# Till Debt Do Us Part? The Effects of Debt Relief on Household Stability*

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# Till Debt Do Us Part? The Effects of Debt Relief on Household Stability

We use a representative sample of individual credit bureau records to examine the impact of financial distress and debt relief on marital stability. Foreclosures increase marital dissolution, whereas Chapter 13 bankruptcies, which protect debtors from foreclosure, reduce it. These effects are separate from health or employment shocks. We use post-disaster financial assistance programs and judicial district dismissal rates as instruments to isolate exogenous variation in foreclosure and Chapter 13 bankruptcy dismissals. Our findings emphasize the importance of financial stability and housing security in family structures, suggesting that debt relief policies have broader social implications beyond financial well-being.

Although love and companionship are surely good reasons to be married, financial stress can be a compelling cause for divorce. However, divorce is costly, not only in direct expenses but also in the burden and challenges of dividing the household. When a married couple faces financial stress, does that, on average, increase or decrease their propensity for divorce? And do various forms of debt relief attenuate this propensity? These are the questions we address using a large representative sample of administrative records of individuals' financial and marital status. Prior literature suggests that the effect of debt relief on marital stability presents an ambiguous economic tradeoff. On the one hand, debt relief can reduce divorce by alleviating stress and increasing the expected utility of marriage or marital happiness (Becker, Landes, and Michael, 1977). Additionally, some forms of debt relief may protect assets such as the family home, which serves as a commitment device in marriage (Lafortune and Low, 2017). On the other hand, debt relief can increase divorce by lowering financial barriers to divorce, reducing the value of risk sharing in marriage (Kotlikoff and Spivak, 1981), and improving individuals' outside options by improving credit access.

We examine how financial distress and debt relief mechanisms affect divorce rates and provide three key results. First, we find that financial distress significantly increases the probability of divorce. Second, we show that alleviating financial distress reduces divorce rates, suggesting that debt relief can buffer the adverse effects of financial hardship on family stability. Finally, we find that when debt relief protects shared assets, particularly when ensuring housing stability, it plays a crucial role in preserving marriages.

We start our analysis by demonstrating that financial distress increases the likelihood of divorce. Our tests include person fixed effects, thereby identifying a treatment effect through time-series variation in an individual's financial distress. In addition to these fixed effects, we also control for time-varying measures of financial and physical health, and local economic conditions. Using measures such as debt delinquencies, debt in collections, and foreclosures, we find that married individuals facing financial distress are 0.3–0.7 percentage points more likely to divorce, a 4%–10% increase over the sample's average divorce rate. Foreclosure

is a strong predictor of divorce, highlighting the impact of losing homeownership, a key marriage–specific asset, on marital stability. Accordingly, our subsequent tests will further examine this effect.

A natural starting point to examine the effect of foreclosure on marital stability is an analysis of marital survival rates: how does divorce probability change over time for married couples who experience a foreclosure compared to those who do not? Conditioning on individual and household characteristics like income, medical debt in collections, and local economic demographics and conditions, we find that the rate of divorce is nearly 50% higher per year for individuals who experience foreclosures than for those who do not.

Given the social importance of household stability and the effect that financial distress has on it, we turn our attention to the effect of policy interventions—viz., debt relief in its various forms—on marital stability. Our findings show that financially distressed households that receive debt relief experience lower divorce rates than similar households that do not. We employ a variety of tests that have different tradeoffs of internal and external validity to identify the effects of debt relief and its channels. We start with tests that compare the effects of different forms of personal bankruptcy. In the US, debtors can file for bankruptcy under Chapter 7 or Chapter 13. These two options offer different approaches to debt relief, particularly regarding housing protection. Chapter 13 stops foreclosure for several years, allowing homeowners to catch up on missed mortgage payments, restructure their debt, and keep their home regardless of their equity in it. In contrast, Chapter 7 provides only a temporary stay (three to six months), does not modify mortgage terms, and requires selling the home if equity exceeds exemption limits.

Our identifying assumption in this test is that our people in our control group (those filing Chapter 7) are comparably distressed and equally likely to divorce as our treatment group (people filing Chapter 13) other than due to the differential treatment of debts. An inspection of the characteristics of the two groups bears out this assumption, as the absolute standardized differences in credit score, income, and debt to income are all well below 0.2.

Filing for Chapter 13 bankruptcy reduces the probability of divorce by 0.4 percentage points, a 6% drop relative to the unconditional mean of 7.2% per year. In contrast, Chapter 7 bankruptcies, which may lead to the loss of mortgaged homes, do not significantly affect divorce rates. This contrast provides our first evidence that housing protection may be a critical mechanism through which debt relief affects marital outcomes.

A key identification challenge is that people filing for Chapter 7 differ from those filing for Chapter 13 in other ways that may correlate with divorce. To address this challenge, we restrict our sample solely to Chapter 13 filers and examine how the judicial outcome—approval or dismissal—of the filing affects marital stability. Dismissed filings prevent debtors from receiving debt relief and the home protection features of Chapter 13. By comparing outcomes between cases that judges dismiss and those they approve, we gain internal validity as our treatment and control groups are more homogeneous.

Our findings suggest that debtors with dismissed Chapter 13 filings are 1.5-3.7 percentage points more likely to divorce—a 20%-50% increase in divorce probability relative to Chapter 13 filers with approved debt relief . We also instrument for the dismissal of a Chapter 13 filing using district-level dismissal rates (Dobbie and Song, 2015) to address potential endogeneity concerns about the bankruptcy outcome, and we find similar results . These findings, combined with evidence that Chapter 13 filers are more than three times less likely to experience foreclosure than Chapter 7 filers , strengthen our hypothesis that debt relief reduces marital dissolution through a housing channel.

Debtors receive relief not only through established statutory frameworks such as bankruptcy but also via voluntary programs that financial institutions adopt to assist households after a natural disaster. Specifically, we use a creditor policy that offers disaster relief to borrowers facing financial distress following natural disasters. This creditor policy serves as an instrument for alleviating financial distress, and to our knowledge, its application is novel in the literature . Natural disasters are exogenous from the borrower's perspective, making the allocation of disaster relief plausibly exogenous to borrower-specific unobserved factors. After

a natural disaster, banks in the US can voluntarily provide relief to borrowers in affected ZIP codes by flagging negatively impacted credit accounts, which then mask negative credit information that could otherwise harm borrowers' credit scores and limit access to credit (Guttman-Kenney, 2023). We find that natural disaster flags improve credit access and prevent foreclosures in the aftermath of a disaster. These tests focus on a target population of individuals exposed to a natural disaster , and our identification assumption is that the assignment of natural disaster flags is as good as random, conditional on our controls and fixed effects and being in the target population.

We use these flags as an IV to capture plausibly exogenous variation in the probability of foreclosure and discuss in detail below in section section 4 the challenges to the exclusion restriction that this test assumes. We find that a one percentage point increase in the probability of foreclosure increases the likelihood of divorce by 1.1 percentage points (15% of the average rate). In this analysis, we limit the sample to individuals in counties with significant (i.e., top decile) property damage from natural disasters, enabling comparisons between similarly affected populations. Specifically, we compare the divorce rates of debtors with disaster-flagged accounts in high-loss areas (treatment group) to debtors in comparably devastated regions without flags (control group). This approach isolates the impact of disaster relief from the broader effects of disaster on divorce. Our empirical strategy assumes that after accounting for time-varying socioeconomic factors and time-invariant individual characteristics, creditors' disaster relief efforts are uncorrelated with unobserved factors influencing divorce. In addition, the magnitude of financial distress that may stem from natural disasters is typically unpredictable. We hypothesize that if disasters affect divorce through channels beyond banks' relief programs, these unobserved factors will likely raise, rather than lower, divorce rates due to their negative impact. In our final test, we use a stacked event-study differences-in-differences approach to assess whether anticipated divorces drive foreclosure activity by examining the temporal relationship between bankruptcy, foreclosure, and divorce probabilities. We create matched samples of treated groups (people experiencing

foreclosures or Chapter 13 bankruptcy) and control groups (people from the same census tract-year with comparable household incomes). This approach mitigates concerns about individuals strategically timing their divorces around Chapter 13 or foreclosure proceedings and tests for pre-existing divorce trends. Our findings demonstrate that foreclosures significantly heighten divorce probability, and Chapter 13 bankruptcies—which safeguard housing assets—reduce divorce rates.

This paper contributes to three areas of literature. First, it expands our understanding of the impact of debt relief on household welfare. Previous studies show how bankruptcy protection reduces foreclosure and mortality rates (Dobbie and Song, 2015), mitigates financial distress, and increases homeownership (Dobbie, Goldsmith-Pinkham, and Yang, 2017). Studies continue to debate its costs and benefits. Indarte (2023) finds that most US bankruptcy filers lack strategic intent, and Artavanis and Spyridopoulos (2023) document the extent of strategic behavior after a foreclosure moratorium. Kluender, Mahoney, Wong, and Yin (2024) find that medical debt relief has a modest improvement in credit access and no effects on mental and physical health, and Kleiner, Stoffman, and Yonker (2021) find that information spillovers reduce debt relief effectiveness as individuals adjust decisions based on peers' bankruptcy outcomes. This study extends this literature by examining marital stability as a nonpecuniary benefit of debt relief.

Second, we emphasize the importance of housing stability in marital outcomes. Our findings align with Becker, Landes, and Michael (1977), showing that marriage-specific assets, such as homes increase commitment and reduce the likelihood of divorce. Similarly, Lafortune and Low (2017, 2023) show that individuals with more assets tend to have higher marriage rates. We find that approved Chapter 13 bankruptcy lowers divorce rates by promoting housing stability, suggesting policies supporting homeownership can strengthen marital relationships. Finally, our paper adds to the research that links financial distress to social outcomes. Previous studies associate stock market losses with stress (Engelberg and Parsons, 2016), mortgage financing with increased homeownership and fertility (Hacamo,

2021; Fazio, Ramadorai, Skrastins, and Doornik, 2024), and financial distress with lower student performance (Maturana and Nickerson, 2019), 2019). Other studies have shown that house price declines reduce voter participation (McCartney, 2021), and payday lending negatively affects military personnel (Carrell and Zinman, 2014). Our findings highlight how debt relief can have broader social implications by mitigating the adverse effects of financial distress on marital stability.

## 1. Data

We start with a nationally representative one percent sample of the US population with credit bureau records from 2011 to 2019.[1] Our sample ends before 2020 to avoid confounding effects from pandemic-era debt relief programs and household disruptions. These credit bureau data provide a panel of credit histories for more than 3 million individuals and include detailed information on individuals' credit scores, mortgages, auto loans, credit cards, student loans, repayment patterns, delinquencies, and debt collections. In addition, our sample contains basic demographic information for individuals, including their marital status, estimated household income, gender, and age.

We construct *Divorce* as our main outcome variable. Previous research documents that marriage has a larger impact on longevity than income (Gardner and Oswald, 2004; Simeonova, 2013). Therefore, we consider the individuals' marital status a reasonable proxy of personal stress. We identify whether an individual becomes divorced if their marital status in the current year changes from married to single. The average divorce rate represents the unconditional probability that a married individual in our sample gets a divorce in a given year and is approximately equal to 7.2% in our sample. We compare state-level marriage rates in 2015 between our sample and census data. The correlation coefficient of marital status in our sample with that of the one-year American Community Survey estimates is

[1]The sample selection is based on individuals' last two digits of their social security numbers, which creates a sample that is as good as random. See Butler, Mayer, and Weston (2023) for details of this sample selection procedure.

0.84, suggesting that our sample is reasonably representative of the broader US population in terms of marriage patterns.

In our analysis, we use several proxies for financial distress to capture the full range of financial strain people experience before receiving debt relief. First, we construct the variable *Delinquent*, an indicator variable that equals one when an individual is delinquent on any credit product for 30 days or more in the last 12 months and zero otherwise. Second, we construct *High Collections (Non-Medical)*, an indicator variable that equals one for individuals whose non-medical debt in collections is in the top tercile of the annual distribution of positive non-medical debt in collections and zero otherwise. We exclude medical debts from collections to exclude health events that might confound the financial distress channel (Stevenson and Wolfers (2007)). Third, we examine the effects of *Foreclosure*, an indicator variable that equals one when an individual had a foreclosure in the last 12 months and zero otherwise. Finally, we identify the point at which a household's financial distress compels the borrower to seek debt relief via bankruptcy proceedings. *Bankruptcy* is an indicator variable equal to one when an individual filed bankruptcy in the last 12 months and zero otherwise. Fewer than 1% of the individuals in our sample experience a bankruptcy or foreclosure event during the nine-year sample period.

Despite being less frequent than delinquencies and debt collections, bankruptcies and foreclosures have the most severe impact on credit scores.[2] While credit scores recover more rapidly after bankruptcy due to debt relief, this credit event remains on an individual's credit history for ten years, longer than foreclosures that remain in credit for seven years. Having debt in collections may impose a smaller burden on households than bankruptcies and foreclosures, but they are more frequent—almost 23% of observations in our sample have

[2]In the Online Appendix, we examine the average change in credit score before and after these events and find a similar decline in credit score

outstanding debt in collections. While this figure may appear high, it closely aligns with official reports from the Consumer Financial Protection Bureau (CFPB).[3]

We complement our sample with economic, real estate, and demographic characteristics of individuals' local communities using data from the Census Bureau's American Community Survey (ACS). We add controls for Census tract-level population density, poverty rate, government employment rate, average household size, and the presence of children in the family. These characteristics capture time-varying factors that may be correlated with divorce rates.

We exclude from the analysis individual-year observations with missing information on marital status, credit score, gender, age, and financial and divorce variables. Our final sample contains approximately two million people and covers almost 90% of all US counties. Table 1 shows the summary statistics of the variables in our analysis. The average individual in our sample is 51 years old, has an average estimated household income of $96,000 a year, an average credit score of 697, and owes an average of $90,000 in total debt (including mortgage, auto, credit, and student). On average, a borrower owes $73,500 in mortgage debt, $6,000 in auto loans, and $4,300 in credit card debt.

