



RESEARCH INSTITUTE FOR HOUSING AMERICA **SPECIAL REPORT**

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Stephanie Moulton, PhD, Professor & Associate Dean for Faculty and
Research, John Glenn College of Public Affairs, The Ohio State University

Madeleine Drost, PhD, Research Manager
John Glenn College of Public Affairs

Brandon Frye, Graduate Research Associate
John Glenn College of Public Affairs

Laurie Goodman, PhD, Institute Fellow
Urban Institute

Matthew Pruitt, Research Analyst
Urban Institute

John Walsh, Research Associate
Urban Institute

Special Report Prepared for Mortgage Bankers Association

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Executive Summary

Despite unprecedented rates of unemployment following the onset of the COVID-19 pandemic in 2020, the overwhelming majority of homeowners avoided foreclosure — due in part to the prompt public and private actions to provide immediate mortgage payment relief. By the end of 2021, most homeowners — more than 80 percent — who received forbearance at some point during the COVID-19 pandemic had already exited forbearance and resumed making regular mortgage payments or paid off their mortgages through refinancing or home sale. However, some homeowners were still struggling to make ends meet and were able to turn to a lesser-known pandemic-era housing program for support, the Homeowner Assistance Fund.

This report examines the Homeowner Assistance Fund (HAF), a \$10 billion federal program launched by the U.S. Department of Treasury in April 2021 to help vulnerable homeowners recover from COVID-19 pandemic-related financial hardships. As of March 2025, HAF distributed \$7.8 billion to more than 570,000 homeowners nationwide through state housing finance agencies, U.S. territories, and tribal governments.

This is the first comprehensive study documenting the characteristics and outcomes of HAF beneficiaries, providing critical insights for mortgage industry professionals about homeowners who may require assistance beyond standard loss mitigation tools.

We synthesize data from Treasury reports to describe the types and amounts of HAF assistance provided nationwide as well as differences in HAF implementation between states. We then use rich administrative data from Ohio to shed light on the mortgage, credit, and income characteristics of homeowners who benefited from HAF. We compare the characteristics of Ohio homeowners who received mortgage payment forbearance during the COVID-19 pandemic and Ohio homeowners who received assistance through HAF, in addition to or instead of forbearance.

This study is especially valuable — the loss mitigation toolkit for both FHA and GSE mortgages has been improved in light of the COVID experience, and forbearance is the first step in the loss mitigation waterfall. Moreover, many financial institutions choose to use the GSE waterfall for their portfolio loans. VA mortgages have a more limited toolkit, as do some portfolio loans and many private label

securities. It is important to see to what extent a HAF-type program complements the existing framework, to help inform future programs.

There are several key findings.

- HAF programs served vulnerable homeowners, with more than 90% of HAF funds nationwide distributed to homeowners with incomes below the area median. HAF beneficiaries were geographically concentrated in areas that were more distressed during the COVID-pandemic, as measured by higher rates of unemployment and higher rates of mortgage delinquency.
- While the majority of HAF funds were used to cover past due or future mortgage payments, HAF programs also assisted with a variety of non-mortgage homeowner expenses, such as utility payments and property taxes. Further, in addition to traditional mortgages, HAF mortgage assistance helped with payments for non-traditional types of credit instruments securing a principal residence such as reverse mortgages, land contracts, or mortgages with complex titles.
- More than one in ten of the 100,000 Ohio homeowners with mortgages as of the end of 2019 who subsequently received assistance for missed mortgage payments during the COVID-19 pandemic received HAF in addition to or instead of forbearance.
- About 16 percent of Ohio HAF recipients received mortgage payment forbearance prior to receiving assistance through HAF. Perhaps unsurprisingly, these homeowners



were the most distressed relative to the other groups on multiple indicators as of the end of 2021, prior to the receipt of HAF.

- Ohio homeowners receiving mortgage payment forbearance disproportionately held government backed FHA, VA, or GSE loans. By contrast, Ohio homeowners receiving only HAF mortgage assistance were more likely to hold private, non-governmental loans.
- About one-third of the Ohio homeowners receiving assistance through HAF did not have evidence of a mortgage on their credit file. 80% of homeowners receiving assistance for non-mortgage expenses did not have evidence of a mortgage. Perhaps more surprisingly, about 17% of the homeowners receiving Mortgage Payment Assistance (MPA) or Rescue Payment Assistance (RPA) did not have evidence of a mortgage on their credit file. A partial explanation for this latter finding is that HAF was able to assist homeowners with payments for non-traditional mortgages that fall outside of the typical loss mitigation waterfall.
- About 70 percent of HAF beneficiaries in Ohio had evidence of a negative income event in 2020 or 2021, measured as a substantial reduction in quarterly wages or receipt of unemployment insurance. In addition to having lower earned income prior to the COVID-19 pandemic, the negative income shocks for HAF beneficiaries were deeper and longer lasting than income shocks for homeowners receiving only forbearance.
- Despite being a vulnerable group of homeowners, many of whom were already in default on their mortgages prior to HAF, the majority (more than 80%) of HAF-assisted homeowners in Ohio were making their mortgage payments on time as of the end of 2023.

Taken together, these findings highlight both the effectiveness of targeted assistance programs and the need to consider enhancements that serve homeowners with characteristics similar to HAF recipients — particularly those with private mortgages, non-mortgage expense burdens, or persistent financial challenges. Understanding these vulnerable populations and the tools that fill the gaps that other programs don't cover, and helping them succeed, is essential for developing more inclusive and effective loss mitigation strategies.

1. Introduction

Despite unprecedented rates of unemployment following the onset of the COVID-19 pandemic in 2020, the overwhelming majority of homeowners avoided foreclosure — due in part to the prompt public and private actions to provide immediate mortgage payment relief (An et al. 2023; Boctor 2024; Gerardi et al. 2022; Goodman and Zhu 2024a; 2024b; Kim et al. 2024; Shi 2022). A key feature of the pandemic-era mortgage response was the prioritization of forbearance as the first, immediate step in the loss mitigation waterfall, followed by a transition to more substantial loss mitigation options as needed.

As a result of this success, the pandemic-era loss mitigation waterfall is now a permanent part of the toolkit for loans securitized by the Government Sponsored Enterprises (GSEs) or insured by the Federal Housing Administration (FHA). Homeowners who experience income or expense shocks are now immediately considered for a temporary pause in their mortgage payments. This immediate payment relief provides time for homeowners to recover from their underlying economic hardship and provides time for the lender to identify the appropriate workout solution to ensure long-term housing sustainability. Long-term workout plans include options to repay the forbore payments over a short period of time or as a deferred balance due upon mortgage payoff, as well as more substantial loan modifications or other actions to reduce the size of the mortgage payment and increase affordability.

While the loss mitigation waterfall has proven effective at reducing foreclosures for the majority of homeowners experiencing payment delinquency during the COVID-19 pandemic, there may be times when an alternative intervention is warranted. By the end of 2021, most homeowners — more than 80 percent — who received forbearance at some point during the COVID-19 pandemic had already exited forbearance and resumed making regular mortgage payments or paid off their mortgages through refinancing or home sale (Black Knight 2022). However, some homeowners were still struggling to make ends meet and were able to turn to a lesser-known pandemic-era housing program for support, the Homeowner Assistance Fund (HAF).

The U.S. Department of Treasury launched the \$10 billion HAF in April 2021, patterned after the Hardest Hit Fund (HHF) administered by the Treasury Department during the Great Recession. State housing finance agencies (HFAs), U.S. territories and tribal governments designed and imple-



mented HAF programs in their area, providing direct housing cost assistance to at risk homeowners. HAF explicitly targeted the most vulnerable, with at least 60% of funds earmarked for low-income homeowners. HAF programs could be designed to distribute funds to homeowners in a variety of ways, such as to subsidize future mortgage payments, to repay delinquent mortgage payments (including forbore payments), to reduce the principal balance on the mortgage, for property taxes, homeowner's insurance and utility payments, and even for necessary repairs to preserve the habitability of the home.

As of March 2025, the Treasury Department reported that \$7.8 billion in HAF funds were distributed to more than 570,000 homeowners, with all funds to be fully obligated



by September 30, 2026.¹ While numerous studies document the prevalence and outcomes of pandemic-era mortgage payment forbearance, this is the first known study to document the homeowners assisted through HAF during the COVID-19 pandemic and their outcomes. Understanding the characteristics and outcomes of HAF beneficiaries can provide insights about the types of homeowners who may benefit from additional enhancements to the current loss mitigation waterfall.

The remainder of this paper proceeds as follows. First, we provide background on approaches to assist distressed homeowners, highlighting lessons learned during the Great Recession and COVID-19 pandemic and describing the current loss mitigation waterfall. Second, we provide a national overview of the HAF program, synthesizing data from Treasury reports to describe different forms and amounts of assistance provided and differences in HAF implementation between states. We map the volume of HAF assistance by state and county, overlaid with indicators of housing need.

Third, we leverage rich administrative data from Ohio to describe the characteristics of HAF-assisted homeowners and follow their outcomes over time. In partnership with the Ohio Housing Finance Agency (OHFA), we link individual level administrative data on HAF-assisted homeowners with individual level Unemployment Insurance (UI) and wage data from the Ohio Longitudinal Data Archive (OLDA), and credit data from the Ohio Consumer Credit Panel. We compare the mortgage and credit characteristics of HAF-assisted homeowners and non-HAF-assisted homeowners who received temporary mortgage payment forbearance, as well as the extent and duration of income shocks experienced by both groups.

Finally, we conclude with a discussion of three potential gaps in the loss mitigation waterfall that might be addressed with targeted enhancements: (1) homeowners who fall outside of programs covered by government loss mitigation programs, (2) homeowners who need deeper payment reductions than would be permitted by standard loss mitigation programs, and (3) non-mortgage expenses that may put a homeowner at risk of precarity but are not currently covered by government loss mitigation programs.

1. Authors' analysis of [HAF Quarterly Reports through Q1 2025](#). Accessed November 6, 2025.

2. Assisting Distressed Homeowners: The Current Landscape

2.1 LESSONS LEARNED SINCE THE GREAT RECESSION & COVID-19 PANDEMIC

The substantial costs of foreclosures for homeowners, lenders, communities and the federal government justify interventions to reduce their occurrence and the severities of losses. For example, recent estimates indicate that the GSEs alone would lose an average of \$72,000 per non-performing loan disposition, using severity estimates from the 2018 through 2024 period (Bhagat 2025).² Thus, in most cases, investments in loss mitigation are cost effective if a disposition that would otherwise occur can be avoided. In this section, we summarize lessons learned from the past crises that undergird the current loss mitigation waterfall and inform how we think about potential opportunities for enhancements.

LIQUIDITY SHOCKS DRIVE MORTGAGE DEFAULTS

Strategies to prevent mortgage default take different forms depending on assumptions about the reasons for default. There is a longstanding understanding among housing economists that mortgage default is driven by some combination of shocks to cash flow (e.g. job loss, divorce, unexpected expenses) and negative home equity. Research increasingly finds that strategic default due to negative equity alone, without a triggering event, is quite rare and that negative income or expense shocks precipitate most cases of mortgage default (Farrell et al. 2018; Ganong and Noel 2023; Gerardi et al. 2018; Low 2023).

In an analysis of mortgage borrowers in the Panel Study of Income Dynamics (PSID) from 2009 to 2013, Gerardi et al. (2018) found that the majority (96%) of homeowners with very low levels of home equity remained current on their mortgages, despite incentives to strategically default. In fact, they even found surprising resilience among homeowners with low levels of home equity who had mortgage payments that appeared to be unaffordable based on their incomes — with 80% remaining current. They found that the loss of a job increased the probability of default by 35%; to generate the same increase in probability of default would

require more than 50% reduction in home equity. These findings indicate that while income shocks are a much more significant driver of default than negative equity, homeowners are also surprisingly resilient to income shocks. Thus, while interventions to support homeowners through income shocks are an important part of effective loss mitigation strategies, not all homeowners who experience an income shock will default. It is important to construct loss mitigation strategies that enable efficient sorting to identify borrowers who would default absent intervention.

Recent research suggests that expense shocks may be as important as income shocks in driving default. Using survey data linked to loan performance data, Low (2023) found that 72% of borrowers who were 90 or more days past due reported some sort of financial shock as the cause of their default, including unexpected expenses (64%) and job loss (56%). Homeowners often report experiencing unplanned expenses, such as home repairs or increases to property tax or homeowner's insurance costs (Akana et al. 2025). Without a savings cushion, these expenses can derail household finances. Using bank account data, Farrell et al. (2018) found that borrowers without at least one mortgage payment in their bank accounts were seven times more likely to default than mortgage borrowers with at least four mortgage payments in savings. It may thus be useful to consider loss mitigation strategies that help build a liquidity buffer ex ante for increasingly common expense shocks.

LOSS MITIGATION STRATEGIES SHOULD FOCUS ON THE MORTGAGE PAYMENT

Loss mitigation strategies that increase cash flow, such as reducing the size of the mortgage payment, may be sufficient without reductions to the principal balance, even if the homeowner is underwater. Ganong and Noel (2023) estimate the relative effects of negative home equity and shocks to cash flow on mortgage default using a sample of Chase Bank account customers from 2007 to 2015. They find that 94% of mortgage defaults are related to negative shocks to cash-flow — with or without negative equity, and further that 70% of defaults are due to cash-flow alone — without evidence of negative equity.

2. Estimates were based on a through-the-cycle loss severity projection for the GSEs of 28%, which is the average loss severity on dispositions completed between 2018 and 2024.

This finding helps explain why Home Affordable Mortgage Program (HAMP) modifications during the Great Recession that reduced the mortgage payment by lowering the interest rate, extending the mortgage term, or both were as effective as more substantial modifications that lowered the principal balance (Farrell et al. 2017; Ganong and Noel 2020; Scharlemann and Shore, 2016). In an analysis of HAMP modifications, Ganong and Noel (2020) exploited the eligibility threshold for principal reductions to disentangle the effects of payment reductions with and without a reduction to the loan balance. They found that a one percent decrease in the size of the mortgage payment corresponded to one percent reduction in the probability of default, with no additional reduction in the default rate for principal reductions.

While some homeowners may require permanent reductions to their mortgage payments to maintain affordability, there is increasing evidence that temporary mortgage payment relief during an economic hardship is an effective part of loss mitigation strategies. Mortgage payment forbearance was not a standard part of the loss mitigation waterfall during the Great Recession. However, the U.S. Department of Treasury’s Hardest Hit Fund (HHF) program, available in 18 states, included an option to fully subsidize the mortgage payment for up to 18 months during a period of unemployment. Moulton et al. (2022) exploit geographic variation within an MSA across eligible and ineligible HHF states to isolate the causal effect of these additional payment subsidies on mortgage outcomes. They found a 41 percent (26 percentage point) reduction in the probability of default within four years after the start of payment assistance for HHF assisted homeowners compared to otherwise similarly distressed homeowners residing in the same MSA but ineligible for HHF because of their state.

TEMPORARY MORTGAGE PAYMENT FORBEARANCE IS A CRITICAL PART OF THE LOSS MITIGATION WATERFALL

Prior to the Great Recession, there were no standardized loss mitigation options. The Home Affordable Modification Program (HAMP), first introduced in 2009, represented the first attempt at standardization. At this point, there were two separate paths. Homeowners with short term issues paying their mortgage could access a few months of relief from mortgage payments, but the money had to be repaid in full quickly. Homeowners with a more permanent income loss or other change in financial circumstances might qualify

for a loan modification.³ The servicer and homeowner were forced to establish the short term or long term path quickly, often with insufficient information.

In the late 2010s, as a result of a series of national emergencies — Hurricanes Harvey, Irma and Maria — the GSEs and FHA joined the two paths for natural disasters. A family that has just been impacted by a hurricane, and perhaps lost their job as the economy crumbled in the disaster area, does not know whether they have a short- or long-term problem. The national disaster loss mitigation strategy put immediate payment relief for a period of time, known as forbearance, at the top of the waterfall, followed by a more permanent solution. The national disaster waterfall was adopted as the COVID loss mitigation program.



During the COVID-19 pandemic, mortgage payment forbearance of up to six months (with extensions for up to 18 months) was made available immediately for all homeowners with government insured or guaranteed mortgages who stated that they experienced a COVID related economic hardship. This includes GSEs, FHA, VA and USDA mortgages. Empirical research consistently finds that the majority of homeowners who missed payments during the COVID-19 pandemic received temporary mortgage payment forbearance, and that the overwhelming majority of those who received forbearance were able to resume their mortgage payments after exiting forbearance (often with the help of

3. The word “forbearance” is used in a number of different ways in the loss mitigation process. In a HAMP loan modification, if borrowers could not meet their target payment level through lowering the interest rate and extending the term, they may be eligible for principal forbearance; where a chunk of the principal has its interest “forborne”, the borrower does not owe interest of the forborne amount, when the loan is terminated the principal is due. When we use the term “forbearance” in this paper, unless otherwise noted, we are referring to the immediate payment relief at the top of the waterfall, where the borrower makes no payments for a period of time; at the conclusion of that period a permanent solution is discussed.

loss mitigation options described below), thus preventing widespread foreclosures that may have occurred absent payment relief (An et al. 2023; Boctor 2024; Gerardi et al. 2022; Goodman and Zhu 2024a; 2024b; Kim et al. 2024; Shi 2022). Gerardi et al. (2021) find that 80 percent of GSE and FHA borrowers with missed payments during the first year of the COVID-19 pandemic received payment forbearance. Notably, they also observe that borrowers with missed payments during the COVID-19 pandemic had significantly higher credit scores than those who missed payments in 2010 following the Great Recession, demonstrating differences in the financial conditions of consumers affected by the two crises.

To further understand the benefit of mortgage payment forbearance and the pandemic-era loss mitigation options, Goodman and Zhu (2024a) look at the impact of improved loss mitigation on the transition rate from serious delinquency to foreclosure. In particular, they compare the transition rate from delinquency to foreclosure for three groups of Fannie Mae loans: (1) those that were 60 days or less delinquent in January 2020, went 90+ days delinquent (D90+) in 2020 and selected forbearance, (2) those that were 60 days or less delinquent in January 2020, went 90+ days delinquent in 2020 and did not select forbearance, and (3) those that were 60 days or less delinquent in January 2016 and went 90+ days delinquent in 2016. All loans were followed for a 3.5 year period (through mid-2023 for the 2020 cohorts, through mid-2019 for the 2016 cohort). At the end of the period, the loans were classified by their outcomes: recovery (includes loans that are current, less than 180 days delinquent or prepaid) and foreclosure/liquidation (includes loans more than 180 days delinquent, in foreclosure or liquidated).

Using these three groups of loans the authors isolate the improved performance that is due to changes in the loss mitigation waterfall, versus the improved performance due to home price appreciation. They show that all D90+ loans from 2020, both those that selected forbearance and those that did not, performed better than their 2016 counterparts (fewer advanced to foreclosure and liquidation). This reflects the higher home price appreciation during COVID as well as the three rounds of economic stimulus payments and enhanced unemployment insurance. However, there was also a large difference in outcomes between those who selected forbearance and those that did not. After controlling for loans characteristics, their regression models estimate a 46 percent reduction in the transition rate to foreclosure for loans that were seriously delinquent during the COVID-19 pandemic and received forbearance relative to 2020 seriously delinquent loans that did not receive forbearance or 2016 loans for whom the improved loss mitigation was not available. Using data provided by the Intercontinental Exchange, they subsequently document that, as of February 2024, the majority of the 8.8 million borrowers that ever entered forbearance during the COVID-19 pandemic were able to successfully exit forbearance, with

47% still performing, 38% paid off (through refinancing or home sale), 4% in active forbearance, 8% delinquent or in active loss mitigation, and only 1% were in foreclosure or had experienced a foreclosure liquidation (Goodman and Zhu 2004b). Other research indicates that borrowers who were delinquent on payments prior to entering forbearance were more likely to experience serious delinquency upon forbearance exit (Shi 2022).

REDUCE ADMINISTRATIVE BURDENS WITHOUT INCREASING MORAL HAZARD

The speed of the response to prevent mortgage default after the onset of the COVID-19 pandemic and the low burden of the process for lenders and homeowners was in stark contrast to the months it took to set up and refine mortgage assistance programs during the Great Recession and the substantial administrative burdens for both homeowners and lenders (Agarwal et al. 2017; Pierce and Moulton 2023). This reflects the evolution of loss mitigation programs. Temporary payment forbearance does not require pulling securitized mortgages out of pools as does a loan modification, reducing administrative burdens for servicers. However, servicers must continue to make payments to the Mortgage-Backed Securities (MBS) bondholders, even though they are not receiving payments from the borrower. This can create servicer liquidity issues. Fannie Mae and Freddie Mac cap the period that servicers must advance payments to bondholders, while FHA and VA do not have a cap on payment advances.⁴

Frictions in the loss mitigation process can be intentional to help sort homeowners who are in need of assistance from those who would otherwise continue to make their mortgage payments without assistance (moral hazard). Delinquency on mortgage payments is a form of borrowing against the home, freeing up cash flow that can be used for other expenditures. If this borrowing is low cost or even costless, it becomes a strategic option for homeowners who would otherwise be able to make their payments. Further, loan modifications that permanently reduce the mortgage interest rate, extend the mortgage term, or lower the balance

4. Fannie Mae and Freddie Mac automatically buy mortgages out of securitized pool when the borrower is four months delinquent, reimbursing the servicers for the payments they have advanced. Ginnie Mae does not automatically buy loans out of a securitized pool. This requires FHA and VA loan servicers to either continue advancing principal and interest on loans for which they are receiving no inflows, or come up with the cash to buy the mortgages out of the securitized pools. Consequently, the liquidity of Ginnie Mae servicers during the pandemic was a concern; this was alleviated to a large extent by the massive refinance wave; originators had use of the cash from the loan pay-off date to the date the funds needed to be remitted to Ginnie Mae. Concerns were further alleviated as Ginnie Mae introduced its Pass-through Assistance Program (PTAP) during COVID, as a “last resort” facility to provide liquidity to its issuers, particularly those facing shortfalls from advancing payments to investors while borrowers were in forbearance. While this facility was not used much due to the massive refinance wave, it gave originators and investors increased comfort that servicer liquidity would not be an issue.

may be strategic options for homeowners who are not in need of the modification to remain in the home. Historically, loan modifications were rare because of significant concerns about moral hazard (Adelino et al. 2013; Mayer et al. 2014). During the Great Recession, there was substantial paperwork associated with HAMP modifications, in part to ensure those receiving modifications truly needed them to make their mortgages affordable and prevent default. While this may have been in part warranted to prevent moral hazard, the end result was that many distressed homeowners did not benefit from mortgage assistance (Agarwal et al. 2017).

The GSEs realized that modifications during the Great Recession were cumbersome and the take up rate was lower than desired. The GSEs began to relax documentation requirements in 2012–2013 first as a pilot and then as a more permanent program. They found that streamlined modifications produced much higher take-up with just a marginally lower probability of success — resulting in more effective programs (Goodman, Scott and Zhu, 2018).



