Household Consumption and Personal Bankruptcy[1]

Ning Zhu
University of California, Davis

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[1] Zhu is from University of California, Davis and can be reached by phone at 530-752-3871 or by email at nzhu@ucdavis.edu. Duy Bui, Amand Kimball, Yamei Li, and Lara Remke provided tremendous help in assembling the data. The author benefits from helpful comments from Douglas Baird, Brad Barber, Arturo Bris. Sridhar Bharath, Terry Odean, Matt Spiegel, Chih-Ling Tsai, Ivo Welch, and Michelle White. Arthur Kennickell provided great help with the Survey of Consumer Finance data and some summary statistics. I am solely responsible for any remaining errors.

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Abstract

This paper utilizes the population of personal bankruptcy filings in the state of Delaware during 2003 and finds that household expenditures on durable consumptions, such as houses and automobiles, contribute significantly to personal bankruptcy. Adverse medical conditions also lead to personal bankruptcy filings, but other adverse events such as divorce and unemployment have marginal effects. Over-consumption makes households financially over-stretched and more susceptible to adverse events, which reconcile the strategic filing and adverse event explanations.

Personal bankruptcy has emerged from relatively rare household event a couple of decades ago to a fairly common occurrence nowadays. According to the American Bankruptcy Institute, there were a total of 2,039,214 personal bankruptcies in 2005, compared to 412,510 filings in 1985[2]. During the same period, personal bankruptcy filings rose from 0.3 percent to 1.8 percent of total households and the ratio of consumer filings to total bankruptcy filings climbed from 82.72 percent to 98.11 percent. Bank and credit card companies have reportedly lost tens of billions of dollars every year as a consequence of such an upward trend in consumer bankruptcy filings (Visa 1997).

As a response, the bankruptcy law reform in 2005 put forward more stringent requirements for filing personal bankruptcy and discharging debts[3]. Banks and credit companies were pleased with the reform and contended that households should be less likely to seek bankruptcy under the new regime, which protects their interests. On the other hand, some consumer advocacy groups and policy makers argue that the new law enriches the lending corporations at the expense of low-income working Americans (House Judiciary Democrats' dissent view from bankruptcy bill 2005[4]**).**

While the ramifications of such reforms may take years to surface, it is widely accepted that understanding what contributes to personal bankruptcy is key to evaluating personal bankruptcy laws and the recent reform. If households file for bankruptcy mostly as a result of suffering from adverse events (such as sickness, accidents, and unemployment), then recent reform that makes bankruptcy filing more difficult may jeopardize the welfare of those households who need the protection most. Instead, if the availability of personal bankruptcy itself changes household consumption patterns and causes bankruptcy to become more common, then the reform can probably fill some loopholes in bankruptcy laws and hold households more accountable for their decisions.

[2] There are two primary ways of filing for personal bankruptcy: Chapter 7 and Chapter 13. Chapter 7 requires debtors to give up all nonexempt assets in return for being able to keep all future income. On the other hand, Chapter 13 debtors are relieved of repayment obligation on the condition of repaying some part of existing debts. Please refer to Domowitz and Sartain (1999) and Fay et al. (2002) for some excellent discussion.

[3] For example, mean test for filing Chapter 7 becomes more stringent and credit counseling becomes mandatory before filing.

[4] http://rawstory.com/exclusives/dissenting_views_bankruptcy_405.htm

We argue that some households consume beyond their means and jeopardize their financial security. Such households can fall easy victims to even slight adverse events such as temporary illness or interruption in income from job loss. If one were to think of bankruptcy as a consequence of households' inability to come up with payment to creditors, the problem seems to boil down naturally to the relative relationship between wealth and expenditures. It is natural that certain adverse events (i.e. traffic accidents) can cause sudden increases in expenditure or sharp drops in income and trigger bankruptcy filings. However, it is also likely that some households have already stretched their finances too far in the first place and have little contingency preparation. Although not all households intentionally avoid paying debt by filing for bankruptcy strategically (Fay et al. 2002), some may have pushed themselves toward the brink of bankruptcy because they understand that they only have to bear part of the true cost of their purchases. We feel that such a moral hazard problem is at play for at least some of the bankrupt households.

As the popular press and academic research show, U.S. population is going through an era of 'luxury fever.' Robert Franks (1999) claims that middle-class families "finance their consumption increases largely by reduced savings and increased debt." The negative savings rate in 2006 suggests U.S. consumers in aggregate spend more than they make, through borrowing based on future expectations. (U.S. Department of Commerce[5]). Although it is natural to smoothen consumption by borrowing, the important question is whether households take full responsibility for the mounting debts taken out for their consumptions. Knowing that they can walk away with only part, if any, of their liabilities by filing bankruptcy, households may over-extend their credit in consuming, which collectively aggravates the personal bankruptcy problem and increase the cost of credit at the national level.

By utilizing a unique data set with all households filing for bankruptcy in the State of Delaware during 2003 and matching such data with a group of control households obtained from the Survey of Consumer Finance, we estimate how household

[5] http://bea.gov/briefrm/saving.htm

consumption patterns influence their likelihood of filing for bankruptcy. In addition, we compare by how much the consumption pattern and adverse effects each contributes the probability of filing for bankruptcy and quantify the impact of alternative explanations.

Our results are easy to summarize. The ratio of household mortgage debt to household income, of automobile loans to household income, and of credit card debts to household income each contributes positively to personal bankruptcy filing, estimated from the control households. One standard deviation increase in each ratio leads to an increase of 88, 8, and 190 percent in the probability of filing for bankruptcy from the baseline filing probability. At the same time, medical conditions lead to about a 50 percent increase in filing probability from the baseline probability. Divorce and unemployment display insignificant impact on filing tendency. Our results provide stronger support for the explanation that households strategically choose to file for bankruptcy after over-extending their consumption than the alternative explanation that adverse events are the primary causes for personal bankruptcy.

A closer look at the bankrupt households reveals that they consume in a surprisingly similar fashion to the control groups. Bankrupt households take out more mortgage liabilities (mean=$66,731), automobile loans (mean=$10,160), and credit card debts (mean=25,101), in absolute dollar value, than the control groups (mean is $56,141, $9,000, and $2,488, respectively). This is somewhat surprising given that they make less than one half of what the control households do. More than 5 percent of bankrupt households own at least one luxury brand automobile, slightly less than the about 8 percent level for the control households. Further, about 8 percent of households filing for Chapter 13 own at least one luxury-brand automobile, closely resembling the pattern for the control group. The automobile age is also very similar: on average seven years for the bankrupt households and six years for the control households. It does not seem that bankrupt households adjust their automobile consumptions toward cheaper or older cars to avoid deeper indebtedness (The median age of automobiles in operation is nine years[6]).

[6] National Household Travel Survey, 2005.

Such consumption looms particularly large given the considerable difference in household income between the bankrupt and control households. Mortgage debt averages 1.93 times the bankrupt households' average 2003 income, more than twice as large as the ratio of 0.79 for the control households.[7] Similarly, the ratio of automobile loan to household 2003 income is 0.38 for the bankrupt households, again twice as large as the 0.19 for the control households.[8] The credit card debts approximate six percent of control households' annual income and almost equal a full year's income for the bankrupt households. In sum, our results suggest that households filing for bankruptcy tend to spend beyond their means before filing, which contributes to their filing decisions.

As expected, we find that adverse events lead households to file under Chapter 7, presumably because such households have lower income and ability to repay their debts. Surprisingly, households with higher consumption to income ratio are also more likely to file under Chapter 7, even when controlling for household income levels. That is, those households that take out excessive consumption debts are more likely to choose Chapter 7, which enables them to discharge their entire debts with no future obligations. Such results indicate that the bankruptcy system before the reform in 2005 indeed leaves incentives for households to over-extend their consumption and strategically file for bankruptcy when there is enough financial benefit.

In terms of policy implication, our findings indicate that by imposing greater costs, the more stringent requirements for filing in the new law may deter some households from over-consumption. At the same time, we believe it is important to launch educational programs to inform the general public of the consequence of poor financial planning and ways to avoid consuming beyond their income capacity.

