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GOVERNMENT AND PRIVATE HOUSEHOLD DEBT RELIEF DURING COVID-19

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ABSTRACT

We follow a representative panel of US borrowers to study the suspension of household debt payments (debt forbearance) during the COVID-19 pandemic. Between March and October of 2020, loans worth \$2 trillion entered forbearance. On average, cumulative payments missed per individual in forbearance during this period were largest for mortgage (\$3,200) and auto (\$430) borrowers. We estimate that more than 60 million borrowers will miss \$70 billion on their debt payments by the end of 2021:Q1. This large amount of debt relief significantly dampened the household debt distress, which can help explain household delinquencies below pre-pandemic levels—a significant difference from other economic crises when delinquencies sharply increased along with unemployment. Forbearance thus may have had potentially large aggregate consequences for house prices and economic activity. Relief flows more to higher income individuals than those receiving stimulus checks, partially due to their higher debt balances: 60% of aggregate forbearance is provided to above median income borrowers. On the other hand, forbearance rates are higher among the more vulnerable populations: individuals with lower credit scores and lower incomes. Borrowers in regions with a higher likelihood of COVID-19 related economic shocks and higher shares of minorities were more likely to obtain debt relief. One third of borrowers in forbearance continued making full payments, suggesting that forbearance acts as a credit line, allowing borrowers to “draw” on payment deferral if needed. More than a quarter of total debt relief was provided by the private sector outside of the government mandates. Exploiting a discontinuity in mortgage eligibility under the CARES Act we estimate that implicit government debt relief subsidies increase the rate of forbearance by about 25%. Government and private relief follow similar patterns across income and creditworthiness, suggesting that borrower self-selection in requesting forbearance is an important determinant of debt relief incidence, and drives the distribution of relief across different population strata. Government relief is provided through private intermediaries, which differ in their propensity to supply relief, with shadow banks less likely to provide forbearance than traditional banks.

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I: Introduction

Large economic crises such as the Great Depression and Great Recession are often accompanied by significant household debt distress, which spills over to the rest of the economy (Mian and Sufi 2009; Keys et al 2013). Governments have therefore regularly intervened in household credit markets during such times. This was also the case during the COVID-19 pandemic, where the Coronavirus Aid, Relief, and Economic Security (CARES) Act included several provisions mandating debt forbearance - temporary suspension of debt repayments – on a large share of mortgages and almost all student debt. Debt forbearance differs from other government programs, because it is also provided voluntarily by the private sector outside of government mandates and is used to restructure debt payments of households outside of crises. We document the extraordinary size and speed of debt forbearance in response to the COVID-19 pandemic and the resulting low levels of household debt distress, which likely significantly dampened the potential spillovers to the rest of the economy. We measure the incidence of the relief across population strata, as well as the role that borrowers’ self-selection and government subsidies paid in determining the amount and incidence of the relief.

We study government and private forbearance during the COVID-19 pandemic by using a representative credit bureau panel of more than 20 million US consumers. The data allows us to study which loans allow payment deferral (loans in forbearance) as well as the extent to which households chose to miss payments. Some households, for example, decided to make full payments despite being in forbearance. We use the data to measure the extent of forbearance, as well as its distribution across households with varying credit quality, income, exposure to COVID-19, and economic shocks. Finally, the data allow us to classify which loans were eligible for debt relief under the CARES Act, and which relief was provided by the private sector.

We start by documenting the level of forbearance across different categories of debt. Between March and October 2020, loans worth \$2 trillion were in forbearance, affecting 60 million individuals. Forbearance rates substantially increased across all categories of household debt, with share of loans in forbearance ranging from 4.6% for revolving debt, to 92% for student debt. The lion share of new forbearance initiated during the COVID-19 crisis was in the categories of mortgages and student debt, accounting for, respectively \$1.1 trillion and \$580 billion, the first because of the large balances, and the latter due to large take-up rates. While in forbearance, individuals have the option to pause payments on their loans. We find that around a third of borrowers in forbearance continued making full loan repayments. Therefore, forbearance partially acts as a credit line, allowing borrowers to “draw” on forbearance if needed.

Forbearance actions resulted in substantial financial relief for households. On average, cumulative payments missed by individuals in forbearance during the March-October 2020 period were largest

for mortgage debt (\$3,200) and auto (\$430) debt. By October 2020, debt forbearance allowed US consumers to miss about \$43 billion debt payments. At this rate, more than 60 million consumers would miss about \$70 billion of their debt payments by the end of the first quarter of 2021.

The extent of forbearance has significant aggregate consequences, by substantially dampening household debt distress. In the Great Recession, for example, mortgage delinquencies rose from their low of 2% to more than 8%, spilling into the rest of the economy through a decline in house prices, as well as aggregate demand (Mian and Sufi 2011 and 2014a; Berger et al. 2017; Benmelech et al. 2017; Kaplan et al. 2017; Piskorski and Seru 2020). During the COVID-19 pandemic, instead, delinquency rates declined from 3% to 1.8%. This is especially striking given an unprecedented increase in unemployment rate that reached almost 15% in 2020:Q2 and the strong historical association between the unemployment rate and mortgage default (see Piskorski and Seru 2018). A back of the envelope calculation suggests that most potential delinquencies in the mortgage market were averted because of forbearance. We speculate that the low delinquencies explain at least in part why the pandemic has not resulted in house price declines.

The incidence of household debt forbearance differs substantially from other relief programs targeted at households. About 60% of the dollar amount of financial relief from forbearance was received by borrowers with above median pre-pandemic incomes. Thus, forbearance provides relief to higher income individuals than other CARES act policies such as stimulus checks. This fact does not imply that forbearance relief flow is, on average, unrelated to pandemic induced shocks. Lower income households are more likely to obtain forbearance relief. Because they have lower debt balances, the dollar value of debt relief is also smaller. Therefore, conditional on obtaining forbearance, higher income households obtain larger dollar values of relief. The rates of forbearance also decline with creditworthiness. This observation highlights an important feature of forbearance. Incidence is related to borrowers' credit constraints, while other programs, such as stimulus check programs, often target individuals based solely on their prior income. Debt forbearance may have complemented other stabilization programs by providing significant relief to financially vulnerable individuals with higher pre-pandemic incomes – i.e., individuals ineligible for policies like the stimulus check program.

Forbearance has the potential to provide targeted relief to borrowers who are subject to shocks, because it is up to the borrower to request it and is subject to lender approval in the case of private forbearance. Either borrower self-selection or lender scrutiny could result in a large propensity for relief among households who require it. We document that households with a higher likelihood of COVID-19 related shocks were more likely to obtain debt relief. Forbearance rates are significantly higher in regions that experienced the highest COVID-19 infection rates and the greatest deterioration in their local economies, as reflected by unemployment insurance claims and the concentration of industries most exposed to the pandemic. As has been documented, the

economic and health consequences of the pandemic have disproportionately impacted minorities, especially Black Americans. Consistent with this observation, regions with higher shares of minorities and Blacks received debt forbearance at higher rates. Thus, forbearance may have reached its intended target, and might have especially helped households who were affected but might otherwise not be eligible for income-based programs.

We conclude our analysis by studying the significant role of the private sector in extending debt relief. We use the analysis to evaluate the role of implicit forbearance subsidies forbearance and that borrower self-selection in determining the level and incidence of forbearance. The CARES Act mandated forbearance of federally insured mortgages and student loans. We also find substantial increases in forbearance in auto and credit card loans, as well as mortgage loans not eligible under the cares act. Overall, approximately more than a quarter of total relief was provided by the private sector for debt not eligible under CARES rules.

We exploit the mandated approval of CARES act eligible mortgages to understand the role of borrower self-selection in determining the incidence of debt relief. There are generally two steps in determining, which borrowers obtain debt relief. First, the borrower must request relief from the lender—self-selection. Second, the lender must agree to provide relief, which was mandated for government loans. More than 90% of borrowers decided not to take-up rate the option of debt relief among eligible mortgages, suggesting that borrowers' self-selection is a powerful force in determining forbearance rates.

We also want to understand the degree to which self-selection is responsible for the distribution of debt relief across households. Recall that forbearance rates are higher among lower income and less creditworthy borrowers, but that the dollar amounts are larger among the higher income individuals. To obtain mortgage forbearance under CARES ACT, eligible mortgage borrowers had to apply for forbearance, but forbearance for those loans was mandated. In other words, borrower's self-selection is driving forbearance rates for these loans. Forbearance of non-eligible (private) loans, on the other hand, must be approved by the lender. Therefore, private debt relief is the outcome of a mutually beneficial renegotiation.

We document that forbearance rates decline in income and creditworthiness for private and government loans across loan categories. These results suggest that borrowers' self-selection is important in determining how relief is allocated. In other words, unlike more blanket CARES Act subsidies, such as stimulus checks, mortgage debt relief flows to more vulnerable households precisely, because these types of households apply for it. This stands in stark contrast to federally insured student loans that were automatically placed in the forbearance by the CARES Act, resulting in more blanket relief, which was not necessarily correlated with borrower need.

Private debt relief is presumably a result of an (ex-ante) mutually beneficial renegotiation. Government mandated relief does not need to be mutually beneficial: it can result in a transfer

from the lender (government) to the borrower. Such subsidies to household debt relief may very well be warranted in the presence of renegotiation frictions and aggregate spillover that can result from distressed household debt. We document that more than a quarter of relief is private, suggesting that not all government relief is subsidized. On the other hand, CARES Act eligible debt differs from private debt both in its type, and the types of borrowers, making it difficult to evaluate the magnitude of subsidies.

To evaluate the importance of implicit government subsidies we exploit a size discontinuity in eligibility of mortgages for relief under the CARES Act. While government-insured loans below the conforming loan limit qualified for government mandated forbearance, loans above the limit were not eligible.¹ Restricting our analysis to mortgages with balances near the conforming loan balance limits, we find that the percentage of loans in forbearance increases by about 25% for loans covered by the mandate. This is opposite from the pattern outside of the pandemic, in which loans issued without government guarantees have slightly higher forbearance rates at the discontinuity. In other words, our back of the envelope estimates suggests that about 20% of government forbearance is subsidized, and the rest is provided to borrowers who would have been eligible under a private benchmark.

Debt relief is provided through loan servicers, which may not have ownership of the loan, nor did they necessarily originate it. Moreover, government relief is explicitly provided by a variety of private servicers, more than half of whom are shadow banks. Since relief of government loans is mandated, one might expect that there are few differences between suppliers. Instead, even accounting for borrower characteristics, we find lower rates of forbearance for loans serviced by shadow banks relative to traditional banks. This result suggests that despite the blanket government mandate, who implements forbearance has a meaningful effect on the amount of debt relief provided.

The Great Recession was marked by a wave of household debt delinquencies and foreclosures, which spilled over in the rest of the economy, and a significant passage of time before implementation of major debt relief programs (Piskorski and Seru 2018). We document that a quick and widespread implementation of debt relief during the COVID-19 pandemic both by policy makers as well as the private sector was accompanied by historically low debt delinquencies, and the debt relief has been positively related with exposure to shocks and financial vulnerability.

One possible reason for the quick implementation of debt relief actions is that the private sector and policymakers may have internalized the lessons from the Great Recession pointing to

¹ Jumbo loans exceed the conforming loan balance limits set by the Federal Housing Finance Agency and cannot be purchased, guaranteed, or securitized by the government sponsored enterprises (GSEs).

significant costs of widespread defaults and foreclosures and were more willing to provide widespread and quick debt relief (Eberly and Krishnamurthy 2014; Campbell et al. 2020; Piskorski and Seru, 2018). The large private response suggests that a substantial amount of debt forbearance was mutually beneficial. Another alternative reason for such behavior could be that the COVID-19 shock was perceived as more transitory relative to prior crises, which could have promoted a more widespread deployment of temporary debt relief measures by the private sector. This is consistent with the consumer debt design literature, which indicates that lenders should provide a certain amount of debt relief during economic downturns to limit deadweight costs of default and allow better risk-sharing between borrower and lenders, especially if the underlying shocks are transitory (e.g., see Piskorski and Tchisty 2010, 2011, 2017; Eberly and Krishnamurthy 2014; Greenwald et al. 2020; Guren et al. 2020, Landvoigt et al. 2020; Campbell et al. 2020). Relatedly, the COVID-19 shock is a textbook example of a rare aggregate “exogenous” shock that is largely outside of the agents’ influence. This should alleviate concerns about the moral hazard effects of debt relief on incentives to repay debt leading to a more widespread loan renegotiation efforts during such times (Piskorski and Tchisty 2010, 2011, 2017; Mayer et al. 2014).

Our paper is related to the literature on the role of household balance sheet channel in the transmission of economic shocks (e.g., Mian and Sufi 2009, 2011, 2014a; Guerrieri and Uhlig 2016; Hurst et al. 2016; Agarwal et al. 2017, 2018, 2020; Berger et al. 2017 and 2019; Benmelech et al. 2017; Kaplan et al. 2017; Favilukis et al. 2017; Di Maggio 2017, 2020; Greenwald 2018, Guren et al. 2018; Auclert 2019; Beraja et al. 2019, Eichenbaum et al. 2019; Andersen et al. 2020). Within this literature our paper contributes to the recent studies that analyze the effects of various stabilization programs operating through the household balance sheet channel (e.g., Mian and Sufi 2012; Parker et al. 2013; Hsu et al. 2018; Berger et al. 2020) and especially the empirical studies focusing on various forms of debt relief (e.g., Piskorski et al. 2010; Agarwal et al. 2010; 2017, 2020; Mayer et al. 2014; Scharfstein and Sunderam 2016; Ganong and Noel 2017; Di Maggio et al 2017, 2020; Maturana 2017; Fuster and Willen 2017; Kruger 2018; Piskorski and Seru 2018; 2020; Auclert et al. 2019; Mueller and Yannelis 2020). Our work is also related to the recent emerging literature on the effects of COVID-19 and the policy response to the pandemic (e.g., Baker et al. 2020; Chetty et al. 2020; Coibon et al. 2020; Cox et al. 2020; Elenev et al. 2020; Granja et al. 2020; Guerrieri et al. 2020).

II: Institutional Setting: US Consumer Debt Market, Debt Forbearance, and the CARES Act

II.A US Consumer Debt Market

We study the forbearance actions in the \$14 trillion US consumer credit market. We focus on the four main categories of consumer debt: residential mortgages, auto, revolving, and student debt.

Figure A1 in the Appendix shows the evolution of the aggregate outstanding loan balance for these four types of debt from 2006 until 2020. We describe each of these debt markets below.

Residential Mortgage Market

The residential mortgage market is by far the largest form of consumer debt in the United States. As of 2020, total mortgage balances in the U.S. totaled roughly \$10 trillion. There is significant government involvement in the mortgage market, with roughly two-thirds of outstanding mortgages guaranteed by the U.S. government (Buchak et al. 2018). The loans effectively guaranteed by the US taxpayer consist of the conforming loans sold to government sponsored enterprises (GSEs) including the Fannie Mae and the Freddie Mac and the Federal Housing Administration (FHA) loans.

Conforming loans are eligible for securitization with the participation of GSEs that purchase and package these loans into mortgage-backed securities (MBS) and insure MBS default risk. Conforming loans are typically extended to borrowers with relatively high credit scores, fully documented income and assets, and moderate loan-to-value (LTV) ratios. Additionally, conforming mortgages loan balances must lie below the conforming loan limit. These origination loan balance limits were \$417,000 for a single-family home and \$625,000 (depending on the area's cost of living) throughout most of the last decade, reaching \$510,400 and \$765,600, respectively by 2020 after their progressive increases during 2017-2020 period. The Federal Housing Administration (FHA) provides mortgage insurance on loans made by FHA-approved lenders nationwide. FHA borrowers can make as little as 3.5% down payment and FHA loans are usually considered the riskiest segment of the mortgage market as they mainly appeal to lower income and less creditworthy households.

Jumbo loans, mortgages with balances exceeding the conforming loan limit, account for about 15% of the outstanding loan balances in our data. These loans are ineligible for government guarantees and as a result they are much more difficult to securitize and are typically retained by lenders on their balance sheets (Buchak et al. 2020). As we explain below, jumbo loans were ineligible for the CARES Act forbearance mandates. We exploit this within debt category variation in the applicability of the CARES Act to shed light on the role of these mandates for debt forbearance actions.

Student Debt

Total student debt has increased significantly in recent years, as seen in Figure A1 in the Appendix. In 2006, student loan debt was the smallest of the four consumer debt categories, but by 2020 total student loan balances were exceeded only by mortgages. As with the mortgage market, there is significant government involvement in the student loan market. The federal government is the primary provider of student loans in the United States, with about 90% of outstanding student

loans held by the Department of Education (Looney and Yannelis 2019).² As we explain below, all such loans were covered by the CARES Act forbearance mandates.

Auto Debt

Auto debt has increased faster than all other types of debt except for student loans over the past ten years, totaling over \$1.3 trillion in 2020. The majority of both new and used cars are financed with debt – in 2018, over 85% of new cars and 55% of used cars were financed with a loan or a lease (Di Maggio et al. 2017). Auto debt includes both auto loans and leases, with leases accounting for roughly 30% of new passenger cars.³

Unlike the mortgage and student loan markets, there is no significant government intervention in the auto debt market. Auto loans and leases are typically made through either a bank or a car dealership (Benmelechech et al. 2017). Dealership financing has been growing in recent years and accounted for 31% of new loans and leases in 2020, while banks, credit unions, and finance companies accounted for 65.5% percent of car purchases and leases.⁴

Revolving Debt

Revolving debt in our analysis refers to all accounts that allow individuals to borrow against a credit line, with the exception of home equity lines of credit. This includes credit cards, as well as retail and other revolving accounts like personal lines of credit (see Agarwal et al. 2018 for more details).⁵ Borrowers can choose to pay off the full balance at the end of each billing cycle or “revolve” the balance by carrying it over from one cycle to the next. Borrowers who choose to revolve their balance are required to make minimum payments each month. Total outstanding revolving debt was slightly over \$1 trillion as of 2020 (see Figure A1).

II.B Consumer Debt Forbearance and the CARES Act

The primary focus of our paper is debt forbearance. Forbearance is the action of a lender waiving a borrower’s contractual duties on the borrower’s payments for a fixed amount of time. This type

² Two programs are responsible for the majority of federal student loans: The Federal Direct Loan program (DL) and the Federal Family Education Loan program (FFEL). The FFEL program was implemented in 1965 but stopped issuing loans after the Health Care and Education Reconciliation Act was passed in 2010. Funds for these loans were provided by private lenders, though the federal government subsidized and guaranteed the loans. After 2010, all federal loans were issued directly by the Department of Education under the DL program. The FFEL and DL programs are similar, with identical interest rates, disbursement rules, and maximum loan amounts. The main difference between the two programs is the source of funding, with FFEL loans funded by private lenders and DL loans funded directly by the U.S. Treasury.

³ <https://www.experian.com/blogs/ask-experian/research/auto-loan-debt-study/>

⁴ <https://www.experian.com/blogs/ask-experian/is-it-better-to-finance-a-car-through-a-bank-or-dealership/>

⁵ Credit cards are the most well-known form of revolving debt and are issued by banks or credit unions. Personal lines of credit function similar to credit cards but are not linked to a physical card. Instead, the funds are typically obtained through a check or direct deposits. Both credit cards and personal lines of credit are typically unsecured.

of agreement is present in all types of consumer debt including mortgage, auto, credit card, and student debt. Agreements are structured somewhat differently in each sector, but all include a short-term suspension or reduction of loan payments. Forbearance is a typical way for distressed borrowers who are struggling with loan payments to avoid or delay foreclosure.

The structure of a forbearance agreement includes a halt or reduction in a borrower's loan payments for a fixed period. To enter a forbearance agreement the borrower must usually approach the lender with satisfactory proof of distress and proof that the distress is temporary. The lender and borrower may then design a forbearance agreement for a temporary period based on the loan and the borrower's payment history. Once the agreed-upon period begins, a borrower may stop or decrease their loan payments without fear of foreclosure. Although the payments have been delayed, the loan's interest does not stop accruing over this period.

It is important to note that forbearance is not a debt forgiveness program or a loan modification. Unlike in the case of loan modification (see Piskorski et al. 2010; Keys et al. 2013; Agarwal et al. 2017), the borrower is required to pay the lender the missed payments after the forbearance period ends. Typical repayment plans following the end of the forbearance period consist of a lump sum payment or increasing the regular payment amounts once forbearance is finished. Borrowers can also attempt to obtain a loan modification agreement that allows them further deferral or permanent reduction of at least part of their missed payments.

The Coronavirus Aid, Relief, and Economic Security (CARES) Act passed by Congress and signed by President Donald Trump on March 27, 2020 included several provisions designed to help individuals suffering from financial hardship as a result of the pandemic through loan forbearance. Below, we discuss typical structures and standards for loan forbearance in each of the loan segments and the implications of the CARES Act for them.

Mortgage Debt Forbearance and the CARES Act

Mortgage forbearance agreements have been historically granted on a case-by-case basis. Mortgages are usually large so proof of distress, proof the distress is temporary, and proof the borrower can repay the interest and missed payments has been typically required.

Under the CARES Act, borrowers with federally backed mortgages, including GSE, FHA, and Veteran Administration loans, were allowed to pause their mortgage payments with no penalties for six months with the option to extend forbearance for up to an additional six months. This means that individuals with federally backed mortgages are entitled to up to a year of paused mortgage payments beginning from the date they originally obtained forbearance. Under forbearance policies, no fees, penalties, or additional interest may be added to a borrower's account. In addition, the CARES Act granted mortgage borrowers protections to help them avoid foreclosure, including a 60-day foreclosure and eviction moratorium for borrowers with federally backed mortgages. This

moratorium was originally intended to expire in May 2020 but has been extended until at least January 2021.

It is important to note that while the CARES Act guarantees individuals with federally backed mortgages the right to pause their mortgage payments, it does not automatically place their mortgages in forbearance. Borrowers must contact their loan servicer to put their payments on hold, though the forbearance process is straightforward – borrowers simply need to claim they have a pandemic related hardship and do not need to submit any documentation.

Borrowers with loans without the government guarantees such as jumbo loans were not covered by the CARES Act forbearance mandates. However, like in the case of covered loans, the CARES Act does place requirements on how payment information can be reported to credit bureaus. If a borrower is current on their account and their lender agrees to allow a skipped payment, partial payment, or other accommodation due to the COVID pandemic, then the creditor must report the borrower as current on their loan to the credit bureaus. Similarly, if the account is already delinquent, the creditor cannot report the borrower as more delinquent during the period of the agreement.

Student Debt Forbearance and the CARES Act

Student loan forbearance agreements have historically been relatively easy to enter into because forbearance provisions are usually built into the loan agreements. Federal student loan borrowers may be entitled to a loan deferment (if they are unemployed) or a forbearance (if the amount owed exceeds 20% of their gross income). These programs allow student loan borrowers to temporarily defer making payments, and interest may or may not accrue depending on the type of loan and specifics of the deferment or forbearance program (Mueller and Yannelis 2019).