The HHF program during the Great Recession was criticized for administrative burdens and long delays for distressed homeowners to receive assistance. In a review of the HHF program, the Special Inspector General for TARP found that more than one million homeowners were denied assistance because they failed to complete the paperwork in a timely manner, and that the median wait time from application to assistance across states was six months (Special Inspector General 2015). Pierce and Moulton (2023) evaluated mid-course reforms made to Ohio’s HHF program to streamline the application process and cut processing times. They found that the reforms led to a 22.7 percent increase in the pull-through rate from application to assistance, which corresponded to a reduction in the foreclosure rate of 7.5 percent among all individuals who started the HHF process.

Despite the relatively low frictions to forbearance and loss mitigation options during the COVID-19 pandemic, research to date has not found evidence of strategic behavior (Lowenstein and Njinju 2022; Farrell et al. 2020). Lambie-Hanson et al. (2021) found that forbearances were predominantly used by homeowners who worked in industries hard hit by the pandemic. Farrell et al. (2020) found that the majority of individuals using forbearance had evidence of an income or expense shock. Lowenstein and Njinju (2022) examined potential strategic timing of forbearance use relative to refinancing or home purchase and did not find evidence of strategic behavior. Lack of strategic behavior is likely due in part to the fact that forbore payments must be repaid at some point.

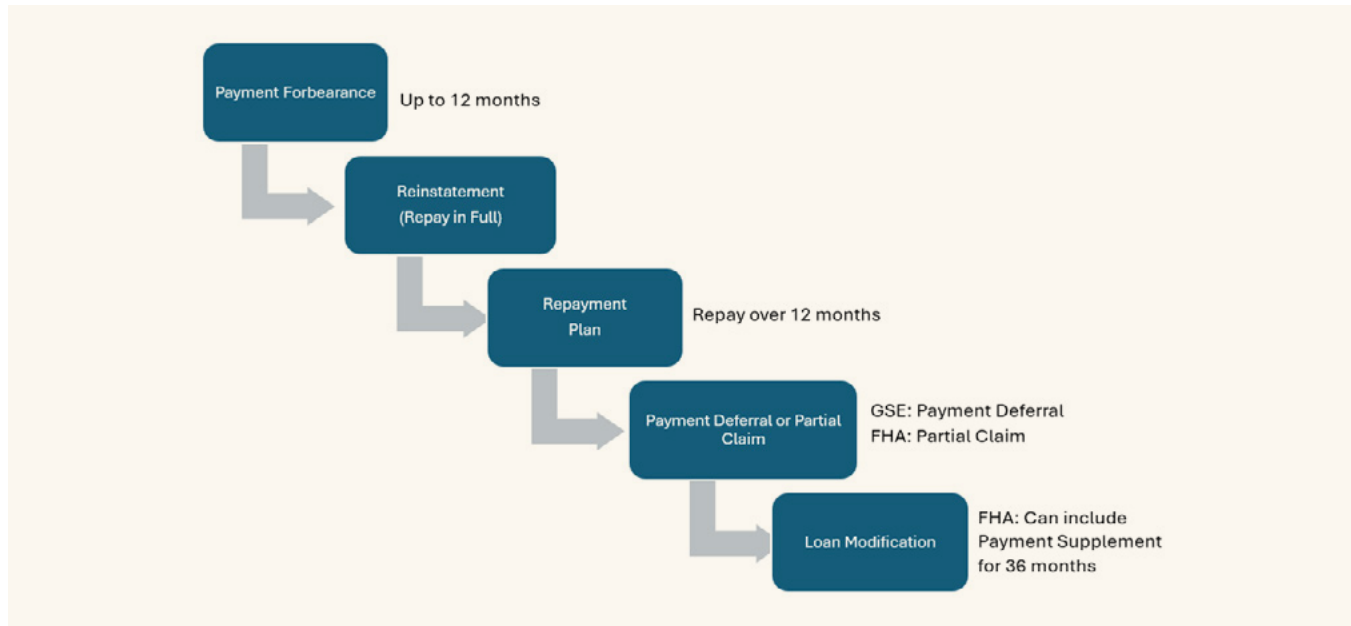
As we think about enhancements to the loss mitigation waterfall, it is important to consider how they could incentivize strategic behavior and the steps needed to mitigate potential moral hazard. For example, mortgage payment subsidies that do not need to be repaid may be more likely to induce strategic behavior than forbore mortgage payments that require repayment. It is also necessary to consider how much paperwork should be necessary to document eligibility — more paperwork may reduce strategic behavior but also result in less timely assistance. In most cases, timely assistance should be prioritized over reducing strategic behavior given evidence that strategic behavior among distressed homeowners is quite low. As mentioned earlier, Gerardi et al. (2018) found strategic behavior was very limited during the Great Recession, Lambie-Hanson et al. (2021) found it was limited during COVID, while Goodman, Scott and Zhu (2018) show that reducing the amount of paperwork required from a distressed homeowner increases the modification take-up rate.

PROVIDE DIFFERENT OFF RAMPs FOR HOMEOWNERS WITH TEMPORARY VERSUS PERMANENT SHOCKS

While temporary payment forbearance may be sufficient for homeowners experiencing a short-term reduction in income or one-time expense, some homeowners experience permanent decreases in income or increases in expenses. These homeowners may benefit from a permanent loan modification or other interventions that reduce the size of the mortgage payment over the long term. Further, homeowners vary in their ability to repay forbore payments after recovering from an income or expense shock. Many homeowners, when first confronted with an economic shock, don’t know if it is short term or permanent.

A key innovation of pandemic-era loss mitigation was the universal forbearance or time out period, followed by more permanent strategies depending on the homeowner’s ability to repay the forbore payments and the affordability of their future mortgage payments. The majority of forbore borrowers who had missed payments exited forbearance

Figure 2.2: Current Loss Mitigation Waterfall for GSE and FHA Mortgages



with a payment deferral, loan modification, or a combination of the two (An et al. 2023; Gerardi et al. 2022). Black, Hispanic, and lower income homeowners were more likely to use loss mitigation options following forbearance rather than repaying the forbore payments in full, compared to white and higher income homeowners (An et al. 2023). Due to the success of these pandemic-era programs, they have now become a permanent part of the loss mitigation landscape.

2.2 THE CURRENT LOSS MITIGATION WATERFALL

The loss mitigation waterfall enacted under the [Coronavirus Aid, Relief, and Economic Security \(CARES\) Act](#) has now become the standard loss mitigation strategy for GSE mortgages (effective October 31, 2023). FHA kept their pandemic-era policies in place for longer, but in 2025, the COVID waterfall became the standard FHA waterfall as well. As of the writing of this report, the VA is still in the process of developing their approach. Recent legislation gives them the ability to improve loss mitigation options for veterans and active-duty service members (Goodman et al. 2025), but it will be less robust than that offered by the GSEs or FHA, due to legislative restrictions. Most (but not all) banks who hold loans in portfolio follow the GSE template, even though the loans are not sold on the secondary market. There is more variability among private label issuers, some follow the GSE template, others do not. However, private label securities make up less than 5 percent of the mortgage market.

Figure 2.2 visualizes the current waterfall for homeowners experiencing a hardship that makes it difficult to make their mortgage payments. This is a high-level overview of the process for GSE and FHA mortgages. There are additional nuances specific to particular mortgage types (GSE or FHA) that are not detailed here. The first step is payment forbearance that can be granted for an initial period of one to six months if the homeowner attests that they have a financial hardship. The initial period is up to six months for GSE loans and up to three months for FHA loans. For both GSE and FHA loans, forbearance extensions may be granted for up to a year if the hardship is not resolved (delinquent payments cannot exceed a total of twelve months). During payment forbearance, the delinquency status on the mortgage is frozen at the status prior to entering forbearance (e.g. if the borrower was 30 days late prior to entering forbearance, the lender continues to report the loan as 30 days late during the forbearance period; if the borrower was current, they remain being reported as current).

As the homeowner exits forbearance, the lender assesses the homeowner's ability to repay the forbore payments either in a lump sum all at once (reinstatement), or over a period of time (typically 12 months for GSE mortgages and up to 24 months for FHA mortgages). These options do not require a loan modification nor do they increase the outstanding balance on the mortgage, and are thus preferred for homeowners who have the capacity to repay. If a homeowner is unable to repay the forbore payments but can afford to resume making their pre-forbearance monthly mortgage payment, then the homeowner is offered a payment deferral. For GSE mortgages, the payment deferral is structured as a non-interest bearing balance that is due upon the termination of the mortgage (similar to a balloon payment). For FHA



mortgages, the payment deferral is structured as a partial claim, which is a non-interest bearing second lien that is due at the end of the mortgage. The majority of homeowners with pandemic-era forbearances exited with a deferral or partial claim for the missed payments.

If upon exiting forbearance it is determined that the homeowner is unable to afford their regular mortgage payment, then the homeowner is considered for a loan modification to lower the size of the monthly mortgage payment by lowering the interest rate, extending the mortgage term, or for FHA borrowers, subsidizing the monthly mortgage payment for a period of time. The forborne payments are typically capitalized into the modified mortgage, increasing the outstanding balance, unless a portion of the principal balance is deferred as a balloon (GSE) or partial claim (FHA). For GSE loans, the homeowner is offered the lower of the original interest rate or the prevailing interest rate. For FHA loans, the loan must be purchased out of the securitized pool, so the modification will be at the prevailing interest rate. If this does not result in a payment reduction (e.g. if the prevailing rate is the same or higher than the original interest rate), the FHA servicer may offer the homeowner a Payment Supplement. The Payment Supplement uses the balance of the FHA's partial claim authority to supplement the homeowner's payments for a three-year period, reducing the size of the monthly payment while leaving the loan in the securitized pool. Not all homeowners qualify for a loan modification. If the homeowner is unable to afford making even the modified (or supplemented) payment, the final resort is to exit homeownership either voluntarily (through home sale or short sale) or through mortgage foreclosure.

The current loss mitigation waterfall has thus far proven to be extremely successful at reducing mortgage default and foreclosure. However, it is important to caution that the largest test case for the new waterfall occurred at an unusual time, when the housing market was strong, interest rates were historically low, labor markets recovered quickly, there was a generous expansion of income support (unemployment insurance (UI) and stimulus payments), and there was reduced consumption (Gerardi et al. 2022). It is thus critical to continue to evaluate cases where the waterfall may fall short and where enhancements may be warranted.

The HAF program was launched nearly 18 months after the onset of the COVID-19 pandemic and after a majority of distressed homeowners had entered and already exited forbearance. Yet it still served more than a half million homeowners with additional mortgage or other housing related support, either in complement to or instead of forbearance. Insights from the HAF program can thus inform potential gaps in the loss mitigation waterfall and enhancements to serve the most vulnerable homeowners.

3. The Homeowner Assistance Fund During the COVID-19 Pandemic

As the GSEs moved to expand access to forbearance and formalize the loss mitigation waterfall during the COVID-19 pandemic, several policy experts called for an additional subsidy program to stabilize homeowners longer-term. These organizations cited (1) ongoing concerns of the long-term economic impacts of the pandemic for homeowners, (2) the uncertainty that the CARES Act changes to the mortgage market would become permanent, and (3) the acknowledgement that the CARES Act tools could not serve every vulnerable homeowner, such as those behind on property taxes or HOA payments.

These policy experts and advocacy organizations encouraged Congressional leaders to model a program to assist homeowners with pandemic-related hardship.⁵

In March 2021, Congress passed the American Rescue Plan Act which, among other things, authorized a slate of supportive services for homeowners facing financial hardship. This included \$9.96 billion dollars for a Homeowner Assistance Fund (HAF) to be distributed to states, U.S. Territories, and Tribal Government or Tribally Designated Housing Entities for assistance with mortgage payments, homeowner's insurance, utility payments, and other specified purposes (Treasury).⁶ Patterned after HHF, Treasury disbursed HAF funding to states, who developed localized strategies based on their communities' needs and national guidance from Treasury.⁷ The amount of funds allocated to a given state or tribal government was determined by a formula that weighted estimates of need (unemployment rates and number of delinquent mortgages) and adjusted

for population, with the largest receivers of funds being California, Texas, Florida and New York.⁸ HAF spending by state is shown in Appendix A.1.

States submitted HAF program design documents to Treasury for approval in 2021, and most states began distributing funds to beneficiaries in early 2022. As shown in Figure 3.0.1, expenditures increased consistently quarter-over-quarter from Q1 2022 until Q3 2023. States and tribes spent 77.5 percent of their allocations by the end of 2023 and more than 92 percent of their allocations as of Q1 2025. While all but nine states and territories closed their HAF programs by 2025, Treasury allowed states to spend their funds by September 30, 2026.⁹

The HAF program was implemented alongside the new loss mitigation waterfall described above in Section 2.2. Effectively, HAF financial assistance provided distressed homeowners additional subsidies that would not otherwise have been available under the standard loss mitigation waterfall. Non-mortgage expenses (e.g. utilities, non-escrowed property taxes or insurance, HOA fees) were not part of the standard loss mitigation waterfall and thus HAF subsidies for these expenses were relatively independent of other options and were provided to homeowners with and without mortgages. However, HAF also provided subsidies for

5. [Letter to the Hill re: Homeowner Assistance Fund](#), National Housing Conference, February 8, 2021. Accessed August 21, 2025; Katie Jones, [The Homeowner Assistance Fund in the American Rescue Plan Act: In Brief](#), Congressional Research Service, September 20, 2021.

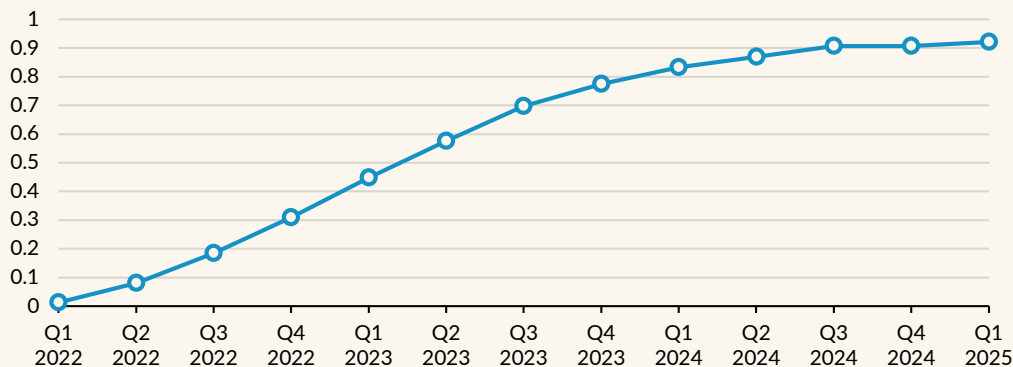
6. [Homeowner Assistance Fund: Data and Methodology for State and Territory Allocations](#), the U.S. Department of the Treasury, April 14, 2021. Accessed August 22, 2025.

7. [Hardest Hit Fund Program: State Allocation Expenses](#), the U.S. Department of the Treasury, 2020. Accessed August 22, 2025. HAF expanded eligibility beyond the 19 jurisdictions that participated in HHF to include every state, U.S. territory, and tribal government.

8. [Homeowner Assistance Fund: Data and Methodology for State and Territory Allocations](#), the U.S. Department of Treasury, April 14, 2021. Accessed August 22, 2025.

9. [Homeowner Assistance Fund by State](#). National Council for State Housing Agencies. Accessed September 11, 2025. [Homeowner Assistance Fund: U.S. Treasury Financial Assistance Agreement](#), the U.S. Department of the Treasury, updated October 31, 2021. Accessed August 22, 2025.

Figure 3.0.1: Share of Total Cumulative Expenditures in HAF Allocations, by Quarter



Source: Urban Institute calculations from U.S. Department of Treasury HAF data as of Q1 2025.

Note: Total allocations = \$9.96 billion.

mortgages (e.g., mortgage reinstatement, mortgage payment assistance, and principal reduction), and this assistance was to be coordinated with other loss mitigation options.

It is notable that the majority of HAF homeowners were assisted between 2022 and 2023, which coincided with a period of rising mortgage interest rates. Post-forbearance loan modifications in 2020 and 2021 benefited from historically low interest rates, where payments could be lowered substantially by reducing the interest rate on the loan to the prevailing rate. By mid-2022 as interest rates began to rise, there was increasing concern that higher interest rates would limit the ability to substantially modify loans to an affordable level (Federal Reserve Bank of Philadelphia 2022a; 2022b). Thus, HAF subsidies may have helped prevent distress for homeowners unable to reduce their payments through loan modifications.

3.1 PROGRAM STRUCTURE

Like the HHF, states administered their HAF programs predominantly through state housing finance agencies (HFAs). Some states also administered their programs through other agencies, such as emergency management agencies, governors’ offices, and human services agencies.¹⁰ HAF administrators were required to design, submit, and receive approval on a HAF Plan from Treasury prior to receiving the bulk of the HAF funds.¹¹ The HAF plan required states to assess the needs of homeowners in their community, determine which eligible services they would include, and evaluate strategies to reach vulnerable homeowners. States had discretion to implement any combination of eligible

programs, which included programs from HHF like direct mortgage payment assistance or mortgage reinstatement. HAF also added programs not typically eligible under HHF, including assistance for property taxes, insurance, HOA fees, utilities, repayment of downpayment assistance loans, and internet costs.¹² Program administrators could structure their assistance as a non-recourse grant or a 0% interest, forgivable, or more rarely, non-forgivable loan. A full list of programs provided by State HAF programs and the maximum assistance per household can be found in the Appendix Table A.2.

Based on calculations from U.S. Treasury data, national-level reporting shows that as of March 2025, states, U.S. territories and tribal governments had distributed \$7.834 billion and \$997 million of the total HAF allocation on program expenditures and administrative expenses, respectively, serving 572,791 unique homeowners.¹³

PROGRAM SERVICES AND EXPENDITURES

To better understand how funds were distributed, we analyze the U.S. Treasury’s public data on HAF plans, program offerings, and program expenditures. Table 3.1.1 outlines the share of programs that planned to and offered each possible program for HAF, as well as total expenditures by program area. We find consistency between what programs intended to offer in their proposed HAF plans and what they actually implemented.¹⁴ Every state’s HAF program

10. Homeowner Assistance Fund Plans, U.S. Department of Treasury.

11. States received 10% of the funds prior to HAF Plan approval to use for a pilot or planning for the roll out.

12. Homeowner Assistance Fund Guidance, U.S. Department of Treasury, last updated June 12, 2022.

13. Homeowner Assistance Fund Quarterly data through Q1 2025. Accessed November 6, 2025.

14. HAF Plans, U.S. Department of the Treasury. Accessed September 15, 2025.

Table 3.1.1: Share of HAF programs that offered services (reporting as of Q4 2024)

	HAF Plans	Program Data	Share of Total Expenditures
Financial Assistance for Mortgage Reinstatement	100.0%	100.0%	57.4%
Property Tax Assistance	92.2%	92.2%	5.7%
Counseling and Legal Services	88.2%	78.4%	1.7%
HOA Fee Assistance	84.3%	88.2%	1.7%
Mortgage Payment Assistance	80.4%	90.2%	25.2%
Homeowner’s Insurance Assistance	72.5%	72.0%	0.1%
Utility Assistance	56.9%	64.7%	3.1%
Mortgage Principal Reduction	37.3%	43.1%	4.1%
Internet Assistance	37.3%	25.5%	0.1%
Downpayment Loan Payment Assistance*	29.4%	9.8%	0.0%
Interest Rate Reduction	19.6%	5.9%	0.1%
Measures to Prevent Displacement	9.8%	33.3%	0.9%

Source: Urban Institute calculations from U.S. Department of Treasury HAF data as of Q1 2025 and 5-year estimates from the 2021 American Community Survey.

Note: The HAF Plans column includes all 50 U.S. states + DC.

* Some states allowed HFA funds to be used to assist with loan payments on existing downpayment loans from nonprofit or government entities. These are existing homeowners who had downpayment loans that were required to be repaid over a period of years following the purchase of their homes. HAF funds were not used to provide downpayment assistance towards the purchase of new homes.

provided financial assistance for mortgage reinstatement (repaying delinquent or forborne payments to bring the homeowner current).

In terms of dollar volume expended, assistance for mortgage reinstatement and mortgage payment assistance accounted for most of the spending, combining to cover just under 83 percent of all program expenditures. Most state programs chose to offer assistance for non-mortgage expenses, including 92 percent of programs offering assistance for property taxes, 84 percent for HOA fees, 73 percent for homeowner’s insurance, and 57 percent for utility fees. A smaller share of states offered other forms of assistance, including mortgage principal reduction, payment assistance for existing downpayment loans financed through nonprofit or government entities, broadband coverage, and interest rate reductions. The U.S. Department of the Treasury released updated guidance in 2023 to include “measures to prevent homeowner displacement,” which enabled state HAF programs to use their funding for critical home repairs and to address tangled title issues.¹⁵

HAF MORTGAGE ASSISTANCE

The majority of HAF funds were expended on mortgage assistance. Importantly, Treasury’s definition of a mortgage was quite broad and included liens that might fall outside of the loss mitigation waterfall, such as reverse mortgages, loans secured by a manufactured home, or land contracts. HAF defined mortgages as “any credit transaction secured by a mortgage, deed of trust, or other consensual security interest on a principal residence of a borrower.”¹⁶

Mortgage assistance was paid directly to the servicer or the entity responsible for collecting payments from the homeowner. Servicers had to agree to participate in the program in order for a beneficiary to receive assistance. This was challenging for large mortgage services operating in multiple states, as state programs varied in the types and amounts of assistance provided and in eligibility and documentation requirements. To help facilitate the flow of information between state agencies and servicers, some state agencies adopted a Common Data File (CDF) for servicers to voluntarily exchange information about applicants with the agency.¹⁷ State programs viewed the CDF as a neces-

15. [HAF Guidance: Updated 6-12-2023](#). The U.S. Department of the Treasury, June 12, 2023.

16. [Homeowner Assistance Fund Guidance](#), The U.S. Department of Treasury, June 12, 2023.

17. [Promising Practices for State HAF Program Administrators to Collaborate with Servicers](#). The U.S. Department of the Treasury, accessed January 14, 2026.

sary tool to reduce application review times and simplify the role of servicer participation in the program, though some large servicers needed to monitor the differences in each states' data requirements.¹⁸

FINANCIAL ASSISTANCE FOR MORTGAGE REINSTATEMENT

Financial assistance for mortgage reinstatement made up the largest share of HAF funding across state programs. States structured this assistance to repay previously delinquent mortgage payments.¹⁹ Some states also allowed homeowners to use reinstatement assistance to repay forborne payments if the missed payments had not yet been rolled into a payment deferral balloon, partial claim, or capitalized into the mortgage balance as part of a loan modification.²⁰ HAF administrators typically structured financial assistance for mortgage reinstatement as a grant rather than as a lien on the property. For example, 78.4 percent of programs (39 states + DC) structured their financial assistance for mortgage reinstatement as a grant. 15.7 percent of programs (8 states) chose to structure the assistance as a lien on the property. 6.9 percent of programs (3 states) structured their assistance as a combination of grants and liens.²¹ In these cases, states offered grants to homeowners with lower incomes relative to the area median or with smaller payment amounts, and offered loans to homeowners with higher incomes or larger payment amounts.²²

MORTGAGE PAYMENT ASSISTANCE

States also helped with future mortgage payments, particularly if the homeowner faced ongoing hardship from the COVID-19 pandemic. Most states allowed homeowners to combine forward mortgage payment assistance with other loss mitigation resources, which would effectively result in a lower principal balance. The amount of forward assistance that programs offered varied, but the median was up to six months of payments.²³ 80.5 percent of programs that

provided mortgage payment assistance²⁴ structured their program as a grant, while seven states chose to structure the assistance as a forgivable lien.²⁵

MORTGAGE PRINCIPAL REDUCTION

About 43 percent of HAF programs allowed assistance to be used to reduce the principal balance on a mortgage, either as part of assistance for mortgage reinstatement or as standalone programs. This principal reduction could be combined with other HAF services and other loss mitigation resources like interest rate buy-downs to promote longer-term affordable payments when reinstating the mortgage. Most states did not specify in their plans the maximum amount they would cover for principal reductions but indicated it could not exceed the program's maximum assistance. Only about 4 percent of total HAF funds went towards principal reductions. Principal reduction was thus not a common use of HAF funds, in part because relatively few homeowners experienced negative equity during the COVID-19 pandemic and because of the administrative complexity of reducing the principal balance on a loan, particularly for FHA loans which would need to be purchased out of the Ginnie Mae pool in order to modify the loan balance.