The rest of the study proceeds as follows: section 2 reviews the literature; section 3 describes the bankrupt household data from the Delaware bankruptcy court and the control household data from the Survey of Consumer Finance (SCF); section 4 presents

[7] 3.21 times for only the bankrupt households that have a mortgage and 1.73 times for the control households that have a mortgage.

[8] The ratio is 0.36 and 0.20, respectively, for the bankrupt and control households that have at least one car.

empirical findings on how excessive consumption contributes to personal bankruptcy filing; and section 5 concludes.

Section 2. Literature Review

The current paper relates closely to the literature on personal bankruptcy. Extant studies propose different reasons why U.S. households file for bankruptcy, which holds key to the fairness and effectiveness of the bankruptcy law and to evaluating different reform agenda. One view contends that personal bankruptcy filing probably depends on the benefits and costs of the filing for bankruptcy. Using Panel Study of Income Dynamics (PSID) between 1984 and 1995, Fay et al. (2002) find that households that derive greater financial benefits from filing for bankruptcy are more likely to do so. In addition, Gross and Souleles (2002) find that personal bankruptcy filings surged during the 1995-1997 periods, which they consider as a consequence of the decrease in the 'stigma' effect associated with bankruptcy filing. Consistent with the strategic filing view, households are more likely to file when social norms lower the costs associated with bankruptcies.

On the other hand, Himmelstein et al. (2005) and Jacoby et al. (2001) contend that personal bankruptcy is largely triggered by adverse events, such as divorce, medical conditions, and layoffs. As a result, households should not be blamed for filing for bankruptcy. The authors surveyed 1,771 personal bankruptcy filers in 2001 and report that about one half of the filing households cited medical conditions as causes for filing bankruptcies. Following such results, one would imagine that personal bankruptcy filing is exogenous and should not be sensitive to the requirements for filing or legal changes.

Our study is similar to a study by Domowitz and Sartain (1998) who use a sample of randomly selected households from five court districts that filed for bankruptcy in 1980 and find some support for both positions. They find that medical conditions and credit card debts are the two most important factors that contribute to bankruptcy filings. Personal bankruptcy filing has changed considerably during the past couple of decades and the two most important factors in Domowitz and Sartain (1999) may come from different or even opposite motivations. Our study investigates what contributes to personal bankruptcy in the new millennium and depicts how contributing factors have changed over the past two decades. In addition, we focus on quantitatively understanding how different aspects of consumption influences household bankruptcy, relative to alternative explanations such as medical conditions and unemployment.

Several unique features of our data facilitate the current study. First, the bankruptcy filing data include important information on household consumption patterns, which enables us to study the link between consumption and bankruptcy filings. We also have collected detailed information on adverse events, such as medical conditions, accidents or injuries, and job loss or unemployment. We can therefore distinguish how consumption and adverse events separately contribute to bankruptcy filings. In addition, detailed labor market information, such as income, employment status and employment tenure, provides some additional control on how expectation of future income may influence the tendency to file for personal bankruptcy.

The permanent income hypothesis predicts that households borrow from future earnings to 'smoothen' out their consumption and improve their well-being (Friedman, 1957). The question is whether households can make the right decision on such inter-temporal factors and how the bankruptcy law system may distort their borrowing and consuming behavior. It is also important to ensure that such borrowing does not increase the cost of credit for future borrowing and borrowing by other households. While the theory accounts for the risk of default, households may not properly factor the risk into their financial planning. What seems more problematic is that opportunistic households may intentionally take advantage of the bankruptcy system and over-consume, which potentially results in increases in cost of credit to the entire society and especially those in sincere need of it. Our findings stress the importance of incorporating such household strategic behavior and its implications in future studies on household finance and consumption.

Although our study supports the notion that adverse events contribute to personal bankruptcy filings, the findings emphasize that excessive consumption probably contributes more to the recent increase in personal bankruptcy filing. Households are aware of the alterative ways of dealing with their debt problem and alter their consumption beyond their means to take advantage of the bankruptcy system. Although adverse events surely trigger the filing of some personal bankruptcy cases, our evidence suggests that excessive consumption is a very important cause for personal bankruptcy that has not received due attention.

Our current findings shed some further light on the on-going debate on how to improve the personal bankruptcy law. If most households were forced to file bankruptcy because of adverse events, the bankruptcy system should focus on how to provide a 'fresh start' for the affected households. The recent reform in bankruptcy law may make it more difficult for such inflicted households to recover from the adverse events. If, however, most of the households file for bankruptcy for reasons other than adverse events, and more importantly due to poor management of household finances, the recent reform seems to be much needed. By making it more difficult to file for bankruptcy, the reform increases the cost that households have to bear for their consumption decisions and have the potential of limiting over-expenditure by the households.

Finally, the current study also relates closely to a broad literature on household finance summarized in Campbell (2005). Scholars have gained increasing understanding regarding how households invest and consume, but it remains little understood about how consumption influences household financing decisions and how changes in the cost and availability of alternative financing may potentially influence households' consumption patterns. Such understandings are especially important for households with lower income, who could potentially benefit most from adjusting their sub-optimal financing decisions. Our findings that consumption and financing can sometimes be the two sides of the same coin: studying one helps one understand the choice in the other context.

Section 2. Data Description

The data used in this study come from two distinct sources. The primary data on bankrupt households were hand-collected bankruptcy filings from U.S. Bankruptcy Court, District of Delaware. Since late 1990s, the U.S. court system started making available case filings through Public Access to Court Electronic Record (PACER). Copies of files are archived in the portable document file (pdf) format and can be viewed and downloaded by subscribers. All filing households have to file these documents truthfully, under the penalty of perjury. Through subscription to the Pacer system at different courts, one can access cases handled by respective courts.

Court filing data have the following advantages over relying entirely on survey data. First, as Fay et al. (2002) point out, bankruptcies are under-represented in publicly available survey data such as PSID and SCF. using such data may blur the commonality of the bankruptcy problem. In addition, sampling and measurement error is less of a problem for the entire population of bankruptcy filings from a state than they are for the survey data randomly collected across the nation. Further, bankruptcy filings yield more objective results than surveys: households may blame bankruptcy filings to adverse events during interviews because they are embarrassed with the 'stigma' associated with bankruptcy, or because such events are more salient and memorable, or because they did not realize that their consumption styles jeopardized their financial security in the first place.

Delaware Bankruptcy Court is one of the first few states that adopted the Pacer system. Among the group of states[9] that made available their bankruptcy filing records in the early 2000s, Delaware's demographics closely resemble those at the national level, ensuring that Delaware is reasonably representative of the national demographics.[10] According to the 2000 U.S. Census, the average number of people per household/family is 2.54 and 3.04, very similar to the 2.59 and 3.4 at the national level. Married-couple,

[9] Arizona, Delaware, Illinois and New York are among the early adopters of the Pacer system that provide bankruptcy filings.
[10] http://factfinder.census.gov/servlet/ACSSAFFFacts?_event=Search&geo_id=&_geoContext=&_street=&_county=&_cityTown=&_state=04000US10&_zip=&_lang=en&_sse=on&pctxt=fph&pgsl=010

female-led, male-led, and no-family household make up 51.3, 13.1, 4.2, and 25 percent of total households, mirroring the national level of 51.7 12.2, 4.2, and 25.8 percent. The median age of Delaware population is 32.8 at 2000, very close to 32.9 at the national level. School enrollment is 27.9 percent, slightly lower than the 28.4 percent at the national level. [11]

As to the state economics, for the year of 2003-2004, the median household income for the state of Delaware is $50,838, higher than the U.S. median household income of $45,893 for less than one standard deviation of the median income levels across all states[12]. Delaware witnesses about 10.4 percent of its population living in poverty, slightly lower than the national level of 13.3 percent. The median housing value of $203,800 is much higher than the national median of $167,500 but the median monthly owner costs are very similar ($1,246 for households with a mortgage and $326 for those without a mortgage) to the national level ($1,295 and $369 for households with or without a mortgage, respectively).[13]

Above similarities enable us to compare the sample households from Delaware with those households surveyed across the country and avoid complications such as differences in life-cycle or health conditions. Meanwhile, it is important to bear in mind that regional differences clearly explain some of the variations in households' filing tendency, as shown in Fay et al. (2002) and Gropp et al. (1997). Given that Delaware is one of the few states that have the most stringent requirements for filing personal bankruptcy and discharging debt (please refer to Table 1 of White 1998a for details on variations in different types of exemptions across the states), our estimate for bankrupt household consumption is probably conservative. Households in other states are probably more likely to consume beyond their credit capacity, where discharging debts is easier and the financial benefits of filing are greater.

