The Costs and Benefits of Household Debt Relief*

Prepared for the INET Initiative on Private Debt

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Abstract

This paper reviews and extends the literature on the costs and benefits of household debt relief. Debt relief transfers resources from creditors or taxpayers to debtors. This transfer can increase social welfare when households face incomplete markets. A lack of insurance against adverse events, such as job loss and illness, can be offset by the option to reduce debt payments. However, when debt relief imposes larger losses on creditors, possibly through borrower moral hazard, generous debt relief can reduce the supply of credit. Taxpayer-funded debt relief may also spur creditor moral hazard and inefficiently high lending if creditors do not fully internalize the cost of risky lending. Evidence for bankruptcy suggests that the insurance benefits outweigh the credit access costs. Through data and theory, I highlight parallels across different forms of debt relief that may guide future evaluations of optimal debt relief design.

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1 Introduction

US policymakers face growing calls for expanded household debt relief. In response to the COVID-19 pandemic, these calls were met in the form of forbearance for 60 million individuals with loans worth over $2 trillion. As part of this relief, 92% of student loans entered COVID-related forbearance plans – fueling a growing debate over large-scale student debt forgiveness.[1] In the backdrop of this debate, Congress has drafted a bill to overhaul to US bankruptcy system. This legislation is motivated by concerns that an earlier reform in 2005 made access to bankruptcy excessively expensive, time-consuming, and restrictive.[2]

What are the likely costs and benefits of such policy proposals? This paper seeks to shed light on this question by reviewing and extending the literature on the costs and benefits of household debt relief. Debt relief facilitates a transfer from creditors (or taxpayers) to debtors. This transfer is potentially welfare-improving when households lack insurance against costly adverse events such as job loss or illness. By allowing households to reduce debt payments, debt relief can dampen the impact of these events – providing an implicit form of insurance. On the other hand, debt relief imposes costs on creditors (in the case of bankruptcy or delinquency) or taxpayers (in the case of government-sponsored debt relief). When creditors anticipate larger losses, this incentivizes them to reduce their lending. While default can help defaulters better smooth consumption across different states of the world, reduced credit access can make it harder for borrowers to smooth consumption over time. The size of the credit supply response depends on the extent to which access to debt relief spurs borrower moral hazard (i.e., increased willing-

[1] These figures refer to debt relief provided under the CARES Act and come from Cherry et al. (2021).

[2] The proposed bill is the Consumer Bankruptcy Reform Act of 2020. The earlier bill is Bankruptcy Abuse Prevention and Consumer Protection Act of 2005.

ness to default or borrow). Additionally, government-sponsored debt relief has the potential to create moral hazard on the part of creditors. When creditors do not fully internalize the costs of risky lending, this can lead to *inefficiently* excessive lending.

I first review the major sources of debt relief in the US in Section 2. Households receive debt relief in the form of either defaults or modifications. The key difference between these two forms is that modifications entail either cooperation from creditors or are subsidized by the government. The two main types of default households undertake are bankruptcy and delinquency. Nearly one million US households discharge over $100 billion in debt through bankruptcy each year (Indarte, 2021). One in ten Americans has filed at some point in their life (Stavins, 2000; Keys, 2018). Nearly 10% of households are delinquent on some debt in a given month, with typical delinquent balances worth over $400 billion in recent years. An additional 1.6 and 10 million consumers received loan modifications through credit counseling and debt settlements, respectively (Wilshusen, 2011; Gibbs et al., 2020).[3]

Given the size of these debt relief transfers, there are potentially large costs imposed on the broader economy. I discuss these costs in Section 3. Policies that increase the generosity of debt relief at the expense of creditors, such as increasing asset exemptions in bankruptcy or restricting wage garnishment for delinquency, reduce incentives for creditors to lend. The strength of this disincentive depends on several factors. On the creditor side, lending is likely more sensitive to potential losses when creditors are in worse financial health. Even with no change in borrower behavior, *infra-marginal* defaulters receiving more debt relief implies greater creditor losses. On the borrower side, greater debt relief generosity can trigger

[3]The 10 million settlements include both settlements achieved with a debt settlement company and those directly negotiated by the consumer.

moral hazard. Borrowers may be more likely to file (*ex post* moral hazard) and may attempt to take on more debt (*ex ante* moral hazard).

Empirical evidence suggests that there are strong creditor responses to debt relief generosity, but this is despite evidence of limited moral hazard. Gross et al. (2021) estimate that the 2005 bankruptcy reform, which significantly increased barriers to bankruptcy, caused a 70-90 basis point decrease in interest rates on credit card offers. White (2007) finds that, after the reform, consumers' revolving credit card balances rose 5.3%. Regarding moral hazard, Indarte (2021) shows that filing responds weakly to the financial payoff of bankruptcy. A $1,000 increase in the debt relief offered in bankruptcy leads to a 0.02 percentage point increase in the likelihood of filing for bankruptcy (a 2.6% relative change). For delinquency, Ganong and Noel (2021) estimate that 70% of mortgage delinquency is due purely to adverse events rather than a moral hazard response to negative home equity.

In this paper, I also take a closer look at bankruptcy and credit usage across the US. I start with the observation that filing rates are *lower* in states with more generous bankruptcy. This is consistent with a strong credit supply response that limits access to debt for households more likely to file for bankruptcy, as lower debt can offset the incentive to file created by bankruptcy generosity. I show that bankruptcy generosity predicts much higher mortgage debt and somewhat higher student and credit card debt levels. Overall, greater generosity predicts a lower non-mortgage share of total consumer debt. Mortgage and student debt are generally not discharged in bankruptcy. And bankruptcy can also help households avoid foreclosure and mortgage delinquency by discharging other debts (Mitman, 2016). The higher levels of credit card debt likely reflect a variety of offsetting equilibrium forces. These include increased demand for debt, higher average debt levels due to a lack of filing, and reduced credit supply. Delinquency exhibits little relationship

with respect to bankruptcy generosity.

For government-sponsored modifications, there is also the possibility of creating moral hazard on the part of creditors. When creditors do not fully internalize the risks of their lending, and instead those risks are borne by taxpayers, creditors can lend excessively. While this additional credit access may be beneficial to borrowers, on average social welfare can decrease if this distortion to the private costs of lending results in inefficiently high lending and large modification costs.