HAF NON-MORTGAGE ASSISTANCE

HAF programs aimed to fill gaps that were not covered in the loss mitigation waterfall, including non-mortgage expenses.²⁶ However, many HFAs and other program administrators did not have the capacity or experience to offer these resources. Because of this, states partnered with community organizations. For example, Ohio leveraged a group of community organizations to support outreach for utility assistance and administer that portion of the program because of their subject-matter expertise and experience working directly with homeowners on similar programs.²⁷ This supported HAF administrators in being able to offer subsidies to support homeowners with non-mortgage expenses, including homeowners without mortgages. 10.7 percent of HAF expenses supported non-mortgage costs including property tax assistance (5.7 percent), utility assistance (3.1 percent), HOA fees (1.7 percent), homeowners' insurance assistance (0.1 percent), and internet assistance (0.1 percent).

18. Authors' interviews with HAF program administrators and mortgage servicers.

19. [HAF Term Sheets for Louisiana, Kansas, Texas, West Virginia, Washington State](#).

20. [Connecticut Homeowner Assistance Fund Program: \("MyHomeCT"\) Term Sheet](#). U.S. Department of Treasury.

21. Urban Institute calculations of state HAF programs' term sheets. A full list of state HAF plans and program term sheets can be found on the [U.S. Treasury's website](#).

22. [Colorado Term Sheet](#), U.S. Department of Treasury, 2021; [Maryland Homeowner Assistance Fund: Term Sheet](#), U.S. Department of Treasury, last updated April 7, 2022. [Wisconsin Term Sheet](#), U.S. Department of Treasury, 2021.

23. Urban Institute calculations of state HAF programs' term sheets. A full list of state HAF plans and program term sheets can be found on the [U.S. Treasury's website](#).

24. 29 states with reportable data in their HAF Plan term sheets.

25. Urban Institute calculations of state HAF programs' term sheets. A full list of state HAF plans and program term sheets can be found on the [U.S. Treasury's website](#).

26. [Letter to the Hill re: Homeowner Assistance Fund](#), National Housing Conference, February 8, 2021. Accessed August 21, 2025.

27. Authors' interviews with program administrators

States were most likely to structure non-mortgage expenses as grants, with only five states structuring their assistance for non-mortgage expenses as liens at the start of the program.²⁸ States were concerned that recording a lien would add time to the process and delay assistance. Some states chose to specify the maximum amount that homeowners could receive for all non-mortgage expenses combined or for specific expense categories. For example, Michigan allowed homeowners to receive up to \$25,000 in property tax assistance, \$5,000 in condominium fee assistance, and \$500 in utility assistance.²⁹ Other states chose to not specify the amount a homeowner could receive for individual non-mortgage assistance categories, allowing applicants to request up to the program limit (median limit of \$50,000).³⁰

3.2 PROGRAM ELIGIBILITY AND THE NATIONAL DISTRIBUTION OF HAF FUNDING

PROGRAM ELIGIBILITY

Treasury regulations set eligibility requirements for HAF beneficiaries as homeowners who experienced a financial hardship after January 21, 2020 (including a hardship that began before January 21, 2020, but continued after that date) and had incomes equal to or less than 150% of the area median income (AMI) or 100% of the median income for the United States, whichever is greater. In addition, if the homeowner had a mortgage on the property, the outstanding balance was to be less than the conforming loan limit.³¹ In 2023, the conforming loan limit was \$726,200 for most areas of the U.S. and \$1,089,300 in high-cost areas. States were required to develop an approach to verify and document eligibility. While states could incorporate additional eligibility requirements, they were encouraged to adopt approaches that reduced the application burdens for homeowners.³² In addition to eligibility requirements, Treasury guidance directed programs to distribute not less than 60 percent of funds to homeowners with incomes equal to or less than 100 percent of AMI.

By March 2025, the HAF program served a total of 572,791 homeowners nationwide. Table 3.2.1 reports the number of homeowners assisted by implementing entity type (state, territorial, or tribal government) as well as the share of assisted homeowners with incomes below the 100% AMI

target. Notably, 91 percent of total assisted homeowners (by states) had incomes of less than 100 percent of AMI, and 98 percent of the homeowners served by territorial governments had incomes below 100 percent of AMI. Assistance by income was not reported for tribal governments or tribally designated housing entities.

Table 3.2.1: HAF distribution by homeowner income (as of March 2025)

	Homeowners Assisted	% Homeowners Assisted <100% AMI
State/DC	547,924	91.0%
Territorial Government	11,214	97.9%
Tribal Government or Tribally Designated Housing Entity	13,653	—
Grand Total	572,791	91.1%*

Source: Urban Institute calculations from U.S. Department of Treasury HAF data as of Q1 2025.

* Weighted average of states and territorial governments.

DISTRIBUTION OF HAF FUNDING BY STATE

The U.S. Treasury required HAF administrators to submit reports with the number of applicants and beneficiaries as well as characteristics including race and ethnicity, gender, AMI, and zip code. We use the county of beneficiaries to calculate the number of homeowners receiving HAF assistance in a particular state as of March 2025. We then use income and tenure data from the 2021 American Community Survey to identify the total number of homeowners in each state and county, as well as the total number of homeowners with incomes below 150% AMI. These data allow us to estimate the share of homeowners who received HAF assistance in particular geographic areas, as well as the estimated amount of HAF dollars expended per homeowner in a geographic area.

Table 3.2.2 shows the average HAF expenditures per state as well as the expenditures per homeowner and share of HAF beneficiaries per homeowner at the state-level (see Table A.1 in the appendix for state-specific results). The average state expended \$102.6 dollars per homeowner in their state or \$153.28 per homeowner with incomes less than 150% AMI, with the average assistance amount being \$15,000 per beneficiary. Across all states, HAF programs served 1.2% of homeowners with incomes below 150% AMI. It is important to point out that the majority of homeowners with incomes below 150% AMI did not experience a financial hardship that would qualify them for HAF, and thus this should not be interpreted as the take-up rate of the program among eligible or at-risk homeowners.

28. [Authors' analysis of State HAF Plans](#), U.S. Department of Treasury.

29. [Michigan Term Sheet](#), U.S. Department of Treasury. Accessed September 11, 2025.

30. [Authors' analysis of State HAF Plans](#), U.S. Department of Treasury.

31. [Homeowner Assistance Fund: Guidance on Participant Compliance and Reporting Responsibilities](#), the US Department of Treasury, May 2022 (Revised December 2025).

32. [Program and Service Design: Income Verification](#), the U.S. Department of Treasury. Accessed August 22, 2025.

Table 3.2.2: Average State HAF Expenditures, Assistance Amount, and Beneficiaries Served

	Avg. total HAF expenditures (thousands)	Avg. expenditures per homeowner	Avg. expenditures per homeowner <150% AMI	Average assistance amount	Avg. #HAF beneficiaries/#homeowners <150% AMI	Avg. # HAF beneficiaries/#homeowners
All States	\$148,391	\$102.6	\$153.2	\$15,000	1.2%	0.8%

Source: Urban Institute calculations from U.S. Department of Treasury HAF data as of Q1 2025 and 5-year estimates from the 2021 American Community Survey

Note: Includes displacement prevention.

While on average, HAF beneficiaries comprised only 1.2% of homeowners with incomes below 150% AMI, this share varied between states and is related to the average amount of assistance per beneficiary. For example, as reported in Appendix Table A.1, Texas, Florida, and Ohio served the largest number of homeowners but the average amount of assistance per beneficiary was less than other states. On the other hand, California and New Jersey served fewer homeowners as a share of the homeowner population in their states but provided the largest amount of assistance per beneficiary than other states — in part due to higher home prices in these states. To account for house price variation between states, Appendix Table A.1 also reports the average assistance amount per \$1,000 of the median house price in the state.



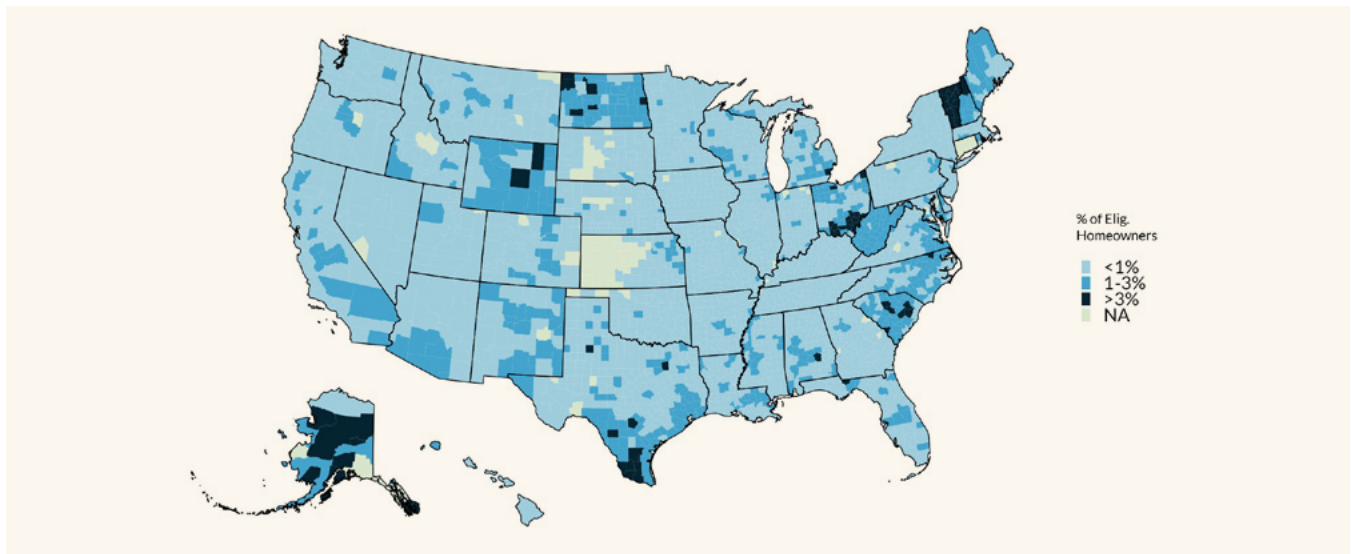
GEOGRAPHIC CHARACTERISTICS OF HAF’S DISTRIBUTION BY COUNTY

We next estimate the share of homeowners in a county receiving HAF assistance and how this correlates with characteristics of the county. We use CoreLogic Market Trends data as of December 2020 and Bureau of Labor Statistics data from Moody’s Analytics Data Buffet to measure county-level characteristics that could be indicators of homeowner need during the pandemic, including (a) 90+ day mortgage delinquency rates (D90+ rate), (b) unemployment rates, and (c) average home equity for homeowners with outstanding mortgage debt.

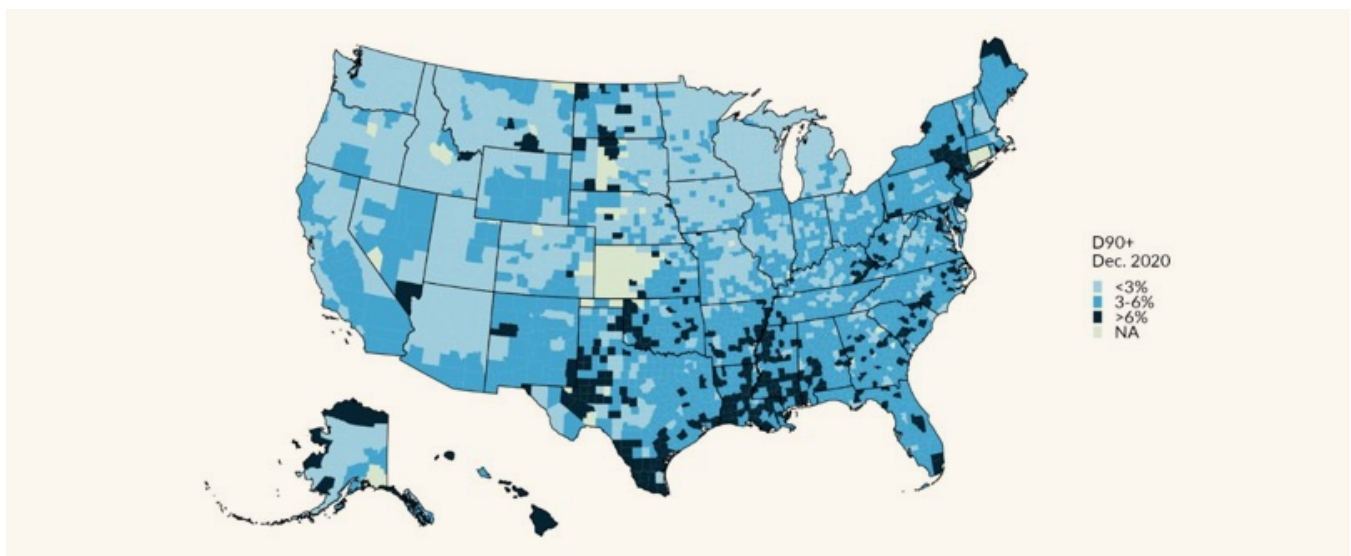
Figure 3.2.1 (map A) shows the distribution of HAF beneficiaries in each county relative to the number of homeowners earning less than 150% of AMI in that county. Map B shows the D90+ rate as of December 2020 in the county. Comparing maps A and B, there are clear areas of overlap, with some of the same counties having relatively higher shares of HAF beneficiaries and relatively higher D90+ rates than other counties.

Figure 3.2.1: HAF distribution compared to mortgage default rates by county

A: HAF beneficiaries as a share of homeowners with incomes below 150% AMI



B: D90+ rate as of December 2020



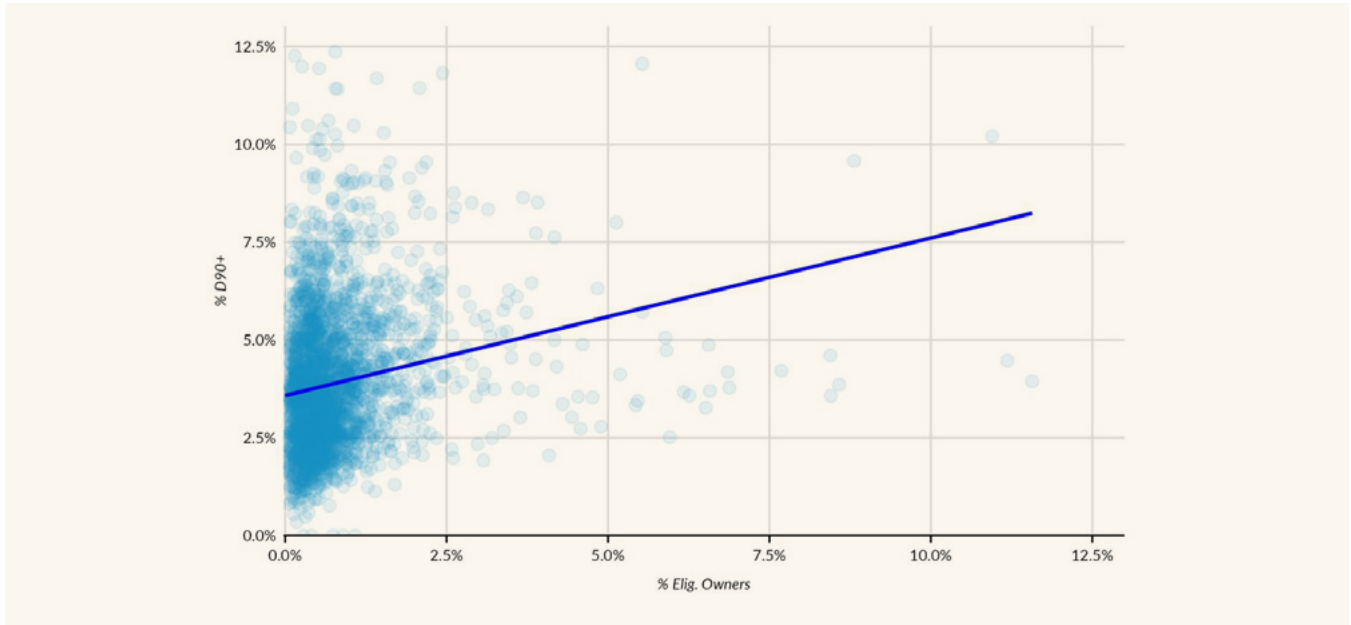
Source: Urban Institute calculations from U.S. Department of Treasury HAF data as of Q1 2025, 5-year estimates from the 2021 American Community Survey, CoreLogic Market Trends data as of December 2020, and Bureau of Labor Statistics data from Moody’s Analytics Data Buffet as of December 2020.

Note: Unemployment and D90+ rates as of December 2020. HAF grant counts as of March 2025.

The maps suggest a correlation between counties with higher shares of distressed homeowners and counties with a larger share of HAF beneficiaries. To test this empirically, we estimate correlation coefficients between the share of HAF beneficiaries in a county as a percent of homeowners with incomes below 150% AMI, and different indicators of

homeowner need in a county. We find that the share of HAF beneficiaries in a county is positively correlated with county D90+ rates as of December 2020 (Figure 3.2.2, 15.6 percent correlation coefficient) and December 2020 county unemployment rates (Figure 3.2.4, 5.8 percent correlation coefficient).

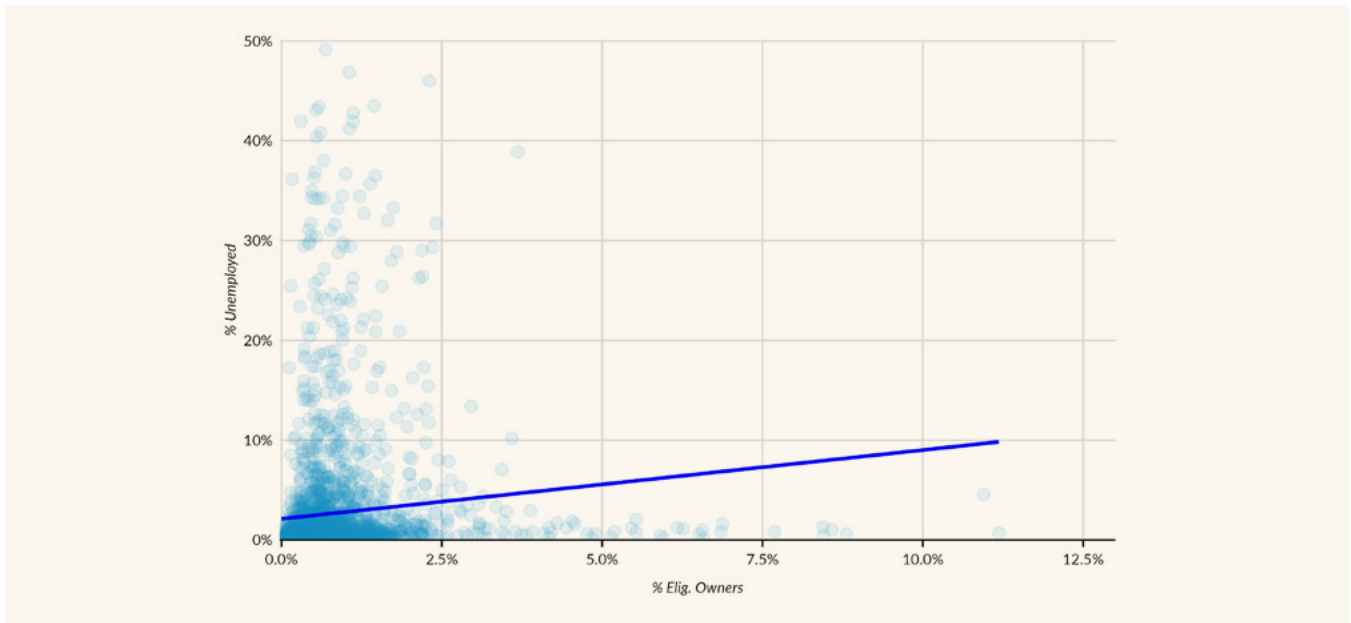
Figure 3.2.2: Share of homeowners with incomes < 150% receiving HAF compared to county D90+ rates



Cor = 15.6%

Source: Urban Institute calculations from U.S. Department of Treasury HAF data as of Q1 2025, 5-year estimates from the 2021 American Community Survey, and CoreLogic Market Trend data on D90+ rates as of December 2020.

Figure 3.2.3: Share of homeowners with incomes < 150% AMI receiving HAF compared to county unemployment rates



Cor = 5.8%

Source: Urban Institute calculations from U.S. Department of Treasury HAF data as of Q1 2025, 5-year estimates from the 2021 American Community Survey, and Bureau of Labor Statistics data from Moody’s Analytics Data Buffet as of December 2020.



Finally, we estimate multivariate regression models to further explore the factors that are associated with the share of homeowners with incomes below 150% of AMI in a county receiving HAF. We regress the share of homeowners that were HAF beneficiaries on other relevant county-level indicators, including unemployment rates, D90+ rates, share of homes with negative equity, the non-white homeowner share and the median owner cost to income ratio. The model also employs state-level fixed effects to hold constant differences between states that may affect the share of homeowners receiving HAF, such as differences in HAF program terms or program implementation. To explore the association of unemployment and delinquencies directly, we also ran the models with each of these variables separately.

We find the strongest positive, statistically significant relationship between a county's D90+ rates and the share of the county's homeowners receiving HAF funding, followed by the median owner cost to income ratio and the share of owners that were non-white in the county. Interestingly, after controlling for other factors, the county unemployment rate showed very little additional explanatory power. One theory for this is that unemployment rates include both renters and owners whereas D90+ rates are directly correlated with homeowner stress. Other studies also find that the unemployment rate can be a poor proxy for borrower-level employment shocks (Gyourko and Tracy 2014). The full regression results can be found in Appendix Table A.3.

4. Who Benefitted from HAF? A Deep Dive into Ohio Data

In partnership with the Ohio Housing Finance Agency (OHFA), this section of the report analyzes individual level administrative data for all Ohio HAF applicants and recipients. We first identify combinations and amounts of HAF program funding received by individual recipients and describe the characteristics of applicants and recipients of HAF by program.

