

Explaining the Puzzle of Cross-State Differences in Bankruptcy Rates^{*}

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Abstract

Bankruptcy rates vary tremendously across states and it is not obvious why. Unfortunately, the number of candidate explanations is large relative to the number of states. To overcome this problem, we use zip code level data which allows us to identify the importance of demographic variables using within-state variation. This preserves state level degrees of freedom to identify the impact of state policy variables. We find that demographics, wage garnishment restrictions, and the fraction of bankruptcies filed under Chapter 13 explain about 70 percent of the variation in filing rates across states. Equalizing exemption rates, the size of public safety nets, and payday loan regulations across states would have almost no impact on the cross-state variance in filing rates. Our findings suggest that state bankruptcy rates strongly reflect the relative costs of filing for formal bankruptcy versus informal default. States without effective wage garnishment provisions allow easy informal default without the filing costs. Furthermore, repayment plans mandated under Chapter 13 bankruptcy often lead to repeated bankruptcy filings. The substitutability of bankruptcy and informal default together with the frequent failure of court-mandated repayment schemes are likely to limit the impact of bankruptcy restrictions, including the recently enacted Bankruptcy Abuse Prevention and Consumer Protection Act, on consumer default.

1. Introduction

In 1997, 1.4 million households filed for personal bankruptcy. According to estimates constructed by the WEFA Group (1998), these bankruptcies led to an estimated discharge (legalized default) of \$42 billion of consumer debt or about \$30,000 per filing household. Culhane and White (1999) find that the average Chapter 7 filing leads to a discharge of \$36,000 of debt, confirming the previous results. By comparison, in 1997 state unemployment insurance programs (UI) paid out a total of \$20.3 billion; Temporary Assistance for Need Families (TANF) distributed \$23.2 billion; and Medicaid cost state and federal governments \$160.3 billion.¹ Bankruptcy, though not as large a transfer program as Medicaid, is roughly the size of two of the highest profile government redistribution programs, TANF and UI, combined. Not only is bankruptcy an enormous transfer program, it has grown quickly; between 1990 and 2003 the rate of bankruptcy increased from 8.4 filings to 15 filings per thousand households.

Figure 1 dramatically illustrates how bankruptcy filing rates differ across even seemingly similar states. For example, over the three-year period 1999 through 2001, Tennessee experienced a bankruptcy rate of 8.12 filings per thousand individuals, while in adjacent North Carolina the rate was only 3.35. These cross-state differences in bankruptcy remain a puzzle, however, there being *no* systematic study regarding which factors explain this massive variation.²

Cross-state differences bankruptcy rates are interesting for several reasons. First, researchers are currently unaware of which demographic characteristics are sufficiently important risk factors to explain the observed differences. Second, if state policies limit access to bankruptcy, individuals in one state have systematically less access to consumption insurance than residents of another. Third, the variation in filing rates may reflect the fact that in some states it is much easier to stockpile money into assets that are exempt from seizure during bankruptcy than in others. Fourth, it may be that in states

¹ Data for TANF and UI come from the 2000 Green Book. Medicaid expenditure data come from 1997 State Health Care Expenditure Report.

² There are of course several papers which examine bankruptcies using state-level variation. See for example Buckley and Brinig (1998) and Lehnert and Maki (2005), though they examine the impact of policy changes on bankruptcy rates *within* states. Fisher (2001) uses state level panel data to identify the importance of transfer program on filing rates.

with low bankruptcy rates, individuals simply fail to pay their debts without actually filing for bankruptcy—limiting the usefulness of bankruptcy rates as a measure of default. Fifth, elevated bankruptcy rates may reflect high levels of bankruptcy dismissal and refiling, not high rates of *new* households entering the bankruptcy process.

An obvious concern for any cross-state examination of bankruptcy rates is the limited number of degrees of freedom available for such an analysis.³ Demographic variables alone could easily consume every degree of freedom available in a pure cross-state analysis. Additionally, the number of candidate explanations is sufficiently large to make identification with such a limited sample challenging. We overcome the first obstacle by using zip code level data, which offer thousands of degrees of freedom. Some information, however, varies only at the state level, including information regarding the type and size of assets that are exempt from bankruptcy liquidation, laws regarding creditor’s ability to garnish wages, the generosity of social safety nets, and state legal culture. We parsimoniously control for these factors in a way that allows us to examine their impact on state bankruptcy rates while conserving state level degrees of freedom.

Overall, our analysis suggests that cross-state differences in bankruptcy rates primarily reflect differences in garnishment restrictions, non-legislated legal institutions, and demographic factors. These factors jointly explain about 70 percent of the variance in cross-state filing rates. Our estimates imply that harmonizing across state garnishment restrictions and the fraction of bankruptcies filed under Chapter 13 would reduce the variance in filing rates by half. Other state policy variables including exemption levels, size of the public safety net, and the legality of payday lending have little impact on filing rates. Demographics also play an important role in explaining filing rates. Holding state policy variables fixed at their actual values, equalizing demographics across states would reduce the variance by about 40 percent.

These findings are relevant for understanding the consequences of the recently enacted Bankruptcy Abuse Prevention and Consumer Protection Act. This act raises the

³ A common alternative when attempting to identify specific parameters is to use panel data and flush out cross-state variation with fixed effects. Because many of the determinants of bankruptcy evolve very slowly over time, it can be very difficult to identify the coefficients of interest using panel methods. Additionally, panel methods often identify short-run responses to policy changes, which could be quite different than the more interesting (for our analysis) long-run effects.

cost of filing for all households and removes the option of Chapter 7 bankruptcies for some. Given the substitutability between bankruptcy and informal default, raising the cost of bankruptcy is likely to reduce bankruptcies but increase informal default—particularly in states that place restrictions on creditors’ ability to enforce debt repayment. Similarly, steering individuals to Chapter 13 bankruptcy instead of Chapter 7 bankruptcy, as the new law attempts to do, is unlikely to raise repayment substantially given the high failure rate of Chapter 13 filings.

Our analysis also sheds light on those demographic factors that are correlated to high levels of bankruptcy. Family structure, race, and education are all strong predictors of bankruptcy. Filing rates are most common in zip codes with many households with incomes between 30 and 60 thousand dollars, underscoring the importance of bankruptcy as consumption insurance for the middle class. Filing rates appear highest for individuals in their late twenties and lowest for individuals in their peak earning years between 30 and 49.

2. Bankruptcy in the United States

The legal basis for bankruptcy derives from the United States Constitution. Thus, many key aspects of bankruptcy law are uniform across states. Throughout the United States households have two primary options for filing for bankruptcy. They can file either under Chapter 7 or Chapter 13 of the bankruptcy code. Under Chapter 7 bankruptcy, households receive a complete discharge of most unsecured debts (exceptions include student loans and child support payments). They must, however, liquidate all of their assets in excess of predetermined personal and homestead exemption rates.⁴ These exemptions vary dramatically across states with several allowing an unlimited homestead exemption and others allowing almost no personal or homestead exemptions at all. Until October of 2005, households of any income were technically eligible to file under Chapter 7, though obvious strategic behavior was not tolerated and

⁴ A personal exemption allows individuals to retain personal property up to a predetermined value. For example, under a \$1000 personal exemption a debtor could retain a wedding ring worth \$500 as well as a washer and dryer worth \$500. A homestead exemption allows debtors to retain equity with their residence up to a maximum amount. For example, in a state with a \$40,000 homestead exemption, a household would not be forced to sell their house to payoff creditors as long as the equity in their house was below this amount.

could lead to case dismissal. Additionally, United States trustees, who represent creditor interests, may attempt to force individuals to file under Chapter 13 if it is clear that the debtors possess the ability to pay a substantial fraction of their debts. After filing a Chapter 7 bankruptcy, individuals must wait an additional six years before filing under Chapter 7 bankruptcy again. From 1999 to 2001, 70.5 percent of all personal bankruptcies were filed under Chapter 7.