The CARES Act offered relief to borrowers with qualifying federally held student loans, which account for vast majority of all outstanding student loans. Federal student loans were *automatically* placed into administrative forbearance. The interest rate on these loans is 0%, so any payments that borrowers make during this period go directly towards reducing the loan principal. Student loan forbearance was originally designed to expire in September 2020 but has been extended until at least January 2021. Borrowers with private student loans are not covered under the CARES Act, though private loan borrowers may negotiate with their loan servicers to be placed into forbearance.

Auto Debt Forbearance and the Cares Act

Auto debt forbearance agreements are granted on a case-by-case basis and are subject to the lender's discretion. The CARES Act did not include any explicit forbearance mandates for auto loans. Borrowers must contact their lenders for information about these forbearance or deferment policies, with policies and eligibility varying by lender. While the CARES Act does not guarantee

forbearance policies for these loans, if a borrower is current on their account and their lender agrees to allow a skipped payment, partial payment, or other accommodation due to the COVID-19 pandemic, then the creditor must report the borrower as current on their loan. Similarly, if the account is already delinquent, the creditor cannot report the borrower as more delinquent during the period of the agreement.

Revolving Debt Forbearance and the CARES Act

Credit card forbearance agreements are given on a case-by-case basis and is generally based on the past history of a cardholder including payment history, length of time as a cardholder, and their outstanding balance. It is given in many types of options including normal terms of suspended payment, but may also include a lowered monthly payment, a lower interest rate, an increased borrowing limit, or a deferment. These agreements are split into two types: “short-term” where the term period is 12 months or fewer and “long-term” where the term period is longer than 12 months. According to the Bureau of Consumer Financial Protection in August 2019, “The average quarterly new enrollment rate among individual issuers ranged from a low of 0.2 percent to a high of 5.2 percent of all pre-charge-off delinquent balances.”⁶

As in the case of auto loans, the CARES Act did not include any explicit forbearance mandates for revolving loans. However, revolving loans were covered by the same provisions that instruct the lenders to not report missing payments under the forbearance plan as a consumer delinquency to the credit bureaus.

III: Data Sources

In this section we describe our main data sources.

Equifax Analytic Dataset

Our main dataset is the Analytic Dataset provided by Equifax. Equifax is a credit-reporting agency that provides monthly borrower-level data on credit risk scores, consumer age, geography, debt balances, and delinquency status at the loan level for all consumer loan obligations and asset classes. The Analytic Dataset is created from a 10% random sample of the U.S. credit population from 2005 to 2020 across all U.S. geographical boundaries and consists of over 20 million consumers. Randomization in the sample is based on social security numbers, ensuring that the sample is representative of the U.S. credit population.

We use this data to investigate consumer forbearance status, delinquency status, payment history, age, income, credit score, and location. Our analysis focuses on the months during and leading up to the coronavirus pandemic. A challenge in our data is identifying consumers who are in

⁶ The Consumer Credit Card Market. Bureau of Consumer Financial Protection. August 2019. https://files.consumerfinance.gov/f/documents/cfpb_consumer-credit-card-market-report_2019.pdf

forbearance, as lenders are not required to report any special code when providing forbearance, deferment, or other accommodations. We follow Equifax’s standard procedure for identifying whether a loan is in forbearance. Specifically, we consider a loan to be in forbearance if it has a narrative code indicating that it is in forbearance or deferment, if it is in a partial payment plan, if the loan has been modified, or if the account has a positive balance with no reported scheduled payment. We exclude all loans that have been refinanced or prepaid.

Table 1 provides descriptive statistics for more than twenty million borrowers in the Equifax dataset. The first four columns of Table 1 contain information on all individuals in our sample, while the final four columns show statistics for borrowers in forbearance. Columns 1, 2, 5, and 6 show statistics for the pre-COVID period just preceding the pandemic (January-February 2020) and Columns 3, 4, 7, and 8 contain data for the COVID period (March-October 2020).

Fannie Mae Single-Family Historical Loan Performance Data

Fannie Mae discloses loan acquisition and performance data on single-family mortgage loans that it acquired since 2000. This loan-level monthly panel data provides detailed information on a rich set of loan, borrower characteristics (e.g. fico scores, loan-to-value, debt-to-income, location of the property, and interest rates), property, and monthly payment history.

Two sets of information are important to our supply of forbearance analysis. First, we observe the name of the entity that delivered the mortgage loan to Fannie Mae and the name of the entity that services as the primary servicer of the loan. For both sellers and servicers, we identify the entities that represent at least one percent of volume within a given acquisition or reporting quarter. We then identify whether a seller or servicer is a bank or a shadow bank by merging the Fannie Mae dataset to bank regulatory filings (e.g. Form 031, 041, and FY-9C) and shadow bank call reports. Second, Fannie Mae collects information about the type of assistance plan that the borrower is enrolled in that “provides temporary mortgage payment relief or an opportunity for the borrower to cure a mortgage delinquency over a defined period,” in which Forbearance Plan, Repayment Plan, Trial Period Plan are the three major borrower assistance plan categories. We obtain all loans that were acquired by Fannie Mae between January 1, 2000 and June 2020. The monthly performance data runs through June 2020. We restrict our sample to active loans – loans that had not been paid off, refinanced, or foreclosed – by January 2020.

Opportunity Insights Economic Tracker

In addition to the credit bureau data, we use regional data from the Opportunity Insights Tracker to understand how local economic conditions and regional impacts of COVID-19 crisis relate to forbearance actions. The Opportunity Insights Tracker provides real-time data on employment rates, spending, mobility patterns, and Covid case rates across different counties, regions, and income groups. Specifically, we are interested in total Covid case rates, total unemployment

insurance claims, changes in credit/debit card spending, and changes in time spent at workplaces at the county level. Changes are relative to January 2020.

American Community Survey

We supplement the regional Opportunity Insights Tracker with socio-economic characteristics from the U.S. Census Bureau's American Community Survey 2018 5-year estimates. The 5-year estimates are created from 60 months of collected data and are available at the Zip Code Tabulation Area (ZCTA). In most instances, ZCTAs are the same as zip codes. However, we note that because the Census Bureau creates ZCTAs by taking the most frequently occurring zip code in an area, some addresses have ZCTAs that are different from their zip codes. We use the following variables at the ZCTA level: percent Black, percent Hispanic or Latino, unemployment rate, and median income, and percent of the population with a college education.

Other Data Sources

Our analysis also makes use of several other data sources. We use median house prices from Zillow, unemployment claims and benefits from the Department of Labor, the number and amount of Economic Impact Payments (stimulus checks) received by each state from the Internal Revenue Service, and the number and size of Paycheck Protection Plan loans from the Small Business Administration. We also gather information on the number of small businesses in a county and the share of the workforce employed in certain industries from the Bureau of Labor Statistics.

IV: Aggregate Household Debt Forbearance and the Absence of Distress during COVID-19

We begin by analyzing the use of forbearance throughout the COVID-19 pandemic across loan types and time. Since our dataset is a 10% random sample of the U.S. credit population, we also estimate the total number of loans in forbearance in the United States and the aggregate dollar amount of payments that have been missed as a result of forbearance actions undertaken during the pandemic.

IV. Forbearance during the Pandemic

IV.B Forbearance Rates, Usage, and Amount of Relief per Borrower

We start by analyzing the forbearance rates on residential mortgages, the largest category of US consumer debt. Residential mortgage forbearance rates increased from roughly 0.6% prior to COVID-19 to nearly 7% in June following the declaration of the national COVID-19 emergency and the implementation of the CARES Act in March 2020 (Figure 1, Panel b). Overall, about 9% of mortgage borrowers were in forbearance during the period from March-October 2020 of which about ninety percent entered forbearance during the COVID-19 period (Panel (a) of Table 2). Forbearance rates during the COVID-19 period were also much larger than those during the Great Recession, during which forbearance rates peaked at a little over 2%.

Figure 2 shows that auto, revolving (credit card), and student loans also saw significant increases in forbearance rates during the pandemic and relatively low overall delinquency rates. For the most part, these debt types featured low forbearance rates prior to the pandemic, with large spikes occurring around April 2020. Student loans are the exception, with large numbers of loans in forbearance or deferment prior to the pandemic (close to 50%). Nevertheless, student loans feature a sharp increase in April 2020, when the percentage of loans in forbearance or deferment jumps from roughly 50% to well over 90%. As we discuss in Section II.B, the large jump mainly reflects the automatic forbearance mandate, which covered the vast majority of student loans. While forbearance rates have declined for all debt types except for student loans since June 2020, they remain elevated well above their historical averages. Overall, these findings show that debt forbearance rates have dramatically increased during the COVID-19 pandemic on all types of debt.

Loan relief allows borrowers to stop payments on their loans, but they do not have to use this option. Most borrowers in forbearance during the pandemic period missed their scheduled payments: from more than 65% of borrowers in the case of mortgages to almost 100% in the case of student debt (Panel (a), Table 2). On the other hand, a sizable minority of borrowers in forbearance who continued to make full payments on their mortgage, auto, and revolving loans. Therefore, forbearance partially acts as a credit line, allowing borrower to “draw” on forbearance if needed.

Individuals in forbearance obtain substantial debt relief. Mortgage debt was the category with the largest missed payments from individuals in forbearance, with the average borrower missing about \$3,200 from March-October 2020. This mainly reflects the fact that mortgage debt, and hence the associated payments, are much higher relative to other debt categories for a typical consumer. The second largest category for payments missed by individuals in forbearance is auto debt, with borrowers missing on average about \$430 during the same period. Revolving debt borrowers in forbearance missed on average \$70 over this period, while student debt borrowers missed on average \$140. While student loan is a large debt category of U.S. households, it also has a very long maturity, lowering the payments, and thus the impact of forbearance substantially. Debt relief is therefore substantial even considering other COVID-19 relief programs, such as stimulus checks and unemployment benefits.⁷ The average recipient of a stimulus check received \$1,696, the average unemployment benefits going to an unemployed worker from mid-March to the end of

⁷ In April 2020, stimulus checks (Economic Impact Payments) were sent out to individuals with adjusted gross income up to \$75,000 and married couples with adjusted gross income up to \$150,000. Individuals received up to \$1,200, while married couples were eligible for up to \$2,400. An addition \$500 was sent out for each qualifying child. A number of unemployment programs have also been implemented to either increase the generosity of unemployment benefits or extend benefits to individuals who would not usually be eligible. Pandemic Unemployment Assistance extended unemployment insurance benefits to business owners, self-employed individuals, independent contractors, and workers who have significantly reduced their services as a result of the pandemic. Additionally, a \$600 payment was added to each week of unemployment benefits for all recipients from March 29th through July 25th.

October 2020 ranged from around \$16,000 to \$32,000⁸. Therefore, payments missed through mortgage debt forbearance were larger than stimulus checks on average and amounted for as much as 20% of the total unemployment benefits received for some individuals during the pandemic. As we discuss below, debt relief affected a substantially different population than income tested programs, such as stimulus checks, and thus provided substantial relief to those households.

IV.C Aggregate Debt Forbearance

The substantial number of individuals who used forbearance to miss their payments means that forbearance is associated with a significant amount of debt relief at the aggregate level. Our dataset is a 10% sample of the entire U.S. credit population with randomization based on social security numbers. Given this feature of our dataset, we can scale our estimates to the aggregate level without concerns about sample representativeness (Panel (b), Table 2). From March to October 2020, \$2.7 trillion of dollars of debt were in forbearance, of which \$1.9 trillion entered forbearance during the pandemic, with most of the increase coming from mortgages (\$1.1 trillion). This increase reflected 139 million loans, and 61 million borrowers, suggesting that borrowers experienced debt relief in more than one category. By October 2020, borrowers missed overall \$43 billion of loan payments. At this rate by the end of the first quarter of 2021 more than 60 million of borrowers have missed about \$70 billion of payments due to debt forbearance actions undertaken during the pandemic.

The aggregate expenditure on debt relief was somewhat smaller than other types of debt relief. \$267 billion were sent to Americans through stimulus checks, \$659 billion was provided through PPP loans, and an estimated \$585 billion was spent on unemployment benefits. As we argue in the next section, despite a lower cost, the sizeable household financial relief was targeted at households in distress, and prevented substantial household distress, and with it, the spillover to the rest of the economy.

VI.D Aggregate Implications: The Absence of Household Debt Distress

Large economic crises such as the Great Depression and Great Recession are often accompanied by significant household debt distress, which spills over to the rest of the economy. During the Great Recession, serious delinquency rates (60 days or more past due on payments) rose from less than 2% in 2006 to more than 8% in 2010 (Piskorski and Seru 2020). A large body of work shows how distressed household debt distress spilled over into aggregate house prices, employment, and consumption. Governments have therefore regularly intervened in household credit markets such times. During the Great Recession, the federal government created two large-scale debt relief

⁸ Our calculations assume that an individual was employed from mid-March to the end of August. We calculate these numbers by taking the average unemployment benefits in each state and adding \$600 per week for the weeks from March 29 through July 25th.

programs, which stimulated loan restructuring and refinancing activity and ameliorated some of the impact of household debt distress (e.g., Agarwal et al. 2018, 2020, and Piskorski and Seru 2018, 2020).⁹ On the other hand, these programs were put in place after significant amounts of household distress had already materialized, so they did not avoid a substantial spillover to the rest of the economy (see Piskorski and Seru 2020). In other words, the household debt channel had significant consequences in the Great Recession (e.g., Mian and Sufi 2009, 2011, 2014a).

In contrast to the Great Recession, the mortgage delinquency rates in the COVID-19 pandemic declined! Mortgage delinquency rates (30 days or more past due on payments) had begun decreasing prior to the pandemic and continued to decrease continuously throughout the pandemic (Figure 1, panel c). Delinquencies have remained low and steady at roughly 1.5% since May 2020. The pandemic has a devastating effect on the real economy with the unemployment rate reaching almost 15% by April 2020 and a severe decline in GDP (Figure 1, Panel (c)). Extrapolating from the previous economic crises, and the strong historical association between the unemployment rate and mortgage defaults, one would expect a significant rise in household debt distress (see Piskorski and Seru, 2018).

The pandemic differs from the other crises in its rapid and intensive surge in private and government debt relief. The relief materialized within months of the pandemic before household distress realized. One way to evaluate the contribution of forbearance to the low delinquency rates is to infer that households, which chose to miss payments under forbearance would have otherwise been in financial distress. A simple back of the envelope suggests that if households in forbearance that continued missing payments by October 2020 were seriously delinquent instead, we would have about 2 million more mortgage borrowers in default. This simple calculation suggests that debt relief may have decreased serious mortgage delinquency rate by about four percentage points and avoided a significant amount of household debt distress.¹⁰ This might also help explain why the standard household debt channel was largely absent from the COVID-19 pandemic.

V. Who are the Recipients of Forbearance?

As we established above, debt forbearance has provided significant financial relief to US households throughout the initial stage of the pandemic. Ultimately, the impact of a given action or policy and its cost-effectiveness crucially depends on who benefits from it, also in relation to other programs. In this section, we exploit the richness of our data to shed light on the effectiveness of debt forbearance actions by studying their distribution across consumers and regions based on

⁹ The Home Affordable Refinance Program (HARP) and the Home Affordable Modification Program (HAMP), were aimed at a total of 12 million mortgage borrowers in distress.

¹⁰ We note that this simple calculation is conditional on other CARES Act provisions being in place. In the absence of these provisions along with debt forbearance the household delinquency rate would likely be even higher.

consumer financial vulnerability measures and the deterioration in local economic conditions following the onset of the pandemic.

We begin by using individual-level credit bureau data to investigate forbearance rates across borrower income and financial vulnerability measures such as borrower overall creditworthiness. While our individual-level data includes a rich set of outcomes, it lacks information on certain key characteristics, such as race and employment. To explore how forbearance is related to such characteristics, we turn to regional data and explore the relation with socio-economic factors and forbearance rates at the zip code level. We pay particular attention to the intensity of forbearance across racial characteristics, since the distributional consequences of COVID-19 have been documented to be highly uneven across these lines. In particular, the pandemic and its broader economic and health consequences have been disproportionately impacting minorities, especially Black Americans. We then look at the relationship between forbearance rates and the industries/occupations that are most prevalent in a region, including the type of occupations that were most affected by the COVID-19 induced shutdowns. Finally, we analyze the relation between debt forbearance and the intensity of the crisis at the regional level more directly by studying the association between forbearance and the pandemic case rates, unemployment insurance claims, changes in time spent at workplaces since January 2020, and changes in consumption relative to January 2020. We conclude by investigating the relation of forbearance to other stimulus measures to shed light on the extent to which debt forbearance complements these other policies.

V.A Debt Forbearance across Creditworthiness and Income

We begin by investigating how forbearance rates relate to consumer income and financial vulnerability measures. One potential distinct feature of forbearance actions is that they can target individuals based on their creditworthiness and credit constraints. This may explain why forbearance has such a large impact on household distress despite a smaller aggregate expenditure than other programs, such as stimulus checks, or unemployment insurance.

Table 1 shows that borrowers in forbearance are more likely to be less creditworthy: they have lower credit scores and are more likely to be delinquent on their debts. They also have higher debt balances and are younger on average. Comparing columns (3) and (7) of Table 1, we see that average Vantage credit scores are nearly 60 points lower for individuals in forbearance compared to the overall population. Borrowers in forbearance have higher average balances on all debt types, have lower average estimated annual incomes by about \$6,000, and are younger by about 8 years. Importantly, Columns (1) and (5) show that these differences in borrower characteristics were also present prior to the pandemic (in January 2020) and hence are not driven by the impact of COVID-19 and the response of individuals to the pandemic. In other words, consumers who ended up in forbearance during the pandemic had on average much lower credit scores, lower incomes and

higher debt balances prior to the pandemic relative to those consumers that did not end up in debt forbearance.

In Table A1 in the Appendix we look specifically at mortgage borrowers. Again, we compare columns (3) and (7) and find similar patterns. Mortgage borrowers in forbearance had average credit scores almost 70 points lower than the overall sample of mortgage borrowers, a very significant difference. They also had higher mortgage debt, with average balances more than \$70,000 higher than the average mortgage borrower. Their average balances on other debt types were also higher. Mortgage borrowers in forbearance were also much more likely to be delinquent on all debt types – they were two times as likely to be delinquent on first mortgages and student loans and over three times as likely to be delinquent on auto and revolving loans.

We next visually illustrate the relationship between mortgage forbearance rates and an individual's creditworthiness, income, and age in Panel (a) of Figure 3. Specifically, we split consumers into four groups based on these characteristics. For income and age, we create four groups based on the 25th, 50th, and 75th percentiles of these variables. For credit scores, we simply use the four credit groups ("Low", "Fair", "Good", "Excellent") defined by Equifax based on VantageScore. The impact of credit score is especially striking – an individual with a "low" credit score is more than four times more likely to be in forbearance than an individual with an "excellent" score. In panels (b) through (d), we show similar figures for auto, revolving, and student debt. These panels show similar patterns for auto and revolving loans – forbearance and missed payments rates decrease with income and credit score. In contrast, relative differences in forbearance and missed payment rates for student loans are much smaller, reflecting the fact that all federally held student loans were automatically placed into forbearance by the CARES Act, which resulted in less targeted "blanket" financial relief across household characteristics.

Next, we move from the extensive to the intensive marginal and consider how the amount of money missed by individuals in forbearance is related to an individual's income, and credit score. Panels (a) of Figures 4 and 5 focuses only on individuals who are in mortgage forbearance and explores the heterogeneity in the percent of payment missed and the amount. Panel (a) of Figure 4 looks at the percent of scheduled payments that an individual missed. More than sixty percent of individuals in mortgage forbearance missed their payments and percent of mortgage payment is fairly similar across borrower characteristics.

Panel (a) of Figure 5 shows that there is only a slight relationship between the dollar amount of missed payment and age and credit score, but there is a strong positive association between income and the amount of payment missed. On average, individuals in the highest income group missed over \$1,000 more than individuals in the lowest income group.

Taken, together Panels (a) of Figures 3 to 5 highlight that there are important differences between the patterns of heterogeneity of mortgage forbearance rates and the associated amount of debt relief

across households. Less creditworthy and low-income borrowers are more likely to be in the mortgage forbearance program. However, conditional on being in forbearance, the dollar amount of relief is much higher for *higher* income borrowers. This is mainly because higher income borrowers have higher loan balances and hence higher associated loan payments.

We next turn our attention to other types of debt. The patterns observed in panels (b)-(d) of Figure 3 are broadly similar to those seen for mortgages in panel (a). Panel (d) of Figure 3 shows that there are less relative differences in student forbearance rates across individuals. This is not surprising, since federal student loan borrowers were placed in forbearance with no action required on the part of the borrower. Panels (b) through (d) of Figure 4 show the patterns of percent and amounts of scheduled payments missed for auto, revolving, and student loans are quite similar to the mortgage debt patterns – conditional on being in forbearance, the percent of payments missed is fairly uniform across all groups. Panels (b) through (d) of Figure 5 show that, as in the case of mortgages, high income borrowers in forbearance receive significantly larger amounts of dollar relief per individual compared to low-income borrowers (though in the case of revolving debt, high income borrowers receive smaller amounts of relief).

To investigate the association between debt forbearance and individual characteristics more formally, we next estimate the linear regression of the form

$$y_{i,t,z} = \alpha + \beta X_{i,z} + \gamma C_z + \varepsilon_{i,t,z} \quad (1)$$

where $y_{i,t,z}$ is an indicator variable for whether individual i who lives in zip code z is in forbearance or missed their monthly payment during month t , $X_{i,z}$ is a vector of individual characteristics, and C_z is either a zip code fixed effect or a vector of zip code characteristics. Months include March 2020 to October 2020.

Panel (a) of Table 3 reports the results from these regressions for mortgages. Specifically, column (1)-(2) show the estimates from the regression of an indicator for whether a mortgage borrower was in mortgage forbearance during the pandemic on credit score, income, debt levels and debt-to-income ratio, a small business owner indicator, the number of accounts past due, and age all measured as of January 2020. Consistent with Figure 3, lower credit scores and income are associated with a higher probability of mortgage forbearance. Higher mortgage debt balances are also strongly correlated with the probability of being in forbearance. We also find that small business owners are more likely to be in forbearance, as are individuals with higher debt-to-income ratio and larger numbers of accounts past due as of January 2020. Next, we reduce our sample to only individuals in forbearance on their mortgage accounts to understand which individuals are taking advantage of forbearance to miss payments on their accounts. Columns (3) through (4) of Table 3 show the estimation results from the specification where the dependent variable is a dummy for whether an individual in mortgage forbearance missed their payment on individual-

level characteristics. We find that individuals with higher debt levels and lower credit scores are not only more likely to be in forbearance but are also more likely to miss at least part of their mortgage payment.

Panel (a) to (c) Tables A2 in the Appendix show results from the same analysis carried out for the other three debt types. For the most part, similar patterns emerge. Individuals in forbearance on their auto, revolving, and student loans tend to have higher balances, lower credit scores, and are of younger ages. The patterns are somewhat different when we condition on a borrower being in forbearance. Higher balances, lower credit scores, and lower income are positively associated with individuals in forbearance missing payments for both auto and revolving debt. For student loan borrowers, missing payments in forbearance is positively correlated with lower debt balances, higher credit scores, and higher estimated incomes.