We next link the HAF recipient data to individual level credit data in Ohio using the Ohio Consumer Credit Panel (Ohio CCP). We compare the mortgage and credit characteristics of HAF applicants to other distressed homeowners who sought forbearance during our study period. In addition to credit data, we link Ohio HAF recipients to individual level Unemployment Insurance (UI) and wage data from the Ohio Longitudinal Data Archive (OLDA).³³ We compare the extent and duration of income shocks experienced by HAF-assisted homeowners relative to other distressed homeowners who received temporary mortgage payment forbearance. Finally, we use the linkage to credit data to track the mortgage outcomes of each HAF-assisted or forbore homeowner over time.

4.1 OHIO HAF APPLICANT & RECIPIENT CHARACTERISTICS

Ohio's HAF program included three separate programs, two dedicated to mortgage assistance and one for other expenses related to homeownership. Rescue Payment Assistance (RPA) provided funds to servicers to repay delinquent or forbore mortgage payments for eligible homeowners. Mortgage Payment Assistance (MPA) provided funds to servicers to cover up to 6 months of future mortgage payments (after curing any delinquency with RPA) for eligible homeowners. The maximum amount for mortgage assistance (RPA and MPA combined) was \$25,000. Utility Assistance Plus (UAP) provided eligible homeowners with up to \$10,000 in assistance for non-mortgage expenses associated with homeownership, such as utility payments, homeowner's

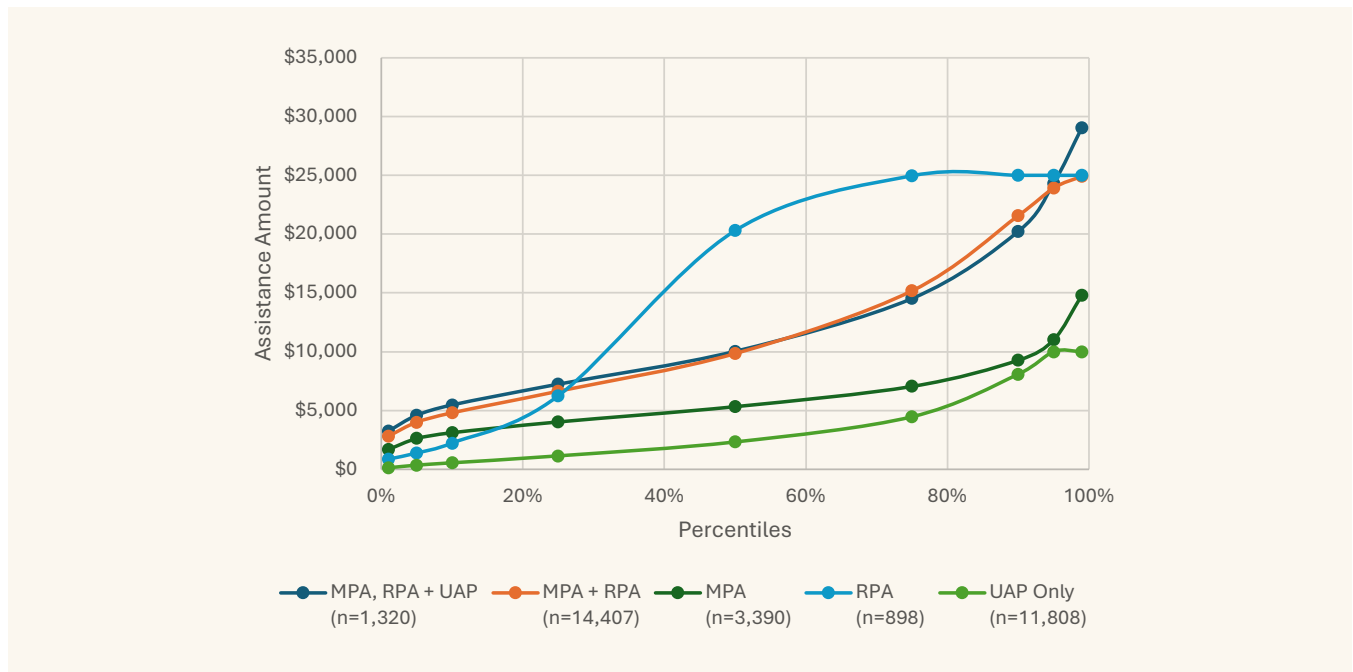
insurance, property taxes, and homeowner's association fees. The total assistance across all three programs that a homeowner could receive could not exceed \$35,000.

To be eligible for HAF in Ohio, the homeowner had to self-report having a COVID-related hardship that increased their living expenses or decreased their income. If they had a mortgage, it could not exceed the GSE-conforming loan limit based on the year of purchase. Household income at the time of application could not exceed 150% of the AMI of the highest income county in the state (Union County). The applicant had to be a homeowner, as confirmed on the Ohio Auditor's website, and the home had to have been purchased prior to the start of the hardship. The data for this analysis includes homeowners who applied for Ohio's HAF program beginning with the launch of the program in July 2021 through when the program stopped taking new applications for mortgage assistance in October 2023. The data also includes homeowners who applied for UAP through February 2024. Roughly 70% of Ohio HAF mortgage assistance recipients started their application by the end of December 2022.

Of the 35,132 households applying for mortgage assistance, 57% (n=20,015) received funding of some form, with 78% (n=15,728) receiving both MPA and RPA, 4% (n=898) receiving RPA only, and 17% (n=3,390) receiving MPA only. Figure 4.1.1 reports the distribution of the amount of assistance per beneficiary (percentiles), by type of assistance. The median amount of total assistance for homeowners who received both MPA and RPA was \$9,836, compared to a median assistance amount of \$5,332 for those receiving only MPA and \$20,295 for those receiving only RPA. While the assistance cap was \$25,000 per recipient, about 90% of homeowners receiving both MPA and RPA received less than \$20,000 in total assistance.

33. The Ohio Longitudinal Data Archive is a project of the Ohio Education Research Center (oerc.osu.edu) and provides researchers with centralized access to administrative data. The OLDA is managed by The Ohio State University's CHRR (chrr.osu.edu) in collaboration with Ohio's state workforce and education agencies (olda.ohio.gov), with those agencies providing oversight and funding.

Figure 4.1.1: Assistance Amount per Beneficiary, Percentiles, by Assistance Type



Source: Authors' calculations from OHFA HAF administrative data for Ohio HAF recipients.

For the UAP program, applicant data is only consistently provided for those who received funding (n=13,616 homeowners). Less than 6% of all recipients (n=1,762) received UAP in addition to mortgage assistance and only 4% (1,320) received all three types of assistance (UAP, MPA, and RPA). For those receiving only UAP, the median assistance amount was only \$2,317, with 75% of UAP beneficiaries receiving less than \$5,000. Homeowners who received UAP in addition to RPA or MPA had a median total assistance amount of \$10,024 — just slightly higher than those receiving only MPA and RPA combined. Across all programs, 31,823 unique Ohio households received funding through Ohio's HAF programs.

Appendix Table A.4 summarizes the characteristics of Ohio HAF applicants and recipients by program type, as reported in OHFA application data. Across all program types, applicants and recipients were slightly more likely to identify as female (58%) than male, with 36% identifying as Black and 3.3% identifying as Hispanic or Latino. Recipients of MPA were more likely to identify as Black (40%) than recipients of RPA only (30% Black) or UAP only (22% Black). The average household size of mortgage assistance applicants and recipients was 3.0, with an average household size of 2.3 for UAP recipients. Just over one-third (35%) had a co-applicant, with the share with co-applicants being higher among recipients of mortgage assistance than UAP recipients. Using 2021 American Community Survey (ACS) 1-year estimates to benchmark these characteristics against Ohioans in general, Ohio is slightly less female (51%), less Black (12%), and similarly Hispanic (4.3%). The average household size in the state was 2.4.

Turning to financial characteristics (Appendix Table A.4), the gross annual household income for recipients of both MPA and RPA was \$47,979, compared to a household income of only \$27,206 for UAP recipients. The median household income in the state of Ohio in 2021 was \$63,099 and the median home value was \$180,200. For MPA and RPA recipients, their average mortgage balance outstanding was \$111,898 at the time of application with a monthly mortgage payment of \$982. For those receiving both MPA and RPA, just over one-third (37%) self-reported their mortgage being in forbearance at the time they applied for HAF, with 1.4% reporting being in foreclosure and an additional 1.4% reporting being in active bankruptcy at the time of application for HAF assistance. Notably, those receiving MPA only were less likely to be reported as having a loan in forbearance (12.1%) or in foreclosure (0.1%), while those receiving RPA only were more likely to be reported as having a loan in forbearance (41.2%) or foreclosure (3.8%) at the time of application.

Appendix Table A.4 also summarizes the self-reported mortgage payment status as of the time of application for HAF. By definition, homeowners receiving RPA had at least one missed payment to bring current. During the study period, delinquency includes forbore payments that were not reported to the credit bureau as late. Of recipients of both RPA and MPA, 30% reported one missed payment, 18% two payments, and 48% three or more payments as of the time of application for HAF. Unsurprisingly, only 12% of

homeowners receiving MPA reported their loan as three or more payments past due, compared to 64% of homeowners receiving RPA only.

About 43% of homeowners who applied for HAF mortgage assistance in Ohio did not receive assistance. The primary reason for not being funded was having a hardship that predated the COVID-19 pandemic or that predated home purchase (58%), followed by having an incomplete or withdrawn application (30%), or a property that did not meet program requirements (10%). Less than 2% of applicants were unfunded due to a servicer not participating in HAF.

4.2 MORTGAGE AND CREDIT CHARACTERISTICS OF OHIO HAF RECIPIENTS

CONSTRUCTING THE ANALYSIS SAMPLE

To better understand the financial characteristics of homeowners receiving HAF, we link the Ohio HAF recipients to the Ohio Consumer Credit Panel (Ohio CCP). Of the 31,823 unique Ohio households receiving HAF, nearly 98% (31,034) link to the Ohio CCP.³⁴ We further identify the extent to which the Ohio HAF recipients had an active first mortgage in their credit file prior to receiving HAF assistance, in 2019 or 2021. Of the 11,214 households receiving only UAP, only 23% had evidence of an active first mortgage in their credit file prior to assistance. This is not surprising given that UAP provided financial assistance for non-mortgage homeowner expenses. Of the 19,820 households linked to credit data who received MPA or RPA, 83% had evidence of an active mortgage in their credit file prior to assistance. While theoretically all HAF recipients have some type of mortgage to receive mortgage assistance, not all mortgages are reported to credit bureaus.³⁵ Further, non-traditional mortgages like reverse mortgages, land contracts, and mortgages with complex ownership structures that would not show up in credit report data were eligible for assistance under HAF.³⁶

Finally, we identify the extent to which HAF-assisted homeowners had evidence of an active first mortgage as of December 2019, prior to the onset of the COVID-19 pandemic, or if they newly entered homeownership after the onset of

the COVID-19 pandemic.³⁷ Of the HAF-assisted homeowners with a first mortgage, about 85% of UAP recipients (n=2,207) and 79% of MPA or RPA recipients (n=13,000) had an active first mortgage as of December 2019. Thus, while a majority of HAF-assisted homeowners with evidence of a first mortgage purchased their homes prior to the onset of the COVID-19 pandemic, a sizeable share (10-16%) entered homeownership after the onset of the COVID-19 pandemic. For the figures displayed in the remainder of this report, we exclude the 3,761 HAF-assisted homeowners who newly entered homeownership after the onset of the COVID-19 pandemic as this is a distinct type of distressed homeowner. However, we include their characteristics in the Appendix Table 12 for comparison.

CONSTRUCTING A COMPARISON SAMPLE

To better understand the unique characteristics and outcomes of HAF recipients, we construct a comparison sample of mortgage borrowers in the Ohio CCP who did not receive HAF but who were similarly distressed and benefited from forbearance. We define this sample by identifying active first mortgages in the Ohio CCP trade data that (1) existed and were still open as of the end of 2019, (2) entered forbearance at some point prior to the end of 2022, and (3) missed at least one mortgage payment during their forbore period.³⁸ The third criterion allows us to separate cases where borrowers proactively entered forbearance from those with evidence of actual financial distress.

Figure 4.2.2 depicts the incidence of all consumers in the Ohio CCP with an active mortgage as of December 2019 with evidence of forbearance over the sample period, as well as evidence of missing a payment while in forbearance. As shown in Figure 4.2.2., the number of forbore borrowers in Ohio spiked to 84,312 in April 2020, reflecting the enactment of forbearance policy in response to the COVID-19 pandemic. By the end of 2022, the number of borrowers in active forbearance decreased to 5,059. While only 20.55% of active forbore borrowers missed their payment in April 2020, the percentage of borrowers peaked at approximately 71% of active forbore borrowers in June 2021. Between December 2019 and December 2022, 143,801 mortgage borrowers entered forbearance and 107,152 (77.14%) forbore borrowers have evidence of ever fully missing a payment.

34. Recipients were linked to the credit data using a pseudo-SSN generated by the Ohio State University's research services team who manages the confidentiality of agency data. We rely on the primary borrower on the HAF application when linking to a mortgage and utilize the co-borrower only in cases where the primary borrower fails to match.

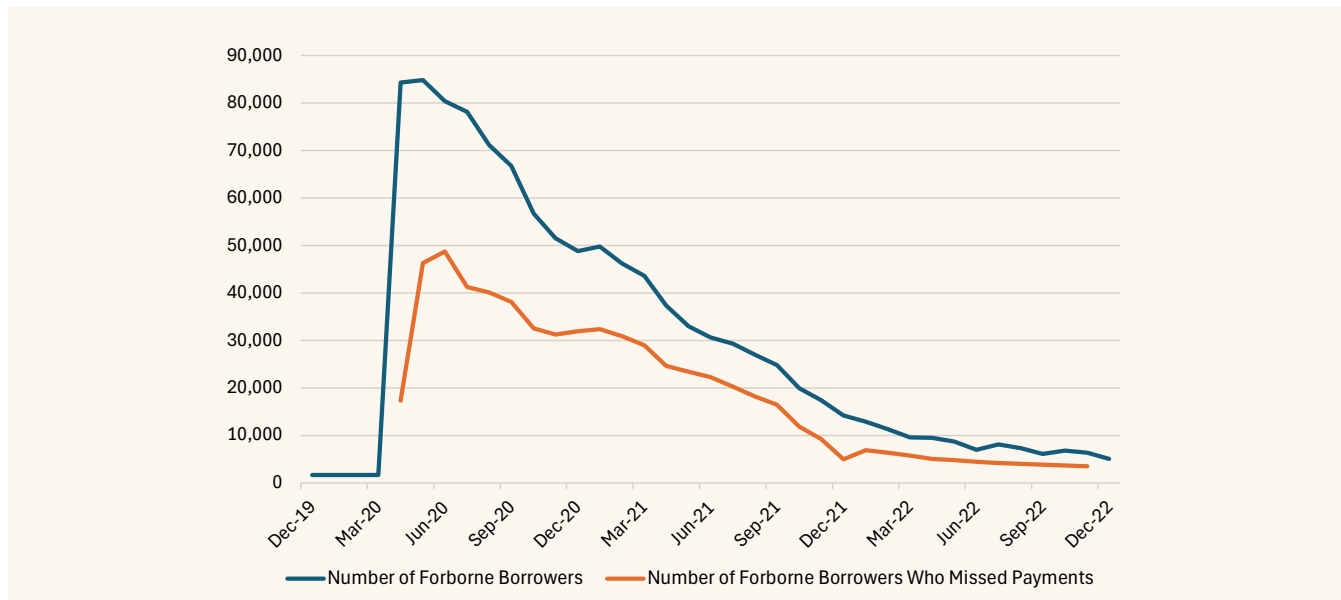
35. For example, mortgages that were included in a Chapter 7 bankruptcy are not reported to credit bureaus after the bankruptcy is discharged, even if the homeowner continues to make payments. HAF recipients could receive assistance for a mortgage that was part of bankruptcy.

36. [Homeowner Assistance Fund Guidance](#), The US Department of Treasury. June 12, 2023.

37. We define a new homeowner as someone for whom we do not observe evidence of an active first mortgage in December 2019 in the credit file but then observe a newly originated first mortgage in the credit file during 2020 or 2021. This excludes newly originated mortgages in 2020 or 2021 due to refinancing.

38. We consider missing a payment as having no reported payment or a reported payment of 0 for that month, despite having a non-zero scheduled payment in the monthly mortgage trade data. Prior research found that approximately one-third of borrowers who entered mortgage forbearance in 2020 continued to make their monthly payments (Gerardi et al. 2022).

Figure 4.2.2. Number of Ohio Forborne Borrowers Over Time



Source: Authors’ calculations from the Ohio Consumer Credit Panel (CCP) data, limited to consumers listed as borrowers or coborrowers on mortgages with evidence of forbearance in a given month, with and without evidence of missed payments in the same month. The sample is limited to mortgages active as of December 2019.

Of the 2.4 million Ohio homeowners with a mortgage in December 2019 in our data, about 6% had evidence of ever experiencing forbearance during our study period.

To construct the comparison sample, we flag consumers who were listed as a borrower or co-borrower in the credit data on a forborne mortgage meeting the three criteria above. The 107,152 borrowers correspond to 83,104 unique mortgages with evidence of forbearance and missed payments between December 2019 and December 2022. We group consumers listed as borrowers on the same forborne mortgage as a “mortgage unit”. We then follow the consumers associated with a mortgage unit in credit data through the end of 2023, regardless of whether they still hold the forborne mortgage. This allows us to follow a “mortgage unit” even after refinancing or home sale of the original forborne mortgage.

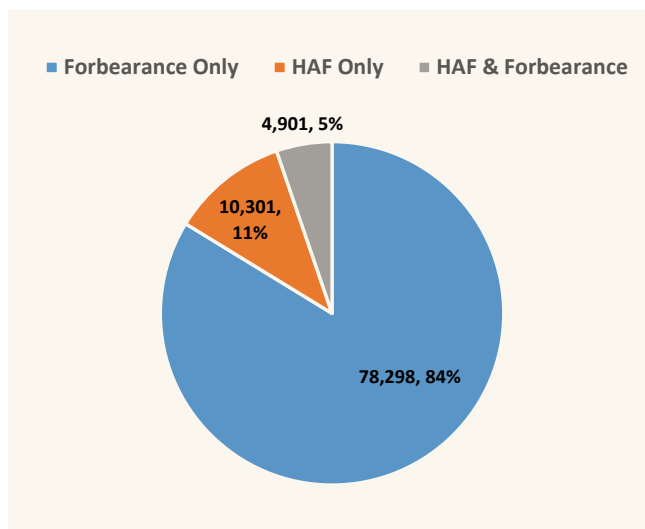
OVERLAP BETWEEN FORBEARANCE AND HAF IN OHIO DURING THE COVID-19 PANDEMIC

We merge the Ohio HAF analysis sample with evidence of a mortgage as of December 2019 (n= 15,207) and the forbearance comparison sample to identify potential overlap between the receipt of HAF and the receipt of mortgage payment forbearance. This allows us to identify the extent to which HAF served as a complement to the existing loss mitigation waterfall, or if it served as a substitute — providing assistance to homeowners who fell outside of the loss mitigation waterfall. It is important to keep in mind that forbearance was available to homeowners the entire time

of HAF implementation; however, HAF was not available in Ohio until the third quarter of 2021, eighteen months after the start of the COVID-19 pandemic and well after the peak of forbearance in April 2020.

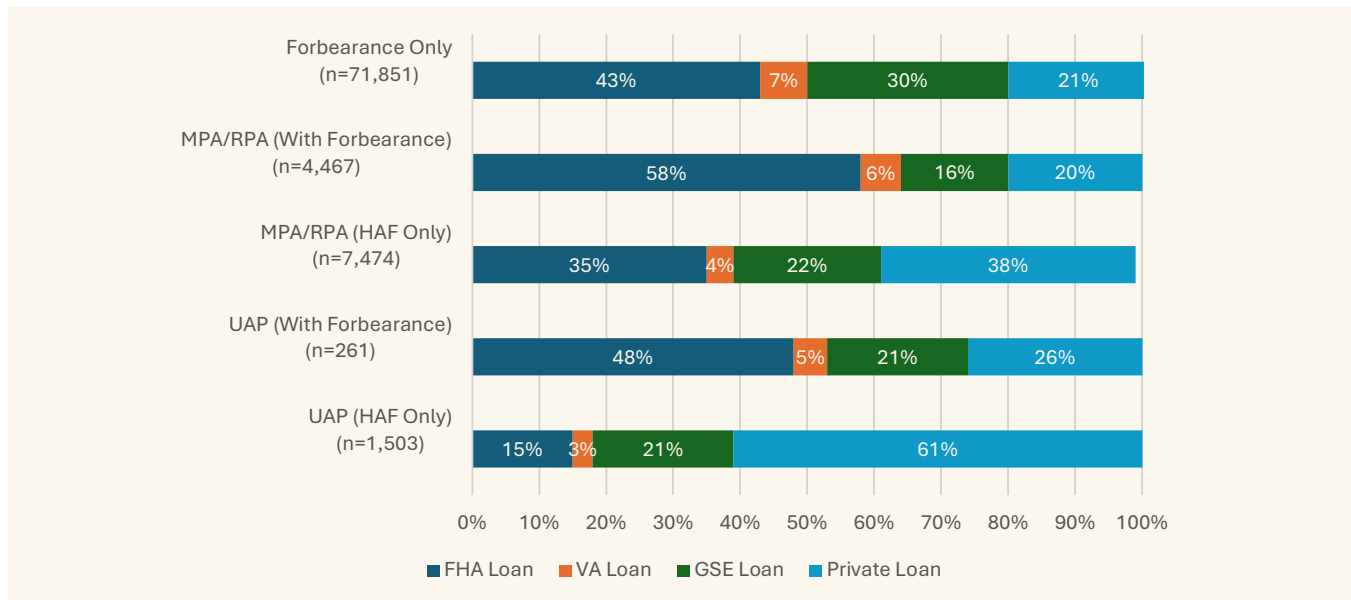
We divide the analysis sample into mutually exclusive groups based on receipt of HAF assistance (MPA, RPA or UAP) and evidence of forbearance with missed payments

Figure 4.2.3: Number of Mortgages in Ohio with Evidence of Mortgage Assistance, by Type



Source: Authors’ calculations from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data on mortgages active as of December 2019 with subsequent evidence of receiving HAF or forbearance. Forbearance is further limited to mortgages with evidence of missed payments between January 2020 and December 2022.

Figure 4.2.4: Loan Type of Assisted Mortgages for Ohio Homeowners, by Assistance Type



Source: Authors' calculations from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data. Limited to mortgages active as of December 2019 and December 2021 with evidence of forbearance with missed payments, HAF, or both.

between January 2020 and December 2022: (1) HAF receipt only, with no evidence of forbearance; (2) HAF receipt and evidence of forbearance; (3) forbearance only, with no receipt of HAF. As shown in Figure 4.2.3, 84% of assisted homeowners in Ohio during the 2020-2023 study period show evidence of only receiving forbearance (with missed payments), while 11% received only HAF, and 5% received HAF and show evidence of forbearance (with missed payments). It is notable that 16% of assisted homeowners in Ohio during the 2020-2023 study period received HAF, in addition to or instead of forbearance.

