Mortgage Forbearance and Financial Stability in the Long Run

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Abstract

Mortgage relief programs are crucial for distressed households during economic downturns, but their long-term effects remain underexplored. This paper offers new micro-level evidence on the long-term efficacy of mortgage payment pauses, or forbearance, in mitigating financial distress during and after the COVID-19 pandemic. Using data from 500,000 consumer credit reports, I study the causal effects of mortgage forbearance under the Coronavirus Aid, Relief, and Economic Security (CARES) Act on household financial stability. Leveraging quasi-random variation in mortgage servicers' forbearance provision, I identify significant reductions in mortgage delinquency rates—up to 5 percentage points—and foreclosure rates by 1 percentage point, persisting three years post-forbearance. Additionally, the program had beneficial spillover effects on revolving credit stability, reducing credit card delinquencies by 2 percentage points and utilization rates by roughly 15 percentage points relative to the pre-pandemic period. Upon exiting forbearance, borrowers not only avoided financial 'rebound effects,' but also sustained improved financial stability for more than two years following the policy's implementation.

1 Introduction

Financial stability is a key measure of households' economic well-being and predictor of social mobility. During the COVID-19 pandemic, roughly 40% of households reported facing serious financial stress, with debt obligations being the most commonly

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reported reason (Calfas, 2021). This paper examines the long-term impacts of federal mortgage relief programs during the Coronavirus pandemic. Through a provision of the Coronavirus Aid, Relief and Economic Stimulus (CARES) Act, mortgage servicers were mandated pause the mortgage payments of eligible homeowners for up to 12 months, as long as they self-attested to a COVID-related financial hardship.[1] Using the credit reports of 500,000 eligible homeowners, I leverage quasi-random variation in mortgage servicers' forbearance provision to estimate the program's causal impact on mortgage and revolving credit stability up to three years after CARES was implemented. The results reveal significant reductions in mortgage delinquency rates—up to 5 percentage points—and foreclosure rates by 1 percentage point, persisting three years post-forbearance. Additionally, the program had beneficial spillover effects on revolving credit stability, reducing credit card delinquencies by 2 percentage points and utilization rates by roughly 15 percentage points relative to the pre-pandemic period. Upon exiting forbearance, borrowers not only avoided financial 'rebound effects,' but also sustained improved financial stability for more than two years following the policy's implementation.

1.1 Mechanics of Loss Mitigation in Mortgage Markets

Mortgage forbearance is a short-term pause or reduction in payments designed to assist borrowers with temporarily financial hardship. Mortgage servicers, which act as clearinghouses between borrowers and investors, are primarily responsible for maintaining and recording loan performance, determining loss mitigation plans– including forbearance– when needed, and remitting payments to investors each month. The mortgage forbearance process typically begins when either the borrower contacts their servicer to request relief, or the servicer reaches out to borrower after flagging an underperforming loan. In principle, any borrower can apply for forbearance, regardless of whether their mortgage is backed by a government agency or private entity. To avoid straining their liquidity, mortgage servicers aim to limit forbearance periods, usually to three months, and screen borrowers carefully before recommending forbearance over other options, such as refinancing or selling the home. Forbearance exit strategies, and the implied levels of relief, vary, ranging from immediate payments reinstatements (i.e., balloon payments) at the more conservative end, to more generous, gradual repayment plans. The most common exit strategy from forbearance is reinstatement. Other exit plans include deferrals to maturity, refinancing, permanent loan modification, selling the home, or in severe distress cases, foreclosure. Ideal candidates for forbearance might include a tech worker furloughed by her firm, or a construction worker experiencing a one-off medical emergency.

[1] In some cases, forbearance could be extended for a total of 18 months.

1.2 Mortgage Forbearance under the CARES Act

To alleviate the pandemic's economic side effects, policymakers unleashed an array of expansive policy measures targeted to businesses and households impacted by the lockdown. The CARES Act, introduced on March 27, 2020, represented the largest economic stimulus package in U.S. history, injecting $2.2 billion of relief. Key components of the law included stimulus checks of $1,200 per adult and $500 per child for eligible taxpayers[2], expanded unemployment insurance (UI), small business loans, eviction and foreclosure moratoria, and forbearances on federal student loans and mortgages.[3]

The mortgage forbearance provision (Section 4022) of the CARES Act aimed to cover gaps that remained in the financial safety net after accounting for CARES and subsequent emergency relief policies. In general and in particular during economic downturns such as COVID, UI serves as the primary financial relief option for workers struggling to meet housing payment due to lost income. In response to the COVID-19 crisis, UI was enhanced with weekly supplements, expanded eligibility to self-employed, gig, and independent workers, and extended maximum UI duration by 53 weeks beyond each state's regular benefits.[4] Even with these expansions, some unemployed workers may have found themselves unable to meet housing payment obligations due to caps on benefits, the lack of requirements for the funds to be spent on housing, and delays in when UI is actually received, particularly for households with little savings.(Calabria, 2023) Mortgage forbearance under the CARES Act was specifically designed to address these issues by providing (ideally prompt) liquidity to households by directly pausing mortgage payments.

In addition to mandating access to forbearance for federally backed homeowners, the provision waived interest, fees, or penalties on forborne payments and prohibited negative credit reporting from forbearance. The CARES forbearance mandate was silent on forbearance exit plans, although. Due to the policy's ambiguity towards exit plans, the Federal Housing Finance Agency as well as the CFPB and other agencies is-

[2]Eligibility for stimulus checks required income of less than $75,000 for single filers or less than $150,000 for joint filers.

[3]Unlike the mortgage forbearance provision, where borrowers needed to contact their servicers to opt in, the student loan relief was applied automatically to federal student loans.

[4]"Federal Pandemic Unemployment Compensation (FPUC) established weekly supplements on top of any state UI benefits for which recipients were eligible. Weekly supplements were available intermittently, and were set at $600 between March and July 2020, $300 in Lost Wages Assistance (LWA) in September and October 2020, and $300 between January 2021 and September 6, 2021. Pandemic Unemployment Assistance (PUA) expanded eligibility of UI to self-employed workers, gig workers, independent workers, and others not previously eligible for UI or who were unable to work for a variety of COVID-related reasons. For example, workers could receive UI benefits if they were unable to work because of dependent care responsibilities, a COVID-19 illness in the family, or the health risk at work. Pandemic Emergency Unemployment Compensation (PEUC) extended the duration of federal UI benefits by 53 weeks for those who had exhausted their regular state benefits." (Ganong et al., 2022)

sued additional guidance on the breadth of options beyond lump sum balloon payments, such as deferrals to maturity modifications, and refinancing.(Mae, Mae; Consumer Financial Protection Bureau, nd) The CARES Act's generous forbearance terms meant that servicers were required to extend access to borrowers who might otherwise get screened out due to their hardship being considered either too minor or too severe. On the one hand, borrowers without substantial financial hardship were incentivized to opt in as a way to gain interest-free liquidity. On the other hand, severely distressed borrowers may have also opted in, in some cases falling further into distress or facing barriers to accessing more substantial servicer support after the forbearance period ended. On average, the program's wide reach did not lead to unintended financial consequences for participants, as evidenced by the policy's long term efficacy in terms of preventing mortgage distress and negative credit events.

1.2.1 Eligibility for Forbearance under CARES

In 2020, approximately 75% of mortgages in the US were federally backed and thus were covered by the CARES forbearance mandate. In general, a mortgage is determined to be federally backed at or shortly after origination, and it retains that status for the duration of the loan. The two broad classes of federally backed mortgages are those purchased by a Government Sponsored Enterprise (GSE), i.e., Fannie Mae or Freddie Mac, or insured by a government agency such as the Federal Housing Authority (FHA) or Veterans Affairs (VA). Because GSE-backed mortgages conform to strict underwriting guidelines and loan limits, borrowers typically have lower credit risk and moderate incomes. Conversely, FHA and VA mortgages are designed for low-income, high risk borrowers. (Cherry et al., 2021). These borrowers are allowed to make down payments as low at 3.5%. Under the CARES forbearance mandate, FHA and VA borrowers were twice as as likely as their GSE-backed counterparts to opt into the program (An et al., 2022).

