PERSONAL BANKRUPTCY FILING BEHAVIOR: THE CASE OF YOUTH IN THE U.S.

by

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A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Arts

Economics

at

NAZARBAYEV UNIVERSITY - SCHOOL OF HUMANITIES AND SOCIAL SCIENCE

2017

Abstract

The current study analyzes personal bankruptcy filing behavior of young Americans born in the period from 1980 to 1984. Using National Longitudinal Survey of Youth 1997 (NLSY97), I find the importance of demographic and socio-economic variables in the context of consumer bankruptcy filing. First, I the analyze youth personal bankruptcy behavior by ages 25 and 30 in a Logit model framework to discover the roles of demographic and socio-economic characteristics in the personal bankruptcy filing behavior. I find that race/ethnicity has negatively significant effect and gender, marital status, number of children, and work experience have positively significant effects on the decision to declare for bankruptcy by age 25. Level of education is negative significant and martial status, history of illnesses and injuries, and work experience are positive significant determinants of the decision to declare for bankruptcy by age 30.

I then conduct a fixed effect Logit analysis utilizing the panel data aspect of the NLSY97 to understand what events immediately cause bankruptcy. I find that divorce has a significant positive effect on the decision to declare for bankruptcy while the migration to Northcentral census region of the U.S. has a negative effect on the probability to file for bankruptcy.

Dedication

This dissertation is lovingly dedicated to my parents, Shara Bissenbina and Kystaubai Bissenbin. Their constant support, encouragement, and love help me to follow my dreams.

Acknowledgements

First and foremost I would like to thank my adviser, Prof. Berk Yavuzoglu, for constant guidance and support throughout the research process. I was lucky to have such caring and intelligent adviser who always motivated me to progress. Besides my adviser, I would like to thank the thesis committee: Prof. Giulio Ceccia and Prof. Kyle Stiegert for their insightful comments.

I also would like to thank Economics Deparment faculty of Nazarbayev University for creating a program that equipped us with all necessary tools for economic research, and planted love for economics.

Last, I would like to extend my gratitude to my family, friends and fellow groupmates for always having my back, encouraging hard work and optimistic atmosphere. Without them it would have been a dull journey.

Contents

1 Introduction

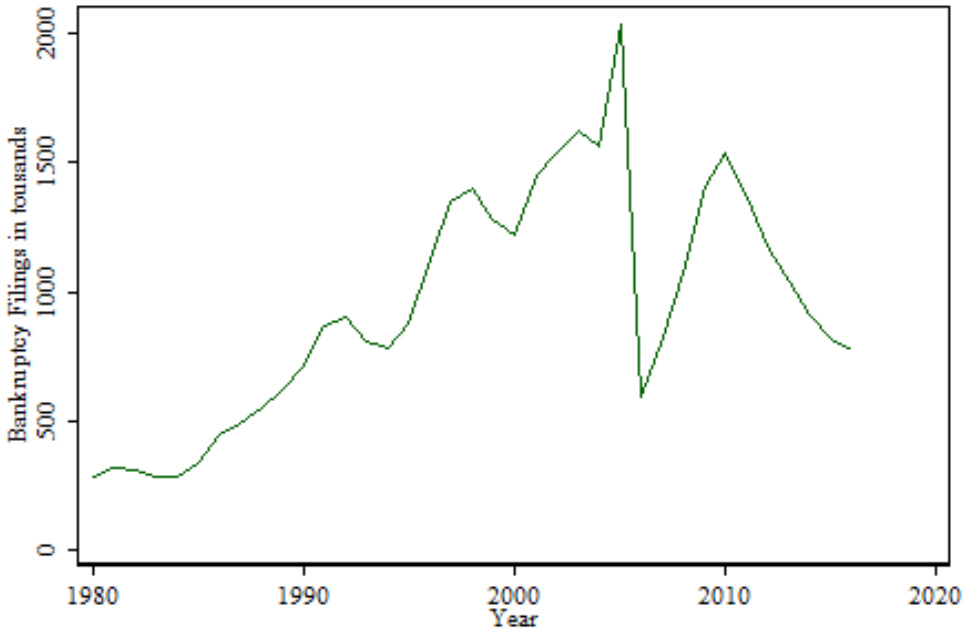
The first use of bankruptcy laws is dated back to the era of the Roman Empire. Today, bankruptcy plays an important role in regulating debtor-creditor relations for businesses as well as individuals. Among industrialized states, the U.S. is the most debtor friendly country with separate bankruptcy laws for individuals, even though the bankruptcy laws were tightened up for borrowers in the last decade (Livshits et al., 2007). Gessner et al. (1978), Warren (1987) and Jackson (2001) outline three main functions of bankruptcy laws: distribution, conflict resolution, and prevention. In economics, bankruptcy laws help risk-averse consumers obtain insurance in case of shocks, but some individuals with high income strategically file for bankruptcy at the cost of other borrowers (White, 1998b).