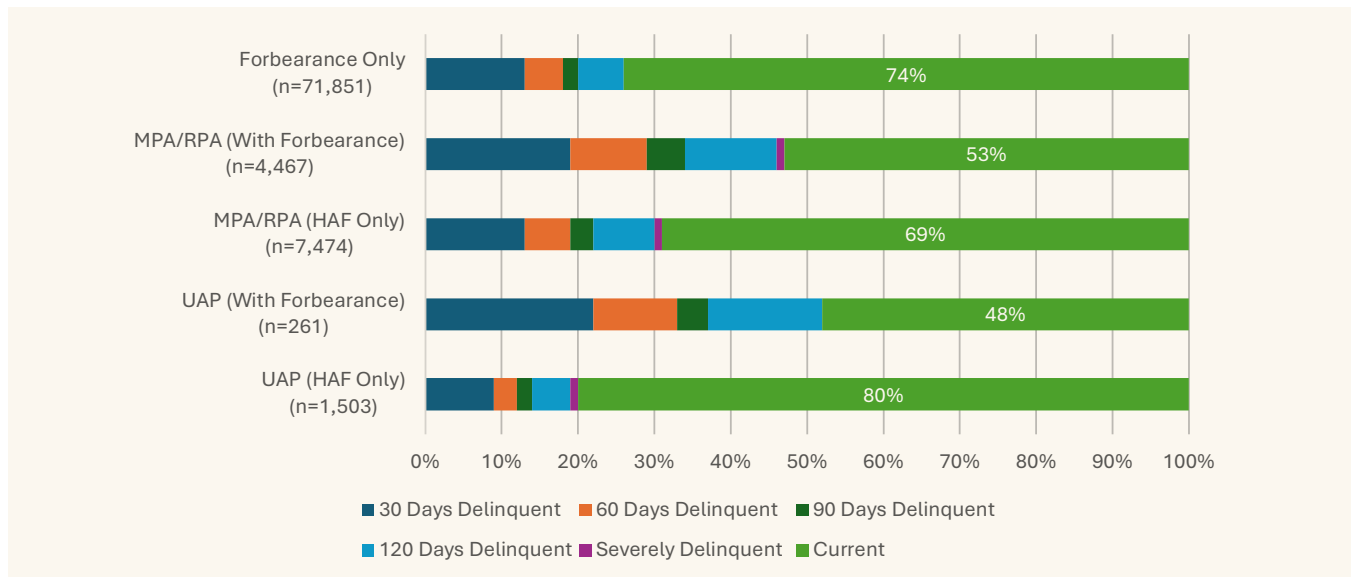
MORTGAGE CHARACTERISTICS OF ASSISTED HOMEOWNERS AT BASELINE, BY ASSISTANCE TYPE

Using the Ohio CCP data, we summarize the mortgage characteristics of the analysis sample as of December 2021 by type of assistance received during the study period. We select December 2021 as the baseline period as it is prior to the receipt of HAF for most recipients (93% of Ohio HAF applicants submitted their applications after December 2021). We limit the HAF and comparison samples to homeowners who had evidence of a mortgage in their credit data as of both December 2019 and December 2021. This excludes new homeowners who entered the mortgage data after the onset of the COVID-19 pandemic and excludes homeowners who received forbearance in 2020 or 2021 and exited homeownership or who did not have a mortgage reported in credit data as of December 2021. Because we follow the mortgage unit rather than the mortgage, homeowners who refinance are still included in our sample as long as they have a mortgage at the end of 2021.

We split the assisted homeowners into groups by types of assistance received, separating HAF-assisted homeowners receiving mortgage assistance (MPA/RPA) from HAF-assisted homeowners receiving non-mortgage assistance (UAP). If a homeowner received MPA/RPA in addition to UAP, we include them with the MPA/RPA group for the remainder of the report. We further split by whether the HAF-assisted homeowners also had evidence of receiving mortgage forbearance prior to their receipt of HAF (“With Forbearance”) or if they only received HAF (“HAF Only”), and then finally construct a group for the comparison sample with only evidence of forbearance, without HAF. The full summary statistics describing mortgage characteristics as of the end of December 2021, by assistance type, are reported in Appendix Tables A.5, A.6 and A.7.

Figure 4.2.4 plots the share of mortgages that are FHA, VA, GSE (Fannie Mae or Freddie Mac) or private (non-governmental) by assistance type. Assisted Ohio homeowners with forbearance only disproportionately held FHA loans (43%), with an additional 7% holding VA loans, 30% with loans securitized by the GSEs and 21% holding non-governmental private mortgages. This is similar to other studies that find that about half of mortgage borrowers with forbearance during the COVID-19 pandemic had FHA or VA loans, with about 80% holding some form of government loan (Boctor 2024). Those homeowners receiving both forbearance and HAF mortgage assistance (MPA or RPA) were more likely to be FHA borrowers (58%) than any other assisted group. On the other hand, homeowners receiving HAF mortgage assistance (MPA/RPA) only were more likely to hold private, non-governmental loans than homeowners also receiving forbearance (38%) and were less likely to hold FHA mort-

Figure 4.2.5: Worst Mortgage Delinquency Status in Prior 24 Months, by Assistance Type



Source: Authors' calculations from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

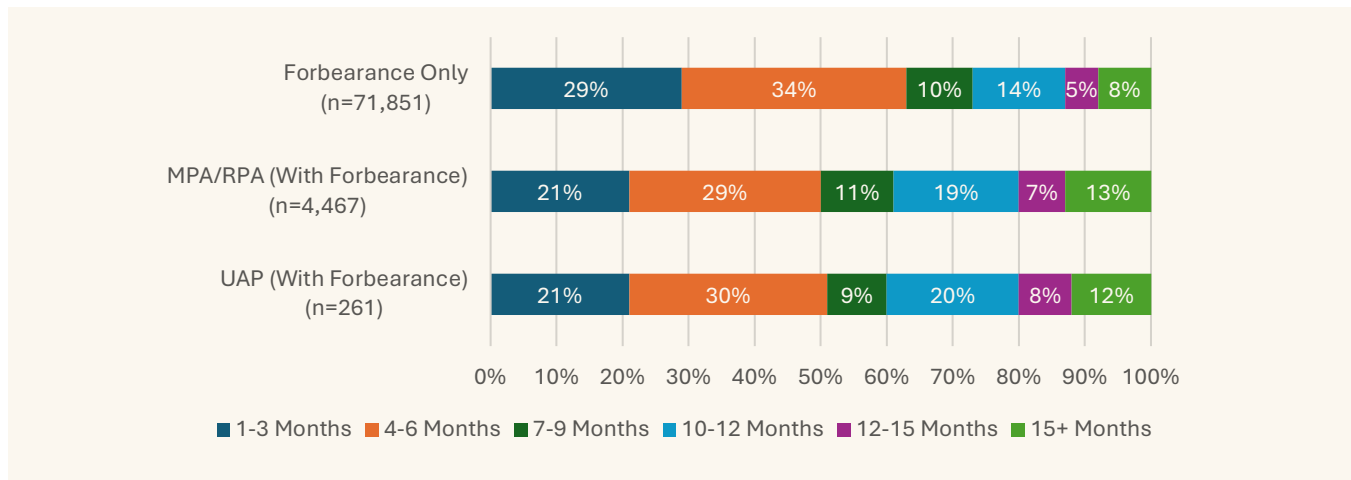
gages than homeowners also receiving forbearance (35%). HAF-assisted homeowners with mortgages who received only non-mortgage assistance (UAP) were the most distinct of all assisted groups, with the majority (61%) holding private loans and only a small share (15%) holding FHA loans.

As summarized in Appendix Table A.6, the average age of the mortgage as of the end of 2021 for homeowners with UAP was about nine years, compared to about seven years for homeowners with HAF mortgage assistance or forbearance only. The average mortgage balance was lower for UAP assisted homeowners — \$73,760 for UAP only and \$84,526 for UAP with forbearance, compared to an average mortgage balance of \$105,220 for homeowners with MPA/RPA only and \$116,749 for homeowners with MPA/RPA and forbearance and about \$135,000 for homeowners with forbearance only. The balance-to-credit ratio was lowest for assisted homeowners with UAP only (75%), compared to 85% for homeowners with both UAP and forbearance, 85% for homeowners with HAF mortgage assistance only, 87% for homeowners with only forbearance, and the highest balance to credit ratio of 91% for homeowners with both HAF mortgage assistance and forbearance.

We also measure the share of homeowners who refinanced their mortgages at some point in time during 2020 or 2021. Homeowners had to resume payments on their mortgages following forbearance to be eligible for refinancing. About 14% of forbore only homeowners, 16% of homeowners with only MPA/RPA and 13% of homeowners with only UAP in our sample have evidence of refinancing by the end of 2021. This drops to 10% of homeowners receiving both MPA/RPA and forbearance and 3% of homeowners receiving UAP and forbearance.

Figure 4.2.5 reports the worst first mortgage delinquency status in the 24 months prior to December 2021, by assistance type. During the COVID-19 pandemic, mortgages that were in forbearance were not reported to credit bureaus as delinquent even if the homeowner missed a payment. Thus, delinquency here captures homeowners who missed payments during a period when the mortgage was not in forbearance and were reported to the credit bureau as delinquent. Homeowners receiving both forbearance and HAF were the most likely to have a delinquent status at some point during 2020 and 2021, with about 50% of homeowners receiving mortgage assistance and forbearance or UAP and forbearance reported as at least 30 days delinquent, including 12% to 15% who were 120 or more days delinquent at some point during the two-year period. By contrast, only 20% to 30% of homeowners receiving only forbearance, or only HAF mortgage assistance or UAP were reported as 30 or more days delinquent, including only 5% to 7% who were 120 or more days delinquent during the two-year period. It is important to emphasize that this is not an outcome of HAF, as this is reported delinquencies in the two years prior to baseline, prior to the receipt of HAF.

Figure 4.2.6: Duration of Forbearance, by Assistance Type



Source: Authors' calculations from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

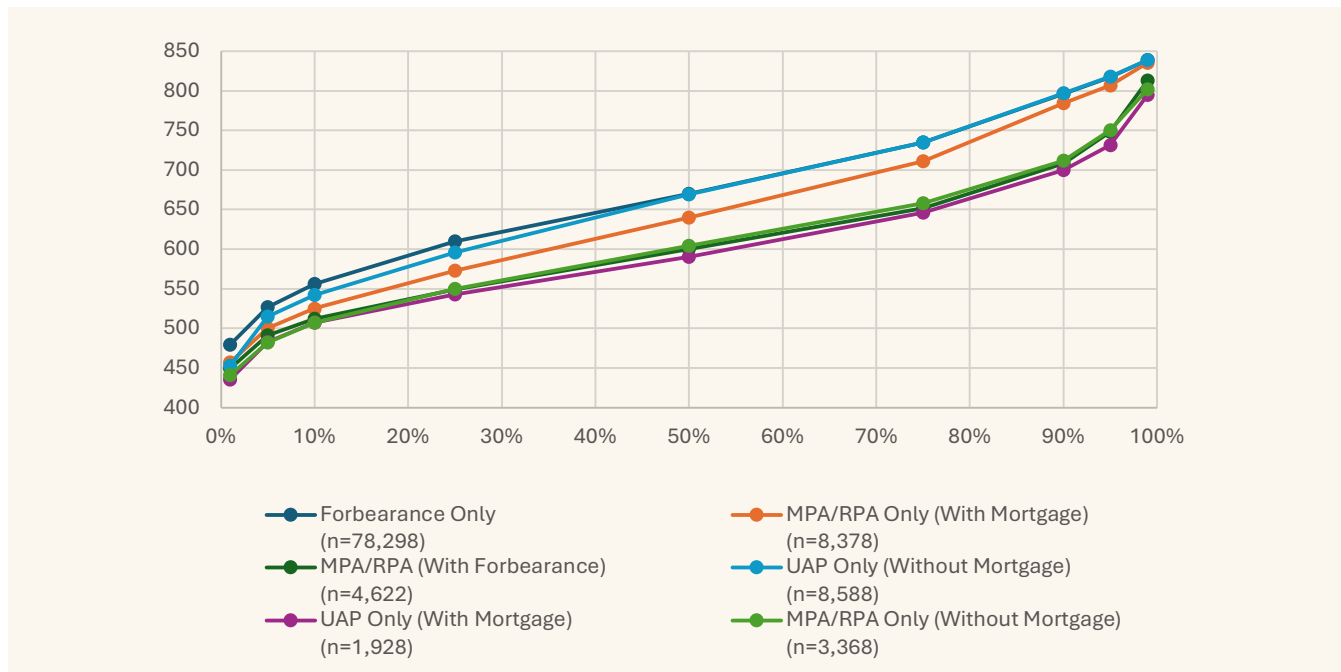
We next examine differences in the length of forbearance among assisted homeowners with forbearance only compared to homeowners with both forbearance and HAF. Figure 4.2.6 demonstrates that homeowners with both forbearance and HAF (either mortgage assistance or UAP) had longer forbearance periods than homeowners who utilized forbearance alone. Half of the homeowners (50%) who used both forbearance and HAF were in forbearance for longer than 6 months, compared with only 37% of homeowners with forbearance alone. This shows that homeowners who used HAF alongside forbearance were more distressed.

CREDIT CHARACTERISTICS OF OHIO HAF RECIPIENTS COMPARED TO FORBORNE BORROWERS

Using the Ohio CCP data, we summarize the credit characteristics of HAF recipients and the comparison sample as of the end of December 2021 by type of assistance received during the study period. We report characteristics at the level of the applicant for homeowners with HAF assistance and at the level of the borrower for homeowners with only forbearance, including up to two borrowers listed on the original reference mortgage. This section of the report also includes HAF recipients without a mortgage reported in their credit report who received mortgage assistance (MPA/RPA) or non-mortgage assistance (UAP). Appendix Table A.8 reports the full summary statistics.

There are several notable differences in the characteristics of assisted homeowners by assistance type and presence of a mortgage in their credit file. UAP recipients without a mortgage or without forbearance tend to be older (54 to 55 years of age) than all other assisted homeowners (45 to 49 years of age). The credit data includes a measure of estimated household income, predicted using credit variables. There is a notable difference in estimated income by assistance type, where homeowners receiving forbearance only have the highest predicted household annual income at \$95,000, compared to \$48,000 for homeowners without a mortgage receiving only UAP. Homeowners with a mortgage receiving MPA/RPA, with or without forbearance, have a predicted household income of about \$73,000 as of December 2021. This drops to a predicted income of about \$56,000 for homeowners without a mortgage receiving MPA/RPA. The estimated ratio of monthly debt payments to monthly income was highest for homeowners with a mortgage receiving MPA/RPA, with or without forbearance (28%), followed by 25% for homeowners with forbearance only and 25% for homeowners with UAP and forbearance. Unsurprisingly, HAF-assisted homeowners without a mortgage in their credit data had the lowest estimated debt to income ratios, at 12% for UAP and 16% for MPA/RPA assisted homeowners. We also examine the different types and amounts of debt held by assisted homeowners. Homeowners without a mortgage receiving only UAP were the least likely to hold credit card (49%), automobile (36%), or student loan debt (20%). Homeowners with a mortgage receiving MPA/RPA held debt at similar rates to assisted homeowners receiving forbearance only, with 75-79% holding credit card debt, 62-67% holding automobile debt, and 33% to 49% holding student loan debt.

Figure 4.2.7: Credit Score Distribution, by Assistance Type

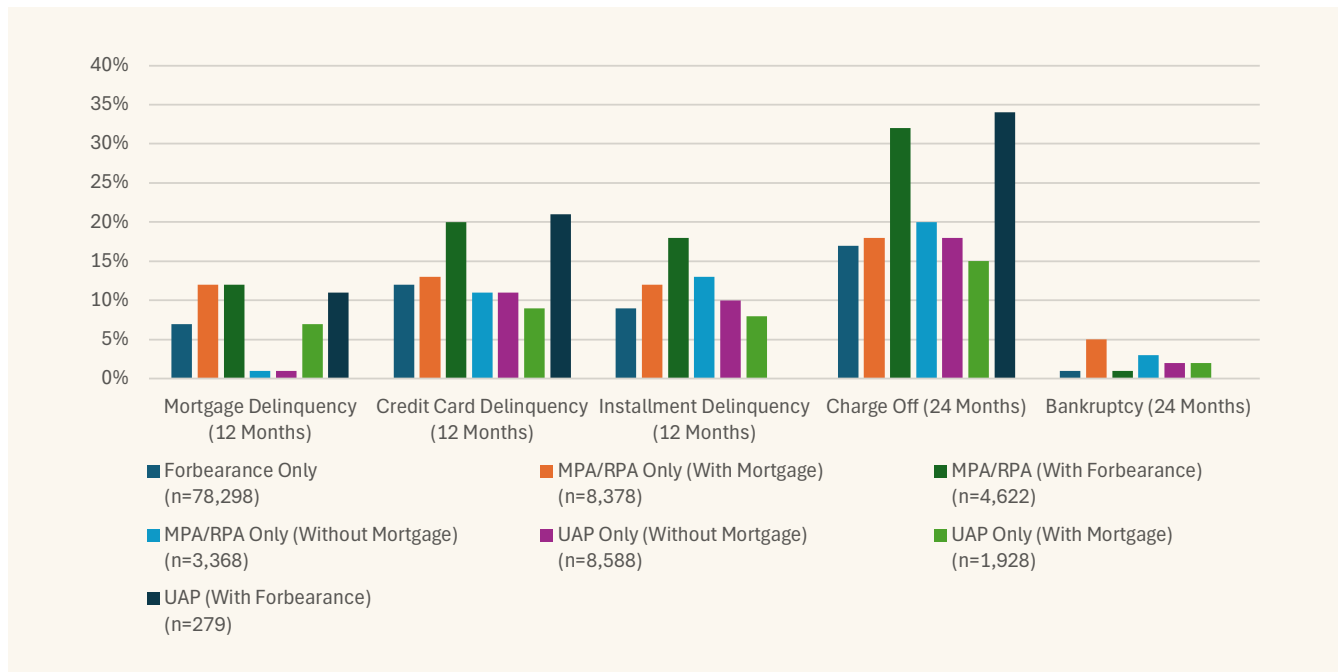


Source: Authors' calculations from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

Figure 4.2.7 plots the credit score distribution of homeowners by assistance type, as of the end of December 2021. The credit score is the Vantage Score 4.0. When there are multiple applicants or borrowers per household, we take the lowest credit score and thus only include one credit score per household. Appendix Table A.8 includes the average credit scores for all groups in our analysis sample. The credit scores of assisted homeowners receiving both forbearance and HAF were the lowest relative to the other groups with mortgage assistance, with a median (50th percentile) of 600 compared to 640 for homeowners receiving only HAF mortgage assistance, and 670 for homeowners receiving only forbearance. Further, 75% of homeowners receiving forbearance and HAF mortgage assistance had credit scores below 660, compared to less than 50% of homeowners receiving forbearance only. The credit scores of assisted homeowners with a mortgage receiving only UAP were lower than the credit scores of homeowners without a mortgage who received only UAP, with a median (50th percentile) of 588 for homeowners with a mortgage receiving only UAP and 664 for homeowners without a mortgage receiving only UAP.



Figure 4.2.8: Adverse Credit Events as of 2021, by Type of Mortgage Assistance



Source: Authors’ calculations from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

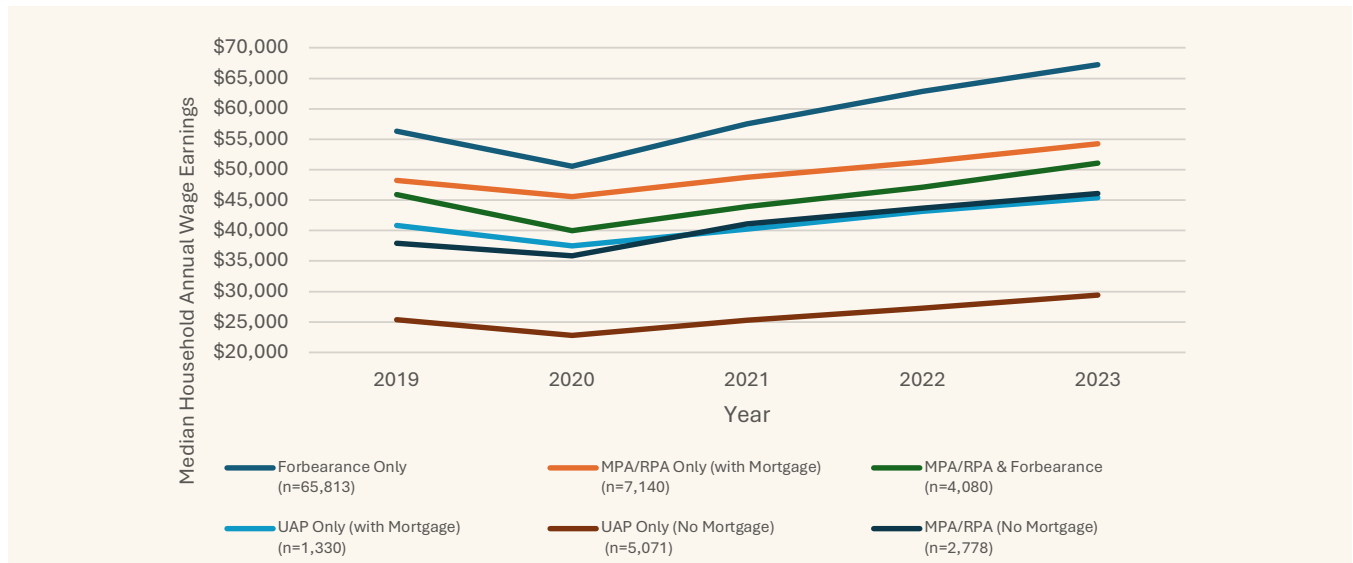
Figure 4.2.8 summarizes evidence of adverse credit events from Q4 2019 through Q4 2021, by assistance type. As with credit score, assisted homeowners receiving both forbearance and HAF (MPA/RPA or UAP) were the most distressed as of the end of 2021 compared to the other groups, with about 20% being 60 or more days late on credit card or non-mortgage installment debt, and more than 30% having evidence of a credit card being charged off in the prior 24 months. Households with a mortgage receiving only MPA/RPA were more likely to have evidence of a new bankruptcy in the prior 24 months (5%) compared to other groups with a likelihood of 3% or less.

data may work for employers who do not report wages through the Ohio Unemployment Insurance (UI) system, such as federal employers, employers outside of Ohio, or employers in the gig economy. Alternatively, the homeowners may be out of the labor force for the entire two-year period. Given that homeowners with UAP are older, on average, than homeowners with MPA/RPA or forbearance, a larger share may have been out of the labor force at the time of their application to HAF. We limit the analysis sample in this section to homeowners that linked to wage data at some point so that we can identify shocks to income or employment prior to the Q4 2021 baseline period.