1.2.2 Frictions to Forbearance Access

In principle, the CARES Act required servicers to provide forbearance to eligible borrowers in need, covering roughly 75% of mortgaged homeowners in the U.S. Despite the broad mandate, survey data from Fannie Mae during the pandemic indicated significant barriers to accessing forbearance due to informational and logistical frictions. In terms of providing relief to homeowners, the Fannie Mae Mortgage Lender Sentiment Survey found that nearly half of surveyed mortgage servicers (45%) cited difficulty in keeping up with investor policies around forbearance as their top or second-to-top challenge, followed by maintaining staffing capacity (reported by 34% of servicers) and training client-facing employees (29%).(Patane, 2021) The same survey highlighted challenges

on the customer service front, with 34% of servicers listing the explanation of exit plans as a top or second-to-top challenge, followed by clarifying the implications of forbearance use (31%) and assessing readiness for forbearance exit (27%). Against this backdrop, the Consumer Financial Protection Bureau documented numerous instances in which servicers failed to comply with the forbearance mandate. Specific examples included servicers incorrectly sending borrowers collection or default notices, assessing fees, or initiating foreclosures for borrowers in forbearance; changing borrowers' scheduled payments without consent, failing to apply forbearance for requesting, eligible homeowners or applying forbearance to borrowers who did not request it, delayed processing times, and failure to establish forbearance exit plans.(Consumer Financial Protection Bureau, 2021)

On the homeowner side, these issues were reflected in a lack of awareness about forbearance and other mortgage relief policies, confusion around exit strategies and the financial implications of forbearance, and challenges in reaching servicers to initiate the process. Notably, data from the April - June 2020 waves of the Fannie Mae Housing Market Survey indicated that over 60% of homeowners were not aware of their COVID-19 mortgage relief options, including forbearance (Duncan, 2020). This widespread lack of awareness may explain why the forbearance rate during COVID peaked under 9% of households in 2020Q2.[5]According to reports from the Consumer Financial Protection Bureau (CFPB), information frictions also reflected in homeowners receiving incomplete or false information from servicers about their eligibility, fees associated with forbearance, and exit plans (such as being told balloon payments were required). (Kim et al., 2022; Consumer Financial Protection Bureau, 2021)Relatedly, Kim et al. (2022) and Cherry et al. (2021) document significant variation in the degree of servicer compliance and generosity in delivering forbearance. In Kim et al. (2022), up to one-third of VA and FHA borrowers become delinquent while never receiving forbearance during the pandemic, representing a missed opportunity for mortgage payment relief. They document key frictions including the servicers' idiosyncratic levels of generosity, capitalization and staffing issues, liquidity constraints, regulatory pressures acting on servicers of differing size, organizational form, and varying technological capacities. Taken together, these factors facilitated or hampered servicers willingness to provide borrowers with access to forbearance under the mandate. Cherry et al. (2021) corroborate the presence of liquidity- and organizational form-related frictions by noting that non-bank financial intermediaries (NBFI) and liquidity-constrained servicers had

[5]From an optimal policy perspective, one could argue that improving household awareness of forbearance options might have enhanced financial outcomes for more borrowers. However, such a counterfactual increase in forbearance uptake could have strained servicer liquidity, with potential aggregate implications. Further research is needed to assess whether expanding the use of forbearance during COVID-19 would have increased systemic risk

a lower likelihood of providing forbearance during the pandemic. To the extent these frictions are independent of borrower characteristics or mortgage performance, they provide ample quasi-random variation in forbearance provision, which is leveraged to estimate forbearance's causal effects.

1.2.3 Composition of CARES Forbearance Users

Generally, homeowners who opted into CARES forbearance were seeking relief from financial hardship: eventual opters were already over 10 percentage points more likely to be behind on mortgage payments than non-opters, and 12 percentage points more likely to have been in forbearance prior to the introduction of the CARES act. In addition, 1 shows forbearance opters had weaker credit profiles than the overall sample of federally backed homeowners. Prior to COVID, the eventual forbearance users had credit scores[6] 50 points lower than the overall sample, with 50% higher credit card balances, and 68 p.p. higher revolving credit utilization rates. The forbearance group also contains a higher percentage of FHA/VA loans (50% versus 33% in the overall sample). These facts point to significant selection on borrowers entering forbearance, and financial need being a primary motivator. During COVID, many servicers extended generous forbearance allowances for non-conforming mortgages, which were not covered under the CARES Act.[7] Because the CARES mandate did not apply to non-conforming loans, they are excluded from the sample. Cherry et. al discuss the effects of COVID-era forbearance on jumbo loans, which make up a significant portion of non-conforming loans. For a more detailed description of the composition of COVID-19 mortgage forbearance recipients, see Farrell et al. (2020)

2 Relevant Literature

This paper's novel contributions are to document forbearance's long term effects on the balance sheets of a representative sample of all federally backed homeowners and show how these effects vary by exit plan. This work builds primarily on a growing literature of papers assessing the impact of mortgage and other forbearance programs during COVID. The most closely related paper is Kim et al. (2022), which employs a similar judges IV design to estimate forbearance's causal effect on a selected subset of borrowers, in particular FHA and VA mortgaged homeowners, for a shorter window, between 2020 and 2021. Another important paper in this literature is Cherry et al. (2021), which provides a detailed comparison of COVID-era forbearance policies

[6]Credit scores are based on the VantageScore 4.0 model.

[7]Non-conforming mortgages do not meet the government's underwriting guidelines, such as limits on the original loan volume, debt-to-income ratio, FICO score, down payments, and other requirements.

on mortgages and other loans. In addition, they estimate a causal effect of CARES forbearance around the conforming loan limit. Relatedly, An et al. (2022) shows that minority and low-income households were more likely to use forbearance than their white, higher-income peers, but were more likely to fall behind on payments after forbearance. The authors also show evidence that 40-year loan modifications may have provided vulnerable households with more effective, long term debt relief. Albuquerque and Varadi (2022) and Adelino et al. (2024) document heterogeneous impacts of mortgage forbearance on households of varying income and saving levels using data from the UK and Portugal, respectively. Dinerstein et al. (2023) examines the impact on consumer credit of the student loan moratorium and finds that recipients used the liquidity to increase debt on new loans rather than avoid delinquencies. Gerardi et al. (2022) analyzes the impact of forbearance in tandem with the Federal Reserve's expansionary monetary policy, which lowered mortgage rates and allowed many homeowners to reduce monthly payments through refinancing. Similar to this paper, Gerardi et al. (2022) finds that CARES forbearance was highly effective at reducing financial distress and foreclosure risk in a favorable macroeconomic environment. However, they caution that the results may not port as well to contexts with less favorable housing market conditions, in which borrowers would have had less of a cushion from home equity.

This paper also complements the growing literature comparing the efficacy of mortgage relief policies during COVID with the housing policy response to the Great Recession. The home equity trends documented by Gerardi et al. (2022) are particularly important for comparing policy impacts during COVID and the Great Recession because household debt was exceptionally high during the latter period, and it was notoriously pinned as a cause and catalyst of the Great Recession by Mian and Sufi (2010), and Mian and Sufi (2014). Furthermore, Gerardi et al. (2022)'s findings on the efficacy of forbearance in the context of refinancing due to the low mortgage rate environment complement earlier work on the effects of expansionary monetary policy and quantitative easing on housing markets during the Great Recession, as discussed by Di Maggio et al. (2020). In addition, Gerardi et al. (2022) show that relative to Great Recession area mortgage relief programs– such as the Home Affordable Refinance Program and the Home Affordable Modification Program (HAMP)– where servicer vetting and extensive paperwork processes often led to a year lag between application and relief delivery, the minimal paperwork requirements for CARES forbearance, combined with the universal interest rate reductions led to effective, more immediate support for impacted households.

From a hands-on policy perspective, the COVID-era Director of the Federal Housing Finance Authority, Mark Calabria, commissioned with designing and rolling out mortgage relief policies during COVID affirms Gerardi et al. (2022) in his practitioner's

guide detailing his role in designing the mortgage forbearance section of the CARE Act.(Calabria, 2023). In the guide, Calabria attributes the improved performance of CARES forbearance over HAMP and HARP to reducing the paperwork requirements, removing means-tested conditions from the relief, extending the relief duration for up to 12 months (in some cases 18 months) and requiring the relief to be paid back. Calabria also discusses the necessity to balance avoiding "payment shock" for borrowers exiting forbearance, akin to the default risk associated with ARMs rate adjustment during the Great Recession, with the need to protect the balance sheets of the GSEs by ensuring timely repayment.[8] One of the novel contributions of my paper is to illustrate that, by allowing servicers full discretion over workout plans, policymakers may have missed opportunities to protect mortgage stability after forbearance. In practice, this discretion negatively impacted borrowers with balloon payments, which arguably backfired for servicers. In the heterogeneity analysis of this paper, I show that balloon payments were associated with persistently higher delinquency rates relative to forbearance exits with gradual workout plans. This represented an immediate cost to borrowers and servicers, and exposed the GSEs to potential risk in cases of subsequent default.

This paper contributes novel insights to the household finance literature, which examines the sources of financial distress and identifying effective policies for its remediation. Dobbie and Song (2015) and Dobbie et al. (2017) employ a judges IV design to show the long term impacts of filing for chapter 13 bankruptcy. These papers find that bankruptcy boosts 5-year income and credit scores and reduces adverse financial events, mortality, foreclosures and other adverse credit events. This paper adapts their identification strategy to study the causal impact of mortgage forbearance, exploiting quasi-random variation in the generosity of mortgage servicers. Dobbie and Song (2020) provide evidence from a large-scale RCT that interest rate write-downs were significantly more effective than immediate payment reductions at improving financial and labor market outcomes, despite not taking effect for several years. This paper's findings contrast with Dobbie and Song (2020) by showing that the short term liquidity boost provided by COVID had large and persistent positive effects on balance sheet health. Keys et al. (2023) shows that collections and defaults are largely driven by person-specific factors, while bankruptcies are largely place based and explain a significant share of the geographical variation in financial distress across the country. Finally, Ganong and Noel (2022) decompose the motives of defaulting on a mortgage and show that the vast majority are driven by negative life events (70%), while 24%

[8]Generally, when a GSE-backed mortgage becomes delinquent and is subsequently modified or deferred, it is removed from the pool of collateral used for mortgage-backed securities and placed directly on the balance sheet of Freddie or Fannie. Forbearance avoids this process and the implied risk exposure to the GSE as long as the mortgage continues to perform after payments resume.

are driven by a combination of negative life events and negative equity, i.e., underwater mortgages, while the remainder of defaults are driven solely by the latter strategic motive. This finding provides important context for the effects of mortgage forbearance on reducing foreclosure, which should be interpreted through the lens of reducing household's exposure to potentially life-altering adverse events.