What can justify enduring these costs is the insurance value of debt relief. In Section 4, I present a stylized framework based on Indarte (2021) that characterizes the consumption-smoothing (i.e., insurance) benefits of debt relief. When households face incomplete markets, adverse events can result in substantial decreases in consumption and ultimately welfare losses. Debt relief can dampen the impact of these events and help prevent an otherwise large decrease in consumption. Indeed, Indarte (2021) estimates for bankruptcy that *not* filing would cause consumption to be 29.6-58.4% lower for the marginal bankruptcy filer. When potential debt relief recipients' marginal utility is much higher than that of creditors/taxpayers, transferring resources to these recipients can increase aggregate social welfare. Comparing the insurance benefits against the credit access costs of bankruptcy, Dávila (2020) concludes that *increasing* the generosity of bankruptcy would improve social welfare.

Moreover, the insurance provided by bankruptcy is especially valuable in a recession. In this volume, Auclert and Mitman (2022) provides a macroeconomic perspective on the trade-offs of debt relief and finds it can play an important role as an automatic stabilizer.

I conclude with a summary of lessons for debt relief policy and directions for future research in Section 5.

2 How do Households Obtain Debt Relief?

Households obtain debt relief through two forms: defaults and debt modifications. Both result in a cessation or reduction in payments, and in some cases they may entail writing down (i.e., erasure) of some or all debt. Defaults are characterized by a lack of *consent from or offsetting subsidies to creditors*. In contrast, a modification is an agreed-upon or subsidized change in debt contract terms. Next I will describe the primary variants of default and modification available to households, with a focus on the US context.

2.1 Debt Relief through Default

There are two primary forms of household default: bankruptcy and delinquency. Bankruptcy is a *de jure* form of default that is accessed via a legal process. In contrast, delinquency is a *de facto* form of default where households choose to stop making payments.

Bankruptcy. Bankruptcy discharges debt, erasing the legal obligation of the filer to repay creditors. While a discharge compels creditors to cease attempts to collect on debt, it does not erase claims to collateral securing debt, such as a mortgage lien. Because of this, bankruptcy is primarily used to discharge unsecured debt, namely credit card balances, medical debt, and personal loans.

Consumers primarily file under Chapters 7 and 13, with Chapter 7 accounting for typically 70% of cases.[4] Consumers initiate a bankruptcy case by submitting a petition including detailed records on income, debts, and assets. The Chapter 7 process generally takes several months and successfully results in a discharge in around 96% of cases. Chapter 13, on the other hand, requires successful completion

[4]Rarely, households also file under Chapter 11. However, Chapter 11 accounts for typically less than 1% of all non-business bankruptcies (Indarte, 2021).

of a three to five-year repayment in order to receive a debt discharge. And more than 50% of Chapter 13 cases are dismissed *without* a debt discharge (Argyle et al., 2021b).

In both Chapters, filers may be compelled to make partial payments to creditors. The size of these payments depend on the filer's state of residence and assets. State laws specify "exemption limits" on the dollar amount of assets that filers can shelter from creditors in bankruptcy. For example, the homestead exemption caps the value of home equity that filers can retain in bankruptcy.[5] When home equity exceeds the state's exemption limit, a filer must make payments to creditors equaling the non-exempt portion of home equity.[6]

Bankruptcy is one of the largest sources of household debt relief. On average, $1,681 per US household is discharged annually through bankruptcy.[7] In the past two decades, the number of households filing for bankruptcy each year has varied substantially but generally averaged close to one million households each year. Figure 1 plots the number of Chapter 7 and 13 cases over time. Filing surged in the lead up to the implementation of the 2005 Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA). The next wave of filings, peaking in 2010, arose during the Great Recession.

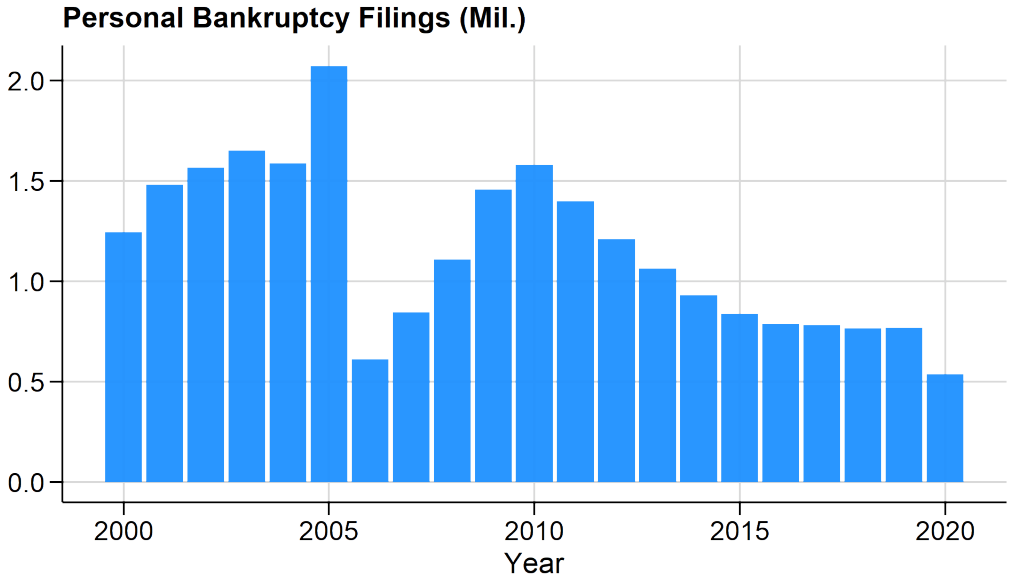
BAPCPA dramatically increased both the financial and time cost of bankruptcy. This reform raised court fees, substantially increased documentation requirements (which may also increase payments to lawyers), added requirements to take two

[5] In Chapter 7, filers must pay exactly the value of nonexempt assets to receive a discharge. In Chapter 13, statute requires that creditors receive at least as much as they would have received in Chapter 7. But in principal, Chapter 13 payments can be higher and are set equal to a measure disposable income (income minus "necessary" expenses).