Under a Chapter 13 bankruptcy, households agree to repay some of their debts according to a court ordered payment plan. In this type of bankruptcy, filing households propose a budget to the court that allows for reasonable living expenses. Filers then pay the difference between their income and budgeted living expenses to the bankruptcy court trustee (who in turn makes payments to the creditors) for a period of three to five years. At the end of this period, any remaining debts are discharged.⁵ If a filing household fails to make its court mandated payments, the bankruptcy is dismissed and the household is once again liable for all of its debts. While 28 percent of bankruptcies in 2000 were filed under Chapter 13 of the bankruptcy code, the majority were dismissed (60 percent) largely due to nonpayment on the debtor's part. Another 12 percent of the Chapter 13 filings were ultimately converted to Chapter 7 bankruptcies for the same reason. Thus Chapter 13 bankruptcies represented only 10 percent of bankruptcy *discharges*.⁶

Under both types of bankruptcy debtors receive instant relief from debt collection effects. More specifically, creditors are forbidden from contacting them once they file and any garnishments upon their earnings are immediately suspended.

The recently enacted Bankruptcy Abuse Prevention and Consumer Protection Act places additional restrictions on households' ability to file for bankruptcy. Specifically, debtors may file for Chapter 7 bankruptcy only once every eight years. Households with income above the state median (adjusting for household composition and the cost of

⁵One advantage of Chapter 13 bankruptcy is that debtors may retain secured assets yet only repay the current market value—not the full amount of the debt. Thus households whose car loan exceeds the market value of the automobile receive a benefit equal to the difference between the amount owed on the car and the amount the car is worth. Chapter 7 filers don't have this option but in some cases may redeem assets surrendered in bankruptcy by paying a lump sum equal to the current market value of the asset. This occurs only rarely, however. Under the recent bankruptcy reform, filing households who choose to retain recently purchased secured assets must repay the full amount owed on the asset—not just the value at the time of filing.

⁶The data for these numbers come from the Federal Judicial Center's Integrated Data Base Bankruptcy Petitions for 2000.

secured debt payments) are generally prohibited from filing under Chapter 7 of the bankruptcy code at all. All households must receive financial counseling before filing. Lawyers are now liable for any misrepresentation of the filer's financial situation. The law places restrictions on the size of household and personal exemptions and prevents households from switching states of residence to gain access to more generous exemptions. Jointly, these restrictions have increased the financial and bureaucratic cost of filing for bankruptcy, reduced the financial benefits for households with exempt assets, and limited the access of high income households to Chapter 7 bankruptcy. All of these changes, however, postdate the data used in our analysis.

3. Conceptual Framework

It is beyond the scope of this paper to construct a dynamic model of the financial decisions that ultimately result in personal bankruptcy. Nevertheless, outlining the individual optimization problem that leads to personal bankruptcy provides insight regarding candidate explanations for the variance in cross-state bankruptcy rates. Following Fay, Hurst, and White (2002)⁷, at any given point in time, t , a household i 's financial benefit of filing for Chapter 7 and Chapter 13 bankruptcy can be approximated by the following equations:

$$(1) \quad \textit{Benefit7}_{it} = \max \left[D_{it} - \max [W_{it} - E_{it}, 0], 0 \right] \textit{ if } \textit{Garn}_{it} = 1$$

$$(2) \quad \textit{Benefit13}_{it} = (1 - \alpha_{it}) D_{it} \textit{ if } \textit{Garn}_{it} = 1$$

$$(3) \quad \textit{Benefit7}_{it} = \textit{Benefit13}_{it} = 0 \textit{ if } \textit{Garn}_{it} = 0$$

In these equations, D_{it} indicates the value of an individual's debts (including pending finance charges and penalties), W_{it} represents assets, and E_{it} represents the value of exempt assets. \textit{Garn}_{it} indicates whether creditors are able to garnish the debtor's wages to force debt repayment⁸ and α_{it} is the fraction of debts an individual must repay if filing a Chapter 13 bankruptcy. Naturally, households could also experience a sizable utility

⁷ Other researchers have developed models of bankruptcy including White (1987), White (2005), Athreya (2002), Athreya and Simpson (2003), and Livshits, MacGee, and Tertilt (2003).

⁸ Note that this can vary even across households within the same state depending on household income.

benefit from bankruptcy, due to relief from creditor harassment for example, even if the financial benefits of bankruptcy are low.

These equations shed light on the set of factors that are likely to affect bankruptcy, conditional upon debts and assets. The financial benefit of Chapter 7 bankruptcy equals the value of debts minus the value of non-exempt assets, as long as this value is positive and debtors are at risk of wage garnishment.

The financial benefits of Chapter 13 bankruptcy depend on the parameters of the court mandated repayment plan. These generally require paying creditors all income exceeding that budgeted for necessities. This plan is most attractive relative to Chapter 7 for individuals attempting to preserve non-exempt assets or individuals who are ineligible for Chapter 7 due to a prior filing.

While filing for bankruptcy brings immediate financial benefits, bankruptcy can be quite costly as well. Individuals must bear the financial and time costs of filing. Additionally, filing for Chapter 7 bankruptcy eliminates the option of doing so again for the next several years. Bankruptcy may also have adverse impacts on the debtor's ability to borrow in the future.⁹ Bankrupt households may need to surrender cars or household goods to creditors. Finally, filing households may experience significant social and psychic costs.

The relative cost of filing for Chapter 7 versus Chapter 13 may vary across jurisdictions based on legal culture. The fraction of bankruptcies filed under Chapter 13 varies wildly from a low of 0.03 in North Dakota to a high of 0.62 in Georgia. Several pieces of evidence suggest that these differences are most plausibly attributable to legal culture. First, the ratio is very stable over time; a regression of the 1999 to 2001 ratio on the ratio in 1985 yields an r-squared of 0.76. Second, adjacent states with seemingly similar populations have very different proportions of Chapter 13 filings. For example, in Tennessee the fraction of debtors filing for Chapter 13 bankruptcy is 0.55 while the corresponding fraction in Kentucky is 0.17. The fractions in Texas and Oklahoma are 0.47 and 0.14 respectively. Second, Warren, and Westbrook (1989) show that demographic differences do not explain the variation in the fraction of bankruptcies filed

⁹ Perhaps surprisingly, filing for bankruptcy can facilitate additional borrowing in some circumstances. Filing for Chapter 7 bankruptcy both increases the debtor's ability to repay new loans and eliminates the option of complete default in the future.

under Chapter 13 across bankruptcy districts. Third, Braucher (1993) presents evidence that bankruptcy courts vary substantially in the fraction of debts they require households to repay in a Chapter 13 plan. Also, while Chapter 7 fees are market driven, bankruptcy courts regulate the maximum fee that bankruptcy lawyers can charge their Chapter 13 clients. These institutional differences, which are *not* a product of either federal or state legislation but rather the norms and expectations of bankruptcy judges and trustees, may drive the relative attractiveness and availability of Chapter 13 bankruptcy.¹⁰

The relative costs of filing for Chapter 7 and Chapter 13 could affect overall filing rates.¹¹ The cost and availability of each type of bankruptcy could determine whether marginal households file for bankruptcy at all. Another mechanism through which the relative cost of filing for Chapter 13 may affect filing rates is case dismissal. A majority of Chapter 13 bankruptcies are dismissed, leading to continued high debt levels and a high incidence of repeat filing.

If in-depth financial records were available for a large sample of both solvent and insolvent households, we could estimate a model closely linked to the individual's optimization problem. For example, we might estimate a multinomial logit in which individuals choose between filing for Chapter 7, Chapter 13, or no bankruptcy at all. Unfortunately, such data are not broadly available.¹² Additionally, debts and assets may be endogenous to exemption levels, legal culture, and garnishment restrictions. For this reason, an analysis that controls for the actual benefits of filing is likely to understate the total impact of legal factors. Instead, we will proceed with a reduced form analysis—regressing zip-code level bankruptcy rates on a set of demographic and institutional variables that proxy for the benefits and costs of filing for bankruptcy. We now outline the factors we examine in our analysis and how they relate to individual bankruptcy decisions.

¹⁰ Interestingly, Braucher (1993) presents evidence that legal regulations may affect the supply of attorneys willing to file Chapter 13 bankruptcies more than household demand for Chapter 13 bankruptcies.

Anecdotal, in jurisdictions where attorneys are well compensated for Chapter 13 bankruptcies, many are filed—even if households are required to repay a high fraction of their debts and dismissal rates are high.

