The Realities of U.S. Personal Bankruptcy under Chapter 13

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ABSTRACT

By pushing debtors into the more stringent provisions of Chapter 13, the 2005 Bankruptcy Abuse Prevention and Consumer Protection Act sought to improve the effectiveness of U.S. Personal Bankruptcy Law. Despite a growing theoretical literature on consumer bankruptcy, however, there exists virtually no empirical evidence on the performance of Chapter 13 both as a collection device for creditors and as an insurance mechanism for debtors. To address this problem, we construct a novel dataset based on information obtained from court docket records filed between 2001 and 2002 in the state of Delaware. Four main results emerge. First, we find that the median creditor recovery rate is actually zero under Chapter 13 both for secured and unsecured debt. Second, close to twenty percent of filers in our sample are dismissed without ever obtaining confirmation of even one plan. Third, less than forty percent of debtors actually receive a financial fresh start by having their debts discharged. Finally, we find that debtors having already experienced bankruptcy end up re-filing at the rate of five percent a year, more than twice the unconditional national bankruptcy rate. Taken together, these findings paint a somewhat bleak picture of Chapter 13 as a bankruptcy procedure.

KEY WORDS: PERSONAL BANKRUPTCY, CHAPTER 13, DISCHARGE, RECOVERY RATE
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1. Introduction

On April 20, 2005, the "Bankruptcy Abuse Prevention and Consumer Protection Act," was signed into law, thus ending an eight-year comprehensive legislative effort that began under the Clinton administration. The most significant (and controversial) change introduced by the new law was to impose a "means test" on would-be-filers. The means test would serve to identify debtors able to repay a portion of their debts out of future income. The new law would then force them to do so under Chapter 13.[1]

Surprisingly, despite the prominent role given to Chapter 13 in the reform act, there exists virtually no empirical evidence regarding how Chapter 13 actually performs both as a collection device for creditors and as a means to provide debtors with a financial fresh start. The Final Report of the 1997 National Bankruptcy Commission summarized the situation in this way: "In short, the bankruptcy system operates behind a veil of darkness created by the lack of reliable data about its operations. The lack of information about 'what is going on' in the bankruptcy system leads to a distrust of its results – a belief by some that creditors, debtors and professionals within the system are all somehow taking advantage of one another and the public at large, and that the system suffers from widespread fraud, abuse and inefficiency."

This paper seeks to bridge the gap between Congressional debates and the growing literature on personal bankruptcy. In particular, we provide extensive evidence with respect to the actual performance of Chapter 13 and carry out an analysis that unveils the main factors associated with different Chapter 13 outcomes. To make this possible, we constructed an entirely novel data set based on information contained in court files related to all Chapter 13 personal bankruptcies filed in the state of Delaware between August 1, 2001 and August 1, 2002. The dataset contains detailed information pertaining to filers' balance sheet, income statement, and proposed plans. It also records the final outcome associated with each bankruptcy case. In addition to information compiled from specific court dockets, we

[1]U.S. personal bankruptcy law also allows a debtor to file under Chapter 7, in which case the debtor obtains a discharge by surrendering his assets. Under Chapter 7, however, important state assets exemptions exist, such as unlimited homestead exemptions in Florida, that severely reduce creditors' ability to collect on loans in default.

supplement our dataset with information pertaining to filers' bankruptcy history both prior and subsequent to the filing of the cases we study.

Four main findings stand out from our study. First, the median creditor recovery rate is actually zero under Chapter 13 both for secured and unsecured debt. Second, we find that soon after the termination of a case, a significant fraction of debtors ends up in bankruptcy at least once again. Third, and related to this last observation, a relatively small faction of debtors are actually successful in getting their debts discharged. Finally, despite the fact that our dataset predates the new law, and thus covers voluntary Chapter 13 filers only, approximately twenty percent of debtors are dismissed without ever receiving approval of even one plan from the bankruptcy court.

Add Econometric Findings Here.

At its core, any bankruptcy system aims to achieve two goals that are in apparent conflict. On the one hand, bankruptcy aims to serve as an insurance mechanism that provides debtors with a financial fresh via the discharge of their debts. On the other hand, the goal of bankruptcy law is also to help creditors minimize the losses from delinquent loans. At this stage, we know of no paper in the literature that describes how an optimal bankruptcy system might balance these goals. However, even without a formal way of gauging the performance of Chapter 13, some natural benchmarks emerge as useful guidelines. First, because payment plans proposed under Chapter 13 must be reviewed by a bankruptcy court, one expects that a well functioning bankruptcy system should see all filers whose plans are approved eventually discharged of their debts.[2] Second, creditors' recovery rate under Chapter 13 should at least match those obtained under other solutions to borrower default. Third, one expects that multiple filings should be the exception, not the rule. Put differently, if a bankruptcy system is successful in providing debtors with a financial fresh start, their re-filing rate should be no different than the unconditional filing rate. Using these benchmarks as a reference frame, our findings paint a rather grim picture of personal bankruptcy law under Chapter 13. Moreover, these findings cast considerable doubt on whether a policy change such as the 2005 reform

[2]The point of having a court decide whether to confirm a proposed repayment plan is precisely to discard debtors who are attempting to abuse the system. Moreover, one might also question the usefulness of a bankruptcy system where a large fraction of cases are never confirmed

act, designed specifically to push debtors in default into Chapter 13, can at all be expected to improve current U.S. personal bankruptcy law.

Along with legislative efforts, a growing literature devoted to the study of personal bankruptcy has emerged in recent years, with most papers focusing on Chapter 7. On an empirical level, Buckley and Brinig (1998), Domowitz and Sartain (1999), Nelson (1999), Fay, Hurst and White (2002), and Gross and Souleles (2002), have all explored the factors that typically lead to personal bankruptcy. Domowitz and Sartain (1999), and Nelson (1999), also investigated the reasons underlying chapter choice specifically. Significant factors that lead to bankruptcy include overwhelming credit card and medical debts, adverse events such as unemployment or divorce, generous state exemptions, as well as declining social stigma. A number of papers have also considered the effects of personal bankruptcy law on different facets of household economics including consumption (Filer and Fisher 2005 and Grant 2003), labor effort (Han and Li 2006), the supply and demand for credit (Gropp, Scholz and White 1997, Lin and White 2001), social mobility (Elul and Subramanian 2002), household savings (Repetto 1998), and small business formation (Berkowitz and White 2004). In general, what emerges is that personal bankruptcy law has substantial effects on access to credit while its effects on consumption and labor effort are more subdued.

The recent literature on personal bankruptcy has also expanded along a more theoretical vein. Athreya (2002), Chatterjee, Corbe, Nakajima and Rios-Rull (2002), Li and Sarte (2006), and Livshits, MacGee and Tertilt (2006), have all used calibrated simulation exercises to evaluate the effects of changes in bankruptcy law on welfare in general equilibrium settings. The general conclusion that transpires from these simulation experiments is that a policy change such as the 2005 reform act is largely ineffectual and unlikely to change allocations.

The remainder of this paper is organized as follows. Section 2 reviews key institutional details associated with U.S. personal bankruptcy law and summarizes creditors' options outside bankruptcy. Section 3 provides a description of the data and its construction. This section also examines four measures of Chapter 13 performance: the discharge rate, creditors' recovery rate, the repeated filing rate, and proposed plans' confirmation rate. In Section 4, we study how these measures are related to debtors' characteristics as summarized by income statement and balance sheet information, as well as demographics. Section 5 offers some conclusions and directions for future research.

2. Legal Background

This section first briefly reviews creditors' legal remedies outside of bankruptcy. It then addresses the main features of U.S. personal bankruptcy law, and focuses in detail on Chapter 13 court procedures.

2.1. Creditors' Legal Remedies Outside of Bankruptcy

When a debtor defaults on his debt obligations without explicitly filing for bankruptcy, secured creditors, such as mortgage lenders or car loan lenders, will seize property to recover what they are owed. Unsecured creditors, such as credit card issuers, often start with making calls and writing letters soliciting payments. They then typically sell their debts to collecting agencies. Unsecured creditors also have the option to sue the debtor and obtain a court judgment against him. They collect on the judgment by having the court order that the debtor's employer take a portion of his paycheck and remit that money to the sheriff, who then forwards the payment appropriately. This process is known as "wage garnishment." Unsecured creditors can also potentially seize a debtor's bank account and/or foreclose on his home. Different states, however, restrict the amount and type of assets that can be seized to different degrees. Therefore, the process of seizing an account or foreclosing on a property can be costly and unsecured creditors rarely do so.

2.2. Main Features of U.S. Personal Bankruptcy Law

U.S. personal bankruptcy law features two distinct procedures: Chapter 7 and Chapter 13. Prior to the passage of the 2005 reform act, debtors had the right to choose between the two chapters.

Chapter 7 is often referred to as "liquidation." Under Chapter 7, the debtor surrenders all assets above an exemption level that varies across states. In exchange, he obtains the discharge of most of his unsecured debt. A debtor cannot file again for Chapter 7 during the six years that follow the last filing. In contrast, Chapter 13 is formally known as "adjustment of debts of consumers with regular income." Under Chapter 13, a portion of a debtor's future earnings are used to meet part of his debt obligations. The repayment plan can last for a period of up to five years. While the debtor's assets are unaffected under Chapter 13, at the end of the payment plan, any remaining debt is discharged. A debtor is prevented from filing again under Chapter 13 for a period of 180 days following his last filing.