[11] The summary statistics on children living with households are also similar to the national average.
[12] http://www.census.gov/hhes/www/income/income05/statemhi2.html
[13] U.S. Census Fact Finders.

We collected a total of 2,126 chapter 7 and 1,269 chapter 13 bankruptcy cases from U.S. Bankruptcy Court, the District of Delaware between January 1st and December 31st of 2003. The cases encompass almost all of the 3,413 non-business filings (statistics from the website of the American Bankruptcy Institute)[14] and 86.7 percent of all 2003 filings in Delaware. The cases usually take several months to over a year to close. 2003 is the first year in which we have complete filing dockets and it also allows us enough time to trace the outcomes of most filings. Data from 2004 do not give us enough time to trace the outcome of many cases and data from 2005 may be considerably compromised by accelerated filings motivated by potential bankruptcy law reform (American Bankruptcy Institute statistics[15]). After excluding corporate filings, cases without eligible filing documents, and cases in which critical document or information is missing, we end up with a sample of 1,667 Chapter 7 and 1,089 Chapter 13 cases that we will focus on in the study.

It is worth pointing out that the year of 2003 draws close to the end of an economic downturn taking place at the turn of the century. The period contrasts with Gropp and Souleles (2002) and Fay et al. (2002) that use data mostly from periods of economic expansion in the 1990s. Such economic recovery periods typically experience labor market contraction[16] and more households are likely to file for bankruptcy due to such adverse events, causing potential over-estimation of the impact of unemployment and biasing against our over-consumption hypothesis.

For each case, we collect the following household information from the filers, wherever available.

Financial situation: We collect information on the total household assets and liabilities. Total liabilities are further broken down into secured liabilities, unsecured priority liabilities (usually claims from tax authorities, government agencies, and student

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14 http://www.abiworld.org/AM/Template.cfm?Section=Annual_U_S_Filings&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=62&ContentID=34621

15 http://www.abiworld.org/am/template.cfm?section=Bankruptcy_Statistics1

16 Unemployment rate rises to about 5.8 percent around 2003, from its relatively low level of about 4 percent during the late 1990s.

loans), and unsecured non-priority liabilities. [17] We also calculate the leverage ratio based on the asset and liability information.

Under schedule "I" of most bankruptcy filings, filers also have to report some important work income information. For example, they need to report their current employment status, name of the employer, duration of employment, and their average monthly income for the current and past calendar years. Such information is important for two reasons. First, information on labor income from the job market enables us the opportunity to test how adverse shocks from the job market, such as layoff or sustained unemployment, contribute to households' filing for personal bankruptcy. If the adverse event hypothesis is supported, we expect that unemployment and the resulting drop in income should explain bankruptcy filings. Instead, the strategic filing hypothesis will be favored if such significant job market shocks cannot explain the differences in filing tendency.

Secondly, such information helps explain the consumption patterns in the proper context of household income. The permanent income hypothesis predicts that households should borrow to increase current consumption in expectation of future income increases. Given that our data provide information on the history and trend of labor income for many households that filed for bankruptcy, we have a unique opportunity to test how households' expectations of future income change (primarily based on trends in past income change) can influence their consumption pattern and the tendency to file for bankruptcy.

Consumption information: The filing dockets provide detailed information on the breakdown of household liabilities and their consumption patterns. By classifying item-by-item liability records, we put all liabilities into the following categories by their purpose: student and educational loans, medical bills, mortgage loans, automobile loans, bank loans, credit cards, and other liabilities. We aggregate all hospital bills, dental and

[17] We also calculate the leverage ratio as the total ratio of total liabilities to total assets, for each household. We obtain very similar results to our main results using alternative regression specifications that include total asset and the leverage ratio, instead of the total liabilities.

vision bills, disability rehabilitation, and psychological counseling under the broad category of medical bills. Mortgage loans are the sum of all mortgage loans that a household carries. Similarly, automobile loans are the sum of loans on all household automobiles.

For each type of liability, we calculate the ratio of each liability to the household's income to capture the considerable difference in household income. It is apparent that the same amount of liabilities will leave a much bigger impact on households with relatively lower income. One objective of the paper is to investigate whether personal bankruptcy filing can be attributed to households' consumption beyond their income levels. For that to be true, bankrupt households do not have to spend more on their various purchases in absolute dollar value. Instead, a similar consumption pattern between the bankrupt and control groups itself suggests that bankrupt households consume too much based on their income levels. Consumption relative to income, therefore, depicts a more accurate and reliably picture on household consumption pattern.

In addition, we collect detailed consumption information of houses and automobiles. We have information on the number of houses that each household owns and how many vehicles each household operates. We have the brand, make, model, year of each automobile owned by a house and utilize such information as an indication of household spending patterns.

Personal information. We also collect additional personal and household information that may explain personal bankruptcy filings, such as marital status, home ownership, the number of children, age, and retirement status.[18]

We augment the bankruptcy filing data with detailed household financing and consumption data from the 2004 Survey of Consumer Finance (SCF).[19] The SCF is a triennial survey conducted by the Federal Reserve Board to understand detailed

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[18] Only a limited number of bankrupt households report age in their filings. Therefore, we exclude age and retirement status from the analyses.
[19] To address the difference in sample years, all SCF data were converted into 2003 dollar.

information and attitude toward consumer finance. In addition to the same information collected from PACER[20], the SCF asks respondents whether they have ever filed for bankruptcy and, if so, when did they file for bankruptcy previously. We choose the SCF data over the alternative of PSID because SCF provide more detailed information about household consumption.[21]

A total of 4,519 were sampled in the 2004 survey. To alleviate SCF's problem of over-sampling wealthier households, we follow Domowitz and Sartain (1999) to exclude households that have annual income of greater than $500,000 dollars in 2004 and those that have more than $2 million of assets. This filtering rule leaves 3,427 observations from the SCF as control samples. [22] [23] Because even the filtered SCF households are still much wealthier than the bankrupt households, finding a similar consumption pattern between the two types of households itself suggests that the bankrupt households spend too much relative to their income levels. To be consistent, we adjust the dollar values from the 2004 SCF to 2003 dollar by the inflation rate of 2003.

Comparing the bankrupt households with those from the SCF enables us o study how consumption patterns shift the likelihood for filing personal bankruptcy between the SCF households and the households filing for bankruptcy in Delaware.[24] In addition, we get to use the SCF households as benchmark to calibrate the economic significance of each factor. This is very similar to the approach implemented by Domowitz and Sartain (1999). Unlike their study that uses bankrupt households from four different states, we compare all bankrupt households from Delaware with a control group of households randomly surveyed nationally. As previously discussed, we believe that Delaware is very similar to the entire nation in many key demographic variables (household size, income,

[20] Liabilities from priority claim (primarily tax authorities) are not available in the SCF.
[21] Both sets of data are subject to missing information
[22] We tried an alternative filtering rule of excluding households that have more than $1 million of assets and the results are almost identical to our main findings.
[23] Because we exclude about 1,100 households from the SCF data, we do not use the SCF weight in any of the regressions. Alternative specification using such weights generate qualitatively the same results.
[24] It is worth noting that it would be ideal to use a control sample from the State of Delaware in comparing the demographic and consumption data. However, such data are not readily available for the purpose of the current study.

employment, education, age commute time, etc.) though it is worth pointing out that personal bankruptcy filing decisions can vary across states because of different state law requirements.

4. Empirical Findings

4. 1. Summary statistics

We first present some key summary statistics for households in the Delaware bankruptcy court filings and those from the SCF. The median total assets for the control households ($157,726) is more than 50 percent greater than that for the bankrupt households ($96,271). In contrast, the median total liabilities for the bankrupt households ($97,856) is almost five times as high as that for the control group ($20,652). Naturally, the leverage ratio is much higher (1.57) for the bankrupt households than that for the control group (0.22).