[6] Households are not required to sell their home to comply with this requirement. Indeed, only around 1% of home-owning filers with nonexempt equity sell their home in bankruptcy (Indarte, 2021).

[7] Households discharged $2.03 trillion in debt through bankruptcy over 2009-2018 (Courts, 2019). In 2015 there were 120.8 US households.

Figure 1: Consumer Bankruptcy Filing Over Time



Notes: This figure plots the annual total of Chapter 7 and 13 filings.
Source: The American Bankruptcy Institute.

financial education courses, and barred households with income above their state's median from filing under the weakly cheaper Chapter 7. The average financial cost of filing rose around $500 for both Chapters 7 and 13 to $1,309 and $2,861, respectively (Lupica, 2012). However, the rise in financial costs is likely smaller than the rise in the total costs (i.e., factoring in the time costs and limitation of access to Chapter 7). Indarte (2021) estimates that a $1,000 increase in the cost of filing reduces annual bankruptcies by 2.63%. A back-of-the-envelope calculation, using the estimate that BAPCPA reduced filings by 492,923 per year (Gross et al., 2021), implies that imposing BAPCPA had the equivalent effect of raising the cost of bankruptcy by $11,812.[8] This is likely a lower bound as credit access increased

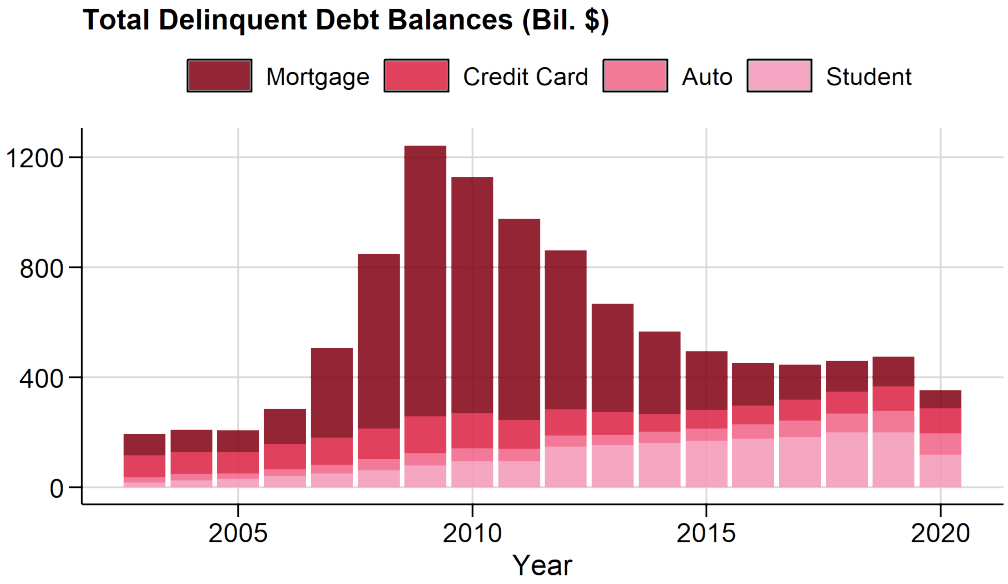
[8] Appendix Table A5 of Gross et al. (2021) reports an estimated 1,077,689 reduction in filings in the 114 weeks after BAPCPA (492,923 annually). Relative to the 1,586,683 cases in 2004 prior to the reform, this is approximately a 31% reduction. And 31%/2.63% = 11.812.

after BAPCPA (Gross et al., 2021), which in equilibrium could have an offsetting effect as a higher debt burden strengthens the incentive to file.

Delinquency. Delinquency occurs when a consumer makes zero or less than the minimum stipulated payment on a loan. Pausing payments can bring temporary relief from debt. But the accumulation of interest can cause unpaid balances to compound over time, increasing the borrower's debt burden.

In terms of forgone payments, delinquency regular provides US households a substantial amount of debt relief. Figure 2 plots the time series of aggregate delinquent balances that are 90 or more days past due. Since 2015, households have had around $400 billion in unpaid mortgage and consumer debt (90 or more days past due) in a typical month.

Figure 2: Aggregate Delinquent Debt Balances



Notes: This figure plots aggregate debt balances that are 90 or more days past due. The underlying data comes from a monthly snapshot of delinquent balances.
Source: Federal Reserve Bank of New York Consumer Credit Panel.

If delinquent debt continues to go unpaid, creditors may opt to sell the debt to collections agencies. On average, 13% of US consumers had a debt in collections in a given month. Since 2015 this has begun to steady to decrease to around 9% in recent years. Conditional on having debt in collections, the amount in collection has averaged around $1,000. [9] When attempts to collect fail, creditors and debt collectors may eventually seek a court judgment against the debtor. The judgment may then allow wage garnishment, where the debtor's employer is compelled to withhold a portion of their paycheck and send it directly to the creditor/debt collector.

2.2 Debt Relief through Modification

An alternative to default-based debt relief is modification. The key difference is that modification requires the cooperation of creditors, sometimes with offsetting subsidies. Below, I describe the main sources of modifications available to US households.

Credit Counseling. Credit counseling is a service primarily provided by non-profits (Gibbs et al., 2020). Credit counseling entails a simultaneous, multilateral negotiation with the borrower's creditors to propose a modified sequence of payments (a "debt management plan" or "DMP"). Often this involves a reduction in minimum payments and may entail a decrease in balances, with the goal of increasing the feasibility of repaying the debt. Creditors have an incentive to agree to the DMP when a borrower would have otherwise repaid less.

The number of people using credit counseling has been similar over time to the number filing for bankruptcy. 1.6 million US consumers participated in a DMP arranged through credit counseling in 2011 (Wilshusen, 2011). In 2019, this figure

[9] These collections figures come from the November 2021 *Quarterly Report on Household Debt and Credit* produced by the *Federal Reserve Bank of New York*.

was closer to half a million consumers (Gibbs et al., 2020).[10] In 2011, participants repaid between $1.5-2.5 billion credit card debt through a DMP (Wilshusen, 2011).