2.3. Bankruptcy Procedure under Chapter 13

A Chapter 13 case begins when a debtor files a petition with the bankruptcy court. This petition gives a description of, among other information, the debtor's assets, his debts, income, and expenditures. The petition also details past income and lawsuit information. In the petition, the debtor proposes a repayment plan that devotes all of his "disposable income" – defined as any income net of necessary living expenses (including insurance and mortgage payments) – to the payment of unmet claims. In order to be confirmed by the court, the proposed plan must be carried out for at least 3 years but cannot exceed 5 years. It must also be filed in good faith. In particular, the plan must propose to pay at least as much as the value of the assets creditors would have otherwise received under Chapter 7. Finally, the plan must cure any default on secured debt before providing for payments to unsecured creditors.

Upon the filing of a petition, a trustee is appointed by the bankruptcy court. The trustee serves primarily as a mediator between the debtor and his creditors during plan negotiations and renegotiations. He also works as a disbursing agent during the implementation of the plan, collecting payments from debtors and distributing them to creditors. Within a month of the petition filing, the trustee schedules what is known as a section 341 meeting. At this meeting, creditors are given an opportunity to ask any questions regarding the debtor's financial situation that may affect the plan. Upon completion of the meeting, the trustee makes a recommendation to the court in the form of a repayment plan. The court then decides whether to confirm the plan, reject the plan, or dismiss the plan.

If the plan is dismissed, the case ends. Creditors resume legal remedies outside bankruptcy, as described above, to pursue the payment of their debts. If the plan is rejected, the debtor must propose a modified plan. Should the repayment plan be confirmed, the debtor starts making payments according to its specifications and, upon completion, any remaining debt is discharged.

It is worth noting that a confirmed plan can always be renegotiated. The debtor is free to prepay his debts in the event that his assets appreciate or that he receives additional income from an unexpected source, say in the form of inheritance. The debtor can also potentially convert the case into a Chapter 7 bankruptcy, even after confirmation of the Chapter 13 plan, or voluntarily default on the confirmed plan and have the case dismissed. When a debtor benefits from a substantial increase in income after confirmation of a repayment plan, the trustee will attempt to force the debtor into increasing his payments accordingly. Ultimately, there exists substantial bargaining between debtors and creditors via the trustee both before and after confirmation of a plan.

Figure 1 summarizes Chapter 13 court procedures in the form of a decision tree. The red boxes mark the end of a bankruptcy case. Thus, a debtor potentially exits the bankruptcy court via conversion to Chapter 7, dismissal, or discharge. Conversion to Chapter 7 and dismissal can occur either before or after a case is confirmed by the court. A discharge, however, can only occur after confirmation of a plan.

3. The Data

3.1. Data Collection

Tables 1 to 3 present the docket sheet of a typical filer in our sample.[3] A collection of these dockets forms the source of the data compiled for this paper. Scanned images of docket pages can be obtained using an electronic public access service to cases from Federal Appellate District and Bankruptcy courts, as well as the U.S. Party/Case Index. This service is commonly known as Public Access to Court Electronic Records (PACER) and offers bankruptcy court information encompassing: i) a listing of all parties and participants

[3]The sheet is modified slightly only to protect the filer's identity.

including judges, attorneys, and trustees, ii) a chronology of the dates of case events entered in the case record, iii) a claims registry, and iv) the types of documents filed for specific cases.

According to court documents and conversations with court legal staff, as of August 2005, 62 of the 94 U.S. bankruptcy courts required mandatory online filing.[4] Among the courts that have implemented online mandatory filing, the dates at which these filings begin to be recorded vary widely. They range from August 1, 2001 in the Delaware District Court to April 1, 2006 in the Pennsylvania Eastern District Court. Given that a repayment plan can last up to 5 years under Chapter 13, our study focuses on the Delaware District Court. We consider all Chapter 13 cases filed between August 1, 2001 and August 1, 2002, anticipating that the large majority of these cases would be closed as of the writing of this paper.

Court documents from PACER provide us with all of the information which the court, the trustee, creditors, and debtors, observe at key stages of the bankruptcy process. These stages include the time of filing, the time at which a payment is implemented, and the time at which a case closes. We are able to obtain filers' financial information as summarized by their balance sheet and income statement at the time of filing. We also obtain information on the various characteristics of proposed plans, confirmed plans, and plans that are modified along the bankruptcy process. Finally, PACER provides us with final trustee reports on disbursement at the time of termination of a case.

We complement the information contained in Delaware court documents obtained from PACER with a search of all federal bankruptcy district courts on the bankruptcy filing history of all filers in our sample. This search is carried out using the last four digits of filers' social security number as well as their names.

All of the bankruptcy information we have just described was coded into a database. In total, there were 1093 Chapter 13 bankruptcy cases filed in the state of Delaware over our sample period. Of the 1093 cases, 71 were later converted to Chapter 7. We delete from our sample cases that have incomplete information, resulting from either court recording or filing error, and that are therefore trivially dismissed.[5] Our final sample contains 973 cases,

[4]Information on Puerto Rico and the Virgin Islands is not available.

[5]Of the deleted observations, we cannot find information on only two cases from PACER regarding their final outcome owing to court recording error.

69 of which were later converted to Chapter 7 filings. Of the 973 cases, 771 were closed as of September 18, 2006. Table 4 summarizes the status of the cases under consideration.

3.2. Data Description

3.2.1. Who uses Chapter 13?

The court files provide information on debtors' income statement and balance sheet, their demographics, and their employment status. We present summary statistics related to this information in Table 5. For comparison, we also report information on the state of Delaware when available and the nation otherwise. In particular, demographics, employment status, and income information is obtained for the State of Delaware from the 2000 Census and the Mortgage Bankers Association. Balance sheet information is obtained from the 2001 Survey of Consumer of Finances at the national level.

Table 5 indicates that, compared to their peers, Chapter 13 filers in our sample are less likely to be married but have a slightly larger family. Over 80 percent of debtors own their homes, which noticeably exceeds the 70 percent state home ownership rate. That said, about one-fifth of homeowners who file for bankruptcy have pending foreclosure lawsuits, substantially higher than the state average foreclosure rate. Moreover, over 20 percent of filers in our sample had previously filed for either Chapter 7 or 13 and, therefore, had already been exposed to the experience of bankruptcy.

Regarding employment, filers in our sample are much more likely to hold steady jobs, though their monthly income falls short of Delaware's average adjusted gross income by approximately 30 percent. Furthermore, filers experience a 20 percent decline in income on average relative to the year prior to their filing. As expected, the most striking aspect of Chapter 13 filers relates to their level of indebtedness. Specifically, they are characterized by a ratio of total debt to (annual) income that is 4 times the national average. Their ratio of unsecured debt to income is almost 12 times that of the national average.

To sum up, Chapter 13 filers do not appear to make up the most destitute part of the general population with respect to assets. However, they do tend to earn noticeably less than average and are very heavily indebted. These observations are all consistent with previous findings in the literature.[6]

3.2.2. Chapter 13 in Action

The Proposed Plans All filers need to have a proposed plan in their petition when filing for bankruptcy. The plan must detail the amount of payments, payment length, and the distribution of payments to various creditors, secured and unsecured.[7] The plan must also state whether the debtor intends to obtain additional cash, such as that obtained from mortgage refinancing or the selling of a property, to help cover unmet claims and, if so, within what specific time frame. When resources in addition to income are brought to bear for the payment of debts, the length of the plan proposed can be shorter than 3 years. Secured debt refers to arrearage on secured loans, such as mortgage or car loans, and regular installments on secured debt are almost always made outside a bankruptcy plan.[8] Because the law requires debtors to devote all of their disposable income – income net of reasonable maintenance expenses – to the payment plan, and because secured creditors have to be paid in full, key elements of a repayment plan ultimately include the proposed plan length, whether additional resources are available, and the resulting payment ratio to unsecured nonpriority creditors.

We present the main facets of plans first proposed by our debtors in the top panel of Table 6. Table 6 also distinguishes between all cases and those that are currently terminated, with essentially no difference between the two samples. Interestingly, the average length of a Chapter 13 repayment plan is 4 and a half years, close to the five-year upper bound allowed under the law, and over 50 percent of our debtors initially propose a five-year plan. Between 2 and 4 percent of the debtors in our sample intend to obtain additional resources in the

[6] Domowitz and Sartain (1999), Nelson (1999), as well as Fay, Hurst, and White (2002), show that debt is indeed a key factor in households' bankruptcy decision. Furthermore, high asset households and households with regular income are much more likely to file under Chapter 13.

[7] Unsecured loans are divided into secured priority loans and unsecured nonpriority loans. The former include taxes, alimony, and student loans, and must be paid in full. The latter include all personal loans and credit card debt. Unsecured priority loans make up a small part of total household debt. Throughout the paper, unless specified, unsecured debt refers to unsecured priority loans.

[8] The reason is that a trustee often charges up to 10 percent of each payment made within the bankruptcy plan.

form of mortgage refinancing and the selling of a car.[9] Finally, debtors initially propose to pay one third of their unsecured debt on average. However, the median proposed pay ratio for unsecured debt is considerably lower at only 15 percent.

The Confirmed Plans In the second panel of Table 6, we present various characteristics of first confirmed plans. The information presented in Table 6 is analogous to that presented for proposed plans. In addition, we are able to obtain information on whether payments come directly from a debtor's employer (i.e. whether a wage order is in effect). The table also contains information on all plan modifications observed thus far.

Relative to first-proposed plans, the monthly payment associated with a confirmed plan increases by \$10 on average, and by \$20 for the median debtor. The percentage of debtors who plan to retrieve additional resources from their assets more than doubles. However we note that despite these changes, the promised ratio of payments to debt for unsecured creditors is substantially lower under the confirmed plans. In particular, the mean repayment ratio is now only 21 percent while the median falls below 10 percent. These observations suggest that debtors who obtain the confirmation of their plan tend to be the ones who are more heavily indebted. Finally, close to 60 percent of the confirmed plans are associated with a wage order, and many go through various plan modifications.