Finally, this paper relates to the macroeconomics literature examining optimal countercyclical stabilization policy. Lee and Maghzian (2023) and Auclert et al. (2019) discuss targeted debt relief as countercyclical stabilization policy. Campbell et al. (2021), Guren et al. (2021), and Altunok et al. (2023) discuss the transmission of monetary policy through housing markets with an eye towards optimal mortgage design.

3 Data Description

The data is provided by California Policy Lab's University of California-Consumer Credit Panel (UC-CCP).This dataset contains highly detailed information from the credit reports of a 2% nationally representative sample of American borrowers from 2004Q1 to the most recent quarter (2023Q4). The data is provided at the loan level and comprises detailed payment records and loan characteristic of mortgages, credit cards, home-equity lines of credit, auto loans and leases, student loans, as well as other tradeline categories. Key variables include original loan balances, credit limits, amount past due, scheduled payments, actual payments on selected loans, loan type (Fannie, Freddie, VA/FHA, other), and payment grids delineating the payment histories of each loan at the monthly frequency. I construct mortgage delinquency, distress, and foreclosure indicators based on these payment grids, indexed to the mortgage account balance date. Because several key variables are provided at the quarterly level, I aggregate the monthly mortgage indicators by selecting the maximum within loan and quarter. The data also contains account condition and special comments codes which provide additional details about the loan's performance, such as forbearances, deferrals, modifications, and terminations with specific causes (e.g., refinancing, foreclosure, debt settlements, charge-offs), bankruptcies, and mortgage insurance use. I use the account condition and special comment codes to construct measures of mortgage forbearance, modifications, deferrals, refinancing, and foreclosure starts. Throughout the analysis, I restrict the sample to a balanced panel of $N = 490,710$ primary borrowers with at least one active mortgage in 2020. As noted above, these mortgages are typically held by borrowers with low to moderate income and credit risk and account for approximately 75% of mortgaged homeowners in the data. Excluded from the sample are non-mortgaged homeowners, renters, and borrowers with non-federally backed loans. Below are summary statistics of the sample divided by ever forbearance status.

Table 1: Summary Statistics of All UC-CCP Federally Backed Homeowners

	Full Sample			Forbearance Users		
	Mean	Std Dev	Median	Mean	Std Dev	Median
Pre-COVID						
Credit score	760.07	78.18	785.00	770.91	72.38	796.00
Credit card balance	5,115.98	8,975.83	1,569.00	5,086.11	9,112.79	1,475.00
RC utilization rate	0.26	0.75	0.10	0.24	0.79	0.08
Credit limit (all accounts)	22,736.61	21,634.73	16,750.00	24,699.62	22,964.56	18,524.00
Original mortgage bal.	219,138.30	120,345.94	194,660.00	223,750.28	125,948.09	196,886.00
Post-COVID						
Credit score	688.45	94.20	693.00	702.67	91.85	707.00
Credit card balance	7,013.30	10,800.56	3,264.00	7,086.45	10,775.47	3,151.00
RC utilization rate	0.46	0.88	0.37	0.42	1.10	0.30
Credit limit (all accounts)	19,298.15	20,876.76	12,501.00	21,482.07	22,661.10	14,450.00
Original mortgage bal.	223,750.28	125,948.09	196,886.00	232,963.83	122,078.27	208,000.00
FHA/VA status	0.31			0.52		
Female	0.47			0.46		
Self employed	0.00			0.00		

Table 1 summarizes key variables for all borrowers in the balanced panel. The left panel shows summary statistics for the full sample, including forbearance users, while the right panel Table 1 compares the credit profiles of borrowers in the overall sample with those who entered forbearance following the introduction of the CARES Act, who represent less than 9% of the sample. Across most dimensions, borrowers in the forbearance (treatment) group resemble those in the broader sample. However, a notable exception is that forbearance users were considerably more likely to have FHA or VA mortgages (52% of forbearance users versus 31% of the overall sample). Although the UC-CCP data lacks direct information on income and savings, the distinctive features of FHA and VA loans—such as lower down payment and credit score requirements, offset by higher interest rates—suggest that these borrowers are more likely to be lower-income, liquidity-constrained, and often first-time homeowners.(Cherry et al., 2021)

4 Research Design

I estimate the causal effect of forbearance on financial stability outcomes via two-stage least squares, with plausibly exogenous differences in servicer propensity as an instrument for forbearance. To motivate this design, consider an ideal experiment in which forbearance is randomly provided to households experiencing negative income shocks at t = 0 and lasts for 18 months. In the ideal experiment, the randomization of

treatment permits a causal interpretation to the resulting differences in outcomes after forbearance ends at t=18. The diagram below illustrates potential outcomes for non-zero treatment effects at long horizons (beyond t = 18), using mortgage delinquency as the primary response variable:

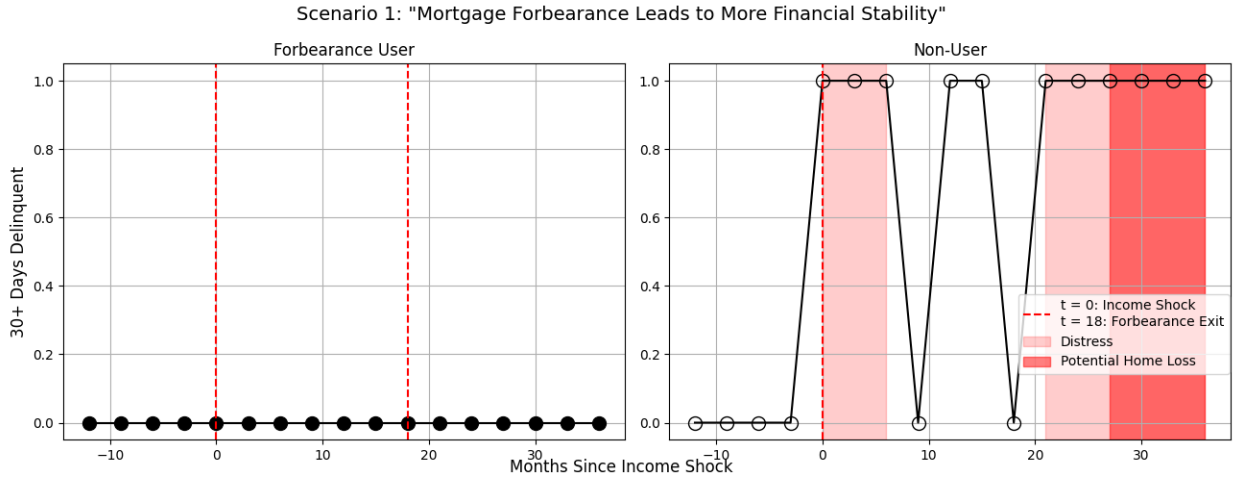
The diagram shows plausible cases where the true long-term causal effect of forbearance on financial stability could be positive or negative.[9] Figure 1a illustrates the case where forbearance prevents mortgage delinquency beyond relief expiry (t =18), compared to a control group, where both the treatment and control groups face negative income shocks at t=0. In this scenario, the control group faces higher risk of sustained delinquency and potential foreclosure, driving the non-zero treatment effect at long horizons. Figure 1b illustrates how forbearance could postpone delinquency until after relief expiry, followed by a rebound effect. In this scenario, the control group benefits from alternative strategies to temper the effects of the initial shock. Non-zero treatment effects may result from substitution between forbearance and other, more effective loss mitigation programs, behavioral responses to treatment (or non-treatment), or accumulating debt during forbearance.

In practice, forbearance provision was not random during the pandemic. Instead, the literature indicates that borrowers with lower income, greater financial risk, and minorities were significantly more likely to enter forbearance under the CARES Act.(An et al., 2022; Cherry et al., 2021; Farrell et al., 2020). To the extent that borrower selection into treatment is unobserved and correlated with outcomes, a simple OLS estimate of the treatment effect would be biased. For example, the estimated effect of forbearance on reducing mortgage delinquency could be overstated if borrowers with higher financial literacy are less likely to be delinquent in general but more proactive in using forbearance during COVID. Conversely, the efficacy of forbearance could be underestimated if unobserved income shocks are correlated with both higher forbearance rates and subsequent delinquencies. To distinguish between the competing hypotheses in Figure 1, I use an instrumental variables approach that leverages plausibly exogenous variation in mortgage servicers' propensity to provide forbearance during the pandemic. The identification strategy posits that after controlling for borrower characteristics and local economic conditions that drive forbearance decisions, the residual variation in mortgage servicers' willingness to provide forbearance is as-good-as random. Formally, I estimate a two-stage least squares (2SLS) with servicer propensity as an instrument. The second stage estimating equation is a local projection of $EverForbearance_i$ on outcomes at period τ:

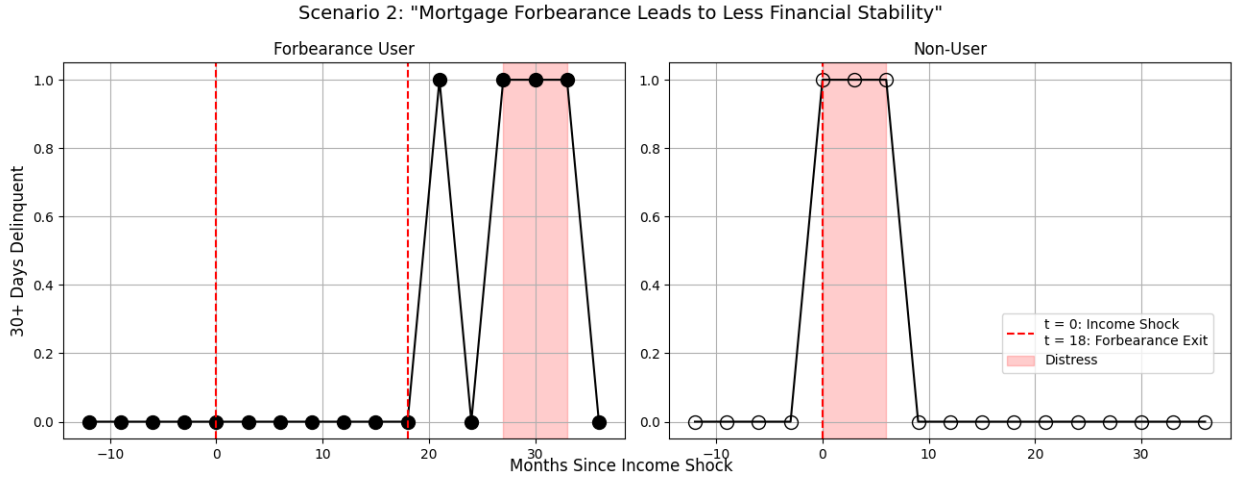
$$y_{i,\tau} = \alpha_{z,\tau} + X_i'\Gamma_\tau + \beta_\tau \widehat{EverForbearance_i} + \epsilon_{i,\tau} \tag{1}$$

[9]It is also plausible to obtain a null treatment effect.

Figure 1: Competing Hypotheses of the Causal Effects of Forbearance



(a) This panel illustrates the case where forbearance prevents mortgage delinquency beyond relief expiry (t =18), compared to a control group, where both the treatment and control groups face negative income shocks at t=0. In this scenario, the control group faces higher risk of sustained delinquency and potential foreclosure, driving the non-zero treatment effect at long horizons.



(b) This panel illustrates how forbearance could postpone delinquency until after relief expiry, followed by a rebound effect. In this scenario, the control group benefits from alternative strategies to temper the effects of the initial shock. Non-zero treatment effects may result from substitution between forbearance and other, more effective loss mitigation programs, behavioral responses to treatment (or non-treatment), or accumulating debt during forbearance.

β_τ represents the causal effect of forbearance on the outcome at the τth horizon. τ representing the month of the end of each quarter after the CARES Act was introduced in March 2020 ($\tau = 0$). Each β_τ is estimated using a cross-sectional regression that incorporates outcome data at time τ, borrower characteristics, X_i, forbearance status, $EverForbearance_i$, and zip code fixed effects, $\alpha_{z,\tau}$.

X_i includes time-invariant borrower i characteristics, such as credit score, mortgage type (GSE, FHA/VA), original loan volume, gender, self-employed status, revolving credit utilization, and credit card limits. $EverForbearance_i$ is a time-invariant indicator for whether an individual ever received forbearance after the CARES Act was introduced.

The corresponding first-stage estimating equation is:

$$EverForbearance_i = \delta_z + X_i'\Delta + \gamma\hat{\sigma_s} + \eta_i \tag{2}$$

$\hat{\sigma_s}$ is the estimate of the systematic component of servicer behavior, which describes the servicer's marginal impact on the probability an eligible borrower ever receives forbearance under the CARES mandate. σ_s contains the conditionally exogenous factors influencing servicer forbearance provision, such as whether a servicer is a shadow bank or a federally regulated depository institution, financial constraints, risk tolerance, degree of capitalization, organizational form, size, as well as COVID-specific information and logistical frictions around delivering forbearance as noted in the introduction. Cherry et al. (2021), Kim et al. (2022) and Aiello (2022) document these factors as part of the key role mortgage servicers played in determining distressed mortgage outcomes during COVID and the Great Recession.

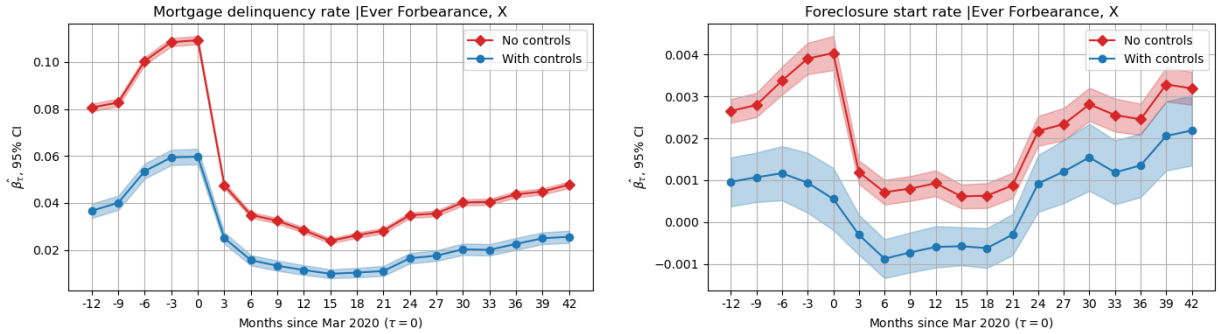
5 Instrument Justification

As described above, confounders such as income and financial literacy may bias the OLS estimates of the causal effect of forbearance. I provide empirical evidence of borrower selection and discuss the proposed instrument's relevance and plausible exogeneity.

5.1 OLS Findings and Caveats

The estimates presented below provide evidence of borrower selection due to unobserved risk factors, which may include financial literacy, negative income shocks, myopia, liquidity constraints, or servicer-side factors. In Figure 2 and 3, I estimate the local projection coefficients β_τ on ever receiving forbearance under the CARES Act using cross-sectional OLS regressions. The red line plots simple average differential rates, while the blue line plots OLS estimated differential rates, which are adjusted by

Figure 2: Mortgage Stability Outcomes (OLS)



(a) Mortgage Delinquency Rate

(b) Mortgage Foreclosure Start Rate

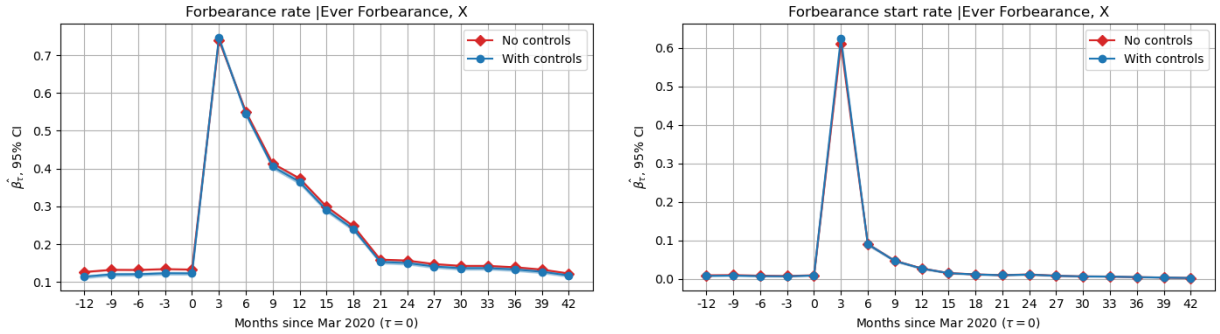
Panel 2a shows the OLS estimated coefficients on mortgage delinquency from ever receiving CARES forbearance with and without additional controls. Panel 2b shows the differential foreclosure rate. In both panels, the blue lines represents the estimated rate after controlling for borrower and mortgage characteristics. The red lines represent the average rates without including controls. Including controls reduces but does not eliminate the presence of pretrends.

orthoganlizing to a rich set of borrower and mortgage characteristics and zip code fixed effects to account for observed differences across borrowers. In Figure 2, the inclusion of controls reduces but does not eliminate the pre-trend estimates of the difference in mortgage delinquency and foreclosure start rates. The endurance or pre-trends after including controls is not entirely surprising given the close resemblance of borrowers in the treatment and overall sample as shown in Table 1. It is worth noting that while the borrowers in the treatment group are largely similar, a key distinguishing feature is that they are significantly more likely to hold a FHA or VA mortgage instead of a GSE-backed loan. This difference may shed light on specific unobserved confounders at play, such as liquidity constraints, lower income, or lower wealth.

The contrast between the red and blue lines in Figure 2 indicates that borrower selection is a significant factor and can be partially addressed by controlling for observed characteristics from the credit reports. For comparison, I include the β_τ estimates of the timing of forbearance below. The red and blue lines largely overlap, demonstrating that the timing of forbearance is largely independent of regional, borrower and mortgage risk factors. Similar to the mortgage stability plots, the timing plots below reveal statistically significant pretrends. These may be driven by unobserved borrower factors, or more likely servicer-side factors, which are not included as controls due to limitations in the data.