[Insert Table 1]

People who experience a divorce in a given year have substantially higher financial distress levels than those who remain married. Columns 1-3 Panel B of Table 1 show univariate differences between individuals who experience divorce versus individuals who did not in a given year. The average ratios of delinquency, and debt in collections are substantially higher for individuals who experience divorce. For example, 44% of people who get a divorce also have debt in collections, compared to 22% of non-divorced people. On average, divorce is also associated with lower credit scores (632 versus 703) and lower household incomes ($62,480 versus $99,150).

[3]According to the CFPB, one in four consumers in the United States has at least some debt in collection in their credit report (see: https://www.consumerfinance.gov/about-us/newsroom/bureau-releases-report-third-party-debt-collections/).

## 2. Empirical results

### 2.1. Financial distress and marital stability

Before examining how debt relief policies might help households, we first establish whether and how financial distress impacts marriages in our setting. Therefore, we begin the analysis by examining the role of financial distress on marital stability.

We examine the impact of financial distress and debt relief on individuals' probability of divorce using the following baseline regression specification:

$$Divorce_{i,t} = \alpha_i + \alpha_t + \delta(Financial\ distress)_{i,l,t-1} + \beta \mathbf{X}_{i,l,t-1} + \gamma \mathbf{C}_{l,t} + \epsilon_{i,t}, \qquad (1)$$

where $i$, $t$, and $l$ represent individual, year, and census tract, respectively. $\mathbf{X}$ is a vector of individual-level control variables (i.e.,the natural logarithm of household income and home-ownership indicator) that correlate with the probability of divorce and financial stress. $\mathbf{C}$ is a vector of census tract-level controls that capture different aspects of individuals' local economic environment and includes the following variables: poverty rate, natural log of population density, average household size, as well as the proportion of households with children, with high school diploma, and with government employees. The regressions also include individual fixed effects to control for time-invariant, idiosyncratic variables specific to individuals, such as personality, race, or sex. We also restrict our sample to people who are married the year before experiencing financial distress to ensure divorce eligibility.

We begin our analysis with several proxies for financial distress that capture the most severe forms of household financial strain, recognizing that not all types of financial distress exert the same stress on households. For example, small amounts of debt in collections or minor delinquencies are less distressing than foreclosure. Using detailed, micro-level data on individuals' credit balances and repayment histories allows us to examine this nuanced relationship between financial and personal distress by accounting for the exact type of financial distress each borrower goes through

We clasiffy financial distress into four distinct types to analyze (a) whether there is an intensive-margin effect of financial distress on personal stress and (b) the potential debt relief mechanisms through which financial distress impacts marital dissolution. We include each type of credit event in regression 1 to capture the differential impact of each category: *Foreclosure*, *Bankruptcy*, *Delinquent*, and *High Collections (Non-Medical)*. We present the results in columns 1-6 of Table 2.

[Insert Table 2]

Although bankruptcy and foreclosure are significant indicators of financial distress for individuals, and both are associated with higher incidence of divorce (see Table 1, Panel B), the regression analysis in Table 2 shows that they have opposing effects on the probability of divorce. Specifically, households experiencing foreclosure are 0.66 percentage points more likely to become divorced in the following year (column 1). This change represents a 9% increase from the unconditional probability of divorce. Conversely, we find that personal bankruptcies reduce the probability of divorce, but the effect is not statistically significant (column 2).

We also find that delinquent debtors or those with large amounts of non-medical debt in collections (i.e., top tercile of the annual sample distribution) are 0.42 and 0.49 percentage points more likely to experience marital dissolution in the following year, respectively (columns 3-4). This change represents approximately a 6-7% increase in the unconditional divorce probability. In column 5, we include all the measures of financial distress and debt relief in one regression and find that foreclosure increases divorce by 0.53 percentage points. Importantly, we find that a bankruptcy filing decreases the probability of divorce by 0.27 percentage points (4% of the unconditional mean). Our main analysis in columns 1-5 includes restrictive individual FE and year FE to exploit within individual time-series variation on financial distress and debt relief measures. In column 6, in addition to individual fixed effects, we include census-tract-by-year fixed effects to control for unobserved local conditions such as house prices, unemployment, or other local economic shocks. Because of the large

number of fixed effects in the model, the magnitudes of the coefficients slightly attenuate, but they are statistically significant, and foreclosure and bankruptcy have opposing effects on the probability of divorce.[4]

We emphasize two key implications of these estimates. First, not all forms of financial distress affect marital stability equally. Specifically, delinquencies, high levels of debt in collections, and foreclosures have a large impact on divorce rates. Second, bankruptcy filings, despite being significant effects on households' financial health, are associated with a lower likelihood of divorce. Estimating the effect of financial distress on divorce presents additional challenges. The high costs of divorce may contribute to the positive correlation between personal stress and financial distress. Although divorces certainly affect financial health, several aspects of our analysis, presented throughout this study, suggest that this form of reverse causality is unlikely to influence our estimates. Specifically, our model in regression 1 employs indicators of lagged financial distress. Consequently, future life events (whether anticipated or not) are unlikely to impact financial distress or the decision to seek debt relief in prior years unless households act strategically in anticipation of divorce. To address such identification challenges, we develop a stacked differences-in-differences regression analysis to eliminate reverse causality issues, which we discuss later in our analysis (see Section 5.1).

### 2.2. Debt relief and marital stability

Our previous analysis reveals a surprising relationship: filing for bankruptcy—a key indicator of financial distress—leads to lower divorce rates. We hypothesize that this occurs because bankruptcy offers borrowers a vital means of debt relief. Although financial hardship can strain marital relationships, debt relief may counteract these effects and stabilize relationships, allowing couples to reset their finances. Specifically, discharging borrowers' debt or offering repayment plans that alleviate their debt burden enables couples to reallocate their financial resources toward essential assets, such as their primary residence. In this section,

[4]We run alternative regressions in the Online Appendix restricting the sample to individuals younger than 65-years-old to mitigate the concern that changes in marital status are driven by spousal deaths.

we examine how significant differences in the extent of property protection between Chapter 7 and Chapter 13 bankruptcy may affect divorce outcomes.

The US bankruptcy system provides significant debt relief, distributing approximately $189 billion annually, surpassing unemployment insurance benefits paid during the 2008 financial crisis (Indarte, 2023). US borrowers can choose between two main bankruptcy options: Chapter 7 and Chapter 13. Under Chapter 7, low-income debtors can discharge unsecured debts such as credit card balances, personal loans, and medical bills. This process involves a court-appointed trustee who liquidates nonexempt assets and distributes the proceeds to creditors. In return, debtors receive a discharge from most unsecured debts. By eliminating unsecured debt, Chapter 7 filers can redirect income to mortgage payments, potentially preventing foreclosure. However, Chapter 7 halts foreclosures and repossessions only temporarily, typically for three to six months, and it does not prevent lenders from seizing assets tied to unpaid secured loans.[5]

Chapter 13 bankruptcy offers a different approach, particularly beneficial for regular-income debtors. This option allows debtors to keep their assets while following a court-approved repayment plan that usually spans three to five years. After completing these payments successfully, debtors receive debt discharge.[6] Chapter 13 provides stronger (and longer-term) protection against foreclosures compared to Chapter 7 because it allows homeowners to retain their property while gradually paying their debts (Sergeyev, Lian, and Gorodnichenko, 2015). This extended protection enables financially distressed borrowers to achieve faster economic recovery (Dobbie and Song, 2015). In our sample, Chapter 7 bankruptcy is the most common debt relief assistance with 66% of bankruptcy filings, while Chapter 13 represents 33% of the filings.

[Insert Table 3]

[5]A detailed breakdown of Chapter 7 and Chapter 13 Bankruptcy procedures is available at: https://www.uscourts.gov/court-programs/bankruptcy/bankruptcy-basics

[6]If the debtor's monthly income is below the median of the state income, then the repayment plan is for three years, and if it is above the median of the state income, it must be for five years. An individual can file for Chapter 13 bankruptcy if the outstanding debts are less than $2,750,000.

In Table 3, we test the differential effect of the debt-relief benefits under Chapter 7 and Chapter 13 bankruptcy filings on the probability of divorce. *Ch 7 Bankruptcy* and *Ch 13 Bankruptcy* are indicator variables that take values of one if the individual had a Chapter 7 and Chapter 13 bankruptcy filing, respectively, in the last 12 months, and zero otherwise. In columns 1 and 3, the effect of filing for *Ch 7 Bankruptcy* is positive and statistically significant. The coefficient for *Ch 13 Bankruptcy* suggests a negative but statistically insignificant effect on divorce outcomes (column 2). However, this relationship becomes more pronounced and statistically significant when we include additional financial distress indicators for experiencing foreclosure (*Foreclosure*), delinquency (*Delinquent*), and high (non-medical) debt in collections (*High Collections (non-medical)*). The coefficient *Ch 13 Bankruptcy* suggests a decrease in the probability of divorce by 0.40 percentage points, 6% of the unconditional mean. Importantly, *Foreclosure* remains the strongest predictor of divorce, increasing the likelihood by 0.53 percentage points (7% of the unconditional mean). These findings support the hypothesis that the different property protections under Chapter 7 and Chapter 13 have distinct impacts on household and marital stability.

### 2.3. Bankruptcy filing dismissal and marital stability

While our analysis shows that bankruptcy filings, particularly Chapter 13, prevent the incidence of divorce through debt relief and asset protection, not all filings result in successful debt relief. The effectiveness of bankruptcy as a financial reset mechanism depends on whether courts approve and debtors complete the process. In this section, to understand how the success or failure of bankruptcy proceedings affects marital outcomes, we examine bankruptcy filings that courts dismiss. Specifically, we exploit the substantial variation in bankruptcy dismissal rates to improve identification by distinguishing between the role of actual debt relief—rather than just filing for it—in promoting marital stability.

Dismissing a bankruptcy prevents debt relief by halting either a debt discharge under Chapter 7 or the completion of a repayment plan under Chapter 13. Although Chapter

7 cases almost always result in debt relief for debtors, Chapter 13 filings face significantly higher dismissal rates.[7] In our sample, we observe similar patterns of dismissal rates as in aggregate national bankruptcy statistics. Approximately 95% of Chapter 7 filings result in successful debt relief discharge of unsecured debt. However, in approximately 40% of Chapter 13 bankruptcy filings, courts dismiss their filings and debtors do not receive debt relief. We thus hypothesize that dismissed bankruptcies increase the risk of divorce because filers do not obtain the intended debt relief benefits. To test this hypothesis, we limit the sample to individuals with active bankruptcy cases who have filed for a Chapter 13 bankruptcy over the last three years—the minimum repayment plan period. [8] Focusing only on Chapter 13 filers allows us to identify differences in marital outcomes within a homogeneous group of people that vary only in terms of bankruptcy court decisions regarding debt relief.

In Table 4 Panel A, columns 1–4, we show that, conditional on having an active Chapter 13 filing, married debtors with dismissed bankruptcies are 1.5-3.7 percentage points more likely to divorce within the next year relative to married debtors that receive debt relief. This effect represents approximately a 20%-51% increase in the average divorce probability conditional on filing for Chapter 13 (i.e., from 7.4% to 8.9%-11.1%).

[Insert Figure 1]

The outcome of a Chapter 13 bankruptcy filing may be systematically correlated with unobserved individual characteristics. For instance, filers with stronger cases or better legal representation may be more likely to receive debt relief rather than having their filings dismissed, and this outcome could also relate to marital stability. To address concerns about such unobserved confounders, we isolate exogenous variation in the likelihood of a Chapter

[7] Only 1% of Chapter 7 filings are dismissed, according to the Administrative Office of the United States Courts (see: https://www.uscourts.gov/services-forms/bankruptcy/bankruptcy-basics/chapter-7-bankruptcy-basics). However, dismissal rates for Chapter 13 filings average between 2011 and 2019 range between 57% and 77% according to a report from the Bankruptcy Abuse Prevention and Consumer Protection Act (see: https://www.uscourts.gov/statistics-reports/analysis-reports/bapcpa-report/bankruptcy-abuse-prevention-and-consumer.

[8] We do not include people filing for Chapter 7 in this regression because there is almost no variation in dismissal rates since the bankruptcy court approves approximately 95%-99% of Chapter 7 filings.

13 dismissal by exploiting the strictness of bankruptcy courts at the judicial district level. Specifically, we use the lagged judicial district dismissal rates as an instrumental variable (IV) for an individual's probability of Chapter 13 dismissal (*Dismissal Rate(Judicial District)* strategy is based on the assumption that district-level dismissal rates are uncorrelated with unobserved individual-level characteristics that might influence marital outcomes.

We calculate the judicial district dismissal rates as the share of all bankruptcy filings in the judicial district of all debtors in our sample that are dismissed. Figure 1 plots the geographical distribution of dismissal rates across US judicial districts. We document substantial cross-sectional variation in Chapter 13 bankruptcy dismissal rates. These patterns are consistent with prior studies that attribute these differences to US Bankruptcy courts' use of a blind system to randomly assign Chapter 13 filings to bankruptcy judges (Dobbie, Goldsmith-Pinkham, and Yang, 2017; Kleiner, Stoffman, and Yonker, 2021; Cespedes, Parra, and Sialm, 2021).

In columns 1-2 of Table 4, Panel B, we show the first and second stages of IV regression, respectively. The instrument *Dismissal Rate (Judicial District)* positively and statistically significantly predicts the probability of bankruptcy dismissal. For every one percentage point increase in the average prior-year judicial district dismissal rate, the likelihood of filing for Chapter 13 bankruptcy increases by 0.76 basis points. In the last row of column 2 of Panel B Table 4, the Cragg-Donald F-stat is above 50. These results provide evidence of the instrument's relevance in predicting the probability of Chapter 13 being dismissed.