One apparent reason why the two types of households witness drastically different financial situations is the wide difference in income. Bankrupt households make a median income of $25,738, much lower than the median income for the SCF households ($43,341) and only about one half of the Delaware median household income of $47,481. On the other hand, the median income for the control group is very close to the national median income of $42,862.[25]

We next compare the medical conditions between bankrupt and control groups to understand whether such adverse events cause bankruptcy. We define a disability or personal injury condition for a household if the household reports such information in its bankruptcy filings or response to the survey. A much higher fraction of bankrupt households (6.02 percent) report to be inflicted with disability and personal injury than the control group (1.37 percent). Consistent with existing studies (Himmelstein et al.

[25] The Delaware and national median income are obtained from the 2005 American Community Survey and adjusted into 2003 dollar.

2005, Jacoby et al. 2001), such adverse events seem to contribute to some personal bankruptcy filings. However, different from Himmelstein et al. (2005) who find that about one half of the bankrupt households claim to have filed for bankruptcy for medical reasons, only a small fraction of our sample seems to be in truly grave situation. We will later complement such rough profile on medical situations with household health-related expenditures.

The results are mixed for the hypothesis that adverse events in the labor market, such as job loss or pay cut, lead to bankruptcy. The unemployment rate (15.13 percent) is only slightly higher for the bankrupt households than for the control group (13.04 percent)[26]. The job tenure is very similar between the bankrupt households (5.57 years) and the control households (5.73 years)[27], indicating little difference in the likelihood of future unemployment due to lack of experience. Finally, the bankrupt households enjoy a healthy year-by-year income increase of 2.51 percent from 2002 to 2003, although the standard deviation of 67.7 percent is strikingly large.[28]

Fay et al. (1998) argue that households are more likely to file for bankruptcy when they expect to obtain greater financial benefits by doing so. Following such an argument, households tend to consume beyond their means if they are aware that they can discharge at least part of their liabilities through personal bankruptcy. Such considerations will induce households to consume more than they would if they were to take full responsibility for their debts. To explore such a conjecture, we next investigate bankrupt households' consumption patterns and try to understand what leads to their high levels of debt in the first place.

Before reporting the absolute debt level, we first examine how total household liabilities break down into various categories. Figure 1 shows that mortgage makes up the largest fraction of household debts for the bankrupt households (42.02 percent) and the control group (50.80 percent). Credit cards and banks seem to complement each other in

[26] Significant at the 5 percent level.
[27] The difference is statistically insignificant.
[28] Change in income is unavailable from the SCF data.

providing additional credit to the two types of households. The major difference between the two groups is that bankrupt households depend far more heavily on credit cards (25.95 percent vs. 15.16 percent for the control households) than on banks (5.37 percent vs. 21.29 percent for the control households).

It may at first seem odd that households with lower income will tap the more expensive way of financing through credit cards. This is probably more out of necessity rather than choice, as many low-income households do not have ready access to bank credit (Barr 2004). Automobiles loans make up about 12 percent of the households' total liabilities, similar between the two groups. In addition, there also seems to be a considerable difference between the Chapter 7 and Chapter 13 households in Figure 2. Mortgage dominates other liabilities for the Chapter 13 households (62.85 percent of total liabilities) and Chapter 7 households incur most of their debts through credit cards (34 percent).

To understand whether such different breakdowns of liabilities are driven primarily by the cross-sectional difference of total liabilities, we next compare the absolute value of the debts originating from different sources, such as houses, cars, and other consumption through credit cards. Table 2 reports that the median house value for SCF households is $297,900 (mean=$375,687). Because we only have mortgage information for the bankrupt households[29], we have to estimate the value of their houses. We use the average of mortgage-to-house ratio by the control groups (32.29 percent) and the household mortgage liabilities to back out the house value for the bankrupt households. Such estimations put the median house value for the bankrupt households at $294,208 (mean=$328,276)[30], strikingly similar to those reported by the SCF data. Household values are similar between the Chapter 7 and Chapter 13 households, though Chapter 7 households are far less likely to own their residence.

[29] Appraised house value is available for a small sub-sample of the bankrupt households through filing dockets.

[30] Our estimate maybe biased upward for the bankrupt households given that they have lower income and are more likely to take more debt in purchasing the property. We use an alternative fraction of 40 percent and such an alternative approach put the median and mean house value at $220,656 and $246,207.

The results are particularly striking when we put such consumption against the household income. For those households that own their primary residences, mortgage makes up 1.73 times of households' annual income for the control households (median=1.41 times) and 3.21 times of household annual income for the bankrupt households (median=3.06 times). Bankrupt households' borrowing for housing is clearly above the widely accepted rule of thumb of 'three-times of household annual income' and should be particularly alarming given the relatively low income for such households.

The mean and median automobile loan is $10,160 and $6,294 for bankrupt households and $9,000 and $0 for the control group. It is somewhat surprising that the bankrupt households take out more debt for automobile consumption than the control groups, in absolute dollar value. Similar to the results on mortgage loans, automobile loans make up about twice as much of households' annual income for the bankrupt households (0.38 times) as for the control households (0.19 times).

There are a couple of possible reasons. First, Delaware households may have to commute more, which makes them invest more in automobile consumption. This seems unlikely given that Delaware is one of the smallest states in terms of geographical span and that Delaware workers spend slightly less commute time (22.5 minutes) than the national average of 24.3 minutes (American Community Survey 2003).

Another possibility is that bankrupt households have less money for the down payment and hence have to take out more debt when purchasing the same cars. This opens up the question of what kind of cars the two types of households respectively own. We present the profile of automobile ownership in Table 3. About two-thirds of bankrupt and control households own general automobiles, with bankrupt households owning more domestic cars. In addition, a higher fraction of bankrupt households do not own any automobiles, partly because they cannot afford one or because they do not need one due to their medical conditions. It is striking that 5.37 percent of bankrupt households own luxury brands,[31] as compared to 8.16 percent for the control households.[32] In addition, 8.08 percent of the households in Chapter 13 own luxury cars, mirroring the pattern for the control group.

Of course, there is the possibility that bankrupt households purchase pre-owned luxury-brand automobiles that would be older in age and cheaper in price. Comparing the car age for the two groups, however, generates results against such a conjecture. The median car age for Chapter 7, Chapter 13, and SCF household are seven, six, and six years, respectively [33], and there is little support for such a conjecture. Bankrupt households, especially households in Chapter 13, tend to consume very similarly on automobiles to the control households which have much higher incomes and possible net worth.

Credit cards represent a major part of bankrupt households' liabilities both in terms of absolute value and in terms of the ratio to household annual income. It is clear that bankrupt households take out much greater debt through credit cards than the control households. However, we do not have detailed breakdown of the credit card debts to draw a definitive conclusion on how households use their credit cards. We will later perform robustness tests to investigate whether credit card debts are primarily driven by adverse health conditions and the related medical expenses.

In sum, we find that households that end up filing for bankruptcy display similar consumption patterns to households randomly surveyed in the SCF 2004. Given that such households typically make much lower incomes, our results indicate that such households consume beyond their means and such consumption debts drive households into bankruptcy.

4.2 Regression Analyses.

[31] Following the SCF classification, we categorize the following brands as luxury brands: Acura, Alpha Romeo, Aston Martin, Audi, Bentley, BMW, Cadillac, Ferrari, Hummer, Infiniti, Jaguar, Lamborgini, Lexus, Land Rover, Lincoln, Lotus, Maserati, Mercedes, Porsche, Qvale, Saab, and Volvo,

[32] We acknowledge the help fro Arthur Kinniell for providing the summary statistics from SCF 2004.

[33] The mean car age is 7.7, 8.8, and 6.8 years, respectively, for Chapter 7, Chapter 13, and SCF households.

We next perform several regression analyses to quantitatively assess the impact of adverse events and consumption patterns on the tendency of households to file for bankruptcy. In particular, we plan to contrast the impact of adverse events and that of consumption patterns on filing tendency.