¹¹ Differences in the absolute costs of bankruptcy on account of legal culture are perhaps of even greater interest. Unfortunately, we are unable to observe such differences.

¹² Fay, Hurst, and White (2002) use the Panel Study of Income Dynamics (PSID), which is insufficiently large to investigate cross-state differences in bankruptcy rates.

Laws related to wage garnishment along with exemption limits directly affect the financial benefits of bankruptcy. The generosity of public safety nets and access to credit are likely related to an individual's equilibrium debt and asset levels, D_{it} and W_{it} respectively. Demographic variables including age, education, ethnicity, unemployment, income, and housing values also likely predict unobserved debt and asset levels. They may also be correlated to either the psychic or social costs of filing. Differences in legal culture and social norms may drive the costs of bankruptcy as well as equilibrium debt and asset levels. In the next section, we describe how we construct the empirical analogs to each of these variables.

4. Data Description

Bankruptcy Data

We obtained zip-code level data on the number of bankruptcies filed between 1999 and 2001 from Lundquist Consulting. We use information from these years to ensure compatibility with the corresponding zip-code level demographic information from the 2000 Census. Our data includes information on both the number of Chapter 7 and Chapter 13 bankruptcy filings. Table 1 shows summary statistics of this zip-code level bankruptcy and demographic information. Because our analysis focuses on cross-state variation in filing rates, zip codes are weighted by their share of the state's population. This ensures that each state is equally represented. We see that on average 4.46 households per thousand file for personal bankruptcy per year. Of this number 3.28 per thousand are Chapter 7 and 1.18 are Chapter 13. The summary statistics of the demographic variables are what one would expect from a cross-section of the United States. State-by-state filing rates are reported in the first column of Table 2.

Garnishment Laws

We list state wage garnishment laws in column 3 of Table 2.¹³ For our estimation, we condense this information to a set of three categories and estimate effects with dummy variables. The first category is for those states that use the federal wage garnishment standard, allowing up to 25% of wages to be garnished, as long as wages are above a threshold level of 30 times the federal minimum wage per week. A second group consists of states that allow garnishments but add restrictions beyond those mandated by federal law. Typically this occurs by raising the threshold of wages that are protected or reducing the percentage of wages that can be garnished. The final group consists of states that either explicitly or implicitly eliminate effective wage garnishment.¹⁴ A typical implicit mechanism is to make allowances for “living expenses” which, while in principle may allow for some garnishing, sharply restricts its usefulness to creditors.

Asset Exemptions

Andreas Lehnert (see Lehnert and Maki, 2004) kindly provided information on 2000 and 1984 exemption for married homeowners. Columns 3 and 4 of Table 2 show the two parts of the exemption for each state, the personal property and the homestead exemptions for a married couple. For our analysis, we add the two columns together and split total asset exemption levels into thirds. We then control for exemption levels with two dummy variables for medium and high exemption levels. Although we used rankings based on married homeowners, results are similar if one uses data relevant for renters (who have no homestead exemption) or single filers.

Public Safety Nets

We construct a measure of the generosity of public safety nets using information from the 1998-2002 March Current Population Surveys. We do so by calculating the average size of state transfers to individuals below the poverty line. We use this measure

¹³ We obtained wage garnishment information primarily from Fair Debt Collection.com (<http://www.fair-debt-collection.com/state-wage-garnishments.html>), double checking the information with The Commercial Bar (<http://www.commercialbar.com/sumcoltn.htm>) and BCS Alliance (http://www.bcsalliance.com/y_debt_statelaws_garnishments.html) to ensure accuracy.

¹⁴ The laws we refer to are for wage garnishment of non-priority, private debts. Many states that we list as restricting wage garnishment still allow it in the case of, for example, child support payments. The high restriction states are Alaska, Florida, New Hampshire, North Carolina, Pennsylvania, South Carolina, South Dakota, Texas, and Vermont.

instead of average state transfers to all individuals to take into account that some states have more low-income households than others. For purposes of constructing this measure, we use income from food stamps, unemployment insurance, housing assistance, Medicaid (valued in dollars in the CPS data), and welfare transfers. This measure is necessarily parsimonious, though it ranks states in a sensible order. Column 5 of Table 2 shows our measure of the public safety net by state. Hawaii has the largest social safety according to this measure at \$1,990 per person below the poverty line. South Dakota has the smallest, redistributing only \$579 per person below the poverty line.

Access to Credit

Federal law stipulates that the creditor need abide only by the usury laws of the state in which the creditor resides—not the state in which the debtor lives. For this reason, credit markets are, in general, national rather than local.¹⁵ States are better able to regulate payday and title loans, which are typically issued locally and thus subject to the laws of the debtor’s state of residence.¹⁶ While such loans are typically for only a few hundred dollars, they may form a last defense against insolvency that allows debtors to mitigate income shocks and so avoid default. Alternatively, the exorbitant interest rates may themselves encourage debtors to default. From Wisconsin legislative brief #04-9 “Regulation of Payday Loan Providers” we obtained a list of restrictions by state for payday loan companies as of May 2004. In column 6 of Table 2 we indicate which states permit payday loan companies to operate.

Demographic Variables

We use demographic data from the 2000 Census. We extracted the zip code level counts using CensusCD by Geolytics. We restrict the sample to zip codes with at least

¹⁵ Though most creditors avoid regulation through state usury laws, creditors do offer less credit or worse terms to households with riskier observable characteristics, which are likely to differ across states. Similarly, creditors may also be more reluctant to lend money in states that offer generous bankruptcy exemption levels or lenient garnishment laws (See Gropp, Scholz, and White, 1997). In the cases above, however, the credit restrictions are ultimately due to demographics and state policies respectively—not differences in the competitive characteristics of the lending market. It would therefore be inappropriate to ascribe such differences in bankruptcy behavior to differences in access to credit.

¹⁶ Increasingly, payday loans are offered online, limiting the ability of state governments to regulate such loans.

300 people. From these data we construct a large number of zip code level variables. These include the fraction of households that are headed by women, headed by individuals younger than 24, own their homes, have incomes in any of eight different categories or are in any of seven categories of household size. We also calculate the fraction of individuals who are married, divorced, white, black, Hispanic, other race, unemployed, self employed, and in any of eight different age categories. We measure the fraction of individuals who have at least a high school degree, and at least a college degree. Finally, we calculate the 25th percentiles and 75th percentiles of log house value. Summary statistics for these variables are provided in Table 1.

State-level averages of business cycle and demographic variables may have an independent effect on bankruptcy filing rates. This would be true if the state's political economy, and hence bankruptcy regulation, responded to the average circumstances of the state's population. Alternatively, variation in the average economic situation of households could drive norms regarding the appropriateness of bankruptcy for debt relief. To conserve our limited number of state-level degrees of freedom, we don't address this possibility in our baseline specification. We report robustness checks, however, in which we include six state-level economic controls. We use data from the 1999, 2000, and 2001 U.S. Department of Labor Local Area Employment Statistics and the Current Population Surveys (CPS) to construct measures of the average state unemployment rate and income per person respectively. To allow for lagged effects, we construct measures of the same variables using data from 1990 to 1998. Finally, using CPS data we find the state average self-employment rate and fraction of workers in manufacturing between 1990 and 2001.

Legal Culture

Differences in legal culture are difficult to quantify. Ideally, we would have information on the specific legal norms of bankruptcy judges, trustees, and attorneys. Policies such as the degree to which trustees auction non-exempt assets, fee ceilings on Chapter 13 bankruptcy, and required repayment rates of Chapter 13 plans would reflect some of the legal institutions that could drive bankruptcy decisions. Unfortunately, such information is unavailable to us. Braucher (1993) documents, however, that such legal

institutions affect attorney incentives for filing households under Chapter 13 bankruptcy. Households typically have poor information regarding appropriate chapter choice. In jurisdictions in which courts allow high attorney fees for Chapter 13 bankruptcy, attorneys often push clients into Chapter 13, even if this is at odds with their best financial interests.¹⁷ As a proxy for those factors that drive the relative attractiveness and availability of Chapter 7 and Chapter 13 bankruptcy, we compute the fraction of bankruptcies filed under Chapter 13.¹⁸ Relative to the policy levers described above, this measure has the disadvantage that it represents an equilibrium outcome as opposed to an explicit policy variable. We discuss potential limitations of this measure later in the paper. Additionally, we show in our robustness checks that the other coefficients of interest are robust to the exclusion of this variable from our regressions. Bearing in mind these caveats, the last column of Table 2 shows this fraction for each state. As mentioned earlier, this fraction ranges from 0.03 in North Dakota to a high of 0.62 in Georgia.

