

1990

# Rehabilitation or Liquidation: Consumers' Choices in Bankruptcy

A Charlene Sullivan

*Purdue University*

Debra Worden

*George Fox University, [dworden@georgefox.edu](mailto:dworden@georgefox.edu)*

Follow this and additional works at: <http://digitalcommons.georgefox.edu/gfsb>



Part of the [Business Commons](#)

---

## Recommended Citation

Sullivan, A Charlene and Worden, Debra, "Rehabilitation or Liquidation: Consumers' Choices in Bankruptcy" (1990). *Faculty Publications School of Business*. Paper 38.

<http://digitalcommons.georgefox.edu/gfsb/38>

This Article is brought to you for free and open access by the School of Business at Digital Commons @ George Fox University. It has been accepted for inclusion in Faculty Publications School of Business by an authorized administrator of Digital Commons @ George Fox University. For more information, please contact [arolfe@georgefox.edu](mailto:arolfe@georgefox.edu).

## Rehabilitation or Liquidation: Consumers' Choices in Bankruptcy

---

The purpose of this analysis is to identify the legal, environmental, and economic characteristics of debtors that are predictive of their Bankruptcy Code choices. The probability that debtors file under the rehabilitation procedure provided by the Bankruptcy Code (Chapter 13) is influenced by the availability of credit counseling as an alternative to bankruptcy and by the adverse effects of a liquidation bankruptcy (Chapter 7) on future ability to qualify for consumer and mortgage credit. More generous state laws protecting debtors' assets from liquidation in Chapter 7 have a negative effect on the probability that a debtor will contract to repay some debts out of future income in Chapter 13. The results also suggest that the enactment of the Bankruptcy Amendments and Federal Judgeship Act of 1984, which restricted Chapter 13 plans providing zero repayment of unsecured debts, precipitated a decline in the probability that nonbusiness debtors would choose the rehabilitation alternative.

---

The purpose of the Bankruptcy Code is to establish procedures by which debtors may resolve, in an orderly and equitable fashion, problems associated with insolvency or their inability to repay debts out of income. A major revision in the Bankruptcy Code enacted in 1979 and subsequent amendments significantly changed administrative procedures associated with chapters of the code pertaining to nonbusiness debtors. The purpose of this paper is to identify the legal, environmental, and economic factors that influence the relative benefits and costs of rehabilitation versus straight bankruptcy. A model of the determinants of nonbusiness debtors' choices is empirically estimated based on the cross-state variation in the probability that debtors in bankruptcy filed petitions under Chapter 13 of the code.

The change in the availability of Chapter 13 provided by the Bankruptcy Reform Act of 1978 had a noticeable positive influence on the average probability that a petitioner would choose that route to debt

relief. But the changes in procedures for Chapter 13 provided by the Bankruptcy Amendments and Federal Judgeship Act of 1984 had an offsetting negative effect on the general probability that a petitioner would choose Chapter 13. Before the Bankruptcy Reform Act was enacted, about 25 percent of nonbusiness petitions for bankruptcy were filed under Chapter 13. Between 1980 and 1983, the proportion of petitions filed under Chapter 13 climbed from 25 percent to 31 percent. By 1988, the proportion had declined, and approximately 27 percent of nonbusiness petitions were filed under Chapter 13.

In addition to the above observation that the overall average proportion of nonbusiness bankruptcy petitions filed under Chapter 13 appears logically correlated with changes in the Federal bankruptcy law in the last ten years, considerable cross-state variation exists in the statistic. In the 12 month period ending June 1986, the proportion of total nonbusiness petitions filed under Chapter 13 varied from 3 percent to 69 percent across the fifty states and the District of Columbia.

Recent studies have analyzed the causes, costs, benefits, and processes of bankruptcy (American Bankruptcy Institute 1987; Johnson *et al.* 1982; Sullivan 1982) and the effects of changes in the law on overall trends in bankruptcy (Shephard 1984a; Shephard 1984b; Shiers and Williamson 1984; White 1987-1988). There has been some analysis of the economic circumstances of debtors who choose Chapter 7 versus those who choose Chapter 13 (Sullivan and Drecnik 1984), and there is ongoing debate concerning the optimal bankruptcy legislation.

Interest in the determinants of debtors' choices in bankruptcy is based on the need to understand further the economic incentives associated with nonbusiness bankruptcy. There is evidence that unsecured creditors recover a higher percentage of claims in a Chapter 13 procedure relative to Chapter 7.<sup>1</sup> However, current law does not require debtors to choose that avenue to debt relief that produces the lowest loss for lenders and, therefore, the lowest social cost.<sup>2</sup> With

<sup>1</sup>White (1987-1988) found that 29 percent of unsecured creditors recovered a nonzero amount from Chapter 13 cases compared with only 3 percent for Chapter 7 cases. The payoff rate was 6.1 percent of unsecured claims in Chapter 13 cases in contrast to 0.1 percent in Chapter 7 cases.

<sup>2</sup>Sullivan and Drecnik (1984) found evidence of a significant degree of inefficiency relative to social cost with regard to petitioners' choices in bankruptcy. The social cost created by their bankruptcies had not been minimized in the cases of about 25 percent of nonbusiness petitions analyzed.

greater knowledge of the multitude of factors that influence debtors' choices, policy makers will be in a better position to draft laws to produce the desired social outcome and to evaluate the social consequences of the continuously evolving institution of bankruptcy.