Domowitz and Sartain (1999) show that experiencing health problem is the biggest contributing factor in households' filing for bankruptcy using data from 1980 and Himmelstein et al. (2005) use more recent survey data to argue that health problems may explain about one half of the personal bankruptcy filings. Following Domowitz and Sartain (1999), we estimate whether high medical expenses lead to personal bankruptcy. Given that health care costs have risen considerably during the past couple of decades, we use a higher cutoff of five percent of annual income (twice the 2.5 percent in Domowitz and Sartain 1999) to classify households as potentially having medical problems.[34] The high-medical expense dummy equals to one if medical expenses make up more than five percent of household annual income, and zero otherwise. We further verify our data with the self-reported disability and injury status in the bankruptcy filing data and confirm that all filers that claim to be disabled or personally injured fall in our classification of households with medical problems.

Some people file for bankruptcy soon after divorces because one member of the previous marriage (usually the family member who was not employed) does not have a regular job or independent credit history. Divorce puts such household members into a difficult situation because they do not have the earning power or access to the well-established credit market. As a result, people could file for bankruptcy after getting divorced. We obtain the marriage status of the household from the bankruptcy filing and the SCF and create a divorce dummy variable that equals to 1 if the filer/respondent reports to be "divorced' and 0 otherwise. One caveat of our variable is that it only records the current marriage status, but not the precise date of the divorce. Hence, we acknowledge that our measure is a noisy estimate of the adverse shock from divorce.

[34] We use alternative cutoff values of 2.5 percent and 10 percent and the results remain very similar.

We further create a couple of variables to capture the potential shocks that households experience in the labor market. Obviously, unemployment can cause interruption in household income flow and disrupt households' ability to repay their liabilities, both contributing to filing bankruptcy. We create an unemployment dummy variable that equals to one if a household reports that at least one adult in the household was laid off or between jobs. A similarly defined variable is reported in the SCF for the control households. In addition, we also include the duration that each household head has been with the current employer. There are a couple of reasons why job tenure is important. First, a longer employment history with the same employer indicates that the household should form a more accurate expectation of its future income and adjust its consumption accordingly. In addition, it is generally believed that a longer history with the same employer improves job security and severance packages, which should reduce the chance of household filing bankruptcy due to shocks from the labor market. [35]

To test our hypothesis that bankrupt households consume too much and exhaust their income in the first place, we calculate three separate ratios of each household's mortgage, automobile loans, and credit card debts to the household annual income. Such ratios capture households' propensity to consume, while controlling for their earning capacity. If such ratios matter to filing decisions even when household assets (static wealth) and annual income (dynamic cash flow) are both controlled for, we believe it suggests that how households spend affects their bankruptcy decisions.

In addition, we include the logarithm of household assets and the logarithm of household liabilities (correlation coefficient between the two is 0.238) to control for the family overall financial status and financial leverage. We also include the logarithm of household income in the current calendar year to reflect differences in households'

[35] It is worth pointing out that employment tenure is correlated with individual age, which is missing from many bankruptcy filings.

earning ability and a child dummy variable that equals to one if there is at least one child living with the household.[36]

We report the regression results in Table 4. As expected, households with greater assets are less likely to file for bankruptcy and those that have greater liabilities are more likely to file. Higher level of income reduces filing likelihood. Households with at least a child has a higher filing probability and households that own their households are also much more likely to file for bankruptcy, contrasting previous findings that homeownership deters bankruptcy filings, our evidence indicates that owning a house indeed increases the filing probability.

The coefficient for the medical dummy is positive and significant, confirming that health problems and the related expenses contribute to bankruptcy filings. Being divorced does not significantly influence the tendency to file for bankruptcy, which is consistent with previous findings in Fay et al. (2002). The unemployment dummy is not significant in any of the specifications, indicating that being unemployed does not automatically induce households into bankruptcy. Such findings should not be too surprising given the mixed findings on how labor income and its change can influence filing tendency differently in Fay et al. (2002). Contrary to the conjecture that longer employment history helps job retention and reduces filing probability, employment tenure indeed increases the likelihood of bankruptcy filing, even when we control for unemployment in the same specification.[37] We do not have a ready explanation for why this is the case.

Consistent with our over-consumption hypothesis, the three variables for household consumption patterns all turn out significantly positive, indicating that a higher level of consumption relative to income leads to a higher tendency to file for

[36] We have also collected household information such as filer gender and nature of employment, but similar information is unavailable from the SCF. On the other hand, household head age is available from the SCF data but only available for a select group of bankrupt households. Consequently, we do not include such variables in the regressions.
[37] We also include percentage change in income from the previous year in an alternative specification and income change has insignificant impact on bankruptcy filing.

bankruptcy.[38] Given that we control for household asset and income in the same regression, it seems that households consume too much, or at the very least are slow in adjusting their consumption to conform to their income and this partly explains why many households go into bankruptcy.

Of course, it is possible that adjusting durable consumption can take time and involve transactions costs. It probably costs several percent of the house value to hire a real estate agent to sell a house and the sale process can take several months. Similarly, trading in an automobile to a dealer often involves some concessions. Nonetheless, it is striking that households have not taken such options before they file for bankruptcy. Selling their houses or luxury cars should be able to raise some much-needed cash to repay some of the household debts.[39] This is particularly striking in that households in the bankruptcy filings own houses and cars of similar value to the control households, which have far more assets and make much higher incomes. We will later assess the economic magnitude of each explanation in Section 4.3.

A couple of issues merit consideration regarding credit card debts. First, it is possible that bankrupt households have less access to bank credit than the control households have (this is suggested by Table 3 that compares the debt breakdowns) and have to take out credit cards to cover their regular living expenses. Because there is no detailed consumption information from the credit card bills, we cannot directly test this possibility. If this is the case, we should expect a negative correlation between household income and the total credit card debts. However, correlation between total credit card debts and household income is modest for the whole sample (correlation coefficient=-0.017) and the bankrupt households in particular (correlation coefficient=0.044).[40]

[38] Consistent with our conjecture that consumption matters to bankruptcy, we find in an alternative specification that car age can also explain likelihood of bankruptcy filing, among households that own automobiles.
[39] This is especially true for house consumption given that bankrupt households probably obtain far less tax benefit of owning their residence for tax purposes, given their low income level and the smaller amount of tax deduction.
[40] There is a similarly weak correlation between household income and the number of unique credit cards held by the household.

Also, it is possible that households use credit cards to pay off their medical bills so credit card bills may serve as a weak proxy for the medical expenses. One way to isolate the possibilities is to separately look at households that have high versus low credit card bills and examine whether medical bills play a different role in their household financing. However, our additional analyses reveal that there is very weak correlation between household medical bills and credit card debts. The correlation between the total credit card debts and disability is 0.123 for the whole sample and 0.078 for the bankrupt households.

Finally, we investigate households' choice between the alternative bankruptcy chapters. Generally, households that have relatively less equity relative to assets and lower income opt to file under Chapter 7, which allows households to discharge their entire debt, without committing any future income. This is exactly what we found: household assets and income level decreases while total household liabilities increase the probability of filing under Chapter 7. Medical conditions and unemployment status are associated with higher propensity to file under Chapter 7, probably because households inflicted with such incidence cannot come up with payment in excess of covering the households' basic needs. Divorce does not have significant impact on the chapter choice.[41] [42]

If consumption serves as a reasonably good indication of households' expectation of future income, we generally expect those households that consume more to file under Chapter 13 and work out discharge plans with the creditors. If, instead, we find that such households attempt to discharge their debts completely under Chapter 7, when controlling for other factors, it suggests that the households intend not to repay their debts if they can get away from it and indicates that at least some households file strategically, as argued by Fay et al. (2002). Our findings that households with more mortgage, automobile, and credit card debts relative to their income are more likely to file under Chapter 7

[41] In an alternative specification, we include a dummy variable for female filers, but the variable does not have significant impact on chapter choice.
[42] We find in an alternative specification that income change from the previous year does not influence the chapter choice significantly.

