HOUSING INSECURITY INDICATORS & POTENTIAL HOMELESSNESS ESTIMATES FOR ARIZONA AND PIMA COUNTY

Updated with Week 33 Census Household Pulse Survey Data – July 14th 2021
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INTRODUCTION

The passage of the $900 billion relief bill in late December and the passage of the $1.9 trillion American Rescue Plan Act in March, make forecasting the likely number of individuals displaced from housing or at risk of homelessness nearly impossible. The provision of additional unemployment insurance and rent assistance, and the recent extension of the eviction moratorium to the end of July, will undoubtably help keep many individuals and families housed in the short term. The macroeconomic situation remains serious, but there are very strong signs of improvement despite recent mixed signals from various economic indicators. At the national level, the June employment report was very strong and included upward revisions to job growth in April and May (see page 18). The economic recovery continues at a relatively rapid pace, when compared to recent recessions, and this is likely to persist as a consequence of both federal spending and the natural uptick of the economy as the pandemic recedes. In Arizona however, the unemployment rate in Arizona remained stable (stuck) at 6.7% in May, the same rate as in March and April (see page 19). This is a very high level of unemployment, but more recent data on the number of initial unemployment applications in Arizona fell to pre-pandemic levels for the first time since the onset of the recession in February and have stayed low through early July (see page 19). This is great news and suggests that the economy in Arizona has continued to recover in recent weeks.

The most recent Census Household Pulse Survey wave, conducted June 23rd – July 5th, is the last wave of survey data we will have prior to the expiration of the eviction moratorium. In recent waves of the HPS the proportion of Arizona renters not current on rent was 8% in the May 26th – June 7th wave, 18% in the June 9th – 21st wave, and 12% in the most recent wave. The average proportion of AZ renters not current across these three waves is 12.7%. The proportion of renter households not current on their rent who reported that they were “very likely” to experience an eviction in the next two months fell to 11.6% in this most recent wave, but the proportion reporting eviction as “somewhat likely” jumped dramatically to 46% (from 10% in the previous wave). This represents a very substantial percentage of Arizona renters who think eviction is very likely in the next two months. This is likely, in large part, a consequence of the looming expiration of the eviction moratorium at the end of July.

The levels of financial strain captured in this wave may be exacerbated by the expiration of the federal expansion of unemployment benefits, while the child tax credit payments that will reach families in mid-July will do some ameliorative work before the expiration of the moratorium.

The big, and largely unknowable, question is, how many individuals and families are going to fall through the cracks before assistance or the economic recovery reaches them? The following report compiles indicators that provide rough insight into the potential magnitude of these challenges that lie ahead.
Indicators of the Scope of the Problem: Did Not Pay Rent Last Month

![Histogram showing percent of Arizona renters who did not pay rent last month, April to July 2020.](image)

*Source: Census Household Pulse Surveys Weeks 1-12*

Indicators of the Scope of the Problem: Not Currently Caught Up On Rent

![Histogram showing percent of Arizona renters who are not currently caught up on payments, August 2020 - July 2021.](image)

*Source: Census Household Pulse Survey –Weeks 13 – 33*

It has been widely noted that the levels of inability to pay rent reported in the Census Household Pulse Survey are not consistent with the levels of strain captured in other measures, particularly those collected by industry research. The National Multifamily Housing Council collects national rental payment data from an enormous sample of apartments (see figure below).
Rent Payment Tracker: Full Month Results

**Data collected from between 11.1 - 11.7 million apartment units each month**

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>95.7%</td>
<td>95.8%</td>
<td>93.2%</td>
</tr>
<tr>
<td>Feb</td>
<td>95.5%</td>
<td>95.1%</td>
<td>93.5%</td>
</tr>
<tr>
<td>Mar</td>
<td>97.2%</td>
<td>95.9%</td>
<td>97.2%</td>
</tr>
<tr>
<td>Apr</td>
<td>97.7%</td>
<td>94.6%</td>
<td>95.0%</td>
</tr>
<tr>
<td>May</td>
<td>96.6%</td>
<td>95.1%</td>
<td>94.6%</td>
</tr>
<tr>
<td>Jun</td>
<td>95.9%</td>
<td>95.6%</td>
<td>95.9%</td>
</tr>
</tbody>
</table>

As of the end of June 2021 95.6% of renters had paid the rent, compared to 96.0% who had paid by the end of June 2019 (see graph above). As of the 6th of July 2021 76.5% of renters had paid the rent, compared to 79.7% who had paid by the 6th of July 2019 (see graph below).