Figure 1 depicts the trends in the number of personal bankruptcy filings in between 1980 and 2016. In comparison to the filing rates in 1980, the number of filings in 2005 was approximately seven times higher. The sudden drop in 2006 is attributable to the changes in the Bankruptcy Law in 2005, namely the Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA) (Li, 2009). The Act is passed to make it more difficult to file for bankruptcy (Ducanto and Leibowitz, 2005). With the implementation of the BAPCPA, the mortgage default rates increased which, to some extent, contributed to the economic recession of 2008-2009 (Li et al., 2011). The bankruptcy filing rates started increasing again after 2006 till the economic recovery from the recession in 2011. By 2013, 7% of the young Americans born in from 1980 to 1984 declared bankruptcy at least once in their lives.[1] The number of bankruptcy filings decreased slowly afterwards, to a level almost twice of year

[1]The data is retrieved from National Longitudinal Survey of Youth 1997.

1980.

Figure 1: Total Number of Bankruptcy Filings, 1980-2016



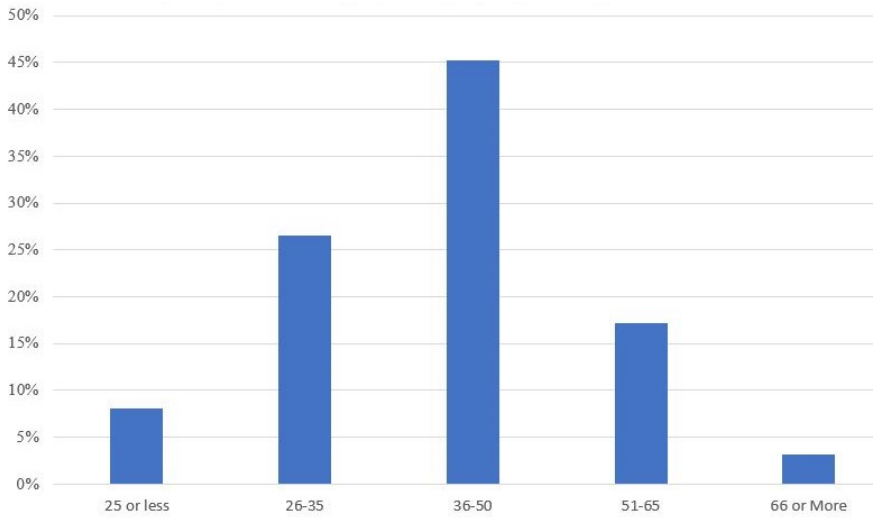
Source: Administrative Office of U.S. Courts

High bankruptcy filing rates disrupt the health of the banking system (Mason, 1998). An example of adverse outcomes is the reduction in trustworthiness between a bank and a customer, leading to the fall in the number of people shopping for loans/credits, the decline in the individuals' credit scores, and the rise in the interest rates for future borrowings (Han and Li, 2011; Walker and Walker, 2017). Bankruptcy filing history has also adverse effects in labor market for people looking for a job (Maroto, 2012).