Column 2 of Table Table 4, Panel B shows that, conditional on filing for Chapter 13 bankruptcy, *Bankruptcy Dismissed (%)* increases the probability of divorce by 0.35 percentage points, representing 5% of the unconditional divorce probability in the sample. This effect is economically significant as it implies that the judicial decision to dismiss a bankruptcy filing—an event largely outside the household's control—can significantly influence marital outcomes. Compared to the OLS estimates in column 4 of Panel A, the IV results reveal a smaller but more precisely identified effect. This discrepancy suggests that the OLS estimates

may be upwardly biased because of selection effects, as households facing greater unobserved financial or marital distress may be both more likely to have their filings dismissed and more susceptible to divorce. The IV approach addresses this endogeneity by isolating variation in Chapter 13 bankruptcy dismissals that, conditional on covariates, is driven primarily by the judicial district's idiosyncratic propensity to dismiss cases rather than by household-specific factors.

[Insert Table 4]

We also explore an alternative identification strategy to extract plausibly exogenous variation in the dismissal of Chapter 13 filings using judicial turnover rates as an instrument. This approach exploits the idea that judge characteristics and experience affect bankruptcy decisions. The identification relies on variation in the annual turnover of bankruptcy judges across judicial districts, which plausibly affects case outcomes independent of household characteristics. Using the University of Virginia Legal Lab's judges database, we calculate district-level judge turnover rates and instrument for bankruptcy dismissals. Though our first-stage shows that a one-unit increase in judge turnover leads to a 0.21 percentage point increase in dismissal probability, the F-statistic of 0.69 falls well below conventional thresholds for instrument strength. We therefore delegate these results to the Online Appendix, noting that despite the weak first stage, the second-stage estimates remain consistent with our main finding that bankruptcy dismissals increase divorce probability.

## 3. Debt relief and housing stability

Financial distress often forces households to relocate, whether through foreclosure for homeowners or eviction for renters. While bankruptcy offers debtors some financial relief, its effect on housing stability remains unclear. The two main personal bankruptcy options—Chapter 7 and Chapter 13—differ in their treatment of secured debt and property. Chapter 13's structured repayment plan allows debtors to cure mortgage defaults or provide longer lasting

protections, while Chapter 7's immediate discharge primarily affects unsecured debt. These differences suggest that bankruptcy, particularly Chapter 13, could help households maintain stable housing by preventing involuntary displacement through foreclosure or eviction.

In this section, we examine the effect of bankruptcy on housing stability. Specifically, we test whether Chapter 13 bankruptcy offers stronger protection for housing stability compared to Chapter 7, at least in the short term, because of its distinct treatment of secured debt and property. First, we evaluate whether bankruptcy decreases foreclosure risk. Table 5, column 1, indicates that filing for bankruptcy lowers the probability of foreclosure three years after filing by 0.61 percentage points, or 8% of the standard deviation of the unconditional foreclosure probability over the next three years. However, when we limit the sample size in column 3 to households that owned a home before filing for bankruptcy, the impact on foreclosure rises to 1.36 percentage points, or 17% of the standard deviation of the unconditional probability of foreclosure in the next three years.

Breaking down the results by bankruptcy filing type reveals even starker differences. In column 4, when we restrict the sample to only homeowners, we find that debtors filing for Chapter 13 Bankruptcy are 2.67 percentage points less likely to experience foreclosure within three years of filing—a 33% of the standard deviation of foreclosure in the next three years. In contrast, debtors filing for Chapter 7 Bankruptcy are 0.76 percentage points less likely to experience foreclosure in the next three years or 9% of the standard deviation of the foreclosure rate.

Breaking down the results by bankruptcy filing type reveals even starker differences. In column 4, when we restrict the sample to only homeowners, we find that debtors filing for Chapter 13 Bankruptcy are 2.67 percentage points less likely to experience foreclosure within three years of filing—a 33% of the standard deviation of foreclosure in the next three years. In contrast, debtors filing for Chapter 7 Bankruptcy are 0.76 percentage points less likely to experience foreclosure in the next three years or 9% of the standard deviation of the foreclosure rate.

[Insert Table 5]

These results complement prior evidence on the positive effects of Chapter 13 protection on household stability. Previous research shows that Chapter 13 protection increases annual earnings, reduces five-year foreclosure risk (Dobbie and Song, 2015), and improves the likelihood of homeownership (Dobbie, Goldsmith-Pinkham, and Yang, 2017), particularly when borrowers can modify their mortgages (Cespedes, Parra, and Sialm, 2021).

## 4. Natural disaster relief

Our analysis thus far suggests that debt relief is associated with lower divorce rates, especially when it promotes housing stability. Bankruptcy proceedings represent the most common form of debt relief for households. However, households commonly receive different types of debt relief when impacted by a large natural disaster. As natural disasters become more frequent, they introduce unexpected shocks to households' financial status and stability (Billings, Gallagher, and Ricketts, 2022; Gallagher, Hartley, and Rohlin, 2023).

While natural disasters create significant financial strain, they also trigger temporary relief mechanisms from banks and financial institutions to affected households. Creditors respond to natural disasters by offering temporary relief through debt restructuring, payment adjustments, mortgage forbearance, or expedited lending decisions. For instance, one key disaster relief mechanism involves banks flagging debtor accounts affected by a natural disaster. This practice masks negative credit information that could harm borrowers' credit scores and restrict their credit access (Guttman-Kenney, 2023).

This section builds on our analysis by examining two key hypotheses. First, natural disaster assistance improves credit access and prevents foreclosures in the immediate aftermath of a disaster. Second, when used as an IV for foreclosure and credit access, natural disaster relief helps reduce divorce rates. This analysis has important implications because, unlike

government programs, natural disaster relief programs represent a voluntary, private-sector effort to alleviate households' financial distress.[9]

Our credit bureau data allow us to identify which individuals in our sample receive natural disaster assistance. We find that natural disasters affect approximately two percent of households in our sample each year, or approximately 138,000 individual-year instances of natural disaster assistance, with significant geographic and temporal variation in effects (see Figure 2). Although Hurricane Harvey accounts for roughly one-fifth of the 2017 disaster relief cases in Texas and Louisiana, the results remain consistent whether we include or exclude this significant event from our analysis.[10]

[Insert Figure 2]

### 4.1. Natural disaster relief and credit access

Our first hypothesis posits that private-sector disaster relief programs help households maintain credit access and avoid financial distress or foreclosure. To analyze the effectiveness of these private-sector initiatives, we limit our sample to individuals in counties that experience significant property damage, as identified through the Spatial Hazard Events and Losses Database for the United States (SHELDUS). This approach allows us to compare outcomes between similarly affected populations. The treated group consists of debtors whose accounts receive a natural disaster flag and live in areas with high economic loss (highest decile in annual total property damage). The control group includes debtors in similarly affected areas that do not receive the flag.[11] This methodology helps isolate the effect of disaster relief from the broader impact of the natural disaster itself.

[9]The OCC provides only guidelines rather than mandates for consumer debt relief, and many banks voluntarily provide assistance through disaster-related credit reporting. The OCC supervisory guidelines can be found in the following link: https://www.occ.gov/news-issuances/bulletins/2012/bulletin-2012-28.html.

[10]We also illustrate the annual share of households affected by a natural disaster in our sample in the Online Appendix. We note that our sample closely matches the national statistic, based on the CFPB (see https://bit.ly/3uLdqbd).

[11]Limiting or not the sample to debtors living in counties with significant property damage does not significantly alter the results from this analysis.

[Insert Table 6]

Table 6 presents the results. We find that debtors receiving natural disaster assistance raise their credit card spending by 14% (about $600) relative to non-affected debtors in the area, with a corresponding 0.04 rise in debt-to-income ratio (indebtedness). Importantly, we show that natural disaster flags protect individuals' credit by reducing the probability of foreclosure events by 11 basis points. Furthermore, disaster flags help debtors maintain credit scores while providing necessary financial flexibility, demonstrating that temporary relief measures can effectively balance immediate needs with long-term financial stability.[12] These results provide new evidence that disaster relief assistance is an effective measure in helping households manage increased financial burdens while preserving their credit standing.

The findings regarding natural disaster relief and effective credit access contribute to a growing body of literature on household liquidity interventions. Our results complement Guttman-Kenney (2023), who documents that credit reporting accommodations mainly benefit consumers with pre-existing financial distress through temporary improvements in credit scores. Similarly, Dobbie, Goldsmith-Pinkham, and Yang (2017) demonstrate that Chapter 13 bankruptcy protection leads to significant enhancements in household financial health, including fewer adverse financial events and higher homeownership rates, emphasizing how formal debt relief fosters lasting stability benefits. Adelino, Ferreira, and Oliveira (2024) further shows that targeted mortgage payment suspensions can positively influence consumption and savings behaviors. Collectively, these studies illustrate how various forms of temporary financial relief—whether through bankruptcy protection, payment forbearance, or credit reporting accommodations—provide households with essential breathing room during periods of financial strain, preserving financial stability and preventing cascading negative outcomes.

[12] We find that the natural disaster flags is associated with greater delinquency rates.

### 4.2. Natural disaster relief and marital stability

Our second hypothesis examines whether reducing financial strain through disaster relief helps maintain marital stability. Having established that natural disaster assistance effectively provides financial support and maintains credit access, we use it as an instrument to isolate plausibly exogenous variation in foreclosure probability. This approach exploits the unpredictable nature of natural disasters as exogenous shocks to debtors' foreclosure probability, thus allowing us to identify the relationship between debt relief and marital outcomes.

Table 7 presents the IV results relating to disaster relief. We restrict the sample to married individuals who live in a county that experienced significant property damage (i.e., top decile in annual total property damage) from natural disasters in the last five years. Column 1 tests the validity of the instrument by regressing foreclosure (*Foreclosure (%)*), which equals one if the debtor experiences a foreclosure in the last 12 months, on natural disaster relief (*Natural Disaster Assistance*), an indicator that equals one if the debtor's account is flagged as affected by a natural disaster. The first-stage regression results indicate that financially distressed individuals receiving assistance are 22 basis points less likely to experience foreclosure, which is approximately a 33% decline from the unconditional foreclosure mean (0.67%). The F-statistic (Cragg-Donald F-stat) of 103.5 meets the Stock-Yogo weak identification threshold and suggests the instrument is not weak. Column 2 presents the second-stage regression results. Although the coefficient of interest is statistically insignificant, it suggests that a one-percentage-point increase in foreclosure likelihood is related to a 1.19 percentage point increase in divorce probability (or about 17% of the unconditional probability of divorce). When we restrict the sample to individuals who are homeowners (i.e., who have an open mortgage balance in the prior year), the IV results are statistically significant in both the first and second stages. In column 3, the first-stage regression results indicate that financially distressed individuals receiving assistance are 24 basis points less likely to experience foreclosure. Column 4 suggests that a one-percentage-point increase in

foreclosure likelihood is related to a 1.09 percentage point increase in divorce probability. This effect is economically large and underscores the significant role that housing stability plays in maintaining marital relationships.

[Insert Table 7]

Our identifying assumption is that, after accounting for all controls and fixed effects in the model, *Natural Disaster Assistance* affects households' divorce decisions only through its impact on foreclosure. Our regressions control for a host of individual and local economic characteristics and restrictive, individual-level fixed effects that account for many unobservable attributes that may correlate with individuals' divorce decisions and natural disasters. The disaster relief programs, through their impact on preventing foreclosure, provide a strong identification in this setting. It is particularly challenging to identify biases that are consistent with the regression results in both stages. Specifically, it is difficult to identify factors that systematically provide financial relief and prevent foreclosure, and simultaneously increase divorces. Finally, despite their large impact on foreclosure, we find no evidence that *Natural Disaster Assistance* affects the probability of divorce, both unconditionally and when we exclude from our sample individuals who have not experienced a foreclosure event.[13]

## 5. Robustness

### 5.1. Event study analysis

A key identification challenge in analyzing the relationship between financial distress and divorce is the potential for reverse causality and selection. Households can strategically time their divorce decisions around financial proceedings to minimize the economic impact, making it difficult to establish whether financial distress causes marital dissolution or vice versa.

[13]We tabulate the results from these regressions in the Online Appendix.

Moreover, individuals who experience foreclosures or bankruptcies might systematically differ from those who do not in ways that our baseline differences-in-differences specification may not fully capture.

To address these concerns, we employ an event study framework that allows us to examine the dynamics of divorce rates before and after financial shocks. This approach allows us to test whether divorce rates exhibit differential trends before the financial event, indicating potential anticipatory behavior or other significant, pre-existing differences between treated and control groups. Furthermore, this framework addresses recent methodological concerns about two-way fixed effects differences in differences estimators raised by Goodman-Bacon (2021) and Callaway and Sant'Anna (2021), particularly in settings with staggered treatments.

Following this approach, we construct two separate samples. One that focuses on foreclosures (50,335 events) and a second that focuses on Chapter 13 bankruptcies (22,434 events). For each type of event, we first identify all individuals who experience shock (treated group) and track their divorce results before and after the event. To construct appropriate control groups, we focus on census tract-years that contain at least one treated individual and identify potential control individuals who reside in the same tract-year but never experience either a foreclosure or bankruptcy event during our sample period. This geographic matching ensures that individual in the treated and control group face similar local economic conditions and housing markets.

To enhance the comparability between treated and control groups, we implement an income-based matching procedure. From an average pool of 32 potential control individuals per tract-year, we select the 10 individuals whose household incomes are closest to that of the treated individual, requiring at least two matches per treated individual. We further restrict the matches to have household income differences of no more than $20,000 (approximately half a standard deviation of household income in our sample). This matching procedure ensures that we compare individuals who experience financial shocks with economically similar

neighbors who do not experience such shocks. The stacked panel of treated and control units before and after each event leads to 1.2 million treat-control-year observations for foreclosure events and 800 thousand observations for bankruptcy events.