#### DEBTORS' CHOICES FOR DEBT RELIEF

Debtors are assumed to repay debt according to the terms of their contracts as long as the net benefit associated with repayment exceeds that of default. The debtor seeking relief from existing credit contracts has several possible courses of action. These include restructuring debts, either privately with creditors or by enlisting the services of a credit counselor; petitioning for rehabilitation or liquidation under the Bankruptcy Code; or outright default. Outright default allows creditors to exercise various legal remedies provided by the contract for the express purpose of increasing debtors' costs or limiting lenders' costs associated with default. These remedies include wage garnishment, repossession of collateral, and late night phone calls. It is assumed that debtors seeking debt relief will choose the course of action that provides the highest personal net benefit (present value of benefits net of present value of costs).

#### *Debt Relief Under the Bankruptcy Code*

The act of petitioning for debt relief under the Bankruptcy Code provides the debtor with immediate and statutory relief from lenders' collection efforts, including the exercise of any creditors' remedies. Beyond that point, the procedures associated with the two chapters in the Bankruptcy Code that apply to nonbusiness debtors may produce dramatically different results in terms of the relative net benefits to the individual debtor. Therefore, an analysis of the factors associated with debtors' choices requires an understanding of the provisions of Chapter 13 (rehabilitation) and Chapter 7 (liquidation).

Under Chapter 13, the debtor retains all assets and proposes a plan for the repayment of debts out of future income.<sup>3</sup> Prior to the Bankruptcy Reform Act of 1978, Chapter 13 was called the wage-earner

<sup>3</sup>The repayment period is typically three years, but a five year repayment plan is possible with special permission from the court.

plan and was not available to all nonbusiness debtors. Under current law, it is available to all nonbusiness debtors with total unsecured debts less than \$100,000 and secured debts including mortgages of less than \$350,000.

The repayment plan need not be approved by creditors but must have court approval as a "good faith" effort to repay debts. To be deemed as such, the plan at the minimum must provide full payment of priority claims and pay unsecured creditors at least as much as they would receive under Chapter 7 from the proceeds of the liquidation of nonexempt assets. All unsecured debts left unpaid by the plan are discharged. Payments specified by the repayment plan are directed to a trustee who in turn distributes them to creditors named in the plan.

Under Chapter 7, which is technically a bankruptcy, all the petitioner's nonexempt assets are forfeited. A trustee, acting on the authority of the court, liquidates the assets and distributes the proceeds, after extracting a fee for services rendered, on a prorata basis to unsecured creditors. All remaining unsecured debts not fraudulently incurred or specifically excluded from discharge are then discharged.

Reflecting concern that debtors were not adequately informed about their options for debt relief provided by the code, the Bankruptcy Amendments and Federal Judgeship Act of 1984 required that petitioners receive written notice from the bankruptcy clerk indicating the chapters that were available. The petitioner must confirm that he or she was aware of the availability of all chapters including Chapter 7 and Chapter 13, and the debtor's attorney must attach an affidavit to the petition stating that the debtor was informed that other chapters could be used, including Chapter 13.

#### *Factors Influencing the Debtor's Choice*

The expected net benefit of petitioning under one chapter versus the other is the product of the sociolegal environment in which the decision is made. The expected net benefit of debt relief under the chapters of the Bankruptcy Code can be represented by the following:

- (1) the face value of unsecured debts legally discharged less the value of assets forfeited (for Chapter 7) or less the present value of

payments required under a repayment plan approved by the court (for Chapter 13); in the case of Chapter 7, the above sum would be adjusted for the probability that the petition will be rejected if the judge found that it represented a substantial abuse of Chapter 7;<sup>4</sup> (2) plus the value of immediate cessation of creditors' collection activities (including legal judgments against income), less the decline in the present value of gains from future dealings with creditors;<sup>5</sup> (3) less the direct financial costs of filing (including attorneys' fees and court costs); and (4) less the present value of any costs associated with loss of stature in the community, on the job, or at home.<sup>6</sup>

### *Types of debts owed*

The provisions of the Bankruptcy Code establish that Chapter 13 may not be chosen over Chapter 7 to minimize the value of the recovery provided for unsecured creditors. However, the relative net benefits associated with the two chapters may differ for an individual debtor due to differences in the dischargeability of various types of debts and the treatment of secured debts. For example, student debts and debts acquired by fraud may be discharged under Chapter 13 but not under Chapter 7.<sup>7</sup>

Further, under Chapter 13 a debtor with claims secured by an asset may keep the asset while repaying an amount equal to its current market value. For consumer loans, the market value of the security is generally well below the outstanding balance of the debt. Thus, the "cram-down" provision of Chapter 13 may be the source of a significant reduction in secured debt obligations. In contrast, under Chapter 7 the asset securing the claim is forfeited unless the debt is reaffirmed, a procedure that may require the repayment of the full outstanding balance due. Therefore, the expected value of debts

<sup>4</sup>Debtors' freedom to choose between chapters was statutorily limited by the Bankruptcy Amendments and Federal Judgeship Act of 1984. That law provided that petitions under Chapter 7 that represented a "substantial abuse" of its provisions could be denied by the judge. (Public Law 89-353, Section 312,707)

<sup>5</sup>Umbeck and Charfield (1982) identify the only cost of defaulting on a loan contract as the present value of potential gains from future dealings with the creditor and others who have the information about the default.