3.2.3. Measuring the Performance of Chapter 13 – the Outcomes

In principle, any bankruptcy system aims to achieve two goals that are, to some degree, in conflict: maximizing the return to creditors and providing debtors with a financial fresh start by having their debts discharged. The law does not specify how these goals should be balanced.[10] That said, even without a precise way of evaluating the success or failure of Chapter 13, we can make headway by thinking about what might constitute desirable features of a bankruptcy procedure. We propose the following benchmark guidelines: i) recovery rates for unsecured creditors should match or exceed those obtained under other

[9] The trustee for all cases in our dataset indicated that this observation was likely to be related to the strong housing market in 2000 and 2001.

[10] One can imagine a welfare crieterion where the objectives of both creditors and debtors are taken into account. There currently exists little guidance, however, on how to specify the welfare weights.

solutions to borrower default,[11] ii) all confirmed cases should eventually be discharged, iii) multiple filings should be the exception, not the rule, especially for those who have previously obtained a discharge. Given these criteria, we construct the following four performance measures:

The recovery rate: This measure captures payments received by various creditors relative to the face value of unpaid claims under Chapter 13. Recovery rates are zero for cases that are dismissed without confirmation.[12]

The discharge rate: The percentage of cases that exit the court after obtaining a discharge

The repeated filing rate: The fraction of debtors who filed again after their case closed but before April 2006.[13]

The rate of dismissal without confirmation: The percentage of cases that are never confirmed. The term "dismissal" is used somewhat loosely in this context since a subset of the cases that are converted to Chapter 7 may eventually be discharged under that chapter. However, given the small number of Chapter 7 conversions at this stage, we do not formally distinguish between dismissal and chapter conversion in our analysis.

The rate of dismissal without confirmation captures bankruptcy outcomes in the first stage of the decision tree shown in Figure 1, and is free of censoring or selection bias issues.[14] The discharge rate summarizes outcomes that occur in the second stage. Cases that are discharged are necessarily confirmed. The recovery rate matters directly to creditors and summarizes bankruptcy outcomes that can occur both in stage 1 and stage 2 of our decision tree. The repeated filing rate is a measure that captures information that is really outside, but related to, the current bankruptcy case. The recovery rate, the discharge rate, and the

[11] From the creditors' standpoint, a higher recovery rate for unsecured debt is indeed the primary advantage of Chapter 13 over other options, such legal options outside bankruptcy.

[12] In the analysis related to recovery rates, we sometimes drop observations associated with zero debt, total or unsecured, depending on the question at hand.

[13] April 2006 marks the time at which we conducted a search on repeated bankruptcy filing using PACER.

[14] Trustees typically ask Chapter 13 filers to start submitting periodical payments according to the plan as soon as the plan is filed. Of course, payment are distributed only if the plan is confirmed and are otherwise refunded. This practice, together with other court rules, discourages debtors from staying in Chapter 13 bankruptcy without a confirmed plan for too long.

repeated filing rate are all potentially subject to sample censoring or selection bias in the sense that they are not observed for cases that are still open.

Tables 7 and 8 present summary statistics for the four Chapter 13 performance measures we construct. Four main findings stand out. First, close to 20 percent of the filers in our sample are dismissed without ever obtaining the confirmation of a plan, despite the fact all filers are voluntary filers. Second, conditional on being terminated, less than 40 percent of the plans are carried out to completion. Even if all cases that are still open eventually resulted in a debt discharge, the discharge rate would still fall short of 50 percent. Third, currently closed cases indicate that secured creditors collect only 21 cents on every dollar they are owed. Unsecured creditors receive only 16 cents on the dollar. Most strikingly, over half of both secured and unsecured creditors collect nothing in Chapter 13. Finally, as of April 2006, roughly 30 percent of the debtors in our sample filed again at least one time after the termination of their case. This repeated filing rate averages to 5 percent per year, more than three and half times the unconditional 1.4 percent household bankruptcy filing rate nationwide.

All in all, our Chapter 13 performance measures paint a rather grim picture of Chapter 13, either as a collection mechanism for creditors or as a means of providing debtors with a financial fresh start. A natural question, for both academics and policies makers, is: what debtor characteristics or other factors are associated with these rather poor outcomes? We turn to this question in the next section.

4. Empirical Analysis

In this section, we first present a simple empirical framework aimed at helping us understand important aspects of the data given U.S. personal bankruptcy law. We then describe several key variables used in our empirical estimations,and describe some key findings.

4.1. The Empirical Model

Our main objective is to estimate the effects of debtors' attributes, observed at the time of filing, on the final outcome of their bankruptcy case. The analysis, therefore, aims to shed light on the effectiveness of any changes in law that would alter the composition of Chapter 13 filers as well as the kind of plan they initially propose.

We begin by introducing some notation. We summarize debtors at the time of filing by a vector of attributes Z, and we denote the proposed plan in their petition by P. The proposed plan, although chosen by the debtor, is known at the time of the confirmation decision. We let T denote whether a case is terminated, with T taking on the value 1 if the case is terminated and 0 otherwise. We represent the confirmation outcome by Y_c. In particular, $Y_c = 1$ if a bankruptcy case is confirmed and $Y_c = 0$ otherwise. Similarly, Y_d denotes whether a case is discharged, with $Y_d = 1$ when a case is discharged and $Y_d = 0$ otherwise. We denote by Y_p the average recovery rate across all creditors, where $0 \leq Y_p \leq 1$. Finally, $Y_r = 1$ when debtor files again (at least once) after already having a case closed and $Y_r = 0$ otherwise.

We summarize the court's confirmation decision by the following equation,

$$\Pr(Y_c = 1|Z, P) = F_c(Z, P). \tag{1}$$

The probability of having a case not confirmed is $1 - F_c(Z, P)$. We then think of the discharge outcome, conditional on confirmation, as being captured by the following probability specification,

$$\Pr(Y_d = 1|Z, P, Y_c) = \begin{cases} F_d(Z, P), \text{ if } Y_c = 1, \\ 0, \text{ if } Y_c = 0. \end{cases} \tag{2}$$

Observe that a case that is never confirmed cannot be discharged. Next, the recovery rate is assumed to follow,

$$E(Y_p|Z, P, Y_c) = \begin{cases} F_p(Z, P), \text{ if } Y_c = 1, \\ 0, \text{ if } Y_c = 0. \end{cases}, \tag{3}$$

where the repayment rate is necessarily zero when a case is never confirmed. Finally, we assume that debtors' re-filing decision is determined by

$$\Pr(Y_r = 1|Z, Y_c) = \begin{cases} F_r(Z), \text{ if } Y_c = 1, \\ \widetilde{F}_r(Z), \text{ if } Y_c = 0. \end{cases} \tag{4}$$

Because debtors' initial plan affect their refiling decision only through its effect on the outcome of the bankruptcy case (i.e. whether the case resulted in a debt discharge or dismissal), we do not include it in (4).

Probabilities of having a case discharged, or having a debtor file again for bankruptcy after already having a case close, can be recovered as

$$\begin{aligned} \Pr(Y_d = 1|Z, P) &= \Pr ob(Y_d = 1|Z, P, Y_c = 1) * \Pr ob(Y_c = 1); \\ E(Y_p|Z, P) &= E(Y_p|Z, P, Y_c = 1) * \Pr ob(Y_c = 1); \\ \Pr(Y_r = 1|Z, P) &= \Pr ob(Y_r = 1|Z, P, Y_c = 1) * \Pr ob(Y_c = 1) + \\ &\quad \Pr ob(Y_r = 1|Z, P, Y_c = 0) * \Pr ob(Y_c = 0) \end{aligned}$$

Equations (1), (2), and (4) are estimated using Probit regressions while equation (3) is estimated simply by ordinary least square (OLS). Since debt discharge, repayment rates, and refiling rates are only observed for terminated cases, we adjust for the implied selection bias in equations (2), (3), and (4) following Heckman's instrumental variables procedure. The instruments should satisfy the condition that they only affect the discharge rate, the repayment rate, and the refiling rate through their effect on termination. The calendar filing year and month serve such a purpose. Specifically, we turn the year and month information into 13 dummies with the first representing the filing date of August 2001, the second September 2001, and so forth. In our estimation of the repeated filing rate, we include proposed payment information specified in the petition as additional instruments for the same reason.

4.2. Key Independent Variables

In addition to debtors' attributes and initial proposed payment plan, as described in the data section, we include as additional independent variables: attorney experience, attorney fee, ratio of unsecured debt to total debt, ratio of mortgage debt to disposable income, the product of proposed payment to income ratio to the dummy index of whether a debtor's income is above the state median, a herfindahl index of secured debt, and a herfindahl index of unsecured debt. We also added squared terms of income, expenditures, and payment to income ratio to capture potential nonlinear effects.

Attorney experience refers to the number of cases the attorney represented within the year. The ratio of unsecured debt to total debt, and the ratio of mortgage loans to disposable income. captures the percentage of debt that can be discharged within bankruptcy. Alternatively, these variables capture debtors' financial burden outside of bankruptcy since any secured loan cannot be discharged in personal bankruptcy. The proposed payment to income ratio together with the dummy indexing whether a debtor's income is above the state median measures the debtor's payment ability relative to the general population. The herfindahl indices are meant to capture a debtor's lack of bargaining power, when he faces a few large creditors, that may lead to disputes and make confirmation of any plan difficult.

4.3. Estimation Results

We start by reporting our estimation results of confirmation followed by discharge. Then we discuss in more details our estimation results on recovery rate and refiling rate, the two statistics that capture comprehensively the return to creditors and the extent of fresh start debtors obtain from Chapter 13 bankruptcy. Finally, we relate our results to the 2005 bankruptcy reform act.