In Figure Figure 3, we plot the raw averages of treated and control units around foreclosure and bankruptcy events. In panel (a), we find a clear rise in divorce rates among households facing foreclosure, increasing from about 5% to over 7% within two years of the shock, creating a statistically significant difference for people in close proximity with similar economic status. By contrast, in panel (b), we find that Chapter 13 bankruptcy filings—which protect the house—lead to a drop in divorce probability. Both panels show parallel pre-trends in the four years before these shocks, as treated and control groups follow similar paths. Despite both events involving financial distress, these distinct patterns highlight the importance of housing stability in marital dissolution.

We also test this relationship in a regression setting by estimating the following stacked-panel model:

$$Y_{e,i,t} = \alpha_e + \alpha_t + \beta D_{e,i} + \sum_{\tau=-5}^{5} \mathbb{1}[t = t_e^* + \tau] + \sum_{\tau=-5}^{5} \delta_\tau \times \mathbb{1}[t = t_e^* + \tau] \times D_{e,i} + \varepsilon_{e,i,t}. \quad (2)$$

In the above regression, $e$ refers to an event (foreclosure and Chapter 13 bankruptcy), $i$ refers to the individual, $t$ refers to the calendar year, and $\tau$ to the number of years relative to the event $t_e^*$. The variable $D$ is an indicator that equals one if the person experiences foreclosure or Chapter 13 Bankruptcy and zero otherwise.

[Insert Table 8]

The regression estimates in Table 8 confirm the divergent effects of foreclosures and Chapter 13 bankruptcies on divorce rates. Specifically, we find that foreclosures increase the probability of divorce, with the largest effect of 1.8 percentage points occurring in the first year. The increase in the divorce rate persists and remains statistically significant for almost three years after the event. In contrast, Chapter 13 bankruptcy filings lead to a significant decrease in divorce rates. Importantly, the lack of significant coefficients in the pre-event

period (t=-5 to t=-1) and parallel trends for these events is consistent with the parallel trends assumption. Taken together, our findings provide strong support that strategic foreclosures or bankruptcies explain the results in divorce outcomes.

### 5.2. Hazard models

Studying factors that influence marital dissolution lends itself naturally to survival analysis. In this section, we examine the impact of housing instability on divorce using a employ a Cox proportional hazard model. In our setting, the hazard rate refers to the probability an individual divorces at year $t$ conditional on remaining married up to that year. The coefficient estimates of a Cox proportional hazard model are agnostic to the form of the baseline hazard function (Tibshirani, 1982):

$$h\left(t|X\right) = h_0\left(t\right) \exp\left\{\beta' X\right\}. \tag{3}$$

In this model, the first term, $h_0(t)$, represents the baseline hazard function, which is unspecified. The regressors enter the second term as $exp\{\beta' X\}$. The hazard model features *Foreclosure*, an indicator variable that equals one when the individual's most recent foreclosure occurred in the last 12 months, and zero otherwise. The vector $X$ also includes the same set of individual level control variables as in equation (1). For this analysis, the sample is constructed by limiting observations to individuals who were married at some point from 2011-2019. The individual enters the sample during the first year the person is observed to be married. The last year of record for the individual is the earlier of (i) the year of first divorce and (ii) the last observed year if the individual does not experience a divorce. Standard errors are adjusted for clustering at the individual level.

[Insert Table 9]

Table 9 shows that married individuals who experience foreclosures have higher divorce rates. Specifically, the hazard ratio is 1.46 times greater for a debtor who experiences a foreclosure than one who does not, all else held equal (column 1). Additionally, to address

potential concerns regarding the Cox model's assumption that survival times between distinct debtors are independent—given that both spouses in a marriage may appear in our sample—we conduct a similar analysis on a sub-sample of only females and find consistent results (column 2). Overall, these results support our findings in Table 2, which highlight the role of foreclosures as a significant predictor of marital instability.

[Insert Figure 4]

The Cox proportional hazard model assumes a constant relative hazard, which may be an overly restrictive assumption. To relax this assumption, we plot non-parametric Kaplan-Meier estimates of the survival curves for individuals who experienced foreclosures and those who have not (Figure 4). The survival curves estimate the probability an individual remains married $t$ years after entering the sample. For this analysis, we restrict the sample to married individuals in 2010 who had a mortgage balance. Each individual is represented by a single observation, with treatment status determined by whether they experienced a foreclosure in 2010. The treated group consists of married individuals who experienced foreclosures in 2010, and the control group consists of married individuals who have never experienced a foreclosure during the sample period. The relative steepness of the survival curves suggests higher divorce rates among individuals with foreclosures, which corroborates our earlier findings. A log-rank test shows that the survival curves are statistically different (p-value less than 0.05).

## 6. Discussion

In this study, we show that while financial distress strains marital relationships, effective debt relief can help keep families together. We find that financial hardship contributes to divorce, particularly when households face the prospect of losing their homes. The evidence suggests that debt relief programs work best when they help families maintain housing stability—Chapter 13 bankruptcy protection, which allows families to keep their homes

while reorganizing debt, proves especially effective at reducing divorce rates compared to other forms of debt relief that may require giving up the family home.

Our findings highlight an often-overlooked aspect of debt relief programs: their social benefits extend well beyond immediate financial outcomes. Traditional evaluations of these programs typically focus on financial metrics like creditor recovery rates and borrower credit access. Yet, by helping preserve marriages and family stability, effective debt relief creates significant social value that standard cost-benefit analyses may fail to capture. Market solutions can also play a crucial role, as we see from how financial institutions voluntarily adopt disaster relief efforts to help maintain both financial and marital stability. While finance may seem far removed from matters of the heart, our research shows that financial security lays the groundwork for lasting marriages—not because money buys happiness but because financial stability gives couples one less storm to weather together.

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## Variable Definitions Appendix

| Variable | Description |
|---|---|
| Divorce (%) | Variable that equals one hundred if an individual's marital status changes from married to single in given year, and zero otherwise |
| Foreclosure | Indicator variable that equals one if an individual experienced a foreclosure in the last 12 months, and zero otherwise |
| Foreclosure Next Three Years (%) | Variable that equals one hundred if an individual experienced a foreclosure in the next three years, and zero otherwise |
| Bankruptcy | Indicator variable that equals one if an individual filed for bankruptcy in the last 12 months, and zero otherwise |
| Ch 7 Bankruptcy | Indicator variable that equals one if an individual filed for a Chapter 7 bankruptcy in the last 12 months, and zero otherwise |
| Ch 13 Bankruptcy | Indicator variable that equals one if an individual filed for a Chapter 13 bankruptcy in the last 12 months, and zero otherwise |
| Bankruptcy Dismissed | Indicator variable that takes the value of one when in a bankruptcy filing, the judicial court orders to dismiss the case without discharging the borrower's debt, and zero otherwise |
| Dismissal Rate (Judicial District) | The lagged number of dismissed bankruptcies divided by the lagged number of active bankruptcies in a given judicial district |
| Judge Turnover | The total number of bankruptcy judges that leave their term in a given judicial district and year |
| Delinquent | Indicator variable that equals one if an individual is delinquent on any debt for at least days in the last 12 months, and zero otherwise |
| High Collections (Non-Medical) | Indicator variable that equals one if an individual is in the top tercile of the distribution of non-medical debt in collections, and zero otherwise |
| High Collections (Medical) | Indicator variable that equals one if an individual is in the top tercile of the distribution of medical debt in collections, and zero otherwise |
| Credit Score | An individual's credit score |
| Homeowner | Indicator variable that equals one if an individual has an open mortgage in the last 12 months, and zero otherwise. This variable is a lagged control variable in regressions |
| Log(Estimated Income) | The natural logarithm of the household estimated income in thousands of dollars. This variable is a lagged control variable in regressions |
| Poverty Rate (%) | Poverty rate of individuals 18-64 years old at the census tract level |
| Log(Population Density) | The natural logarithm of population density at the census tract level |
| Household Size | The average number of individuals in a household at the census tract level |
| Percent HS Diploma (%) | The proportion of individuals with high school diplomas in a census tract |
| Percent Govt. Employed (%) | The proportion of individuals the government employs in a census tract |
| Percent Hh w/ Children (%) | The proportion of households with children in a census tract |
| Natural Disaster Assistance | Indicator variable that equals one if the number of trades in an individual's credit file that the credit bureau has indicated have been affected by a natural disaster is greater than or equal to one, and zero otherwise |

| | |
|---|---|
| Log(Credit Card Debt) | The natural logarithm of an individual's total credit card balance |
| Indebtedness | An individual's estimated average debt-to-income ratio |

**Figure 1:** Geographic and Time Series Variation of Bankruptcy Dismissal Rates

These figures show the geographic distribution and time variation of Chapter 7 and Chapter 13 bankruptcy dismissal rates across counties in 2011 (top figure) and 2017 (bottom figure). In a given year, the dismissal rate for a county is defined as the aggregate bankruptcy dismissal rate of the judicial district in which that county resides.

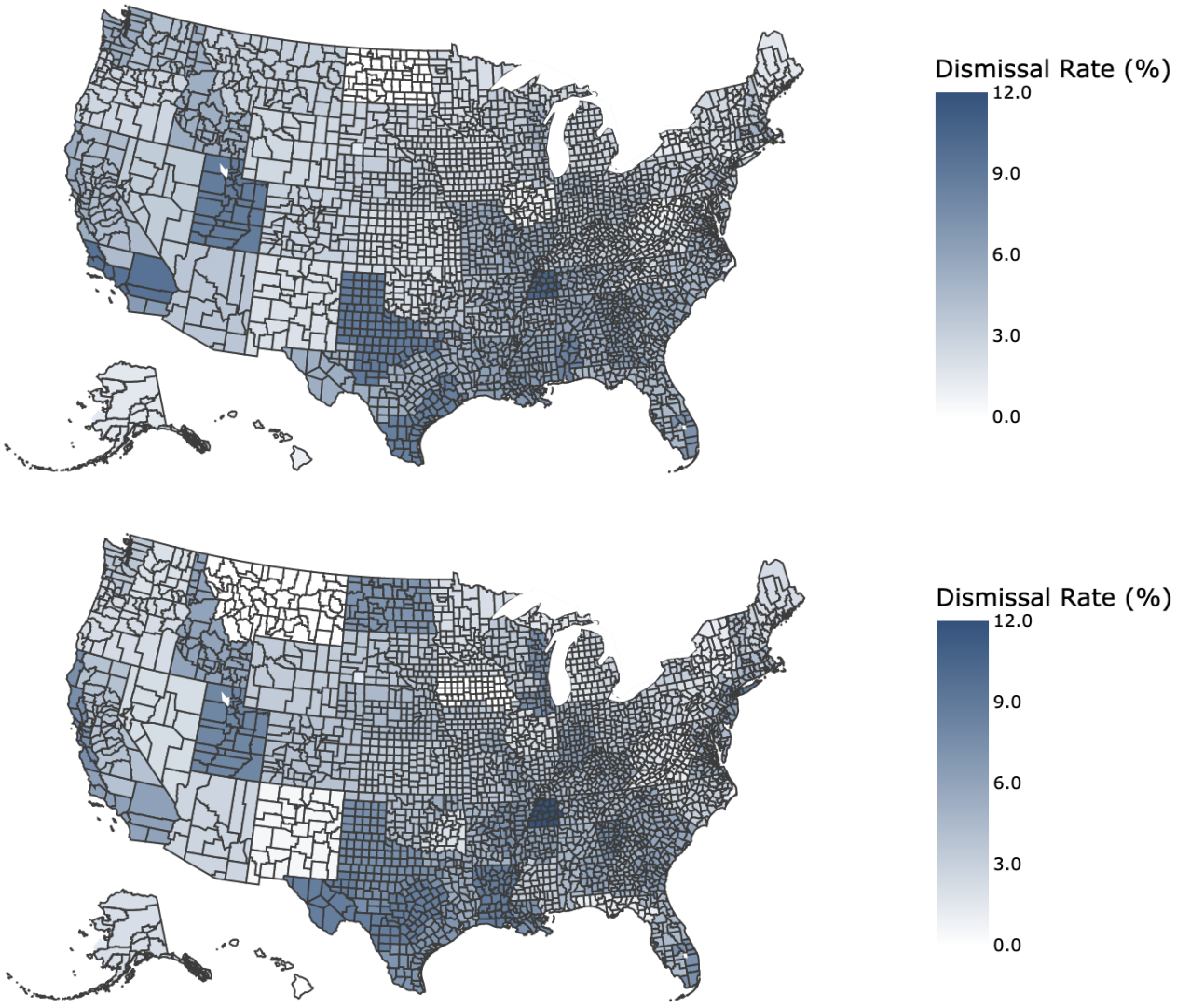


**Figure 2:** Geographic and Time Series Variation on the Natural Disaster Flag

These figures show maps with the geographic distribution of the proportion of individuals the credit bureau reports with at least one natural disaster relief trade in each county in 2011 (top figure) and 2017 (bottom figure).