<sup>6</sup>Employment discrimination by private employers based on bankruptcy or a debt discharged or dischargeable in a bankruptcy case is prohibited. (Title 11 of the U.S. Code, Section 525)

<sup>7</sup>Compare U.S. Code 1328(a)(1982) with U.S. Code 523(a)(1982).

legally discharged in bankruptcy would not be the same under both chapters for those debtors who have student debts, debts obtained through fraud, or secured debts.

### *Credit after bankruptcy*

Post-bankruptcy costs, primarily the effect of discharge on the debtor's ability to qualify for credit after bankruptcy, may also differ between the two chapters. The debtor who files under Chapter 13 is not considered bankrupt and credit reporting practices may favor debtors who choose Chapter 13 over Chapter 7. The full repayment of debts under Chapter 13 may qualify the debtor to be considered for credit in the future just as a credit applicant who had never filed bankruptcy would be considered.<sup>8</sup> Further, the debtor who is granted a discharge under Chapter 13 may file for debt relief again under either chapter at any time. The debtor who has debts discharged under Chapter 7 may not file bankruptcy again for at least six years. In the summation of costs and benefits above, Chapter 7 and Chapter 13 are identical in terms of the first half of (2) but may differ markedly in terms of the cost component specified in that section. Holding other things constant, debtors with high future demand for credit would prefer Chapter 13 to Chapter 7.

### *Legal environment*

State legislation specifies the value of personal assets exempted from creditors' claims in Chapter 7 and limits actions taken by creditors in the case of an outright default. These legal conditions influence the relative net benefits associated with petitioning under one of the two bankruptcy chapters and the relative benefit of bankruptcy versus outright default.

*Asset exemptions.* The dollar value of assets exempted from liquidation in Chapter 7 is determined by state law in 35 states and by Federal standard established by the Bankruptcy Reform Act in the other states. The state laws vary from the Federal standard and among each other.

<sup>8</sup>Some creditors guarantee debtors that their creditworthiness will not be affected by a petition for debt relief under Chapter 13 that provides for the repayment of 100 percent of unsecured claims.

In Chapter 7, unsecured creditors' claims are paid out of the proceeds of the liquidation of the nonexempt assets. Thus, the lower the level of asset exemption, holding other things constant, the lower the net benefit associated with Chapter 7. The asset exemption allowance also has a direct effect on the net benefit of Chapter 13 in that the value of payments to unsecured creditors proposed under the repayment plan may not be less than the liquidation value of nonexempt assets. This provision in Chapter 13 procedures forces the minimum economic transfer proposed under Chapter 13 to be equal to the maximum possible under Chapter 7.

Petitioners with all assets exempted ("no asset" cases) may prefer Chapter 7 to Chapter 13 because they would not be able under current law to win approval of a repayment plan that provided zero repayment unless the petitioner had zero disposable income. However, petitioners with nonexempt assets may prefer Chapter 13 to Chapter 7. Consider that debtors' perceived value of nonexempt assets is likely to be higher than their liquidation value. Thus, the lower the value of assets exempted in Chapter 7, the higher the perceived cost of Chapter 7 versus Chapter 13. As the asset exemption allowance declines, the probability that the petitioner qualifies as a "no asset" case declines. Summarizing these two situations, it is hypothesized that the probability that a petitioner would file under Chapter 13 increases as the exemption allowance declines, holding other things constant.

*Wage garnishment.* As stated previously, an alternative to bankruptcy is outright default, an action that allows lenders then to exercise legal remedies to limit default losses. One such remedy is the garnishment of wages. All lenders operate under a Federal law restricting the extent to which debtors' wages are subject to garnishment. But in some states, garnishment of wages for purposes of repaying consumer debts is strictly prohibited or restricted to a greater extent than is provided by the Federal law.<sup>9</sup> Holding other things constant,

<sup>9</sup>The Federal standard for weekly wages exempt from garnishment is the greater of 75 percent of the disposable earnings of the debtor or 30 times the minimum hourly wage in effect at the time the earnings are payable. This standard was effective as of July, 1970 under Title III of the Consumer Credit Protection Law. Exceptions include debt due for state or Federal tax and for alimony and child support.

States that restrict garnishment more than the Federal standard may exempt 40 times the hourly minimum wage or 85 percent of disposable income. Some state laws provide the same general protection as the Federal law but provide greater exemption (85 to 90 percent of earnings) if the debtor is a head of a family. States that prohibit wage garnishment (protect 100 per-

the expected net benefit of outright default might exceed that for either chapter in bankruptcy for those debtors whose wages may not be garnished. As a result, debtors dealing with repayment problems in markets with garnishment prohibitions would be expected to exhibit a lower probability of filing bankruptcy.