There are two main takeaways from this evidence. First, we find that overall debt forbearance rates on consumer debt are much higher for less creditworthy and more financially constrained borrowers. This differentiates debt forbearance actions from policy programs like the stimulus checks that target individuals based on their income, regardless of their actual financial conditions.

Second, while we find that lower income borrowers have much higher forbearance rates, conditional on being in debt forbearance, individuals with *higher* pre-pandemic incomes received by far the largest dollar amount of debt relief per individual. This largely reflects much higher debt balances and scheduled loan payments of higher income borrowers compared to lower income ones. To illustrate the aggregate implications of this observation we quantify the aggregate dollar amount of financial relief due debt forbearance that flowed to borrowers with above median income, which for individuals in our data set is equal to about \$37,000. Panel (c1) of Table 2 shows that shows that 88% (15 billion) of missed mortgage payments can be accounted for by borrowers with above median income during March-October 2020 period. Similarly, 61% (2.3 billion) of missed auto payments come from borrowers with incomes greater than \$37,000, as did 46% (\$1.7 billion) of missed revolving payments. The percentage of student loan missed payments from below median individuals is much lower, however, at just 33% (6 billion).

Next in panel (c2) of Table 2 we perform a similar assessment, when we now define a median income within each product category. For example, mortgage borrowers in our sample have a median income of \$52,000, which is much higher than median in overall population of consumers. Even comparing to this benchmark though, we find that higher income borrowers received over 61% (\$10 billion) of the total amount of financial relief due to mortgage forbearance from March 2020 to October 2020. Similarly, we find that student loan borrowers with above median income (\$22,000) account for over 64% (\$12 billion) of student loan missed payments. High income revolving and auto borrowers account for a lower percentage of missed payments, with above median income auto borrowers (\$41,000) accounting for 52% (\$1.9 billion) of total auto missed

payments and above median revolving borrowers (\$37,000) account for 46% (\$1.7 billion) of missed revolving payments. Across both definitions of median income, we find that above 60% of the aggregate dollar amount of financial relief on all debt types has flowed to borrowers with higher pre-pandemic incomes.

Overall, this evidence suggests that debt forbearance policies have mainly affected borrowers who are less creditworthy and more likely to be liquidity constrained. In the case of the student debt, the forbearance rates are more uniform across borrower characteristics, reflecting an automatic forbearance mandate that applied to the vast majority of student loans. Our findings also suggest that debt forbearance has importantly complemented other policies targeting US consumers during the COVID-19 pandemic. Unlike policies based mainly on income, such as the stimulus check program, debt forbearance allowed less creditworthy borrowers with higher pre-pandemic incomes to obtain a significant amount of financial relief.

V.B Forbearance and Exposure to COVID-19 Shocks?

While our individual-level data includes a rich set of outcomes, it lacks information on certain characteristics, such as race and employment. We also do not have individual data on which households were directly infected with COVID-19. To explore how forbearance is related to such characteristics, we turn to regional data and explore the association of forbearance rates with these factors at the zip code level. In doing so we analyze whether forbearance rates are higher in the areas that have been impacted relatively more by the COVID-19 pandemic.

We start by observing that there is significant regional heterogeneity in forbearance rates at the zip code level, with dark red indicating high levels of forbearance and green indicating low levels of forbearance. Panel (a) of Figure 6 shows that first mortgage forbearance rates are concentrated in the Northeast, California, and certain parts of Texas and Florida. The Midwest and Great Plains saw relatively lower mortgage forbearance rates. Panels (b) and (c) show forbearance rates for auto loans and revolving accounts, respectively. These two debt types again show high forbearance rates on both the East and West coasts, as well as in the South. Finally, panel (d) shows student loan forbearance rates. Unlike other debt types, student loans exhibit uniformly high forbearance rates across the country, because the CARES Act automatically placed all federal student loans in forbearance.

We explore how this regional heterogeneity in the forbearance rates is related to the zip-code socioeconomic characteristics through a series of regressions of the form:

$$y_r = \alpha_r + \beta X_r + \varepsilon_r \quad (2)$$

where y_r is either the average forbearance rate or the percent of debt payments missed due to forbearance in region r and X_r is a region r vector of socio-economic characteristics. Averages are taken over the period from March 2020 to October 2020.

Debt Forbearance and Race

We begin our regional analysis by investigating the intensity of forbearance across zip-code racial composition. This analysis is motivated by the observation that the distributional consequences of COVID-19 have been highly uneven across these lines. The pandemic and its broader economic and health consequences have disproportionately impacted minorities, especially Black Americans.

The estimates in panel (c) of Table 3 show that racial composition is highly correlated with forbearance rates – areas with larger Black or Hispanic/Latino populations have higher mortgage forbearance rates. The forbearance rates are also higher in areas with higher debt-to-income ratio and higher pre-pandemic house prices. In columns (3) and (4), we carry out similar regressions, but with a measure of the amount of payments missed due to forbearance in each zip code. Specifically, the dependent variable is the total amount of payments missed due to forbearance divided by the sum of all scheduled payments in a zip code. Again, we find that areas with larger Black and Hispanic and Latino populations have more missed payments, as do areas with higher pre-pandemic debt-to-income ratios and higher house prices. This evidence combined with our individual-level findings suggests that an important share of recipients of debt forbearance are less creditworthy, lower income, minority borrowers that are living in areas with higher house prices, where affordability and debt payment constraints are likely to be more binding.

In Table A3 in the Appendix, we carry out similar regressions but for auto, revolving, and student loan forbearance. The results in these tables show that zip codes with a larger Black and Hispanic and Latino populations have large debt forbearance rates and larger share of missed payments.

We explore the relationship between forbearance and racial composition visually in Figure 8. We categorize zip codes into groups based on the 25th, 50th, and 75th percentiles of percent minority, where racial minorities are all non-white races. As we observe, across all debt categories except for student debt, forbearance rates are significantly higher in areas with larger shares of minorities and a larger shares of Blacks.

Debt Forbearance across Industries and Occupation

The pandemic has largely impacted industries that require travel and face-to-face interaction, but a much smaller impact on industries where employees are able to easily work from home. Because we do not have individual-level data on borrowers' occupations, we instead investigate whether regions more exposed to industries that were more harmed by the pandemic have higher forbearance rates.

Column (1) of Table 4 regresses mortgage forbearance rates on a variety of industry and occupation characteristics. Our results show that zip codes with larger percentages of the population employed in agriculture, education, health, construction, and manufacturing have lower

forbearance rates. This makes sense, as these occupations are typically considered “essential”, so likely continued operations throughout the COVID-19 lockdowns. On the other hand, zip codes with larger percentages employed in arts, recreation, and entertainment had higher forbearance rates. Again, this is not surprising, since most of these industries were forced to either cease or dramatically reduce operations throughout the pandemic. We also find that areas with more workers able to work from home prior to COVID-19 have lower debt forbearance rates, while regions with larger numbers of service and sales jobs have higher rates of forbearance.

In column (2) of Table 4, we explore how these industry and occupation characteristics correlate with the percent of scheduled payments missed in a zip code. Our findings are similar to those in column (1) – areas with higher concentrations of agriculture, construction, manufacturing, health, and education have lower percentages of payments missed, while areas with more service, sales, arts, recreation, and entertainment occupations have larger percentages of payments missed.

Table A4 in the Appendix shows that our findings for auto, revolving, and student loans are similar to those of mortgages. Overall, these findings highlight that both forbearance rates and missed payments are higher in regions with a larger presence of industries and occupations that have been hit the hardest by the pandemic. Areas that have larger exposure to industries that involve travel or face-to-face interactions have higher forbearance rates, while regions with larger concentrations of “essential” industries or industries that can continue operations remotely have lower forbearance rates.

Debt Forbearance and COVID-19 Impact

Our above results suggest that forbearance policies appear to be benefiting the regions that have type of jobs most likely impacted by the pandemic. To investigate this further we directly analyze whether the regions that were impacted the most by COVID-19 – both in terms of infection rates and in severity of lockdowns – have higher forbearance rates.

We start by noting that there has also been significant regional heterogeneity in the impact of COVID-19, both in terms of infection rates and in severity of lockdowns. Figure 7 plots average COVID-19 case rates, the percent of workers in industries at risk of being impacted by COVID-19, average changes in time spent at workplaces relative to January 2020, and average changes in debit/credit card spending over relative to January 2020. Averages are taken over the period from March 2020 to October 2020. Panel (a) shows that during March-October 2020, COVID case rates were elevated in the Northeast, the South, and the Southwest. Decreases in spending and time spent at workplaces were concentrated in the Northwest, California, and southern Florida. The percent of workers in these industries is less concentrated by region, but the South and Southwest appear to have higher concentrations of these workers.

Next, we investigate whether the regions that were impacted the most by COVID – both in terms of infection rates and in severity of lockdowns – have higher forbearance rates. In column (1) of Table 5, we regress county mortgage forbearance rates on a county-level characteristics capturing the severity of the COVID-19 impact. Our results show that counties with higher average COVID case rates have higher mortgage forbearance rates, as do counties with higher unemployment insurance claim rates and higher percentages of workers in “at risk” industries¹¹, where “at risk” industries are those at most risk of having operations disrupted by the pandemic. On the other hand, we find that counties with lower changes in credit/debit card spending and time spent at workplace relative to January 2020 have lower forbearance rates. Therefore, our results imply that counties impacted more by COVID infections and restrictions experience higher rates of mortgage debt forbearance.

In columns (3) we carry out the same regressions, but with the percent of scheduled payments missed in a county as the dependent variable. We find that higher COVID-19 case rates, more unemployment insurance claims, and higher percentages of workers in at risk industries are associated with more missed payments. Counties with lower declines in consumption and time spent at workplaces experienced lower percentages of missed payments. For the most part, relationships between COVID characteristics and forbearance rates are similar for the other debt types (see Table A5 in the Appendix).

We illustrate visually the relationship between forbearance rates and COVID infections, unemployment, and the percentage of workers in at risk industries in Figure 9. Once again, we split counties into groups based on the 25th, 50th, and 75th percentiles of these variables. In panel a) of Figure 9, we find that mortgage forbearance rates increase monotonically with COVID case rates, unemployment insurance claim rates, and the percentage of workers in at risk industries. Auto and revolving loans exhibit similar patterns. Unlike the other types of debt, student loan forbearance is high in all high COVID, unemployment, and industry groups, again reflecting the less targeted automatic forbearance mandate that applied to almost all student loans.

Taken together, our individual and regional analysis suggests that debt forbearance has reached its intended target: financially vulnerable borrowers living in regions that experienced the highest COVID-19 infection rates and the greatest deterioration in their economic conditions.

Debt Forbearance and other COVID-19 Relief Programs

We conclude this section by investigating the relation between debt forbearance and other stimulus measures to shed light on the extent to which debt forbearance complements these other policies at the region (state) level. In particular, we compare the amount of debt relief provided by forbearance

¹¹ We define “at risk” industries according to criteria described here: <https://www.brookings.edu/blog/the-avenue/2020/03/17/the-places-a-covid-19-recession-will-likely-hit-hardest/>

to other COVID relief programs, including stimulus checks, unemployment benefits, and Paycheck Protection Plan loans.

Figure 10 shows the association between the total amount of money missed due to forbearance in a state normalized by the number of adults against the total amount of money received from stimulus checks, PPP loans, and unemployment insurance normalized by the number of adults at the state level. Panel (a) shows the relationship between forbearance missed payments and the amount of money from stimulus checks, while panels (b) and (c) show the correlation between forbearance and money from unemployment benefits and PPP loans, respectively. This figure shows that there is a positive relationship between money missed in forbearance and money from unemployment benefits and PPP loans, but that states with higher amounts of stimulus checks money per individual received relatively less relief through forbearance policies.

Overall, these findings are in line with our individual evidence, which suggests that debt forbearance may have importantly complemented other stimulus measures. Unlike policies based solely on income, such as stimulus checks, debt forbearance allowed less creditworthy and financially constrained borrowers to receive financial relief. In doing so, debt forbearance provided a significant financial relief to individuals and regions with higher pre-pandemic incomes who were not directly targeted by the stimulus check program.

Section V: Government Mandates for Debt Forbearance

We conclude our analysis by studying the significant role of the private sector in extending debt relief. We use the analysis to evaluate the role of implicit forbearance subsidies forbearance and that borrower self-selection in determining the level and incidence of forbearance.¹² We will also shed light on the role of (supply-side) intermediary factors.

As we discuss above, the COVID-19 pandemic differs greatly from other economic crises by the absence of household debt distress despite the relatively smaller size of the expenditures in the program. We argue that forbearance may have been effective at preventing household debt distress, because it was provided to households in need: those with lower credit scores, and affected by

¹² The consumer debt design literature indicates that private debt contracts should allow for a certain amount of debt relief during economic downturns to limit deadweight costs of default and allow better risk-sharing between borrower and lenders (e.g., see Piskorski and Tchisty 2010, 2011, 2017; Eberly and Krishnamurthy 2014; Greenwald et al. 2020; Guren et al. 2020, Landoigt et al. 2020; Campbell et al. 2020). The potential to generate moral hazard problems in repayments (Keys et al. 2013; Mayer et al. 2014) can limit the scope of debt relief that can be provided in an incentive-compatible way by the private sector. Proponents of government intervention in debt relief argue that such policies prevent excessive default and foreclosures that may not only lead to deadweight losses for borrowers and lenders but also generate negative externalities for the society (e.g., Campbell et al. 2011; Guiso et al. 2011; Melzer 2010; Mian et al. 2015; Piskorski and Seru 2020; Gupta 2020; Diamond et al. 2020). In addition such interventions may help circumvent variety of frictions including rigidity and incompleteness of debt contracts and limited ability and incentives of financial intermediaries to modify loan terms that were documented to hamper the implementation of debt relief by the private sector (see Piskorski et al. 2010; Agarwal et al. 2011; Agarwal et al 2017, 2020, Di Maggio et al. 2017, Maturana 2017; Kruger 2018; Piskorski and Seru 2018 and 2020).

COVID related shocks. In this section, we first document the substantial amount of private debt forbearance. We then exploit the variation in government mandates across different types of loans to better understand the role of two forces in determining the extent and incidence of debt relief: self-selection by borrowers, and implicit forbearance subsidies by government programs.

As we observe from Figure 2, financial institutions provided substantial debt forbearance in segments (auto and revolving debt) outside explicit government mandates as well as in mortgage segments, which were not covered by the government mandate. In aggregate, more than a quarter (28.7%) of financial relief due to forbearance was provided outside of the government mandates. This evidence suggests that a considerable amount of debt forbearance would have existed even in the absence of explicit government mandates embedded in the CARES Act.

V.A Debt Forbearance Mandates: The Role of Self-Selection

There are generally two steps in determining, which borrowers obtain debt relief. First, the borrower must request relief from the lender—self-selection. Second, the lender must agree to provide relief, which was mandated for government loans. As we discuss in Section II.B, the CARES Act guaranteed forbearance for all government-backed mortgages, accounting for about two-thirds of outstanding mortgage debt, though forbearance was not automatic. Federally held student loans, accounting for vast majority of student loans, were also guaranteed forbearance, but unlike mortgages, these loans were automatically placed in administrative forbearance. On the other hand, auto and revolving debt was not directly affected by the CARES Act, so lenders were not required to grant forbearance on these debt types.

The take-up rate of mortgages covered by the government mandate is a priori evidence that self-selection is a first order force in determining forbearance rates. Less than 10% of eligible borrowers request relief, and of those, about two-third take advantage of the ability to defer payments. We also want to understand the degree to which self-selection is responsible for the distribution of debt relief across households. Recall that forbearance rates are higher among lower income and less creditworthy borrowers, resulting in relief that is provided to households who are more likely distressed. To obtain mortgage forbearance under CARES ACT, eligible mortgage borrowers had to apply for forbearance, but forbearance for those loans was mandated. In other words, borrower's self-selection is driving forbearance rates for these loans.

Forbearance of non-eligible (private) loans, on the other hand, must be approved by the lender. We already documented that forbearance rates decline in income and creditworthiness for private and government loans across mortgages, part of which are covered by government mandates, as well as auto loans and revolving credit. In Figure 12, we narrow the comparison to mortgages, and compare patterns and consider how forbearance rates vary across borrower characteristics based on whether the mortgage is covered by the government mandate in Figure 12. We that the

distribution of debt relief as well as missed payment percentage across borrower characteristics is also quite comparable between government and private mortgages (Figure A3).

Finally, we investigate whether the relationship between the amount of forbearance flowing to a region and the severity of the COVID crisis in a region differs depending on whether loans are covered by the forbearance mandates. We re-estimate regressions from Table 5 for mortgages cut by government mandates. Again, we find that forbearance patterns are similar for both types of mortgages – regions with higher unemployment insurance claims, more COVID cases, larger changes in spending and time spent at workplaces, and higher percentages of workers in at risk industries have higher rates of forbearance and missed payments for both types of loans (though some of these associations are statically insignificant). These results suggest that borrowers’ self-selection is important in determining how relief is allocated. This self-selection might explain why the program has been so effective at preventing household debt distress, despite its somewhat smaller expenditures.¹³

V.B Implicit Forbearance Subsidies

Private debt relief is presumably a result of an (ex-ante) mutually beneficial renegotiation. Government mandated relief does not need to be mutually beneficial: it can result in a transfer from the lender (government) to the borrower. Such subsidies to household debt relief may very well be warranted in the presence of renegotiation frictions and aggregate spillover that can result from distressed household debt. Because CARES Act eligible debt differs from private debt both in its type, and the types of borrowers, it is difficult to evaluate the magnitude of subsidies. To evaluate the importance of implicit government subsidies we exploit a size discontinuity in eligibility of mortgages for relief under the CARES Act.

We first start by considering all mortgages and re-estimate the specifications in Table 4 with an additional control *Mandate* that is an indicator variable that takes on the value of 1 if the loan is covered by forbearance mandates under the CARES Act (Fannie, Freddie, FHA, and VA loans) and is 0 otherwise. Panel (a) of Table 6 shows that loans covered by the mandate are about 1.16 percentage points more likely to be in forbearance, implying about 30% higher forbearance rate relative to loans not covered by the forbearance mandate. Columns (3) and (4) show that there are not economically meaningful differences in the share of borrowers missing payments between these two categories of loans.

To conduct a tighter comparison, we exploit a size discontinuity in eligibility of mortgages for relief under the CARES Act. Unlike government-backed loans, the CARES Act does not require

¹³ We note that as of January 2020, debt payments for loans in forbearance are deferred and not forgiven. Hence the ultimate transfer to borrowers resulting from debt forbearance could be much smaller than the amount of their missed payments during the first year of the pandemic.

lenders to extend forbearance to borrowers holding jumbo loans. Jumbo loans, unlike conforming loans, exceed the limits set by the Federal Housing Finance Agency and cannot be purchased, guaranteed, or securitized by GSEs. These origination loan balance limits were \$417,000 for a single family home and \$625,000 through most of the last decade reaching \$510,400 and \$765,600, respectively by 2020 after their progressive increases during 2017-2020 period.

We first consider the relationship between forbearance rates and eligibility status by plotting mortgage forbearance rates around the conforming loan limit. Panel (a) of Figure 11 shows that forbearance rates are approximately 1.6pp lower to the right of the conforming loan limit, which correspond to loans not covered by the mandate. Panel (b) of Figure 11 shows that prior to the pandemic the forbearance rates were also similar across these two groups, hence the pre-existing differences in the forbearance rates are unlikely to affect our above findings. In fact, forbearance rates were slightly higher for private loans, although the difference is economically small. Panel (b) of Table 6 confirms these results and shows that accounting for borrower and loan characteristics the loans to the left-hand side of the balance limit (covered by the mandates) have about 1.5-1.6pp higher forbearance rates.

We can also examine these patterns over time. Panel (c) of Figure 11 plots the forbearance rates on these mortgages from January 2019 to October 2020. This figure shows that prior to the pandemic, forbearance rates were nearly identical for loans with balances below the conforming loan limit and jumbo mortgages. Forbearance rates dramatically increased for both group of loans in April and May, but the increase was larger for government loans starting in May and has kept increasing over the period. This result suggests that the mandatory approval of loan forbearance indeed increased debt relief beyond what would have been the outcome of private renegotiation between the lenders. In other words, the estimate suggests that the private mortgage debt relief incorporated an implicit subsidy to borrower.

We next formally estimate the amount of government loans, which obtained relief above what the private sector would have provided. We exploit the size discontinuity within a difference-in-differences design. Specifically, we consider only mortgages with balances that fall within 90% to 110% of the conforming loan limit, and restrict ourselves to mortgages owned by the government below the loan limit. Loans of these sizes should be relatively comparable, though those with balances below the conforming limit are covered by government forbearance mandates. We estimate the following specification:

$$Forbearance_{i,t,z} = \alpha + \beta_1 Conf_{i,z} + \beta_2 Pandemic_t + \beta_3 Pandemic_t * Conf_{i,z} + \gamma X_{i,z} + \theta Z_z + \varepsilon_{i,t,z} \quad (3)$$

where $Forbearance_{i,t,z}$ is an indicator for whether loan i located in zip code z is in forbearance during month t . $Conf_{i,z}$ (conforming) is an indicator for whether the loan is a government-insured and eligible for government forbearance, $Pandemic_t$ is an indicator that takes on the value of zero

prior to March 2020 and one from March 2020 to October 2020, $X_{i,z}$ is a vector of borrower level characteristics, and Z_z is either a vector of zip code controls or fixed effects.

The results in panel (c) of Table 6 show that the coefficient on the interaction term $Pandemic_t * Conf_{i,z}$, which captures differential change in the forbearance rate between treatment group and control group after the pandemic, is positive and statistically significant. This implies that during the pandemic, mortgages covered by the government mandate loans were about 1.15-1.30pp more likely to be in forbearance relative to ineligible (jumbo), implying about 25% higher forbearance rate relative to mean forbearance rate of jumbo loans during the pandemic. Panel (d) of Figure 11 shows the pattern of these differences over time in our sample period. Again, like in the overall sample of loans, we find little economic differences in the percentage of missing payments conditional on being forbearance across these two group of loans.

Taken together these results suggest that implicit government debt relief subsidies imbedded in the CARES Act mandates increase the rate of forbearance by about 25%. In other words, our back of the envelope estimates suggests that about a quarter of forbearance provided on loans covered by the government mandates is subsidized, and the rest is provided to borrowers who would have been eligible under a private benchmark. Overall, this suggests, that the vast majority of the mortgage relief provided by the CARES Act was provided without an implicit subsidy, and mirrored the decisions of private lenders.