4.3.1. Confirmation

Table 9 presents our Probit estimation result of the probability of confirmation.[15] Debtors who have filed before apparently are much less likely to be confirmed. Self employed debtors are also less likely to be confirmed, perhaps, due to their unstable income. Not surprisingly, debtors with more debts relative to assets and debtors with more secured and unsecured debtors adjusted by debt amount are also less likely to be confirmed. By contrast, experienced attorney and steady job as measured by current job tenure and high payment income

[15] The probability of dismissal without confirmation would look exactly the same except that all the coefficients will have the opposite sign.

ratio especially in comparison to state median income help increase the probability of confirmation. What is interesting is that after controlling for debtors' characteristics, none of the payment information affects the probability of confirmation in a statistically significant way.

Figure 2 charts the confirmation probability as a function of debtors' monthly income and their unsecured debt as a ratio of their total debts while setting the other variables their respective mode. As can been see, the probability of confirmation clearly increases with debtors' monthly income albeit with a declining speed. The confirmation probability also increases sharply with the fraction unsecured debt in total debt presumably because plans are easier to work out for unsecured creditors when there are fewer secured creditors to deal with. Secured creditors need to be paid in full before unsecured creditors receive anything under Chapter 13.

4.3.2. Discharge

We report in Tables 10 and 11 our estimation of discharge conditional on being confirmed after correcting for termination bias with the first stage termination estimation result in Table 10 and the second stage discharge result in 11.

In the first stage, factors that led to termination include marriage (-), job tenure (-), total debt relative to asset (+), the fraction of unsecured debt in total debt (-), and proposed pay length in the petition (-). Consistent with our estimation result on confirmation, married couple, people with longer job tenure and proportionally more unsecured debt, and people who proposed long pay length in the initial petition are more likely to have their plans confirmed. Consequently, their cases are more likely to remain open by the time of the observation. Debtors that have large amount of debts relative to asset, on the one hand, are less likely to be confirmed, and thus exit early from the bankruptcy court.

Conditional on being confirmed, debtors who own homes, hire more expensive lawyers, have high income and low expenses, and have proposed a short repayment plan in the initial petition are more likely to obtain a discharge. Interestingly debtors with a large number of secured debtors are less likely to succeed with their confirmed plans, resulting, perhaps, from the fact that secured debt cannot be discharged under personal bankruptcy.

Figure 3 depicts the unconditional probability of being discharged as a function of debtors' current monthly income and the proportion of unsecured debt in total debt. The probability is clearly increasing and concave with respect to income, it is almost invariant to the fraction of unsecured debt to total debt, suggesting that the completion of a plan does not depend significantly on the composition of debt.

4.3.3. Repayment Rate

Table 12 present our estimation of average recovery rate to all creditors conditional on being confirmed after correcting for selection bias by termination. We do not report the first stage result since it is very similar to that reported in Table 10.

According to our analysis, average payment rate increases with debtors' job tenure, monthly income, and payment to income ratio regardless whether their income is above or blow the state median, and decreases with monthly expenses. The repayment rate also decreases with the relative share of unsecured debt to total debt, reflecting the fact that only unsecured debt can be discharged under Chapter 13. Surprisingly, the repayment rate deceases with the initial proposed pay length as well, resulting, perhaps, from debtors trying too hard to get confirmed by proposing a payment length that is long and thus less feasible.

Figure 4 presents the unconditional repayment rate to all creditors as a function of income and debt composition. The rate increases sharply with monthly income, it also increases slightly with the fraction of unsecured debt in total debt.

4.3.4. Repeated Filing Rate

We report the effect of household characteristics at the time of the filing of current case on their probability of filing at least once again conditional on confirmation in Tables 13 and 14 respectively. Selection bias is adjusted for the estimation conditional on confirmation because a fraction of confirmed cases remain open at the time of the analysis. No selection bias adjustment is needed for cases without confirmation since cases that are not confirmed are necessarily terminated by the time of the observation.

Our analysis suggests that conditional on having a plan confirmed in the current bankruptcy case, the debtor's probability of filing again increases with past bankruptcy experience (experience before the current case), household size, home ownership, monthly expenses, and the number of unsecured creditors the debtor has borrowed from. At the same time, the refiling probability decreases with the marriage status of the debtor, his monthly income, and payment income ratio when income is above the state median. It is interesting that the refiling rate also decreases with the relative share of unsecured debt in total debt reflecting the fact that debtors benefit from having unsecured debts discharged.

What is surprising is that if the debtor never obtained a confirmation in his current case, then none of the observables explain his refiling probability at any reasonable level of confidence. Given that this group of people have a much higher probability of filing again than those with a confirmed plan, 0.48 versus 0.18, this suggests, perhaps, there is some unobserved characteristics that are unique to this group of people that make them behave differently.

Figure 5 depicts the repeated filing rate against income and debt composition. In general, high income and high ratio of unsecured debt relative to total debt lowers the probability of repeated filing. However, at low income level, the probability initially increases before it drops again. On possible reason could be that in order to be in debt (again), debtors need have at least some income.

4.3.5. Summary and Discussion

To summarize, our analysis shows factors that are most important in predicting future success of a bankruptcy case both in terms of rate of return to creditor and the degree of fresh start debtors are able to obtain are income and debtors' debt composition. However, we do not find any strong evidence that the effects increase substantially when income is above state median. The same can be said about debt income ratio. This suggests the two means testing criteria incorporated in the 2005 Bankruptcy Abuse Prevention and Consumer Protection

Act are not likely to have a big impact on the outcome of Chapter 13 bankruptcy, at least along the intensive margin.

The finding that attorney experience plays an important role in confirmation and discharge suggests that there is perhaps value added for financial counseling within bankruptcy as advocated in the 2005 reform act. Interestingly, we did not find the first proposed payment plan play an important role as one would expect, this could be because of the substantial negotiation after the petition of the plan that leads to confirmed plan being substantially different from the initially proposed as evidenced in Table 3. It could also be possible that debtors may have internalized some of the expected outcomes even at the initial petition stage and thus suggesting that it cannot be treated entirely as exogenous.

5. Conclusion

Chapter 13 bankruptcy plays a central role in the recently passed 2005 Bankruptcy Abuse Prevention and Consumer Protection Act. To understand the actual performance of Chapter 13 bankruptcies, we collected a unique and novel dataset using court files between August 2001 and August 2002 in the state of Delaware. We have four main findings: for a median creditor, secured or unsecured, the recovery rate is zero; a significant of debtors filed again after the termination of their current cases; close to half of the cases fail with roughly 20 percent of them failing without even obtaining a court confirmation on their proposed plans.

These findings paint a rather grim picture of the reality of Chapter 13 personal bankruptcy. More importantly, our analysis suggests, income and debt are important predictors in these outcomes. However, there is no strong evidence that whether income is above the state median makes a substantial difference in predicting Chapter 13 bankruptcy outcome. Thus, the data and the analysis cast doubt on the effectiveness of the 2005 reform act at least along the dimension of encouraging debtors to file under Chapter 13.

Despite its richness, the data and thus the study does have several limitations. First, we do not analyze debtors' bankruptcy Chapter choice decision and thus the effect of the reform act on the extensive margin of bankruptcy filing. Second, perhaps, more importantly, we do not analyze, in a more structural way, debtors, trustees, and creditors' negotiation within bankruptcy that lead to various outcomes, and thus their different incentives under Chapter 13. We are currently working on both projects.

Table 1
A Sample Docket Sheet

Filed Date	#	Docket Text
08/03/2001	1	Chapter 13 Voluntary Petition. (Receipt Number 054242 voided 8/3/01 due to wrong amount. New receipt needed MLT).New receipt number 054430 issued 8/10/01 (DMS) Filed by Tiffany Poole on behalf of Ronald A. Thomas . (CFD,) Modified on 8/3/2001 (mlt). Modified on 8/8/2001 (Seningen, Donna). Modified on 8/10/2001 (DMS,). (Entered: 08/03/2001)
08/06/2001		Meeting of Creditors Scheduled for 9/5/01 @ 11:00am Court Room #10. Confirmation Hearing Scheduled for 9/24/01 @ 2:00pm Court Room #20. (Entered: 08/06/2001)
08/20/2001	2	Notice of Appearance and Request for Service Filed by Arcadia Financial Ltd. (JSJ,) (Entered: 10/02/2001)
09/12/2001		Meeting of Creditors. 341(a) meeting to be held on 11/6/2001 at 10:00 at US Bankruptcy Court, 824 Market St., Room 509, Wilmington, Delaware. Last day to oppose discharge or dischargeability is 1/5/2002. Proofs of Claims due by 2/5/2002. Government Proof of Claim due by 5/7/2002. Confirmation hearing to be held on 11/19/2001 at 02:00 PM (check with court for location).(JSJ,) (Entered: 09/12/2001)
09/28/2001		Meeting of Creditors. 341(a) meeting to be held on 11/6/2001 at 10:00 AM at US District Court, 844 King St., Room 2313, Wilmington, Delaware. Last day to oppose discharge or dischargeability is 1/5/2002. Proofs of Claims due by 12/28/2001.Government Proof of Claim due by 3/28/2002. Confirmation hearing to be held on 11/19/2001 at 10:00 AM at US Bankruptcy Court,824 Market St., Room 509, Wilmington, Delaware. (JSJ,) Modified on 9/28/2001 (JSJ,). ENTERED IN ERROR (Entered:09/28/2001)
10/01/2001		Meeting of Creditors. 341(a) meeting to be held on 11/6/2001 at 10:00 AM at US District Court, 844 King St., Room 2313, Wilmington, Delaware. Last day to oppose discharge or dischargeability is 1/5/2002. Proofs of Claims due by 2/6/2002.Government Proof of Claim due by 2/5/2002. Confirmation hearing to be held on 11/19/2001 at 02:00 PM at US Bankruptcy Court,824 Market St., Room 509, Wilmington, Delaware. (JSJ,)(Entered:10/01/2001)