As evidenced by a number of empirical studies (Apilado *et al.* 1978; Sullivan and Worden 1988), the prohibition or more severe restriction of garnishment is associated with significantly lower rates of nonbusiness bankruptcy in cross-state analyses of the incidence of bankruptcy, holding other things constant. Thus, one may assume that the net benefit to debtors of bankruptcy under these conditions is lower than the net benefit of outright default.

To protect themselves from the higher probability of outright default, lenders prohibited or more severely restricted from garnishment action would provide less unsecured credit and/or require more collateral on secured debts. The substitution of secured debt for unsecured debts would exhibit itself in bankruptcy petitions in that petitioners with more secured debts are likely to file under Chapter 13, holding other things constant, as the "cram down" of secured debts to the market value of the collateral may reduce the amount the debtor would have to repay relative to what could be required under a reaffirmation associated with a Chapter 7 discharge. Therefore, where garnishment is not readily available as a creditors' remedy, a higher probability of Chapter 13 filings is expected, holding other things constant.

### *Credit counseling*

Debtors with repayment problems but who have disposable income may conclude that the renegotiation of the terms of their debt contracts through the services of a credit counselor has a higher net benefit than petitioning under Chapter 13 where contracts would be renegotiated with court protection and supervision. Credit counselors represent debtors in negotiations with creditors to reduce periodic repayment obligations to the level of disposable income. Further, upon enlisting the aid of a credit counselor, all collection ac-

---

cent of earnings) may do so only for the payment of consumer credit or if "earnings are necessary for family support."

tivities are halted. Therefore, the benefit of the "automatic stay" provided to petitioners for bankruptcy is also forthcoming for those debtors using credit counselors.

The National Foundation for Consumer Credit represents a network of local not-for-profit Consumer Credit Counseling Services (CCCS) that provide the bulk of available credit counseling services. The operation of a CCCS office is supported by contributions from lenders and from independent corporations and individuals. There were 340 CCCS offices in early 1988, up from 200 in 1980. Their purpose is to "help those with serious money problems find relief through budget planning, money management, and planned debt liquidation."<sup>10</sup>

In some states there are no CCCS offices and in others the number of offices is very small relative to the size of the debt-using population. The extent to which credit counseling is a viable alternative to bankruptcy or outright default is, therefore, not uniform across all credit markets. However, previous studies demonstrate that the incidence of bankruptcy declines significantly as the availability of credit counseling services increases (Sullivan and Worden 1988). It is likely that credit counseling is an alternative to bankruptcy only for those debtors who have disposable income who might have filed under Chapter 13 to solve their repayment problems. Therefore, the probability of filing under Chapter 13 is hypothesized to decline as the availability of credit counseling services increases, holding other things constant.

### *Demographic characteristics*

Demand for credit, types of debts owed, and ownership of assets—factors that bear on the expected net benefit of bankruptcy for any petitioner—are not uniform across all debtors. Therefore, the probability that a petitioner would choose Chapter 13 is likely to be a function of demographic characteristics related to the general structure and composition of household assets and liabilities.

*High debt-use life cycle.* Demand for household debt is related to the life cycle of the debtor. Consumers in the 25 to 44 years-of-age group are the most heavy users of consumer and mortgage credit.

<sup>10</sup>Information on the purpose of and data regarding the number of CCCS offices were obtained from the National Foundation for Consumer Credit, Silver Spring, Maryland.

The post-bankruptcy costs associated with the effect of a bankruptcy on future access to credit markets are hypothesized to be most significant for persons having high immediate demands for credit. If these costs are significant in the debtor's choice after deciding to file for bankruptcy, the probability that a petitioner would choose Chapter 13 would be high among these younger debtors, holding other things constant.

*Income.* Unsecured debts represent claims against the future uncertain income of the debtor and have the lowest priority for repayment in either chapter of nonbusiness bankruptcy. Holding other things constant, the higher the value of unsecured debts owed by the petitioner, the higher the net benefit of bankruptcy. Due to the fact that a petitioner for Chapter 13 with disposable income may be required to repay a greater proportion of unsecured debts than would be the case if he or she had chosen Chapter 7, the probability that a petitioner will choose Chapter 13 is expected to decline as the amount of unsecured debts owed and income increase. The dollar amount of unsecured credit owed is an increasing function of household income. In the *1983 Survey of Consumer Finances*, the average dollar value of unsecured debts owed by credit-using households with annual income in excess of \$35,000 was \$2,100. In contrast, households with annual incomes at or below \$10,000 had an average dollar value of unsecured credit outstanding of \$550. Therefore, holding other things constant, the probability that petitioners choose Chapter 13 should decline with income.

*Home ownership.* Another demographic characteristic expected to influence petitioners' choice is home ownership. Equity in the primary residence is one of the most significant assets for households. Logically, the dollar value of the exemption of equity in real property is one of the most significant of the asset exemptions allowances. Home owners with equity exceeding the allowed exemption would be expected to choose Chapter 13 to protect that asset. In Chapter 7, they might be forced to sell the home to release the equity to the uses of the unsecured creditors. The probability that petitioners choose Chapter 13 should increase as the proportion of petitioners owning homes increases.<sup>11</sup>

<sup>11</sup>According to data from Sullivan (1982), about 28 percent of petitions filed under Chapter 7 in 1981 were filed by homeowners. Sullivan and Drecnik (1984) found that 43 percent of Chapter 13 petitions were home owners.