Using the 2SLS design described above, I construct the instrument using servicer

Figure 3: Timing of Forbearance (OLS)



(a) Rate of Participants In Forbearance

(b) Rate of Participants Starting Forbearance

Panel 3a shows the rate of CARES participants in forbearance at each point in time. For example, the rate of .75 at $\tau = 3$ indicates that among borrowers who ever used forbearance after CARES was introduced, 75% were in forbearance during 2020Q2. Panel 3b shows the rate of forbearance starts among CARES users at each horizon. The close overlap between the red and blue lines indicates that the timing of mortgage forbearance does not vary significantly with borrower or mortgage characteristics.

fixed effects σ_s from the following cross-sectional regression:

$$EverForbearance_i = \phi_z + X_i'\Gamma + \sigma_s + \epsilon_i \tag{3}$$

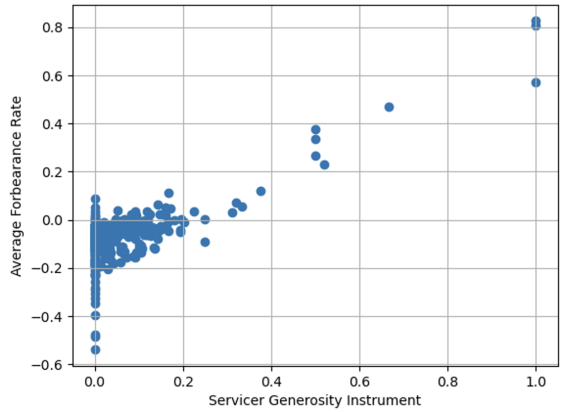
where ϕ_z is a zip code fixed effect, X_i is a vector of borrower controls and σ_s is the systematic component of the servicer's impact on forbearance probability. The figures below describe the distribution and relevance of the servicer generosity instrument.

Figure 4a shows the within-servicer rate of forbearance by estimated forbearance generosity. The scatter plot shows the instrument is highly relevant to forbearance decisions, on average. Figure 4b plots the histogram of servicer generosity levels estimated from equation 3, revealing significant variation in servicer's willingness to provide forbearance during COVID, after orthoganlizing to borrower and mortgage characteristics and zip codes. The variation is interpreted as being driven by servicer logistical and informational frictions as noted in the Fannie Mae surveys in the introduction, or servicer liquidity constraints, organizational form, and regulatory pressures as in Kim et al. (2022) and Cherry et al. (2021). In the table below, I present evidence that the instrument has near-zero correlation with an extended set of borrower and mortgage characteristics. The test of randomness is constructed using the following regression:

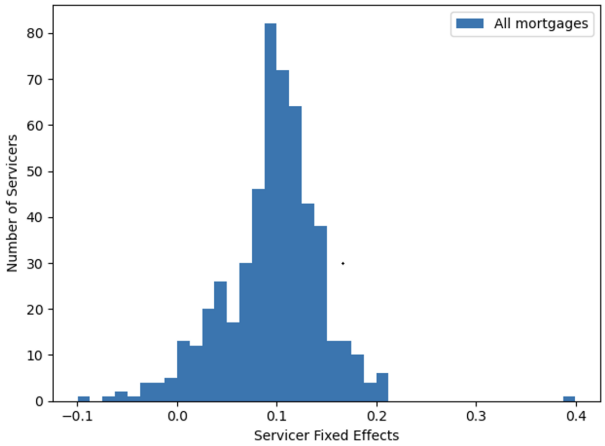
$$\hat{\sigma_i^s} = X_i'\Omega + \mu_z + \varepsilon_i \tag{4}$$

Figure 4: Servicer Generosity Instrument

(a) Servicer Generosity and Forbearance Rate



(b) Variation in Servicer Generosity



Panel 4a shows the within-servicer rate of forbearance by estimated forbearance generosity. Panel 4b plots the histogram of servicer generosity levels estimated from equation 3

Coefficient estimates near zero suggest the instrument is uncorrelated with borrower and mortgage characteristics, and instead represents plausibly exogenous variation driven by servicer factors.

6 Results

The figures below represent the estimated causal effects of forbearance provision on key outcome variables using the 2SLS model specified in equations 1 and 2. 95% confidence bands are also shown, with all standard errors clustered at the zip code level.

Figure 5 shows the timing of forbearance among CARES participants, using the IV specification in equation 1. Here, $\tau = 0$ corresponds to 2020Q1, when the CARES Act was first introduced. During COVID, forbearance uptake was highly concentrated in the 18-month period between $\tau = 3$ (2020Q2) and $\tau = 21$ (2021Q4). The β_τ for $\tau \geq 21$ represent post-forbearance outcomes, as the majority of participants had exited forbearance by this time. The $\tau = 21$ threshold is particularly relevant for borrowers who exited early, given the paper's focus on the longer term impacts of forbearance. Below, I present the instrumented causal effects of CARES forbearance on mortgage stability, additional loss mitigation techniques, and revolving credit performance.

Figure 6 presents the impact of forbearance on two key measures of mortgage stability: delinquency and foreclosure. Panel 6a focuses on delinquencies of 30 or more days for each borrower's largest active mortgage on file. Within one quarter of $\tau = 3$, when

Table 2: Test of Randomness

	(1)
FHA/VA mortgage	-0.009*** (0.000)
Number of accounts past due	0.003** (0.000)
RC balance 2018	0.003*** (0.000)
Borrower age	0.001*** (0.000)
Female	0.000 (0.001)
Self employed	-0.001 (0.001)
Mortgage age	-0.001* (0.001)
Original mort. balance	-0.016*** (0.000)
Vantage score	0.000*** (0.000)
Credit limit	-0.000*** (0.000)
Average Scheduled Mort. Pymnt	-0.000*** (0.000)
RC balance in Mar20	0.000*** (0.000)
R-squared	0.193
S.E. type	by: zip_cd
Observations	385284

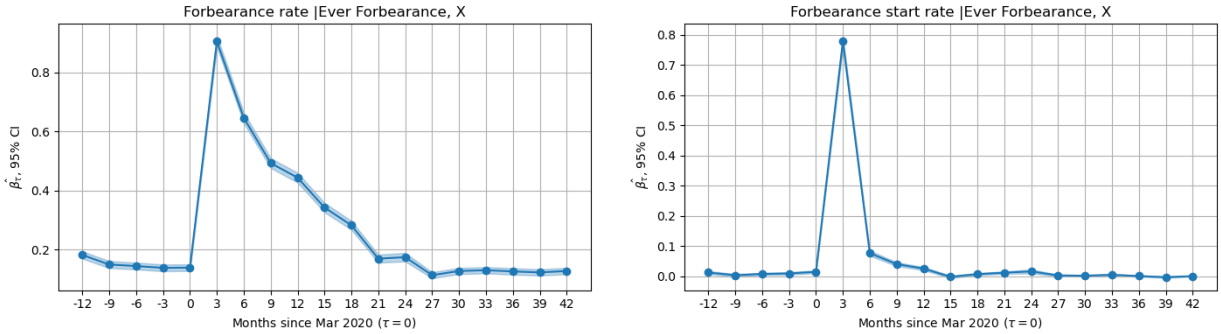
$$\hat{\sigma_i^s} = X_i'\Omega + \mu_z + \varepsilon_i$$

Table 2 shows coefficient estimates from a cross-sectional regression of the servicer fixed effects on an extended set of borrower and mortgage characteristics. Although several point estimates are statistically significant, the near-zero values indicate a very low correlation between the instrument and demand-side factors.

most borrowers enter forbearance, the likelihood of delinquency drops by 2.5 percentage points compared to eligible homeowners who never received forbearance. Over time, this stability gap widens, reaching 7 percentage points at $\tau = 21$ and approximately 20 percentage points at $\tau \geq 30$. Considering that a single mortgage delinquency can lower a borrower's credit score by 50 to 100 points and incur late fees of 3-6% of the past due payment, and that repeated delinquencies (90+ days) often lead to foreclosures, the CARES forbearance provision significantly improved long-term balance sheet health by preventing mortgage delinquency. Panel 6b focuses on the impact of forbearance on foreclosure risk. The results indicate a modest but statistically significant effect on reducing foreclosure rates at long horizons. Taken together, these findings demonstrate that the temporary payment pause during COVID had a significant, lasting impact on improving household financial health through stabilizing mortgages. These results are consistent with the model in which forbearance enhances financial stability by providing timely relief to borrowers

Under the CARES Act, the levels of relief from forbearance varied significantly, as

Figure 5: Timing of Mortgage Forbearance

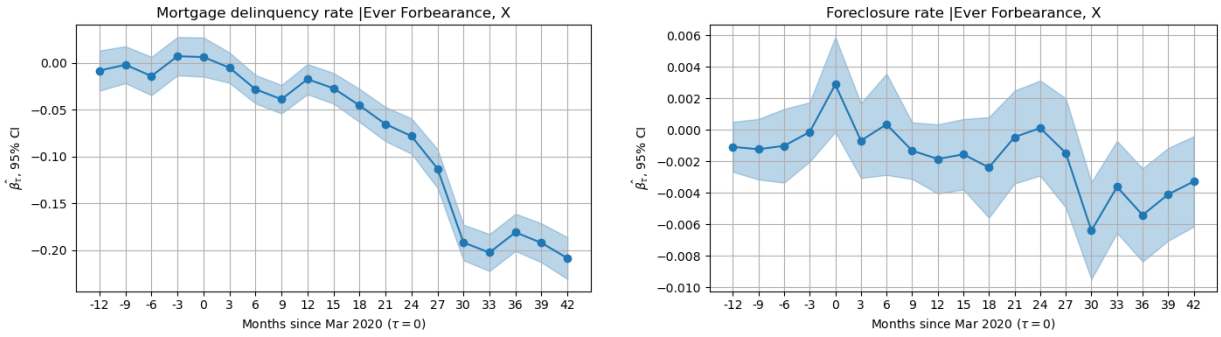


(a) Rate of Participants in Forbearance

(b) Rate of Participants Starting Forbearance

Panel 5a shows the proportion of participants using the program at each point time. Panel 5b shows the start rate among forbearance users. Roughly 80% of participants start forbearance at $\tau = 3$ (2020Q2), with the vast majority of borrowers exiting by $\tau = 21$ (2021Q4). After $\tau = 21$, the forbearance rate among CARES users returns to the pre-pandemic level, around 15%.