Table 2
A Sample Docket Sheet (continued)

Filed Date	#	Docket Text
10/19/2001	5	Meeting of Creditors. 341(a) meeting to be held on 11/6/2001 at 10:00 AM at US District Court, 844 King St., Room 2313, Wilmington, Delaware. Proofs of Claims due by 2/6/2002. Government Proof of Claim due by 2/5/2002. Confirmation hearing to be held on 11/19/2001 at 02:00 PM at US Bankruptcy Court, 824 Market St., Room 509, Wilmington, Delaware. (DSC,)Additional attachment(s) added on 11/21/2001 (MEL,). (Entered:10/19/2001)
10/22/2001	12	Notice of Filing Notice of Chapter 13 Meeting of Creditors and Deadlines Filed by xxx. (MAS,) (Entered:01/28/2002)
11/06/2001	4	Minute Sheet 341 Meeting Held. (DSC,)(Entered:11/13/2001)
11/07/2001	11	Objection to Confirmation of Plan Filed by Delaware Division of Revenue. (VLA,) (Entered: 01/18/2002)
11/13/2001	3	Objection to Confirmation of Plan by the Internal Revenue Service to Chapter 13 Plan Filed by xxx (Slights, Ellen) (Entered: 11/13/2001)
11/13/2001	8	Motion for Relief from Stay. Receipt Number 056247, Fee Amount $75. Filed by Wells Fargo Home Mortage,Inc.. Hearing scheduled for 12/18/2001 at 09:30 AM at US Bankruptcy Court, 824 Market St., 6th Fl., Courtroom #1, Wilmington, Delaware. Objections due by 12/10/2001. (JSJ,) Notice of Motion Certificate of Service (Entered: 12/05/2001)
11/19/2001	6	Confirmation Hearing Held. (GVW,) Modified on 11/30/2001 (GVW,). ENTERED IN ERROR (Entered: 11/30/2001)
11/19/2001	7	Hearing Continued for 1/28/2002 at 02:00 AM at US Bankruptcy Court, 824 Market St., Room 509, Wilmington, Delaware. (GVW,) Additional attachment(s) added on 12/3/2001 (TAS,). Additional attachment(s) added on 12/14/2001 (MEL,).(Entered:11/30/2001)

Table 3
A Sample Docket Sheet (continued)

Filed Date	#	Docket Text
11/19/2001	10	Order of Court Regarding Certain Provisions.(GVW,) Additional attachment(s)added on 12/14/2001 (KLM,). (Entered:11/30/2001)
12/10/2001	9	Response to Motion for Relief from Stay (RE: Doc. #8) Filed by xxx. (JSJ,) Notice of Service (Entered:12/11/2001)
12/17/2001	16	Notice of Transfer of Claim #2 (Wells Fargo Home Mortgage Filed by Wells Fargo Home Mortage, Inc.. (JSJ,)(Entered:02/21/2002)
12/28/2001	17	Amended Plan Filed by Ronald A. Thomas. (JSJ,) (Entered: 02/21/2002)
01/28/2002	13	Hearing Continued for 2/25/2002 at 02:00 PM at US Bankruptcy Court, 824 Market St., Room 509, Wilmington, Delaware. (GVW,) Additional attachment(s) added on 1/29/2002(BAM,). (Entered: 01/28/2002)
01/29/2002	14	Hearing Held (related document 8). Order Entered (REB)(Entered:1/30/2002)
01/29/2002	15	Order signed on 1/29/2002 (related document 8). (REB) (Entered:2/01/2002)
02/25/2002	18	Hearing Held. CASE DISMISSED (MAS,) Additional attachment(s) added on 3/6/2002 (MAS,). (Entered:03/04/2002)
02/25/2002	19	Order of Court Regarding Certain Provisions.(MAS,) Additional attachment(s) added on 3/19/2002 (MJY,).(Entered:03/04/2002)
02/27/2003	20	Trustee's Final Report Upon Dismissal of Case Filed by Michael B. Joseph - Chapter 13 Trustee.(Entered:02/27/2003)
03/03/2003	21	Order Approving Final Report and Account Upon Dismissal signed on 3/3/2003. (Related Document(s)20).(ALB,)(Entered:03/04/2003)
03/05/2003	22	Order Closing Case signed on 3/5/2003. (ALB,)(Entered:03/06/2003)
03/26/2003		Bankruptcy Case Closed (MDW,) (Entered:03/26/2003)

Table 4
Sample Data Description

	Total	Non-converted-to-7	Converted-to-7
Total filing	973	904	69
Terminated	771	703	68
Discharged	340	277	63
Dismissed	431	426	5
Open	202	201	1

Note: The status of the cases are as of September 18, 2006.

Table 5
Summary Statistics: The Debtors

	All cases			State or national[1]		
Variable	Mean	S.d.	Median	Mean	S.d.	Median
Demographics						
Married[2]	0.48	0.50		0.54		
Joint filing[2]	0.36	0.48				
Joint & married[2]	0.74	0.44				
Family size	2.68	1.54	2.00	2.50		
Home ownership[2]	0.87	0.34		0.72		
Pending lawsuits	0.53	0.73	0			
Foreclosure	0.22	0.42	0	3.5e-03		
Filed for bankruptcy before	0.22	0.41				
Employment Status						
Self-employed[2,3]	0.05	0.21		0.05		
Unemployed[2]	5.14e-03	0.07				
Job tenure (yrs)	5.44	8.11	1.50			
Income and Expenses						
Monthly income ($)	2,902	1,695	2,600	4,066		4,197
Monthly expense ($)	2,437	1,549	2,167			
Monthly inc. 1 yr earlier ($)	2,400	2,215	2,167			
Assets and Liabilities						
Total assets ($)	116,918	101,365	102,202	451,734	2,122,872	136,510
Total debts ($)	139,088	98,381	120,376	54,514	115,549	14,300
Secured ($)	107,011	78,656	99,000	52,677	114,713	12,100
Priority ($)	3,304	10,555	0			
Unsecured ($)	28,773	43,506	16,269	1,837	5,725	0
Number of sec. creditors	2.55	1.58	2.00			
Herfindahl index of sec.	0.71	0.26	0.74			
Number of unsec. creditors	10.29	7.84	9.00			
Herfindahl index of unsec.	0.31	0.23	0.25			
Debt/ annual income	4.35	5.42	3.74		11.54	0.38
Unsec. debt/annual income	0.92	1.52	0.54	0.07	1.11	0

Note. 1. Information is obtained using 2000 U.S. Census, the Mortgage Bankers' Association, and 2001 Survey of Consumer Finances. 2. We do not report median for dummy variables. 3. We classify filers' self-employment status according to their occupation, and employer information.

Table 6
Summary Statistics[1]: The Plans

	All cases			Terminated[2]		
Variable	Mean	S.d.	Median	Mean	S.d.	Median
First proposed						
Payment length (months)	55	10	60	54	11	60
Average monthly payment ($)	374	285	304	375	290	304
Additional resources from houses[2]	3.41e-02	0.18	0	3.68e-02	0.19	0
Additional resources from cars[2]	2.64e-02	0.16	0	2.69e-02	0.16	0
Pay ratio to unsecured creditors	0.31	0.11	0.15	0.31	0.12	0.15
First confirmed						
Payment length	55	9.70	60	54	10.52	60
Average monthly payment ($)	383	288	326	388	303	326
Additional resources from houses[2]	7.00e-02	0.26	0	7.77e-02	0.28	0
Additional resources from cars[2]	8.81e-02	0.28	0	8.27e-02	0.28	0
Pay ratio to unsecured creditors	0.21	0.30	6.65e-02	0.21	0.21	6.50e-02
Wage order	0.59	0.49		0.58	0.49	0
Number of Modifications	0.47	0.83	0	0.63	0.91	0

Note: 1. We only report summary statistics for the non-converted cases where we collected plan information. 2. There variables are dummy variables and we do not report their median.

Table 7
Summary Statistics: Final Outcomes – 1

Variable	Whole sample	Confirmed & Terminated	terminated
Rate of dismissal without a confirmation	0.18		0.23
Rate of discharge after confirmation		0.47	0.36
Rate of dismissal after confirmation		0.53	0.41
Repeated filing rate		0.24	0.30

Table 8
Summary Statistics: Final Outcomes – 2

	Discharged			Terminated		
Variable	Mean	S.d.	Median	Mean	S.d.	Median
Payments / debt face value						
Secured	1	0		0.22	0.39	0
Mortgage arrearage	1	0		0.32	0.47	0
Priority	1	0		0.36	0.58	0
Unsecured	0.41	0.39	0.25	0.16	0.33	0
Payments / total disbursement						
Secured	0.19	0.28	0	0.15	0.25	0
Mortgage arrearage	0.21	0.27	0.02	0.24	0.29	0.07
Priority	0.07	0.16	0	0.08	0.17	0
Unsecured	0.37	0.33	0.25	0.20	0.30	0
Attorney fees	6.43e-02	9.10e-02	3.93e-02	0.18	0.25	6.61e-02
Trustee expenses	5.42-02	5.57-02	6.77e-03	5.21e-02	1.54e-02	5.72e-02