4.3 EMPLOYMENT AND INCOME PROFILES OF OHIO MORTGAGE ASSISTANCE RECIPIENTS

We link each homeowner in the analysis sample to Ohio administrative data on quarterly earned income and unemployment claims from Q4 2019 through Q4 2023. About 85 to 90 percent of assisted homeowners receiving MPA/RPA, forbearance, or both linked to the Ohio wage data at some point during the study period, compared to 72% of homeowners with a mortgage receiving only UAP and only 64% of homeowners without a mortgage receiving only UAP (see Appendix Table A.9). Those not linking to Ohio wage

Figure 4.3.1: Median Annual Earned Income for Assisted Homeowners, by Assistance Type and Year



Source: Authors' calculations from Ohio Housing Finance Agency HAF administrative data and UI wage data from the Ohio Longitudinal Data Archive (OLDA).

Notes: Median annual income is in nominal values, not adjusted for inflation. The sample excludes households with zero earned income in a given year.

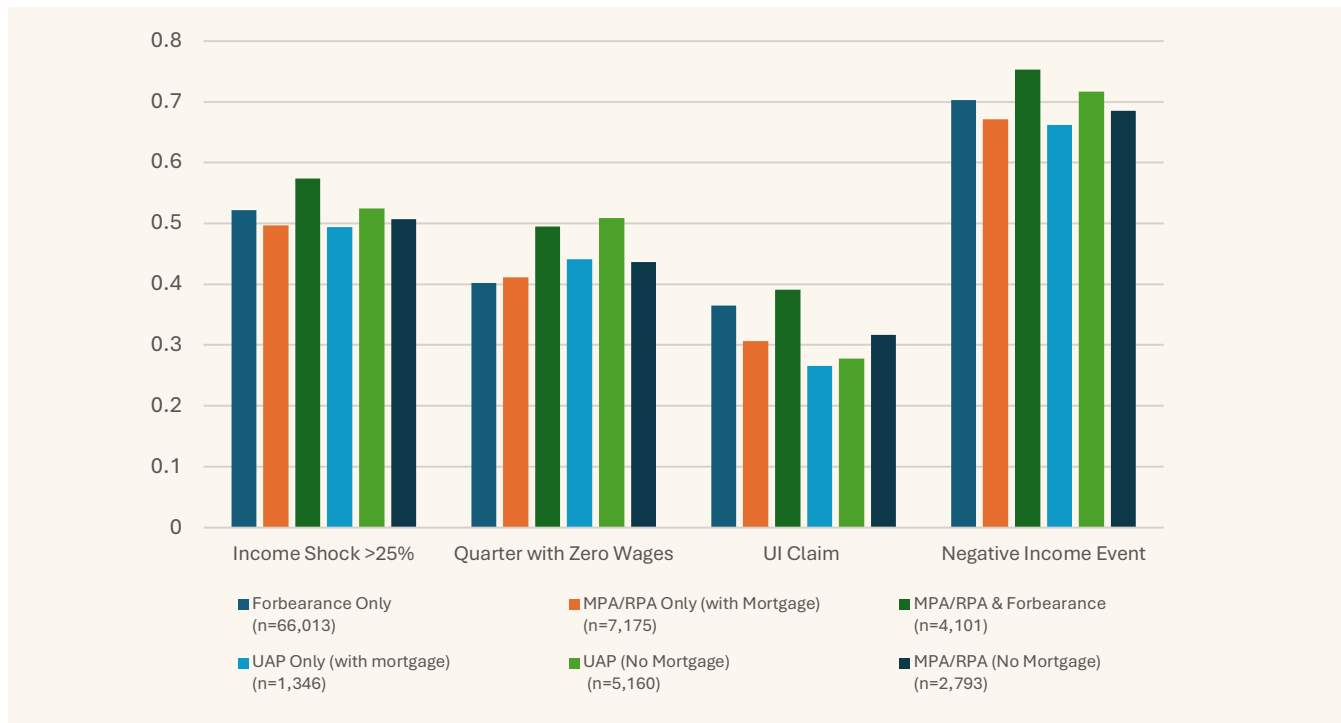
We construct a measure of annual earned income by summing together the quarterly wages in a year for all homeowners listed on the mortgage application (HAF) or for all borrowers listed on the mortgage in the mortgage unit (forbearance only). We exclude from the sample households with zero earnings in a given year. Figure 4.3.1 plots the nominal (not inflation adjusted) median annual household earnings by year and assistance type. There are a few notable findings from this figure. First, assisted homeowners with only forbearance had higher annual earnings in all years compared to assisted homeowners with HAF, and HAF-assisted homeowners only UAP and without a mortgage had the lowest earned income of any group. For example, the median 2019 household earnings for homeowners assisted with only forbearance was \$56,316, compared to \$48,206 for homeowners with a mortgage receiving only MPA/RPA, and \$25,368 for homeowners without a mortgage receiving only UAP.

Second, there is a noticeable drop in earned income in 2020 for all assisted households, which is evidence of an income shock during the COVID-19 pandemic. This drop is most pronounced for homeowners assisted with forbearance — either by itself or in combination with MPA/RPA. After 2020, incomes begin to recover, although the recovery occurred more quickly for homeowners assisted with forbearance only compared to homeowners receiving HAF. It is notable that even for HAF-assisted homeowners, incomes eventually rebound reflecting the temporary nature of income shocks for the homeowners receiving assistance.

We next use the quarterly earnings and UI claims data to identify the incidence and severity of income shocks that occurred during the eight quarters between Q4 2019 and Q4 2021. Figure 4.3.2 summarizes shocks at the mortgage unit level of analysis, where we identify if any applicant for HAF or borrower listed on the forbore mortgage has evidence of a given type of income shock. We separately identify homeowners who have evidence of a drop in earned income of 25% or more in a quarter relative to prior quarters and homeowners who have evidence of any quarter with zero reported earnings. We also separately identify homeowners who have evidence of an approved UI claim between Q4 2019 and Q4 2021. These income shocks are not mutually exclusive; it is expected that someone with evidence of a UI claim had either a drop in earnings or a quarter without earnings. We thus construct a separate variable, negative income event, that is coded “1” if any homeowner in the mortgage unit has evidence of one of the three types of income shocks.

About 70 percent of assisted homeowners with forbearance only, forbearance and MPA/RPA, UAP (without a mortgage), or MPA/RPA without a mortgage experienced a negative income event in 2020 or 2021. A slightly lower share of assisted homeowners with a mortgage receiving only MPA/RPA (67%) or UAP (66%) experienced a negative income event. With regard to type of negative income event, nearly half of all assisted homeowner groups show evidence of a drop in wages of 25% or more in a quarter, with those receiving forbearance and MPA/RPA having the highest rates (57%). Homeowners receiving MPA/RPA in addition

Figure 4.3.2: Negative Income Events for Homeowners, 2020-2022, by Assistance Type



Source: Authors' calculations from Ohio Housing Finance Agency HAF administrative data and UI wage data from the Ohio Longitudinal Data Archive (OLDA).

to forbearance also had a high rate of having a quarter with zero wages (50%) and were the most likely group to have a UI claim (39%) of any assisted group.

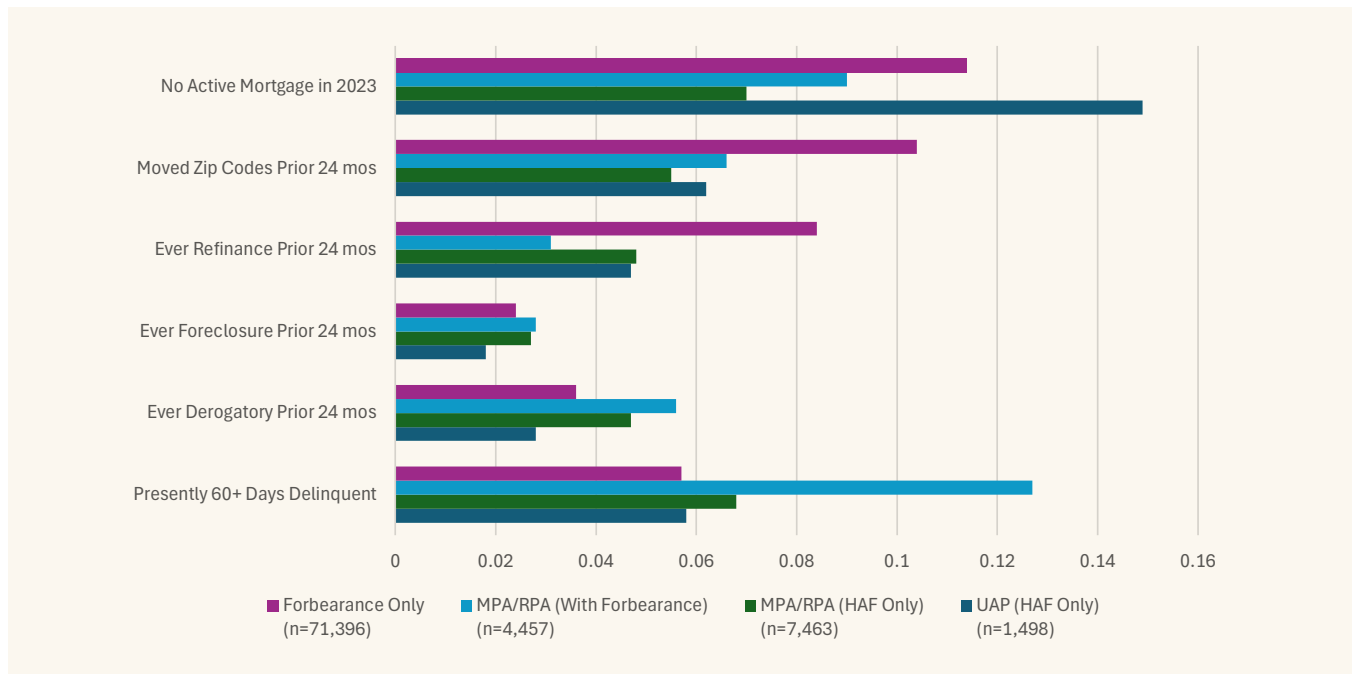
4.4 OUTCOMES OF OHIO MORTGAGE ASSISTANCE RECIPIENTS

The prior statistics in this section compared the characteristics of homeowners by assistance type as of the baseline period, Q4 2021, prior to the receipt of HAF assistance. We now explore outcomes of homeowners by assistance type as of the end of Q4 2023, which is at least one year after the receipt of HAF assistance for homeowners receiving HAF in our analysis sample. For this analysis, we limit the sample to assisted homeowners with a mortgage as of the end of Q4 2021. This excludes some of the homeowners receiving only forbearance who exited homeownership or no longer had a mortgage reported in credit data as of Q4 2021.

We report outcomes for the homeowners that made up the mortgage unit as defined at the time of mortgage assistance (forbearance or HAF); this allows us to continue to follow homeowners after refinancing or home sale and to track characteristics of their active mortgage(s) as of the end of Q4 2023. If a mortgage unit has multiple applicants (HAF) or borrowers (forbearance) and the applicants/borrowers remain intact as of the end Q4 2023 (e.g. the mortgage attributes are identical in Q4 2023 for both borrowers from the original mortgage unit), the outcomes are reported for only one observation per mortgage unit. However, if a mortgage unit that had multiple applicants/borrowers is no longer intact as of the end of Q4 2023, we follow the outcomes for each mortgage in Q4 2023 that is owned by one of the borrowers from the original mortgage unit.

We exclude from the sample homeowners who no longer appear in the Ohio credit data (for any trades) as of the end of Q4 2023, as we are unable to follow credit outcomes for consumers outside of Ohio in our data. This excludes about 2% of HAF-assisted homeowners and 3% of homeowners with forbearance only who were in our analysis sample with a mortgage in Ohio as of Q4 2021.

Figure 4.4.1: Outcomes of All Assisted Homeowners as of Q4 2023, by Assistance Type



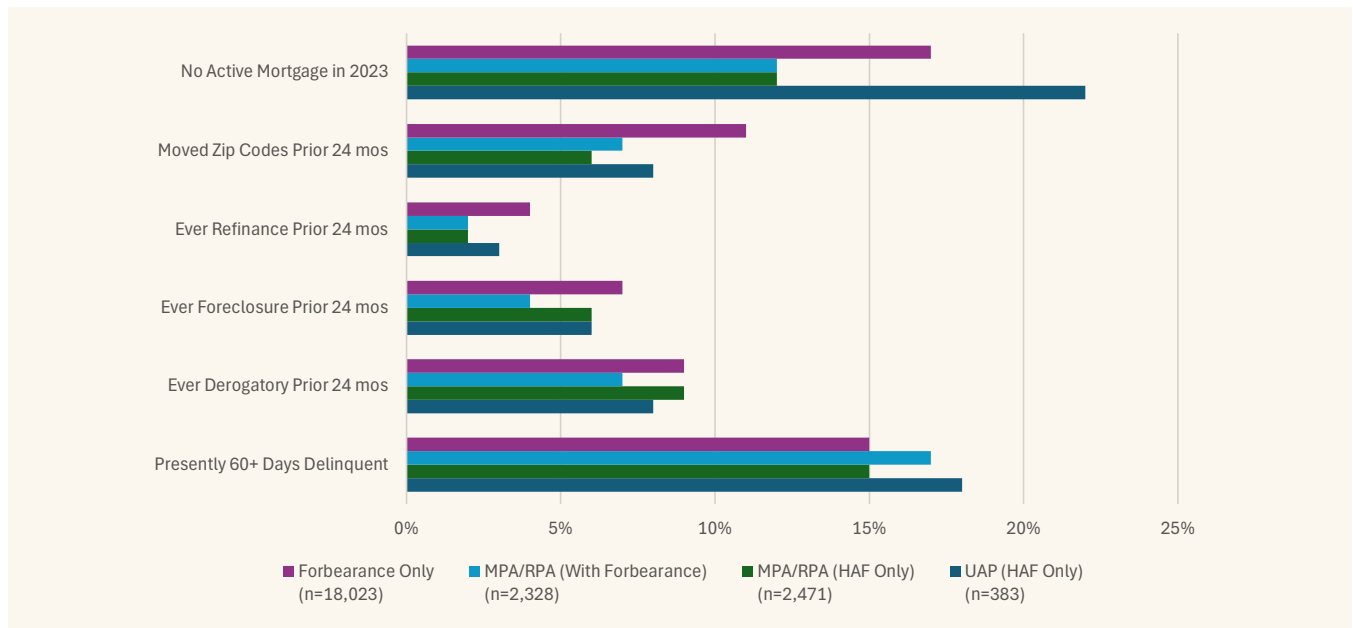
Source: Authors' calculations from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

Figure 4.4.1 reports the share of assisted homeowners with a given outcome as of Q4 2023, by assistance type. Figure 4.4.2 repeats this analysis but limits the sample to vulnerable homeowners who had a credit score of less than 620 as of December 2021 and who had a predicted household income (in credit data) of \$150,000 or less. Appendix Tables A.10 and A.11 provide more detailed statistics and additional outcomes, including by mortgage type (Table A.10) and credit score (Table A.11) as of December 2021.

One of the first notable findings is that assisted homeowners receiving MPA/RPA, with or without forbearance, were more likely to still have evidence of an active first mortgage in their credit data as of the end of 2023 (91–93%) than homeowners receiving forbearance only (89%) or homeowners receiving UAP with or without forbearance (85%). Relatedly, homeowners receiving forbearance only were more likely to have a change in ZIP code in the credit data between 2021 and 2023 (10%) than HAF-assisted homeowners. Some of these households may have exited homeownership, but some may simply have moved to purchase a new home.

We also examine whether homeowners refinanced their mortgages between 2021 and 2023. Mortgage interest rates reached historic record lows in 2021, and many homeowners nationwide took advantage of the lower rates through refinancing. However, homeowners had to be current on their mortgage payments for a number of months to be eligible to refinance. It is perhaps not surprising that a small share of the assisted homeowners in our sample refinanced their mortgages in 2022 or 2023, with homeowners receiving only forbearance only having the highest rate of refinancing (8%) compared to 5% or less of HAF-assisted homeowners. Vulnerable homeowners with credit scores less than 620 at the end of 2021 and predicted incomes below \$150,000 (Figure 4.2.2) were substantially less likely to refinance across any assistance type (<4%).

Figure 4.4.2: Outcomes of Vulnerable Assisted Homeowners as of Q4 2023, by Assistance Type



Source: Authors' calculations from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

Notes: The sample of vulnerable homeowners is limited to homeowners with credit scores below 620 as of December 2021 and with predicted household annual incomes below \$150,000.

Turning to mortgage performance, overall, more than 80% of assisted homeowners across all groups — including vulnerable homeowners (Figure 4.4.2), were making mortgage payments as of the end of 2023. This is notable, particularly given the relative distress of HAF-assisted homeowners at the end of 2021. Overall (Figure 4.4.1), less than 3% of assisted homeowners have evidence of starting the foreclosure process. Of vulnerable homeowners (Figure 4.2.2), 7% of those receiving forbearance only had evidence of starting the foreclosure process between 2021 and 2023, compared with 4% of homeowners receiving MPA/RPA and forbearance, and 6% of homeowners with a mortgage receiving only MPA/RPA or only UAP.

As of the end of 2023, about 13% of assisted homeowners who had received forbearance and MPA/RPA were 60 or more days delinquent on their mortgages, compared to 7% of those receiving only MPA/RPA and 6% of those receiving only forbearance or only UAP. This likely reflects a selection effect of the types of homeowners who turned to HAF after exiting forbearance being in greater financial distress than homeowners who exited forbearance and who did not turn to HAF. For vulnerable homeowners with low credit scores as of the end of 2021 and predicted incomes below \$150,000 (Figure 4.4.2), the delinquency rates are more comparable across different types of assistance, ranging from 15% to 18%.

5: Implications: Potential Enhancements to the New Loss Mitigation Waterfall for Vulnerable Homeowners

This is the first study to examine the characteristics and outcomes of homeowners who received assistance from the Homeowner Assistance Fund (HAF) during the COVID-19 pandemic. While quite a bit of research documents the overwhelming success of pandemic-era forbearance and the new loss mitigation waterfall, it is important to consider homeowners who may fall outside of the waterfall or who need additional support. The HAF program launched in late 2021 as many homeowners were successfully exiting forbearance, intentionally targeting low-income homeowners who were still struggling financially with the aftermath of the COVID-pandemic. This study sheds light on these assisted homeowners through a national scan and deep dive analysis of Ohio HAF recipients.

The national scan reveals that states crafted their HAF programs to target vulnerable homeowners, with most funds distributed to homeowners with low incomes. HAF subsidies flowed to geographic areas that were more distressed during the COVID-pandemic, as measured by higher rates of unemployment and mortgage delinquency. HAF programs were also structured to assist with a variety of non-mortgage homeowner expenses, such as utility payments and property taxes, and to provide mortgage assistance for non-traditional types of credit instruments, such as land contracts or mortgages with complex titles.

The deep dive analysis of Ohio HAF recipients further sheds light on the characteristics of homeowners receiving assistance through HAF and how they differ from a comparison sample of homeowners receiving only forbearance. Notably, we observe four distinct groups of HAF recipients: (1) homeowners with a mortgage who received HAF after exiting forbearance (and thus used both types of assistance); (2) homeowners without a mortgage on their credit files who turned to HAF for assistance, including homeowners with non-traditional credit instruments that secure a principal residence; (3) homeowners with a mortgage that received HAF without evidence of a prior forbearance; and (4) new

homeowners who purchased a home after the onset of the COVID-19 pandemic and then turned to HAF for assistance with their mortgages.

Only about 16 percent of HAF recipients received mortgage payment forbearance prior to receiving assistance through HAF, with the majority receiving Mortgage Payment Assistance (MPA) or Rescue Payment Assistance (RPA) rather than Utility Assistance Plus (UAP). Perhaps unsurprisingly, these homeowners were the most distressed relative to the other groups on multiple indicators as of the end of 2021, prior to the receipt of HAF. This group recorded the highest rates of mortgage delinquency during the 24 months leading up to the end of 2021, experienced longer average forbearance periods compared to those with forbearance only, was more likely to have non-medical collection debt, and had more adverse credit events than other groups, as indicated by delinquencies or charge offs on mortgages, credit cards, and installment loans. This was also a group that had lower incomes to begin with, experienced deeper income shocks during the pandemic, and did not stage a substantial income recovery by the end of 2021. For this group, HAF was a complement to (rather than substitute for) forbearance and the loss mitigation waterfall.

About one-third of the homeowners receiving assistance through HAF did not have evidence of a mortgage on their credit file. This was not surprising for homeowners receiving assistance through HAF's UAP, as UAP was explicitly designed to cover non-mortgage expenses. Indeed, 80% of the UAP-assisted homeowners did not have evidence of a mortgage. Perhaps more surprisingly, about 17% of the homeowners receiving MPA or RPA did not have evidence of a mortgage on their credit file. One factor contributing to this finding is that HAF was able to assist homeowners with payments for non-traditional mortgages that fall outside of the typical loss mitigation waterfall. Treasury designed HAF with a broad definition of mortgages to include diverse types of credit instruments used to secure a principal residence, such as land contracts, reverse mortgages, and even mortgages with tangled title issues.



Another one-third of homeowners receiving assistance through HAF had evidence of a mortgage on their credit file, but did not have evidence of previously receiving mortgage payment forbearance during the COVID-19 pandemic. These homeowners were less financially distressed as of December 2021 than the other HAF-assisted homeowners, with average credit scores above 640, but they still had lower incomes and more evidence of financial distress as of the end of 2021 than homeowners receiving only forbearance. Notably, this group was more likely to have mortgage characteristics that indicate they may fall outside of the current loss mitigation waterfall. In particular, the recipients in this group were much more likely to have non-governmental private loans. While many private lenders followed the loss mitigation waterfall during the COVID-19 pandemic, they are not required to do so, and our data suggests that homeowners with private loans turned to HAF as an alternative source of support. This group was also more likely to have evidence of bankruptcy, which could complicate mortgage

assistance if the mortgage was included in the bankruptcy. For this group, HAF was a substitute for forbearance and the loss mitigation waterfall.

The final group of Ohio HAF recipients were new homeowners who purchased their first home after the onset of the COVID-19 pandemic, in 2020 or 2021, and thus did not have a mortgage as of our baseline period of December 2019. While we excluded this group from our main analysis sample, they represent a sizeable share of HAF beneficiaries in Ohio (about 12%). It may have been more difficult for new homeowners to qualify for forbearance and thus they turned to HAF for support.

In addition to describing the characteristics of HAF homeowners prior to receiving assistance, we follow assisted homeowners with a mortgage through the end of 2023 which is at least one year post assistance for most homeowners. Despite being a vulnerable group of homeowners, many of whom were already in default on their mortgages prior to HAF, the majority (more than 80%) were making their mortgage payments on time as of the end of 2023. It is important to keep in mind that the estimates here are not causal and that we are unable to isolate the effects of HAF from other pandemic-era subsidies such as extended unemployment benefits or stimulus payments. Future work is needed to model selection into HAF and subsequent outcomes over a longer period.

While the data here allow for an in-depth description of assisted homeowners, these data are limited to the HAF program in Ohio and caution should be exercised when generalizing the results outside of Ohio. While the types of assistance available through Ohio's HAF program were similar to assistance types available in other state programs, the average amount of assistance per beneficiary in Ohio was lower (\$7,466) than the average assistance per beneficiary across all states (\$15,000). This is likely due in part to the relative affordability of Ohio's housing market and thus less assistance needed per homeowner to cover mortgage costs. Out of all states administering a HAF program, Ohio had the third highest volume — behind Texas and Florida. Demographically, Ohio has several large urban metropolitan centers as well as large rural areas including Appalachian communities.