*Metropolitan area.* Finally, the probability that a debtor would choose Chapter 13 is hypothesized to increase if the debtor lives in a metropolitan area versus a rural one. First, the quality of credit information is expected to be greater (more complete files) for persons living in metropolitan areas relative to those living in rural settings. Thus, filing Chapter 7 would have a greater negative effect on the credit reports of those debtors. Also, those living in metropolitan areas are likely to have access to a broader set of employment opportunities in the event of a layoff or reduction in work hours. Instead of straight bankruptcy, they could file under Chapter 13, thereby reducing their payment obligations to levels consistent with their income flows.

In sum, the probability that petitioners for nonbusiness bankruptcy would file under Chapter 13 is hypothesized to increase with restrictions on wage garnishment (amount of secured debts), with current and future demand for credit (being in the high debt-use cycle of life), with home ownership, and for populations living in metropolitan areas. The probability of Chapter 13 filings is hypothesized to decline as the level of assets exempted in Chapter 7 increases, as the availability of consumer credit counseling increases, and as the amount of unsecured credit owed by the debtor increases.

### *Model Estimation*

In the previous section, factors that are expected to influence the net benefits for an individual petitioner filing under one chapter versus the other were discussed. Because detailed data on individual bankruptcy petitions were unavailable, we abstract from the individual problem to test the hypotheses presented above. For the randomly selected debtor, the probability of a positive net benefit from filing under Chapter 13 instead of Chapter 7 is a function of the average values that the relevant variables take in the debtor's resident state. In estimating the factors that influence the probability of a Chapter 13 petition (rather than a Chapter 7), the proportion of nonbusiness bankruptcies filed in a state under Chapter 13 is explained. In this section, measures of the variables included in the model are introduced, and the hypotheses formulated above are tested.

To analyze the determinants of this proportion, a two-limit probit, or "tobit" regression model is employed. Define  $Y$  as the probability that a debtor files a Chapter 13 petition—a continuous variable

bounded between 0 and 1. As presented by Rosett and Nelson (1975), the model takes the form:

$$\begin{aligned}
 Y &= 0.0 && \text{when } Y^* - \epsilon \leq 0 \\
 Y &= 1.0 && \text{when } Y^* - \epsilon \geq 1.0 \\
 Y &= Y^* - \epsilon && \text{when } 0 \leq Y^* - \epsilon \leq 1.0 \quad \epsilon \sim N(0, \sigma)
 \end{aligned}
 \tag{1}$$

where  $Y^*$  is a linear function of the factors identified above. In addition, a measure identifying states where debtors are strongly encouraged to file under Chapter 13 is included in the analysis. The pooling of cross-state data across four years requires the inclusion of a measure of time in the equation. Thus, the following function is estimated.

$$\begin{aligned}
 Y^* &= \beta_0 + \beta_1 \text{Lowex} + \beta_2 \text{Nogar} + \beta_3 \text{CCCS} \\
 &+ \beta_4 \text{High Debt Use} + \beta_5 \text{Income} + \beta_6 \text{Home} + \beta_7 \text{Metro} \\
 &+ \beta_8 \text{Court} + \beta_9 \text{Time} + \epsilon.
 \end{aligned}
 \tag{2}$$

The cross-state data used in the analysis are for the time period 1983 to 1986.<sup>12</sup> The dependent variable  $Y^*$  is measured by the proportion of nonbusiness bankruptcy petitions filed under Chapter 13 during the bankruptcy year for each state, as reported by the Bankruptcy Division of the Administrative Office of the U.S. District Courts.

The first two variables are straightforward proxies for the state legal conditions concerning asset exemption allowances in liquidation and garnishment restrictions. Because the personal exemption allowances are so varied across states and difficult to quantify in terms of absolute value, the level of a state's asset exemption allowance is measured by the amount of exempt interest in property owned by the debtor for a residence, that is, the "homestead exemption." "Lowex" is a 0/1 dummy variable that takes a value of one for states that have opted out of the Federal standard and have set a

<sup>12</sup>The time period for the data was the 12 month period ending June 30 each year. These years were chosen because of the potential for measuring the impact of the 1984 Amendments and given data availability. Data sources and detailed definitions are presented in the Appendix.

homestead exemption below the \$7,500 interest (per debtor) exempt under the Federal standard. Otherwise, the variable has a zero value. For 1983, Alabama, Arkansas, Delaware, Georgia, Kentucky, Maryland, Nebraska, New Hampshire, Ohio, Oklahoma, South Carolina, Tennessee, Virginia, and Wyoming were designated as low exemption states. Because Wyoming increased its homestead exemption in 1983, it is assigned a zero value for 1984 through 1986. The remainder of the states did not change their statutes during the study period.

All states operate under a Federal law restricting the extent to which debtors' wages are subject to garnishment. A 0/1 dummy variable "Nogar" takes the value of one for those states where garnishment is 100 percent prohibited for the payment of consumer debts. Otherwise the variable takes a zero value.<sup>13</sup>

The effect of the availability of not-for-profit credit counseling on the probability of a Chapter 13 petition is captured in the model by the inclusion of a continuous variable "CCCS" that equals the number of CCCS offices in a state per 1,000 households.