V.C The Supply of Debt Relief and the Regulatory Regime of Servicers

Debt relief is not implemented directly by debt holders. Instead, servicers, who oversee collecting payments from borrowers, are in charge of choosing who obtains forbearance. This is the case even for mortgages covered by the government mandate. Intermediary specific factors (e.g., capacity constraints) played a significant role in implementation of debt relief during the Great Recession (e.g., Agarwal et al. 2017; Fuster et al. 2018, Piskorski and Seru 2018; 2020). One important difference between government provided debt relief during the Great Recession and the one provided in the CARES Act is eligibility. Forbearance during the CARES Act applies to all government backed loans and the lender does not have to determine in any other way if the borrower qualifies. In principle, all the borrower must do is to ask. So, there should be little scope for differences in intermediary supply of forbearance. Despite that mandate, we document differences in forbearance rates across different types of servicers.

We start by observing that since the Great Recession, there has been a significant growth of shadow bank lending, with shadow banks – non depository institutions -- accounting for about half of loan originations in the mortgage market (Buchak et al. 2018, Jiang 2019, Jiang et al. 2020). These institutions are under different regulatory auspices from traditional banks. To investigate whether the regulatory type of the financial intermediary is correlated with its provision of forbearance. We

turn to Fannie Mae loan level data that has detailed information on the identity of the financial institution that originated the loan.

All Fannie Mae loans had mandated forbearance under the CARES Act. Despite that, Panel (a) of Figure 13 shows that loans originated by banks have higher rates of debt forbearance than shadow banks. Bank originated loans experienced about 2pp higher forbearance rates compared to similar loans originated by shadow banks, and the difference persists throughout the period. One possible source of this difference is that the composition of loans serviced by the two types of institutions differs, either because they service different types of borrowers or markets. In Table 7, we show that even controlling for extensive borrower characteristics, and locations, the difference persists. During the pandemic, shadow banks loans we approximately 2pp less likely to be in forbearance. We cannot completely rule out the alternative that borrowers serviced by shadow banks have different demand for forbearance, despite their very similar characteristics. Nevertheless, this result strongly suggests that despite the blanket government mandate, who implements forbearance has a sizeable effect on the amount of debt relief provided.

Beyond regulatory differences, one can divide loan servicing in two categories. Servicing of loans, which the lender originated, and servicing of loans which they did not originate, but for which they acquired servicing rights. Panel (b) of Figure 13 shows that loans for which the servicing was outsourced also have lower rates of forbearance. In unreported results we find that this effect is mainly driven by bank originated loans: loans for which the banks retain their servicing rights have higher forbearance rates than comparable loans for which banks transferred their servicing rights. One potential mechanism to explain this fact is that loan originators have more information about borrowers than outsourced servicers, so they can more easily tell which borrowers really require relief. This would imply that even in government mandated relief, servicers try to evaluate whether forbearance should be granted, which would be at odds with the formal mandate. Overall, the evidence suggests that intermediary specific factors played a meaningful role in implementation of the government mandates and may have affected the overall level of debt relief provided. Both the regulatory framework of the servicers, as well as potential access to information may have played a role in determining the supply response.

Section VI: Conclusion

We followed a representative panel of more than twenty million US consumers and analyzed the widespread debt forbearance actions during the COVID-19 pandemic. While the debt delinquency rates remained low, the rate of debt forbearance that allowed households to temporarily suspend loan repayment increased dramatically following the CARES Act, providing households with significant financial relief. Between March and October 2020, 5.2 million mortgages (\$1.1 trillion), 8.7 million of auto loans (\$130 billion), 66 million student loans (\$580 billion) and 51 million revolving loans (\$99 billion) were in forbearance. At this rate, more than 60 million US

consumers will miss about \$70 billion by the end of Q1 2021. We find that the debt relief reached its intended target, since forbearance rates are higher in regions with the highest COVID-19 infection rates and the greatest local economic deterioration. Individuals with lower credit scores, lower incomes, and higher debt balances, and regions with higher shares of minorities received higher rates of forbearance. Conditional on being in forbearance, borrowers with higher “pre-pandemic income” received the largest dollar amount of relief per individual. Forbearance actions, therefore, complemented other income based policy measures, providing more than half of aggregate forbearance relief to individuals who were ineligible for policies like stimulus checks.

Not all of the forbearance was mandated under the CARES act. The private sector provided substantial debt forbearance in segments (auto debt, revolving debt and jumbo mortgages) outside of explicit government mandates. Moreover, allowing borrowers a choice of whether to request debt relief might have resulted in a potentially better targeted policy.

Our findings suggests that massive consumer debt forbearance actions can help explain why, unlike during the Great Recession, the standard household debt distress channel was largely absent during the first year of the COVID-19 pandemic. There are a number of possible reasons for quicker and more widespread implementation of debt relief during the COVID-19 pandemic relative to the Great Recession. First, the private sector and policymakers may have internalized the lessons from the Great Recession pointing to significant costs of widespread defaults and foreclosures and were more willing to provide debt relief.

Second, it is possible that the underlying adverse shock has been perceived as more transitory relative to the prior crisis, which could promote a more widespread deployment of temporary debt relief measures by the private sector. This is consistent with the consumer debt design literature that indicates that lenders should provide a certain amount of debt relief during economic downturns to limit deadweight costs of default and allow better risk-sharing between borrowers and lenders, especially if the underlying shocks are transitory. Relatedly, the COVID-19 shock is a rare aggregate “exogenous” shock that is largely outside of the agents’ influence. This should also alleviate concerns about the moral hazard effects of debt relief on incentives to repay debt, leading to a more widespread loan renegotiation effort.

Finally, the nature of financial intermediation has significantly changed since the last crisis. Prior to the Great Recession most of the riskiest consumer debt, the so-called subprime mortgages, was not retained on the balance sheet of intermediaries and instead was sold through securitization to third parties (Mian and Sufi 2009; Keys et al. 2010, 2013). In contrast, the private securitization market was very limited even prior to the COVID-19 pandemic and lenders retained the majority of jumbo (non-GSE) mortgages on their balance sheets (see Buchak et al. 2020). As a result, the lenders may have more economic incentives to undertake voluntary debt relief actions on these loans, even though these fall outside explicit government mandate.

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Table 1: Individual-Level Descriptive Statistics

This table shows summary statistics for all individuals in the Equifax dataset (Columns (1) through (4)) and all individuals in forbearance (Columns (5) through (8)). Pre-COVID-19 statistics are based on January and February 2020, while COVID-19 statistics are based on March to October 2020. Odd columns contain means while even columns contain standard deviations. *Sources:* Equifax 10% representative sample of the U.S. credit population.

	All Individuals				All Individuals in Forbearance			
	Pre-COVID-19		COVID-19		Pre-COVID-19		COVID-19	
	(1) Mean	(2) SD	(3) Mean	(4) SD	(5) Mean	(6) SD	(7) Mean	(8) SD
Vantage	701	122	708	119	645	122	665	113
Estimated Age	49	18	49	18	41	17	40	16
Estimated Income	39,992	19,272	40,099	19,382	34,063	19,250	34,126	18,607
Fraction with First Mortgage	0.22		0.22		0.18		0.21	
Fraction with Auto Debt	0.35		0.35		0.38		0.40	
Fraction with Revolving Debt	0.89		0.88		0.78		0.80	
Fraction Student Debt	0.18		0.17		0.56		0.62	
Average First Mortgage Balance (Nonzero Accounts)	210,020	240,631	214,788	246,309	232,542	284,857	234,805	266,933
Average Combined Mortgage Balance (Nonzero Accounts)	204,346	239,936	208,949	245,582	224,272	283,478	227,664	266,321
Average Auto Debt (Nonzero Accounts)	18,474	17,496	18,627	17,757	19,897	20,567	19,903	19,722
Average Revolving Debt (Nonzero Accounts)	5,047	9,178	4,498	8,690	7,369	12,370	6,651	11,388
Average Student Debt (Nonzero Accounts)	35,149	51,510	35,951	52,362	392,34	54,999	37,830	54,024
Average Credit Card Utilization	32%		28%		49%		42%	
Average Available Credit	17,512	23,338	17,858	23,551	14,993	25,582	152,06	24,661
Number of Consumers	20,265,012		20,217,750		3,702,943		8,309,795	

Table 2: Consumer Debt Forbearance during COVID-19

Panel (a) of this table shows summary statistics related to forbearance for different debt types during the COVID period (March through October 2020). We show the average monthly delinquency and forbearance rates, the average monthly percent of loans in forbearance with missed payments, the average percent of monthly scheduled payments missed, and the average dollar amount missed each month by loans in forbearance along with the standard deviation [S.D.]. The bottom three rows show the percent of borrowers that were ever in forbearance during the COVID period, the percent of borrowers that entered forbearance during the COVID period, and the average cumulative dollar amount of missed payments per individual in forbearance during March-October 2020 period along with their standard deviation. Column (1) show results for first mortgages, Columns (2) for auto loans, Column (3) for revolving accounts, and Column (4) for student loans. *Sources:* Equifax 10% representative sample of the U.S. credit population.

Panel A: Mean Delinquency and Debt Forbearance Rates during the COVID period

	Mortgages	Auto Loans	Revolving Loans	Student Loans
	(1)	(2)	(3)	(4)
Monthly Delinquency Rate	1.80%	2.98%	2.05%	1.35%
Monthly Forbearance Rate	4.54%	2.60%	2.50%	80.70%
% Missing Payments In Forbearance	65.09%	76.49%	81.39%	95.84%
% of Scheduled Payment Missed In Forbearance	61.50%	67.42%	80.90%	90.64%
\$ Monthly Amount Missed per Individual In Forbearance [S.D.]	\$1,071.6 [\$3,413.9]	\$269.6 [\$317.2]	\$35.6 [\$125.0]	\$27.2 [\$91.8]
% Ever in Forbearance	8.80%	8.80%	4.63%	92.20%
% Entered Forbearance	7.92%	6.95%	5.28%	36.40%
\$ Cumulative Amount Missed per Individual In Forbearance [S.D.]	\$3,282.4 [\$12,487.3]	\$428.7 [\$688.6]	\$69.1 [\$324.8]	\$140.9 [\$488.4]

Table 2: Consumer Debt Forbearance and COVID-19 [continued]**Panel B: Aggregate Debt Forbearance Statistics**

This panel provides aggregate statistics on loans that entered forbearance during the COVID period (March 2020 through October 2020). It includes estimates of the aggregate percent of loan balance in forbearance, the total dollar amount of loans in forbearance at least one month, the total of number of loans experiencing forbearance, the average total amount of payments missed by loans in forbearance each month, and the total dollar amount missed due to forbearance. Column (1) show results for first mortgages, Columns (2) for auto loans, Column (3) for revolving accounts, and Column (4) for student loans. *Sources:* Equifax 10% representative sample of the U.S. credit population.

	Mortgages	Auto Debt	Revolving Debt	Student Debt
	(1)	(2)	(3)	(4)
% of Loan Balance in Forbearance	9.10%	7.20%	8.40%	42.60%
\$ Amount of Loans in Forbearance	1.1 Trillion	130 Billion	99 Billion	580 Billion
Number of Loans in Forbearance	5.2 Million	8.7 Million	51 Million	66 Million
\$ Missed in Forbearance (av per month)	2.2 Billion	501 Million	510 Million	2.7 Billion
\$ Missed in Forbearance (March-Oct 2020)	17 Billion	3.7 Billion	3.8 Billion	19 Billion
	All Debt Types			
Number of Loans that Entered Forbearance	139 Million			
Number of Individuals who Entered Forbearance	61 Million			

Table 2: Consumer Debt Forbearance and COVID-19 [continued]

Panel C: Share of financial relief due to debt forbearance allocated to above median income borrowers

This table shows the percentage of dollar amount financial relief due to debt forbearance went to above median income borrowers along with the associated total \$ amount of payments missed from March to October 2020. Panel (c1) shows similar statistics but based on the median income of all individuals in our dataset. Panel (c2) shows median income of borrowers within a given debt type. Column (1) show results for first mortgages, Columns (2) for auto loans, Column (3) for revolving accounts, and Column (4) for student loans. *Sources:* Equifax 10% representative sample of the U.S. credit population.

Panel C1: Share of financial relief due to debt forbearance allocated to above median income borrowers (all consumers)

	Mortgages	Auto Debt	Revolving Debt	Student Debt
	(1)	(2)	(3)	(4)
Median Income			37,000	
% of Missed Payments from Above Median	88%	61%	46%	33%
Total Amount Missed from Above Median	15 Billion	2.3 Billion	1.7 Billion	6 Billion

Panel C2: Share of financial relief due to debt forbearance allocated to above median income borrowers (within each debt type)

	Mortgages	Auto Debt	Revolving Debt	Student Debt
	(1)	(2)	(3)	(4)
Median Income	52,000	41,000	37,000	22,000
% of Missed Payments from Above Median	61%	52%	46%	64%
Total Amount Missed from Above Median	10 Billion	1.9 Billion	1.7 Billion	12 Billion

Table 3: Mortgage Debt Forbearance Regressions

This table reports the results from a regression of whether an individual is in forbearance or whether an individual missed their payment while in forbearance each month on various borrower and zip code level variables. Months include March 2020 to October 2020. Columns (1) and (2) are estimated from all individuals with first mortgages, while Columns (3) and (4) are restricted to individuals who are in forbearance on their first mortgages. Columns (1) and (3) contain individual-level characteristics and zip code fixed effects, while columns (2) and (4) contain individual level controls and zip code controls. Zip code controls include zip code racial composition, educational attainment, unemployment rate, median age, median income, average CLTV, average DTI, and median house price. Regression inputs are scaled by standard deviation. Individual controls are taken as of January 2020. Standard errors are clustered at the individual level. *Sources:* Forbearance status, missed payment status, and all other individual-level characteristics come from Equifax. House price data comes from Zillow. The remaining variables come from the U.S. Census Bureau American Community Survey 5-Year Estimates.

Panel A: Forbearance and Individual Characteristics

	In Forbearance (1)	In Forbearance (2)	Missed Payment (3)	Missed Payment (4)
Mortgage Balance	0.405*** (0.0454)	0.402*** (0.0398)	-0.219* (0.0960)	-0.178* (0.0905)
Auto Loan Balance	0.326*** (0.0139)	0.292*** (0.0141)	0.0892 (0.0568)	0.120 (0.0692)
Revolving Debt Balance	0.450*** (0.0117)	0.464*** (0.0151)	1.017*** (0.0465)	0.960*** (0.0560)
Student Loan Balance	0.251*** (0.00967)	0.263*** (0.0125)	0.543*** (0.0427)	0.503*** (0.0535)
Small Business Owner	0.331*** (0.00865)	0.322*** (0.0108)	0.390*** (0.0538)	0.474*** (0.0659)
Credit Score	-0.0249*** (0.000134)	-0.0245*** (0.000170)	-0.0424*** (0.000702)	-0.0436*** (0.000905)
Income	-0.186*** (0.0190)	-0.153*** (0.0194)	0.106 (0.0866)	0.184 (0.0995)
# Accounts Past Due in Jan.	1.220*** (0.0154)	1.189*** (0.0206)	-0.0942** (0.0342)	-0.143** (0.0445)
DTI	0.189*** (0.0381)	0.239*** (0.0448)	0.116 (0.0906)	0.276*** (0.0585)
Age	-0.610*** (0.00903)	-0.553*** (0.0103)	-1.779*** (0.0693)	-1.688*** (0.0875)
Zip Code Controls	No	Yes	No	No
Zip Code FE	Yes	No	Yes	No
Mean of Dependent Variable	4.542	4.348	69.28	68.96
Observations	39,500,895	23,755,189	1,792,278	10,32,948
Adjusted R-squared	0.035	0.028	0.037	0.013

Table 3: Mortgage Debt Forbearance Regressions [continued]**Panel B: Mortgage Forbearance and Race**

This table shows the results from regressions of the average monthly forbearance rate and the percent of scheduled payments missed in each zip code on various zip code-level characteristics. Average monthly forbearance rates are from March 2020 to October 2020 and the percent of scheduled payments missed from individuals in forbearance is calculated over the same time period. Analysis is restricted to zip codes with at least ten loans. Regression inputs are scaled by standard deviation. *Sources:* Forbearance status, missed payment status, and all other individual-level characteristics come from Equifax. House price data comes from Zillow. The remaining variables come from the U.S. Census Bureau American Community Survey 5-Year Estimates.

	Forbearance Rate (1)	Percent of Scheduled Payments Missed (2)
% College Educated	-0.0818** (0.0292)	0.0450 (0.0329)
% Black	0.595*** (0.0289)	0.360*** (0.0346)
% Hispanic	0.743*** (0.0280)	0.558*** (0.0298)
Pre-Pandemic Unemployment Rate	0.177*** (0.0322)	0.159*** (0.0337)
Median Age	0.139*** (0.0250)	0.195*** (0.0310)
Median Income	0.178*** (0.0418)	-0.138 (0.0726)
Average DTI	0.293*** (0.0859)	0.947*** (0.212)
Average House Price in January	0.137*** (0.0318)	0.178*** (0.0348)
Mean of Dependent Variable	4.013	2.697
# Of Obs.	16920	16920
R-Squared	0.1413	0.1187

Table 4: Mortgage Forbearance Zip-Code Industry and Occupation Characteristic Regressions

This table shows the results from regressions of the average monthly forbearance rate and the percent of scheduled payments missed in each zip code on various zip code-level characteristics. Average monthly forbearance rates are taken from March 2020 to October 2020 and percent of scheduled payments missed from individuals in forbearance is calculated over the same time period. Analysis is restricted to zip codes with at least ten loans. Regression inputs are scaled by standard deviation. *Sources:* Forbearance status, missed payment status, and all other individual-level characteristics come from Equifax. The remaining variables come from the U.S. Census Bureau American Community Survey 5-Year Estimates.

	Forbearance Rate	Percent of Scheduled Payments Missed
	(1)	(2)
% Production Industry	0.0527 (0.0327)	-0.0445 (0.0358)
% Agriculture Industry	-0.326*** (0.0315)	-0.302*** (0.0318)
% Finance, Insurance, Real Estate Industry	-0.0741* (0.0295)	-0.0576 (0.0374)
% Arts, Recreation, Entertainment Industry	-0.0182** (0.00659)	-0.00583 (0.00721)
% Education, Health, Public Administration Industry	-0.517*** (0.0308)	-0.423*** (0.0347)
% Construction and Manufacturing Industry	-0.721*** (0.0349)	-0.572*** (0.0393)
% Work From Home - Pre-Pandemic	-0.158*** (0.0314)	-0.141*** (0.0357)
% Self -Employed - Pre-Pandemic	0.0242 (0.0333)	0.0341 (0.0362)
% Service Occupations	0.366*** (0.0311)	0.271*** (0.0337)
% Sales and Office Occupations	0.129*** (0.0266)	0.0855** (0.0267)
Mean of Dependent Variable	4.182	2.841
# Of Obs.	21704	21704
R-Squared	0.0830	0.0497

Table 5: Unemployment Claims, and COVID Infections, and Other Stimulus

This table shows the results from regressions of the average monthly mortgage forbearance rate and the percent of scheduled payments missed in each zip code on various county-level characteristics. Averages are taken over the period from March 2020 to October 2020 and percent of scheduled payments missed by individuals in forbearance is calculated over the same time period. Analysis is restricted to counties with at least ten loans. Regression inputs are scaled by standard deviation. *Sources:* Forbearance status and missed payment status come from Equifax. UI claims, COVID cases, credit/debit card spending, and time spent at workplace are averages of March 2020 to October 2020 values from Opportunity Insights Tracker. Remaining variables are calculated using data from the U.S. Census Bureau American Community Survey 5-Year Estimates.

	Forbearance Rate (1)	Percent of Scheduled Payments Missed (2)
Total UI Claims (Check Rate)	0.572*** (0.0653)	0.457*** (0.0637)
Total COVID Case Rate	0.433*** (0.0672)	0.312*** (0.0655)
Change in Credit/Debit Spending	0.0304 (0.0699)	0.0227 (0.0682)
Change in Time Spent at Workplace	-0.416*** (0.104)	-0.192 (0.102)
% Families Receiving Full Stimulus Check	-0.153 (0.0919)	-0.240** (0.0895)
% Workers in at Risk Industry	0.566*** (0.151)	0.552*** (0.147)
Amount of PPP Received Normalized by # of Small Businesses	-0.309 (0.167)	-0.363* (0.163)
Mean of Dependent Variable	4.001	2.739
# Of Obs.	348	348
R-Squared	0.4245	0.3260

Table 6: Government Mandates and Mortgage Forbearance**Panel A: Forbearance and Government Mandates (All Loans)**

Panel (a) of this table reports the results from a regression of whether an individual is in forbearance or whether an individual missed their payment while in forbearance each month on various borrower and zip code level variables. Months include March 2020 to October 2020. *Mandate* is an indicator variable that takes on the value of 1 if the loan is covered by forbearance mandates under the CARES Act (Fannie, Freddie, FHA, and VA loans) and 0 otherwise. Columns (1) and (2) are estimated for all individuals with first mortgages, while Columns (3) and (4) are restricted to individuals who are in forbearance on their first mortgages. Columns (1) and (3) contain individual-level characteristics and zip code fixed effects, while columns (2) and (4) contain individual level controls and zip code controls. Zip code controls include zip code racial composition, educational attainment, unemployment rate, median age, median income, average CLTV, average DTI, and median house price. Regression inputs are scaled by standard deviation. Individual controls are taken as of January 2020. Standard errors are clustered at the individual level. *Sources:* Forbearance status, missed payment status, and all other individual-level characteristics come from Equifax. House price data comes from Zillow. The remaining variables come from the U.S. Census Bureau American Community Survey 5-Year Estimates.

	(1) In Forbearance	(2) In Forbearance	(3) % Missed Payment	(4) % Missed Payment
Mandate	1.166*** (0.0166)	1.176*** (0.0197)	-0.654*** (0.145)	-0.904*** (0.185)
Mortgage Balance	0.452*** (0.0488)	0.451*** (0.0418)	-0.246* (0.0964)	-0.210 (0.148)
Auto Loan Balance	0.323*** (0.0140)	0.291*** (0.0141)	0.0926 (0.0568)	0.126 (0.0747)
Revolving Debt Balance	0.442*** (0.0117)	0.454*** (0.0150)	1.023*** (0.0466)	0.971*** (0.0606)
Student Loan Balance	0.254*** (0.00966)	0.263*** (0.0125)	0.543*** (0.0427)	0.507*** (0.0552)
Small Business Owner	0.337*** (0.00866)	0.329*** (0.0108)	0.389*** (0.0539)	0.473*** (0.0704)
Credit Score	-2.302*** (0.0123)	-2.260*** (0.0156)	-3.874*** (0.0642)	-3.984*** (0.0851)
Income	-0.168*** (0.0197)	-0.136*** (0.0199)	0.0858 (0.0868)	0.155 (0.115)
# Accounts Past Due in Jan.	1.223*** (0.0154)	1.193*** (0.0206)	-0.0937** (0.0342)	-0.142** (0.0450)
DTI	0.189*** (0.0380)	0.240*** (0.0447)	0.116 (0.0909)	0.276*** (0.0660)
Age	-0.597*** 1.166***	-0.545*** 1.176***	-1.793*** -0.654***	-1.703*** -0.904***
Zip Code Controls	No	Yes	No	Yes
Zip Code FE	Yes	No	Yes	No
Mean of Dependent Variable	4.542	4.348	69.28	68.96
Observations	39,507,016	23,758,561	1,792,391	1,033,005
Adjusted R-squared	0.036	0.029	0.037	0.013

Table 6: Government Mandates and Mortgage Forbearance [continued]**Panel B: Forbearance Rates around the Conforming Loan Limit**

Panel (b) of this table reports the results from a regression of whether an individual is in forbearance or whether an individual missed their payment while in forbearance on various borrower and zip code level variables, including an indicator for whether the mortgage is a jumbo loan. Months include March 2020 to October 2020. Analysis is restricted to mortgages with balances that fall within 95% to 105% of the conforming loan limit (90% to 110% in Columns 5 to 8). Jumbo loans are loans that fall above 100% of the conforming loan limit and are not covered by forbearance mandates under the CARES Act. Conforming loans are Fannie and Freddie mortgages that fall below 100% of the conforming loan limit. Standard errors are clustered at the loan level. Borrower level controls include student debt balance, auto debt balance, revolving debt balance, age, income, credit score, DTI, number of accounts past due, and small business owner. Zip code controls include zip code racial composition, educational attainment, unemployment rate, median age, median income, average CLTV, average DTI, and median house price. Regression inputs are scaled by standard deviation. Borrower control variables are taken as of January 2020. *Sources:* Forbearance status, missed payment status, and all other individual-level characteristics come from Equifax. House price data comes from Zillow. The remaining variables come from the U.S. Census Bureau American Community Survey 5-Year Estimates.