Figure 6: Mortgage Stability Effects



(a) Mortgage Delinquency Rate

(b) Mortgage Foreclosure Rate

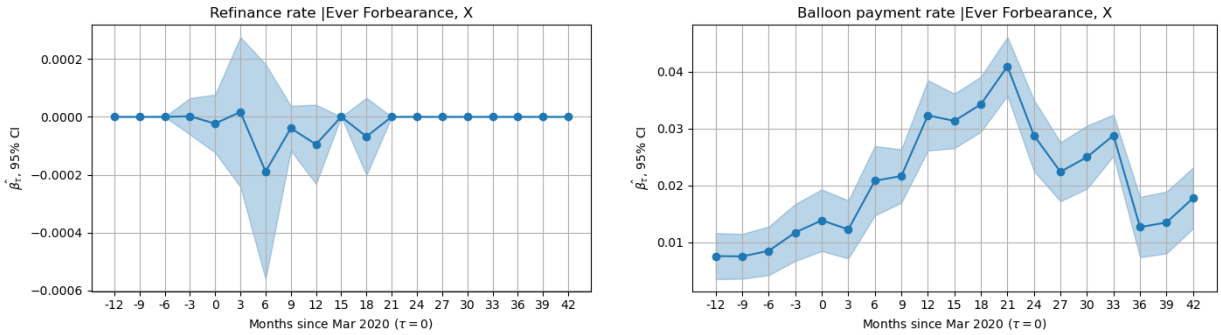
Panel 6a shows the instrumented causal impact of forbearance on mortgage delinquency risk using the largest active mortgage on file for each borrower. Delinquency is defined as any payment more than 30 days past due. Panel 6b shows the instrumented causal impact on the foreclosure rate. Both graphs show statistically insignificant pretrends, indicating a negligible correlation between the servicer generosity instrument and mortgage stability outcomes prior to COVID.[10]

mortgage servicers retained discretion over the workout plans used to bring mortgages current after the forbearance period. These plans ranged in leniency, from balloon payments (also known as reinstatements), where borrowers were expected to settle

the entire deferred amount immediately after forbearance, to more gradual repayment plans, allowing homeowners an extended period to resolve their outstanding payments. Additionally, servicers were encouraged to screen forbearance candidates before granting relief, determining whether an alternative loss mitigation solution might be more effective.

The interaction between forbearance and other loss mitigation strategies highlights best practices for reducing financial distress during recessions through mortgage relief programs. Below, I present findings on how forbearance influenced mortgage servicers' provision of loss mitigation alternatives.

Figure 7: Loss Mitigation Strategies



(a) Mortgage Refinance Rate

(b) Mortgage Balloon Payment Rate

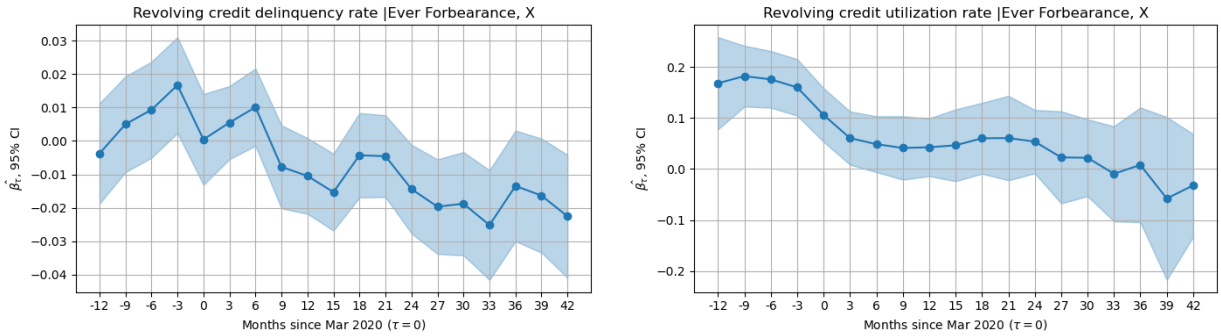
Panel 7a shows the instrumented effect of CARES forbearance on refinance rates, where sufficient variation is available to estimate β_τ. Panel 7b shows the instrumented effect on balloon payment rates.

Figure 7 the effects of forbearance provision on the use of loss mitigation alternatives, in particular, refinancing in Panel 7a and balloon payments (reinstatements) in Panel 7b. Forbearance leads to a noteworthy reduction in refinancing rates between $\tau = 6$ and $\tau = 21$, with no significant impact at longer horizons. The substitution between forbearance and refinancing at earlier horizons is mechanical while borrowers were in forbearance, and it highlights a potential unintended consequence of the relief: by opting into forbearance, borrowers may have missed the opportunity to refinance into a lower interest rate. Despite these potential foregone savings, the forbearance recipients' gains in terms of mortgage stability suggest that the timeliness of forbearance relief may have been particularly influential, despite its temporary structure. Panel 7b shows how forbearance provision affected the issuance of balloon payments around COVID. Interestingly, servicers with more generous forbearance provision during COVID were slightly more likely to issue balloon payments prior to the pandemic.

Balloon payment rates peak at $\tau = 21$, when the last cohort of participants exited forbearance. While the spike in balloon payments could have potentially caused a "rebound effect" in terms of mortgage default, the empirical evidence on mortgage stability outcomes in Figure 6 demonstrate that forbearance recipients retained their ability to meet mortgage payment obligations after leaving forbearance. These findings provide additional evidence of the forbearance program's efficacy despite the potential lost refinancing opportunities and financial stability risk imposed by balloon payments.

The empirical findings demonstrate the effectiveness of forbearance under the CARES Act in stabilizing mortgage performance during the COVID-19 recession. A natural follow-up question is whether recipients genuinely needed forbearance or if they used the program as an opportunity to increase short-term liquidity and consumption. However, as illustrated below, the provision of forbearance actually resulted in a reduction in revolving credit utilization rates. This suggests that recipients did not channel the additional liquidity into increased spending, indicating that opportunistic use of forbearance had a limited impact on the mortgage stability outcomes described above.

Figure 8: Revolving Credit Stability Effects



(a) Revolving Credit Delinquency Rate

(b) Revolving Credit Utilization Rate

Panel 8a represents the instrumented effect of CARES forbearance on credit card delinquency rates. The credit card delinquency rate is defined as available to estimate β_τ. Panel 8b shows the instrumented causal impact on balloon payment rates.

Panel 8a shows that forbearance had a modest, statistically significant impact on reducing credit card delinquencies between $\tau = 24$ and $\tau = 33$. Panel 8b indicates that revolving credit utilization rates fell in response to forbearance provision. Taken together, the revolving credit response to forbearance provides evidence of positive spillovers in terms of reducing credit card delinquencies, without prompting additional spending in response to the liquidity boost.

7 Heterogeneity Analysis

In this section, I analyze the heterogeneous impacts of mortgage forbearance based on exit plans and forbearance duration. As highlighted by Calabria (2023), policymakers faced the challenge of designing forbearance policies that minimized "payment shock" for borrowers resuming payments, while also protecting servicers from liquidity risk and GSEs from credit risk. Key dimensions of the policy included the structure of repayment and the length of forbearance allowed under the policy. The CARES forbearance provision gave servicers full discretion over forbearance workout plans, with the knowledge that servicers were incentivized to provide borrowers with sustainable post-forbearance plans. Additionally, the CARES Act permitted up to 12 months of forbearance, prioritizing borrower relief to enhance the program's stimulative effects, though this also increased the risk of "payment shock" for borrowers who opted for extended forbearance periods.

7.1 Event Study Design

To study the heterogeneous effects of forbearance by exit plan and duration, I restrict the sample to borrowers who used forbearance after CARES was introduced with a known exit data recorded in the data. Then, I stack the observations to $k = 0$ at the monthly period when each borrower exits forbearance. I further restrict the sample to a balanced panel of borrowers who are observed between $k = -18$ and $k = 36$. The specification is:

$$y_{i,t} = \alpha_t + X_{i,t}\gamma + \sum_{k=-18, k\neq -3}^{36} \beta_k D_{i,t}^k \times Feature_i + \varepsilon_{i,t} \tag{5}$$

β_k captures the differential impact of having a particular forbearance policy feature (balloon payment or long forbearance) at at period k relative to the control group. $X_{i,t}$ includes credit scores, number of accounts past due, and credit card balances prior to COVID. α_t is a calendar time fixed effect.