Taken together, the Ohio data highlights three potential gaps in the loss mitigation waterfall that could be addressed through targeted enhancements.

First, enhancements can target homeowners who hold private loans or loans that are not covered by the loss-mitigation waterfall. Homeowners in most government insured or government guaranteed channels have access to a post-COVID loss mitigation waterfall similar to the COVID waterfall. The exception is VA loans, for which alternatives are still in process as of the writing of this report, but in the best case will be more limited than that provided by either the GSEs or FHA. Outside of the government space, not all mortgages use a loss mitigation waterfall that is as homeowner-friendly as the loss mitigation waterfall for GSE or FHA mortgages. Most, but not all, banks used the GSE loss mitigation waterfall for their portfolio loans during the COVID-19 pandemic. However, servicers for loans in private label mortgages are much more disparate in their loss mitigation choices. Our findings indicate that in Ohio, HAF (only) disproportionately served homeowners who had private mortgages that fell outside of the GSE and FHA waterfall.

Second, enhancements can cover expenses other than mortgage expenses that make homeownership unaffordable, like property taxes and homeowner's insurance, or even unexpected home repairs. Most HAF programs covered these expenses. In fact, about one-third of the HAF recipients in Ohio received assistance with non-mortgage related homeownership expenses. These homeowners were older and had lower incomes, on average, than HAF mortgage assistance recipients. As property insurance costs continue to increase nationwide, it is important to think about strategies that can assist homeowners with unexpected increases — including homeowners who own their homes without a mortgage.

Third, there are cases where it may make sense to combine HAF-like subsidies with mortgage forbearance and the standard loss mitigation options to increase homeownership affordability — particularly for homeowners experiencing more lasting income shocks. HAF subsidies used to repay forborne payments offer an alternative to capitalizing forborne payments into the loan balance as part of a loan modification, effectively reducing the resulting mortgage payment. Another option would be to use HAF-like subsidies directly for principal reduction. This option was not offered by most HAF programs during the COVID-19 pandemic since most homes had robust home price appreciation during this period and interest rates were at historic lows, as well as restrictions that made principal reduction difficult for FHA mortgages. However, in different economic circumstances, HAF-like subsidies could be used to “top-off” loan modifications to get to an affordable and sustainable mortgage payment for vulnerable homeowners experiencing a lasting income or expense shock.

While HAF-like subsidies offer one type of enhancement to the loss mitigation waterfall, there may be other less costly enhancements that can be designed to support specific groups of homeowners or expenses. For example, mortgages originated to low income or high loan-to-value homeowners could be paired with homeowner liquidity insurance through a mutual insurance fund that covers the first three to six months of mortgage payments when a homeowner experiences an income or expense shock (Goodman et al. 2023; Moulton et al. 2025; Tracy 2024). This type of insurance could complement assistance through the loss mitigation waterfall by reducing the number of payments capitalized into the loan balance for a modification, or it could serve homeowners who do not qualify for assistance through the loss mitigation waterfall.



When public subsidies are available, it is important that they be used efficiently and strategically. Public dollars are scarce, and for most HAF-like subsidies there are fewer dollars than would be necessary to cover all homeowners who either (1) fall outside of programs covered by government loss mitigation programs (or private programs that mimic the government programs), (2) have expenses that are not covered by these programs, or (3) need deeper payment reductions than would be permitted by standard loss mitigation programs. It is thus critical to target the homeowners for whom current loss mitigation options are insufficient, but who can achieve affordable and sustainable homeownership with modest financial assistance.

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Appendix

Table A.1: HAF Expenditures and Beneficiaries by State

State	Total Allocation (000s)	Alloc. Per owner	Alloc. Per LMI owner	Total expenditures (non-admin)	Grant expenditures per owner	Grant expenditures per LMI owner	Average grant size	Share of LMI owners served	Share of all owners served	# LMI owners	# Total owners
Alabama	\$118,902	\$93	\$136	\$110,588	\$87	\$127	\$17,677	0.7%	0.5%	873	1,276
Alaska	\$38,835	\$239	\$352	\$35,277	\$217	\$320	\$4,860	6.6%	4.5%	110	163
Arizona	\$196,984	\$120	\$182	\$178,646	\$108	\$165	\$14,209	1.2%	0.8%	1,081	1,647
Arkansas	\$60,935	\$81	\$117	\$51,958	\$69	\$100	\$14,453	0.7%	0.5%	522	756
California	\$1,053,318	\$148	\$215	\$919,271	\$130	\$188	\$29,921	0.6%	0.4%	4,900	7,094
Colorado	\$149,955	\$107	\$156	\$134,688	\$96	\$140	\$16,200	0.9%	0.6%	959	1,399
Connecticut	\$120,661	\$134	\$203	\$112,834	\$125	\$189	\$25,147	0.8%	0.5%	596	900
Delaware	\$49,077	\$190	\$288	\$42,914	\$166	\$252	\$13,176	1.9%	1.3%	171	258
D.C	\$43,855	\$374	\$662	\$39,534	\$337	\$597	\$27,646	2.2%	1.2%	66	117
Florida	\$662,498	\$132	\$192	\$561,268	\$112	\$163	\$9,140	1.8%	1.2%	3,445	5,033
Georgia	\$247,133	\$105	\$160	\$226,633	\$96	\$147	\$22,457	0.7%	0.4%	1,543	2,362
Hawaii	\$29,717	\$111	\$151	\$25,876	\$97	\$131	\$14,272	0.9%	0.7%	197	268
Idaho	\$33,757	\$77	\$112	\$30,816	\$70	\$103	\$14,688	0.7%	0.5%	301	440
Illinois	\$369,280	\$116	\$175	\$326,326	\$102	\$154	\$19,491	0.8%	0.5%	2,113	3,188
Indiana	\$171,325	\$97	\$142	\$146,620	\$83	\$121	\$12,939	0.9%	0.6%	1,209	1,769
Iowa	\$37,199	\$41	\$58	\$31,598	\$35	\$49	\$9,351	0.5%	0.4%	642	904
Kansas	\$56,648	\$76	\$114	\$48,956	\$66	\$99	\$11,252	0.9%	0.6%	496	745
Kentucky	\$59,076	\$51	\$74	\$52,392	\$45	\$65	\$15,391	0.4%	0.3%	800	1,160
Louisiana	\$143,637	\$127	\$194	\$134,493	\$118	\$182	\$17,675	1.0%	0.7%	740	1,135
Maine	\$42,739	\$106	\$157	\$39,964	\$99	\$147	\$13,819	1.1%	0.7%	272	404
Maryland	\$241,188	\$164	\$242	\$209,644	\$143	\$210	\$8,283	2.5%	1.7%	997	1,468
Massachusetts	\$177,183	\$109	\$168	\$150,440	\$93	\$143	\$20,330	0.7%	0.5%	1,055	1,620
Michigan	\$242,555	\$87	\$127	\$225,089	\$81	\$117	\$7,719	1.5%	1.0%	1,916	2,794

State	Total Allocation (000s)	Alloc. Per owner	Alloc. Per LMI owner	Total expenditures (non-admin)	Grant expenditures per owner	Grant expenditures per LMI owner	Average grant size	Share of LMI owners served	Share of all owners served	# LMI owners	# Total owners
Minnesota	\$128,664	\$82	\$117	\$110,018	\$71	\$100	\$13,655	0.7%	0.5%	1,101	1,560
Mississippi	\$65,829	\$88	\$126	\$62,478	\$84	\$119	\$13,090	0.9%	0.6%	524	746
Missouri	\$138,219	\$86	\$123	\$127,223	\$79	\$114	\$12,946	0.9%	0.6%	1,120	1,611
Montana	\$16,085	\$55	\$78	\$12,743	\$44	\$62	\$12,976	0.5%	0.3%	206	290
Nebraska	\$49,652	\$99	\$144	\$45,424	\$91	\$131	\$14,681	0.9%	0.6%	345	501
Nevada	\$88,719	\$144	\$215	\$77,772	\$126	\$189	\$25,482	0.7%	0.5%	412	615
New Hamp.	\$50,086	\$133	\$191	\$42,768	\$114	\$163	\$12,980	1.3%	0.9%	262	375
New Jersey	\$249,524	\$122	\$189	\$229,752	\$112	\$174	\$29,343	0.6%	0.4%	1,319	2,053
New Mexico	\$52,950	\$101	\$150	\$48,864	\$93	\$138	\$8,966	1.5%	1.0%	353	525
New York	\$538,374	\$137	\$199	\$470,272	\$120	\$174	\$24,525	0.7%	0.5%	2,700	3,933
North Carolina	\$273,337	\$106	\$159	\$245,549	\$95	\$143	\$13,661	1.0%	0.7%	1,722	2,572
North Dakota	\$37,277	\$187	\$262	\$33,905	\$170	\$238	\$10,930	2.2%	1.6%	142	199
Ohio	\$271,252	\$88	\$132	\$256,583	\$83	\$125	\$7,466	1.7%	1.1%	2,061	3,073
Oklahoma	\$69,721	\$72	\$109	\$62,212	\$65	\$97	\$16,590	0.6%	0.4%	640	964
Oregon	\$80,575	\$80	\$121	\$66,977	\$67	\$101	\$18,151	0.6%	0.4%	664	1,002
Pennsylvania	\$306,677	\$89	\$130	\$279,481	\$81	\$119	\$13,715	0.9%	0.6%	2,357	3,465
Rhode Island	\$49,482	\$200	\$319	\$45,029	\$182	\$291	\$24,327	1.2%	0.7%	155	248
South Carolina	\$142,353	\$107	\$156	\$121,234	\$91	\$133	\$8,151	1.6%	1.1%	911	1,327
South Dakota	\$2,356	\$10	\$15	\$1,619	\$7	\$10	\$5,239	0.2%	0.1%	161	231
Tennessee	\$59,740	\$35	\$52	\$45,010	\$26	\$39	\$15,346	0.3%	0.2%	1,154	1,711
Texas	\$839,018	\$140	\$221	\$750,631	\$126	\$198	\$11,880	1.7%	1.1%	3,791	5,972
Utah	\$59,417	\$87	\$122	\$54,319	\$80	\$111	\$21,797	0.5%	0.4%	487	682
Vermont	\$49,851	\$272	\$385	\$42,479	\$232	\$328	\$6,433	5.1%	3.6%	129	183
Virginia	\$256,096	\$124	\$188	\$235,994	\$114	\$173	\$18,712	0.9%	0.6%	1,363	2,073

State	Total Allocation (000s)	Alloc. Per owner	Alloc. Per LMI owner	Total expenditures (non-admin)	Grant expenditures per owner	Grant expenditures per LMI owner	Average grant size	Share of LMI owners served	Share of all owners served	# LMI owners	# Total owners
Washington	\$140,373	\$79	\$118	\$124,598	\$70	\$105	\$22,458	0.5%	0.3%	1,190	1,785
West Virginia	\$48,301	\$91	\$126	\$40,801	\$77	\$107	\$5,350	2.0%	1.4%	382	532
Wisconsin	\$89,077	\$56	\$82	\$81,323	\$52	\$75	\$8,313	0.9%	0.6%	1,088	1,577
Wyoming	\$23,694	\$148	\$208	\$17,062	\$106	\$150	\$7,780	1.9%	1.4%	114	160

Source: Urban Institute calculations from U.S. Department of Treasury HAF data as of Q1 2025 and 5-year estimates from the 2021 American Community Survey.

Notes: In the table above, LMI is “Low and Moderate Income” and refers to here as homeowners with incomes below 150% of area median.

Table A.2: Maximum Amount of HAF Assistance Per Household, by Program and State

State	Mortgage Reinstatement	Mortgage Payment Assistance	Taxes	HOA Fees	Utilities	Homeowner's Insurance	Other	Total Assistance Per Household	Award Allocation (\$ millions)
Alabama	\$50,000	6 months of payments						\$50,000	\$118.9
Alaska	\$40,000	12 months of payments						\$40,000	\$38.8
Arizona	\$25,000	3 months of payments	\$25,000	\$25,000	\$25,000			\$25,000	\$197.0
Arkansas	\$50,000							\$50,000	\$60.9
California	\$80,000							\$80,000	\$1,053.3
Colorado	\$40,000	3 months of payments	2 years of payments	Up to \$40,000	12 months of payments	2 years of payments	12 months of DPA loans	\$40,000	\$150.0
Connecticut	\$50,000	12 months of payments	12 months of payments	12 months of payments		12 months of payments		\$50,000	\$120.7
Delaware	\$50,000	\$50,000	\$50,000	\$20,000	\$20,000	\$20,000		\$50,000	\$49.1
District of Columbia	\$100,000	3 months of payments	\$100,000		\$5,000 per utility		\$50,000 for home repair	\$120,000	\$43.9
Florida	\$50,000	18 months of payments	18 months of payments	\$35,000	\$35,000			\$50,000	\$662.5
Georgia	\$50,000		\$50,000	\$50,000	\$50,000		\$50,000 for principal reduction	\$50,000	\$247.1
Hawaii	\$60,000	12 months of assistance	\$60,000	\$60,000	\$60,000	\$60,000		\$60,000	\$29.7

State	Mortgage Reinstatement	Mortgage Payment Assistance	Taxes	HOA Fees	Utilities	Homeowner's Insurance	Other	Total Assistance Per Household	Award Allocation (\$ millions)
Idaho	\$50,000	1 month of payments	\$50,000	\$50,000	\$50,000	\$50,000		\$50,000	\$33.8
Illinois	\$30,000	3 months of payments	~\$5,000					\$30,000	\$369.3
Indiana	\$50,000	6 months of payments						\$50,000	\$171.3
Iowa	\$25,000	2 months of payments	\$25,000	\$25,000		\$25,000		\$25,000	\$37.2
Kansas	\$25,000	6 months of payments	\$10,000	\$10,000	\$10,000	\$10,000		\$50,000	\$56.6
Kentucky	\$60,000	6 months of payments	\$60,000	\$60,000	\$60,000	\$60,000		\$60,000	\$59.1
Louisiana	\$50,000	6 months of payments	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000 for principal reduction	\$50,000	\$143.6
Maine	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000		\$50,000	\$42.7
Maryland	\$20,000		\$20,000	\$20,000	\$20,000	\$20,000		\$20,000	\$241.2
Massachusetts	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000 for DPA or principal reductions	\$50,000	\$177.2
Michigan	\$25,000	\$25,000	\$25,000	\$10,000	\$500	\$25,000		\$25,000	\$242.6
Minnesota	\$50,000		\$50,000	\$50,000		\$50,000		\$50,000	\$128.7
Mississippi	\$50,000							\$50,000	\$65.8

State	Mortgage Reinstatement	Mortgage Payment Assistance	Taxes	HOA Fees	Utilities	Homeowner's Insurance	Other	Total Assistance Per Household	Award Allocation (\$ millions)
Missouri	\$50,000							\$50,000	\$138.2
Montana	\$25,000		\$5,000	\$5,000	\$1,000			\$25,000	\$16.1
Nebraska	\$30,000	\$30,000	\$30,000	\$30,000		\$30,000		\$30,000	\$49.7
Nevada	\$65,000	\$65,000						\$100,000	\$88.7
New Hampshire	\$40,000		\$40,000	\$40,000	\$5,000	\$40,000		\$40,000	\$50.1
New Jersey	\$75,000	4 months of payments	\$75,000	\$75,000	\$75,000	\$75,000		\$75,000	\$249.5
New Mexico	\$20,000	12 months of payments	\$20,000	\$20,000	\$1,000	\$20,000		\$20,000	\$53.0
New York	\$95,000	6 months of payments	\$50,000	\$50,000	\$50,000	\$50,000		\$95,000	\$538.4
North Carolina	\$40,000	3 months of payments							\$273.3
North Dakota	\$40,000	6 months of payments	\$40,000				\$30,000 for home repairs	\$40,000	\$37.2
Ohio	\$25,000	6 months of payments	\$10,000	\$10,000	\$10,000	\$10,000		\$35,000	\$271.3
Oklahoma	\$35,000	6 months of payments	\$35,000	\$35,000		\$35,000		\$35,000	\$69.7
Oregon	\$60,000	6 months of payments						\$60,000	\$80.6

State	Mortgage Reinstatement	Mortgage Payment Assistance	Taxes	HOA Fees	Utilities	Homeowner's Insurance	Other	Total Assistance Per Household	Award Allocation (\$ millions)
Pennsylvania	\$50,000	6 months of payments	\$14,000	\$5,000	\$10,000	\$3,000		\$50,000	\$306.7
Rhode Island	\$50,000	24 months of payments						\$50,000	\$49.5
South Carolina		1 month of payments	Other	Other	Other	Other	36 months for DPA loan	Other	\$142.4
South Dakota	\$25,000				\$300/month			\$25,000	\$2.3
Tennessee	\$40,000							\$40,000	\$59.7
Texas	\$65,000	3 months of payments	\$25,000	\$25,000		\$25,000		\$25,000	\$839.0
Utah	\$35,000							\$35,000	\$59.4
Vermont	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000		\$30,000	\$49.9
Virginia	\$30,000	20 months of payments	\$30,000	\$30,000		\$30,000		\$30,000	\$256.1
Washington	\$60,000		\$60,000	\$60,000		\$60,000		\$60,000	\$140.4
West Virginia	\$20,000	\$20,000	\$5,000	\$5,000	\$2,500	\$5,000	\$1,000 DPA loans; \$10,000 home repairs	\$20,000	\$48.3
Wisconsin	\$40,000		\$40,000	\$40,000	\$40,000	\$40,000		\$40,000	\$89.1
Wyoming	\$17,000		\$17,000	\$17,000	\$17,000	\$17,000		\$17,000	\$23.7

State	Mortgage Reinstatement	Mortgage Payment Assistance	Taxes	HOA Fees	Utilities	Homeowner's Insurance	Other	Total Assistance Per Household	Award Allocation (\$ millions)
Median	\$50,000	6 months of payments	\$37,500	\$30,000	\$27,500	\$30,000		\$50,000	\$88.7
Average	\$44,840	7 months of payments	\$37,531	\$33,613	\$30,083	\$34,815		\$45,755	\$167.1

Source: Authors' analysis of State HAF Plan Term Sheets available through the U.S. Department of the Treasury ([link](#)).

Notes: Blank values mean a program did not offer that service as a standalone program. South Carolina did not set a dollar amount for how much a household could receive for mortgage reinstatement (36 months of past-due payments). Illinois estimated an average property tax assistance amount of \$5,000. Several states did not include number of months for which homeowners could receive forward-paying mortgage assistance.

Table A.3: Predicting County Share of Homeowners with Incomes <150% AMI who Received HAF

	(1)	(2)	(3)	(4)
County D90+ rate	0.150*** (0.011)	0.093*** (0.012)		0.074*** (0.01)
County unemployment rate	0.000* (0)		0 (0)	
Share of owners w/negative equity	0 (0.003)	0 (0.003)		
Share of owners <150% AMI	0.001 (0.001)	0 (0.001)	0 (0.001)	0.002 (0.001)
Share of owners non-white		0.017*** (0.001)	0.018*** (0.001)	0.011*** (0.001)
Median housing cost to income		0.019** (0.007)	0.024*** (0.007)	0.026*** (0.007)
Number Obs.	2293	2279	2873	2997
R2	0.333	0.384	0.446	0.447
R2 Adj.	0.318	0.37	0.436	0.437
Std. Errors	IID	IID	IID	IID
FE: State Level	X	X	X	X

Source: Urban Institute estimates from U.S. Department of Treasury HAF data as of Q1 2025, 5-year estimates from the 2021 American Community Survey, CoreLogic Market Trends data as of December 2020, and Bureau of Labor Statistics data from Moody's Analytics Data Buffet as of December 2020.

Notes: *p < .05, **p < .01, ***p < .001; "FE" stands for fixed effects; "D90+" stands for delinquent 90 days plus

Table A.4: OHFA Homeowner Characteristics by HAF Assistance Type

	RPA + MPA	MPA Only	RPA Only	MPA/RPA Not Funded	All MPA/RPA Applicants	UAP Funded
	% or Mean	% or Mean	% or Mean	% or Mean	% or Mean	% or Mean
Applicant Characteristics						
Female	61.8%	60.7%	51.0%	53.5%	57.6%	67.1%
Black	41.7%	39.7%	30.1%	31.7%	36.1%	22.2%
Hispanic or Latino	3.6%	3.1%	2.2%	3.4%	3.3%	2.8%
Had Co-applicant	37.0%	40.0%	39.1%	32.6%	35.4%	33.8%
Gross Household Income	\$47,979	\$53,870	\$52,078	\$63,466	\$55,316	\$27,206
Household Size	3.0	2.8	3.1	3.0	3.0	2.3
Applicant Age in 2020	44.5	45.3	46.1	43.3	44.1	
Mortgage and Finance Characteristics						
Unpaid Principal	\$111,898	\$106,948	\$145,942		\$113,489	
Monthly Mortgage Payment	\$982	\$923	\$1,235	\$1,048	\$1,011	
Self-Reported Forbearance	37.4%	12.1%	41.2%	3.8%	20.6%	
Reported Delinquent at Application						
30+ Days	30.0%	64.7%	22.8%	17.5%	27.8%	
60+ Days	17.8%	11.9%	8.0%	12.8%	14.8%	
90+ Days	48.0%	12.1%	64.1%	35.7%	39.7%	
Not reported	2.7%	3.6%	4.1%	31.6%	15.3%	
Self-Reported Foreclosure	1.4%	0.1%	3.8%	0.4%	0.9%	
Active Bankruptcy	1.4%	0.4%	2.3%	0.4%	0.9%	
Average Delinquent Amount	\$5,153	\$891	\$16,465		\$4,942	
Observations	15,728	3,390	898	15,116	35,132	13,561

Source: Authors' estimates from Ohio Housing Finance Agency administrative data for Ohio HAF recipients.

Notes: The groups for mortgage assistance (RPA and MPA) and non-mortgage assistance (UAP) are not mutually exclusive. Some homeowners (1,762) received both types of assistance and would appear in both the UAP column and the respective mortgage assistance column that corresponds to the mortgage assistance they received.