So what explains this rather small but noteworthy (and enormously consequential for our purposes here) discrepancy between this rent payment data and the Census figures? 1) The Census survey may be representing some fraction of lower income renters who are not captured in the NMHC figures. The professionally-managed apartments which are overrepresented in these figures conduct background screenings and rent primarily to tenants with better credit scores. There is very likely a larger proportion of missed rent payments for units rented by smaller companies or individuals that are not captured in these NMHC figures1. 2) A household may not have paid rent at the beginning of the month and answered the Census survey accordingly, but that household manages to pay by the end of the month2. 3) The more recent NMHC figures are very likely capturing the positive impacts of rental assistance on households’ ability to pay their rent, and consequently are not an ideal

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indicator of the degree of financial strain. However, these data do suggest that rental assistance efforts so far appear to have been very successful in supporting households in paying their rents.

Rent Payment Tracker: Weekly Results

*Data collected from between 11.1 - 11.7 million apartment units each month

<table>
<thead>
<tr>
<th></th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>81.0%</td>
<td>79.2%</td>
<td>80.4%</td>
<td>76.0%</td>
<td>81.7%</td>
<td>81.6%</td>
</tr>
<tr>
<td>2021</td>
<td>84.5%</td>
<td>82.9%</td>
<td>79.8%</td>
<td>80.2%</td>
<td>80.9%</td>
<td>77.0%</td>
</tr>
<tr>
<td>2020</td>
<td>84.5%</td>
<td>82.9%</td>
<td>79.8%</td>
<td>80.2%</td>
<td>80.9%</td>
<td>77.0%</td>
</tr>
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<td>80.2%</td>
<td>80.9%</td>
<td>77.0%</td>
</tr>
<tr>
<td>2019</td>
<td>76.0%</td>
<td>79.8%</td>
<td>80.2%</td>
<td>80.0%</td>
<td>77.0%</td>
<td>77.4%</td>
</tr>
<tr>
<td>2020</td>
<td>76.0%</td>
<td>79.8%</td>
<td>80.2%</td>
<td>80.0%</td>
<td>77.0%</td>
<td>77.4%</td>
</tr>
<tr>
<td>2021</td>
<td>76.0%</td>
<td>79.8%</td>
<td>80.2%</td>
<td>80.0%</td>
<td>77.0%</td>
<td>77.4%</td>
</tr>
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<td>80.2%</td>
<td>80.0%</td>
<td>77.0%</td>
<td>77.4%</td>
</tr>
</tbody>
</table>

Pre-COVID-19 | COVID-19 Year 1 | COVID-19 Year 2

Source: National Multifamily Housing Council
Indicators of the Scope of the Problem: Not Caught Up On Mortgage Payments

Percentage of Arizona Mortgage Holders Who Are Not Currently Caught Up on Payments
August 2020 - July 2021

Source: Census Household Pulse Survey – Weeks 13 – 33

69%
Homeownership Rate in Arizona in 2020
Source: U.S. Census Bureau
Indicators of the Scope of the Problem: Ability to Pay Next Month’s Rent
Arizona Renters

Confidence in Ability to Pay Next Month’s Rent
Arizona Renters - June 23 - July 5

Source: Census Household Pulse Survey –Weeks 13 - 33

Confidence in Ability to Pay Next Month’s Rent
August 2020 - July 2021

Modest increases in those with no and slight confidence in their ability to pay next month’s rent.
Indicators of the Scope of the Problem: Likelihood of Leaving Due to Eviction Among Arizona Renters Not Caught Up on Rent