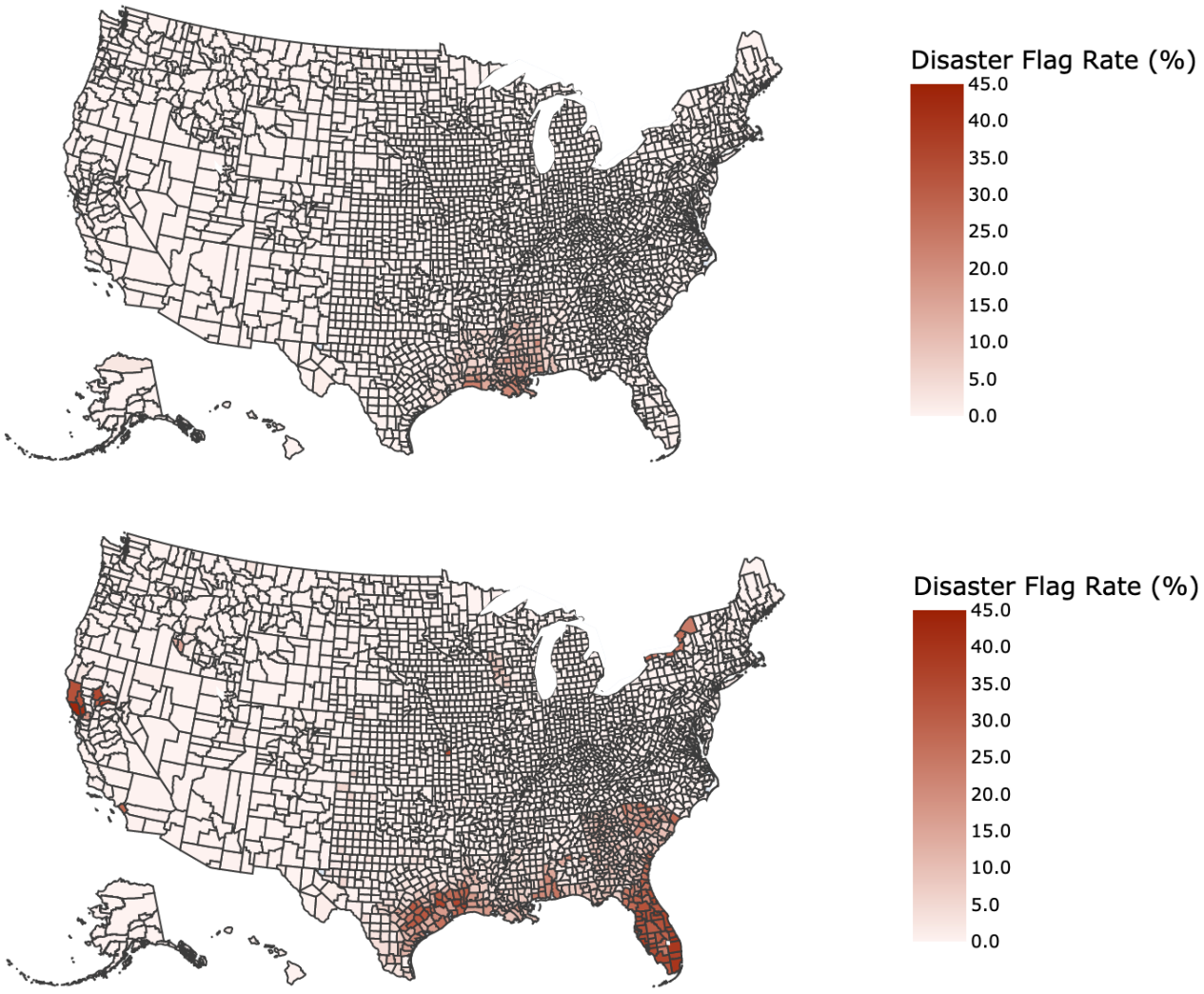
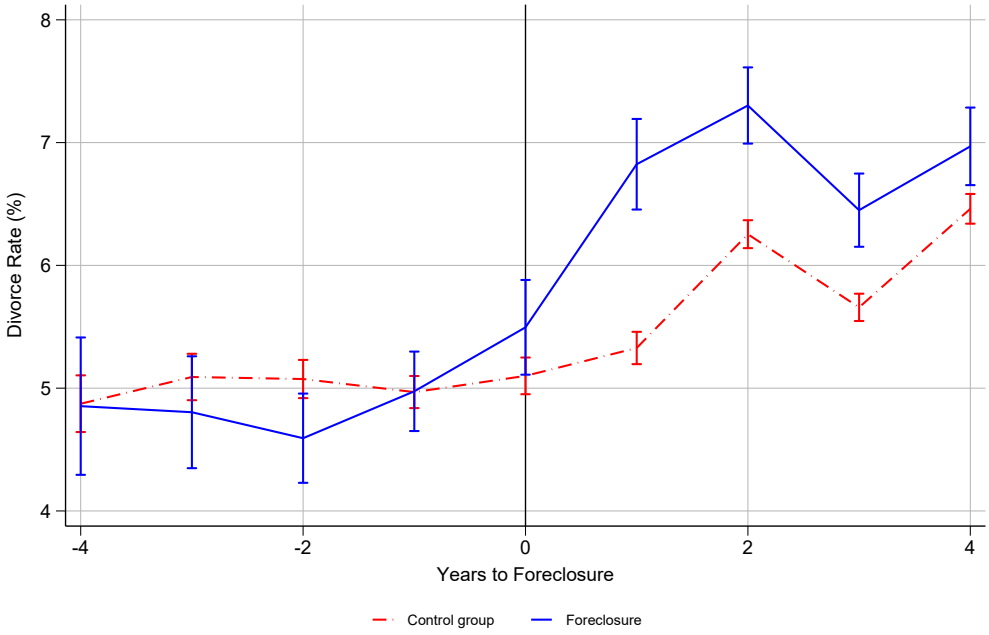


**Figure 3:** Dynamic Treatment Effects

Panel (a) shows the divorce rate from 4 years before to 4 years after experiencing a foreclosure (solid blue line). The (red) dashed line represents the divorce rate for matched individuals with similar income in the same tract and year who do not experience foreclosure. Panel (b) presents the same analysis for Chapter 13 bankruptcies. The solid (blue) line shows the divorce rate for individuals who file for Chapter 13 bankruptcy, and the (red) dashed line represents matched individuals in the same tract and year who do not file for Chapter 13.

**(a)** Foreclosures




**(b)** Chapter 13 Bankruptcies

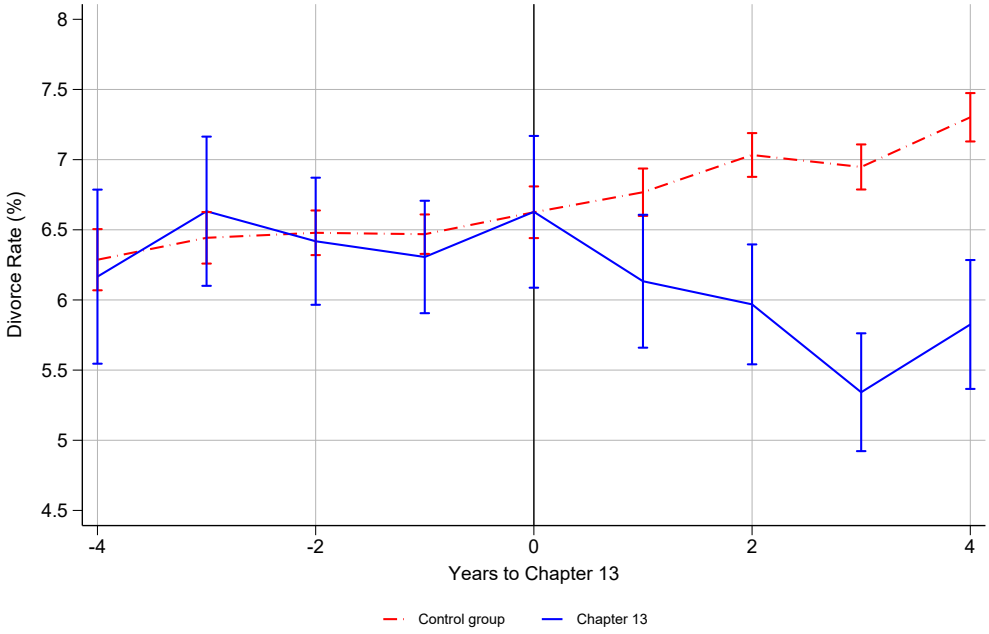


**Figure 4:** Impact of Foreclosures on Marital Survival Rates: Kaplan-Meier Estimates

This figure compares estimated marital survival functions between married individuals who experienced foreclosures and married individuals who did not. Specifically, we restrict this analysis to married homeowners (i.e., positive mortgage balance) in 2010. For each individual, we collapse multiple records into one record and assign treatment based on whether the individual experienced a foreclosure in 2010. The treated group consists of married individuals who experienced a foreclosure in 2010, and the control group consists of married individuals who did not experience a foreclosure during the sample period (2010–2019). The red dash line represents the estimated survivor function of the treated group. The blue solid line represents the estimated survivor function of the control group. Shaded regions denote 95% confidence bands. The log-rank test for the equality of the survivor functions indicates a p-value less than 0.05.

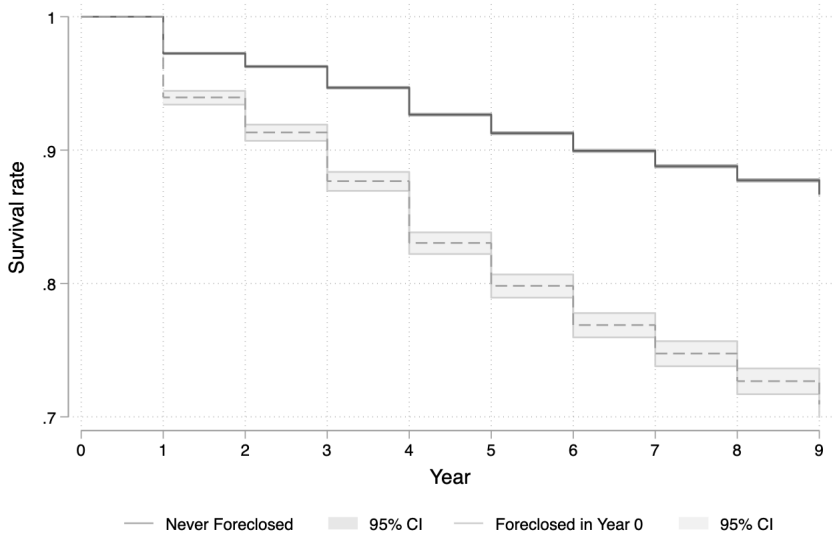


**Table 1:** Summary Statistics

Panel A of this table presents summary statistics for a 1% representative national sample of individual credit bureau records. The final sample includes approximately 2.0 million individuals, conditional on being married in the prior period, from 2011–2019. *Divorce (%)* is the annual rate of change of marital status from married to single. *Foreclosure (%)* is the percentage of individuals who experienced foreclosures in a given year. *Bankruptcy (%)* is the percentage of individuals who filed for bankruptcy in a given year. *Ch 7 Bankruptcy (%)* and *Ch 13 Bankruptcy (%)* are the percentages of individuals who filed for Chapter 7 and Chapter 13 bankruptcies, respectively, in a given year. *Bankruptcy Discharged (%)* is the percentage of individuals in bankruptcy proceedings who have received a court order releasing them from some or all of their debts. *Bankruptcy Dismissed (%)* is the percentage of individuals in bankruptcy proceedings whose cases have been dismissed by the court without discharging their outstanding debt. *Dismissal Rate (Judicial District) (%)* is the lagged number of bankruptcy cases dismissed divided by the total number of active bankruptcies in a given judicial district and year, multiplied by one hundred. *Judge Turnover* is the total number of bankruptcy judges that leave their term in a given judicial district and year. *Delinquent (%)* is the percentage of individuals who have debt that is at least 30 days delinquent in the last 12 months. *Have Debt in Collections (%)* is the percentage of individuals with debt in collections. *Non-Medical Debt in Collections ($1,000))* and *Medical Debt in Collections ($1,000)* are the balance of non-medical and medical debt in collections in thousands of dollars, conditional on having positive debt in collections. *Mover Next 3 Yrs (%)* is the percentage of individuals whose ZIP codes change at least once within the next three years. *Natural Disaster Affected Trades* is the number of trades in an individual's credit file that the credit bureau has indicated have been affected by a natural disaster. *Homeowner* is an indicator variable that equals one if the individual has an open mortgage in the last 12 months, and zero otherwise. *Estimated Income ($1,000)* is the household estimated income in thousands of dollars. *Male (%)* is the proportion of individuals whose gender is reported as male. *Age* is the individual's age. *Total Debt ($1,000)*, *Auto Debt ($1,000)*, *Credit Card Debt ($1,000)*, and *Mortgage Debt ($1,000)* are the individual's balances in each of the respective debt categories in thousands of dollars. *Poverty Rate (%)*, *County Population Density*, *Household Size*, *Percent HS Diploma (%)*, *Percent Govt. Employed (%)*, and *Percent Hh w/ Children (%)* are defined in the Variable Definitions Appendix. Panels B, C, and D present univariate differences in the means of socioeconomic and financial characteristics across groups. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Panel A: Full Sample