Table 9
Probit Estimation of Confirmation

Dependent variable: confirmation			
Independent variables	Estimate	S.d.	Marginal effect
Filed for bankruptcy before	-0.24*	0.12	-0.06
Household size	0.03	0.04	7.05e-04
Home ownership	0.23	0.21	0.06
Married	0.09	0.13	0.02
Pending lawsuit	-0.10	0.07	-0.02
Attorney experience	0.28*	0.14	0.07
Attorney fee	4.87e-04*	8.67e-5	1.16e-04
Mortgage debt/disposable income -2.52e-05	7.56e-5	-5.97e-06	
Tenure for current job	0.02*	7.05e-03	4.19e-03
Self employment	-0.66*	0.22	-0.20
Monthly income	1.26e-04	2.40e-04	2.99e-05
Monthly income square	-1.39e-08	2.86e-08	-3.30e-09
Monthly expense	-2.95e-04	2.24e-04	-7.00e-05
Monthly expense squared	1.98e-08	2.86e-08	4.70e-09
Total debt relative to asset	-2.56e-02**	1.36e-02	-6.09e-03
Unsecured debt relative to total debt	0.76*	0.28	0.18
Herfindahl index of unsecured debt	-0.43*	0.20	-0.10
Herfindahl index of secured debt	-0.70*	0.22	-0.17
Proposed payment to income ratio if inc $<$ state median	-0.90	1.24	-0.21
Proposed pay to inc. ratio squared if inc $<$ state median	0.54	2.10	0.12
Proposed payment to income ratio if inc $\geq$ state median	3.29**	1.68	0.78
Proposed pay to inc. ratio squared if inc $\geq$ state median	-5.46	3.76	-1.29
Proposed payment length in months	-2.29e-03	5.29e-03	-5.42e-04
Proposal to retrieve resources from houses	-0.38	0.28	-0.10
Proposal to retrieve resources from other assets	0.45	0.40	0.08
Total number of observations: 973; Pseudo R-square = 0.12.			

Note. * indicates 95 percent confidence level and ** indicates 90 percent confidence level.

Table 10
Probit Estimation of Discharge Conditional on Confirmation

First Stage: dependent variable is termination		
Independent variables	Estimate	S.d.
Filed for bankruptcy before	0.18	0.14
Household size	3.28e-04	0.05
Home ownership	-0.07	0.21
Married	-0.37*	0.14
Pending lawsuit	0.11	0.08
Attorney experience	-0.06	0.18
Attorney fee	-1.36e-04	1.01e-04
Mortgage debt/disposable income	-1.20e-04	1.04e-04
Tenure for current job	-0.02*	6.46e-03
Self employment	0.18	0.30
Monthly income	-4.53e-04	3.52e-04
Monthly income square	4.60e-08	4.65e-08
Monthly expense	6.23e-04	4.08e-04
Monthly expense squared	-4.45e-08	6.18e-08
Total debt relative to asset	0.04**	0.02
Unsecured debt relative to total debt	-0.97*	0.27
Herfindahl index of unsecured debt	0.19	0.25
Herfindahl index of secured debt	0.20	0.22
Proposed payment to income ratio if inc $<$ state median	-2.90	2.10
Proposed pay to inc. ratio squared if inc $<$ state median	7.57	5.10
Proposed payment to income ratio if inc $\geq$ state median	-2.40	2.76
Proposed pay to inc. ratio squared if inc $\geq$ state median	3.25	8.59
Proposed payment length in months	-0.04*	6.57e-03
Proposal to retrieve resources from houses	0.13	0.33
Proposal to retrieve resources from other assets	0.03	0.33
Total number of observations: 973, censored: 202; Log likelihood: -727.69.		

Note. 1. We do not report estimates on the 13 dummies. 2. * indicates 95 percent confidence level and ** indicates 90 percent confidence

Table 11
Probit Estimation of Discharge Conditional on Confirmation

Second stage: dependent variable is discharged		
Independent variables	Estimate	S.d.
Filed for bankruptcy before	-0.47*	0.16
Household size	-0.11*	0.06
Home ownership	0.44**	0.25
Married	0.29	0.19
Pending lawsuit	-0.11	0.09
Attorney experience	-0.05	0.18
Attorney fee	3.34e-04*	1.17e-04
Mortgage debt/disposable income	-9.39e-05	1.29e-04
Tenure for current job	5.89e-03	8.77e-03
Self employment	0.11	0.30
Monthly income	1.44e-03*	5.12e-04
Monthly income square	-1.94e-07*	6.61e-08
Monthly expense	-9.38e-04**	5.21e-04
Monthly expense squared	1.80e-07*	7.48e-08
Total debt relative to asset	0.02	0.02
Unsecured debt relative to total debt	0.65	0.43
Herfindahl index of unsecured debt	-0.11	0.26
Herfindahl index of secured debt	-0.60*	0.27
Proposed payment to income ratio if inc $<$ state median	2.60	2.24
Proposed pay to inc. ratio squared if inc $<$ state median	-5.66	4.84
Proposed payment to income ratio if inc $\geq$ state median	4.74	3.58
Proposed pay to inc. ratio squared if inc $\geq$ state median	-17.4	13.6
Proposed payment length in months	-0.03*	8.22e-03
Proposal to retrieve resources from houses	-0.14	0.34
Proposal to retrieve resources from other assets	0.38	0.65
Total number of observations: 794, censored: 202; Log likelihood: -727.69.		

Note. * indicates 95 percent confidence level and ** indicates 90 percent confidence level.

Table 12
Heckman Estimation of Repayment Rate Conditional on Confirmation

Dependent variable: average repayment rate to all creditors		
Independent variables	Estimate	S.d.
Filed for bankruptcy before	-0.04	0.04
Household size	-0.01	0.01
Home ownership	0.03	0.06
Married	0.05	0.04
Pending lawsuit	-0.02	0.02
Attorney experience	-4.30e-04	0.05
Attorney fee	3.74e-04	2.62e-05
Mortgage debt/disposable income	-3.52e-05	2.81e-05
Tenure for current job	3.50e-03**	2.07e-03
Self employment	-0.07	0.07
Monthly income	2.61e-04*	8.50e-05
Monthly income square	-2.50e-08*	9.87e-09
Monthly expense	-1.88e-04*	8.27e-05
Monthly expense squared	2.35e-08*	9.85e-09
Total debt relative to asset	3.36e-03	5.28e-03
Unsecured debt relative to total debt	-0.25*	0.09
Herfindahl index of unsecured debt	0.04	0.06
Herfindahl index of secured debt	-0.01	0.06
Proposed payment to income ratio if inc $<$ state median	0.74**	0.39
Proposed pay to inc. ratio squared if inc $<$ state median	-0.52	0.59
Proposed payment to income ratio if inc $\geq$ state median	1.86*	0.77
Proposed pay to inc. ratio squared if inc $\geq$ state median	-5.74	2.84
Proposed payment length in months	-5.57e-03*	2.53e-03
Proposal to retrieve resources from houses	0.06	0.08
Proposal to retrieve resources from other assets	0.02	0.09
Total number of observations: 794, censored: 202.		

Note. * indicates 95 percent confidence level and ** indicates 90 percent confidence level.

Table 13
Probit Estimation of Refiling Rate Conditional on Confirmation

Dependent variable: refiling rate		
Independent variables	Estimate	S.d.
Filed for bankruptcy before	0.35*	0.13
Household size	0.11*	0.05
Home ownership	0.50**	0.28
Married	-0.44*	0.15
Pending lawsuit	0.02	0.08
Attorney experience	0.23	0.19
Attorney fee	1.10e-05	1.03e-05
Mortgage debt/disposable income	4.47e-05	1.05e-04
Tenure for current job	1.06e-03	6.64e-02
Self employment	0.43	0.28
Monthly income	-1.31e-03*	4.08e-04
Monthly income square	1.53e-07*	5.68e-08
Monthly expense	1.41e-03*	4.84e-04
Monthly expense squared	-2.07e-07*	7.73e-08
Total debt relative to asset	0.03	0.02
Unsecured debt relative to total debt	-0.71*	0.31
Herfindahl index of unsecured debt	0.43**	0.23
Herfindahl index of secured debt	0.29	0.25
Proposed payment to income ratio if inc $<$ state median	-1.57	1.50
Proposed pay to inc. ratio squared if inc $<$ state median	1.23	2.26
Proposed payment to income ratio if inc $\geq$ state median	-1.87*	3.30
Proposed pay to inc. ratio squared if inc $\geq$ state median	9.92	12.88
Total number of observations: 794, censored: 202. Log likelihood: -684.57		

Note. * indicates 95 percent confidence level and ** indicates 90 percent confidence level.

Table 14
Probit Estimation of Refiling Rate Conditional on Unconfirmed

Dependent variable: refiling rate		
Independent variables	Estimate	S.d.
Filed for bankruptcy before	0.05	0.23
Household size	-0.06	0.08
Home ownership	0.68	0.47
Married	-0.02	0.27
Pending lawsuit	0.08	0.12
Attorney experience	-0.10	0.26
Attorney fee	5.54e-05	1.80e-04
Mortgage debt/disposable income	-6.49e-05	9.97e-05
Tenure for current job	-0.02	0.02
Self employment	0.36	0.38
Monthly income	3.54e-04	4.18e-04
Monthly income square	-4.35e-08	5.15e-08
Monthly expense	-1.73e-04	3.93e-04
Monthly expense squared	3.63e-08	5.00e-08
Total debt relative to asset	0.06	0.06
Unsecured debt relative to total debt	-0.40	0.47
Herfindahl index of unsecured debt	-0.37	0.37
Herfindahl index of secured debt	-0.40	0.48
Proposed payment to income ratio if inc $<$ state median	4.19	3.35
Proposed pay to inc. ratio squared if inc $<$ state median	-2.91	7.29
Proposed payment to income ratio if inc $\geq$ state median	-1.08	3.38
Proposed pay to inc. ratio squared if inc $\geq$ state median	3.05	5.08
Total number of observations: 179. Log likelihood: -111.94.		

Note. * indicates 95 percent confidence level and ** indicates 90 percent confidence level.