A snapshot of the number of bankruptcy filings by age groups in 2013 is presented in **Figure 2**. About 35% of filings are declared by individuals under 35 years old. According to Mason (1998), this group has the most wealth-debt vulnerable profile, thus, is more likely to declare for bankruptcy.

In the search for the reasons for the sharp increase and volatile behavior in the bankruptcy

Figure 2: Frequency of Bankruptcy Filings by Age Groups, 2013



Source: Survey of Consumer Finances 2013

filing rates, researchers explored different aspects contributing to bankruptcy declaration decision. Some of them investigate the role of demographic, socio-economic, and psychological characteristics of individuals (Buckley and Brinig, 1998; Sullivan et al., 1988; Thorne and Anderson, 2006). Some analyze adverse events that place individuals in financial distress (Mahoney, 2015; Himmelstein and Woolhandler, 2007; Zhu, 2011). Finally, some others emphasize the importance of regional differences in bankruptcy laws (Lefgren and McIntyre, 2009; Traczynski, 2011; White, 1998b).

While the previous studies focus on the population, the current research aims to analyze the personal bankruptcy filing behavior of the young Americans aged 18-31 years old. It poses two questions: 1. Who file for personal bankruptcy? 2. What are the major reasons behind the decision to file for bankruptcy? Using the National Longitudinal Survey of Youth 1997 (NLSY97) data, I first utilize a Logit model to discover what socio-economic characteristics contribute to the personal bankruptcy filing behavior. I then conduct a fixed effects Logit analysis utilizing the panel data aspect of the NLSY97 to explore what events

cause bankruptcy immediately. Beside analyzing those who filed for bankruptcy in general, I also study the youth behavior by bankruptcy types.

After analyzing individual behaviors and factors for filing bankruptcy on a cross-sectional level, I find that race/ethnicity is negatively significant and gender, marital status, number of children, and work experience are the positively significant determinants of the decision to declare bankruptcy by age 25. Level of education is negative significant and martial status, history of illnesses and injuries, and work experience are significant determinants of the decision to declare for bankruptcy by age 30.

The panel data analysis shows that divorce (including separation) increases the probability to declare for bankruptcy among the youth. The result might be explained by the strategic filing in adverse events that is studied by Traczynski (2011) and Zhu (2011). On the other hand, the migration to Northcentral census region in comparison to moving to Northeastern region decreases the probability to file for bankruptcy. A possible justification of this finding is the variation in state bankruptcy laws and local characteristics, elaborated by Adler et al. (2000), Fay et al. (2002), Traczynski (2011), and White (1998b).

The paper is organized in the following manner: Section 2 discusses the available literature on personal bankruptcy and puts the current research into perspective. Section 3 provides background information on the U.S. bankruptcy laws and filing behavior. Section 4 explains the data used for the study. Section 5 introduces the empirical models along with the regression results. Section 6 provides a discussion, and Section 7 concludes.

2 Literature Review

Starting from the bankruptcy reform of 1978, the topic of bankruptcy has been extensively studied. Researches find significant effects for demographic, socioeconomic, legal, and psychological factors shaping the decision to file for bankruptcy. Mason (1998) studies the demographic trends affecting personal bankruptcy behavior and discovers that individuals falling into the age group of 20-35 years old have the most vulnerable wealth-debt profiles which greatly contributes to the bankruptcy filing decisions. Lefgren and McIntyre (2009) add that family structure, race/ethnicity and education level are the important predictors of bankruptcy filing decision.

The adverse events such as unemployment, divorce, injuries and illness have been pointed out as the reasons contributing to the decision to file for bankruptcy. Fay et al. (2002) elaborate on the general effects of unfortunate events reducing consumers' ability to repay their debts and increase the probability to declare for bankruptcy. Zhu (2011) finds that increased consumption, such as purchase of automobiles or houses, contributes to adverse events and leads to strategic bankruptcy filing. Dick and Lehnert (2010) discover that 10% of the increase in bankruptcy filings in 1980s and 1990s are attributed to the relaxed entrance procedures to the credit market. Livshits et al. (2010) also suggest that credit market environment, particularly the fall in the transaction costs, has a prominent effect on bankruptcy filing rates. Domowitz and Sartain (1999), and White (2007) identify the increase in the credit debts as an important determinant of bankruptcy filing decision.