	Window +/- 5%				Window +/- 10%			
	Forbearance Rate		% Missing Payments		Forbearance Rate		% Missing Payments	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Conforming	1.616*** (0.166)	1.514*** (0.191)	2.015 (1.658)	2.942 (1.614)	1.446*** (0.123)	1.412*** (0.144)	2.134 (1.094)	1.401 (1.179)
Mean of Dependent Variable	5.537	5.251	72.58	71.93	5.464	5.220	71.50	72.00
Zip Code Controls	No	Yes	No	Yes	No	Yes	No	Yes
Zip Code FE	Yes	No	Yes	No	Yes	No	Yes	No
Observations	493,227	301,936	26,768	15,856	837,247	512,103	45,751	45,110
Adjusted R-squared	0.107	0.035	0.228	0.017	0.087	0.032	0.013	0.183

Table 6: Government Mandates and Mortgage Forbearance [continued]**Panel C: Diff-and-diff Analysis**

Panel (c) of this table shows results from regressions of the form:

$$Forbearance_{i,t,z} = \alpha + \beta_1 Conforming_{i,z} + \beta_2 Pandemic_t + \beta_3 Pandemic_t * Conforming_{i,z} + \gamma X_{i,z} + \theta Z_z + \varepsilon_{i,t,z}$$

where $Forbearance_{i,t,z}$ is an indicator for whether loan i located in zip code z is in forbearance during month t . $Conforming_{i,z}$ is an indicator for whether the loan is a conforming mortgage, $Pandemic_t$ is an indicator that takes on the value of zero prior to March 2020 and one from March 2020 to October 2020, $X_{i,z}$ is a vector of borrower level characteristics, and Z_z is either a vector of zip code controls or fixed effects. We restrict our analysis to mortgages with balances that fall within 90% to 110% of the conforming loan limit. Jumbo loans are loans that fall above 100% of the conforming loan limit and are not covered by forbearance mandates under the CARES Act. Conforming loans are Fannie and Freddie mortgages that fall below 100% of the conforming loan limit. Standard errors are clustered at the loan level. Borrower level controls include student debt balance, auto debt balance, revolving debt balance, age, income, credit score, DTI, number of accounts past due, and small business owner. Zip code controls include zip code racial composition, educational attainment, unemployment rate, median age, median income, average CLTV, average DTI, and median house price. Regression inputs are scaled by standard deviation. Borrower control variables are taken as of January 2020. Months include January 2019 to October 2020. *Sources:* Forbearance status, missed payment status, and all other individual-level characteristics come from Equifax. House price data comes from Zillow. The remaining variables come from the U.S. Census Bureau American Community Survey 5-Year Estimates.

	Forbearance Rate		% Missing Payments	
	(1)	(2)	(3)	(4)
Conforming * Pandemic	1.148*** (0.116)	1.312*** (0.143)	13.54*** (3.665)	16.03** (5.060)
Pandemic	4.349*** (0.0985)	3.991*** (0.120)	6.201* (2.964)	14.26*** (4.219)
Conforming	0.0760* 1.148***	-0.0354 1.312***	-11.72** 13.54***	-14.75** 16.03**
Borrower Controls	Yes	Yes	Yes	Yes
Zip Code Controls	No	Yes	No	Yes
Zip Code FE	Yes	No	Yes	No
Observations	2,280,427	1,394,410	47,967	28,442
Adjusted R-squared	0.070	0.044	0.195	0.030

Table 7: Forbearance Rates: Bank versus Shadow Bank Loans

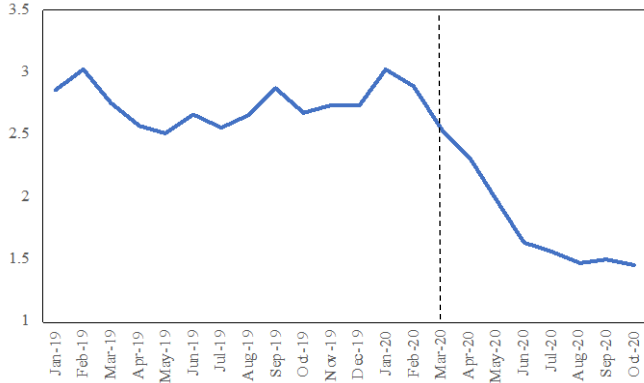
This table presents loan-level regression results of forbearance rate by bank and shadow bank. The dependent variable indicates whether the loan is in forbearance. *Pandemic* indicates whether the reporting period is after March 2020. The sample covers all loans sold to Fannie Mae since 2000 and that were still active as of January 2020. Since the GSE do not disclose identity of servicers that service less than 1% of total unpaid outstanding balance, we remove loans without identified servicers. The observations are at monthly level from January 2020 to June 2020. Standard errors are clustered by zip code. ***, **, * represent 1%, 5%, and 10% significance, respectively.

	(1)	(2)	(3)
Pandemic	7.07***	7.29***	7.27***
	(0.16)	(0.16)	(0.16)
Shadow Bank	0.03***	-0.56***	-0.63***
	(0.00)	(0.02)	(0.03)
Pandemic × Shadow Bank	-1.85***	-1.98***	-1.96***
	(0.06)	(0.06)	(0.06)
Borrower Controls	No	Yes	Yes
Zip Code FE	No	No	Yes
R2	0.03	0.05	0.06
Observations	51,276,016	43,646,272	43,646,272

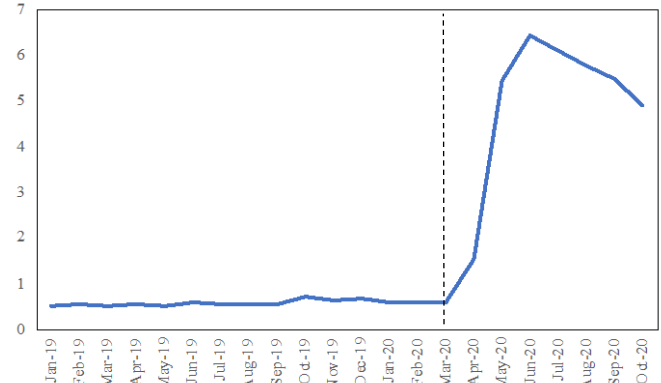
Figure 1: Residential Mortgage Debt: Delinquency and Forbearance Rates

Panel (a) shows the US residential mortgage delinquency rate, while panel (b) shows the corresponding mortgage forbearance rates around the beginning of the COVID-19 crisis. Panel (c) and (d) shows the corresponding patterns over the longer-time period (Q1:2006 to Q3: 2020). In addition, panel (c) also displays the unemployment rate during this period. Delinquency rates are 30 days past due or worse. The dashed vertical line shows the declaration of the national emergency due to COVID-19 and the passage of the CARES Act in March 2020. Forbearance rates are calculated according to Equifax standard procedure for identifying loans in forbearance. The quarterly unemployment rates are from the US Bureau of Labor Statistics and are peak values in a respective quarters. *Sources:* Equifax 10% representative sample of the U.S. credit population.

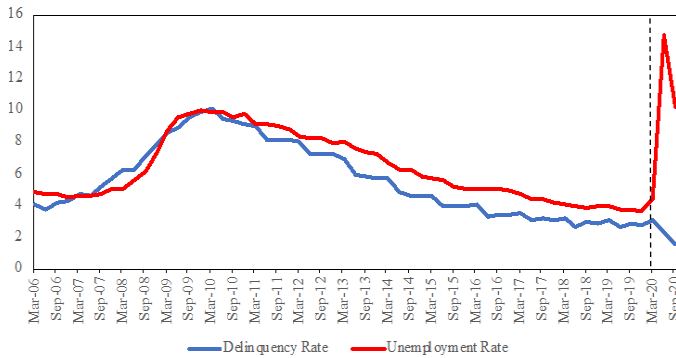
Panel (a): Delinquency rates and the COVID-19 crisis



Panel (b): Forbearance rate and the COVID-19 crisis



Panel (c): Delinquency and unemployment rate (2006-2020)



Panel (d): Forbearance rate (2006-2020)

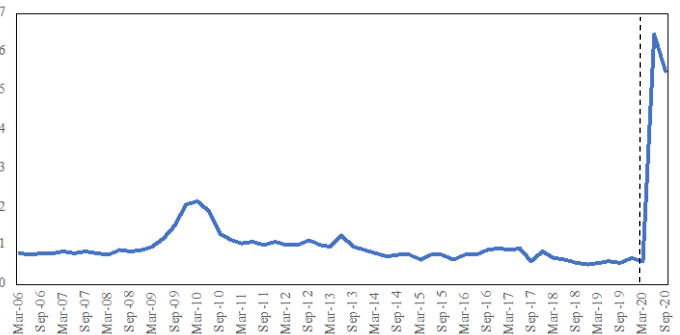
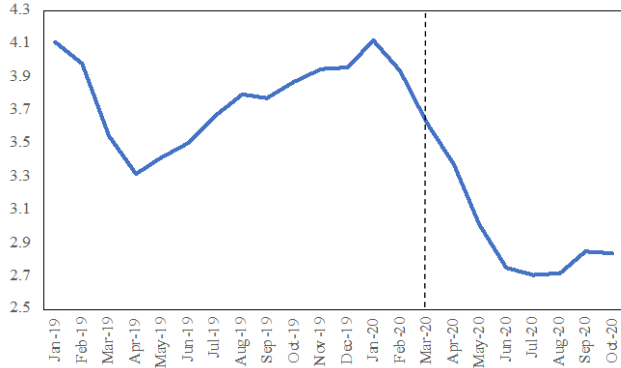


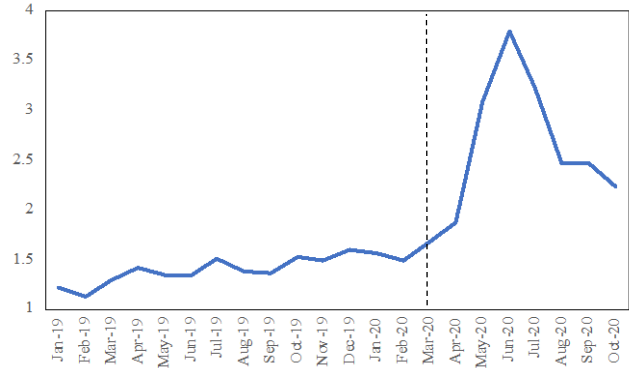
Figure 2: Auto, Revolving, and Student Debt: Delinquency and Forbearance Rates

This figure shows delinquency and forbearance rates of different debt types from January 2019 to October 2020. Delinquency rates are 30 days past due or worse. The left column plots delinquency rates and the right column shows plots of forbearance rates. The first row contains results for auto loans, the second row shows revolving debt, and the final row shows student loans. The dashed vertical line shows the declaration of the national emergency and the passage of the CARES Act in March 2020. *Sources:* Equifax 10% representative sample of the U.S. credit population.

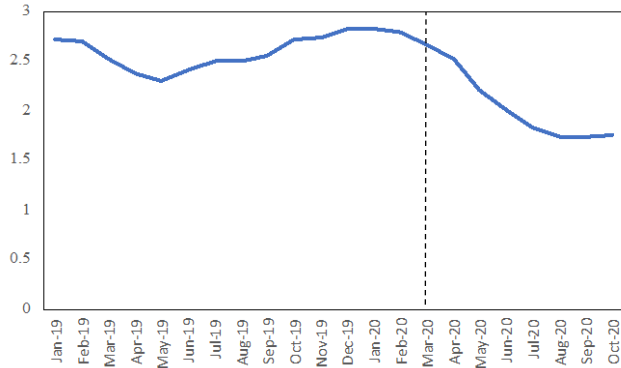
Panel (a): Auto Debt Delinquency



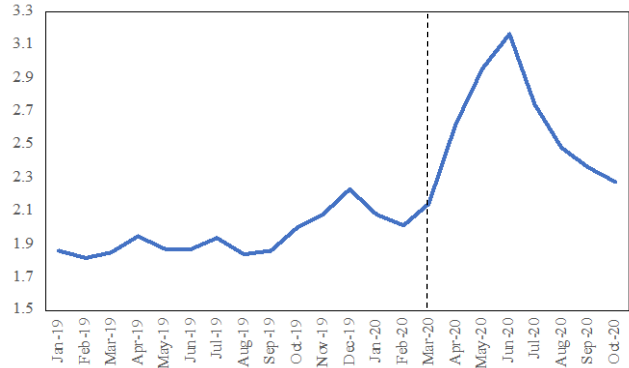
Panel (b): Auto Debt Forbearance



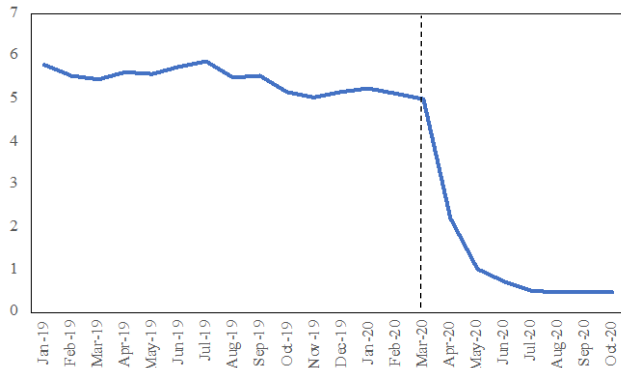
Panel (c): Revolving Debt Delinquency



Panel (d): Revolving Debt Forbearance



Panel (e): Student Debt Delinquency



Panel (f): Student Debt Forbearance

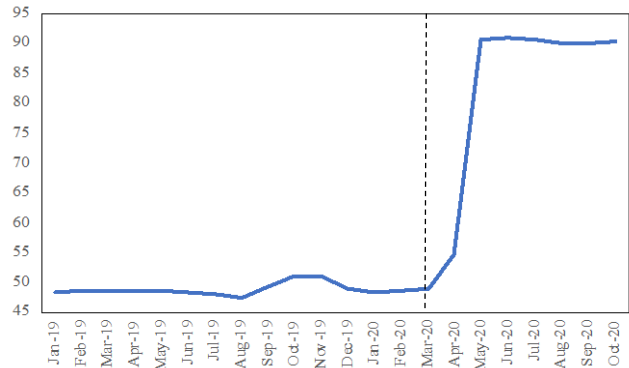
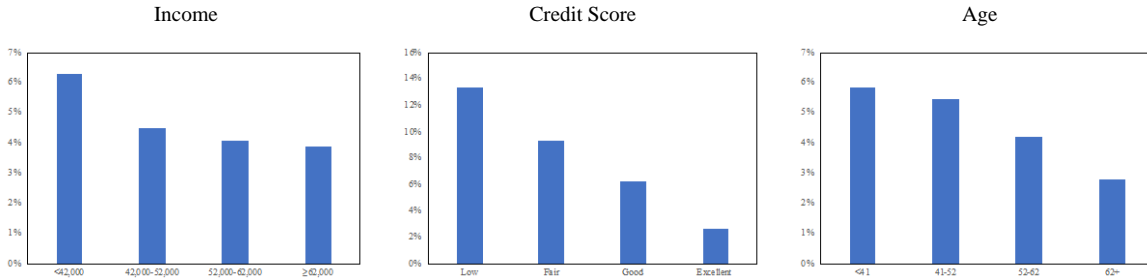


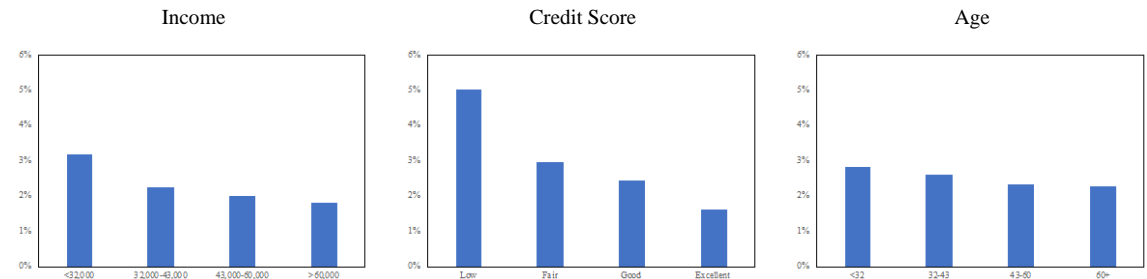
Figure 3: Forbearance and Missed Payment Rates by Income, Credit Scores, and Age

This figure plots first mortgage forbearance rates and missed payment rates by income, credit score, and age. Panel (a) shows first mortgages, panel (b) shows auto loans, panel (c) shows revolving loans, and panel (d) shows student loans. The left column plots forbearance rates by income quantiles. The center column plots similar results by credit scores and the right column by age groups. Income, credit scores, and age are taken as of January 2020. Months include March 2020 to October 2020. *Sources:* Equifax 10% representative sample of the U.S. credit population.

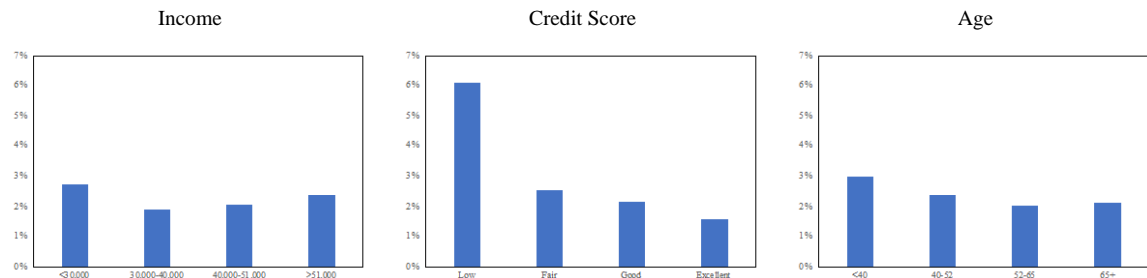
Panel (a): Mortgages



Panel (b): Auto Debt



Panel (c): Revolving Debt



Panel (d): Student Debt

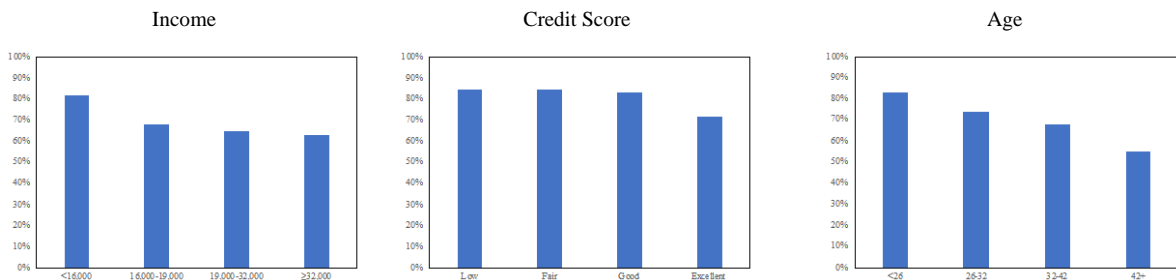
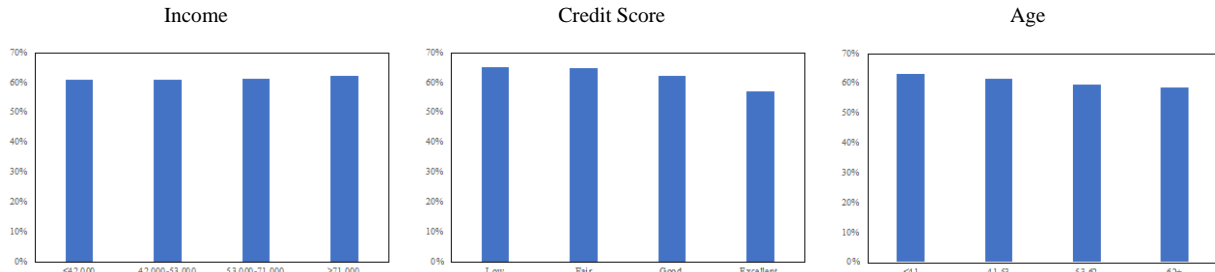


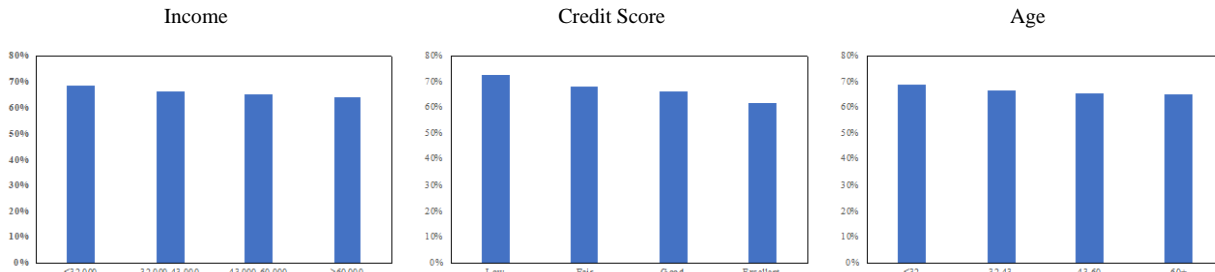
Figure 4: Percent of Scheduled Payments Missed by Income, Credit Scores, and Age

This figure plots the percent of scheduled payments missed due to forbearance by income, credit score, and age. Panel (a) shows first mortgages, panel (b) shows auto loans, panel (c) shows revolving loans, and panel (d) shows student loans. The figures show both the averages for each quantile based on income and age, and for each credit score group. The left column plots by income quantiles, the center column by credit score quantiles, and the right column by age quantiles. Income, credit score, and age are taken as of January 2020. Months include March 2020 to October 2020. *Sources:* Equifax 10% representative sample of the U.S. credit population.