The demographic variables—"High Debt Use," "Income," "Home," and "Metro"—are measures for the population of each state. "High Debt Use" is a continuous variable representing the proportion of the population in each state that is in the 25 to 44 age category. "Income" is an index of the per capita income in a state relative to the average U.S. per capita income (Index = 1.0 for states with per capita income equal to the average for the U.S.). "Home" is a continuous variable equal to the proportion of households in each state that own their principal residences. "Metro" is the proportion of the population in each state living in a metropolitan area.

#### *Adjustments for known court practices*

There are established traditions in some court districts that debtors are strongly encouraged by their attorneys and referees in bankruptcy to file under Chapter 13. Thus, the percentage of nonbusiness peti-

<sup>13</sup>Other formulations of the garnishment variable were tested, including a dummy variable for states with garnishment restrictions more binding than the Federal law but not prohibiting garnishment altogether. The restriction variable was not significant. The alternative of formulating the garnishment variable as a continuous one representing the percentage of income that could be garnished was not tested in the analysis because the dummy variable provided logical results consistent with those of previous bankruptcy studies.

tions in a state filed under Chapter 13 may also be a function of unique practices in certain courts. Stanley and Girth (1971) stated that "in Northern Alabama, the use of Chapter 13 has been established for more than thirty years as a means of getting low-income citizens to repay their debts." They also indicated that "Maine referees encourage debtors to file under Chapter 13." A judge from the Middle Tennessee court district indicated that he allowed lawyers to charge a higher fee for a Chapter 13 petition.<sup>14</sup> To the extent that such practices are known to exist, their effects are captured in the analysis by a dummy variable, "Court," taking the value of one for the above mentioned states where there is extraordinary pressure on debtors to file under Chapter 13 and 0 otherwise.

#### *Adjustments for time*

The 1984 Amendments contained provisions that had the potential to change debtors' incentives with regard to their choices between Chapter 7 and Chapter 13 significantly. First, the Federal personal asset exemption standard was reduced, making Chapter 7 less attractive in those states that had not opted out of the Federal standard. However, the amendments reduced the probability that a zero repayment plan would be approved—a debtor now must have zero disposable income before such a plan would be approved. Previously, zero repayment plans were considered good faith efforts to repay debts if the debtor would have qualified under Chapter 7 as a "no asset" case.

To capture the time trends in the data associated with changes in the code, a dummy variable is included for each year between 1984 through 1986 in the pooled time series analysis. This procedure effectively shifts the intercept of the estimated equation upward or downward for each year, relative to 1983, leaving the estimated coefficients of the other explanatory variables unchanged.

<sup>14</sup>Keith Lundin, Judge, U.S. Bankruptcy Court, in remarks prepared for presentation at the Personal Bankruptcy Conference sponsored by the Credit Research Center, Purdue University, November, 1987.

TABLE 1

*Pooled Analysis of Determinants of the Proportion of  
Nonbusiness Bankruptcy Petitions Filed in Chapter 13*

Independent Variables	Estimated Coefficients	Mean Variable	
		t-ratio	Value
Lowex	0.11*	5.04	0.26
Nogar	0.16*	6.20	0.14
CCCS	-11.79*	-4.03	0.004
High Debt-Use	1.17*	2.13	0.31
Income	-0.35*	-3.29	0.96
Home	-0.44*	-2.34	0.69
Metro	0.20*	3.05	0.64
Court	0.19*	2.67	0.06
Time			
1984	-0.01	-0.53	0.25
1985	-0.01	-0.49	0.25
1986	-0.03	-1.22	0.25
Constant	0.39	1.78	1.00

Number of Observations = 204

Likelihood Ratio Statistic = 117.4\*

\*Significantly different from zero at the 95 percent level of confidence.

### *The Estimation Results*

The maximum likelihood parameter estimates of equation (2) are presented in Table 1.<sup>15</sup> Asymptotic properties of the procedure are called on for t-tests of statistical significance.

The overall fit of the model can be evaluated by the likelihood ratio statistic. We denote the maximum log-likelihood function constraining all parameters to equal to zero as  $L(0)$  and the unconstrained maximum log-likelihood function as  $L(B)$ . For this estimated model the null hypothesis that all coefficients are 0 is rejected at the 95 percent level of confidence. The coefficients of the variables representing the legal context of the debtors' choices between Chapter 13 and Chapter 7 satisfy *a priori* expectations and are significant in explaining the variation in the proportion of Chapter 13 filings across the fifty states and the District of Columbia. The probability that debtors chose Chapter 13 is a significant function of the

<sup>15</sup>The two-limit "tobit" procedure in LIMDEP uses the David-Fletcher-Powell iterative maximization method. Ordinary least squares estimation of equation (2) produces similar results.

level of asset exemptions, as captured by the level of the homestead exemption relative to the level of the Federal exemption. Debtors in states with low asset exemptions are significantly more likely to file under Chapter 13 than debtors in states with more generous exemption allowances. Where debtors are more likely to qualify as "no asset" cases, the probability of filing under Chapter 13 declines.