The trends in the graph below are based on questions only asked of Arizona renters not caught up on their rent: 11.6% of all AZ renter households – June 23rd – July 5th

Source: Census Household Pulse Survey – Weeks 13 – 33

The proportion of non-current renters who see eviction as very likely fell to 12% this wave. However, the proportion seeing eviction as somewhat likely jumped to 46%.
Indicators of the Scope of the Problem: Leaving Due to Foreclosure Among Arizona Mortgage Holders Not Caught Up on Payments

The trends in the graph below are based on questions only asked of Arizona mortgage holders not caught up on their payments: 5.6% of all AZ mortgage holding households – June 23rd – July 5th

% seeing foreclosure as “very likely” remains low at 4%.

Source: Census Household Pulse Survey – Weeks 13 – 33

Likelihood of Leaving this Home due to Foreclosure in Next Two Months - Arizona Mortgage Holders - June 23 - July 5

- Very Likely: 4%
- Somewhat Likely: 37%
- Not Very Likely: 38%
- Not Likely at All: 20%
Indicators of the Scope of the Problem: Estimates of Rental Shortfall—ARIZONA

Estimates of the number of individuals behind on rent and the size of their rental debts (at both the state and county level) have been made available in the National Equity Atlas data tool. This tool is produced by PolicyLink and the USC Equity Research Institute. The methodology used to produce these estimates is provided in the appendix to this report. These estimates rely on Census Household Pulse survey data and the estimates below are based on the data collected as a part of Wave 31 of the survey conducted May 26th-June 7th 2021. We now have two additional waves of the Census HPS survey, Waves 32 and 33. The percentage of renters not current statewide in Wave 31 was 8%. This increased 46% to 11.6% in Wave 33, the adjusted estimates below (in the second table) provide a simple increase in the Wave 31 estimates by 46%.

National Equity Atlas – Estimates based on Wave 31 of the Census HPS

<table>
<thead>
<tr>
<th>Estimated Number of Arizona Households Behind on Rent</th>
<th>Estimated Total Rental Debt Statewide</th>
<th>Estimated Rental Debt per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>67,000</td>
<td>$204 million</td>
<td>$3,000</td>
</tr>
</tbody>
</table>

National Equity Atlas Estimates Adjusted based on Wave 33 of the Census HPS

<table>
<thead>
<tr>
<th>Adjusted Estimated Number of Arizona Households Behind on Rent</th>
<th>Adjusted Estimated Total Rental Debt Statewide</th>
<th>Estimated Rental Debt per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>97,820</td>
<td>$298 million</td>
<td>$3,000</td>
</tr>
</tbody>
</table>
Indicators of the Scope of the Problem: Estimates of Rental Shortfall—PIMA COUNTY

The *National Equity Atlas* data tool also provides county level estimates. The estimates below are also based on the data collected as a part of Wave 31 of the Census Household Pulse survey conducted May 26th - June 7th 2021 (first table), and can also be adjusted upwards in light of information from Wave 33 of the Census HPS (second table).

**National Equity Atlas – Estimates based on Wave 31 of the Census HPS**

<table>
<thead>
<tr>
<th>Estimated Number of Pima County Households Behind on Rent</th>
<th>Estimated Total Rental Debt Countywide</th>
<th>Estimated Rental Debt per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,052</td>
<td>$29.6 million</td>
<td>$2,675</td>
</tr>
</tbody>
</table>

**National Equity Atlas Estimates Adjusted based on Wave 33 of the Census HPS**

<table>
<thead>
<tr>
<th>Adjusted Estimated Number of Pima County Households Behind on Rent</th>
<th>Adjusted Estimated Total Rental Debt Countywide</th>
<th>Estimated Rental Debt per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>16,136</td>
<td>$43.2 million</td>
<td>$2,675</td>
</tr>
</tbody>
</table>
“Back of the Envelope” Estimates of Potential Displacement and Homelessness Based on Estimates of Total Households Behind on Rent Payments - ARIZONA