Panel (a): Mortgages



Panel (b): Auto Debt



Panel (c): Revolving Debt



Panel (d): Student Debt

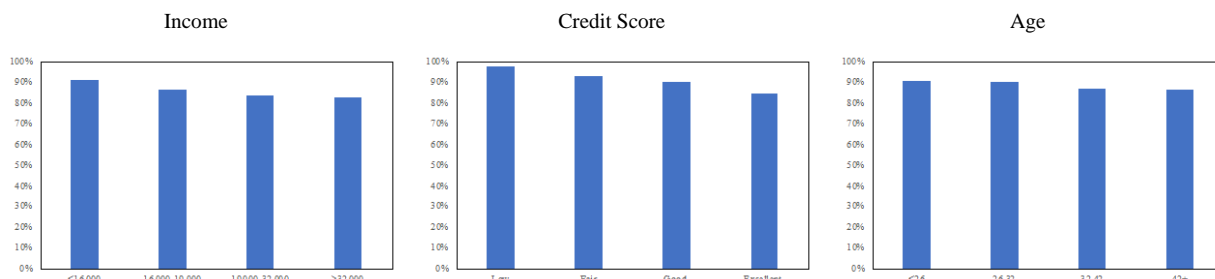


Figure 5: Missed Payment Amounts by Income, Credit Scores, and Age

This figure plots the dollar amount of payments missed due to forbearance by income, credit score, and age. Panel (a) shows first mortgages, panel (b) shows auto loans, panel (c) shows revolving loans, and panel (d) shows student loans. The figures show both the averages for each quintile based on income and age, and for each credit score group. The left column plots by income quintiles, the center column by credit score quintiles, and the right column by age quintiles. Income, credit score, and age are taken as of January 2020. Months include March 2020 to October 2020. *Sources:* Equifax 10% representative sample of the U.S. credit population.

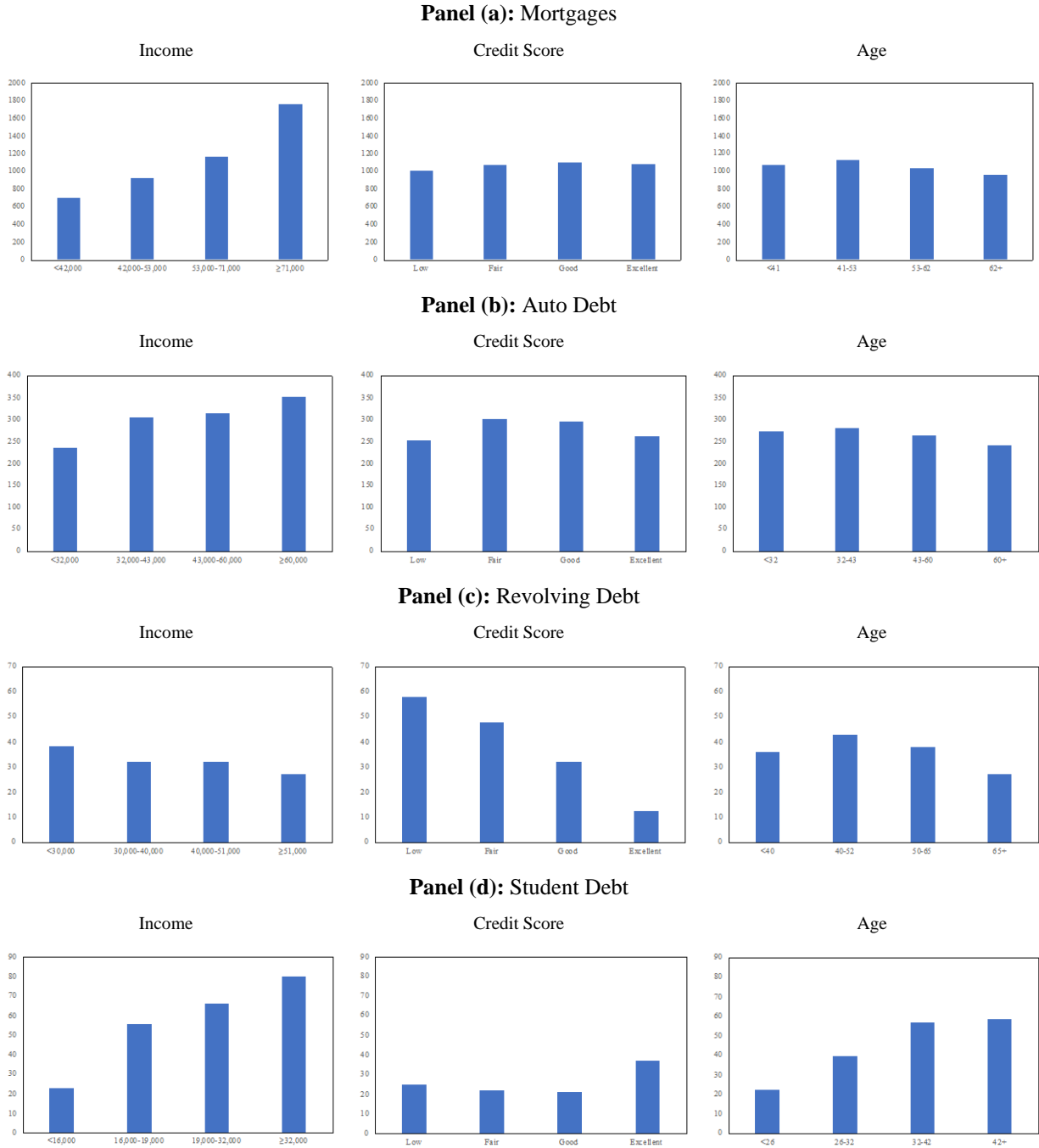
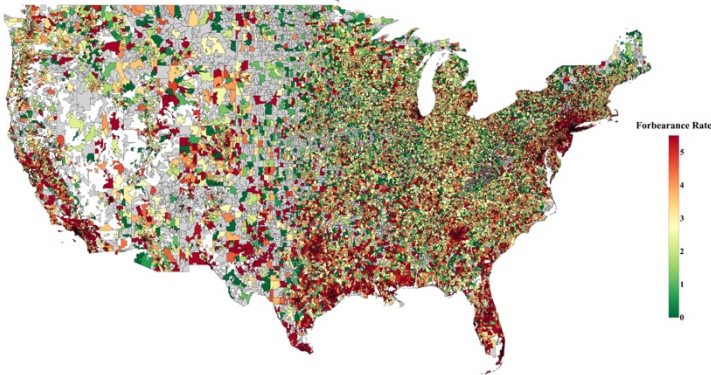


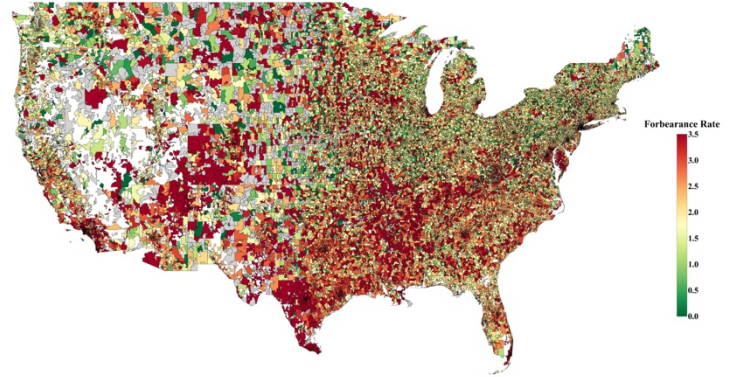
Figure 6: Geographical Heterogeneity in Forbearance Rates

This figure shows heterogeneity in average monthly forbearance rates across zip codes. For each debt type, we limit maps to zip codes with at least ten loans. Average monthly forbearance rates are taken from March 2020 to October 2020. Panel (a) shows forbearance rates for first mortgages, panel (b) shows forbearance rates for auto loans, panel (c) shows forbearance rates for revolving accounts, and panel (d) shows forbearance rates for student loans. We restrict to zip codes with at least ten loans. *Sources:* Equifax 10% representative sample of the U.S. credit population.

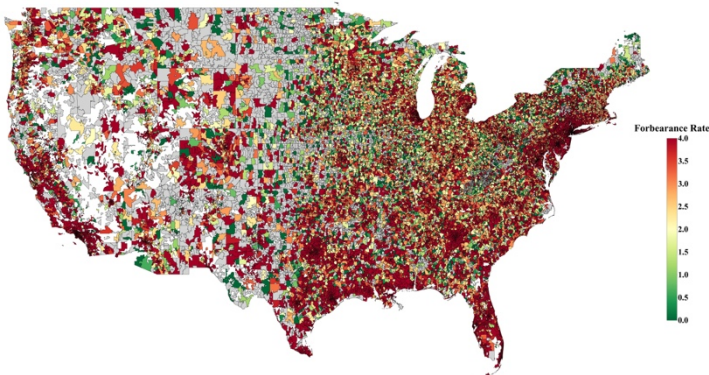
Panel (a): First Mortgages



Panel (b): Auto Debt



Panel (c): Revolving Debt



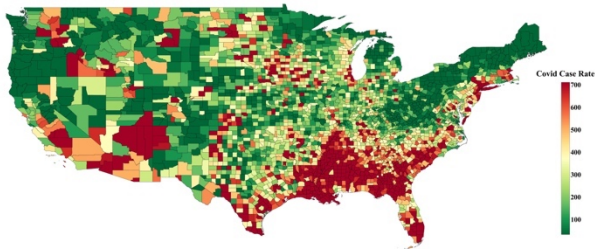
Panel (d): Student Debt



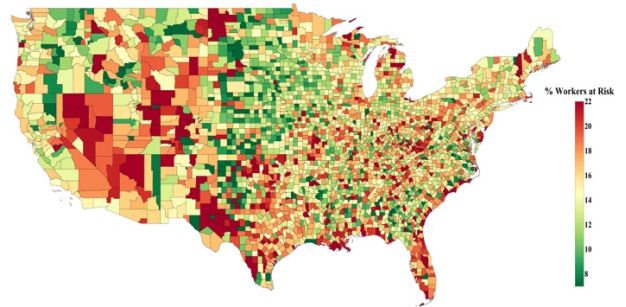
Figure 7: Geographical Heterogeneity in COVID Related Characteristics

This figure plots county level characteristics. Panel (a) shows average COVID case rates from March 2020 to October 2020, panel (b) shows the percent of workers in at risk industries, panel (c) shows the average daily change in time spent at workplaces relative to January 2020, and panel (d) shows the average daily change in credit/debit card spending relative to January 2020. Averages are taken from March to October 2020. *Sources:* COVID cases, credit/debit card spending, and time spent at workplace come from Opportunity Insights Tracker. Industry composition comes from the Bureau of Labor Statistics.

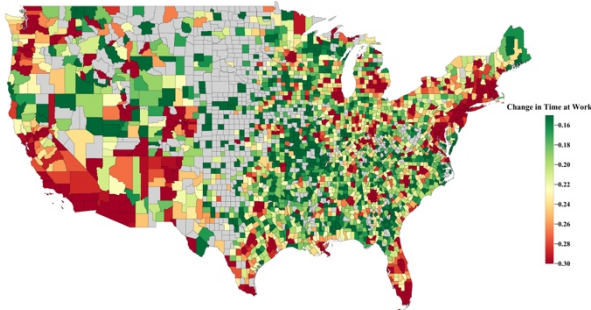
Panel (a): COVID Case Rates



Panel (b): % of at Risk Workers



Panel (c): Change in Time at Workplace



Panel (d): Change in Spending

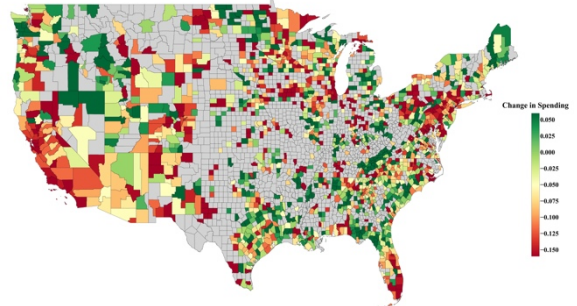
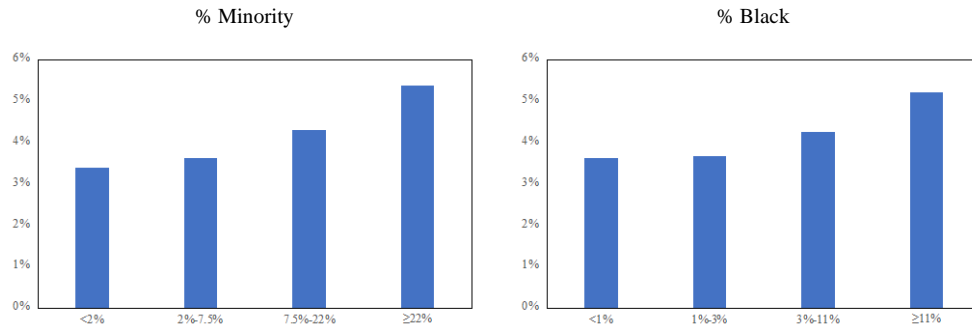


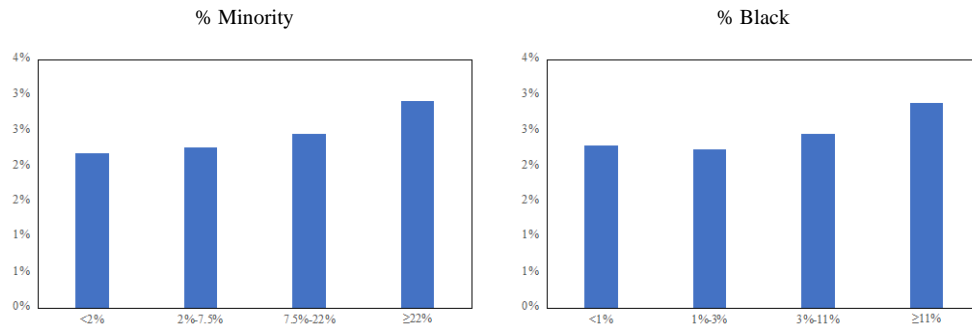
Figure 8: Regional Evidence: Heterogeneity in Forbearance Rates based on % Minority and % Black

This figure plots the average monthly forbearance rates for zip codes. Average monthly forbearance rates are taken from March 2020 to October 2020. Plots are based on the percent of a zip code's population that is a minority (non-white) and the percent of a zip code's population that is Black. Panel (a) shows first mortgage forbearance rates, panel (b) shows auto loans, panel (c) shows revolving loans, and panel (d) shows student loans. The left column plots by income quantile, the middle column by percent minority quantile, and the right column by pre-pandemic unemployment rate quantile. We restrict to zip codes with at least ten loans. *Sources:* Forbearance rates come from Equifax. All other data come from the U.S. Census Bureau's American Community Survey.

Panel (a): Mortgages



Panel (b): Auto Debt



Panel (c): Revolving Debt

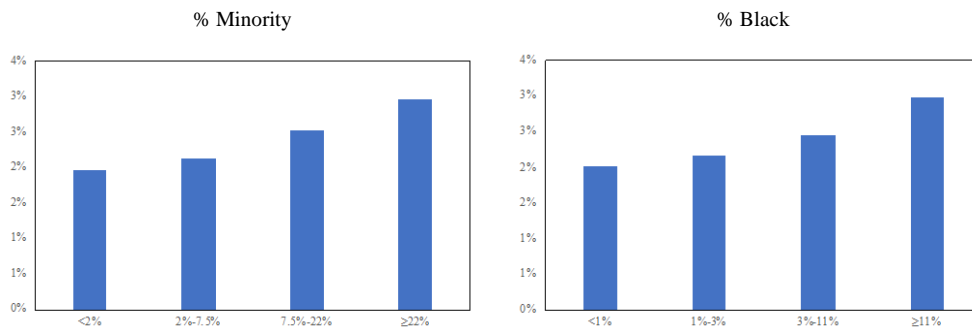


Figure 8: Regional Evidence: Heterogeneity in Forbearance Rates based on % Minority, and % Black – [Continued]

Panel (d): Student Debt

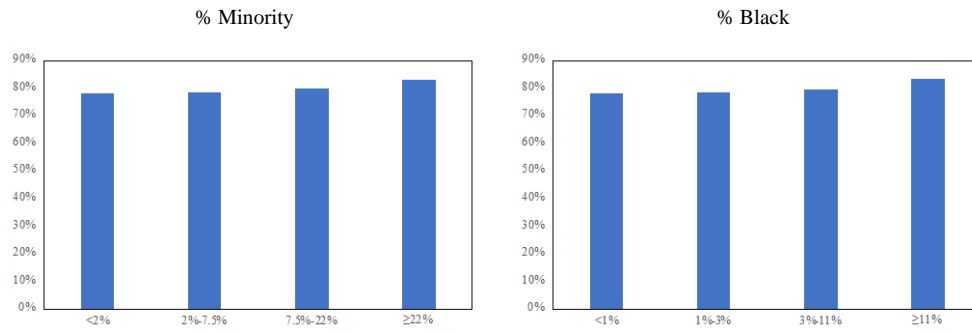


Figure 9: Regional Evidence: Mortgage Forbearance Rates and Unemployment and COVID-19 Infection rates

This figure plots zip code level average monthly forbearance rates. Average monthly forbearance rates are taken from March 2020 to October 2020. Plots are based on COVID case rates, unemployment insurance claims, and the percent

of workers employed in “at risk” industries. We restrict to zip codes with at least ten loans. The left column plots by COVID case rate quantile, the middle column by total UI claims quantile, and the right column by the percent of workers in at risk industries quantile. COVID case rates are average case rates taken over the period from March to October 2020. *Sources:* Forbearance and missed payments come from Equifax 10% representative sample of the U.S. credit population. All other data come from Opportunity Insights.

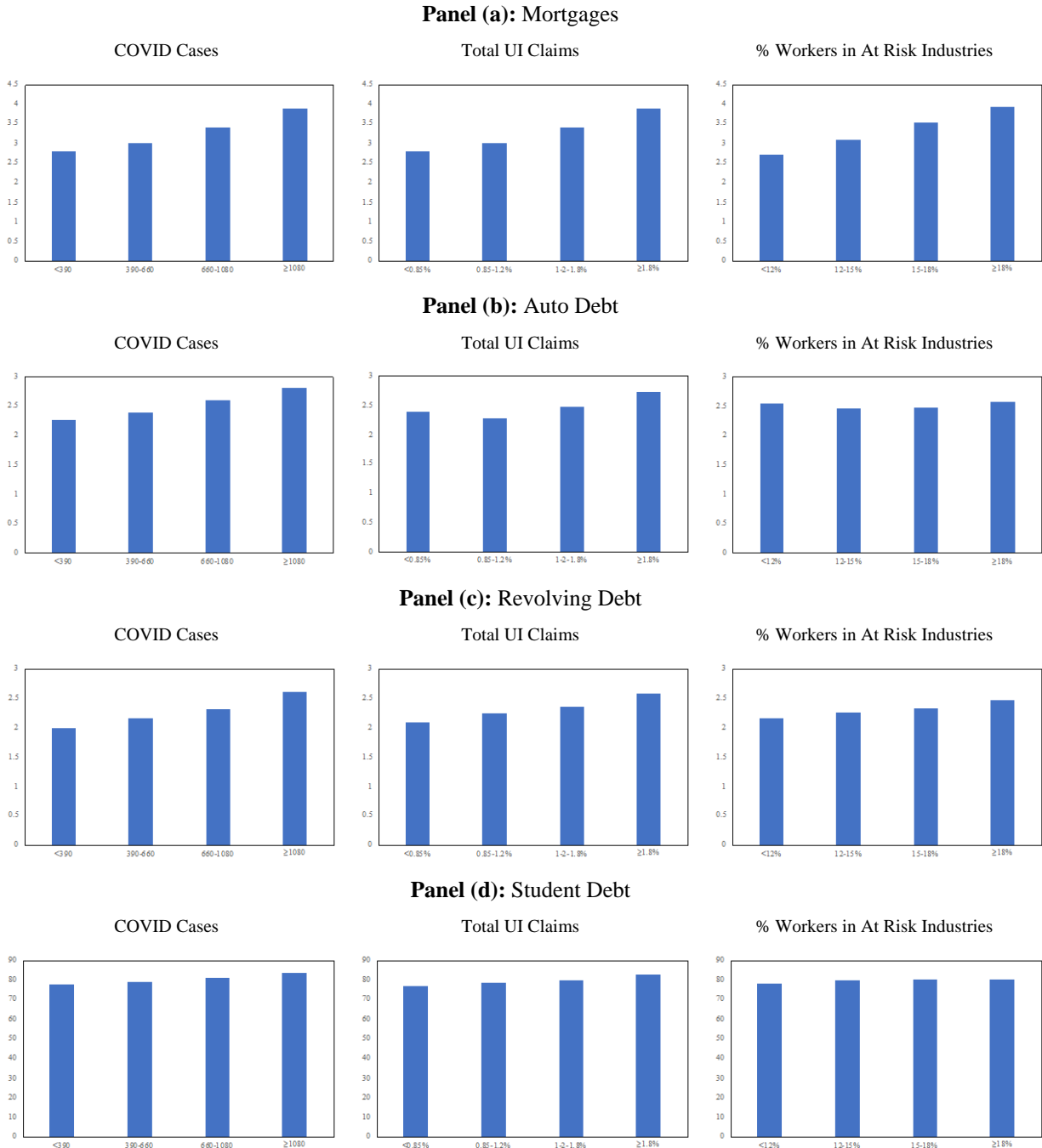


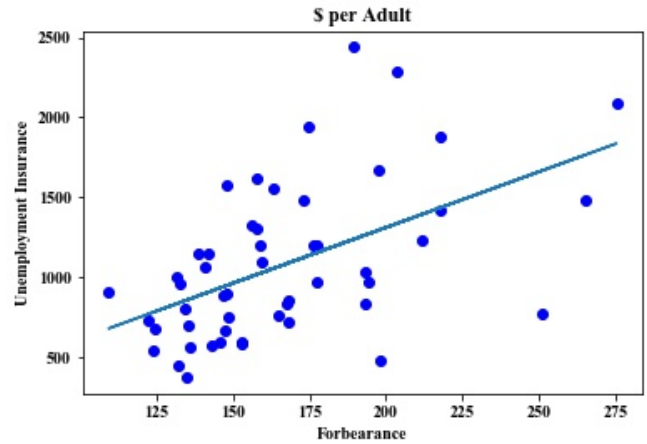
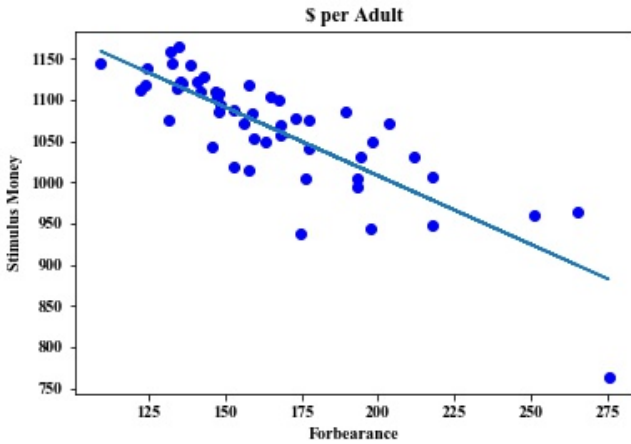
Figure 10: Debt Forbearance and other stimulus measures

This figure plots the total amount of money missed due to forbearance in a state normalized by the number of adults against the total amount of money received from stimulus checks, PPP loans, and unemployment insurance normalized by the number of adults at the state level. Panel (a) plots the amount missed through forbearance against the amount

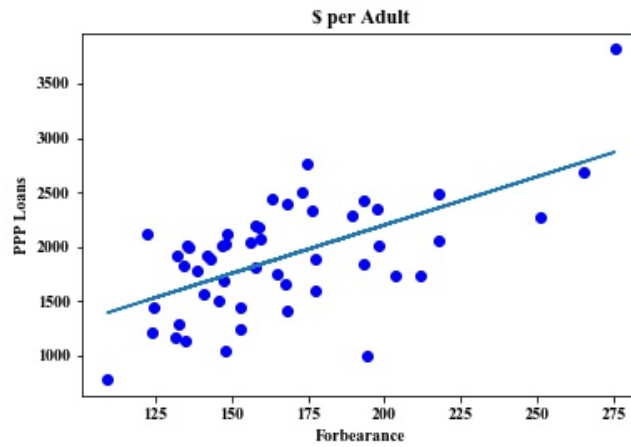
received from stimulus checks, panel (b) plots the amount missed through forbearance against the amount received from PPP loans, and panel (c) plots the amount missed through forbearance against the amount received from unemployment benefits. Amounts are calculated from the months from March to October 2020. *Sources:* Missed payments come from Equifax, stimulus amounts come from the Internal Revenue Service, unemployment benefits come from the Department of Labor, PPP loans come from the Small Business Administration.