As expected, debtors filing for bankruptcy in states that prohibit garnishment of wages are significantly more likely to file under Chapter 13 than debtors in states that allow more aggressive garnishment procedures. Given the relatively low cost of outright default in those states with garnishment prohibitions, lenders must adjust, perhaps by requiring more security on consumer debts. Chapter 13 has a relatively high net benefit in comparison with Chapter 7 for debtors with more secured debts because of the "cram-down" provision in Chapter 13. In support of this finding, White (1987-1988) documented that secured debts made up 68 percent of debts listed on Chapter 13 petitions and 42 percent of debts on Chapter 7 petitions.

The availability of not-for-profit credit counseling is significantly negatively associated with the probability that debtors chose Chapter 13 over Chapter 7. In other words, credit counseling is a substitute for Chapter 13 for those debtors who have disposable income but who cannot manage their existing credit contracts.

With one exception, the coefficients of the demographic variables had the expected signs and significance. The probability that petitioners file under Chapter 13 is significantly higher where there is a higher proportion of persons in the high debt-use phase of the life cycle. This result supports the hypothesis that post-bankruptcy costs play a significant role in debtors' choices in bankruptcy. Although young debtors might be more likely to qualify for Chapter 7 as "no asset" cases, they are less likely to file under Chapter 7. Given their high demand for future credit, the cost associated with having a negative rating on their credit reports is greater with Chapter 7 than with Chapter 13. The result is also consistent with the likelihood that young debtors are the most likely to have student debts. Since student debts may be discharged under Chapter 13 but are not discharged under Chapter 7, young debtors may have an added incentive to file under Chapter 13.

The coefficient of the income measure is significant and negative. In states with relatively high per capita income, the probability that debtors choose Chapter 13 is significantly lower. The sign and signifi-

TABLE 2

*The Proportion of Nonbusiness Bankruptcy Petitions Filed under Chapter 13 by Year and Asset Exemption Level\**

Asset Exemption Level	Year					
	1981	1982	1983	1984	1985	1986
Low	.346	.367	.367	.363	.400	.380
High	.252	.268	.285	.274	.268	.239
Overall	.276	.296	.308	.298	.305	.278

\*Proportion calculated by dividing the number of petitions filed under Chapter 13 by the total of nonbusiness petitions filed in the year overall and for the low and high exemption states.

cance of the income coefficient support the hypothesis that higher income petitioners having greater dollar amount of unsecured credit benefit more under Chapter 7, holding other things constant.

The measure of home ownership has a significant negative association with the probability that petitioners file under Chapter 13—a result inconsistent with the hypothesis that a homeowner's ability to protect home equity is greater in Chapter 13 than in Chapter 7. Perhaps this result can be attributed to the fact that the asset exemption variable "Lowex" is based on the home equity exemption and, therefore, is already capturing the extent to which the incentive to protect home equity influences debtors' decisions in bankruptcy.

The coefficient of the proportion of the state's population living in a metropolitan area is positive and significant. This finding supports the hypothesis that the credit information kept on debtors living in metropolitan areas may be more complete and of higher quality, making a straight bankruptcy more costly.

A significant time trend in the proportion of petitions filed under Chapter 13 does not exist. A more detailed view of the trend in the proportion of nonbusiness petitions filed under Chapter 13 during the years before and after the 1984 legislation was passed is provided in Table 2. In 1983, the proportion of all nonbusiness bankruptcy petitions filed under Chapter 13 peaked. Following the enactment of the 1984 Amendments, this overall proportion declined. In states with high asset exemption allowances, there was a rather sharp and steady decline after 1983 in the probability that Chapter 13 was selected. In the low exemption states, the proportion of petitions filed under Chapter 13 continued to increase through 1985 before it declined in 1986.

The provisions of the 1984 Amendments reduced petitioners' abilities to file repayment plans under Chapter 13 that provided zero repayment of unsecured debts. This alternative would have been most attractive to petitioners who could have filed under Chapter 7 as "no asset" cases. It is logical that the elimination of that possibility would have the greatest impact in states with high asset exemption allowances.

#### CONCLUSION

The Bankruptcy Code provides that petitioners for nonbusiness bankruptcy may choose between rehabilitation and liquidation. The procedures established in the recent revisions of the Bankruptcy Code were crafted to encourage those who had disposable income to file under rehabilitation. An analysis of the factors related to the interstate variation in the proportion of petitions filed under Chapter 13 confirms that debtors in general make decisions that have a strong base in personal wealth-maximization.

Debtors were more likely to file under Chapter 13 if they resided in states that enforced relatively low asset exemption allowances for liquidation bankruptcy and/or if the state prohibited wage garnishment for the repayment of consumer credit. The empirical results of the study supported hypotheses that the types of debt owed and the cost associated with the reduced availability of credit after bankruptcy also had significant influence on debtors' choices. Finally, the most recent changes to the law that decreased the debtors' flexibility under Chapter 13 had a negative effect on the probability that petitioners would choose it, especially in states where a high value of assets is exempted from liquidation in Chapter 7.

This analysis provides useful insights into the legal factors and credit market conditions that determine the economic incentives associated with personal bankruptcy. Further research into the societal benefits and costs associated with allowing nonbusiness debtors to have choices in bankruptcy is suggested.