Beside the credit card bills, medical bills have a strong contribution to the decision to file for bankruptcy (Domowitz and Sartain, 1999). Unexpected health problems are one of

the factors of financial distress. 62.1% of bankruptcies filed in 2007 were identified as due to high medical bills (Himmelstein et al., 2009). Many studies analyze the role of medical expenses on the bankruptcy filing decision. Health insurance in cases of trauma/injury covers minimal amount of medical expenses leading to high bankruptcy rates among injured individuals (Himmelstein and Woolhandler, 2007). Some patients abuse the ability to declare for bankruptcy and use it as an implicit type of health insurance in emergency situations (Mahoney, 2015).

There are many studies devoted to the analysis of legal, economic and social frameworks of bankruptcy. The bankruptcy laws, specifically exemption levels, gathered considerable attention by researchers. Traczynski (2011) examines the relationship between exemptions and divorces, and finds that the increasing bankruptcy exemption levels raise the divorce rates. Adler et al. (2000) find that increasing exemptions levels provides incentives to file for bankruptcy, using a principal-agent framework analysis. Fay et al. (2002) and White (1998b) also provide evidence of strategic behavior to file for bankruptcy based on the exemption levels.

Thorne and Anderson (2006) elaborate on the relationship between stigma and personal bankruptcy, and conclude that decreasing stigma in personal bankruptcy explains the gradual increase in the number bankruptcy filings. Sullivan et al. (2006) conversely find no such evidence and discusses financial distress as the major factor behind the increase in bankruptcy filing rates.

Examples of economic frameworks used in the analysis of bankruptcy filing decision include the use of option value of bankruptcy (White, 1998a), principal-agent framework (Adler et al., 2000), heterogeneous agent life-cycle model with competitive lenders (Livshits

et al., 2010) as well as dynamic life-cycle model (Fan and Yavuzoglu, 2013).

The current study analyzes the effect of individual characteristics on the personal bankruptcy filing behavior among the U.S. youth using Logit models on cross-sectional and panel levels, and data from the National Longitudinal Survey of Youth 1997. It aims to contribute to the literature on the causes of consumer bankruptcy declaration decisions for the young Americans.

3 Institutional Background

According to Walker and Walker (2017), bankruptcy is a "legal process by which a person declares an inability to pay debts owed to others." It is intended to be the last option that individuals should consider when in financial distress. The U.S. Courts separate between corporate/business and personal bankruptcy laws. This study considers only personal bankruptcy filing decisions. There are four types of bankruptcy codes that individuals can apply when filing for bankruptcy:

- **Chapter 7** is a liquidation bankruptcy which is considered to be the simplest and the most common type of bankruptcy, commonly known as "straight bankruptcy." It allows debtors to declare for bankruptcy without further obligations to the lender after discharging their assets. Depending on the state and federal regulations some assets may be exempt from liquidation.

- **Chapter 13** is "a reorganization bankruptcy, where the debtor proposes a plan of reorganization to keep his or her assets and pay creditors over an extended time period,

usually 3 to 5 years" (Walker and Walker, 2017). It is also called as "wage earner bankruptcy".

- **Chapter 11** is also a reorganization bankruptcy, but it is mostly used by businesses.
- **Chapter 12** is similar to Chapter 13, but it only applies to family farmers or family fishermen.