Debt Settlement Companies. When households are unable to successfully complete a DMP, they may instead turn to a debt settlement company (DSC). DSCs are typically for-profit firms that bilaterally and sequentially negotiate with creditors for a reduction in total balances (Gibbs et al., 2020). A drawback to this bilateral appraoch is that it may give rise to a hold-up problem. Some creditors can demand (or pursue through garnishment) levels of repayment that limit the set of viable workouts with other creditors. DSCs successfully achieve a settlement 60% of the time (Briesch, 2009). Consumers settled 2 million credit accounts in 2019, with pre-settlement balances totaling $6 billion (Gibbs et al., 2020).

DSCs have been the subject of many complaints of deceptive practices and regulatory enforcement actions (Gibbs et al., 2020). The fees associated with using DSCs are also high, averaging around 15-30% of the debt retied (Wilshusen, 2011). The financial burden of these fee payments likely contributes to the high rate of delinquency among DSC participants (Wilshusen, 2011). Participants may then face the usual consequences of delinquency such as repossession, debt entering collections, and wage garnishment.

Non-Intermediated Settlements. Consumers may also negotiate directly with lenders. Typically this happens after debt collectors or creditors initiate legal proceedings to begin garnishment. During this process, the debtor may opt to settle out of court with the collector or creditor. Wilshusen (2011) reports 10 million consumers had settled an account either through a DSC or through their own negotia-

[10]Note: BAPCPA introduced a credit counseling requirement prior to filing for bankruptcy. But this relationship is not mechanical as the would-be filers can only proceed to bankruptcy if they cannot instead arrange a feasible debt management plan.

tion with a debt collector or creditor as of 2011, suggesting an upper bound on how common this form of debt relief is.

Using quasi-experimental variation in the occurrence of out-of-court settlements, Cheng et al. (2021) finds such settlements *increase* financial distress. Notably, rates of delinquency, bankruptcy, and foreclosure increase by 20%, 160%, and 130% (respectively). These worse outcomes may arise because settlements typically entail larger upfront payments. Within the first year a of an out-of-court settlement, consumers typically pay nearly four times as much as they would under garnishment (Cheng et al., 2021).

Government Sponsored Debt Relief. Notable examples of large-scale government debt relief include the Home Affordable Modification Program (HAMP) during the Great Recession and the Coronavirus Aid, Relief, and Economic Security (CARES) Act. HAMP subsidized mortgage modifications for 1.8 million households experiencing financial hardship. The modifications extended maturities to reduce payments and, for some applicants, provided $67,000 in principal forgiveness (Ganong and Noel, 2020).

In contrast, the CARES Act offered debt relief to a broader set of loans, including mortgages for investor-owned properties and student loans.[11] Between March and October of 2020, 60 million individuals saw $1.1 trillion and $580 billion in mortgage and student loans (respectively) enter forbearance. Over this time period, these households saved $43 billion in debt payments (Cherry et al., 2021).

3 What are the Costs of Household Debt Relief?

We now turn to the costs and benefits of debt relief, starting with the costs. There are direct costs of accessing debt relief borne by the recipient. But indirect costs can

[11] Government-owned loans were eligible. This includes GSE-eligible loans and the bulk of student loans.

also arise. Creditor anticipation of greater losses can make them reluctant to lend. Additionally, government-sponsored debt relief can spur moral hazard, diminishing creditor incentives to screen risky borrowers.

3.1 Whats are the *Direct* Costs of Household Debt Relief?

Credit Access. Most forms of debt relief result in a derogatory flag on the consumer's credit report. These flags can significantly lower credit scores, which play a central role in creditors' screening of borrowers and can therefore limit credit access. Bankruptcy triggers a flag that remains on credit reports for seven to ten years. Removal of bankruptcy flags significantly increases credit access (Musto, 2004). Recent estimates find on average that credit card limits rise by $778 and balances increase by $290 in the first year after removal (Gross et al., 2020). Both delinquency and settlements (through either a DSC or out-of-court settlement) lead to derogatory flags that can remain for seven years. A DMP initially creates a derogatory flag in the consumer's credit report, but this flag is removed upon successful completion of the plan, which last no more than five years (Wilshusen, 2011).

Government-sponsored debt relief can also impact credit scores. HAMP initially resulted in a derogatory flag (the same one that a borrower receives from a consumer-negotiated modification), that could remain for up to seven years.[12] In contrast, the CARES Act took greater lengths to limit the credit score impact of participation. The CARES Act amended the Fair Credit Reporting Act to require reporting borrowers in COVID-19-related forbearance plans as current so long as they were current prior to participating in a modification.

The ultimate credit score and access impacts can also differ among the forms of debt relief due to their impact on debt levels. Bankruptcy reduces debt levels,

[12] A distinct flag was later introduced, but this could have a similar negative impact on credit access.

which also negatively impact credit scores. And if the filer avoids delinquency after filing, this can speed up the recovery of credit scores. On the other hand, protracted delinquency can further lower credit scores when indebtedness grows due to compounding interest. Indeed, Albanesi and Nosal (2020) finds that borrowers who are initially similar on observable characteristics tend to fair *better* in terms of both credit scores and access if they file for bankruptcy rather than remain delinquent. A DMP can also improve credit scores by gradually reducing debt balances over time. In contrast, the debt reduction benefits of credit counseling and debt settlements are not realized until the new payments are completed.

Employment Costs. Derogatory flags may also negatively impact labor market outcomes. Credit reports are a widely-used tool to screen potential hires (Corbae and Glover, 2020). If delinquency is predictive of worse job performance, employers have an incentive to avoid hiring these workers or offer a lower wage.[13] In the context of Sweden, Bos et al. (2018) finds positive effects of bankruptcy flag removals on both employment rates and earnings. However, in the US context, Dobbie et al. (2019) estimates a precise null effect of flag removal on labor market outcomes. In fact, Dobbie and Song (2015) estimates a *positive* effect of receiving a Chapter 13 discharge on employment. Filers experience on average a $5,562 increase in annual income (a 25.1% increase) and the probability of being employed rises 6.8 percentage points (an 8.3% increase).