Social Norms

Social norms are also inherently difficult to observe. We will be able to provide only indirect and circumstantial evidence regarding the importance of social norms. To the extent that social norms are spatially correlated across states, we might expect that region and/or division fixed effects would be significant predictors of filing rates. In our empirical examination, we will test whether this is in fact the case.

5. What Explains Personal Bankruptcy?

We analyze bankruptcy using zip code level data to take advantage of variation in demographics variables across locations within a state.¹⁹ Our primary specification is therefore:

¹⁷ See Lefgren and McIntyer (2008) for an analysis of the attorney's role in chapter selection.

¹⁸ Naturally, there are many aspects of legal culture which might affect the filing rate but not the relative attractiveness of Chapter 7 and Chapter 13 bankruptcies.

¹⁹ With this specification we assume that demographic factors have the same effect at the zip code and state levels. In other words, state average demographic values have no independent correlation with a zip code's filing rate once we've controlled for zip code level demographics. This assumption would not hold if, for example, state level demographics affected bankruptcy policy through political economy channels. We examine this possibility later in the paper.

$$(4) \quad rate_{is} = \beta_0 + Garn_s \beta_1 + Exempt_s \beta_2 + Safety_s \beta_3 + Payday_s \beta_4 + Frac13_s \beta_5 + Demo_{is} \beta_6 + \varepsilon_{is}$$

In this equation $rate_{is}$ is the bankruptcy rate in zip code i of state s . $Garn_s$, $Exempt_s$, $Safety_s$, $Payday_s$, $Frac13_s$, and $Demo_{is}$ are vectors of variables corresponding to garnishment restrictions, exemption levels, generosity of public safety net, legality of payday lending, the fraction of bankruptcies filed under Chapter 13, and zip-code level demographic variables respectively. To take into account that the residuals and policy variables are not independent within states, we cluster-correct the standard errors at the state level. Though our data are at the zip-code level, our goal is to explain state level variation; therefore we weight each zip-code by its share of its state's population. This gives each state equal weight in the regression and ensures that the average of state level residuals is zero. As we'll show later, the results are quite similar if we weight each zip-code by its population instead.

Table 3 reports the estimated coefficients. Garnishment restrictions induce a substantial reduction in bankruptcy—minor and severe restrictions reduce the filing rate by 0.75 and 1.92 bankruptcies per thousand households respectively. Given a sample average bankruptcy rate of 4.46, these translate to 17 and 42 percent reductions in bankruptcy filings. Policies that affect the attractiveness and availability of Chapter 13 relative to Chapter 7 bankruptcy also have a large impact on filing rates. A state which adjusted its legal norms such that all bankruptcies were filed under Chapter 13 would have a filing rate about 2.1 higher than a state in which all bankruptcies were filed under Chapter 7. This effect is 47 percent of the average filing rate and is consistent with the fact that many dismissed Chapter 13 bankruptcies are subsequently refiled. The coefficient may also reflect the fact that a low cost of Chapter 13 bankruptcy induces households to file under Chapter 13 that would otherwise not have filed under any chapter.²⁰

²⁰ We find this explanation unlikely. Braucher (1993) presents evidence that Chapter 13 filings are common when attorneys are well compensated for filing such bankruptcies, not when such plans are generous to debtors. This would suggest that the high bankruptcy rates in states that file a large fraction under Chapter 13 is probably not due to marginal households being brought into the bankruptcy system on account of generous Chapter 13 regulations.

The generosity of exemptions, size of the public safety net, and the legality of payday lending are all statistically and economically insignificant. The standard errors are such, however, that a 95 percent confidence interval includes effects sizes of up to 15 percent of the average filing rate.

Moving to zip-code level demographic variables, several variables are strong predictors of bankruptcy filing rates. Variables associated with higher bankruptcy rates include urban location, fraction of population that is divorced, fraction of households with 3 members, fraction black, and fraction of population between the ages of 25 and 29. College completion, high rates of self employment, and fraction of households headed by a female appear to reduce the incidence of bankruptcy. Examining the importance of household income, we find that filing rates are highest in middle class neighborhoods with household incomes between thirty and sixty thousand dollars. Perhaps surprisingly, the fraction of individuals who are unemployed has an insignificant relationship with filing rates.²¹ Interestingly, increases in the 75th percentile of housing prices are associated with *reductions* in the filing rate, while increases in the 25th percentile of housing are associated with *increases* in bankruptcy. The two coefficients are not identical, but are close enough that one cannot reject the hypothesis that across-the-board increases in housing prices have no effect on filing rates.

Comparison to Prior Work

Before examining what our results imply about the cross-state variation in bankruptcy rates, it is worth comparing our estimates with those of prior researchers. Consistent with our findings, both Dawsey and Ausubel (2004) and Fisher (2001) identify a strong relationship between garnishment restrictions and bankruptcy filing rates. To our knowledge, no prior research has documented the relationship between state legal culture and filing rates as measured by the fraction of personal bankruptcies filed under Chapter 13. There also appears to be little systematic evidence quantifying the importance of payday loan restrictions on filing rates.

²¹ In unreported robustness checks, we also found that unemployment rates at the state level are also uncorrelated to filing rates. Measures of the change in state unemployment (or GDP) also do not predict filing rates.

There is a larger literature on the relationship between asset exemptions and filing rates. Using county-level data, White (1987) finds exemption levels to be positively correlated to the bankruptcy filing rate. The precision of this estimate is likely to be substantially overstated, however, because the analysis is performed at the county level and the author does not correct the standard errors for clustering within states. Buckley and Brinig (1998) examine law changes and find little evidence of correlation. Lehnert and Maki (2005) find little cross-sectional relationship between exemption rates and filing rates but find that filing rates shift following changes in exemption levels, possibly indicating pent-up demand. Fay, Hurst, and White (2002) find that bankruptcy filings are correlated with a household's financial benefit of filing, which is related to the generosity of financial exemptions.

It is almost certainly the case that exemption levels affect the bankruptcy decisions of some households. The fraction of households who benefit from high exemption levels would appear to be small, however. To discover this, we examined filings from a random sample of 91 Chapter 7 cases filed in 2004 from the North Texas bankruptcy district, which has an unlimited housing exemption. Within this sample, in only 11 percent of bankruptcies filed (with a standard error of 3 percent) did the debtor retain more than \$30,000 in housing equity—about the median household exemption level within our sample. Only 2 of the 91 bankruptcies involved equity amounts in excess of \$100,000. Apparently, at least in this sample, the large majority of households at risk for bankruptcy have insufficient assets to be dramatically affected by exemption levels. It may be that while exemption levels are an important consideration for some households, they don't affect a sufficient number to explain much of the variation in filing rates across zip-codes and states. Analyses that use changes in exemption levels might identify short term changes in filing rates due to pent up demand of high asset filers. Also, studies using individual level data may have sufficient power to identify an impact of exemption levels on high asset households.

We find little effect of government transfer programs on household filing rates. This is at odds with two earlier studies that examine the issue. Using a panel of state level data, Fisher (2001) finds that larger government safety net programs are associated with a lower probability of bankruptcy. In his analysis, however, Fisher fails to take into

account that state level filing rates are strongly autocorrelated. This would lead to dramatically understated standard errors. Also, a number of coefficients are large and of the opposite sign as predicted by theory. His household level analysis yields insignificant results. Fisher (2005) uses PSID data and finds that, within states, households with high unemployment insurance and AFDC receipt are less likely to file than other individuals with similar income. Given income and wealth's non-linear relationship with filing rates, the findings may reflect the fact that very low income households rarely file for bankruptcy. Program recipients are also unlikely to be at risk for wage garnishment in *any* state, which also may explain the low filing rate. Due to the methodological limitations of these studies, the impact of government safety nets on bankruptcy filing rates is far from settled.