The state and federal laws impose some restrictions on how much a lender can liquidate. The level up to which debtors can keep their assets is called the exemption level which varies across states.[2]

Figure 3 illustrates the number of personal bankruptcy filings by chapters in the Bankruptcy Code in the span of 15 years starting from 2001. With the introduction of the BAPCPA, which was implemented to eliminate the abuse of the Bankruptcy Law in 2005, a means test is used to identify under which of the bankruptcy chapters individuals can file for bankruptcy. For that purpose, the benchmark is set to the monthly state median income. If an individual has income lower than the benchmark then (s)he is allowed to proceed with any chapter of the Bankruptcy Laws (Walker and Walker, 2017).

BAPCPA 2005 places a great emphasis on filings under Chapter 7. This reform also restricted the amount of relief an individual can receive after declaring for bankruptcy (Ducanto and Leibowitz, 2005). Many studies analyzed the effects of the introduction of the BAPCPA. Some groups, such as women and children, and credit companies are better off after the reform was implemented as the former spouses or debtors cannot escape from fulfilling their obligations anymore (Martin, 2007; Scott III, 2007). Others, such as homeowners, are worse

[2]The most recent data on the exemption levels is presented in Traczynski (2011).

Figure 3: Number of Personal Bankruptcy Filings by Chapters, 2001-2016

Source: Administrative Office of U.S. Courts

off after the restrictions put in place since the inability to file for bankruptcy led to high default rates and accelerated the financial crisis (Li et al., 2011).

4 Data Description

I employ the National Longitudinal Survey of Youth 1997 (NLSY97) data, which is representative of the U.S. population residing in the country who was born in between years 1980 and 1984. The sample has been followed since 1997 (Moore et al., 2000). Additional group of respondents are included for oversampling ethnic/racial groups. Currently, the last full year for which NLSY97 is available is 2013, with missing data in 2012. In fixed effects panel data analysis I consider the time period from 2002 to 2011.In 2002, the youngest group of youth turned to 18. Also, the data for hospital visits is available only for the years 2002-2011.

The response rate of youth varies from 93% in the second round to 79% in the last round.[3] In order to take missing responses into account, the survey weights are utilized in the analysis (Moore et al., 2000).

Originally, the number of individuals in the study is equal to 8984. I eliminate 380 respondents who got married twice or more in their lives to avoid complications with sudden changes in number of children, and asset/wealth levels. The questions about the declaration of bankruptcy are asked when respondents turn to 25 and 30 years old. Only 5557 respondents reached age 30 by 2013.

For cross-sectional level analysis, the dependent variable is "ever declaring bankruptcy." For panel level analysis, I use a binary bankruptcy filing variable for each year.

For individual characteristics, I consider the following variables: gender, race/ethnicity, marital status, number of children, level of education, work experience, region where the respondent is residing, number of medical emergency situations with hospital visits and number of medical emergency situations without visiting hospital, unemployment status, and household income. The full table of variables of interest is provided in **Table 6** in the **Appendix**.

Predetermined individual characteristics such as gender and race/ethnicity influence many spheres of human activities. The gender and race in the workplace play an important role in studying earnings and prestige at the workplace (Leffler and Xu, 1992). Pollak (1997) finds the increasing trend for the rate of filing for bankruptcy under Chapter 7 and Chapter 13 by women. Gender is included in the analysis as a binary variable taking value "0" for *males* and "1" for *females*. Race/ethnicity variable is included via three binary variables:

[3]The data is collected from NLSY97 website.

White (non-African-American, and non-Hispanic), African-American, and Hispanic.

The level of education is another individual characteristic that is important in explaining bankruptcy filing behavior. Blaug (1967) finds evidence for high private returns on education. I utilize the following dummy variables for education: 0-11 years of education is denoted as *High School Dropouts*; 12 years of education refer to *High School Graduates*; 12-15 years of education is considered as *College Dropouts*; *College Graduate* corresponds to 16 years of education; anything higher than 16 years of education falls under *Graduate School*.

Regional differences play an important role in bankruptcy declaration decision. For example, some places bring more anxiety to a person's life while others are more suitable for raising a family. Additionally, the exemption levels for bankruptcy vary by states. For example, the level of homestead exemption level in Massachusetts in 2005 was $500,000 while the same level was only $5,000 in Alabama. The NLSY97 divides the U.S. into 4 regions: Northeastern, Northcentral, West, and South. The regions are included in the study as separate dummy variables.