Part of the labor market benefits of bankruptcy may stem from its triggering of an automatic stay, which prohibits continued collection efforts, including garnishment. Garnishment reduces take-home pay, which in turn diminishes incentives to remain employed. And to reduce contact with debt collectors, borrowers may

[13] Corbae and Glover (2020) and Chatterjee et al. (2020) study such models where greater delinquency results from impatience, which is correlated with an individual's labor productivity.

changes addresses, but relocating may also make it harder to maintain employment. Empirically, Dobbie and Song (2015) finds that the labor market benefits of Chapter 13 are largest among filers in states with higher rates of wage garnishment.

Stigma. Debt relief recipients may also experience non-pecuniary "stigma" costs. Quantifying such costs is challenging, but body of research suggests that stigma is an important determinant of the default decision. Violating a perceived "moral obligation" to repay debt can entail a non-pecuniary cost. Indeed, a large survey found 82% of people agree with the statement that "it is morally wrong to walk away from a house when one can afford to pay the monthly mortgage" (Guiso et al., 2013).

In practice, consumer behavior aligns with these self-reports of a perceived stigma. Text notifications with moralizing language reduced the frequency of credit card delinquency 4.4 percentage points (a 6.7% reduction) in a field experiment in Indonesia (Bursztyn et al., 2019). Moreover, even if households do not directly experience disutility from defaulting, *social* stigma may also impose a non-pecuniary cost from default. Diep-Nguyen and Dang (2019) find in experiment studying borrowers in Vietnam find that anticipated disclosure of non-payment to friends, family, or coworkers serving as a "reference" deters default. In the context of debt settlements, Cheng et al. (2021) finds in a survey that 17% of respondents would agree to an out-of-court settlement even it required them to pay more than they would had they instead lost in court. The top-cited reason behind this motivation was "perceived employment and social stigma as well as bad feelings from losing in court."

Evidence from bankruptcy suggests that the sum total of direct credit access, employment, and non-pecuniary costs are large. Indarte (2021) estimates that these costs are equivalent to a 41.6% decrease in annual consumption for the marginal

bankruptcy filer. Taking stock of the research on bankruptcy discussed above, which suggests a limited role for credit access and employment costs, stigma costs are likely a major source of these substantial costs estimated in Indarte (2021).

3.2 Whats are the *Indirect* Costs of Household Debt Relief?

Debt relief entails a transfer from creditors (or taxpayers) to debtors. This transfer can increase social welfare when debtors have a higher marginal utility of consumption. But in equilibrium, creditors may adapt their behavior in ways that create additional indirect costs, offsetting the welfare gains from this transfer.

Default and Credit Access. When a larger fraction of debt is unpaid or more borrowers default, this imposes larger losses on creditors. The expectation of higher losses due to default incentivizes lenders to reduce the supply of credit. In turn, this lowers equilibrium lending and raises the cost of credit.

The size of the credit supply response depends on several factors. On the creditor side, the response is stronger when lending is more sensitive to expected losses. This could arise, for example, when creditors are in worse financial health. On the borrower side, greater *moral hazard* leads to more losses. Policies that increase the generosity of debt relief (for example, increasing the homestead exemption for bankruptcy filers) can increase creditor losses in three ways. First, *infra-marginal* filers now receive more debt relief – the transfer from creditors to these debtors is larger. Second, more generous debt relief may prompt more debtors to file for bankruptcy. Third, if filing becomes more likely, borrowers may be more willing to take on debt. The first is a mechanical effect, the second and third effects are forms *ex post* and *ex ante* moral hazard (respectively).

While there is some debate, research on default generally finds a small role for of moral hazard. Indarte (2021) estimates small *ex post* moral hazard for consumer

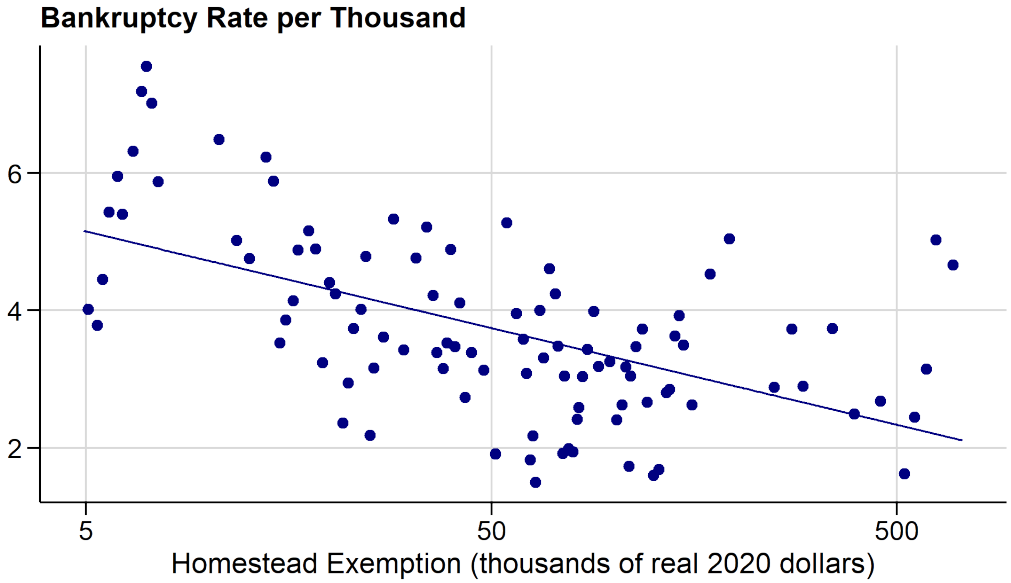
bankruptcy: a $1,000 increase the generosity of debt relief provided in bankruptcy leads to a 0.02 percentage point increase in the filing rate among homeowners (a 2.6% relative change). In contrast, a $1,000 change in cash-on-hand reduces the probability of filing by 0.09 percentage points (12.6% relative change). The stronger filing response to cash-on-hand that is available whether or not the borrower files for bankruptcy indicates that a lack of liquidity is a more powerful driver of bankruptcy than a moral hazard response to its financial payoff. Moreover, if the change in the filing rate is smaller, the incentive to take on additional debt (*ex ante* moral hazard) is smaller. However, conditional on ultimately filing for bankruptcy, consumers that delay bankruptcy longer tend to have more debt at the time of filing (Argyle et al., 2021a).