Our demographic findings are broadly similar to those uncovered in prior literature. Researchers have found that bankrupt households tend to have below median incomes, be divorced, and have children. They are more likely to be black but less likely to be Asian or Hispanic (see Sullivan, Warren, and Westbrook, 2000 and Warren and Tyagi, 2003). Controlling for income, homeowners and older families file less often than other households (see Domowitz and Sartain, 1999 and Fay, Hurst, and White, 2002).

Examining Cross-State Differences in Bankruptcy

Even given the coefficients in Table 3, it is not immediately obvious what explains the cross-state variation. A coefficient may suggest a large causal impact on bankruptcy filing rates but the regressor itself may not vary enough from state to state to explain much variation. We address this issue with a set of policy simulations which consider how much the cross-state variance in bankruptcy rates would change if we harmonized policy variables across states or equalized demographic factors.

To find the fraction of *state* level variance explained by observed policy and demographic factors, for each state we find the predicted bankruptcy rate based on our regression model. More precisely, the predicted bankruptcy rate of state *s* is given by:

$$(5) \quad \widehat{rate}_s = \hat{\beta}_0 + Garn_s \hat{\beta}_1 + Exempt_s \hat{\beta}_2 + Safety_s \hat{\beta}_3 + Payday_s \hat{\beta}_4 + Frac13_s \hat{\beta}_5 + \overline{Demo}_s \hat{\beta}_6.$$

Note that \overline{Demo}_s indicates the population-weighted average of zip code level demographic variables within state *s*. We can calculate the fraction of state level

variation in bankruptcy rates attributable to the factors in our model by dividing the variance of the predicted filing rates by the variance of actual state level filing rates— $\text{var}(\hat{rate}_s) / \text{var}(rate_s)$.²²

To determine how each individual variable contributes to the variance of state level bankruptcy rates, we perform the following thought experiment. We examine how much the variance in filing rates would decline if we were to equalize one variable across states, keeping the others at their actual values. The percentage reduction in variance is given by the following formula:

$$(6) \quad \frac{\text{var}(\hat{rate}_s^{unrestricted}) - \text{var}(\hat{rate}_s^{restricted})}{\text{var}(rate_s)},$$

where $\text{var}(\hat{rate}_s^{unrestricted})$ is the variance of the predicted filing rates calculated with the actual values of all covariates and $\text{var}(\hat{rate}_s^{restricted})$ is the variance of predicted filing rates having equalized across states the value of the variables of interest. If we were to calculate each variable's contribution to the variance in filing rates, the sum of these contributions will in general not equal the fraction of variance explained by the unrestricted predicted filing rates.²³ They do, however, answer the question of how much the variance in filing rates were to decline if we equalized a set of covariates across states.

This type of analysis is easiest to understand when the estimates reflect causal effects. Indeed, for reasons we discuss later, we believe state level policy coefficients to reflect causal impacts. This is less plausible for the demographic variables, however. For example, education and income are almost certainly correlated to unobserved

²² This is analogous to a calculation of r-squared, though the estimation is performed at a different unit of analysis than the calculation of variance. One potential limitation is that after aggregating the data to the state level, it is not guaranteed that the predicted filing rates will be orthogonal to the predicted residual. In this case, our variance decomposition would make little sense. We have checked this and the correlation between the predicted filing rates and residuals is -0.0018. Also, one might be concerned that this procedure overstates the fraction of variance explained because the coefficients are estimated, not known. In a prior version of the paper, we estimated coefficients using state level data. In these specifications, the difference between the r-squared and adjusted r-squared was between .03 and .07 depending on the specification, suggesting that this problem is likely only of minor significance.

²³ It would if the covariance between all covariates was zero.

determinants of equilibrium debt and wealth levels as well as the costs of filing for bankruptcy. Even in these cases, however, we can still perform the same calculations. We simply acknowledge that our thought experiment corresponds to one in which we are equalizing demographics across states—along with all of the unobserved individual-level characteristics that covary with them.²⁴

These results are given in Table 4. The first row reports that if the values of all independent variables were equalized across states, the variance of bankruptcy filing rates would decline by 71 percent from 2.22 to 0.65. In the subsequent rows, we examine how much the variance would decline if we harmonized the values of a subset of variables across states.

Harmonizing all policy variables, while allowing demographic factors to vary, reduces the cross-state variance in bankruptcy rates by 55 percent. This is only slightly larger than the reduction associated with harmonizing only garnishment restrictions and propensity to file under Chapter 13. When we look at the importance of the individual policy variables, holding other factors at their actual values, we see that equalizing garnishment restrictions alone would reduce the variance in filing rates by 35 percent. The corresponding figure for the fraction of bankruptcies filed under Chapter 13 is 18 percent. The other policy variables, all of which are based on statistically insignificant coefficients, contribute little to the variation in bankruptcy rates. Exemption rate changes, it should be noted, are of the opposite sign expected by theory. Note also that because the estimation is performed at the zip-code level, while the simulations are performed at the state level, it is not mechanically necessary that including any given variable in the model actually reduces the variance of the state level residuals. The small negative coefficients are probably best interpreted as being very close to zero.

Equalizing the distribution of demographic variables across states, while allowing policy variables to vary, reduces the variance in filing rates by 40 percent. In the remaining rows, we show results for subgroups of the demographic variables. Among these, family structure and race matter quite a bit; education, age, and self-employment

²⁴ Our procedure is akin to moving educated people, with their unobserved characteristics, across states to equalize their representation. It is not equivalent to changing the education of each state's population, holding fixed unobserved characteristics.

matter somewhat. Strictly financial variables, such as unemployment or income do not seem to explain differences across states.

Both policy and demographic variables play an important role in explaining cross-state differences in bankruptcy rates. Wage garnishment dramatically raises the financial benefits of personal bankruptcy. The importance of garnishment suggests that the observed variation in bankruptcy rates reflects in part choices between bankruptcy and informal default. Policies which push debtors toward Chapter 13 bankruptcy likely generate additional bankruptcy filings due to the inability of debtors to fulfill the repayment requirements of their Chapter 13 bankruptcy plan. In the context of our conceptual framework, dismissed Chapter 13 filings do not reduce the financial benefit of subsequent bankruptcy filings. Finally, demographic factors appear to be important correlates of the bankruptcy decision that also contribute significantly to variation in filing rates across states.

While these results are both plausible and interesting, there are at least two general reasons that one might be concerned with our interpretation of the findings. The first is that the standard errors might be systematically understated due to the spatial correlation of bankruptcy rates across states within the same region of the country.²⁵ The second area of concern is that the reported coefficients might not reflect causal effects but might be biased, perhaps due to omitted variables or reverse causality. For example, state legislatures may find it optimal to reduce exemption levels if the number of abusive bankruptcies is high—biasing downwards the estimated impact of exemption levels on state bankruptcy rates. Alternatively, the fraction of bankruptcies filed under Chapter 13 may be correlated to the unobserved preference of individuals to repay their debts.

Robustness Checks

To examine these issues, we perform a series of robustness checks, which are located in Tables 5a and 5b. The first columns of both tables show the results from our baseline specification. The second and third columns of Table 5a show specifications in which we control for Census region and division effects respectively. The inclusion of

²⁵ Cluster correcting the standard errors at the region level using Huber’s method would be inappropriate given the small number of clusters.

these variables has little substantive impact on the magnitude of the other coefficients, although the added imprecision does mean that some regressors are no longer significant. This finding is encouraging for two reasons. First, the fact that region and division fixed effects explain little additional cross-state variation suggest that spatially correlated heterogeneity in preferences across states is not a dominant factor in explaining cross-state differences in bankruptcy rates. Second, the fact that the point estimates on our coefficients change little with the inclusion of region fixed effects suggests that they are unlikely to be biased due to the correlation between observables and spatially correlated unobservables. In other words, the fraction of debtors filing under Chapter 13 does not simply reflect some unobserved propensity to file for bankruptcy in the South.