I also control for number of children, both residing and not residing with respondents, in my analysis. For that purpose, I generate four dummy variables corresponding to number of children: "0", "1", "2", and "3 or More".

Additionally, I include a dummy variable indicating an individual's marital status. I divide individuals into three groups by marital statuses: *Single* refers to individuals who, up to the survey year, has never been legally married, and takes value of "1" if the condition applies, and "0" otherwise; *Married* indicates that a respondent is in a legal marriage at the moment of the survey, and equals to "1" if married and "0" otherwise; finally, *Divorced* means that an individual has been in a marriage, but the couple legally separated, and the

variable takes value of "1" if (s)he is divorced and "0" otherwise.

For panel level analysis, I use the yearly household income to control for the wealth effect. It is calculated by adding all possible sources of income such as individual income from wages and business, spouse/partner's income from wages and business, participation in government programs, unemployment insurance, and workers compensation.

In order to take into account of the role of labor market activity of an individual, I include the level of experience (in years), dividing the number of weeks worked by 52 since (s)he reaches age 18. For the panel data analysis, I also use unemployment status since it is one of the major reasons of income shocks.

The summary statistics of the variables used in Binomial Logit Models are provided in **Table 1**. Frequency weights are applied to see the results for the whole youth population. Columns 1 and 4 summarize the weighted means of variables for the whole sample answering bankruptcy questions at ages 25 and 30, respectively. Columns 2 and 5 outline the means of variables among individuals who have ever declared bankruptcy by ages 25 and 30, respectively. Columns 3 and 6 provide the means of variables among individuals who filed for bankruptcy under Chapter 7.

Though the number of women in the population is lower than the number of men, more women declare for bankruptcy. The number of married people by age 25 is three times lower in comparison to the number of those who have never been married, but more married individuals have ever declared for bankruptcy. The mean of divorced is increasing in the entire sample as well as among those who have ever declared for bankruptcy. For race/ethnicity, more White have ever declared for bankruptcy than Hispanic or African-American. Most young Americans do not have children, while among those who have ever