Evidence from mortgage delinquency also points towards a smaller role for moral hazard. Comparing the prevalence of both negative home equity and large income drops among mortgage borrowers that eventually default, Ganong and Noel (2021) estimates that 70% of defaults are driven by income drops, 6% are due to negative equity, and 24% are due to the interaction of negative equity and income declines. This suggests that bad luck, rather than "bad incentives" (i.e., moral hazard), is a more important determinant of the mortgage delinquency decision. Earlier research on the Great Recession suggests that a larger role for strategic/moral-hazard-induced default, attributing 30-70% of mortgage defaults to strategic motives (Guiso et al., 2013; Gerardi et al., 2017; Bhutta et al., 2017).

While moral hazard appears to be present, but small, in influencing default decisions, does default risk still entail a large credit access cost? To answer this question, we'll start with a focus on bankruptcy and an observation that may initially appear counter-intuitive. Figure 3 below shows that the rate of filing for bankruptcy is *negatively* related a key determinant of its debt relief generosity (the

homestead exemption).[14] Increased generosity creates an incentive for households to file, which would suggest a positive relationship. Mitman (2016) suggests that this negative relationship arises from the credit supply response to bankruptcy's generosity. Even without a strong moral hazard effect, increased generosity mechanically increases the transfer from creditors to infra-marginal filers, which can decrease credit supply. With less debt, households have less to gain from filing.

Figure 3: Bankruptcy Filing vs. Homestead Exemption



Notes: This figure plots a binscatter comparing the bankruptcy filing rate per thousand residents to the homestead exemption. The underlying data are state-level and cover 2000-2020. There are approximately 10 observations per bin. the annual total of Chapter 7 and 13 filings.
Sources: The American Bankruptcy Institute (bankruptcy filing), population data from the American Community Survey (ACS), CPI data are from the BLS, and exemption data from Indarte (2021).

To next investigate the relationship between exemptions and credit access further, I use regressions to conduct cross-sectional comparisons of states in Table 1. First I estimate a regression analog of Figure 3, finding that a one standard devia-

[14]The homestead exemption is one of the most important exemptions, accounting for most of the cross-sectional variation in households' potential debt relief (Auclert et al., 2019).

tion *decrease* in the homestead exemption predicts an additional 0.38-0.59 bankruptcies per thousand residents.

Total household debt is positively associated with the homestead exemption. This is driven by mortgage debt, which is on average $2500-$3200 greater per capita in states with a one standard deviation higher homestead exemption. Mortgage debt is generally not discharged in bankruptcy, and households can use bankruptcy to avoid foreclosure (Mitman, 2016). There is a small, positive association with both student debt (rarely eligible for discharge in bankruptcy) and credit card debt (often discharged in bankruptcy). In equilibrium, greater demand for credit card debt driven by the higher generosity of bankruptcy could contribute to this positive relationship. It could also arise if the lower levels of bankruptcy result in fewer discharges of credit card debt. However, these channels are likely in part offset in equilibrium due to reduced supply of unsecured credit. Additionally, the non-mortgage share of consumer debt is lower in high-exemption states, consistent with a relative preference for secured lending in states with generous bankruptcy.

The relationship between the homestead exemption and delinquency is economically insignificant and generally not statistically significant. For example, a one standard deviation increase in the homestead exemption predicts a 0.2 percentage point increase in mortgage delinquency rates. A positive association could arise if the higher levels of mortgage debt lead to more delinquency. However, this may be attenuated if more generous bankruptcy also helps financially distressed households avoid mortgage delinquency as in Mitman (2016).

Table 1: The Relationship Between Homestead Exemptions, Bankruptcy, and Credit Outcomes

	BK Rate	Borrowing						Delinquency			
		ln(Debt)	Mort.	CC	Auto	Stud.	Non-Mort. %	Mort.	CC	Auto	Stud.
Panel A: No Controls											
ln(HE)	-0.592*	0.076*	3245.189*	167.983*	-53.937	143.51	-0.012*	0.002	0.002	-0.003	-0.004
	(0.243)	(0.033)	(1519.472)	(65.373)	(89.347)	(103.578)	(0.005)	(0.002)	(0.003)	(0.002)	(0.003)
Obs.	846	729	729	729	729	729	729	729	729	729	729
R2	0.53	0.13	0.13	0.50	0.37	0.79	0.18	0.59	0.41	0.33	0.52
Panel B: With Controls											
ln(HE)	-0.376+	0.059+	2459.969+	87.527	-66.29	255.244**	-0.010*	0.002+	0.002	-0.002	-0.004+
	(0.201)	(0.030)	(1397.353)	(62.575)	(102.826)	(75.478)	(0.005)	(0.001)	(0.002)	(0.001)	(0.002)
Obs.	846	729	729	729	729	729	729	729	729	729	729
R2	0.62	0.34	0.36	0.64	0.41	0.84	0.38	0.75	0.62	0.52	0.62

Notes: This table reports results for regressions using annual state-level data. The explanatory variable is ln(HE), which denotes the log of the real homestead exemption (2020 dollars). I divide ln(HE) by its standard deviation prior to the regression. The outcomes studied are the bankruptcy filing rate per thousand (BK Rate), borrowing measures, and delinquency rates. Within borrowing, the regressions examine log total household debt balances per capita and its components separately (mortgage, credit card, auto, and student loans). The individual components are in real 2020 dollars. I also examine the non-mortgage share of debt (excluding student loans), i.e. (CC + auto)/(CC + auto + mortgage). The results for delinquency are split by loan type as well.

Specification Details: All specifications include year fixed effects. State fixed effects are omitted as cross-state differences in exemptions are highly persistent and some have argued that this variation is plausibly exogenous due to its historical origins (Hynes et al., 2004; Skeel, 2001). Time-varying state-level controls include the unemployment rate (BLS), annual house price growth (FHFA), log population (ACS), and the home-ownership rate (ACS). Standard errors are clustered by state. Statistical significance: 0.10+, 0.05*, 0.01**, 0.001***.