| | N | Mean | SD | P25 | P50 | P75 |
|---|---|---|---|---|---|---|
| Divorce (%) | 9,994,403 | 7.197 | 25.84 | 0.00 | 0.00 | 0.00 |
| Foreclosure (%) | 9,994,403 | 0.383 | 6.17 | 0.00 | 0.00 | 0.00 |
| Bankruptcy (%) | 9,994,403 | 0.459 | 6.76 | 0.00 | 0.00 | 0.00 |
| Ch 7 Bankruptcy (%) | 9,994,403 | 0.292 | 5.39 | 0.00 | 0.00 | 0.00 |
| Ch 13 Bankruptcy (%) | 9,994,403 | 0.158 | 3.97 | 0.00 | 0.00 | 0.00 |
| Bankruptcy Discharged (%) | 9,994,403 | 4.203 | 20.07 | 0.00 | 0.00 | 0.00 |
| Bankruptcy Dismissed (%) | 9,994,403 | 0.447 | 6.67 | 0.00 | 0.00 | 0.00 |
| Dismissal Rate (Judicial District) (%) | 9,984,571 | 4.806 | 2.21 | 3.18 | 4.51 | 6.21 |
| Judge Turnover | 9,361,450 | 0.317 | 0.73 | 0.00 | 0.00 | 0.00 |
| Delinquent (%) | 9,994,403 | 17.621 | 38.10 | 0.00 | 0.00 | 0.00 |
| Have Debt in Collections (%) | 9,994,403 | 23.432 | 42.36 | 0.00 | 0.00 | 0.00 |
| Non-Medical Debt in Collections ($1,000) | 1,963,250 | 2.018 | 3.79 | 0.13 | 0.65 | 2.05 |
| Medical Debt in Collections ($1,000) | 1,493,809 | 2.025 | 4.04 | 0.22 | 0.67 | 1.90 |
| Mover Next 3 Yrs (%) | 9,994,403 | 17.884 | 38.32 | 0.00 | 0.00 | 0.00 |
| Natural Disaster Affected Trades | 9,994,403 | 0.020 | 0.19 | 0.00 | 0.00 | 0.00 |
| Homeowner | 9,994,403 | 0.396 | 0.49 | 0.00 | 0.00 | 1.00 |
| Credit Score | 9,994,403 | 697.625 | 104.80 | 624.00 | 717.00 | 794.00 |
| Estimated Income ($1,000) | 9,994,403 | 96.510 | 63.68 | 54.00 | 78.00 | 115.00 |
| Male (%) | 9,994,403 | 52.215 | 49.95 | 0.00 | 100.00 | 100.00 |
| Age | 9,994,403 | 51.416 | 16.88 | 39.00 | 51.00 | 63.00 |
| Total Debt ($1,000) | 9,994,403 | 90.645 | 138.65 | 0.66 | 19.45 | 135.18 |
| Auto Debt ($1,000) | 9,994,403 | 5.926 | 11.30 | 0.00 | 0.00 | 7.77 |
| Credit Card Debt ($1,000) | 9,994,403 | 4.273 | 7.56 | 0.00 | 0.96 | 4.85 |
| Mortgage Debt ($1,000) | 9,994,403 | 73.503 | 128.55 | 0.00 | 0.00 | 111.39 |
| Poverty Rate (%) | 9,994,403 | 11.277 | 8.49 | 5.03 | 9.07 | 15.23 |
| County Population Density | 9,994,403 | 1,520.859 | 3,943.26 | 159.22 | 508.99 | 1,532.87 |
| Household Size | 9,994,403 | 2.712 | 0.46 | 2.41 | 2.65 | 2.94 |
| Percent HS Diploma (%) | 9,994,403 | 88.216 | 9.83 | 84.53 | 91.03 | 95.10 |
| Percent Govt. Employed (%) | 9,994,403 | 4.824 | 3.49 | 2.44 | 4.01 | 6.24 |
| Percent Hh w/ Children (%) | 9,994,403 | 33.596 | 10.56 | 26.80 | 32.66 | 39.72 |

*(Table 1 continued)*

Panel B: Divorce – Univariate Differences

| | (1) Non-divorced | (2) Divorced | (3) Difference |
|---|---|---|---|
| Foreclosure (%) | 0.38 | 0.46 | -0.08*** |
| Bankruptcy (%) | 0.45 | 0.57 | -0.12*** |
| Ch 7 Bankruptcy (%) | 0.28 | 0.40 | -0.11*** |
| Ch 13 Bankruptcy (%) | 0.16 | 0.16 | -0.00 |
| Bankruptcy Discharge (%) | 4.16 | 4.71 | -0.54*** |
| Bankruptcy Dismissed (%) | 0.43 | 0.63 | -0.20*** |
| Dismissal Rate (Judicial District) | 4.79 | 4.97 | -0.18*** |
| Judge Turnover | 0.31 | 0.36 | -0.05*** |
| Delinquent (%) | 16.94 | 26.35 | -9.41*** |
| Have Debt in Collections (%) | 21.85 | 43.86 | -22.01*** |
| Non-Medical Debt in Collections ($1,000) | 2.00 | 2.11 | -0.11*** |
| Medical Debt in Collections ($1,000) | 1.98 | 2.37 | -0.39*** |
| Mover(%) | 16.51 | 35.53 | -19.02*** |
| Homeowner | 0.41 | 0.17 | 0.25*** |
| Credit Score | 702.68 | 632.44 | 70.24*** |
| Estimated Income ($1,000) | 99.15 | 62.48 | 36.67*** |
| Male (%) | 52.33 | 50.75 | 1.58*** |
| Age | 52.19 | 41.47 | 10.72*** |

Panel C: Bankruptcy Filers – Univariate Differences

| | (1) Never Filers | (2) Ch 7 Filers | (3) Ch 13 Filers | (4) (2) - (3) | (5) (2) - (3) (Std. Diff.) |
|---|---|---|---|---|---|
| Credit Score | 695.86 | 562.24 | 552.75 | 9.27*** | 0.13 |
| Income ($K) | 94.17 | 68.89 | 68.47 | 0.50 | 0.01 |
| Debt/Income | 1.29 | 1.74 | 1.80 | -0.06** | 0.03 |
| Observations | 9,949,711 | 29,139 | 15,759 | 44,692 | |

Panel D: Chapter 13 Bankruptcy Outcome – Univariate Differences

| | (1) Ch 13 - Dismissed | (2) Ch 13 - Approved | (3) (2) - (1) | (4) (2) - (1) (Std. Diff.) |
|---|---|---|---|---|
| Credit Score | 543.50 | 556.47 | 12.97*** | 0.19 |
| Income ($K) | 62.28 | 70.95 | 8.67*** | 0.21 |
| Debt/Income | 1.14 | 2.06 | 0.92*** | 0.48 |
| Observations | 4,515 | 11,244 | 15,759 | |

**Table 2:** Financial Distress and Divorce

This table shows the OLS regression results based on equation (1). In this analysis, we limit our observations to individuals who are married in the prior period. The outcome variable, *Divorce (%)*, is a variable that equals one hundred if an individual's marital status changes from married to single in given year, and zero otherwise. The following independent variables of interest are lagged: *Bankruptcy*, *Delinquent*, and *High Collections (Non-Medical)*. *Foreclosure* is an indicator variable that equals one if an individual experienced a foreclosure in the last 12 months, and zero otherwise. *Bankruptcy* is an indicator variable that equals one if an individual filed for a bankruptcy in the last 12 months, and zero otherwise. *Delinquent* is an indicator variable that equals one if an individual has debt that is at least 30 days delinquent in the last 12 months, and zero otherwise. *High Collections (Non-Medical)* is an indicator variable that equals one if an individual is in the top tercile of the distribution of non-medical debt in collections, and zero otherwise. We define all variables in the Variable Definitions Appendix. Robust standard errors are adjusted for clustering at the county level and are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

| | Divorce (%) | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Foreclosure | 0.655*** | | | | 0.527*** | 0.386** |
| | (0.159) | | | | (0.159) | (0.159) |
| Bankruptcy | | -0.105 | | | -0.272** | -0.224* |
| | | (0.124) | | | (0.124) | (0.126) |
| Delinquent | | | 0.418*** | | 0.413*** | 0.342*** |
| | | | (0.035) | | (0.035) | (0.032) |
| High Collections (Non-Medical) | | | | 0.486*** | 0.465*** | 0.373*** |
| | | | | (0.066) | (0.066) | (0.064) |
| High Collections (Medical) | 0.727*** | 0.726*** | 0.725*** | 0.729*** | 0.725*** | 0.646*** |
| | (0.078) | (0.078) | (0.078) | (0.078) | (0.078) | (0.079) |
| Log(Estimated Income) | -0.044 | -0.043 | -0.026 | -0.041 | -0.026 | -0.024 |
| | (0.047) | (0.047) | (0.047) | (0.047) | (0.047) | (0.048) |
| Homeowner | -1.591*** | -1.583*** | -1.600*** | -1.580*** | -1.609*** | -1.341*** |
| | (0.043) | (0.043) | (0.043) | (0.043) | (0.043) | (0.040) |
| Poverty Rate (%) | 0.397*** | 0.397*** | 0.397*** | 0.397*** | 0.397*** | |
| | (0.009) | (0.009) | (0.009) | (0.009) | (0.009) | |
| Log(Population Density) | 3.148*** | 3.148*** | 3.147*** | 3.148*** | 3.147*** | |
| | (0.086) | (0.086) | (0.086) | (0.086) | (0.086) | |
| Household Size | -8.704*** | -8.704*** | -8.700*** | -8.702*** | -8.697*** | |
| | (0.394) | (0.394) | (0.394) | (0.394) | (0.394) | |
| Percent HS Diploma (%) | -0.089*** | -0.089*** | -0.089*** | -0.089*** | -0.089*** | |
| | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | |
| Percent Govt. Employed (%) | -0.068*** | -0.068*** | -0.068*** | -0.068*** | -0.068*** | |
| | (0.014) | (0.014) | (0.014) | (0.014) | (0.014) | |
| Percent Hh w/ Children (%) | -0.059*** | -0.059*** | -0.059*** | -0.059*** | -0.059*** | |
| | (0.009) | (0.009) | (0.009) | (0.009) | (0.009) | |
| Year FE | Yes | Yes | Yes | Yes | Yes | No |
| Individual FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Tract × Year FE | No | No | No | No | No | Yes |
| Adjusted $R^2$ | 0.259 | 0.259 | 0.259 | 0.259 | 0.259 | 0.318 |
| Observations | 9,644,096 | 9,644,096 | 9,644,096 | 9,644,096 | 9,644,096 | 9,625,209 |

**Table 3:** Chapter 7 vs. Chapter 13 Bankruptcy and Divorce

The outcome variable, *Divorce (%)*, is a variable that equals one hundred if an individual's marital status changes from married to single in given year, and zero otherwise. *Ch 7 Bankruptcy* and *Ch 13 Bankruptcy* are indicator variables that equal one if an individual filed for a Chapter 7 and Chapter 13 bankruptcy proceeding in the last 12 months, respectively, and zero otherwise. *Foreclosure* is an indicator variable that equals one if an individual experienced a foreclosure in the last 12 months, and zero otherwise. *Delinquent* is an indicator variable that equals one if an individual has debt that is at least 30 days delinquent in the last 12 months, and zero otherwise. *High Collections (Non-Medical)* is an indicator variable that equals one if an individual is in the top tercile of the distribution of non-medical debt in collections, and zero otherwise. In this analysis, we limit our observations to individuals who are married in the prior period. We define all variables in the Variable Definitions Appendix. Robust standard errors are adjusted for clustering at the county level and are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

| | Divorce (%) | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Ch 7 Bankruptcy | 0.328** | | 0.328** | 0.158 |
| | (0.167) | | (0.167) | (0.166) |
| Ch 13 Bankruptcy | | -0.265 | -0.265 | -0.400** |
| | | (0.202) | (0.202) | (0.204) |
| Foreclosure | | | | 0.533*** |
| | | | | (0.159) |
| Delinquent | | | | 0.405*** |
| | | | | (0.035) |
| High Collections (Non-Medical) | | | | 0.468*** |
| | | | | (0.066) |
| High Collections (Medical) | 0.724*** | 0.727*** | 0.725*** | 0.726*** |
| | (0.078) | (0.078) | (0.078) | (0.078) |
| Log(Estimated Income) | -0.043 | -0.043 | -0.043 | -0.025 |
| | (0.047) | (0.047) | (0.047) | (0.047) |
| Homeowner | -1.585*** | -1.581*** | -1.583*** | -1.605*** |
| | (0.043) | (0.043) | (0.043) | (0.043) |
| Poverty Rate (%) | 0.397*** | 0.397*** | 0.397*** | 0.397*** |
| | (0.009) | (0.009) | (0.009) | (0.009) |
| Log(Population Density) | 3.148*** | 3.148*** | 3.148*** | 3.147*** |
| | (0.086) | (0.086) | (0.086) | (0.086) |
| Household Size | -8.704*** | -8.704*** | -8.704*** | -8.697*** |
| | (0.394) | (0.394) | (0.394) | (0.394) |
| Percent HS Diploma (%) | -0.089*** | -0.089*** | -0.089*** | -0.089*** |
| | (0.010) | (0.010) | (0.010) | (0.010) |
| Percent Govt. Employed (%) | -0.068*** | -0.068*** | -0.068*** | -0.068*** |
| | (0.014) | (0.014) | (0.014) | (0.014) |
| Percent Hh w/ Children (%) | -0.059*** | -0.059*** | -0.059*** | -0.059*** |
| | (0.009) | (0.009) | (0.009) | (0.009) |
| Year FE | Yes | Yes | Yes | Yes |
| Individual FE | Yes | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.259 | 0.259 | 0.259 | 0.259 |
| Observations | 9,644,096 | 9,644,096 | 9,644,096 | 9,644,096 |

**Table 4:** Bankruptcy Dismissal – IV Approach

In Panel A, the outcome variable, *Divorce (%)*, is a variable that equals one hundred if an individual's marital status changes from married to single in given year, and zero otherwise. *Bankruptcy Dismissed* is an indicator variable that equals one if the bankruptcy court dismisses the individual's bankruptcy filing in a given year, and zero otherwise. In Panel B, *Bankruptcy Dismissed (%)* is a variable that equals one hundred if the bankruptcy court dismisses the individual's bankruptcy filing in a given year, and zero otherwise. *Dismissal Rate (Judicial District) (%)* is the lagged number of bankruptcy cases dismissed divided by the total number of active bankruptcies in a given judicial district and year, multiplied by one hundred. The following control variables are suppressed: *High Collections (Medical)*, *Log(Estimated Income)*, *Homeowner*, *Poverty Rate (%)*, *Log(Population Density)*, *Household Size*, *Percent HS Diploma (%)*, *Percent Govt. Employment (%)*, and *Percent Hh w/ Children (%)*. In this analysis, we limit our observations to individuals who are married in the prior period and are going through active bankruptcy proceedings. In column 4 of Panel A and columns 1 and 2 of Panel B, we further restrict the sample to individuals who have filed for Ch 13 bankruptcy in the last three years. We define all variables in the Variable Definitions Appendix. Robust standard errors are adjusted for clustering at the county level and are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Panel A: Full Sample OLS

| | Divorce (%) | | | |
|---|---|---|---|---|
| | | | | Filed Ch 13 |
| | (1) | (2) | (3) | (4) |
| Bankruptcy Dismissed | 2.343*** | 1.540*** | 1.565*** | 3.705*** |
| | (0.416) | (0.367) | (0.364) | (0.542) |
| Year FE | No | No | Yes | Yes |
| State FE | No | No | Yes | Yes |
| Controls | No | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.000 | 0.045 | 0.048 | 0.041 |
| Observations | 175,708 | 175,708 | 175,708 | 32,775 |

