-being of households, and especially the children in those households, are incalculable. Ultimately, housing unaffordability is only one part of the equation. For many renters, incomes are just too low to meet all basic needs, and the cost of a comfortable lifestyle is out of reach without income supports.

The residual income approach helps highlight the many competing pressures on renter households. As previous authors have noted, it is a difficult measure to operationalize. The EPI family budget calculator goes a long way in quantifying the potential needs of different households. Even so, it does not cover the full range of household types, and no large-scale residual income methodology can account for differences in individual needs and preferences. The estimates presented in this paper are also limited by the inability to calculate residual-income burdens for households in which adults age 65 and older live and for households with more than two adults or more than four children. Developing estimates for these households is an area ripe for future research. Despite these limitations, the methodology we present and the data EPI provides at least shed light on the financial difficulties that many renter households are likely to experience.

A comfortable standard of living for all Americans is a policy goal worth pursuing. There are several policy levers that could bring down residual-income cost burdens and minimize the tradeoffs that households must make. Among these policy levers, reducing both the cost of housing and transportation through land use, public transportation networks, and household-level subsidies would have the biggest impact on reducing household residual-income burdens. This could be achieved through several channels, including expanding existing housing subsidies, such as the Housing Choice Voucher program and project-based programs, that serve some lowest-income renter households. Expanding existing programs, making them entitlements, and possibly raising the income limits would bring down housing costs. Transportation cost reductions would require investment in more robust public transportation systems, land use that connects affordable housing with nearby transportation options, walkable and bikeable neighborhoods, and designated carpool networks and incentives. For those who are not served by transportation infrastructure, a household-level transportation subsidy may be needed.

While housing and transportation would have the largest impact, even this set of interventions would move the needle on residual-burdens only slightly and would not reduce the burden rate for the lowest-income households. All of the subsidies and programs that help reduce the burden of household

expenses are an important piece of the equation. Expanding support for universal childcare, affordable healthcare, and public or shared modes of transportation would all help struggling households. Additionally, some households simply do not have enough income to meet basic needs. Increasing income supports for the lowest-income households through mechanisms such as the Earned Income Tax Credit, raising the minimum wage, or providing a universal basic income would help more families reach the threshold for a basic but comfortable standard of living.

## **References**

- Desmond, Matthew. *Evicted: Poverty and Profit in the American City*. New York: Broadway Books, 2016.
- Grady, Bryan P. "Shelter Poverty in Ohio: An Alternative Analysis of Rental Housing Affordability." *Housing Policy Debate* 29, no. 6 (2019): 977–89.
- Herbert, Christopher, Alexander Hermann, and Daniel McCue. "Measuring Housing Affordability: Assessing the 30 Percent of Income Standard." Cambridge, MA: Harvard University, 2018.
- Joint Center for Housing Studies. "America's Rental Housing 2020." Cambridge, MA: Joint Center for Housing Studies of Harvard University, 2020.
- Kutty, Nandinee K. "A New Measure of Housing Affordability: Estimates and Analytical Results." *Housing Policy Debate* 16, no. 1 (2005): 113–42.
- Pearce, Diana M. "The Self-Sufficiency Standard for Ohio 2015." Seattle: University of Washington, 2015.
- Pelletiere, Danilo. "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." *SSRN Electronic Journal*, 2008. <http://www.ssrn.com/abstract=1132551>.
- Scally, Corianne Payton, and Dulce Gonzalez. "Homeowner and Renter Experiences of Material Hardship: Implications for the Safety Net." Washington, DC: Urban Institute, November 2018.
- Stone, Michael. *Shelter Poverty: New Ideas on Housing Affordability*. Philadelphia: Temple University Press, 1993.
- . "Shelter Poverty: The Chronic Crisis of Housing Affordability." *New England Journal of Public Policy* 20, no. 1 (2004): 107–19.
- Stone, Michael E. "Housing Affordability: One-Third a Nation Shelter-Poor." In *A Right to Housing: Foundation for a New Social Agenda*, edited by Rachel Bratt, Michael Stone, and Chester Hartman, 38–60. Philadelphia, PA: Temple University Press, 2006.
- US Department of Housing and Urban Development. "Rental Burdens: Rethinking Affordability Measures." *PD&R Edge*. Accessed June 1, 2020. [https://www.huduser.gov/portal/pdredge/pdr\\_edge\\_featd\\_article\\_092214.html](https://www.huduser.gov/portal/pdredge/pdr_edge_featd_article_092214.html).