(insignificantly for mortgage loans) suggest that at least some households intentionally choose Chapter 7 to avoid responsibilities for their over-consumption. This is similar to some policymakers' concerns that the threshold for filing for Chapter 7 is too low and households take advantage of such easy access to discharging all of their debts. Our results imply that the bankruptcy reform in 2005 should be able to curb at least some filings aimed at taking advantage of the bankruptcy laws.

4.3 Discussions

There are several ways of assessing the economic magnitude of the alternative hypothesis. We first calculate the marginal effect of the significant independent variables on the probability to file for bankruptcy. Having medical problems increases the households' filing probability by 7.6 percent and one standard deviation of increase in employment tenure is associated with an increase of 9.2 percent in the filing probability. Such changes represent 48.40 and 58.60 percent deviation from the baseline probability, calculated as the overall predicted probability of filing by the control households from SCF. On the other hand, consumption has a bigger impact on the filing probability: one standard deviation change in the ratios of mortgage, automobile loans, and credit card debts to household annual income increase will change the filing probability by 13.8, 1.3, and 29.8 percentages, deviating from the baseline probability by 87.9, 8.3, and 189.8 percent.

In addition, by looking at the R-squares of different specification, we obtain some ideas about the explanatory power of the alternative variables. The Pseudo R-square of the probit regressions increases from 51 percent to 53 percent after including the variables that account for adverse events. In contrast, the R-square increases fro 53 percent to 64 percent after including the three variables of household consumption pattern. Such results again confirm that consumption matters more to bankruptcy filings than adverse events do.

Finally, we estimate the sensitivity of bankruptcy filing to medical conditions, conditional on households with different consumption patterns. Although households with medical conditions are twice more likely to file for bankruptcy (33.5 percent) than households that do not have medical conditions (14.8 percent), employment status makes a much smaller difference to filing probability (20.9 percent for unemployed filers and 15.0 for employed filers). Interestingly, the difference between filing probability for unemployed and employed filers is very similar to the difference between the filing probability between households that display higher consumption-to-income ratios and those that display lower ratios. Consumption makes minor difference for households that are already adversely impacted by health problems and unemployment. In contrast, greater mortgage and credit card debts can more than double the filing bankruptcy for households that do not experience such adverse events (i.e. for households that do not have health problems, having a higher level mortgage can increase the filing probability by about 200 percent, from 8.8 to 25.7 percent). Given that only about 5 percent of the control households experience serious medical conditions and about 13 percent of the households experience unemployment, our analyses indicate that consumption pattern has considerable impact on the filing probability for the majority of the population.

Similar to Domowitz and Sartain (1999) on personal bankruptcy filing some twenty years ago, our results provide qualitative support for both the adverse event and the over-consumption/strategic filing explanations. More importantly, our results indicate that nowadays, the latter seems to weigh more heavily than the former does on households' filing decisions. Although credit cards still seem to play a very important role in contributing to personal bankruptcy, medical conditions are no longer as critical as they used to be twenty years ago (Domowitz and Sartain 1999). Instead, households' expenses on durable goods, such as housing and automobiles, contribute considerably more to bankruptcy filings. Our findings that households with greater consumption debts are more likely to file under Chapter 7, which enables them to walk away from their entire consumption liabilities, confirm that some households strategically file to take advantage of the bankruptcy system. Such contrast suggests that, unlike the findings from the earlier periods, the causes for filing personal bankruptcy indeed have shifted during the past couple of decades. Bankruptcy laws and reforms should reflect such recent issues accordingly.

5. Conclusions

The current study provides a description of durable good consumption for all households that file for personal bankruptcy under the Delaware Bankruptcy Court in 2003. Our results indicate that the bankrupt households spend similar amounts on residence and automobile expenditures as the control households do, despite their much lower earning power. Durable consumption makes up a much higher fraction of total household income for bankrupt households.

Such detailed consumption data extend our understanding about what causes personal bankruptcy. In addition to the existing hypothesis on adverse events and strategic filing, our findings provide another explanation that households filing for bankruptcy spend beyond their means, making them financially vulnerable to adverse events and more likely to file for bankruptcy as a result. Such over-consumption pattern may result as a consequence of previous bankruptcy laws and carries the risk of increasing cost of credit for the entire society.

Our results confirm the notion that over-consumption contributes to personal bankruptcy and emphasize that bankruptcy law reform should aim to address the issue. Current means test focusing on income, rather than consumption patterns or adverse events, may not set the best criteria for sorting out the households who truly need the bankruptcy protection from those that consume beyond their means to take advantage of the system.

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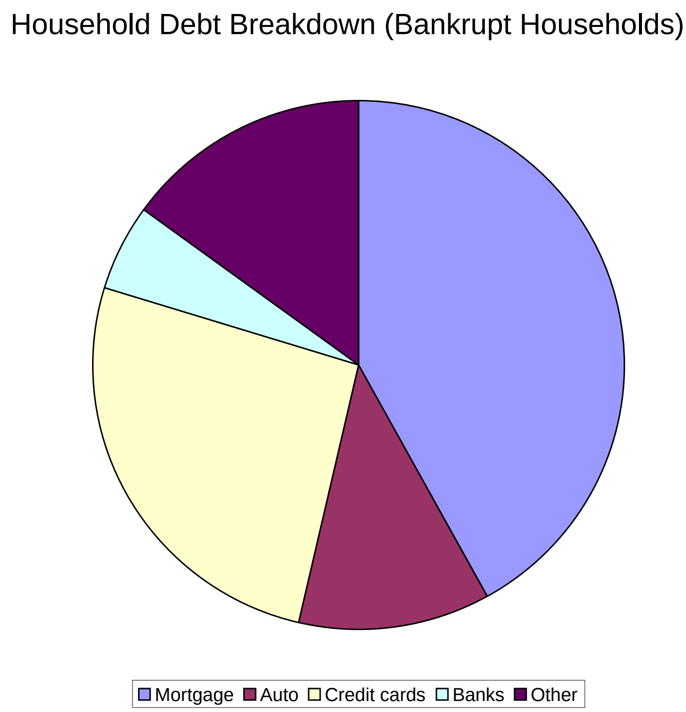
Figure 1. Household Debt Breakdown for Bankrupt and Control Households