Table 1: Frequency Weighted Sample Mean of Variables by Age 25 and by Age 30

	Age 25			Age 30		
	Total	Bankrupt	Chapter 7	Total	Bankrupt	Chapter 7
Gender						
Male (base)	0.518	0.391	0.430	0.509	0.384	0.368
	(4213.59)	(493.51)	(441.41)	(3475.44)	(634.07)	(503.37)
Female	0.482	0.609	0.570	0.491	0.616	0.632
	(3913.50)	(768.12)	(585.74)	(3356.63)	(1016.13)	(864.51)
Marital Status						
Single	0.713	0.445	0.394	0.497	0.280	0.303
	(6403.93)	(551.47)	(409.91)	(3395.18)	(500.36)	(434.51)
Married	0.255	0.503	0.553	0.421	0.560	0.516
	(2378.18)	(618.81)	(565.51)	(2911.45)	(904.97)	(680.49)
Divorced	0.0309	0.0523	0.0531	0.0803	0.150	0.173
	(725.59)	(144.69)	(120.46)	(1008.94)	(337.72)	(302.10)
Race/Ethnicity						
White (base)	0.695	0.740	0.703	0.686	0.717	0.706
	(6122.80)	(1039.19)	(781.69)	(5054.03)	(1276.72)	(1022.72)
African-American	0.164	0.143	0.174	0.170	0.167	0.165
	(1797.91)	(251.97)	(233.51)	(1544.03)	(359.54)	(292.83)
Hispanic	0.130	0.116	0.123	0.132	0.107	0.122
	(1566.27)	(223.43)	(190.56)	(1332.13)	(277.95)	(245.93)
Number of Children						
Zero (base)	0.638	0.327	0.261	0.431	0.266	0.259
	(5388.67)	(429.53)	(302.32)	(2974.79)	(482.63)	(390.28)
One	0.192	0.381	0.412	0.230	0.219	0.253
	(1981.65)	(482.89)	(425.22)	(1864.85)	(425.05)	(383.42)
Two	0.109	0.237	0.261	0.199	0.328	0.307
	(1421.45)	(343.45)	(301.82)	(1700.93)	(560.78)	(438.88)
Three or More	0.0607	0.0545	0.0668	0.140	0.187	0.181
	(1032.28)	(147.77)	(135.99)	(1379.64)	(385.57)	(310.52)
Level of Education						
High School Dropout (base)	0.171	0.231	0.260	0.172	0.186	0.136
	(1842.96)	(337.89)	(301.79)	(1557.83)	(383.44)	(261.23)
High School Graduate	0.273	0.429	0.375	0.245	0.322	0.341
	(2486.19)	(533.49)	(393.78)	(1944.70)	(553.08)	(474.53)
College Dropout	0.249	0.236	0.265	0.231	0.299	0.323
	(2335.66)	(342.38)	(305.49)	(1870.18)	(524.70)	(455.31)
College Graduate	0.179	0.0691	0.0630	0.169	0.111	0.115
	(1898.86)	(167.75)	(131.81)	(1538.35)	(283.24)	(238.37)
Graduate School	0.129	0.0344	0.0364	0.184	0.0822	0.0853
	(1559.60)	(116.21)	(98.83)	(1620.08)	(240.16)	(201.41)
Ill or Injured						
Hospital Visit	9.900	10.10	10.10	15.36	17.84	18.61
	(7187.41)	(996.76)	(903.25)	(7295.20)	(1655.03)	(1335.95)
No Hospital Visit	10.92	10.53	10.11	16.94	18.10	18.97
	(7518.47)	(1084.43)	(899.07)	(7561.04)	(1722.97)	(1378.65)
Work Experience	4.918	5.307	5.291	8.368	8.679	8.814
	(10635.16)	(1879.87)	(1507.53)	(10284.44)	(2770.32)	(2252.54)
N	16489857	379080	258549	11665754	644300	435169

t statistics in parentheses
Frequency weights designed by NLSY97 are applied.
(base) indicates the reference group.

declared for bankruptcy the highest proportion are of those who have one child. Most individuals who have filed for bankruptcy have only 12 years of education and the proportion is decreasing as the level of education is increasing. The mean number of hospital visits is higher among those who have ever declared for bankruptcy compared to the entire sample. Similarly, the mean years of experience is higher for those who have ever declared bankruptcy compared to the whole sample.

The statistics above provides a general picture. To see the actual effects, it is important to analyze the decision in a regression framework taking heterogeneity into account. The effects of these variables can be found more specifically using the following dependent variables: whether they declared bankruptcy or not, and what kind of bankruptcy they declared.

5 Models and Results

5.1 Model

In this part, I present the models that are used to test the effects of the time-variant and time-invariant individual characteristics on bankruptcy filing decision. First, I want to find what time-invariant individual characteristics affects the decision to declare for bankruptcy. Since the question of interest "whether the respondent or his/her spouse have ever declared bankruptcy" generates a binary variable with answers "Yes" or "No", the Binomial Logit model fits best to accommodate the needs for analysis of such outcome (Wooldridge, 2010). The variable of interest appears only at ages 25 and 30. Here, we need to find the effect of

independent variables on the probability to declare bankruptcy. Let:

$$y_i = \begin{cases} 1 & \text{if the i-th individual/spouse has ever declared for bankruptcy} \\ 0 & \text{if otherwise} \end{cases}$$

and the model is:

$$\text{logit}(y_i) = x_i'\beta + \epsilon_i$$

where x_i is the vector of individual characteristics for individual i, and ϵ_i is an error term. Here, x_i includes the following variables: for gender - *Female*; for race/ethnicity - *African-American, Hispanic*; for education levels at age 25 and 30 - *High School Graduates, College Dropouts, College Graduates, Graduate School*; *Married, Divorced* correspond to marital statuses of individuals by ages 25 and 30; the number of *Hospital Visits, No Hospital Visits* by ages 25 and 30 are included as proxies for medical expenses; *Work Experience* by ages 25 and 30 show the number of years that respondents have worked. To see the magnitude of the effects of these variables on the likelihood of the dependent variable, I include marginal effects. Chapter 7 declarations are analyzed in a similar fashion.