The estimates provided below take the estimated number of Arizona households behind on their rent (and the adjusted estimates) from the National Equity Atlas and then provides ranges of possible outcomes for both displacement and homelessness as a result of these potential housing displacements. Many and probably most will be helped enormously by current and forthcoming assistance. The exercise here provides examples of the size of the potential increase in homelessness depending on the proportion of these at-risk households that actually experience a housing disruption. What does it look like, for example, if 20% of the vulnerable households estimated by the National Equity Atlas to be at risk actually experience a housing displacement? No sophisticated modeling approaches were used to generate these figures, just calculations of proportions of the National Equity Atlas estimates of households at risk. As such, these are “back of the envelope” calculations to provide a rough sense of the ranges of strain that could emerge depending on the extend of the ameliorative impacts of forthcoming relief assistance (unemployment insurance, stimulus checks, rental assistance, & etc). Please do not cite or distribute these figures without these caveats and without checking with the author first. See next page for caveats.

<table>
<thead>
<tr>
<th>At Risk Pop</th>
<th>ARIZONA</th>
<th>Midpoint* of Estimates of # of Households Potentially Facing Housing Disruption or Eviction Filings</th>
<th>Adjustment (not all housing insecurity results in displacement) and forthcoming assistance will reduce hardship.</th>
<th>Number of People</th>
<th>Assuming 25% of displaced actually become homeless</th>
<th>Assuming 10% of displaced actually become homeless</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renters not Current</td>
<td>82,410</td>
<td>10% result in displacement: 8,241</td>
<td>22,168</td>
<td>5,542</td>
<td>2,217</td>
<td></td>
</tr>
<tr>
<td>Renters not Current</td>
<td>82,410</td>
<td>20% result in displacement: 16,482</td>
<td>44,337</td>
<td>11,084</td>
<td>4,434</td>
<td></td>
</tr>
</tbody>
</table>

*This is the midpoint between the two estimates of the number of renters not current found on page 12.
These National Equity Atlas estimates from late-May/early June only provide an estimate of the number of Arizonans not current on their rent and an estimate of the extent of their rental debt. The exercise above then simply provides ranges of possible impacts depending on how many people are actually displaced from their housing. In order to get a rough sense of whether these estimates are realistic, we can compare these estimates to other available indicators. These estimates are based on Wave 31 data of the Census Household Pulse Survey. The Census Household Pulse Survey asks if renting households are current on their rent. In the most recent wave of the survey, Week 33 conducted June 23rd – July 5th, 11.6% of Arizona renter households reported not being current on their rent payments. There were 927,771 renter-occupied units in Arizona in 2019, according to a Census American Community Survey (1-year) estimate.

11.6% of 927,771 = 107,621 AZ renter households who are not current on their rent payments.

Not all, and perhaps only a minority, of households reporting that they are not current on rent payments will actually experience an eviction. These households were then asked about their perception of how likely it is that they will have to leave their home due to eviction in the next two months. 11.6% of these households that are not current on their rent reported being “very likely” to be evicted, while another 46.4% said this is “somewhat likely”.

11.6% of 107,621 = 12,484 AZ renter households who think it is “very likely” that they will be evicted in the next two months.

58% of 107,621 = 62,420 AZ renter households who think it is either “somewhat likely” or “very likely” that they will be evicted in the next two months.