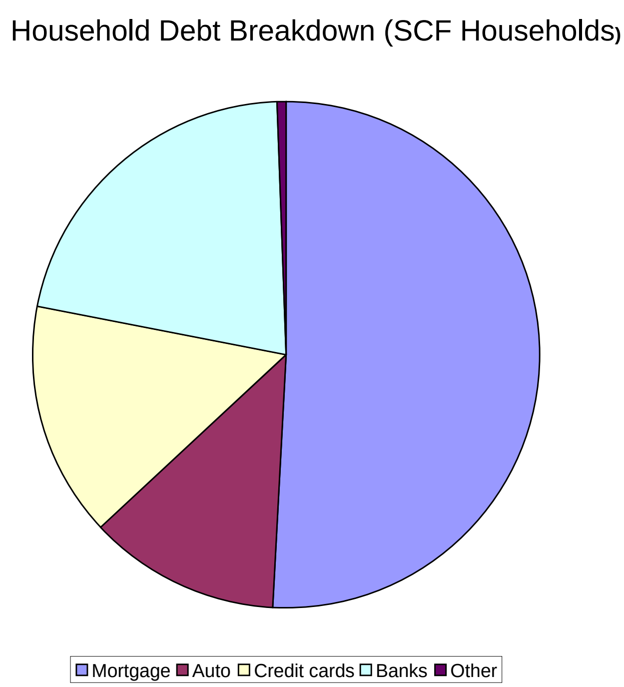
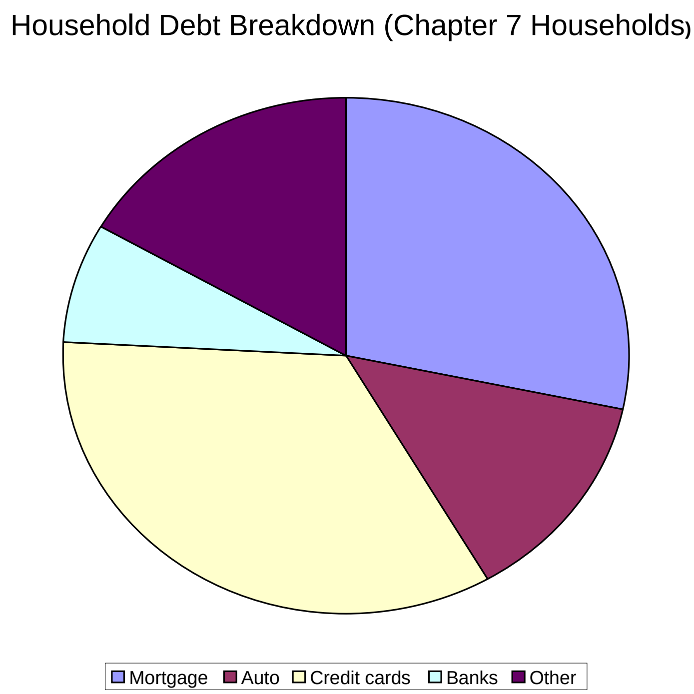
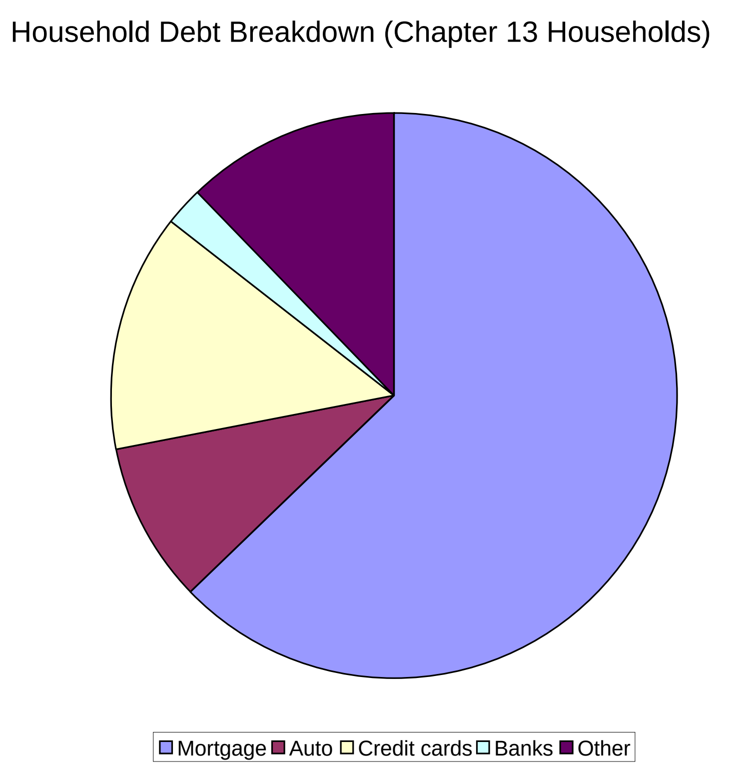


Figure 2 Household Debt Breakdown for Chapter 7 and Chapter 13 Households





		All households	Bankrupt households			Households from SCF
			Both Chapters	Chapter 7	Chapter 13	
N		6,183	2,756	1,667	1,089	3,427
Total Assets	mean	219,467	84,221	58,415	123,725	328,231
	median	97,959	96,271	18,456	110,392	157,726
	std dev	342,666	73,517	84,601	99,633	421,754
Total Liabilities	mean	94,430	122,221	103,460	150,907	72,097
	median	60,554	97,856	65,181	128,400	20,652
	std dev	122,761	133,224	140,366	115,820	108,640
Leverage	mean	3.14	6.04	8.62	2.11	0.76
	median	0.80	1.57	2.60	1.21	0.22
	std dev	10.56	14.34	17.21	6.52	4.65
Income	mean	41,422	28,842	24,681	35,211	60,525
	median	31,245	25,738	22,428	32,160	43,341
	std dev	33,792	20,443	19,488	20,238	58,489
Expenditure	mean	18,126	28,605	27,840	29,776	9,709
	median	16,490	25,851	25,260	27,174	5,202
	std dev	17,713	18,009	18,507	17,161	12,096
Unemployed	mean	13.97%	15.13%	18.42%	10.10%	13.04%
	median	0.00%	0.00%	0.00%	0.00%	0.00%
	std dev	34.67%	35.84%	38.77%	30.15%	33.68%
Disabled/Injured	mean	3.44%	6.02%	6.72%	4.96%	1.37%
	median	0.00%	0.00%	0.00%	0.00%	0.00%
	std dev	18.23%	23.80%	25.04%	21.72%	11.63%
Divorced	mean	17.84%	18.29%	20.28%	15.06%	17.47%
	median	0.00%	0.00%	0.00%	0.00%	0.00%
	std dev	38.41%	38.94%	40.21%	35.78%	37.98%
Single	mean	46.60%	53.08%	55.19%	49.86%	42.37%
	median	0.00%	100.00%	100.00%	0.00%	0.00%
	std dev	51.04%	52.47%	49.75%	56.25%	49.25%
Number of Children	mean	0.99	1.22	1.22	1.23	0.84
	median	1.00	1.00	1.00	1.00	0.00
	std dev	1.21	1.26	1.23	1.30	1.15
	N	5,808	2,381	1,354	1,027	3,427
Job Tenure	mean	5.61	5.57	5.34	5.88	5.73
	median	3.00	3.00	3.00	3.00	3.00
	std dev	6.78	6.96	6.59	7.45	6.44
	N	3,158	2,056	1,216	840	1,102

Table 1 Summary Statistics

Total assets, liabilites are reported from the bankruptcy filings for the bankrupt households and collected by the Survey of Consumer Finance 2004. Leverage is the ratio of total liabilities to total assets. Expenditure is calculated from the monthly expenditure for the bankrupt households and collected by the SCF for the control households. Unemployed is a dummy variable that equals to 1 if at least one household member reports to be unemployed or between jobs and 0 otherwise. Disabled/injured is a dummy variable that equals to 1 if at least one household member is disabled or injured and 0 otherwise. Divorced is a dummy variable that equals to 1 if the filer is divorced and 0 otherwise. Single is a dummy variable that equals to 1 if the filer is not married and 0 otherwise. Job tenure is the number of years that the filer has spent with the current employer and 0 for unemployed filers.

		Bankrupt household			SCF	All households
		Chapter 7	Chapter 13	All bankruptcy		
N		1,667	1,089	2,756	3,427	6,183
Mortgage	mean	47,070	96,827	66,731	56,141	60,861
	median	0	91,000	55,596	0	16,500
	std dev	78,771	75,787	81,316	92,905	88,079
Automobile	mean	9,777	10,746	10,160	9,000	9,518
	median	6,000	7,000	6,294	0	0
	std dev	12,318	13,305	12,724	15,645	14,427
Credit cards	mean	23,746	27,174	25,101	2,488	12,566
	median	17,000	7,800	14,000	0	1,963
	std dev	30,934	266,761	169,365	6,476	113,722
Bank	mean	5,622	2,725	4,477	24,747	15,712
	median	0	0	0	0	0
	std dev	18,023	8,835	15,141	67,827	52,472
Student loan	mean	1,246	1,209	1,231	2,393	1,875
	median	0	0	0	0	0
	std dev	6,921	7,048	6,970	10,894	9,368
Priority	mean	2,667	4,860	3,533	N/A	N/A
	median	0	186	0	N/A	N/A
	std dev	12,687	14,938	13,661	N/A	N/A
Medical Bill	mean	1,758	1,396	1,615	944	1,243
	median	0	0	0	0	0
	std dev	7,023	9,453	8,071	10,907	9,751

Table 2. Breakdown of Household Liabilities

Mortgage is the total mortgage debts that a household takes out on all of its owned properties. Automobile loans are the total loans that a household takes out on its owned vehecles. Credit card debts are the toal of all debts that a household borrows from any credit card companies. Student loans are the sum of various loans that a household borrows to finish different levels of education. Priority claims are the sum of liabilties that a household owes to a priority claim, generally the tax authorities or some government agencies. Medical bill is the sum of all expenses that a household owe to hospital bills, dental and vision bills, disability rehabilitation, and psychological counseling.