Panel B: IV Regression

| | Bankruptcy Dismissed (%) (1st stage) | Divorce (%) (2nd stage) |
|---|---|---|
| | Filed Ch 13 | |
| | (1) | (2) |
| Dismissal Rate (Judicial District (%)) | 0.761*** | |
| | (0.175) | |
| Bankruptcy Dismissed (%) | | 0.353** |
| | | (0.149) |
| Year FE | Yes | Yes |
| State FE | Yes | Yes |
| Controls | Yes | Yes |
| Observations | 32,771 | 32,771 |
| Cragg-Donald F-stat | | 52.910 |

**Table 5:** Movers – Chapter 7 vs. Chapter 13 Bankruptcy

*Foreclosure Next 3 Years (%)*, is a variable that equals one hundred if an individual experienced a foreclosure in the next three years, and zero otherwise. *Bankruptcy* is an indicator variable that equals one if an individual filed for bankruptcy in the last 12 months, and zero otherwise. *Ch 7 Bankruptcy* and *Ch 13 Bankruptcy* are indicator variables that equal one if an individual filed for a Chapter 7 and Chapter 13 bankruptcy in the last 12 months, respectively, and zero otherwise. In this analysis, we limit our observations to individuals who are married in the prior period. In columns 5 and 6, we restrict the sample to individuals who are also homeowners in the prior period. We define all variables in the Variable Definitions Appendix. Robust standard errors are adjusted for clustering at the county level and are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

| | Foreclosure Next Three Years (%) | | | |
|---|---|---|---|---|
| | | | Homeowners | |
| | (1) | (2) | (3) | (4) |
| Bankruptcy | -0.605*** | | -1.356*** | |
| | (0.080) | | (0.275) | |
| Ch 7 Bankruptcy | | -0.655*** | | -0.763*** |
| | | (0.070) | | (0.264) |
| Ch 13 Bankruptcy | | -0.504*** | | -2.666*** |
| | | (0.186) | | (0.662) |
| High Collections (Non-Medical) | -0.329*** | -0.329*** | -0.501*** | -0.501*** |
| | (0.035) | (0.035) | (0.134) | (0.134) |
| Log(Estimated Income) | 0.439*** | 0.439*** | 0.610*** | 0.610*** |
| | (0.023) | (0.023) | (0.042) | (0.042) |
| Homeowner | 2.241*** | 2.241*** | | |
| | (0.050) | (0.050) | | |
| Poverty Rate (%) | -0.001 | -0.001 | -0.000 | -0.000 |
| | (0.001) | (0.001) | (0.002) | (0.002) |
| Log(Population Density) | -0.012* | -0.012* | -0.016 | -0.016 |
| | (0.007) | (0.007) | (0.014) | (0.014) |
| Household Size | -0.051 | -0.051 | -0.110 | -0.110 |
| | (0.046) | (0.046) | (0.084) | (0.084) |
| Percent HS Diploma (%) | -0.003* | -0.003* | -0.000 | -0.000 |
| | (0.001) | (0.001) | (0.003) | (0.003) |
| Percent Govt. Employed (%) | 0.007*** | 0.007*** | 0.005 | 0.005 |
| | (0.002) | (0.002) | (0.004) | (0.004) |
| Percent Hh w/ Children (%) | 0.002 | 0.002 | 0.002 | 0.002 |
| | (0.002) | (0.002) | (0.003) | (0.003) |
| Year FE | Yes | Yes | Yes | Yes |
| Individual FE | Yes | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.370 | 0.370 | 0.542 | 0.542 |
| Observations | 8,330,304 | 8,330,304 | 3,422,255 | 3,422,255 |

**Table 6:** Natural Disaster – Impact on Credit Outcomes

This table shows the effects of disaster relief on credit outcomes. *Natural Disaster Assistance* is an indicator variable that equals one if the number of trades in an individual's credit file that the credit bureau has indicated have been affected by a natural disaster is greater than or equal to one, and zero otherwise. *Log(Credit Card Debt)* is the natural logarithm of an individual's total credit card balance. *Indebtedness* is an individual's estimated average debt-to-income ratio. *Ch 7 Bankruptcy (%)* and *Ch 13 Bankruptcy (%)* are variables that equal one hundred if an individual filed for a Chapter 7 and Chapter 13 bankruptcy proceeding in the last 12 months, respectively, and zero otherwise. *Foreclosure (%)* is a variable that equals one hundred if an individual experienced a foreclosure in the last 12 months, and zero otherwise. *Credit Score* is an individual's credit score. *Delinquent (%)* is a variable that equals one hundred if an individual has debt that is at least 30 days delinquent in the last 12 months, and zero otherwise. In this analysis, we limit our observations to individuals who are married in the prior period. The sample is further restricted to individuals who live in a county that experienced significant property damage (i.e., top decile in annual total property damage) from natural disasters in the last five years. We define all variables in the Variable Definitions Appendix. Robust standard errors are adjusted for clustering at the county level and are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

| | Ln(Credit Card Debt) | Indebtedness | Ch 7 Bankruptcy (%) | Ch 13 Bankruptcy (%) | Foreclosure (%) | Credit Score | Delinquent (%) |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Natural Disaster Assistance | 0.140*** | 0.042*** | 0.001 | -0.011 | -0.111*** | 2.703*** | 0.542** |
| | (0.012) | (0.007) | (0.016) | (0.017) | (0.029) | (0.252) | (0.225) |
| High Collections (Non-Medical) | -0.302*** | -0.047*** | 0.764*** | 0.191*** | -0.024 | -8.980*** | -1.015*** |
| | (0.011) | (0.003) | (0.053) | (0.022) | (0.029) | (0.222) | (0.133) |
| Log(Estimated Income) | 0.775*** | -0.174*** | 0.131*** | 0.152*** | 0.182*** | 14.808*** | 1.206*** |
| | (0.012) | (0.005) | (0.016) | (0.012) | (0.019) | (0.175) | (0.092) |
| Homeowner | 0.233*** | 0.633*** | 0.957*** | 0.458*** | 1.497*** | -2.967*** | 7.646*** |
| | (0.010) | (0.016) | (0.044) | (0.019) | (0.054) | (0.307) | (0.168) |
| Poverty Rate (%) | -0.003*** | -0.002*** | 0.000 | -0.000 | 0.002** | -0.046*** | 0.015*** |
| | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) | (0.008) | (0.005) |
| Log(Population Density) | -0.006*** | -0.022*** | -0.004 | -0.006** | 0.004 | -0.045 | 0.069** |
| | (0.002) | (0.001) | (0.004) | (0.002) | (0.005) | (0.045) | (0.031) |
| Household Size | 0.059*** | 0.066*** | -0.062** | 0.005 | -0.122*** | 1.082*** | -0.829*** |
| | (0.012) | (0.006) | (0.030) | (0.014) | (0.039) | (0.259) | (0.181) |
| Percent HS Diploma (%) | 0.003*** | 0.003*** | -0.002* | -0.000 | 0.000 | 0.007 | -0.010* |
| | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) | (0.008) | (0.006) |
| Percent Govt. Employed (%) | -0.000 | 0.000 | -0.001 | 0.001 | 0.003 | 0.027** | -0.001 |
| | (0.001) | (0.000) | (0.001) | (0.001) | (0.002) | (0.013) | (0.009) |
| Percent Hh w/ Children (%) | -0.001*** | 0.001*** | 0.002** | 0.000 | 0.003** | -0.045*** | 0.013* |
| | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) | (0.010) | (0.007) |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.756 | 0.689 | 0.006 | 0.038 | 0.110 | 0.860 | 0.421 |
| Observations | 7,199,435 | 7,199,435 | 7,199,435 | 7,199,435 | 7,199,435 | 7,199,435 | 7,199,435 |
| Y Mean | 5.260 | 0.840 | 0.300 | 0.160 | 0.390 | 699.950 | 17.550 |

**Table 7:** Natural Disaster – IV Approach

*Foreclosure (%)* is a variable that equals one hundred if an individual experienced a foreclosure in the last 12 months, and zero otherwise. *Divorce (%)*, is a variable that equals one hundred if an individual's marital status changes from married to single in given year, and zero otherwise. *Natural Disaster Assistance* is an indicator variable that equals one if the number of trades in an individual's credit file that the credit bureau has indicated have been affected by a natural disaster is greater than or equal to one, and zero otherwise. In this analysis, we limit our observations to individuals who are married in the prior period and who live in a county that experienced significant property damage (i.e., top decile in annual total property damage) from natural disasters in the last five years. Columns 1-4 present IV regression results. In columns 3 and 4, the sample is further restricted to individuals who are homeowners in the prior period. We define all variables in the Variable Definitions Appendix. Robust standard errors are adjusted for clustering at the county level and are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

| | Foreclosure (%) (1st stage) | Divorce (%) (2nd stage) | Foreclosure (%) (1st stage) | Divorce (%) (2nd stage) |
|---|---|---|---|---|
| | | | Homeowners | |
| | (1) | (2) | (3) | (4) |
| Natural Disaster Assistance | -0.220*** | | -0.238*** | |
| | (0.032) | | (0.037) | |
| Foreclosure (%) | | 1.194 | | 1.088** |
| | | (0.730) | | (0.513) |
| High Collections (Non-Medical) | -0.090*** | 0.995*** | 0.618*** | -0.102 |
| | (0.033) | (0.118) | (0.113) | (0.347) |
| Log(Estimated Income) | -0.075*** | 0.391*** | 0.011 | -0.072 |
| | (0.017) | (0.076) | (0.026) | (0.068) |
| Homeowner | 1.584*** | -3.629*** | | |
| | (0.059) | (1.152) | | |
| Poverty Rate (%) | -0.002** | 0.422*** | 0.008*** | 0.234*** |
| | (0.001) | (0.012) | (0.002) | (0.011) |
| Log(Population Density) | 0.000 | 3.135*** | 0.010 | 1.800*** |
| | (0.005) | (0.105) | (0.012) | (0.088) |
| Household Size | -0.519*** | -7.654*** | -0.379*** | -4.297*** |
| | (0.059) | (0.421) | (0.088) | (0.334) |
| Percent HS Diploma (%) | -0.012*** | -0.046*** | -0.000 | -0.066*** |
| | (0.001) | (0.013) | (0.003) | (0.012) |
| Percent Govt. Employed (%) | 0.008*** | -0.083*** | 0.001 | -0.038*** |
| | (0.002) | (0.016) | (0.003) | (0.012) |
| Percent Hh w/ Children (%) | 0.019*** | -0.105*** | 0.011*** | -0.087*** |
| | (0.002) | (0.014) | (0.003) | (0.010) |
| Individual FE | Yes | Yes | Yes | Yes |
| Observations | 7,199,435 | 7,199,435 | 2,902,439 | 2,902,439 |
| Cragg-Donald F-stat | | 103.494 | | 52.033 |

**Table 8:** Stacked-Event Panel Regressions

This table presents OLS estimates from the stacked difference-in-differences specification:

$$Y_{e,i,t} = \alpha_e + \alpha_t + \beta D_{e,i} + \sum_{\tau=-5}^{5} \mathbb{1}[t = t_e^* + \tau] + \sum_{\tau=-5}^{5} \delta_\tau \times \mathbb{1}[t = t_e^* + \tau] \times D_{e,i} + \varepsilon_{e,i,t}.$$

The outcome variable in all regressions is *Divorce (%)*, a variable that equals one hundred if an individual's marital status changes from married to single in given year, and zero otherwise. Column 1 reports estimates for foreclosure events, and column 2 reports estimates for Chapter 13 bankruptcy filings. The time indicators ($t$) represent years relative to the event, ranging from five years before ($t = -5$) to five years after ($t = 5$) the event. The coefficients (t=-5, t=-4, etc.) represent estimates of the parameters $\delta_\tau$ in the regression model, and capture the differential effect of foreclosure (column 1) and Chapter 13 bankruptcy (column 2) on the probability of divorce in that year relative to the event year (t=0). All regressions include event and year fixed effects. We define all variables in the Variable Definitions Appendix. Robust standard errors are adjusted for clustering at the county level and are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

| | Divorce (%) | |
|---|---|---|
| Event type: | Foreclosure | Chapter 13 |
| | (1) | (2) |
| Event time: | | |
| t=-5 | 0.513 | -1.056 |
| | (0.672) | (-1.204) |
| t= -4 | 0.495 | 0.181 |
| | (0.624) | (0.211) |
| t= -3 | -0.132 | 0.443 |
| | (-0.192) | (0.531) |
| t= -2 | -0.346 | -0.943 |
| | (-0.514) | (-1.214) |
| t= -1 | -0.019 | -0.686 |
| | (-0.031) | (-0.897) |
| t= 0 | 0.680 | -0.303 |
| | (1.053) | (-0.403) |
| t= 1 | 1.802*** | -0.992 |
| | (2.901) | (-1.320) |
| t= 2 | 1.357** | -1.406* |
| | (2.143) | (-1.944) |
| t= 3 | 1.092* | -1.958*** |
| | (1.767) | (-2.700) |
| t= 4 | 0.789 | -1.824** |
| | (1.308) | (-2.412) |
| t= 5 | 1.069* | -1.627** |
| | (1.772) | (-2.158) |
| Event FE | Yes | Yes |
| Year FE | Yes | Yes |
| Observations | 1,188,569 | 800,166 |
| Adjusted $R^2$ | 0.032 | 0.029 |