Panel (a): Stimulus Money Received per Adult

Panel (b): Unemployment Benefits per Adult

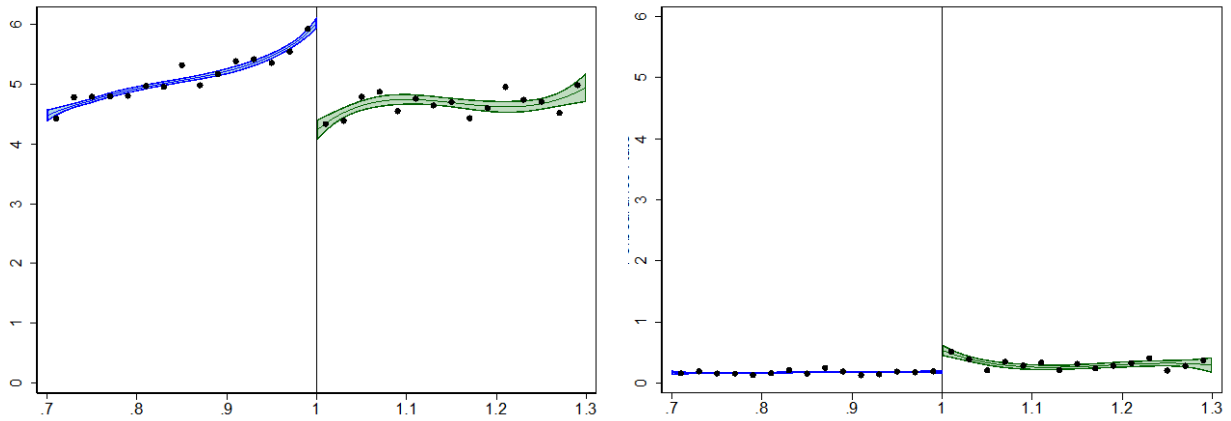


Panel (c): PPP Loans per Adult



**Figure 11: Government Mandates:
Mortgage Forbearance rates around the Conforming Loan Limit**

This figure plots mortgage forbearance rates around the conforming loan limit. We restrict our analysis to mortgages with balances that fall within 70% to 130% of the conforming loan limit. Panel (a) shows results during the COVID-19 period (March 2020 to October 2020). Dots represent forbearance rates in 1% buckets by the loan's percentage of the conforming loan limit. Third degree polynomials are fit on either side of the conforming loan limit. Shaded bands show the 95% confidence interval. Panel (b) shows the same plot during the pre-pandemic period (January 2020 to February 2020). Jumbo loans are loans that fall above 100% of the conforming loan limit (solid line) and are not covered by forbearance mandates under the CARES Act. Conforming loans are Fannie and Freddie loans that fall below 100% of the conforming loan limit. *Sources:* Equifax 10% representative sample of the U.S. credit population.



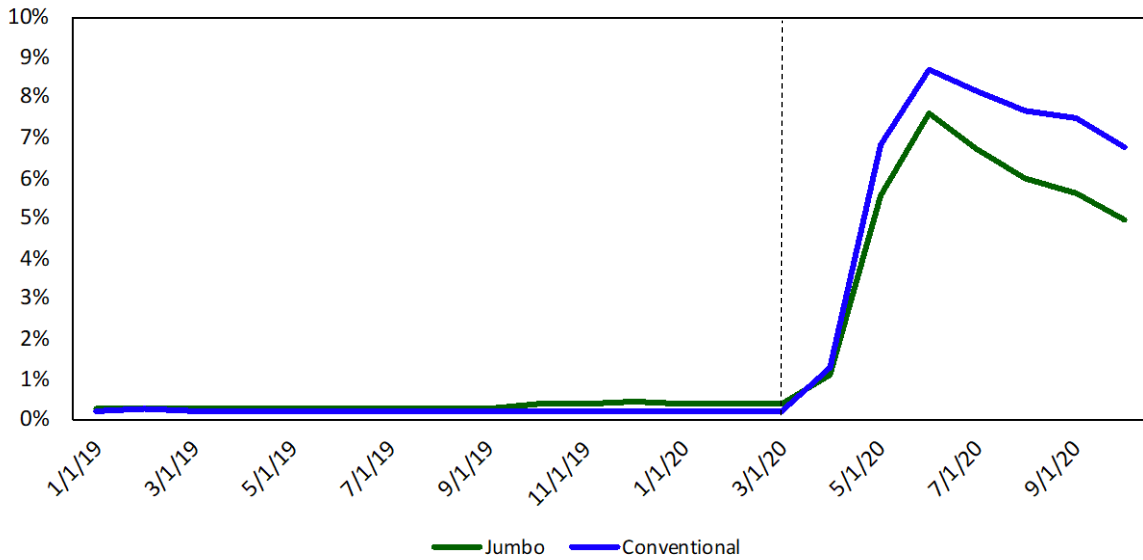
Panel (a): COVID Period

Panel (b): Pre-COVID Period

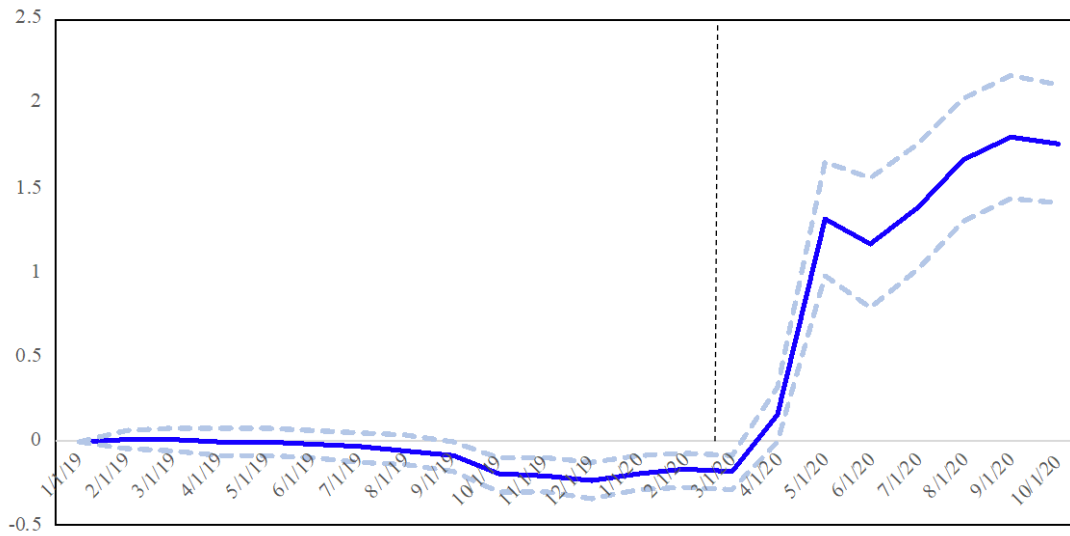
**Figure 11: Government Mandates:
Mortgage Forbearance rates around the Conforming Loan Limit**

[Continued]

Panel (c) of this figure plots average monthly forbearance rates for jumbo and conforming loans from January 2019 to October 2020, while panel (d) shows the estimated differential changes in forbearance rates on conforming loans relative to jumbo loans along with 95% confidence intervals. Jumbo loans are loans that fall above 100% of the conforming loan limit and are not covered by forbearance mandates under the CARES Act. Conforming loans are Fannie and Freddie loans that fall below 100% of the conforming loan limit. The dashed vertical line shows the declaration of the national emergency due to COVID-19 and the passage of the CARES Act in March 2020. *Sources:* Equifax 10% representative sample of the U.S. credit population.



Panel (c): Forbearance rates of conforming and jumbo loans



Panel (d): Change in forbearance rates of conforming loans relative to jumbo loans

Figure 12: Mortgage Mandates and Forbearance Rates across Borrowers

This figure shows forbearance rates for conforming and jumbo rates, across age, income, and credit scores. Months include March 2020 to October 2020. We restrict our analysis to mortgages with balances that fall within 90% to 110% of the conforming loan limit. Jumbo loans are loans that fall above 100% of the conforming loan limit and are not covered by forbearance mandates under the CARES Act. Conforming loans are Fannie and Freddie loans that fall below 100% of the conforming loan limit. Panel (a) shows results for jumbo mortgages while panel (b) shows results for conforming mortgages. The left column plot forbearance rates by income quintiles. The center column plots similar results by credit scores and the right column by age groups. Income, age, and credit score are taken as of January 2020. *Sources:* Equifax 10% representative sample of the U.S. credit population.

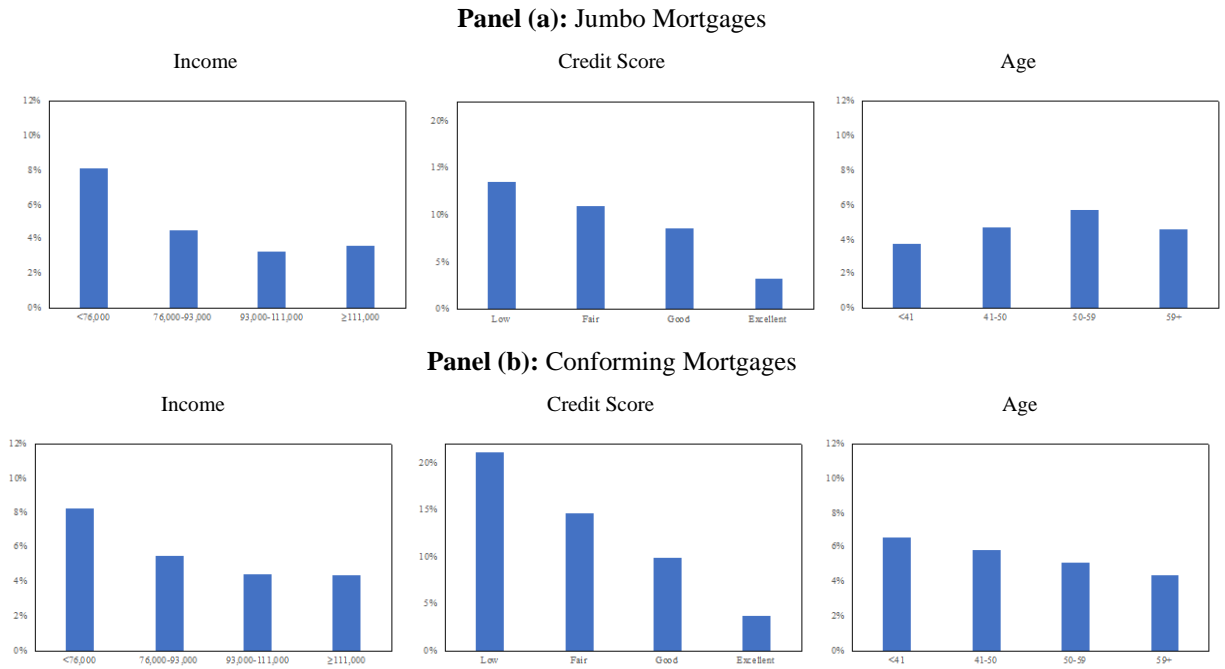
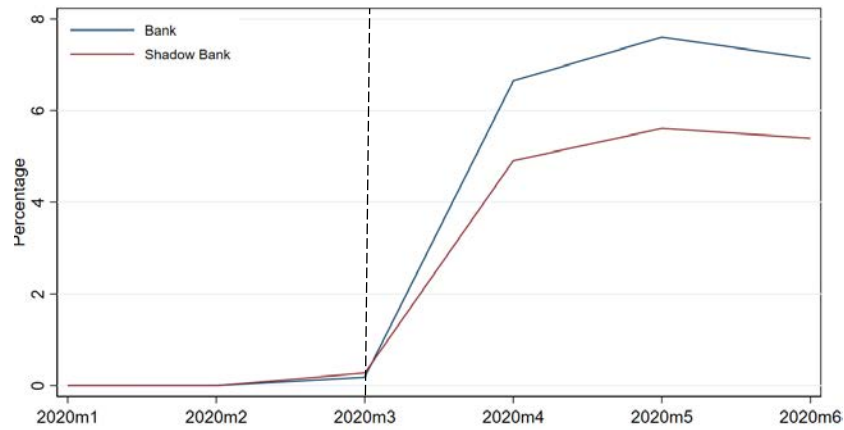
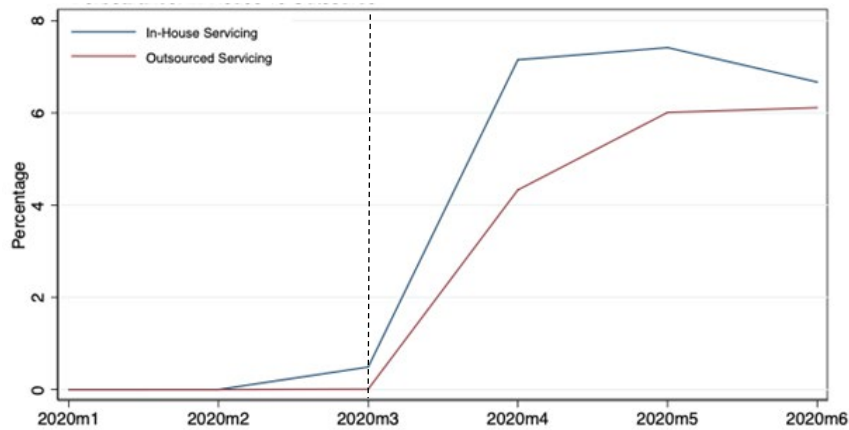


Figure 13: Forbearance Rates and Intermediary Factors

Panel (a) of this figure plots the forbearance rate of loans sold to Fannie Mae splitting the sample by banks and shadow bank originators. The banks and shadow banks are defined according to classification in Buchak et al. (2018). Panel (b) plots forbearance rate of loans sold to Fannie Mae splitting the sample based on whether a loan is serviced by the originator or by other servicers. *In-House* is defined as the loan being serviced by its originator. *Outsource* is if the loan is serviced by an institution that was not its originator. The sample covers all loans sold to Fannie Mae since 2000 and that were still active as of January 2020. The dashed vertical line shows the declaration of the national emergency and the passage of the CARES Act in March 2020. Sources: Fannie Mae Loan Level Performance Data.



Panel (a): Forbearance Rates: Banks vs Shadow Banks



Panel (b): Forbearance Rates: In-House vs Outsourced Servicing

Appendix

Table A1: Mortgage Borrowers: Descriptive Statistics

This table shows summary statistics for all mortgage borrowers in the Equifax dataset (Columns (1) through (4)) and all borrowers who are in forbearance on their mortgages (Columns (5) through (8)). Pre-COVID-19 statistics are based on January and February 2020, while COVID-19 statistics are based on March to October 2020. Odd columns contain means while even columns contain standard deviations. *Sources:* Equifax 10% representative sample of the U.S. credit population.

	Mortgage Borrowers				Mortgage Borrowers in Forbearance			
	Pre-COVID		COVID		Pre-COVID		COVID	
	(1) Mean	(2) SD	(3) Mean	(4) SD	(5) Mean	(6) SD	(7) Mean	(8) SD
Vantage	732	95	738	93	656	133	679	100
Estimated Age	50	14	50	14	49	14	47	13
Estimated Income	53,867	20,162	54,03	20,283	51,131	20,799	51,164	20,369
Fraction with First Mortgage	1.00		1.00		1.00		1.00	
Fraction with Auto Debt	0.50		0.50		0.49		0.56	
Fraction with Revolving Debt	0.91		0.91		0.82		0.89	
Fraction Student Debt	0.14		0.14		0.16		0.19	
Average First Mortgage Balance (Nonzero Accounts)	210,020	240,631	214,788	246,309	292,910	401,836	274,105	310,893
Average Combined Mortgage Balance (Nonzero Accounts)	211,549	242,103	216,254	247,719	294,797	402,919	276,147	312,695
Average Auto Debt (Nonzero Accounts)	215,97	20,640	21,824	20,942	221,60	21,836	24,225	23,219
Average Revolving Debt (Nonzero Accounts)	7,717	11,862	6,878	11,220	7,471	13,390	10,216	14,869
Average Student Debt (Nonzero Accounts)	40,589	56,288	41,537	57,339	46,536	61,293	49,192	64,746
Average Credit Card Utilization	28%		25%		42%		42%	
Average Available Credit	24,955	27,555	25,506	27,887	19,984	36,292	19,666	27389
Number of Consumers	4,549,218		4,796,029		41,796		502,942	

Table A2: Individual-Level Forbearance Regressions

This table reports the results from a regression of whether an individual is in forbearance or whether an individual missed their payment while in forbearance on various borrower and zip code level variables. Months include March 2020 to October 2020. Columns (1) and (2) are estimated from all individuals with first mortgages, while Columns (3) and (4) are restricted to individuals who are in forbearance on their first mortgages. Columns (1) and (3) contain individual-level characteristics and zip code fixed effects, while columns (2) and (4) contain individual level controls and zip code controls. Zip code controls include zip code racial composition, educational attainment, unemployment rate, median age, median income, average CLTV, average DTI, and median house price. Regression inputs are scaled by standard deviation. Individual controls are taken as of January 2020. *Sources:* Forbearance status, missed payment status, and all other individual-level characteristics come from Equifax. House price data comes from Zillow. The remaining variables come from the U.S. Census Bureau American Community Survey 5-Year Estimates.

Panel A: Auto Debt

	(1)	(2)	(3)	(4)
	In Forbearance	In Forbearance	Missed Payment	Missed Payment
Mortgage Balance	-0.0164** (0.00501)	-0.0151* (0.00679)	0.206* (0.0966)	0.263** (0.0860)
Auto Loan Balance	0.771*** (0.0109)	0.746*** (0.00859)	-0.185*** (0.0472)	-0.285*** (0.0471)
Revolving Debt Balance	-0.0417*** (0.00503)	-0.0589*** (0.00657)	-0.210*** (0.0574)	-0.209*** (0.0587)
Student Loan Balance	-0.0577*** (0.00405)	-0.0523*** (0.00523)	-0.238*** (0.0438)	-0.286*** (0.0570)
Small Business Owner	0.0817*** (0.00424)	0.0853*** (0.00533)	0.141** (0.0432)	0.102 (0.0568)
Credit Score	-1.258*** (0.00780)	-1.252*** (0.0102)	-3.021*** (0.0474)	-3.126*** (0.0591)
Income	0.00540 (0.00580)	0.0119 (0.00703)	-0.298*** (0.0887)	-0.460*** (0.0941)
# Accounts Past Due in Jan.	0.222*** (0.00781)	0.238*** (0.0107)	0.255*** (0.0310)	0.299*** (0.0402)
DTI	-0.0135 (0.00707)	-0.0171 (0.0122)	-0.314 (0.260)	-0.179 (0.170)
Age	0.109*** (0.00465)	0.117*** (0.00588)	-0.349*** (0.0523)	-0.318*** (0.0691)
Zip Code Controls	No	Yes	No	No
Zip Code FE	Yes	No	Yes	No
Mean of Dependent Variable	3.052	2.969	76.84	76.96
Observations	54,690,391	32,320,318	1,666,572	959,712
Adjusted R-squared	0.011	0.009	0.039	0.012

Table A2: Individual-Level Forbearance Regressions - [Continued]**Panel B: Revolving Debt**

	(1)	(2)	(3)	(4)
	In Forbearance	In Forbearance	Missed Payment	Missed Payment
Mortgage Balance	0.209*** (0.0108)	0.213*** (0.0135)	0.0340* (0.0141)	0.00326 (0.0180)
Auto Loan Balance	0.613*** (0.00909)	0.622*** (0.00950)	-0.767*** (0.0214)	-1.044*** (0.0314)
Revolving Debt Balance	3.379*** (0.0163)	3.316*** (0.0241)	-1.169*** (0.0237)	-1.127*** (0.0362)
Student Loan Balance	-0.105*** (0.00558)	-0.108*** (0.00717)	-0.322*** (0.0200)	-0.316*** (0.0266)
Small Business Owner	0.109*** (0.00507)	0.112*** (0.00638)	0.601*** (0.0194)	0.693*** (0.0257)
Credit Score	-2.316*** (0.00965)	-2.309*** (0.0129)	-3.084*** (0.0197)	-3.231*** (0.0264)
Income	0.218*** (0.00799)	0.177*** (0.0102)	1.482*** (0.0246)	1.378*** (0.0326)
# Accounts Past Due in Jan.	1.794*** (0.0177)	1.848*** (0.0237)	1.800*** (0.0253)	1.905*** (0.0353)
DTI	0.0888*** (0.0230)	0.0772* (0.0302)	0.00826 (0.0202)	-0.0245 (0.0298)
Age	0.122*** (0.00536)	0.142*** (0.00677)	-0.789*** (0.0254)	-0.558*** (0.0340)
Zip Code Controls	No	Yes	No	No
Zip Code FE	Yes	No	Yes	No
Mean of Dependent Variable	8.097	7.855	80.35	80.56
Observations	136,744,753	81,031,024	11,070,465	6,365,101
Adjusted R-squared	0.045	0.040	0.092	0.043

Table A2: Individual-Level Forbearance Regressions - [Continued]**Panel C: Student Debt**

	(1)	(2)	(3)	(4)
	In Forbearance	In Forbearance	Missed Payment	Missed Payment
Mortgage Balance	-1.335*** (0.197)	-1.345*** (0.234)	0.0539 (0.0402)	0.0870 (0.0501)
Auto Loan Balance	0.0678 (0.107)	0.0550 (0.129)	0.0123 (0.0220)	-0.000456 (0.0279)
Revolving Debt Balance	-1.086*** (0.103)	-1.139*** (0.124)	-0.0943*** (0.0214)	-0.0815** (0.0270)
Student Loan Balance	4.580*** (0.0481)	4.624*** (0.0584)	1.283*** (0.0109)	1.309*** (0.0139)
Small Business Owner	0.744*** (0.0180)	0.761*** (0.0236)	0.166*** (0.0107)	0.170*** (0.0142)
Credit Score	-6.745*** (0.0512)	-7.071*** (0.0648)	-3.512*** (0.0133)	-3.621*** (0.0173)
Income	-4.391*** (0.152)	-4.266*** (0.182)	-1.185*** (0.0326)	-1.182*** (0.0412)
# Accounts Past Due in Jan.	-2.359*** (0.0429)	-2.416*** (0.0554)	-0.337*** (0.00856)	-0.350*** (0.0109)
DTI	-1.340 (0.732)	-1.215 (0.878)	-0.209 (0.124)	-0.199 (0.154)
Age	-6.560*** (0.0480)	-6.725*** (0.0588)	-0.696*** (0.0157)	-0.730*** (0.0205)
Zip Code Controls	No	Yes	No	No
Zip Code FE	Yes	No	Yes	No
Mean of Dependent Variable	78.23	77.81	94.94	94.81
Observations	27,911,213	16,451,526	21,835,306	12,801,269
Adjusted R-squared	0.123	0.120	0.038	0.034

Table A3: Zip-Code Socio-economic Characteristics Regressions

This table shows the results from regressions of average monthly forbearance rate and the percent of scheduled payments missed in each zip code on various zip code-level characteristics. Averages are taken from March 2020 to October 2020. Regression inputs are scaled by standard deviation. Analysis is restricted to zip codes with at least ten loans. *Sources:* Forbearance status, missed payment status, and all other individual-level characteristics come from Equifax. House price data comes from Zillow. The remaining variables come from the U.S. Census Bureau American Community Survey 5-Year Estimates.