These comparisons suggest that the hypothetical scenario outlined above of 20% of the Arizona renter households not current on their payments being at risk of a potential housing displacement may be a more accurate estimate of the extent of financial strain among Arizona renters as the end of eviction moratorium approaches at the end of July. To be clear, the vast majority of these households will benefit substantially from forthcoming benefits and relief assistance and most will be at substantially lower risk of eviction as a result.
“Back of the Envelope” Estimates of Potential Displacement and Homelessness Based on Estimated Total Eviction Filings - PIMA COUNTY

The estimates provided below take the estimated number of Pima County households behind on their rent (and the adjusted estimates) from the National Equity Atlas and then provides ranges of possible outcomes for both displacement and homelessness as a result of these potential housing displacements. Many and probably most will be helped enormously by current and forthcoming assistance. No sophisticated modeling approaches were used to generate these figures, just calculations of proportions of the National Equity Atlas estimates of households at risk. These are “back of the envelope” calculations to provide a rough sense of the ranges of strain that could emerge depending on the extent of the ameliorative impacts of forthcoming relief assistance (unemployment insurance, stimulus checks, rental assistance, & etc).

<table>
<thead>
<tr>
<th>At Risk Pop</th>
<th>PIMA COUNTY</th>
<th>Midpoint* of Estimates of # of Households Potentially Facing Housing Disruption or Eviction Filings</th>
<th>Adjustment (not all housing insecurity results in displacement) and forthcoming assistance will reduce hardship. Number of Households</th>
<th>Number of People</th>
<th>Assuming 25% of displaced actually become homeless</th>
<th>Assuming 10% of displaced actually become homeless</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renters not Current</td>
<td>13,594</td>
<td>10% result in displacement: 1,359</td>
<td>3,657</td>
<td>914</td>
<td>366</td>
<td></td>
</tr>
<tr>
<td>Renters not Current</td>
<td>13,594</td>
<td>20% result in displacement: 2,719</td>
<td>7,314</td>
<td>1,828</td>
<td>731</td>
<td></td>
</tr>
</tbody>
</table>

*This is the midpoint between the two estimates of the number of renters not current found on page 13.

Please do not cite or distribute these figures without these caveats and without checking with the author first.
These National Equity Atlas estimates from late-May/early-June only provide an estimate of the number of Pima County renters not current on their rent and an estimate of the extent of their rental debt. The exercise above then simply provides ranges of possible impacts depending on how many people are actually displaced from their housing. In order to get a rough sense of whether these estimates are realistic, we can compare these estimates to other available indicators. These estimates are based on Wave 31 data of the Census Household Pulse Survey. The Census Household Pulse Survey asks if renting households are current on their rent. In the most recent wave of the survey, Week 33 conducted June 23rd – July 5th 2021, 11.6% of Arizona renter households reported not being current on their rent payments. There were 151,943 renter-occupied units in Pima County in 2019, according to a Census American Community Survey (1-year) estimate.

11.6% of 151,943 = 17,625 Pima County renter households who are not current on their rent payments.

Not all, and perhaps only a minority, of households reporting that they are not current on rent payments will actually experience an eviction. These households were then asked about their perception of how likely it is that they will have to leave their home due to eviction in the next two months. 11.6% of these households that are not current on their rent reported being “very likely” to be evicted, while another 9.8% said this is “somewhat likely”.

11.6% of 17,625 = 2,045 Pima County renter households who think it is “very likely” that they will be evicted in the next two months.

58% of 17,625 = 10,223 Pima County renter households who think it is either “somewhat likely” or “very likely” that they will be evicted in the next two months.

These comparisons suggest that the hypothetical scenario outlined above of 20% of Pima County renter households not current on their payments being at risk of a potential housing displacement may be a more accurate estimate of the percentage of households at risk (when compared with the information offered in the Census Household Pulse survey). To be clear, the vast majority of these households will benefit substantially from forthcoming benefits and relief assistance and most will be at substantially lower risk of eviction as a result.
Lingering Concerns

While we are currently experiencing job growth, the current recession has a depth and intensity unlike anything we have experienced in recent decades. The magnitude of job losses is both larger and more compressed in time than previous downturns. This means that the economy is very unlikely to recover sufficiently to avert significant financial strain for many households in the very short term.