In the next set of robustness checks, we examine the possibility that the coefficient on the fraction of debtors filing under Chapter 13 is biased. We might be concerned regarding the possibility of such bias for four reasons. First, a high fraction of bankruptcies filed under Chapter 13 might reflect an unobserved preference for debt repayment in that state. If this were true, however, we would expect that the observed coefficient would be biased downwards. In other words, in states with a strong ethic of debt repayment we would expect to see a higher fraction of Chapter 13 bankruptcies but *fewer* filings overall—the opposite of what we observe. Additionally, to the extent that such preferences for repayment are spatially correlated, the coefficient on fraction Chapter 13 should have changed with the inclusion of region or division fixed effects. Second, one might be concerned that since fraction Chapter 13 is constructed using our dependent variable in the denominator, there might be some mechanical bias. Such concerns are often warranted when there exists measurement error in the dependent variable. To the extent that our bankruptcy rates are constructed using a census of filings, it seems implausible that measurement error would pose a problem. Third, fraction Chapter 13 is correlated to state-level demographics. Any correlation between fraction Chapter 13 and demographic variables could be worrisome if there were additional important demographic variables for which we didn't control. This seems implausible in light of the comprehensive set of covariates that were used in our analysis. Furthermore, the robustness of the results to the inclusion of region and state fixed effects argues against the importance of omitted demographics, which would almost certainly be

spatially correlated. Finally, the fraction of the bankruptcies filed under Chapter 13 represents an equilibrium outcome. To the extent that unobserved factors that drive bankruptcy rates have a larger effect on the incidence of Chapter 13 bankruptcy than Chapter 7 bankruptcy, our estimated coefficient will be biased. This explanation seems unlikely given the strong persistence of fraction Chapter 13 over time—even in the face of rapidly escalating bankruptcy rates. Indeed, the correlation between the fraction Chapter 13 in 2000 and 1985 is 0.87.

Despite our belief that the coefficient on fraction Chapter 13 is plausibly unbiased in our preferred specifications, it is still important to examine the robustness of our findings to the inclusion of this variable and to deal with any potential bias. In column 4 of Table 5a, we drop fraction Chapter 13 from the specification. The other coefficients are generally unaffected. In column 5 of Table 5a, we instrument fraction Chapter 13 with the fraction of bankruptcies filed under Chapter 13 in 1985, a time when the bankruptcy rate was much lower. Although this specification does not resolve all concerns about using fraction Chapter 13 as a proxy for legal culture, it is useful in that it avoids any possible bias from including as an explanatory variable a function of the dependent variable. Additionally, it plausibly takes advantage of variation that is attributable to long-term differences in legal culture, not short-term fluctuations possibly attributable to the massive upward trend in bankruptcy filings. The strong correlation between the fraction Chapter 13 in 2000 and 1985 suggests that the large majority of variation is persistent, not transitory. This is true despite the important changes in credit availability, bankruptcy levels, and employment compositions. Given the power in the first stage, it is unsurprising that instrumenting fraction Chapter 13 yields point estimates that are virtually identical to our baseline specification, though the added imprecision does mean that the coefficient is no longer statistically significant.

Next, we investigate the robustness of our finding that exemptions levels have *no* impact on cross-state bankruptcies. This finding is surprising as theory suggests that high exemption levels would provide a strong incentive for strategic filing and because some prior evidence suggests that the exemption levels are an important determinant of the bankruptcy rate (see White, 1987 and Lehnert and Maki, 2005). If the lack of significance of the exemption variables was due to spatially correlated omitted variables

(perhaps preferences for default), controlling for region or division fixed effects might be expected to change the observed coefficients. In columns 2 and 3, however, we see that this is not the case. Alternatively, one might be concerned that the lack of relationship reflected possible endogeneity in which states restricted exemptions in response to high bankruptcy rates—biasing downwards the observed relationship. This is inconsistent, however, with the finding of Hynes, Malani, and Posner (2004) who find that exemption rates tend to change very little over time and reflect institutions established long ago. Indeed, column 6 shows that instrumenting the current high exemption category with the category in 1984 yields estimates that are substantively the same.²⁶ This suggests that the findings are unbiased due to changes in exemption laws that have occurred in response to recent increases in filing behavior.

Given that Fisher (2001, 2005) has found a role for government transfer programs in predicting bankruptcy, whereas we find no effect, we try an alternate specification for our “safety net” variable. Column 2 of Table 5b uses a log measure of the average size of UI payments for those receiving them, and the log of average payments for those receiving any form of cash public assistance (typically TANF) payments. Thus this measures generosity per recipient, rather than average payments per capita. Neither coefficient is statistically significant, although the standard errors are large enough that one can’t rule out a small role for such programs.²⁷

Concerned that state-level averages of demographic variables may be correlated to both bankruptcy rates and our policy variables, we control for average state unemployment rate and income per person between 1999 and 2001. To allow for lagged effects, we control for these measures using data from 1990 to 1998. We also control for the state average self-employment rate and fraction of workers in manufacturing between 1990 and 2001. Column 3 of Table 5b shows these results. The relevant policy coefficients are essentially unchanged while the statistical precision drops slightly. The state-level average variables are jointly and individually insignificant.

²⁶ Here we have simplified the specification by excluding the medium exemption group. While past values provided strong predictive power for the high exemption group, the medium exemption group was predicted poorly. Thus the two variables could not be separately identified in the instrumental variables regression.

²⁷ The coefficients also fail a test of joint significance.

In column 4 we re-weight the regression to use zip-code population weights. Column 5 drops all zip-code level variables and uses just the listed state policy variables as regressors. In both cases, the substantive results are unaffected, although the coefficient on fraction Chapter 13 filings is substantially higher in column 5.

6. Conclusion

It appears that harmonizing garnishment laws alone would reduce the cross-state variance in filing rates by a third. This suggests one must think about default more broadly than in terms of formal bankruptcy. To the extent that the legal system places little pressure on delinquent debtors, many individuals may default on their debts without filing for bankruptcy (a point also made by Dawsey and Ausubel, 2004). Indeed, comparisons of bankruptcy rates across any two states may be *largely uninformative* regarding the rate of default if their policies regarding garnishment are not the same.

Another important predictor of state level bankruptcy filing rates is the fraction of bankruptcies filed under Chapter 13 of the bankruptcy code. This fraction is extremely stable over time, plausibly suggesting that it represents the legal culture of the attorneys and bankruptcy courts in the state. Chapter 13 bankruptcies require filers to repay a fraction of their debts. Since debtors are usually unable to comply with the terms of their repayment plan, the majority of such bankruptcies are dismissed. Debtors whose bankruptcies are dismissed often file again, increasing the total number of bankruptcy filings. Thus legal institutions also play an important role in understanding the variation across states in observed bankruptcy rates.

Demographics also matter. Family structure, race, and education are all strong predictors of bankruptcy. Filing rates are most common in zip codes with many households with incomes between 30 and 60 thousand dollars, underscoring the importance of bankruptcy as consumption insurance for the middle class. Filing rates appear highest for individuals in their late twenties and lowest for individuals in their peak earning years between 30 and 49. If demographic factors were equalized across states, holding policy variables fixed, the variation in filing rates would decline by about 40 percent.

Note what does *not* appear to matter; exemption rates, the size of the public safety net, and the legality of payday lending all are incapable of explaining practically *any* of the variation in filing rates across states. The exemption rate finding is particularly surprising, though it appears quite robust. Exploratory research on individual filings suggests that only a small fraction of bankruptcies involve substantial exempt assets.

There is also little evidence that the variation in bankruptcy rates is driven by spatially correlated unobservables. Census region fixed effects are statistically insignificant. Division fixed effects are jointly significant but explain little additional variation in filing rates and have little impact on policy variable coefficients. To the extent we expect that attitudes toward debt, money management skills, and preference for default (beyond those proxied by demographic factors) would be spatially correlated, there is little evidence that such factors are an important determinant of bankruptcy.

Overall, our findings suggest that cross-state comparisons of bankruptcy are largely meaningless for understanding differences in default behavior or social preferences for default. Filing rates reflect in large part the relative costs of formal and informal default and legal institutions that drive the rate of refiling. Because informal default remains an alternative to bankruptcy and mandated repayment plans often fail, the recently enacted Bankruptcy Abuse Prevention and Consumer Protection Act is likely to affect the rate of bankruptcy filing much more than the rate of default.