To help decipher these equilibrium outcomes, we can turn to the body of research that aims to isolate the credit supply response to debt relief generosity and debtor protections. Examining the 2005 Bankruptcy reform, which made consumer bankruptcy more expensive, Gross et al. (2021) estimates the reform led to a 70-90 basis point reduction in credit card offer rates and White (2007) finds that consumers' revolving debt rose 5.3%. Severino and Brown (2020) also finds evidence of higher interest rates, but estimates a positive relationship between homestead exemptions and unsecured consumer credit.

Related research finds that laws aimed to protect debtors also have the consequence of reducing credit access. For example, debtor-friendly foreclosure laws lead to 3-7% smaller mortgages (Pence, 2006). Additionally, laws restricting debt collection practices lead to lower levels of "mainstream" credit, such as credit cards, and increased usage of costlier "alternative" credit such as payday loans (Fonseca, 2021).

An important difference between default and modification is the impact on creditor losses. Creditors choose whether to participate in modifications. Presumably, they will opt to do so when the modified loan is likely to reduce losses. However, households may choose to strategically go delinquent to qualify or threaten non-payment in order to motivate creditors to concede to a modification. An example of such behavior arose in the wake of a lawsuit against Countrywide Financial Corporation. As a result of the lawsuit, Countrywide agreed to offer modifications for delinquent subprime mortgage borrowers. Mayer et al. (2014) estimates that the announcement of Countrywide's modification program causally induced a 13% increase in the monthly delinquency rate.

Government-sponsored modifications that require evidence of financial distress have the potential to create similar incentives to default. However, analyses

of the CARES Act suggest there may have been limited moral hazard in participation in COVID-related forbearance plans. Forbearance recipients experienced larger income declines than non-recipients *and* the distribution of their income declines were similar to delinquent non-recipients.[15]

Modifications and Credit Access. A distinct potential cost of government-sponsored modifications arises from creditor moral hazard. When modifications are subsidized by taxpayers, this limits the downside creditors face from risky lending. When creditors do not fully internalize the costs of risky lending, and instead taxpayers bear those costs, creditors may engage in *inefficiently* excessive lending.[16]

There is limited empirical evidence on creditor moral hazard and government-sponsored modifications. However, evidence on the effects of securitization in the context of mortgage lending may be informative. When lenders securitize loans, the loans are sold to another party who then bears the credit risk.[17] Consequently, creditors may not fully internalize the default costs of securitized loans. Consistent with lax screening, Keys et al. (2010) uses quasi-random variation in the ease of securitization to show that easier securitization causally increases the default risk of loans. Using the same variation, Rajan et al. (2015) shows that mortgage interest rates were less predictive of default risk among securitized loans (consistent with lax screening. These results for securitization cannot be immediately extrapolated to government-sponsored modifications. However, they suggest that serious creditor moral hazard is a possibility if government-sponsored modifications cause a significant change in the degree to which creditors internalize the risks of default.

[15]These findings are from a policy brief produced by the JPMorgan Chase Institute: https://www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/institute/pdf/institute-covid-mortgage-forbearance-policy-brief-new.pdf.

[16]For a theory on efficient bailouts, see Bianchi (2016) and Keister (2016).

[17]When sold to government sponsored enterprises (GSEs) such as Fannie Mae and Freddie Mac, the credit risk of the loan may be returned to the original lender if the loan performs poorly. This is less common for privately-securitized mortgages.

4 What are the Benefits of Household Debt Relief?

When households face incomplete markets, lacking insurance against adverse events like job loss or illness, debt relief can improve welfare. The option to default or modify debt effectively makes non-contingent contracts contingent. By allowing households to limit the impact of adverse events on their wealth, and ultimately their welfare, access to debt relief provides a form of insurance. This insurance offers a direct benefit to individuals. And the consumption-smoothing benefits of debt relief can have further positive, macroeconomic benefits in the form of dampening the impact of business cycle fluctuations.

The *Direct* Benefits of Debt Relief Below I introduce a conceptual framework to illustrate the consumption-smoothing benefits of debt relief. The framework below is stylized and based on Indarte (2021). The model is simplified for ease of exposition, but its key results are robust to a variety of generalizations such as a dynamic setting, endogenous borrowing, additional decisions such as labor supply, and heterogeneity.

Conceptual Framework. A representative consumer has uncertain income Y with known distribution $F(\cdot)$. She has assets A and a debt payment D due, but has the option to default on this payment. If she defaults, she avoids her debt payment but only retains $E < Y$ of her income. For bankruptcy, higher exemption limits would correspond to a higher E. For delinquency, higher rates of wage garnishment would correspond to a lower E. Default also entails disutility penalty $\sigma > 0$. This disutility penalty can be considered a reduced-form approximation of the non-pecuniary or dynamic costs of default. She receives utility $u(C)$ from her

consumption C, where

$$C = \begin{cases} A + Y - D & : \text{no default} \\ A + E & : \text{default.} \end{cases}$$

and $u(\cdot)$ is a differentiable, strictly increasing, and strictly concave function.

She maximizes her utility, and therefore defaults when doing so implies higher total utility:

$$u(A + Y - D) < u(A + E) - \sigma.$$

The *marginal defaulter* is indifferent between defaulting and repaying when $Y = Y^\star$, where $Y^\star$ solves

$$u(A + Y^\star - D) = u(A + E) - \sigma.$$

She defaults if and only if $Y < Y^\star$. The probability of default is therefore $p = F(Y^\star)$.