Table A.5: Mortgage Characteristics as of Q4 2021, by Mortgage Assistance Type

	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (With Mortgage, HAF Only)	UAP (With Forbearance)	UAP (With Mortgage, HAF Only)
FHA Loan	43%	58%	35%	48%	15%
VA Loan	7%	6%	4%	5%	3%
GSE Loan	30%	16%	22%	21%	21%
Private Loan	21%	20%	38%	26%	61%
HELOC	7%	3%	5%	3%	6%
Second Mortgage	2%	1%	3%	ND	3%
Evidence of Refinance (Past 24 Months)	14%	7%	16%	3%	13%
Evidence of Bankruptcy	1%	1%	1%	0%	1%
Evidence of Foreclosure (Past 24 Months)	0%	1%	1%	0%	1%
Evidence of Move (Past 24 Months)	9%	8%	8%	8%	5%
Worst Status: Current	60%	41%	57%	36%	68%
Worst Status: 30 Days Delinquent	17%	19%	15%	20%	12%
Worst Status: 60 Days Delinquent	7%	10%	7%	11%	6%
Worst Status: 90 Days Delinquent	4%	6%	4%	5%	3%
Worst Status: 120 Days Delinquent	10%	21%	14%	24%	8%
Worst Status: Severely Delinquent	1%	3%	3%	3%	3%
Worst Recent Status: Current (Past 24 Months)	73%	53%	68%	48%	79%
Worst Recent Status: 30 Days Delinquent (Past 24 Months)	13%	19%	13%	22%	9%
Worst Recent Status: 60 Days Delinquent (Past 24 Months)	5%	10%	6%	11%	3%
Worst Recent Status: 90 Days Delinquent (Past 24 Months)	2%	5%	3%	4%	2%
Worst Recent Status: 120 Days Delinquent (Past 24 Months)	6%	12%	8%	15%	5%
Worst Recent Status: Severely Delinquent (Past 24 Months)	0%	1%	1%	0%	1%
Observations	71,851	4,467	7,474	261	1,503

Source: Authors' estimates from Ohio Housing Finance Agency administrative data for Ohio HAF recipients and from the Ohio Consumer Credit Panel data.

Notes: "ND" indicates insufficient sample size to calculate the percentage.

Table A.6: Mortgage Characteristics as of Q4 2021, by Assistance Type

	Mortgage Age (Years)			Mortgage Balance			Missing Balance	Balance-to-Credit Ratio		
	Mean	Min	Max	Mean	Min	Max		Mean	Min	Max
Forbearance Only	6.84	0	42	\$134,747	\$1	\$800,000	5%	87.47	0	110
MPA/RPA (With Forbearance)	6.85	0.08	34.58	\$116,749	\$710	\$498,928	2%	90.78	8	110
MPA/RPA (With Mortgage, HAF Only)	7.34	0	31.33	\$105,220	\$3,399	\$733,263	3%	84.99	4	110
UAP (With Forbearance)	9.34	0.17	39	\$84,526	\$2,890	\$448,307	3%	84.84	3	110
UAP (With Mortgage, HAF Only)	9.2	0.08	30.67	\$73,760	\$118	\$581,536	3%	74.73	2	110

Source: Authors' estimates from Ohio Housing Finance Agency administrative data for Ohio HAF recipients and from the Ohio Consumer Credit Panel data.

Table A.7: Forbearance Characteristics as of Q4 2021 for Forborne Mortgages, by Assistance Type

	Forbearance Only	MPA/RPA (With Forbearance)	UAP (With Forbearance)
Forbearance: 1-3 Months	30%	21%	22%
Forbearance: 4-6 Months	34%	29%	30%
Forbearance: 7-9 Months	10%	11%	9%
Forbearance: 10-12 Months	14%	19%	20%
Forbearance: 12-15 Months	5%	7%	8%
Forbearance: 15-19 Months	7%	11%	8%
Forbearance: 19+ Months	1%	2%	4%
Number of Missed Payments	614%	818%	859%
Missed Payments: 1-3 Months	43%	24%	31%
Missed Payments: 4-6 Months	23%	20%	17%
Missed Payments: 7-9 Months	10%	16%	13%
Missed Payments: 10-12 Months	12%	17%	16%
Missed Payments: 12-15 Months	6%	11%	10%
Missed Payments: 15-19 Months	5%	10%	6%
Missed Payments: 19+ Months	1%	3%	8%
Average Total Missed Payment Amount	\$ 6,732	\$ 7,949	\$ 6,060
Observations	71,851	4,467	261

Source: Authors' estimates from Ohio Housing Finance Agency administrative data for Ohio HAF recipients, Ohio Consumer Credit Panel data, and UI wage data from the Ohio Longitudinal Data Archive (OLDA).

Table A.8: Credit Characteristics of Assisted Homeowners as of Q4 2021, by Assistance Type (Means or Percentages)

	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (With Mortgage, HAF Only)	MPA/RPA (Without Mortgage, HAF Only)	UAP (With Forbearance)	UAP (With Mortgage, HAF Only)	UAP (Without Mortgage, HAF Only)
Presence of Second Homeowner	28%	39%	41%	31%	32%	41%	27%
Homeowner 1's Vantage Score	678	616	658	616	607	679	612
Homeowner 2's Vantage Score	698	614	653	607	594	684	627
Lowest Household Vantage Score	672	606	645	607	597	667	605
Homeowner 1's DTI	25	28	28	16	24	20	12
Homeowner 2's DTI	24	21	20	14	19	18	12
Homeowner 1's Income Insight Score	94.85	73.61	72.54	56.35	58.44	65.31	48.29
Homeowner 2's Income Insight Score	108.72	67.75	69.99	52.77	56.91	66.89	50.02
Homeowner 1's Age	47.8	45.0	47.5	47.2	49.7	55.3	53.8
Homeowner 2's Age	49.2	43.1	45.6	45.3	47.0	52.1	52.1
Evidence of Student Debt	33%	49%	42%	42%	32%	22%	20%
Homeowner 1's Student Loan Debt	\$14,203	\$22,514	\$19,276	\$20,624	\$13,015	\$7,346	\$7,393
Homeowner 2's Student Loan Debt	\$13,513	\$18,060	\$13,086	\$12,389	\$9,251	\$6,495	\$4,110
Evidence of Auto Loan Debt	66%	67%	62%	54%	52%	52%	36%
Homeowner 1's Auto Loan Debt	\$14,146	\$13,281	\$11,705	\$10,014	\$8,284	\$8,971	\$5,365
Homeowner 2's Auto Loan Debt	\$14,144	\$11,726	\$10,299	\$9,505	\$7,303	\$9,506	\$6,313
Evidence of Medical Collections	26%	39%	30%	31%	41%	29%	32%
Homeowner 1's Medical Collections	\$262	\$306	\$279	\$300	\$480	\$332	\$460
Homeowner 2's Medical Collections	\$214	\$467	\$347	\$484	\$657	\$242	\$526
Evidence of Non-Medical Collections	26%	49%	32%	40%	55%	29%	46%
Homeowner 1's Non-Medical Collections	\$726	\$1,478	\$722	\$841	\$1,428	\$661	\$930
Homeowner 2's Non-Medical Collections	\$453	\$1,115	\$558	\$902	\$1,513	\$389	\$595
Evidence of Household Credit Card Debt	79%	75%	78%	67%	60%	68%	49%
Household Credit Card Balance	\$7947	\$5931	\$5873	\$3017	\$3831	\$4380	\$1809

	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (With Mortgage, HAF Only)	MPA/RPA (Without Mortgage, HAF Only)	UAP (With Forbearance)	UAP (With Mortgage, HAF Only)	UAP (Without Mortgage, HAF Only)
Evidence of Any Delinquency (Past 12 Months)	37%	61%	45%	43%	64%	37%	44%
Evidence of Mortgage DQ (Past 12 Months)	7%	12%	12%	1%	11%	7%	0%
Evidence of Credit Card DQ (Past 12 Months)	12%	20%	13%	11%	21%	9%	11%
Evidence of Installment DQ (Past 12 Months)	9%	18%	12%	13%	19%	8%	10%
Evidence of Charge Off (Past 12 Months)	10%	18%	10%	11%	20%	8%	10%
Evidence of Charge Off (Past 24 Months)	17%	32%	18%	20%	34%	15%	18%
Evidence of Bankruptcy (Past 12 Months)	0%	1%	2%	1%	ND	1%	1%
Evidence of Bankruptcy (Past 24 Months)	1%	1%	5%	3%	ND	2%	2%
Observations	78298	4622	8378	3368	279	1928	8588

Source: Authors' estimates from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

Note: "ND" indicates insufficient sample size to calculate the percentage.

Table A.9: Employment Characteristics as of Q4 2021 (Means or Percentages)

	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (With Mortgage, HAF Only)	MPA/RPA (Without Mortgage, HAF Only)	UAP (With Forbearance)	UAP (With Mortgage, HAF Only)	UAP (Without Mortgage, HAF Only)
Link to Ohio Employment Data							
Share with Second Homeowner	28%	39%	41%	31%	32%	41%	27%
No Employment Data (Homeowner 1)	17%	13%	16%	18%	23%	34%	40%
No Employment Data (Homeowner 2)	20%	22%	25%	26%	26%	34%	43%
No Employment Data (Household)	14%	9%	12%	15%	18%	28%	36%
Has Employment Data (Household)	87%	91%	88%	85%	82%	72%	64%
Exit Wage Data by 2020 (Homeowner 1)	3%	3%	3%	3%	ND	5%	7%
Exit Wage Data by 2020 (Homeowner 2)	3%	4%	5%	6%	6%	3%	6%
Exit Wage Data by 2020 (Household)	3%	2%	2%	2%	ND	3%	6%
Observations (Household)	78,234	4,622	8,377	3,368	279	1,928	8,588
Negative Income Events in Prior 8 Quarters (Household)							
Income Shock <25%	52%	57%	50%	51%	61%	49%	53%
Quarter with Zero Wages	40%	50%	41%	44%	48%	44%	51%
Longest Unemployment Spell (Quarters)	2.608	3.084	2.883	2.803	3.642	2.985	3.13
Active UI Claim	37%	39%	31%	32%	40%	27%	28%
Any Income Event	70%	75%	67%	69%	77%	66%	72%
Observations (Household)	66,013	4,101	7,175	2,793	223	1,346	5,160

Source: Authors' estimates from Ohio Housing Finance Agency HAF administrative data and UI wage data from the Ohio Longitudinal Data Archive (OLDA).

Note: "ND" indicates insufficient sample size to calculate the percentage.

Table A.10: Mortgage Outcomes as of Q4 2023, by Assistance Type and Mortgage Type

Full Sample	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (With Mortgage, HAF Only)	UAP (With Forbearance)	UAP (With Mortgage, HAF Only)
Exited Credit Panel	3%	2%	1%	ND	2%
Evidence of Active Mortgage (2023)	89%	91%	93%	86%	85%
Evidence of Move (Past 24 Months)	10%	7%	6%	8%	6%
Evidence of Refinance (Past 24 Months)	8%	3%	5%	6%	5%
Evidence of Foreclosure (Past 24 Months)	2%	3%	3%	6%	2%
Evidence of Bankruptcy (Past 24 Months)	2%	5%	3%	3%	2%
Evidence of Derogatory (Past 24 Months)	4%	6%	5%	7%	3%
Currently 60+ Days Delinquent	6%	13%	7%	19%	6%
Evidence of 60 Days Delinquent (Past 3 Months)	8%	21%	11%	26%	7%
Evidence of 90 Days Delinquent (Past 3 Months)	5%	14%	8%	17%	5%
Observations	71,396	4,457	7,463	260	1,498
Mortgage Type: VA	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (HAF Only)	UAP (With Forbearance)	UAP (HAF Only)
Exited Credit Panel	5%	ND	4%	0%	ND
Evidence of Active Mortgage (2023)	89%	91%	93%	ND	87%
Evidence of Move (Past 24 Months)	11%	6%	7%	0%	ND
Evidence of Refinance (Past 24 Months)	10%	6%	11%	ND	ND
Evidence of Foreclosure (Past 24 Months)	4%	ND	ND	0%	ND
Evidence of Bankruptcy (Past 24 Months)	3%	5%	ND	0%	ND
Evidence of Derogatory (Past 24 Months)	6%	6%	5%	0%	ND
Currently 60+ Days Delinquent	6%	12%	5%	ND	ND
Evidence of 60 Days Delinquent (Past 3 Months)	9%	19%	9%	ND	ND
Evidence of 90 Days Delinquent (Past 3 Months)	6%	14%	6%	0%	ND
Observations	4,793	280	326	11	40

Mortgage Type: FHA	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (With Mortgage, HAF Only)	UAP (With Forbearance)	UAP (With Mortgage, HAF Only)
Exited Credit Panel	3%	2%	1%	ND	ND
Evidence of Active Mortgage (2023)	89%	94%	95%	88%	90%
Evidence of Move (Past 24 Months)	11%	7%	6%	10%	7%
Evidence of Refinance (Past 24 Months)	8%	3%	5%	ND	6%
Evidence of Foreclosure (Past 24 Months)	3%	2%	3%	ND	ND
Evidence of Bankruptcy (Past 24 Months)	3%	4%	4%	ND	ND
Evidence of Derogatory (Past 24 Months)	4%	5%	5%	10%	ND
Currently 60+ Days Delinquent	7%	12%	7%	26%	6%
Evidence of 60 Days Delinquent (Past 3 Months)	11%	20%	12%	33%	11%
Evidence of 90 Days Delinquent (Past 3 Months)	7%	14%	8%	24%	6%
Observations	30,789	2,548	2,607	123	215
Mortgage Type: Private	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (HAF Only)	UAP (With Forbearance)	UAP (HAF Only)
Exited Credit Panel	3%	2%	1%	ND	2%
Evidence of Active Mortgage (2023)	86%	86%	91%	91%	85%
Evidence of Move (Past 24 Months)	11%	6%	5%	ND	6%
Evidence of Refinance (Past 24 Months)	8%	3%	4%	ND	4%
Evidence of Foreclosure (Past 24 Months)	3%	5%	3%	ND	2%
Evidence of Bankruptcy (Past 24 Months)	2%	4%	3%	ND	2%
Evidence of Derogatory (Past 24 Months)	4%	8%	5%	ND	3%
Currently 60+ Days Delinquent	6%	16%	9%	ND	7%
Evidence of 60 Days Delinquent (Past 3 Months)	8%	24%	14%	19%	8%
Evidence of 90 Days Delinquent (Past 3 Months)	5%	17%	10%	ND	5%
Observations	14,605	882	2,787	66	902

Mortgage Type: Fannie Mae	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (With Mortgage, HAF Only)	UAP (With Forbearance)	UAP (With Mortgage, HAF Only)
Exited Credit Panel	3%	ND	ND	0%	ND
Evidence of Active Mortgage (2023)	90%	93%	96%	84%	87%
Evidence of Move (Past 24 Months)	9%	7%	5%	ND	ND
Evidence of Refinance (Past 24 Months)	8%	3%	6%	0%	ND
Evidence of Foreclosure (Past 24 Months)	2%	ND	2%	ND	ND
Evidence of Bankruptcy (Past 24 Months)	1%	5%	2%	ND	ND
Evidence of Derogatory (Past 24 Months)	2%	5%	3%	ND	ND
Currently 60+ Days Delinquent	4%	10%	5%	ND	ND
Evidence of 60 Days Delinquent (Past 3 Months)	6%	17%	7%	ND	ND
Evidence of 90 Days Delinquent (Past 3 Months)	4%	12%	5%	ND	ND
Observations	11,418	440	909	38	182
Mortgage Type: Freddie Mac	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (HAF Only)	UAP (With Forbearance)	UAP (HAF Only)
Exited Credit Panel	3%	ND	1%	0%	ND
Evidence of Active Mortgage (2023)	92%	94%	96%	81%	88%
Evidence of Move (Past 24 Months)	10%	4%	5%	ND	ND
Evidence of Refinance (Past 24 Months)	9%	ND	5%	ND	ND
Evidence of Foreclosure (Past 24 Months)	1%	ND	ND	0%	ND
Evidence of Bankruptcy (Past 24 Months)	1%	4%	2%	0%	ND
Evidence of Derogatory (Past 24 Months)	2%	5%	2%	0%	ND
Currently 60+ Days Delinquent	3%	12%	4%	ND	ND
Evidence of 60 Days Delinquent (Past 3 Months)	4%	19%	5%	ND	ND
Evidence of 90 Days Delinquent (Past 3 Months)	3%	13%	3%	ND	ND
Observations	9,751	260	746	16	133

Source: Authors' estimates from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

Note: "ND" indicates insufficient sample size to calculate the percentage.

Table A.11: Mortgage Outcomes as of Q4 2023, by Assistance Type and Borrower Credit Score

Credit Score <620 (As of 2021)	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (With Mortgage, HAF Only)	UAP (With Forbearance)	UAP (With Mortgage, HAF Only)
Exited Credit Panel	3%	2%	2%	ND	ND
Evidence of Active Mortgage (2023)	83%	88%	88%	85%	78%
Evidence of Move (Past 24 Months)	11%	7%	6%	10%	8%
Evidence of Refinance (Past 24 Months)	4%	2%	2%	ND	3%
Evidence of Foreclosure (Past 24 Months)	7%	4%	6%	8%	6%
Evidence of Bankruptcy (Past 24 Months)	5%	6%	6%	ND	4%
Evidence of Derogatory (Past 24 Months)	9%	7%	9%	10%	8%
Currently 60+ Days Delinquent	15%	17%	15%	24%	18%
Evidence of 60 Days Delinquent (Past 3 Months)	22%	27%	23%	34%	24%
Evidence of 90 Days Delinquent (Past 3 Months)	14%	19%	16%	26%	14%
Observations	18,023	2,328	2,471	147	383
Credit Score 620-720 (As of 2021)	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (With Mortgage, HAF Only)	UAP (With Forbearance)	UAP (With Mortgage, HAF Only)
Exited Credit Panel	3%	2%	1%	ND	3%
Evidence of Active Mortgage (2023)	90%	93%	94%	85%	88%
Evidence of Move (Past 24 Months)	10%	7%	5%	ND	7%
Evidence of Refinance (Past 24 Months)	9%	4%	6%	ND	6%
Evidence of Foreclosure (Past 24 Months)	2%	2%	2%	ND	0%
Evidence of Bankruptcy (Past 24 Months)	2%	3%	2%	0%	ND
Evidence of Derogatory (Past 24 Months)	3%	4%	3%	ND	ND
Currently 60+ Days Delinquent	4%	9%	5%	13%	3%
Evidence of 60 Days Delinquent (Past 3 Months)	7%	15%	9%	19%	4%
Evidence of 90 Days Delinquent (Past 3 Months)	4%	11%	6%	ND	3%
Observations	26,786	1,535	2,725	90	554

Credit Score >720 (As of 2021)	Forbearance Only	MPA/RPA (With Forbearance)	MPA/RPA (With Mortgage, HAF Only)	UAP (With Forbearance)	UAP (With Mortgage, HAF Only)
Exited Credit Panel	3%	ND	1%	0%	ND
Evidence of Active Mortgage (2023)	91%	97%	97%	89%	87%
Evidence of Move (Past 24 Months)	10%	5%	5%	0%	4%
Evidence of Refinance (Past 24 Months)	9%	3%	6%	18%	5%
Evidence of Foreclosure (Past 24 Months)	0%	ND	0%	0%	0%
Evidence of Bankruptcy (Past 24 Months)	0%	ND	1%	0%	ND
Evidence of Derogatory (Past 24 Months)	1%	ND	1%	0%	ND
Currently 60+ Days Delinquent	1%	5%	1%	ND	ND
Evidence of 60 Days Delinquent (Past 3 Months)	1%	7%	1%	ND	0%
Evidence of 90 Days Delinquent (Past 3 Months)	1%	5%	1%	ND	0%
Observations	17,091	396	1,908	19	516

Source: Authors' estimates from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

Note: "ND" indicates insufficient sample size to calculate the percentage.

Table A.12: Characteristics of HAF Assisted Homeowners Who Newly Entered Homeownership After the Onset of the COVID (Means or Percentages)

Household Credit Characteristics	UAP (With New Mortgage, HAF Only)	MPA/RPA (With New Mortgage, HAF Only)
Presence of Second Homeowner	40%	33%
Homeowner 1's Vantage Score	655	635
Homeowner 2's Vantage Score	653	623
Lowest Household Vantage Score	643	623
Homeowner 1's DTI	24	30
Homeowner 2's DTI	20	20
Homeowner 1's Income Insight Score	62.33	72.2
Homeowner 2's Income Insight Score	62.32	63.07
Homeowner 1's Age	44.3	39.8
Homeowner 2's Age	41.8	38.1
Evidence of Student Debt	35%	58%
Homeowner 1's Student Loan Debt	\$13,178	\$24,275
Homeowner 2's Student Loan Debt	\$5,505	\$15,458
Evidence of Auto Loan Debt	65%	70%
Homeowner 1's Auto Loan Debt	\$11,805	\$14,588
Homeowner 2's Auto Loan Debt	\$10,369	\$10,753
Evidence of Medical Collections	25%	25%
Homeowner 1's Medical Collections	\$257	\$168
Homeowner 2's Medical Collections	\$289	\$385
Evidence of Non-Medical Collections	27%	30%
Homeowner 1's Non-Medical Collections	\$279	\$368
Homeowner 2's Non-Medical Collections	\$315	\$530
Evidence of Household Credit Card Debt	80%	88%
Household Credit Card Debt Balance	\$3,105	\$4,705
Evidence of Any Delinquency (Past 12 Months)	36%	43%
Evidence of Mortgage Delinquency (Past 12 Months)	3%	4%
Evidence of Credit Card Delinquency (Past 12 Months)	12%	14%
Evidence of Installment Delinquency (Past 12 Months)	8%	11%
Evidence of Charge Off (Past 12 Months)	8%	9%
Evidence of Charge Off (Past 24 Months)	10%	14%
Evidence of Bankruptcy (Past 12 Months)	0%	0%
Evidence of Bankruptcy (Past 24 Months)	ND	1%
Observations	399	3,362

Source: Authors' estimates from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

Note: "ND" indicates insufficient sample size to calculate the percentage.

Mortgage Characteristics	UAP	MPA/RPA
FHA Loan	33%	58%
VA Loan	5%	6%
GSE Loan	18%	15%
Private Loan	44%	21%
HELOC	ND	1%
Second Mortgage	ND	1%
Evidence of Refinance (Past 24 Months)	ND	0%
Evidence of Bankruptcy	ND	0%
Evidence of Foreclosure (Past 24 Months)	ND	0%
Evidence of Move (Past 24 Months)	38%	56%
Worst Status: Current	89%	87%
Worst Status: 30 Days Delinquent	6%	7%
Worst Status: 60 Days Delinquent	ND	2%
Worst Status: 90 Days Delinquent	ND	1%
Worst Status: 120 Days Delinquent	ND	1%
Worst Status: Severely Delinquent	3%	2%
Worst Recent Status: Current (Past 24 Months)	92%	89%
Worst Recent Status: 30 Days Delinquent (Past 24 Months)	6%	7%
Worst Recent Status: 60 Days Delinquent (Past 24 Months)	ND	2%
Worst Recent Status: 90 Days Delinquent (Past 24 Months)	ND	1%
Worst Recent Status: 120 Days Delinquent (Past 24 Months)	ND	1%
Worst Recent Status: Severely Delinquent (Past 24 Months)	ND	0%
Observations	355	2,993

Source: Authors' estimates from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

Note: "ND" indicates insufficient sample size to calculate the percentage.

Mortgage Characteristics	UAP			MPA/RPA		
	Mean	Min	Max	Mean	Min	Max
Age (Years)	1.18	0	25.92	1.03	0	19.58
Balance	\$116,055	\$1,523	\$708,692	\$140,386	\$4,777	\$543,642
Missing Balance	5%			0%		
Balance-to-Credit Ratio	97.91	39	109	99	20	110

Source: Authors' estimates from Ohio Housing Finance Agency HAF administrative data and Ohio Consumer Credit Panel (CCP) data.

Note: "ND" indicates insufficient sample size to calculate the percentage.

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1919 M STREET NW, 5th FLOOR
WASHINGTON, DC 20036