**Table 9:** Cox Proportional Hazard Model

This table shows the non-exponentiated coefficient estimates of a Cox proportional hazard model on the incidence of divorce based on equation (3). In column 1, the sample is constructed by limiting observations to individuals who were married at some point from 2011-2019. Each individual enters the sample during the first year the person is observed to be married. The last year of record for the individual is the earlier of (i) the year of first divorce (during 2011-2019) and(ii) the last observed year if no divorce occurs for that individual. We define failure as when a married individual experiences divorce (i.e., marital termination). In column 2, the sample is further restricted to female individuals. *Foreclosure* is an indicator variable that equals one if an individual experienced a foreclosure in the last 12 months, and zero otherwise. We define all variables in the Variable Definitions Appendix. Standard errors are adjusted for clustering at the individual level and are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

| | Full Sample | Female Only |
|---|---|---|
| | (1) | (2) |
| Foreclosure | 0.378*** | 0.392*** |
| | (0.020) | (0.031) |
| High Collections (Non-Medical) | 0.161*** | 0.184*** |
| | (0.004) | (0.007) |
| Log(Estimated Income) | -0.795*** | -0.872*** |
| | (0.003) | (0.004) |
| Homeowner | -0.367*** | -0.329*** |
| | (0.004) | (0.006) |
| Poverty Rate (%) | 0.027*** | 0.026*** |
| | (0.000) | (0.000) |
| Log(Population Density) | 0.281*** | 0.282*** |
| | (0.001) | (0.001) |
| Household Size | -0.518*** | -0.518*** |
| | (0.005) | (0.008) |
| Percent HS Diploma (%) | -0.002*** | -0.001*** |
| | (0.000) | (0.000) |
| Percent Govt. Employed (%) | 0.004*** | 0.005*** |
| | (0.000) | (0.001) |
| Percent Hh w/ Children (%) | -0.003*** | -0.002*** |
| | (0.000) | (0.000) |
| Observations | 9,494,323 | 4,168,804 |

# Online Appendix

## Till Debt Do Us Part? The Effects of Debt Relief on Household Stability

- Figure OA.1: This figure shows the natural disaster assistance flag. It displays the proportion of individuals with at least one natural-disaster-relief trade during 2011–2019.
- Table OA.1: This table reports OLS regression results on financial distress and divorce outcomes for individuals under 65. It focuses on married individuals from the prior period.
- Table OA.2: This table presents the average and standard deviation of credit score changes before and after bankruptcy events. It highlights the credit score evolution around the bankruptcy event.
- Table OA.3: This table presents the average and standard deviation of credit score changes before and after foreclosure events. It highlights the credit score evolution around the foreclosure event.
- Table OA.4: This table details national bankruptcy statistics from 2010 to 2019. It reports Chapter 7 and Chapter 13 filings along with Chapter 13 dismissals using US courts data.
- Table OA.5: This table employs an IV approach using judge turnover to analyze bankruptcy dismissals and divorce outcomes. It reports regression results with robust standard errors clustered at the county level.

**Figure OA.1:** Natural Disaster Assistance Flag

This figure shows the proportion of individuals that the credit bureau reports with at least one natural-disaster-relief trade during the sample period 2011-2019.

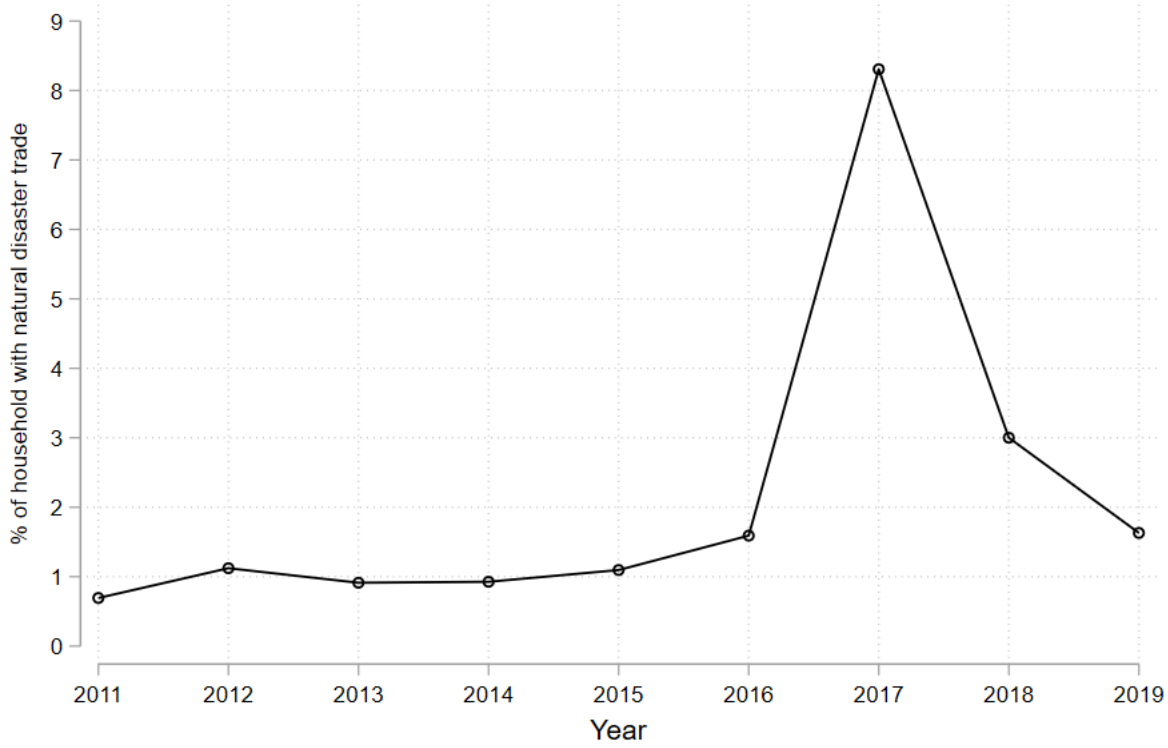


**Table OA.1:** Financial Distress and Divorce (Excluding Individuals 65 Years or Older)

This table shows the OLS regression results based on equation (1). In this analysis, we limit our observations to individuals who are married in the prior period and are younger than 65-years-old. The following independent variables of interest are lagged: *Bankruptcy*, *Delinquent*, and *High Collections (Non-Medical)*. The outcome variable, *Divorce (%)*, is a variable that equals one hundred if an individual's marital status changes from married to single in given year, and zero otherwise. *Foreclosure* is an indicator variable that equals one if an individual experienced a foreclosure in the last 12 months, and zero otherwise. *Bankruptcy* is an indicator variable that equals one if an individual filed for a bankruptcy in the last 12 months, and zero otherwise. *Delinquent* is an indicator variable that equals one if an individual has debt that is at least 30 days delinquent in the last 12 months, and zero otherwise. *High Collections (Non-Medical)* is an indicator variable that equals one if an individual is in the top tercile of the distribution of non-medical debt in collections, and zero otherwise. We define all variables in the Variable Definitions Appendix. Robust standard errors are adjusted for clustering at the county level and are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

| | Divorce (%) | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Foreclosure | 0.772*** | | | | 0.642*** | 0.471*** |
| | (0.170) | | | | (0.170) | (0.176) |
| Bankruptcy | | -0.089 | | | -0.259* | -0.191 |
| | | (0.135) | | | (0.135) | (0.140) |
| Delinquent | | | 0.448*** | | 0.441*** | 0.384*** |
| | | | (0.037) | | (0.037) | (0.037) |
| High Collections (Non-Medical) | | | | 0.484*** | 0.463*** | 0.395*** |
| | | | | (0.070) | (0.069) | (0.069) |
| High Collections (Medical) | 0.726*** | 0.725*** | 0.724*** | 0.728*** | 0.724*** | 0.618*** |
| | (0.083) | (0.083) | (0.083) | (0.083) | (0.083) | (0.088) |
| Log(Estimated Income) | -0.018 | -0.017 | 0.004 | -0.016 | 0.003 | -0.028 |
| | (0.056) | (0.056) | (0.056) | (0.056) | (0.056) | (0.058) |
| Homeowner | -1.949*** | -1.938*** | -1.960*** | -1.934*** | -1.972*** | -1.647*** |
| | (0.052) | (0.052) | (0.052) | (0.052) | (0.052) | (0.049) |
| Poverty Rate (%) | 0.451*** | 0.451*** | 0.451*** | 0.451*** | 0.451*** | |
| | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | |
| Log(Population Density) | 3.443*** | 3.443*** | 3.442*** | 3.443*** | 3.442*** | |
| | (0.092) | (0.092) | (0.092) | (0.092) | (0.092) | |
| Household Size | -9.739*** | -9.740*** | -9.735*** | -9.737*** | -9.732*** | |
| | (0.413) | (0.413) | (0.413) | (0.413) | (0.413) | |
| Percent HS Diploma (%) | -0.086*** | -0.086*** | -0.086*** | -0.086*** | -0.086*** | |
| | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) | |
| Percent Govt. Employed (%) | -0.074*** | -0.074*** | -0.074*** | -0.074*** | -0.074*** | |
| | (0.016) | (0.016) | (0.016) | (0.016) | (0.016) | |
| Percent Hh w/ Children (%) | -0.067*** | -0.067*** | -0.067*** | -0.067*** | -0.067*** | |
| | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | |
| Year FE | Yes | Yes | Yes | Yes | Yes | No |
| Individual FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Tract × Year FE | No | No | No | No | No | Yes |
| Adjusted $R^2$ | 0.253 | 0.253 | 0.254 | 0.253 | 0.254 | 0.317 |
| Observations | 7,481,022 | 7,481,022 | 7,481,022 | 7,481,022 | 7,481,022 | 7,454,134 |

**Table OA.2:** Average Credit Score Impact After a Bankruptcy Event

This table shows the average and standard deviation of the change in credit score of individuals in our credit bureau sample before and after a bankruptcy event.

| Event Time | Mean Credit Score Change | Standard Deviation |
|---|---|---|
| -4 | -2.38 | 54.1 |
| -3 | -7.22 | 57.2 |
| -2 | -13.9 | 62 |
| -1 | -23.5 | 70.6 |
| 0 | 38.5 | 83.3 |
| 1 | 21.7 | 59.4 |
| 2 | 3.64 | 51.6 |
| 3 | .327 | 49.6 |
| 4 | .341 | 48.1 |

**Table OA.3:** Average Credit Score Impact After a Foreclosure Event

This table shows the average and standard deviation of the change in credit score of individuals in our credit bureau sample before and after a foreclosure event.

| Event Time | Mean Credit Score Change | Standard Deviation |
|---|---|---|
| -4 | -2.13 | 57.1 |
| -3 | -8.09 | 59.9 |
| -2 | -13.4 | 62.7 |
| -1 | -32.4 | 70 |
| 0 | -1.49 | 69 |
| 1 | 30.5 | 56.7 |
| 2 | 19.1 | 53 |
| 3 | 8.99 | 50.6 |
| 4 | 7.03 | 51.1 |

**Table OA.4:** National Bankruptcy Statistics

This table shows the national statistics on the number of non-business bankruptcy filings under Chapter 7 and Chapter 13 and the number of Chapter 13 filings dismissed yearly in the United States bankruptcy courts for the sample period 2010-2019. The source of the data is the national bankruptcy statistics by the US courts (https://www.uscourts.gov/report-name/bankruptcy-filings).

| Year | Chapter 7 Filings | Chapter 13 Filings | Chapter 13 Dismissals | % Chapter 7 | % Chapter 13 | % Dismissals Chapter 13 |
|---|---|---|---|---|---|---|
| 2010 | 1,100,116 | 434,739 | 177,858 | 72% | 28% | 41% |
| 2011 | 958,634 | 402,454 | 185,820 | 70% | 30% | 46% |
| 2012 | 816,271 | 363,280 | 182,226 | 69% | 31% | 50% |
| 2013 | 706,499 | 330,899 | 184,165 | 68% | 32% | 56% |
| 2014 | 600,885 | 307,783 | 173,322 | 66% | 34% | 56% |
| 2015 | 519,130 | 299,515 | 162,991 | 62% | 38% | 55% |
| 2016 | 475,332 | 294,396 | 165,238 | 62% | 38% | 56% |
| 2017 | 472,190 | 292,581 | 164,417 | 62% | 38% | 56% |
| 2018 | 461,897 | 288,272 | 162,585 | 62% | 38% | 56% |
| 2019 | 465,991 | 285,201 | 159,558 | 62% | 38% | 56% |

**Table OA.5:** Bankruptcy Dismissal – IV Approach Using Judge Turnover

The outcome variable, *Bankruptcy Dismissed (%)*, is a variable that equals one hundred if the bankruptcy court dismisses the individual's bankruptcy filing in a given year, and zero otherwise. *Divorce (%)* is a variable that equals one hundred if an individual's marital status changes from married to single in given year, and zero otherwise. *Judge Turnover* is the total number of bankruptcy judges that leave their term in a given judicial district and year. The following control variables are suppressed: *High Collections (Medical)*, *Log(Estimated Income)*, *Homeowner*, *Poverty Rate (%)*, *Log(Population Density)*, *Household Size*, *Percent HS Diploma (%)*, *Percent Govt. Employment (%)*, and *Percent Hh w/ Children (%)*. In this analysis, we limit our observations to individuals who are married in the prior period, are going through active bankruptcy proceedings, and have filed for Ch 13 bankruptcy in the last three years. We define all variables in the Variable Definitions Appendix. Robust standard errors are adjusted for clustering at the county level and are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

| | Bankruptcy Dismissed (%) (1st stage) | Divorce (%) (2nd stage) |
|---|---|---|
| | Filed Ch 13 | |
| | (1) | (2) |
| Bankruptcy Dismissed (%) | | 0.699 |
| | | (1.130) |
| Judge Turnover | 0.213 | |
| | (0.226) | |
| Year FE | Yes | Yes |
| State FE | Yes | Yes |
| Controls | Yes | Yes |
| Observations | 31,234 | 31,234 |
| Cragg-Donald F-stat | | 0.652 |