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Table 1: Zip-Code Level Summary Statistics

<i>Variable</i>	<i>Mean (Std. Deviation)</i>	<i>Variable</i>	<i>Mean (Std. Deviation)</i>
Bankruptcy Filings per 1000 Residents	4.46 (2.52)	Age 6 to 18	0.19 (0.04)
Chapter 7 Filings per 1000 Residents	3.28 (1.56)	Age 19 to 24	0.08 (0.05)
Chapter 13 Filings per 1000 Residents	1.18 (1.66)	Age 25 to 29	0.07 (0.02)
		Age 30 to 39	0.15 (0.03)
Urban Zip Code	0.73 (0.35)	Age 40 to 49	0.15 (0.02)
Married	0.61 (0.11)	Age 50 to 59	0.11 (0.02)
Divorced	0.11 (0.03)	Age Greater than 59	0.16 (0.06)
Household Size of 2	0.33 (0.05)	Unemployed	0.04 (0.02)
Household Size of 3	0.17 (0.03)	Self-employed	0.13 (0.06)
Household Size of 4	0.14 (0.04)	Household Income Less than \$10,000	0.10 (0.06)
Household Size of 5	0.07 (0.02)	Household Income \$10,001 to \$20,000	0.13 (0.05)
Household Size of 6	0.03 (0.02)	Household Income \$20,001 to \$30,000	0.13 (0.04)
Household Size of more than 6	0.02 (0.02)	Household Income \$30,001 to \$40,000	0.13 (0.03)
Female Household Head	0.17 (0.10)	Household Income \$40,001 to \$50,000	0.11 (0.02)
Household Head 24 or Younger	0.04 (0.03)	Household Income \$50,001 to \$60,000	0.09 (0.02)
Completed High School	0.72 (0.11)	Household Income \$60,001 to \$75,000	0.10 (0.03)
Completed College	0.21 (0.13)	Household Income \$75,001 to \$100,000	0.10 (0.05)
White	0.75 (0.26)	Household Income Greater than \$100,000	0.12 (0.11)
Black	0.11 (0.19)	Fraction Homeowners	0.52 (0.16)
Hispanic	0.08 (0.13)	25 th Percentile of Log Housing Value	11.32 (0.56)
Other Race	0.07 (0.12)	75 th Percentile of Log Housing Value	11.90 (0.50)
Age Below 6	0.08 (0.02)	Observations	27,942

Table 2: Variation in State Level Bankruptcy Rates and Financial Regulations

State	Personal Bankruptcy Rate	Garnishment Restrictions	Married Personal Exemption	Married Homestead Exemption	Mean Size of Public Safety Net	Pay Day Lending Is Legal	Fraction Filed Under Chapter 13
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
United States (Medians)	4.19	-	\$27,400	\$33,000	\$946	-	0.19
Alabama	7.42	Federal	\$21,000	\$10,000	\$920	Yes	0.58
Alaska	1.81	\$602.50/wk	\$22,400	\$108,000	\$1,211	No	0.10
Arizona	4.08	Federal	\$15,000	\$100,000	\$917	Yes	0.19
Arkansas	6.55	Federal	\$29,150	\$2,500	\$899	Yes	0.42
California	4.39	Federal	\$43,800	\$75,000	\$1,325	Yes	0.20
Colorado	3.73	Federal	\$10,500	\$60,000	\$585	Yes	0.15
Connecticut	3.16	\$206/wk	\$74,000	\$32,300	\$864	No	0.13
Delaware	3.20	85% of D.I.	\$25,150	\$0	\$1,137	Yes	0.34
District of Columbia	4.19	Federal	\$29,500	\$32,300	\$1,528	Yes	0.32
Florida	4.57	100% of D.I.	\$4,000	unlimited	\$645	Yes	0.28
Georgia	7.38	Federal	\$12,400	\$10,000	\$847	No	0.62
Hawaii	3.97	80% of D.I.	\$53,150	\$30,000	\$1,990	Yes	0.10
Idaho	5.22	Federal	\$22,600	\$50,000	\$692	Yes	0.18
Illinois	5.15	85% of D.I.	\$7,900	\$15,000	\$1,242	Yes	0.28
Indiana	6.58	Federal	\$8,000	\$15,000	\$748	Yes	0.19
Iowa	2.97	\$206/wk	\$36,200	unlimited	\$1,041	Yes	0.06
Kansas	4.36	Federal	\$92,000	unlimited	\$688	Yes	0.19
Kentucky	5.36	Federal	\$17,600	\$10,000	\$1,124	Yes	0.17
Louisiana	5.01	Federal	\$96,000	\$30,000	\$824	Yes	0.42
Maine	3.08	\$226/wk	\$37,300	\$12,500	\$1,048	No	0.07
Maryland	5.91	Federal	\$17,000	\$0	\$443	No	0.31
Massachusetts	2.54	Federal	\$29,500	\$100,000	\$1,452	No	0.14
Michigan	3.95	\$206/wk	\$29,500	\$32,300	\$1,207	No	0.28
Minnesota	3.25	\$206/wk	\$63,100	\$400,000	\$1,108	Yes	0.20

Mississippi	6.81	Federal	\$20,500	\$150,000	\$769	Yes	0.41
Missouri	4.83	90% of D.I.	\$9,800	\$16,000	\$1,060	Yes	0.28
Montana	3.35	Federal	\$20,000	\$120,000	\$819	Yes	0.13
Nebraska	3.44	85% of D.I.	\$17,800	\$12,500	\$856	Yes	0.15
Nevada	7.15	Federal	\$27,000	\$250,000	\$679	Yes	0.27
New Hampshire	2.86	\$257/wk (a)	\$29,600	\$60,000	\$1,123	Yes	0.08
New Jersey	4.45	90% of D.I.	\$29,500	\$32,300	\$1,216	No	0.35
New Mexico	3.86	\$206/wk	\$52,500	\$60,000	\$1,016	Yes	0.14
New York	3.23	90% of D.I.	\$16,000	\$20,000	\$1,599	No	0.19
North Carolina	3.35	75% of D.I. (b)	\$12,500	\$20,000	\$682	Yes	0.57
North Dakota	3.14	\$206/wk	\$12,400	\$160,000	\$1,061	Yes	0.03
Ohio	5.15	Federal	\$8,100	\$10,000	\$1,409	Yes	0.20
Oklahoma	5.69	Federal	\$52,000	unlimited	\$809	Yes	0.14
Oregon	5.50	\$206/wk	\$42,000	\$33,000	\$894	Yes	0.15
Pennsylvania	3.60	100% of D.I.	\$29,500	\$32,300	\$1,348	Yes	0.29
Rhode Island	4.26	Federal	\$29,500	\$200,000	\$1,880	Yes	0.07
South Carolina	3.96	100% of D.I.	\$19,900	\$5,000	\$934	Yes	0.53
South Dakota	3.01	80% of D.I. (b)	\$8,400	unlimited	\$579	Yes	0.04
Tennessee	8.12	Federal	\$21,800	\$7,500	\$1,051	Yes	0.55
Texas	3.00	100% of D.I.	\$60,000	unlimited	\$829	Yes	0.47
Utah	7.05	6 Month Limit	\$16,000	\$40,000	\$955	Yes	0.38
Vermont	2.49	85% of D.I. (b)	\$29,500	\$150,000	\$1,501	No	0.10
Virginia	5.20	Federal	\$44,000	\$10,000	\$626	Yes	0.25
Washington	5.40	\$294/wk	\$29,500	\$80,000	\$1,049	Yes	0.21
West Virginia	4.19	80% of D.I.	\$27,400	\$10,000	\$946	No	0.05
Wisconsin	3.49	80% of D.I.	\$29,500	\$80,000	\$677	Yes	0.15
Wyoming	4.08	Federal	\$29,800	\$20,000	\$663	Yes	0.06

Notes for Table 2: D.I. represents disposable income. (a) Garnishments are only effective for one paycheck at which point a new lawsuit must be filed. (b) "Living expenses" are exempt.