Panel A: Auto Debt

	Forbearance Rate	Percent of Scheduled Payments Missed
	(1)	(2)
% College Educated	-0.0818** (0.0292)	0.0450 (0.0329)
% Black	0.595*** (0.0289)	0.360*** (0.0346)
% Hispanic	0.743*** (0.0280)	0.558*** (0.0298)
Pre-Pandemic Unemployment Rate	0.177*** (0.0322)	0.159*** (0.0337)
Median Age	0.139*** (0.0250)	0.195*** (0.0310)
Median Income	0.178*** (0.0418)	-0.138 (0.0726)
Average DTI	0.293*** (0.0859)	0.947*** (0.212)
Average House Price in January	0.137*** (0.0318)	0.178*** (0.0348)
Mean of Dependent Variable	4.013	2.697
# Of Obs.	16,920	16,920
R-Squared	0.1413	0.1187

Table A3: Zip-Code Socio-economic Characteristics Regressions – [Continued]**Panel B: Revolving Debt**

	Forbearance Rate	Percent of Scheduled Payments Missed
	(1)	(2)
% College Educated	0.200*** (0.0120)	0.0297* (0.0150)
% Black	0.333*** (0.00954)	0.168*** (0.0117)
% Hispanic	0.1000*** (0.00787)	0.206*** (0.0118)
Pre-Pandemic Unemployment Rate	0.0284** (0.0105)	0.0553** (0.0171)
Median Age	-0.0465*** (0.00944)	-0.00352 (0.0134)
Median Income	-2.316*** (0.00965)	-2.309*** (0.0129)
Average DTI	0.218*** (0.00799)	0.177*** (0.0102)
Average House Price in January	0.165*** (0.0118)	0.0992*** (0.0129)
Mean of Dependent Variable	2.322	2.065
# Of Obs.	18,616	18,616
R-Squared	0.2068	0.0676

Table A3: Zip-Code Socio-economic Characteristics Regressions – [Continued]

Panel C: Student Debt

	Forbearance Rate	Percent of Scheduled Payments Missed
	(1)	(2)
% College Educated	-0.765*** (0.0871)	-1.274*** (0.150)
% Black	1.741*** (0.0562)	3.185*** (0.116)
% Hispanic	0.764*** (0.0579)	1.482*** (0.114)
Pre-Pandemic Unemployment Rate	0.258** (0.0857)	0.356* (0.156)
Median Age	-0.512*** (0.0761)	-0.655*** (0.131)
Median Income	-1.187*** (0.107)	-2.927*** (0.178)
Average DTI	-0.196* (0.0783)	0.311 (0.161)
Average House Price in January	0.0892 (0.0777)	1.017*** (0.123)
Mean of Dependent Variable	79.45	50.39
# Of Obs.	17,691	17,667
R-Squared	0.1614	0.1606

Table A4: Zip-Code Industry and Occupation Characteristic Regressions

This table shows the results from regressions of average monthly forbearance rates and the percent of scheduled payments missed in each zip code on various zip code-level characteristics. Averages are taken from March 2020 to October 2020. Regression inputs are scaled by standard deviation. Analysis is restricted to zip codes with at least ten loans. *Sources:* Forbearance status, missed payment status, and all other individual-level characteristics come from Equifax. The remaining variables come from the U.S. Census Bureau American Community Survey 5-Year Estimates.

Panel A: Auto Debt

	Forbearance Rate	Percent of Scheduled Payments Missed
	(1)	(2)
% Production Industry	0.0527 (0.0327)	-0.0445 (0.0358)
% Agriculture Industry	-0.326*** (0.0315)	-0.302*** (0.0318)
% Finance, Insurance, Real Estate Industry	-0.0741* (0.0295)	-0.0576 (0.0374)
% Arts, Recreation, Entertainment Industry	-0.0182** (0.00659)	-0.00583 (0.00721)
% Education, Health, Public Administration Industry	-0.517*** (0.0308)	-0.423*** (0.0347)
% Construction and Manufacturing Industry	-0.721*** (0.0349)	-0.572*** (0.0393)
% Work From Home - Pre-Pandemic	-0.158*** (0.0314)	-0.141*** (0.0357)
% Self -Employed - Pre-Pandemic	0.0242 (0.0333)	0.0341 (0.0362)
% Service Occupations	0.366*** (0.0311)	0.271*** (0.0337)
% Sales and Office Occupations	0.129*** (0.0266)	0.0855** (0.0267)
Mean of Dependent Variable	4.182	2.841
# Of Obs.	21,704	21,704
R-Squared	0.0830	0.0497

Table A4: Zip-Code Industry and Occupation Characteristic Regressions - [continued]**Panel B: Revolving Debt**

	Forbearance Rate	Percent of Scheduled Payments Missed
	(1)	(2)
% Production Industry	0.0449** (0.0138)	0.0749*** (0.0181)
% Agriculture Industry	-0.183*** (0.0101)	-0.124*** (0.0159)
% Finance, Insurance, Real Estate Industry	0.0495*** (0.0133)	-0.0394* (0.0153)
% Arts, Recreation, Entertainment Industry	0.00695** (0.00257)	0.00156 (0.00334)
% Education, Health, Public Administration Industry	-0.0358* (0.0148)	-0.110*** (0.0156)
% Construction and Manufacturing Industry	-0.294*** (0.0143)	-0.181*** (0.0185)
% Work From Home - Pre-Pandemic	-0.00126 (0.0138)	-0.0563** (0.0188)
% Self -Employed - Pre-Pandemic	-0.0325** (0.0124)	0.0244 (0.0263)
% Service Occupations	0.00455 (0.0127)	0.0955*** (0.0153)
% Sales and Office Occupations	-0.0517*** (0.0123)	0.0288* (0.0137)
Mean of Dependent Variable	2.392	2.120
# Of Obs.	23,874	23,874
R-Squared	0.1112	0.0366

Table A4: Zip-Code Industry and Occupation Characteristic Regressions - [continued]**Panel C: Student Debt**

	Forbearance Rate	Percent of Scheduled Payments Missed
	(1)	(2)
% Production Industry	1.461*** (0.0990)	2.335*** (0.180)
% Agriculture Industry	0.104 (0.0944)	0.301 (0.157)
% Finance, Insurance, Real Estate Industry	-0.465*** (0.103)	-0.841*** (0.172)
% Arts, Recreation, Entertainment Industry	-0.0108 (0.0181)	0.000968 (0.0324)
% Education, Health, Public Administration Industry	-0.0912 (0.0879)	-0.503** (0.157)
% Construction and Manufacturing Industry	-0.908*** (0.111)	-1.688*** (0.193)
% Work From Home - Pre-Pandemic	-0.719*** (0.110)	-1.045*** (0.160)
% Self -Employed - Pre-Pandemic	-0.316** (0.0981)	-0.476** (0.160)
% Service Occupations	1.201*** (0.0864)	2.307*** (0.159)
% Sales and Office Occupations	0.609*** (0.0766)	0.871*** (0.143)
Mean of Dependent Variable	79.75	50.81
# Of Obs.	22,679	22,648
R-Squared	0.0960	0.0829

Table A4: Forbearance Rates, Unemployment Claims, and COVID Infections

This table shows the results from regressions of average monthly forbearance rates and the percent of scheduled payments missed in each county on various county-level characteristics. Averages are taken over the period from March 2020 to October 2020 and percent of scheduled payments missed by individuals in forbearance is calculated over the same time period. Regression inputs are scaled by standard deviation. Analysis is restricted to counties with at least ten loans. *Sources:* Forbearance status and missed payment status come from Equifax. UI claims, COVID cases, credit/debit card spending, and time spent at workplace are averages of March 2020 to October 2020 values from Opportunity Insights Tracker. Remaining variables are calculated using data from the U.S. Census Bureau American Community Survey 5-Year Estimates.

Panel A: Auto Debt

	Forbearance Rate (1)	Percent of Scheduled Payments Missed (2)
Total UI Claims	0.156*** (0.0324)	0.0951*** (0.0220)
Total COVID Case Rate	0.181*** (0.0333)	0.136*** (0.0226)
Change in Credit/Debit Spending	-0.0708* (0.0347)	-0.0222 (0.0235)
Change in Time Spent at Workplace	-0.141** (0.0518)	-0.112** (0.0351)
% Families Receiving Full Stimulus Check	0.0278 (0.0456)	-0.0124 (0.0309)
% Workers in at Risk Industry	0.123 (0.0749)	0.118* (0.0508)
Amount of PPP Received Normalized by # of Small Businesses	0.0386 (0.0828)	-0.0507 (0.0561)
Mean of Dependent Variable	2.362	1.493
# Of Obs.	348	348
R-Squared	0.2076	0.2508

**Table A4: Forbearance Rates, Unemployment Claims, and COVID Infections –
[Continued]**

Panel B: Revolving Debt

	Forbearance Rate	Percent of Scheduled Payments Missed
	(1)	(2)
Total UI Claims	0.190*** (0.0363)	0.185*** (0.0181)
Total COVID Case Rate	0.145*** (0.0373)	0.0842*** (0.0187)
Change in Credit/Debit Spending	-0.0579 (0.0388)	0.0170 (0.0194)
Change in Time Spent at Workplace	-0.254*** (0.0580)	-0.109*** (0.0290)
% Families Receiving Full Stimulus Check	0.0771 (0.0510)	0.0372 (0.0255)
% Workers in at Risk Industry	0.220** (0.0838)	0.119** (0.0419)
Amount of PPP Received Normalized by # of Small Businesses	-0.238* (0.0927)	-0.231*** (0.0463)
Mean of Dependent Variable	2.421	2.154
# Of Obs.	348	348
R-Squared	0.2316	0.3674

**Table A4: Forbearance Rates, Unemployment Claims, and COVID Infections –
[Continued]**

Panel C: Student Debt

	Forbearance Rate	Percent of Scheduled Payments Missed
	(1)	(2)
Total UI Claims	1.625*** (0.142)	3.524*** (0.274)
Total COVID Case Rate	1.078*** (0.146)	1.618*** (0.281)
Change in Credit/Debit Spending	-0.0235 (0.152)	0.0702 (0.293)
Change in Time Spent at Workplace	-0.113 (0.227)	-1.310** (0.437)
% Families Receiving Full Stimulus Check	0.758*** (0.200)	1.543*** (0.385)
% Workers in at Risk Industry	1.135** (0.366)	1.902** (0.703)
Amount of PPP Received Normalized by # of Small Businesses	0.297 (0.339)	-0.0617 (0.651)
Mean of Dependent Variable	79.84	50.44
# Of Obs.	348	348
R-Squared	0.4624	0.4458

**Table A5: Government Mandates and Forbearance:
Unemployment Claims, COVID-19 Infections, and Other Stimulus**

This table shows the results from regressions of the average monthly mortgage forbearance rate and the percent of scheduled payments missed in each zip code on various county-level characteristics for both jumbo mortgages and conforming mortgages. Averages are taken over the period from March 2020 to October 2020 and percent of scheduled payments missed by individuals in forbearance is calculated over the same time period. The first two columns show results based off of jumbo loans and the final two columns show results for conforming loans. Our analysis is restricted to loans that fall within 90% to 110% of the conforming loan limit. Jumbo loans are loans that fall above 100% of the conforming loan limit and are not covered by forbearance mandates under the CARES Act (are not Fannie, Freddie, VA, or FHA loans). Conventional loans are Fannie and Freddie loans that fall below 100% of the conforming loan limit. Regression inputs are scaled by standard deviation. Analysis is restricted to counties with at least ten loans. *Sources:* Forbearance status and missed payment status come from Equifax. UI claims, COVID cases, credit/debit card spending, and time spent at workplace are averages of March 2020 to October 2020 values from Opportunity Insights Tracker. Remaining variables are calculated using data from the U.S. Census Bureau American Community Survey 5-Year Estimates.

	Jumbo Loans		Conforming Loans	
	Forbearance Rate (1)	Percent of Scheduled Payments Missed (2)	Forbearance Rate (3)	Percent of Scheduled Payments Missed (4)
Total UI Claims	0.294 (0.196)	0.203 (0.152)	0.633** (0.206)	0.371* (0.161)
Total COVID Case Rate	0.310 (0.196)	0.154 (0.152)	0.267 (0.207)	0.0758 (0.161)
Change in Credit/Debit Spending	0.577** (0.204)	0.277 (0.158)	0.291 (0.218)	0.345* (0.170)
Change in Time Spent at Workplace	0.266 (0.321)	0.215 (0.249)	-0.123 (0.345)	-0.119 (0.269)
% Families Receiving Full Stimulus Check	-1.882*** (0.327)	-1.394*** (0.254)	-1.351*** (0.352)	-0.951*** (0.275)
% Workers in at Risk Industry	0.676* (0.295)	0.487* (0.229)	0.254 (0.320)	0.192 (0.250)
Amount of PPP Received Normalized by # of Small Businesses	-0.274 (0.534)	0.167 (0.415)	-0.725 (0.567)	-0.544 (0.442)
Mean of Dependent Variable	2.187	1.269	3.507	2.244
# Of Obs.	328	328	345	345
R-Squared	0.1801	0.1511	0.1534	0.1146

Figure A1: Consumer Debt Outstanding in Trillions of Dollars

This figure plots the total outstanding debt in the United States from the first quarter 2006 to the third quarter of 2020. Amounts are in trillions of dollars. Debt types include mortgages, auto loans, revolving loans, and student loans. *Source: Equifax data.*

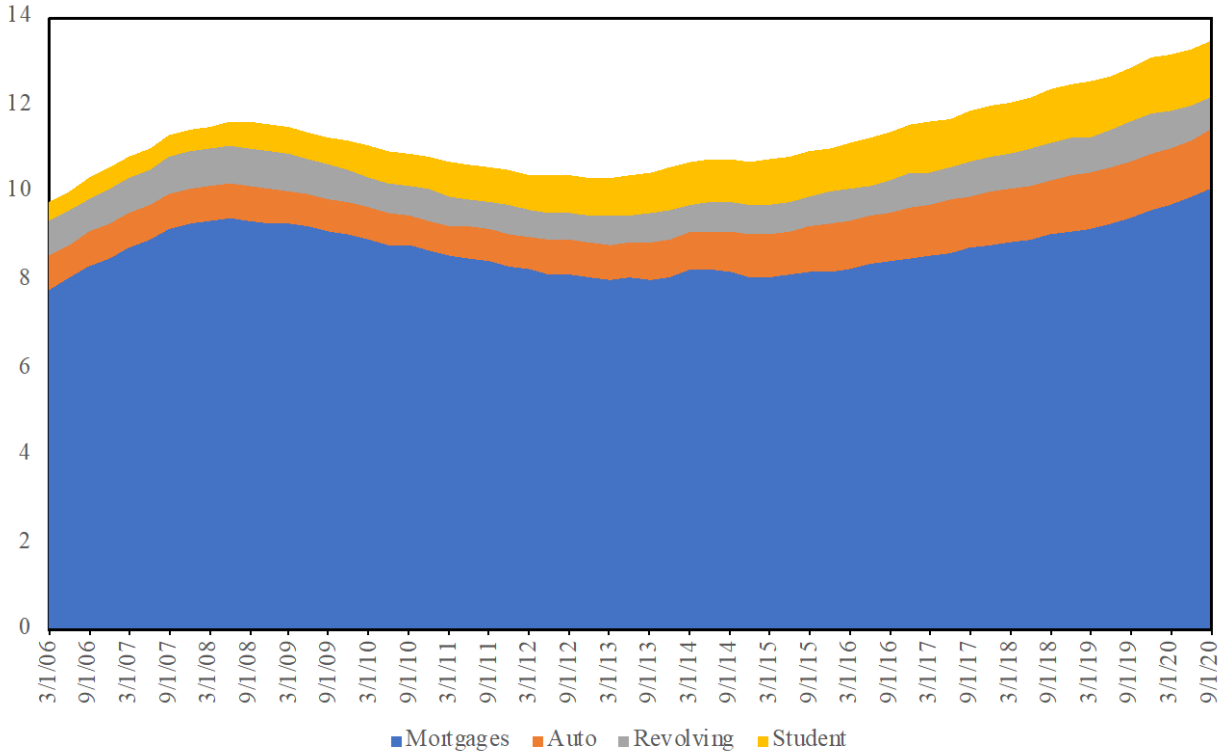


Figure A2: Initial Policy Response to COVID-19

This figure shows the number of new daily COVID cases in the United States from January 2020 to July 2020 plotted against major policy events of the pandemic.

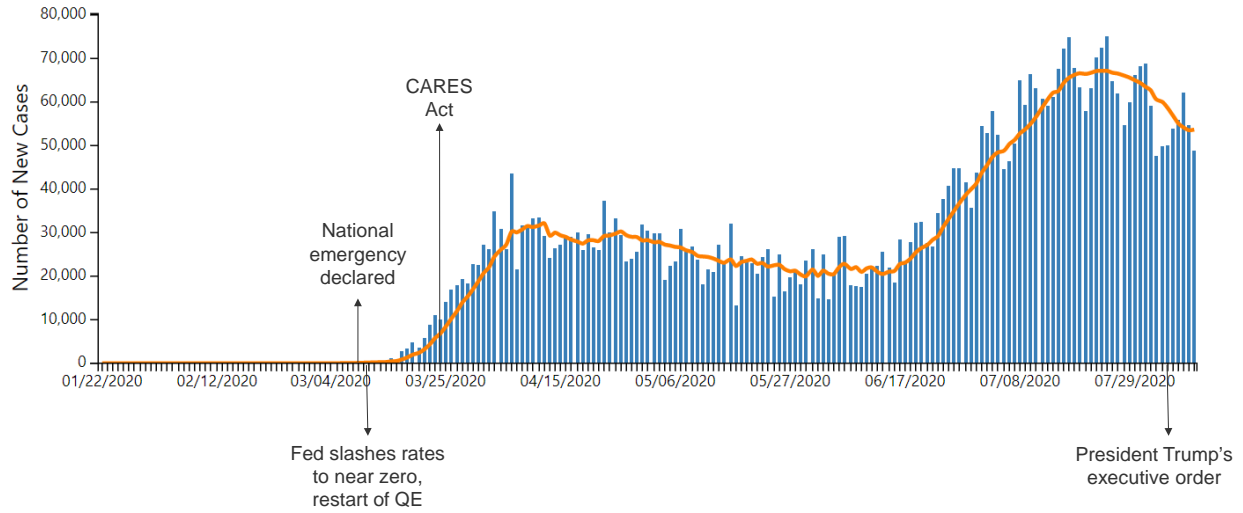
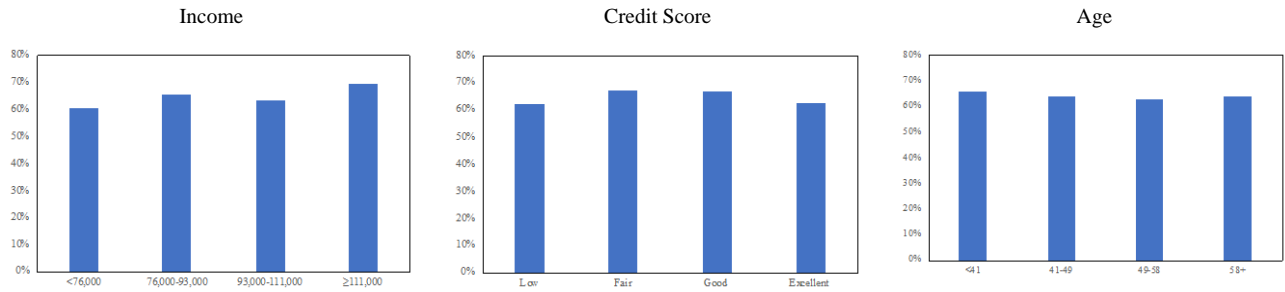


Figure A3: Mortgage Mandates and Missed Payment Percentage across Borrowers

This figure shows the percent of scheduled payments missed for conforming and jumbo mortgages. We restrict our analysis to mortgages with balances that fall within 90% to 110% of the conforming loan limit. Jumbo loans are loans that fall above 100% of the conforming loan limit and are not covered by forbearance mandates under the CARES Act (are not Fannie, Freddie, VA, or FHA loans). Conventional loans are Fannie and Freddie loans that fall below 100% of the conforming loan limit. Months include October 2020 to March 2020. Panel (a) shows results for jumbo mortgages while panel (b) shows the same for conforming mortgages. The left column plots by income quintiles, the center column plots similar results by credit scores, and the right column by age groups. Income, credit score, and age are taken as of January 2020. Sources: Equifax 10% representative panel of US credit population.

Panel (a): Jumbo Mortgages - % of Scheduled Payments Missed



Panel (b): Conforming Mortgages - % of Scheduled Payments Missed