#### APPENDIX

##### *Variable Definitions and Data Sources*

*Proportion Chapter 13:* proportion of total nonbusiness petitions for bankruptcy filed in each state from July 1 through June 30 under

Chapter 13 of the Bankruptcy Code. Source: Bankruptcy Division, Administrative Office of the U.S. District Courts.

*Low Asset Exemption:* 0/1 dummy variable taking the value of 1 for those states that provided a homestead exemption in personal bankruptcy lower than that allowed under Federal law (\$7,500 per debtor) and disallow the Federal asset exemption for residents of the state. These states were Alabama, Arkansas, Delaware, Georgia, Kentucky, Maryland, Nebraska, New Hampshire, Ohio, Oklahoma, South Carolina, Tennessee, Virginia, and Wyoming. Wyoming increased its homestead exemption level in 1983 and so was assigned a 0 value for 1984 on. Source: Collier on Bankruptcy, 15th Edition 7 (1987), "Exemptions."

*No Garnishment:* 0/1 dummy variable taking the value of 1 for those states that prohibit wage garnishment, that is, 100 percent of wages are excluded from being garnished for the payment of consumer credit. For 1983 through 1985, these states were: Montana, North Carolina, North Dakota, Pennsylvania, South Carolina, South Dakota, and Texas. For the 1986 bankruptcy year, Florida was added. Source: Commerce Clearing House Consumer Credit Guide.

*Consumer Credit Counseling Service:* number of Consumer Credit Counseling Service offices per 1,000 households in each state, as of each year end. Source: National Federation for Consumer Credit, Inc.

*High Debt-Use:* proportion of a state's population between 25 and 44 years of age, as of July 1 each year. Source: Current Population Reports, Series P-25, U.S. Bureau of the Census.

*Income:* annual per capita personal income for each state divided by the per capita personal income for the U.S. Source: Survey of Current Business, U.S. Bureau of Economic Analysis.

*Home Ownership:* proportion of households in each state that owned a home; home owners estimated from the number of owner-occupied housing units in 1980 plus new privately-owned housing units started each year. Sources: U.S. Bureau of the Census and the National Association of Home Builders.

*Metropolitan:* the proportion of the population in the state residing inside a Metropolitan Statistical Area, as of July 1 each year. Source: Statistical Abstract of the United States.

*Court:* 0/1 dummy variable taking the value of 1 for three states (Alabama, Tennessee, and Maine) where some courts in the state pressure debtors to file under Chapter 13. Source: Stanley and Girth

(1971) and Proceedings of conference: "Economic Aspects of Personal Bankruptcy: Research Needs," Credit Research Center, Purdue University, 1987.

#### REFERENCES

- American Bankruptcy Institute (1987), *Perceptions and Reality: American Bankruptcy Institute Survey on Selected Provisions of the 1984 Amendments to the Bankruptcy Code*, Washington, D.C.
- Apilado, V.P., Joel J. Dauten, and Douglas E. Smith (1978), "Personal Bankruptcies," *Journal of Legal Studies* 7 (June):371-392.
- Johnson, R.W., B. Shick, and R.L. Peterson (1982), "Consumers Right to Bankruptcy: Origins and Effects," Monograph No. 23, Credit Research Center, Purdue University, 1982.
- Rosett, Richard N. and Forrest D. Nelson (1975), "Estimation of the Two-Limit Probit Regression Model," *Econometrica* 43(1) (January):141-146.
- Shephard, L. (1984a), "Personal Failures and the Bankruptcy Reform Act of 1978," *Journal of Law and Economics* 27 (October):419-437.
- Shephard, L. (1984b), "Accounting for the Rise in Consumer Bankruptcy Rates in the United States: A Preliminary Analysis of Aggregate Data (1945-1981)," *Journal of Consumer Affairs* 18 (Winter):213-231.
- Shiers, A.F. and D.P. Williamson (1984), "Nonbusiness Bankruptcies and the Law: Some Empirical Results," *Journal of Consumer Affairs* 18 (Winter):277-292.
- Stanley, David and Marjorie Girth (1971), *Bankruptcy: Problems, Process, Reform*, Washington, D.C.: The Brookings Institute.
- Sullivan, A.C. (1982), "Personal Bankruptcy: Causes, Costs, and Benefits," Monograph No. 24, Credit Research Center, Purdue University.
- Sullivan, A.C. and Debra A. Drecnik (1984), "The Social Efficiency of the Bankruptcy Reform Act of 1978 with Regard to Personal Bankruptcy," *Journal of Consumer Affairs* 18 (Winter):231-250.
- Sullivan, A.C. and Debra D. Worden (1988), "The Law, the Economy, and Consumer Demand for Debt Relief Under the Bankruptcy Code," unpublished manuscript, Purdue University.
- Theil, Henri (1971), *Principles of Econometrics*, New York, NY: John Wiley and Sons, Inc.
- Umbeck, J. and R. Chatfield (1982), "The Structure of Contracts and Transactions Costs," *Journal of Money Credit and Banking* (November):511-516.
- White, Michelle J. (1987-1988), "Personal Bankruptcy Under the 1978 Bankruptcy Code: An Economic Analysis," *Indiana Law Journal* 63:1-53.