7.2 Balloon Payments vs Other Exit Plans

Because forbearance programs outside the COVID context typically require lump-sum balloon payments, many borrowers and servicers mistakenly assumed this would apply to CARES Act forbearance provisions as well, which in some cases deterred borrowers from opting in (Consumer Financial Protection Bureau, 2021).[11] When considering

[11] In practice, however, UC-CCP data shows that only 9% of CARES forbearance users encountered balloon payments after exiting forbearance.

the trade-off between protecting household financial stability and managing risk to servicers, balloon payments help ensure prompt repayment to servicers but can increase the risk of delinquency, as these payments generally must be made in full. To examine whether balloon payments caused borrowers to miss mortgage payments at a higher rate, I use the the event study specification in equation 5, with $Feature_i = 1$ if the borrower ever encounters a balloon payment after exiting forbearance.

Below I present the summary statistics of balloon forbearance exiters, compared with the control group of non-balloon exiters. The sample is restricted to a balanced panel of borrowers observed between $k = -18$ and $k = 36$.

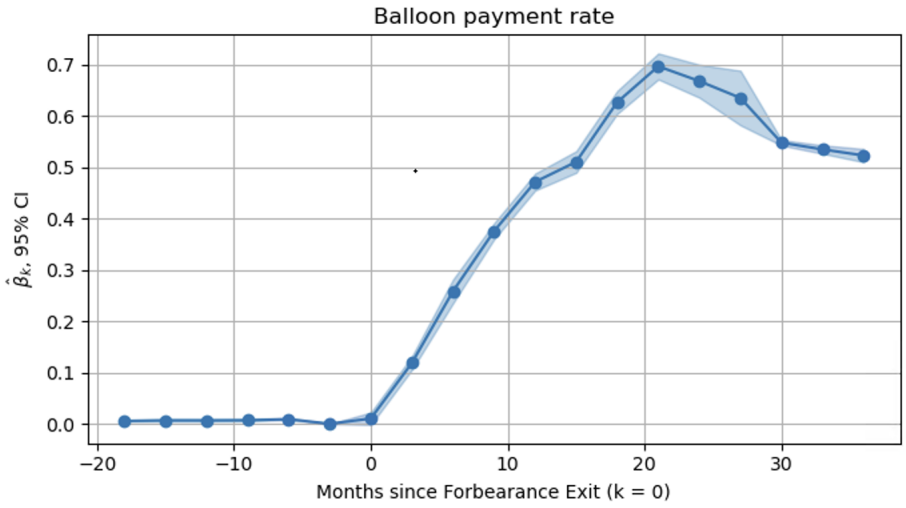
Table 3: Summary Statistics by Forbearance Exit Type

	Non-Balloon Exit			Balloon Exit		
	Mean	Std Dev	Median	Mean	Std Dev	Median
Pre-COVID						
Credit score	688.45	94.20	693.00	702.67	91.84	707.00
Credit card balance	7,013.44	10,800.67	3,264.00	7,086.45	10,775.47	3,151.00
Revolving credit utilization rate	0.46	0.88	0.37	0.42	1.10	0.30
Credit limit (all accounts)	19,298.52	20,876.88	12,501.00	21,482.45	22,661.07	14,450.00
Post-COVID						
Credit score	702.67	91.84	707.00	714.09	92.60	722.00
Credit card balance	7,086.45	10,775.47	3,151.00	7,777.96	11,515.22	3,491.00
Revolving credit utilization rate	0.42	1.10	0.30	0.57	0.28	0.39
Credit limit (all accounts)	21,482.45	22,661.07	14,450.00	23,282.08	22,993.77	16,680.00
Original mortgage bal.	223,732.17	125,924.18	196,886.00	232,963.83	122,078.27	208,000.00
FHA/VA status	0.52			0.52		
Female	0.46			0.46		
Self employed	0.00			0.01		

The summary statistics table indicates that the credit profiles of forbearance users with and without balloon payments were broadly similar. However, unobserved factors such as income, savings, and home equity could still influence a servicer's decision to require a balloon payment and affect subsequent borrower outcomes. Consequently, the event study findings should be interpreted as descriptive rather than causal evidence.

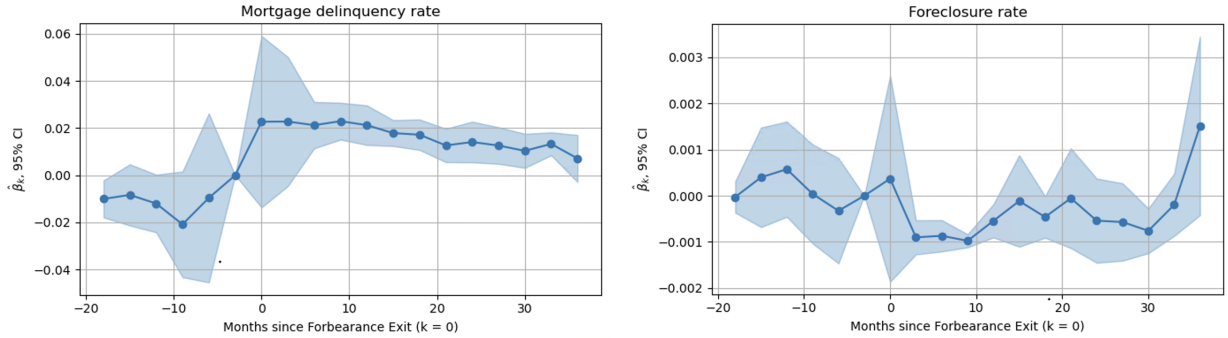
Reporting lags likely impact the observed timing of balloon payments in the credit bureau data. According to Figure 9, among balloon exiters, 10% were faced with the lump-sum payments immediately after exiting forbearance, with the rate gradually increasing to 70% within a year and a half of forbearance exit, then gradually falling and tapering off to around 50%. However, policy guidance from the FHFA and other agencies indicates the majority of these balloon payments likely hit immediately as borrowers exited forbearance, and the observed delays are due to reporting lags in the credit bureau data.

Figure 9: Timing of Balloon Payments



The graph depicts the differential rate of balloon payments among CARES participants with exit plans featuring balloon payments at some point after forbearance. Each dot point is a β_k estimated from equation 5. The observed delays in balloon payment rates after forbearance exit are most likely driven by reporting lags.

Figure 10: Balloon Forbearance Exit and Mortgage Stability



(a) Delinquency Rate with Balloon Exit

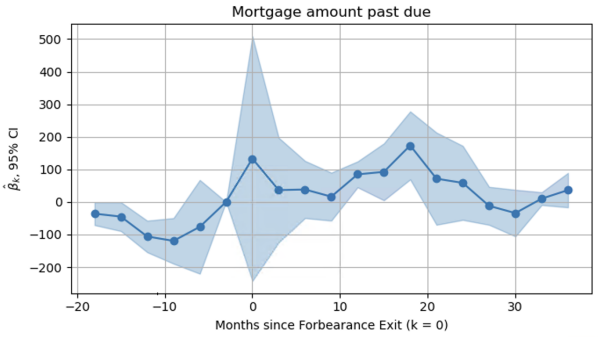
(b) Foreclosure Rate with Balloon Exit

Panel 10a plots the differential delinquency rate among balloon exiters. 10b shows the differential foreclosure rate. 95% confidence intervals are also shown, using heteroskedasticity-robust standard errors.

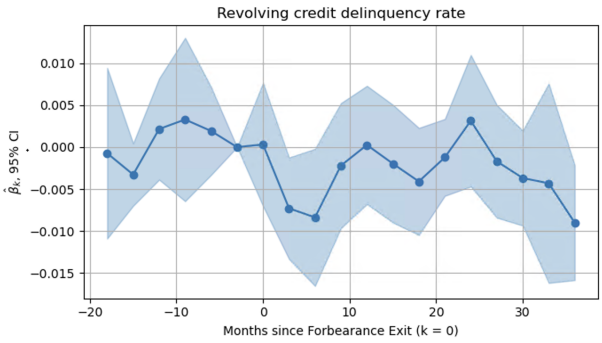
Figure 10a plots the β_k estimates from the event study in equation 5, where $Feature_i = 1$ if a borrower ever faces a balloon payment after exiting forbearance. The control group includes borrowers who exited forbearance with workout plans that never featured balloon payments. Upon exiting forbearance, borrowers assigned balloon payments were persistently 2 percentage points more likely to be delinquent than

non-balloon exiters. In Figure 10b, balloon exiters were temporarily .1 percentage point less likely to face foreclosure but the effect becomes statistically insignificant at the one year mark. Overall, the fact that balloon payments were associated with persistently higher delinquency risk relative to gradual workout plans indicates that future forbearance programs may improve by restricting the use of balloon payments to a smaller subset with a high likelihood of timely repayment.