Table 3: Determinants of Bankruptcy Filing Rates

<i>Variable</i>	<i>Coefficient</i>	<i>Variable</i>	<i>Coefficient</i>
Mild Garnishment Restrictions	-0.75** (0.30)	Age Below 6	2.86 (4.10)
Severe Garnishment Restrictions	-1.92** (0.37)	Age 6 to 18	-1.93 (3.13)
Fraction of State Bankruptcies Filed Under Chapter 13	2.11** (0.94)	Age 19 to 24	-1.73 (1.25)
Medium Exemptions	-0.10 (0.40)	Age 25 to 29	11.16** (4.09)
High Exemptions	-0.24 (0.32)	Age 30 to 39	-6.95** (2.44)
Log Size of Public Safety Net	0.03 (0.35)	Age 40 to 49	-3.43 (2.19)
Payday Lending is Legal	0.12 (0.27)	Age 50 to 59	1.81 (2.31)
		Unemployed	1.48 (3.54)
Urban Zip Code	0.80** (0.23)	Self-employed	-2.68** (1.31)
Married	0.24 (1.58)	Household Income \$10,000 and Under	-3.82 (2.63)
Divorced	25.29** (3.55)	Household Income \$10,001-\$20,000	-1.32 (2.52)
Household Size of 2	-1.47 (1.88)	Household Income \$20,001-\$30,000	-2.64 (1.79)
Household Size of 3	7.43** (1.99)	Household Income \$30,001-\$40,000	2.30 (1.90)
Household Size of 4	0.97 (2.28)	Household Income \$40,001-\$50,000	5.08** (1.94)
Household Size of 5	1.22 (2.68)	Household Income \$50,001-\$60,000	3.41** (1.70)
Household Size of 6	5.08 (3.11)	Household Income \$60,001-\$75,000	0.52 (1.80)
Household Size of more than 6	1.04 (3.79)	Household Income \$75,001-\$100,000	-4.95** (1.65)
Female Household Head	-3.50* (1.54)	Fraction Homeowners	0.75 (0.50)
Household Head 24 or Younger	-0.21 (2.09)	25 th Percentile of Log Housing Value	0.65** (0.29)
Completed High School	1.83 (1.37)	75 th Percentile of Log Housing Value	-0.98** (0.31)
Completed College	-5.54** (1.15)	Constant	5.17 (4.47)
Black	4.33** (0.87)		
Hispanic	-0.86 (0.68)		
Other Race	-0.10 (0.77)	Observations	27,942
		R-Squared	0.56

Notes: The coefficients come from a regression of bankruptcies per 1,000 households on the listed variables. The standard errors are cluster-corrected at the state level and are shown in parentheses. */** indicates that the coefficient is statistically significant at the 10/5 percent level. See text for weighting.

Table 4: How Much Would Cross-State Variance in Filing Rates Decline if Policy and Demographic Factors Were Equalized?

Variables Equalized Across States	Residual Variation	Percent Reduction In Variance
All Variables	0.65	70.8
All State Policy Variables	1.00	54.9
Garnishment Restrictions	1.45	34.5
Fraction of Bankruptcies Filed Under Chapter 13	1.82	18.1
Exemption Levels	2.11	4.7
Size of Public Safety Net	2.22	-0.3
Payday Lending	2.19	1.4
Both Garnishment and Fraction 13 Filings	1.07	51.7
All Demographics	1.34	39.7
Family Structure	1.99	10.4
Education	2.11	5.0
Race	2.01	9.5
Age	2.09	5.8
Unemployment	2.22	0.1
Self Employment	2.14	3.6
Income and Wealth	2.26	-2.1

Notes: The table shows the estimated reduction in variance associated with holding the listed variables constant. These results are obtained using the estimated coefficients in Table 3, which are obtained using zip-code level data. Because the simulations are performed at a different level than the estimation, it is not necessary that all variables reduce residual variation at the state-level.

Table 5a: Robustness Checks

	<i>Baseline</i>	<i>Controlling for Region Fixed Effects</i>	<i>Controlling for Division Fixed Effects</i>	<i>Omitting Fraction 13</i>	<i>Instrument Fraction 13 with 1985 Values</i>	<i>Instrument High Exemptions with 1984 Values</i>
<i>Explanatory Variable</i>	(1)	(2)	(3)	(4)	(5)	(6)
Mild Garnishment Restrictions	-0.75** (0.30)	-0.63 (0.39)	-0.77** (0.33)	-0.82** (0.31)	-0.75** (0.30)	-0.68** (0.31)
Severe Garnishment Restrictions	-1.92** (0.37)	-1.97** (0.39)	-2.00** (0.38)	-1.82** (0.34)	-1.91** (0.36)	-1.95** (0.36)
Fraction of Bankruptcies Filed Under Chapter 13	2.11** (0.93)	2.45** (1.02)	2.03 (1.21)	--	2.03 (1.24)	2.45** (0.88)
Medium Exemptions	-0.10 (0.20)	-0.30 (0.45)	-0.26 (0.39)	-0.35 (0.36)	-0.10 (0.41)	--
High Exemptions	-.24 (0.32)	-0.35 (0.34)	-0.39 (0.31)	-0.56* (0.29)	-0.25 (0.34)	0.06 (0.31)
Log Size of Public Safety Net	0.03 (0.35)	-0.27 (0.39)	-0.69 (0.40)	0.01 (0.34)	0.03 (0.35)	0.02 (0.35)
Payday Lending is Legal	0.12 (0.27)	0.30 (0.32)	0.24 (0.39)	0.12 (0.29)	0.12 (0.27)	0.14 (0.28)
Zip Code level Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Census Region Dummies	No	Yes	No	No	No	No
Census Division Dummies	No	No	Yes	No	No	No
Instrumenting Fraction 13	No	No	No	No	Yes	No
Instrumenting Exemptions	No	No	No	No	No	Yes
F-Test for Region/Division Fixed Effects [p-value]	--	1.22 [0.31]	2.21 [0.04]	--	--	--
F-Statistic of Instruments in First Stage [p-value]	--	--	--	--	109 [0.00]	44 [0.00]
Fraction State Variance Explained	0.71	0.72	0.77	0.69	0.71	0.70

Notes: The coefficients are obtained by a regression of the state level Chapter 7 bankruptcy rate on the listed covariates. Cluster-corrected standard errors are reported in parentheses. Except as otherwise noted, the control variables are the same as those listed in Table 3.

Table 5b: Robustness Checks Continued

	<i>Baseline</i>	<i>Alternate Measures of Public Safety Net</i>	<i>State-Average Demographic Controls</i>	<i>Population Weights</i>	<i>No Zip-Code Variables</i>
<i>Explanatory Variable</i>	(1)	(2)	(3)	(4)	(5)
Mild Garnishment Restrictions	-0.75** (0.30)	-0.68** (0.29)	-0.90** (0.30)	-0.74** (0.26)	-0.97** (0.306)
Severe Garnishment Restrictions	-1.92** (0.37)	-1.92** (0.34)	-2.04** (0.35)	-2.12** (0.38)	-2.19** (0.40)
Fraction of Bankruptcies Filed Under Chapter 13	2.11** (0.93)	1.96** (0.94)	2.19** (0.97)	2.58** (1.03)	3.71** (0.99)
Medium Exemptions	-0.10 (0.20)	-0.04 (0.39)	-0.01 (0.35)	-0.19 (0.36)	-0.31 (0.36)
High Exemptions	-.24 (0.32)	-0.12 (0.33)	-0.15 (0.30)	-0.42 (0.31)	-0.55 (0.39)
Log Size of Public Safety Net	0.03 (0.35)	--	0.04 (0.43)	0.07 (0.38)	-0.43 (0.37)
Payday Lending is Legal	0.12 (0.27)	0.11 (0.28)	-0.11 (0.32)	0.39 (0.27)	0.34 (0.25)
Log Average UI Payment	--	0.87 (0.58)	--	--	--
Log Average Public Assistance Payment	--	-0.78 (0.56)	--	--	--
Zip Code level Demographics	Yes	Yes	Yes	Yes	No
State-Average Demographics	No	No	Yes	No	No
F-Test for State-Average Demographics [p-value]	--	--	0.88 [0.513]	--	--
Fraction State Variance Explained	0.71	0.72	0.74	0.66	0.64

Notes: The coefficients are obtained by a regression of the state level Chapter 7 bankruptcy rate on the listed covariates. Cluster-corrected standard errors are reported in parentheses. Except as otherwise noted, the control variables are the same as those listed in Table 3.