In the medium-term, most economists are expecting continuing robust growth and falling unemployment. And while many households are now protected from a housing disruption by the current eviction moratorium, there are also many households who are not. These households at high risk of experiencing a housing disruption in the coming months remain disproportionately lower income and households of color. I remain concerned about the likelihood of homelessness among those households that experience a housing disruption over the next couple of months, as it is less likely that employment opportunities will replace lost earnings.

![Percent Job Losses in Post WWII Recessions](http://www.calculatedriskblog.com/)

Source: Calculated Risk Finance & Economics
In addition, the COVID-19 recession has been uniquely unequal in its impacts, hitting lower income workers and households particularly hard. Worse, the recovery from these disproportionate impacts has also been skewed towards those with more resources, resulting in the so-called “K”-shaped recovery.

Source: Census HPS Week 14 – Sept 2nd- 14th 2020

Source: Census HPS Week 27 – March 17th– 29th 2021

Source: Census HPS Week 32 – June 9th– June 21st 2021

Source: Census HPS Week 33 – June 23rd– July 5th 2021
Consequently, lower-income households are at particularly high risk of housing insecurity and homelessness during this recession.

Racial/Ethnic Disparities
The current recession is also disproportionately impacting individuals and communities of color, trends evident in both losses of employment income and housing insecurity.


Source: Census Household Pulse Survey –Week 32

Source: Census Household Pulse Survey –Week 33
"Very Difficult" to Pay Usual Expenses in Last Week
ARIZONA Renter Households - March 3 - 15th

Source: Census Household Pulse Survey –Week 26

"Very Difficult" to Pay Usual Expenses in Last Week
ARIZONA Renter Households - June 9 - 21 2021

Source: Census Household Pulse Survey –Week 32

"Very Difficult" to Pay Usual Expenses in Last Week
Arizona Renter Households - June 23 - July 5 2021

Source: Census Household Pulse Survey –Week 33
Appendix: National Equity Atlas Rent Debt Methodology

This document describes our current methodology for estimating the number of renter households behind on rent and the total and per household rent debt for the United States and selected counties, regions, and states, as presented in the Rent Debt Dashboard.

Our estimates use the share of households behind on rent from the Census Household Pulse survey and the median contract rent paid by households from the American Community Survey, both broken down by income bracket, to determine the total amount of monthly rent owed by households behind on rent. We then multiply these monthly figures by the average number of months that households are in arrears to estimate total rent debt. We assume that approximately 25 percent of behind households are one month behind, 28 percent are two months behind, 12.5 percent are three months behind, and 5.5 percent have not paid for the entire pandemic. We use three data sources:

1. Household rent and income data from the 5-year 2019 American Community Survey (ACS) summary file and microdata.
2. Data on late payment of rent from the U.S. Census Bureau’s Household Pulse Survey for states and the 15 largest metros. The Pulse survey is updated every two weeks.
3. Distribution of rent arrears estimates derived from the University of Southern California’s Center for Economic and Social Research’s “Understanding Coronavirus in America” panel survey, which has been collected between April 2020 and March 2021.

The process and data are further described below:

Household Pulse Survey data is filtered to include only renting households paying a non-zero rent in the most recent survey wave. Those households are assigned a rent status based on their response to the survey question: “Is this household currently caught up on rent payments?.” The percentage of households in rent arrears – the “behind rate” – is calculated by household income category and by geography. Households are initially grouped into three income categories: those with an annual income less than $50,000, those with an annual income between $50,000 and $100,000, and those with an annual income greater than $100,000. Pulse estimates are available for all 50 states and for the 15 largest metropolitan regions in the US. For geographies where regional data are available, we use regional estimates of behind rates; for geographies where regional data are not available, we use statewide estimates of behind rates. If the unweighted count of observations for a given income category within a metropolitan region falls below 100 in the most recent Pulse survey wave, statewide behind rates are used for households in that income category in that metropolitan region instead. If unweighted counts of statewide observations fall below 100 for either of the top two income categories but the two categories combined have more than 100 observations, a single rate is used for both of the categories. If unweighted counts of statewide observations fall below 100 for the top two income categories combined or for the lowest income category, a single behind rate is used for all households in the state. If a state has fewer than 100 unweighted observations, national behind rates are used and rent debt estimates are not calculated for that state.