	chapter 7 households (I)	chapter 13 households (II)	All bankrupt households (III)	SCF households (IV)	Bankrupty-SCF (III)-(IV)	P-value	Chapter 13-SCF (II-IV)	P-value
Panel A: Automobile by brands								
N	1667	1089	2756	3427				
Domesetic	40.25%	48.12%	43.36%	37.51%	5.85%	(0.00)	10.61%	(0.00)
Foreign	19.08%	20.20%	19.52%	25.16%	-5.64%	(0.00)	-4.96%	(0.00)
Luxury maker	3.60%	8.08%	5.37%	8.16%	-2.79%	(0.00)	-0.08%	(0.82)
Others	13.15%	1.35%	8.47%	15.13%	-6.66%	(0.00)	-13.78%	(0.00)
None	23.92%	22.25%	23.28%	14.04%	9.24%	(0.00)	8.21%	(0.00)
Panel B: Automobile age								
mean	7.7	8.81	8.21	6.82	1.39	(0.00)	1.99	(0.00)
median	7	6	7	6.00	1.00	(0.00)	0.00	(0.00)
std dev	4.27	7.06	5.76	4.73				

Table 3. Household Automobile Ownership

We define automobiles made by Chrysler, Ford, and General Motor as domestic cars; automobiles made by foreign auto-makers, except for luxury brands, as foreign cars; and acura, alpha romeo, aston martin Acura, Alpha Romeo, Aston Martin, Audi, Bentley, BMW, Cadillac, Ferrari, Hummer, Infiniti, Jaguar, Lamborgini, Lexus, Land Rover, Lincoln, Lotus, Maserati, Mercedes, Porsche, Qvale, Saab, and Volvo as luxury cars (by SCF classification). Other kinds of vehecles are classified under 'others' and households that do not own any vehecle are classified under 'none'.

	Coefficient Estimates								Marginal effect
	(I)		(II)		(III)		(IV)		
Log(assets)	-0.710	(0.00)	-0.717	(0.00)	-0.631	(0.00)	-0.416	(0.00)	-0.193
Log(liabilities)	0.943	(0.00)	0.922	(0.00)	0.609	(0.00)	0.350	(0.00)	0.186
Log(income)	-0.394	(0.00)	-0.414	(0.00)	-0.256	(0.00)	-0.173	(0.00)	-0.078
Child	0.332	(0.00)	0.327	(0.00)	0.380	(0.00)	0.325	(0.00)	0.114
Own	0.426	(0.00)	0.435	(0.00)	0.265	(0.00)	0.040	(0.75)	0.080
Divorced			-0.080	(0.18)	-0.152	(0.19)	-0.055	(0.55)	-0.045
Medical			0.124	(0.11)	0.257	(0.01)	0.088	(0.48)	0.084
Unemployed			-0.079	(0.24)	-0.206	(0.20)	0.210	(0.26)	-0.059
Employment tenure			0.050	(0.00)	0.052	(0.00)	0.049	(0.00)	0.016
Mortgage ratio					0.227	(0.00)	0.183	(0.00)	0.069
Auto ratio					0.097	(0.05)	0.100	(0.04)	0.030
Credit card ratio					1.222	(0.00)	0.772	(0.00)	0.373
Age							0.013	(0.42)	
Age^2							0.000	(0.71)	
Psedu R-square	50.96%		52.74%		63.51%		44.27%		
N	6,094		6,094		6,094		3,770		

Table 4. Probit Regression of Household Filing Probability

Log(asset), Log(liabilities), and Log(income) is the logarithm of total household assets, liabilities, and annual income, reported by the bankrupt documents for the bankrupt households and collected by the SCF for the control households. Child is a dummy variable that equals to 1 if there is at least one child living with the family. House is a dummy variable that equals to 1 if the household owns at least one house. Divorced is a dummy variable that equals to 1 if the filer reports to be divorced. Medical is a dummy variable that equals to 1 if the medical expense to annual income ratio is above 5 percent for a household. Unemployed is a dummy that equals to 1 if at least one household member is unemployed or between jobs. Employment tenure is the number of years that the filer has spent with the current employer. Mortgage ratio, auto loan ratio, and credit card ratio is the ratio of mortgage, automobile loans and credit card debts to household annual income. P-values are provided in parentheses. Marginal effect is the marginal change in filing probability given one standard deviation change in the continuous variables or the discrete change for the dummy variables.

	Coefficient Estimates						Marginal Effect
	(I)		(II)		(III)		
Log(assets)	-0.649	(0.00)	-0.640	(0.00)	-0.573	(0.00)	-0.184
Log(liabilities)	0.865	(0.00)	0.846	(0.00)	0.638	(0.00)	0.035
Log(income)	-0.206	(0.00)	-0.212	(0.00)	-0.185	(0.00)	-0.037
Child	0.436	(0.00)	0.436	(0.00)	0.516	(0.00)	0.173
House	-0.365	(0.00)	-0.376	(0.00)	-0.352	(0.00)	
Divorced			0.090	(0.54)	0.036	(0.55)	0.029
Medical			0.217	(0.00)	0.282	(0.00)	0.100
Unemployed			0.063	(0.09)	-0.013	(0.09)	0.070
Employment tenure			0.030	(0.01)	0.027	(0.01)	0.004
Mortgage ratio					0.054	(0.00)	0.005
Auto ratio					0.127	(0.00)	0.077
Credit card ratio					0.491	(0.00)	0.123
Psedu R-square	41.92%		42.91%		47.18%		

Table 5. Probit Regression of Household Chapter Choice

Log(asset), Log(liabilities), and Log(income) is the logarithm of total household assets, liabilities, and annual income, reported by the bankrupt documents for the bankrupt households and collected by the SCF for the control households. Child is a dummy variable that equals to 1 if there is at least one child living with the family. House is a dummy variable that equals to 1 if the household owns at least one house. Divorced is a dummy variable that equals to 1 if the filer reports to be divorced. Medical is a dummy variable that equals to 1 if the medical expense to annual income ratio is above 5 percent for a household. Unemployed is a dummy that equals to 1 if at least one household member is unemployed or between jobs. Employment tenure is the number of years that the filer has spent with the current employer. Mortgage ratio, auto loan ratio, and credit card ratio is the ratio of mortgage, automobile loans and credit card debts to household annual income. P-values are provided in parentheses. Marginal effect is the marginal change in the probability of filing Chapter 7, given one standard deviation change in the continuous variables or the discrete change for the dummy variables.
There are a total of 2,756 observations.

	Whole sample		Medical		No medical		Unemployed		Employed	
Group average			0.335	164	0.148	3,181	0.209	413	0.150	2,932
High mortgage	0.214	1,586	0.422	34	0.257	1,128	0.311	106	0.257	1,056
Low mortgage	0.106	1,759	0.312	130	0.088	2,053	0.174	307	0.089	1,876
High automobile	0.215	938	0.336	58	0.207	880	0.256	109	0.210	829
Low automobile	0.134	2,407	0.335	106	0.125	2,301	0.192	304	0.126	2,103
High credit card	0.203	1,080	0.396	45	0.295	671	0.395	100	0.292	627
Low credit card	0.135	2,265	0.312	119	0.109	2,510	0.149	313	0.111	2,305

Table 6. Filing Probabiity for Households with different Adverse Events and Consumption Patterns

We estimate the filing probability for households with different adverse events and consumption patterns. Medical is for households whose medical expenses are greater than 5 percent of household annual income in 2003 and No medical is for hosuehodls whose medical expenses are below 5 percent of annual income in 2003. Unemployed is for households in which at least one member reports to be unemployed or between jobs. Employed is for households in which no one reports to be unemployed or between jobs. High mortgage is for households whose mortgage debts to income ratio is above the whole sample average and low mortgage is for households whose mortgage debts to income ratio is below the whole sampel average. High automobile is for households whose auto loan to income ratio is above the whole sample average and low automobile is for households whose auto loan to income ratio is below the whole sample average. High credit card is for households whose credit card debt to income ratio is above the whole sample average and low credit card is for households whose credit card debt to income ratio is below the whole sample average.