Moral Hazard and Liquidity. Following Indarte (2021), we can characterize the impact of an increase in debt relief generosity E on the decision to default. The impact of a marginal change in E on the probability of filing is

$$\frac{dp}{dE} = F'(Y^\star)\frac{u'(C_D)}{u'(C_{N\star})} > 0.$$

Above, $C_D = A + E$ is consumption in default and $C_{N\star} = A + Y^\star - D$ is consumption outside of default for the *marginal defaulter*. Indarte (2021) labels the derivative above the "moral hazard effect" of debt relief generosity, as it parallels the moral hazard effect of unemployment insurance characterized in Chetty (2008). The "liquidity effect" in the context of default is the impact of a marginal change in re-

sources available both in and out of default (A) on filing:

$$\frac{dp}{dA} = F'(Y^\star)\frac{u'(C_D) - u'(C_{N\star})}{u'(C_N\star)} < 0.$$

Indarte (2021) shows that the ratio of liquidity and moral hazard effects, which can be estimated empirically, equals the relative differences in marginal utility in versus out of default (for the marginal defaulter):

$$\frac{-dp/dA}{dp/dE} = \frac{u'(C_{N\star}) - u'(C_D)}{u'(C_D)}.$$

This implies that the relative strength of these default motives is informative about the welfare gains from default for the marginal defaulter. Because default entails a cost σ, consumers allow their consumption to fall below what they would consume in default. The larger the cost, the more consumption they are willing to sacrifice before defaulting. When the liquidity effect is much stronger than the moral hazard effect, the above ratio is larger and marginal utility with no default is much higher than with default (for the marginal defaulter). In turn, this implies a larger consumption gain from default.

Empirical Evidence. The estimates in Indarte (2021) of moral hazard and liquidity effects for bankruptcy imply large consumption increases for the marginal filer. Under standard utility function parameterizations, the estimates imply consumption outside of bankruptcy is 41.6%-70.4% of what it would be in bankruptcy.[18] Infra-marginal filers have even lower income than the marginal filer ($Y < Y^\star$), thus their consumption gains are likely even larger.

[18]These estimates come from assuming a CRRA utility function with risk aversion parameters of two and five (respectively). Chetty (2008) and Chetty and Szeidl (2007) suggest that higher risk aversion parameters may be plausible in the context of more extreme events such as unemployment, and thus may be appropriate for bankruptcy as well.

These empirical estimates for bankruptcy suggest that filing has substantial insurance value. Households avoid default unless their income is sufficiently low. When households are not well-insured against low income realizations, such adverse events may otherwise cause a large drop in consumption. By eliminating debt payments, bankruptcy can offset the severity of adverse events. Access to default helps households better smooth their consumption across different states of the world, and in doing so provides a form of insurance.

The 2005 bankruptcy reform significantly raised the costs of bankruptcy and may have substantially lowered its insurance value. Indeed, Gross et al. (2021) find that the reform reduced the likelihood that patients experiencing uninsured hospitalization file for bankruptcy by 70%. In a post-reform analysis considering both the insurance benefits and credit access costs of bankruptcy, Dávila (2020) estimates that increasing bankruptcy exemption generosity would on net *increase* social welfare. That is, the insurance benefits outweigh the credit access costs.

The *Indirect* Benefits of Debt Relief. Debt relief may also offer indirect, economy-wide benefits. By stabilizing consumption across adverse events, debt relief can help limit drops in consumption during recessions. By dampening the impact on consumption, debt relief can stabilize demand, which in equilibrium leads to more output and can limit unemployment. Auclert and Mitman (2022) argues that the stabilizing benefits of debt relief are best realized by policies that vary with the business cycle—deterring defaults in expansions and encouraging them in recessions. By weakening default incentive during good times, such policies dampen the contractionary effects on credit supply during times of growth. The macroeconomic stabilizing benefits of debt relief can be significant. Auclert et al. (2019) finds that access to bankruptcy led employment to be 2% higher than it otherwise would have been during the Great Recession.

Government-sponsored modifications can have similar effects. Ganong and Noel (2020) estimate large consumption effects of HAMP. And Agarwal et al. (2017) estimate that HAMP helped limit foreclosures, delinquency, house price declines, and drops in durable consumption. Less is known about the value credit counseling and debt settlements over the business cycle.

5 How Can we Best Design Household Debt Relief? What we Know and Directions for Future Research

Optimal debt relief balances the costs stemming from moral hazard against the insurance value debt relief provides. Bankruptcy offers households substantial insurance value (Indarte, 2021) and current bankruptcy policy appears to impose inefficiently high costs of access (Dávila, 2020). However, less is known about the insurance value of delinquency and modifications, as well as how these benefits stack up against the costs. In particular, there is little empirical evidence quantifying *creditor* moral hazard effects of government-sponsored modifications. Additionally, changes to one form of debt relief can impact the insurance value and usage of other forms. Analyses of modifications have highlighted their ability to reduce delinquency (Ganong and Noel, 2020) and bankruptcy (Dobbie and Song, 2020).

Another important consideration is whether debt relief should target liquidity or wealth. For example, should debt relief prioritize reducing monthly payments or lowering debt balances? Studying HAMP, Ganong and Noel (2020) find that mortgage payment reductions increased consumption and reduced delinquency far more than principal reductions. The authors estimate that a redesigned HAMP with greater emphasis on payment rather than principal reduction could have resulted in 267,000 fewer delinquencies at no additional cost to taxpayers. This finding may differ for other types of debt. In particular, the costs of mortgage default

such as foreclosure may be more severe than the expected costs of credit card default. Indeed, Dobbie and Song (2020) find that balance reduction reduces future financial distress more than minimum payment reduction for delinquent credit card borrowers.

The generosity of social insurance programs (public health insurance, unemployment insurance, etc.) also impacts the value of and reliance on debt relief. Existing research suggests debt relief plays an important role as an implicit form of health insurance. Mahoney (2015) estimates that a 1% increase in the financial cost of bankruptcy increases the probability of having health insurance by 2.5-3.6 percentage points. Examining the other direction, Gross and Notowidigdo (2011) finds that a 10 percentage point increase in the Medicaid-eligible population reduces bankruptcy filings by 8%. Studying the expansion of Medicaid under the Affordable Care Act, Bornstein and Indarte (2020) find evidence that greater access to health insurance improved credit access, *increasing* overall household credit card balances.

A growing body of household finance research examines racial disparities in financial outcomes. Argyle et al. (2021b) and Goldsmith-Pinkham et al. (2021) find evidence of large racial disparities in the access debt relief provided by bankruptcy; Black filers are much more likely to have their cases dismissed. A recent analysis of forbearance under the CARES Act finds higher rates of take-up among minorities may have mitigated racial disparities in financial distress during the COVID-19 pandemic (An et al., 2021). Shedding further light on racial disparities in access to and the impact of debt relief would be another valuable direction for future research.

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