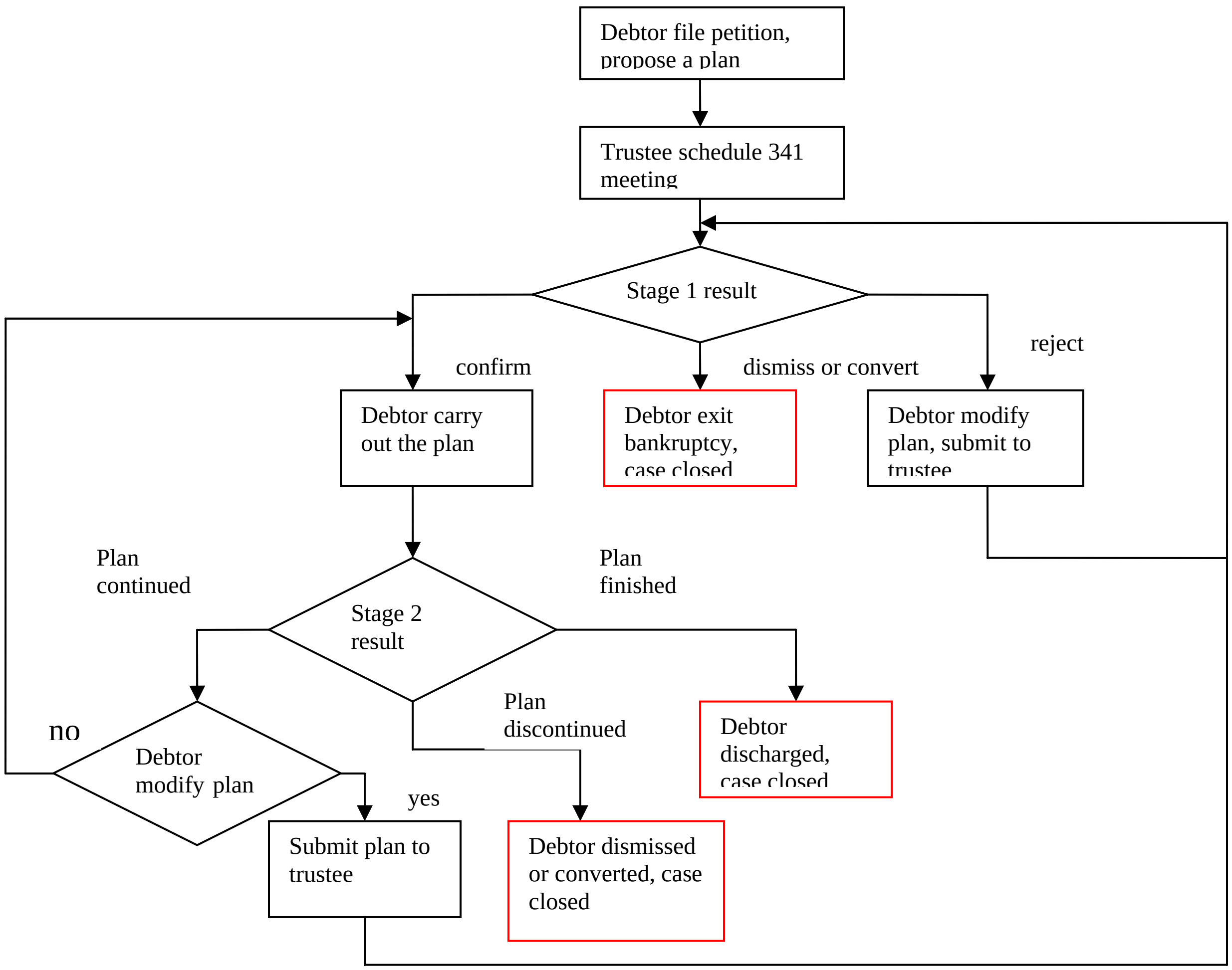

Figure 1. Chapter 13 Procedure

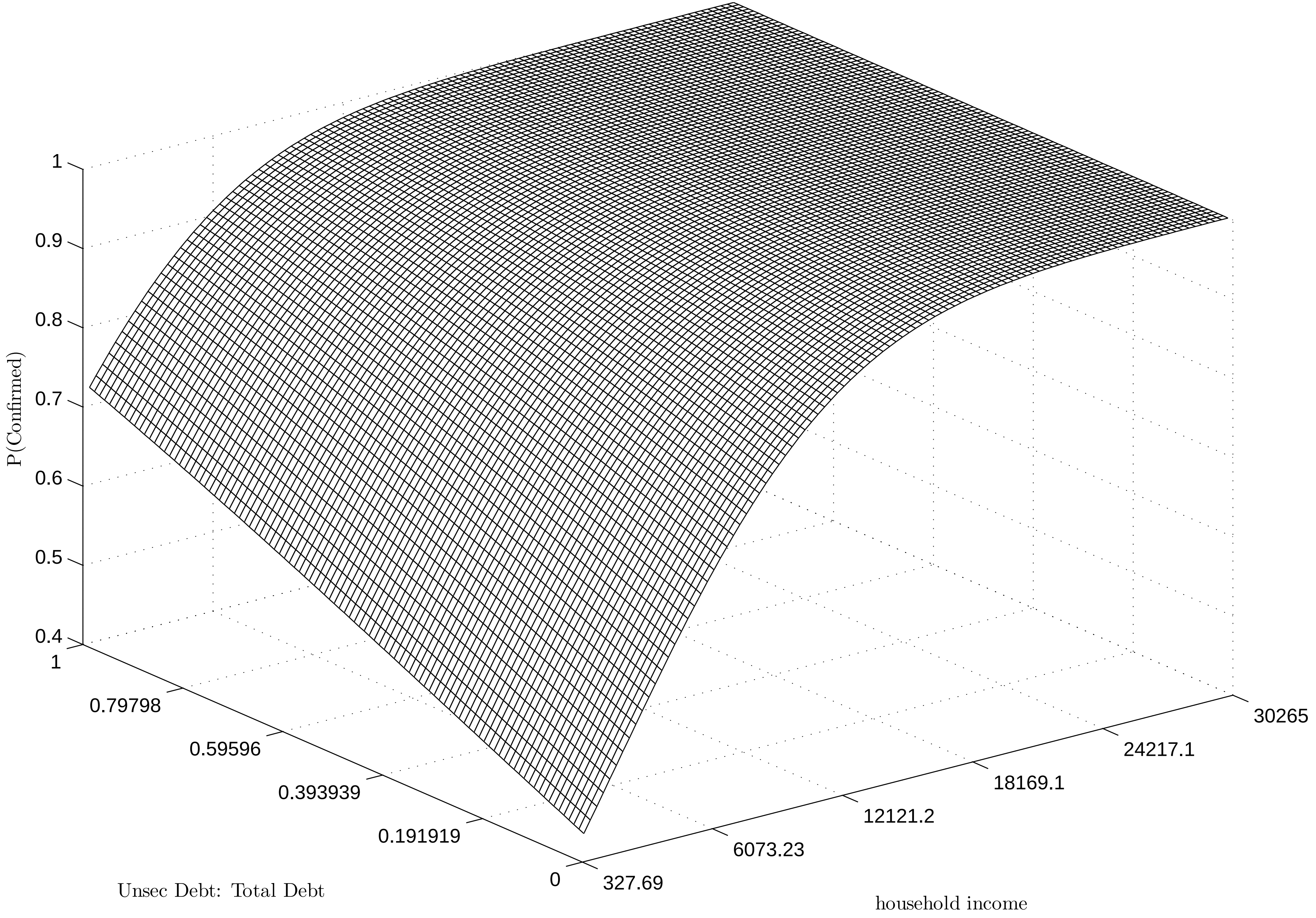

Figure 2: Probability of Confirmation as a Function of Income and Unsecred Debt

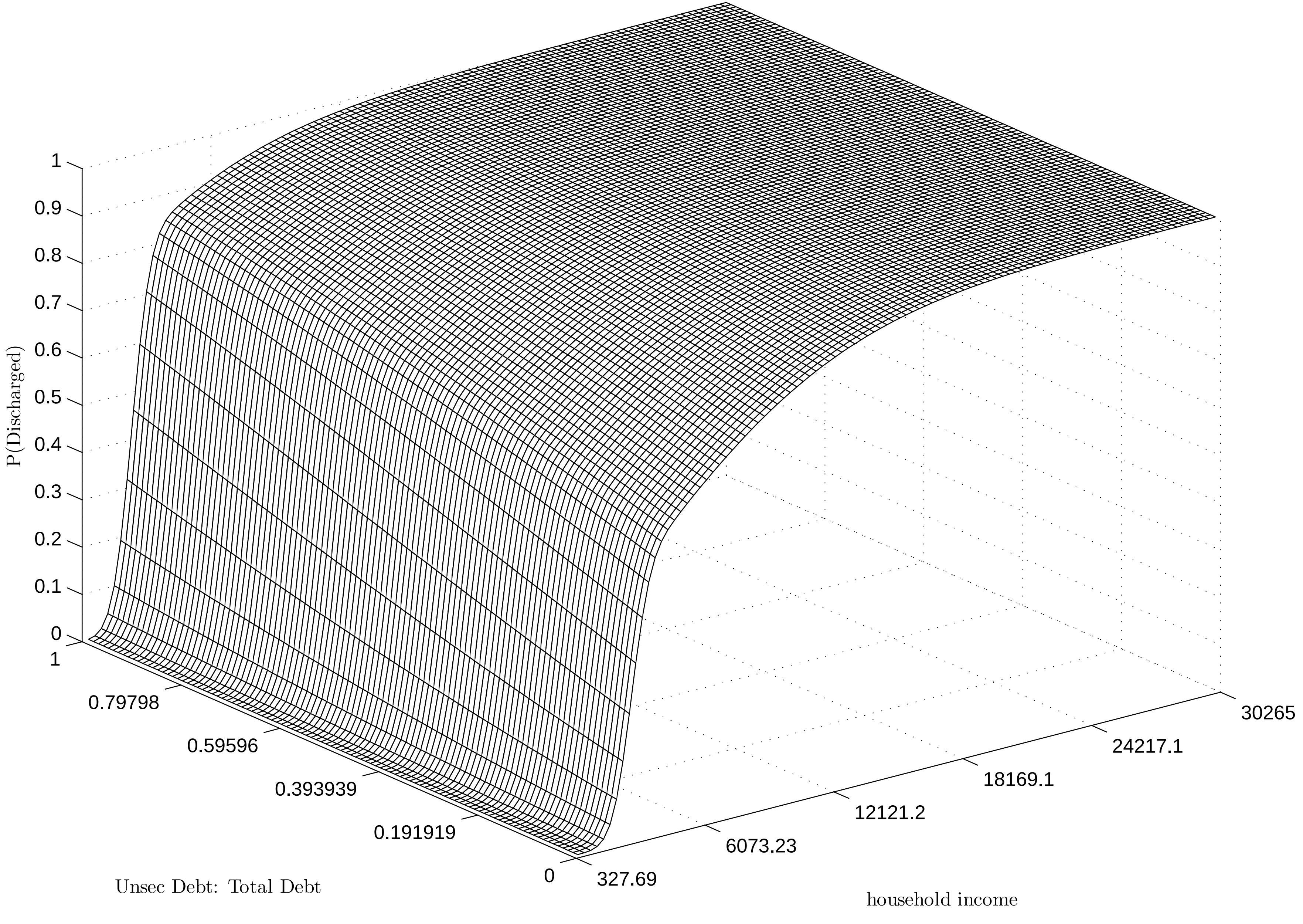