The estimates of the percent of households behind on rent by income bracket are necessarily broad, in geographic terms, given data availability in the Household Pulse Survey. However, to estimate monthly rent debt for households that are behind, they are applied to estimates of median monthly contract rent by income bracket that are geographically specific (i.e. based on the same cities and counties for which the rent debt estimates are ultimately

3 Source: https://nationalequityatlas.org/rentdebtmethodology
We use median rent (rather than mean rent) based on the assumption that renters who are behind on rent are likely to have lower monthly rent than the average for each income bracket. Estimating median monthly contract rent by income bracket was straightforward for states, regions, and larger cities and counties as they could be drawn directly from the ACS microdata. For smaller cities and counties not identified in the ACS microdata, however, we developed an approach that relied primarily on the ACS summary file with some inputs from the microdata.

Specifically, we drew information from Table B25122 of the ACS summary file on the number of households by income bracket gross rent bracket and utilized a Pareto interpolation procedure to estimate median monthly gross rent for each of the aforementioned income brackets in each geography. This procedure required an upper bound for the top gross rent category ($2,000 or more), which is not provided in Table B25122. To adjust our estimate to reflect median contract rent (rather than median gross rent, which includes the cost of utilities), we also needed an adjustment ratio to apply to our resulting Pareto estimates.

We estimated these data inputs for each of the smaller city and county geographies using ACS microdata for the Public Use Microdata Area (PUMA) or PUMAs they intersect. This was accomplished using population-based crosswalks we developed between 2010 PUMAs and 2010 counties, and between 2010 PUMAs and 2010 census-defined places (which include all cities), by taking a population-weighted average of the PUMA-level measures for each smaller city and county geography. Following this approach, we estimated the maximum gross rent, median gross rent, and median contract rent for overall and for each income bracket. The estimated maximum gross rent is inputted into the Pareto interpolation procedure to estimate median gross rent by income bracket for each of the smaller city and county geographies. Those initial estimates were then adjusted to reflect median contract rent by multiplying by the ratio of median contract to gross rent from the PUMA-based estimates. The approach seeks to utilize as much geographically-specific information from the ACS summary file as possible and substitutes in less geographically-specific information from the ACS microdata as necessary.

We assume that differences between reported rents from the 2019 5-year ACS (which reflect a 2015-2019 average expressed in inflation-adjusted 2019 dollar values) and 2020 actual rents are negligible for households that have not moved in 2020, as those households were likely locked into pre-pandemic leases and/or month-by-month agreements with fixed/stable rents. The total amount of monthly rent owed by behind households is then calculated by multiplying estimated median monthly rent for each income category by the number of Pulse households in that income category and summing those values for each geography (city or county). Regional and statewide estimates are produced by summing estimates from their constituent county geographies.

These figures are converted to total rent debt by adjusting based on our estimate that households were, on average, 3.75 months in arrears. There is no source of data on the distribution of rent arrears among behind households, so we estimated this distribution based on the University of Southern California (USC) “Understanding Coronavirus in America” panel survey from April 2020 through March 2021. Restricting the sample to renter households that were recorded at some point during each of the twelve months from April 2020 to March 2021 and determining a household’s behind status in each month based on their response closest to the end of the month, we measure how many months each household reports not paying their rent. Using this method, we found that approximately 25 percent of behind households are one month behind on rent, 28 percent are two months behind, 12.5 percent are three months behind, and 5.5 percent have not paid for the entire pandemic.

These estimates do not take into account the requirement of the California eviction moratorium passed in August 2020 (AB 3088) that Covid-19-affected tenants must pay 25 percent of rent accrued between September 1, 2020 and January 31, 2021 by January 31, 2021 to be protected from eviction. This incentive likely decreases the amount of arrears.