Figure 11: Balloon Forbearance Exit and Debt Levels



(a) Mortgage Amount Past Due with Balloon Exit



(b) RC Delinquency Rate with Balloon Exit

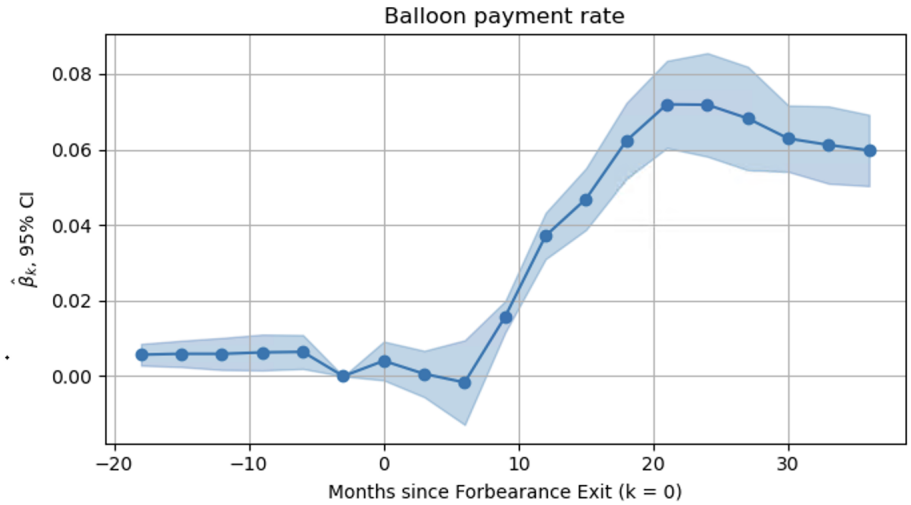
Panel 11a shows the differential mortgage amount past due among balloon exiters. 11b shows the revolving credit delinquency rate. 95% confidence intervals are also shown, using heteroskedasticity-robust standard errors.

Given that balloon payments increase the risk of delinquency, the naturally ensuing questions would be whether balloon payments correspondingly raise mortgage debts (amounts past due), and whether the risk spills over to revolving credit accounts. In 11, I show a modest, approximately $100 increase in mortgage amounts past due for balloon exiters, although the effect is statistically indistinguishable from zero for most periods. In addition, I find no evidence of risk spillovers to revolving credit stability. These findings suggest that facing a balloon payment after forbearance did not have an economically or statistically significant impact on debt levels relative to non-balloon exiters.

7.3 Long vs. Short Forbearance Duration Effects

The duration and implied volume of relief (as well as repayment obligation) varies significantly across borrowers, with potential implications for borrowers and servicers. In the data, roughly 8% of CARES forbearance participants stayed in forbearance for more than six months. Recall from the competing hypotheses diagram in Figure 1

Figure 12: Long Forbearance and Balloon Payments



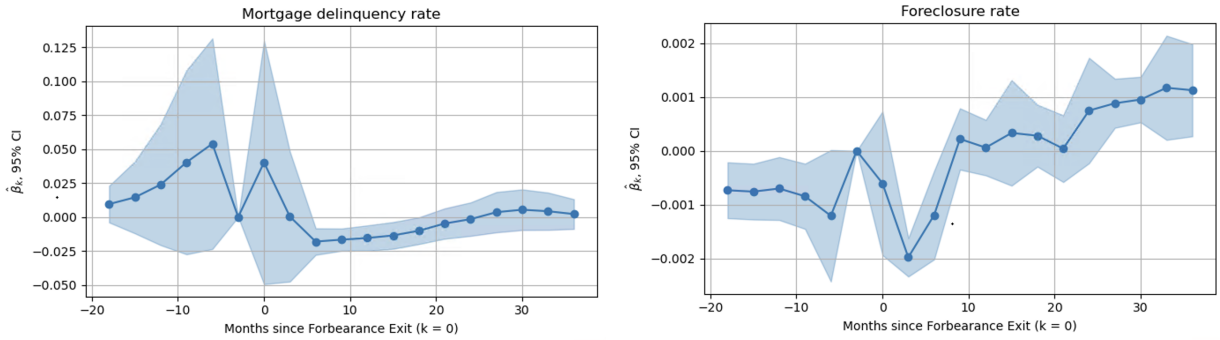
This figure shows the differential balloon payment rate among forbearance users who stayed in forbearance for greater than six months, relative to those who stayed for fewer than six months. 95% confidence intervals are also shown, with heteroskedasticity-robust standard errors. Long forbearance users were between 2 and 8 percentage points more likely to face balloon payments upon exiting forbearance.

that in principle, forbearance can potentially lead to financial instability if borrowers accumulate unsustainable debt, form spending habits that do not take into account mortgage habits, or develop a moral hazard. These risks are especially pertinent the longer forbearance goes on. Nevertheless, longer forbearance periods can also be extremely beneficial to households that require these funds to meet housing payment obligations for an extended period, but retain their ability to repay missed obligations once payments resume. To estimate the direction of the effect of having long forbearance versus short forbearance, I employ the event study specification in equation 5. In this analysis, $Feature_i$ is set to 1 if a participant has forbearance for six months or more, and 0 otherwise. As with the balloon payment analysis, unobserved factors such as employment status could influence both the choice of forbearance duration and subsequent financial outcomes, meaning that the findings do not have a purely causal interpretation. Nevertheless, the descriptive results remain relevant for policymakers.

In Figure 12, I plot the β_k estimates from the regression in equation 5, where the covariate of interest is an indicator for whether forbearance lasted for more than 6 months, interacted with event time dummies. The figure indicates that long forbearance users were between 2 and 8 percentage points more likely to face a balloon payment. However, the exact timing of the balloon payments is unclear due to reporting lags in the credit bureau data. The fact that long forbearance users were significantly more likely

to be assigned a balloon payments may reflect servicers' eagerness to recoup liquidity after granting extended periods of relief.

Figure 13: Long Forbearance and Mortgage Stability



(a) Delinquency Rate with Long Forbearance (b) Foreclosure Rate with Long Forbearance

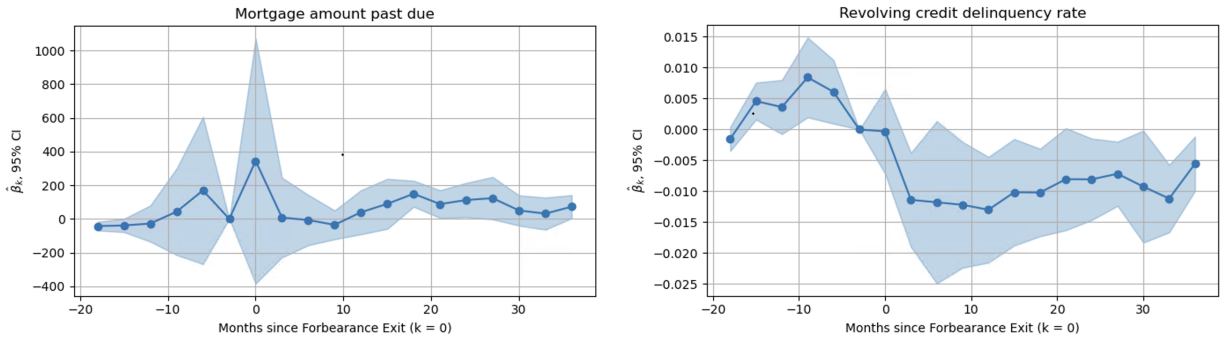
Panel 13a event study results for the differential mortgage rate among long forbearance users. 13b shows the differential foreclosure rate. 95% confidence intervals are also shown, with heteroskedasticity-robust standard errors.

Figure 13 illustrates the differential impact of opting into forbearance for six or more months on mortgage delinquency and foreclosure rates. The results show a temporary reduction in mortgage delinquency rates, followed by a sustained period of no significant effect. The impact on foreclosure rates is more pronounced, with a substantial reduction of over 1 percentage point one quarter after exiting forbearance, followed by a significant rebound effect that begins to emerge six months after forbearance exit. In terms of distinguishing between the competing hypotheses illustrated in Figure 1, the foreclosure findings support the interpretation that forbearance can lead to instability, especially for borrowers facing persistent financial difficulties, while the mortgage delinquency results lend themselves to the interpretation of a null treatment effect of longer forbearance.

Given the lack of mortgage delinquency risk associated with longer forbearance duration, it is not surprising that dollar amounts past due on the mortgages are similarly unaffected by the length of forbearance, as shown in Figure 13a. However, it is worth noting that longer forbearance duration is associated with a large, persistent drop in revolving credit delinquency rates, which suggests that households use the liquidity from extended relief periods to stabilize their balance sheets. This is consistent with the main finding presented in the results section, in which forbearance users reduce their revolving credit utilization rates as a result of the relief.

Overall, the long forbearance analysis indicates that participants who opted in for

Figure 14: Long Forbearance and Debt Levels



(a) Mortgage Amount Past Due

(b) Revolving Credit Delinquency Rate

Panel 14a event study results for the differential mortgage amount past due among balloon exiters. 14b shows the revolving credit delinquency rate. 95% confidence intervals are also shown, with heteroskedasticity-robust standard errors.

extended duration had temporarily lower foreclosure rates, although rebound effects begin to appear after the 6 month mark. Longer forbearance periods were associated with a persistent 1.5pp reduction in revolving credit delinquency rates, with limited or no effect on mortgage delinquency rates or amounts past due. Taken together, the forbearance duration analysis suggests that these borrowers benefited from channeling the liquidity to avoid credit card delinquencies; however, those with entrenched financial hardship remain exposed to foreclosure risk, particularly at longer horizons.

8 Conclusion

This paper employs a judges IV design to estimate the causal impact of COVID-era mortgage forbearance on the financial stability of households, measured in terms of mortgage payment timeliness, foreclosure, and revolving credit utilization and risk of delinquency. Leveraging quasi random variation in the degree of generosity of servicers tasked with delivering forbearance, I find that the program significantly reduced mortgage delinquency and foreclosure rates, with positive spillovers to revolving credit stability during and after the pandemic. Furthermore, I use an event study approach to analyze heterogeneous policy effects driven by both forbearance exit plans and the duration of relief.

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