Figure 3: Probability of Discharge as a Function of Income and Unsecured Debt

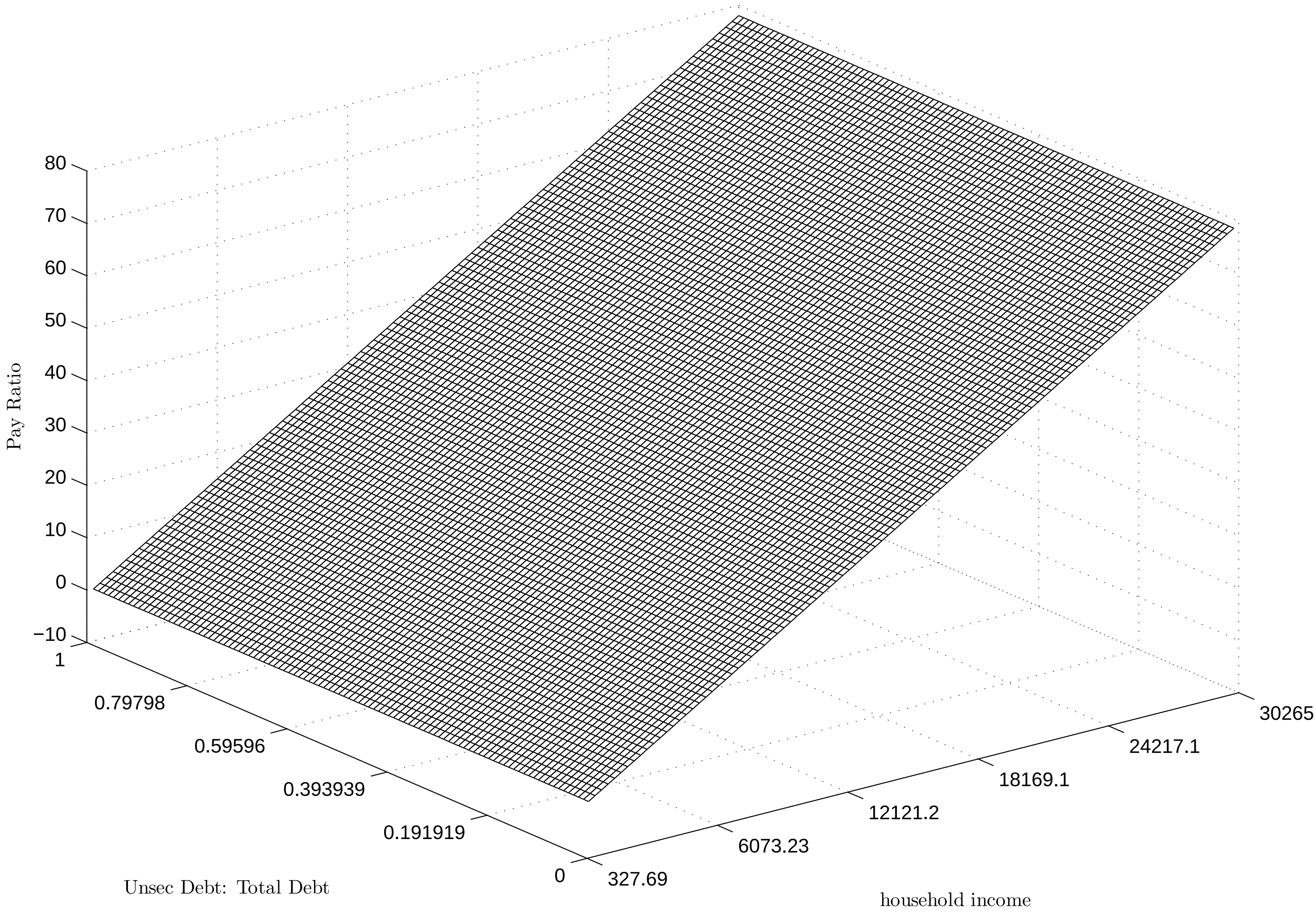

Figure 4: Pay Ratio as a Function of Income and Unsecured Debt

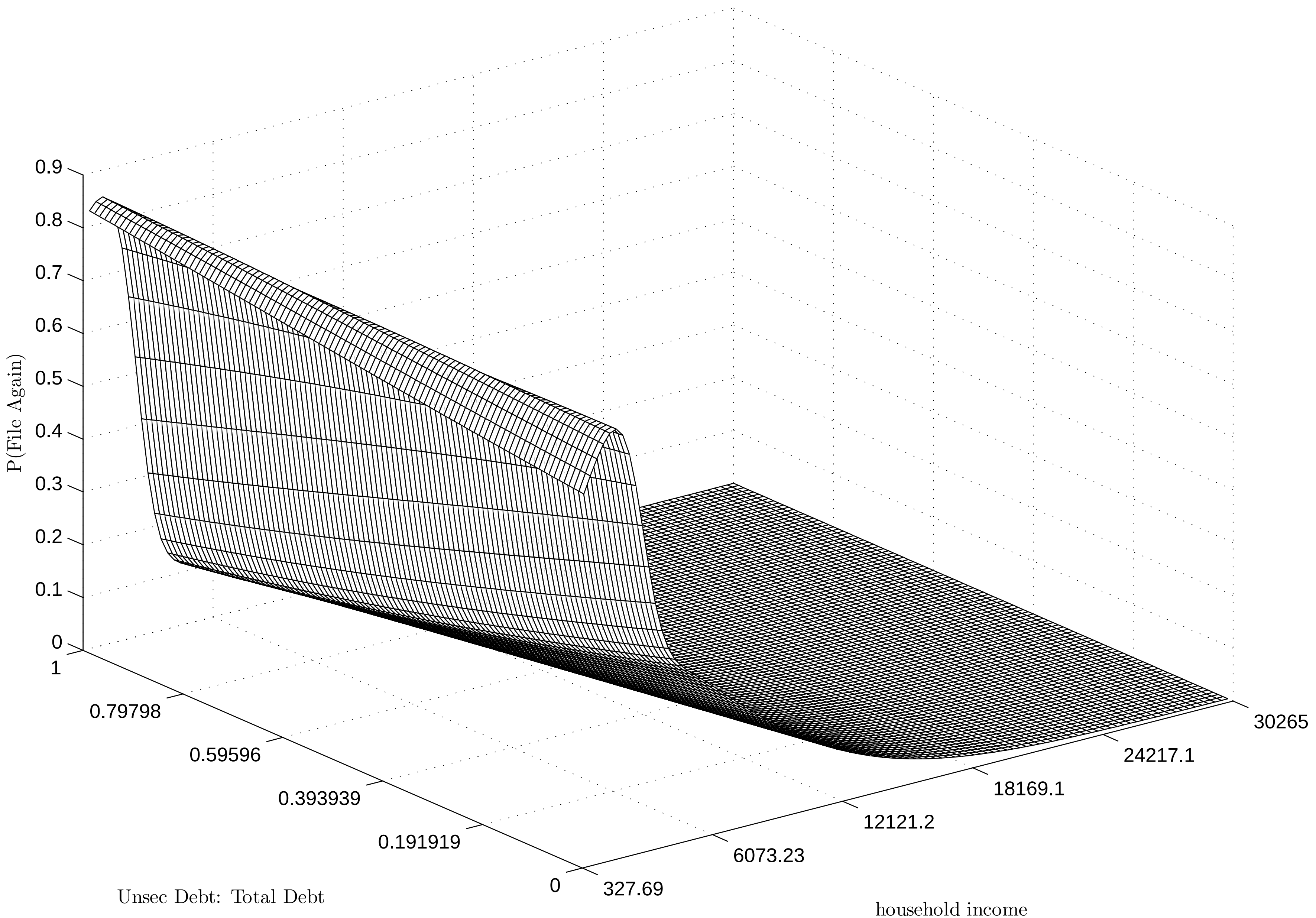

Figure 5: Probability of Filing Again as a Function of Income and Unsecured Debt