Next, I want to see how time-variant individual characteristics affect the decision to declare for bankruptcy. For estimation of such effects, I use Logit Model with Fixed Effects. This model controls for the unobserved heterogeneity. The dependent variable is given by:

$$y_{it} = \begin{cases} 1 & \text{if the } i\text{-th individual/spouse declared for bankruptcy at time } t \\ 0 & \text{if otherwise} \end{cases}$$

and the model is:

$$\text{logit}(y_{it}) = x'_{it}\beta + \tau_t + \lambda_i + e_{it}$$

where τ is a year dummy, and year, t, ranges from 2003 to 2011 where the reference year is 2002; λ_i is an individual specific effect; e_{it} is an error term. x_{it} is the vector of time-variant individual characteristics for a respondent i at time t and includes the following variables: *Married, Divorced* for marital status with the reference group of *Single*; *One Child, Two Children, Three Children or More* for number of children with the base group of *No Children*; *Northcentral, South, West* correspond to the region of residence at the moment of survey with the reference group of *Northeastern*; *High School Graduate, College Dropout, College Graduate, Graduate School* represent the education levels and the base group is *High School Dropouts*; *Hospital Visits, No Hospital Visits* are included as proxies for medical expenses; *Experience* corresponds to the work experience; *Household Income* is included to control for the wealth.

Along with these independent variables in cross-sectional and panel level analysis, I include bivariate interaction terms of race, education level, marital status and number of children with gender. I do so to see the joint effect of explanatory variables and understand the reasons behind bankruptcy filing decisions within groups.

5.2 Cross-Section Logit Estimates of Personal Bankruptcy Filing

The estimates of the Binomial Logit regression along with the marginal effects are shown in **Table 2**. Column (1) provides the Logit estimates at age 25, and column (2) represents the marginal effects. Similarly, the columns (3) and (4) provide the results at age 30. Interaction

terms that are not significant at least at 10% are excluded from the table.

While women are more likely to declare for bankruptcy by age 25, there is no such evidence by age 30. Similarly, being married or divorced increases the probability to declare for bankruptcy in comparison to those who have never been married. The marginal effect for those who are married increases from 0.9% at age 25 to 3.8% at age 30 and the results are significant at 1% . Those who have been divorced are more likely to declare for bankruptcy by age 30 with a marginal effect of 5.3%. Having children also increases the probability to declare for bankruptcy by age 25, which disappears by age 30.

Comparing racial groups, African-Americans are less likely to declare for bankruptcy compared to Whites with a marginal effect of -1.1% at age 25. The estimates for Hispanics are not significant. On the contrary, estimates proxying for medical expenses are only significant at age 30, though economically insignificant.

Having a college or graduate degree decreases the probability to declare for bankruptcy by age 30. Conversely, higher level of experience makes individuals more likely to declare for bankruptcy. Estimates indicate that over the time the effect of level of work experience on the probability to file for bankruptcy increases. The marginal effect at age 25 is 0.5% while it is 0.8% at age 30.

Table 3 summarizes the estimates of Logit model for Chapter 7 Bankruptcy declaration by ages 25 and 30. The estimates are similar to the above analysis with smaller magnitudes. For interaction terms, being woman and divorced is no longer significant, but African-American woman are more likely to declare for bankruptcy by ages 25 and 30. Also results for women with high educational level is persistent and significant at both age groups.

Table 2: Ever Declare Bankruptcy Binomial Logit Estimates with Marginal Effects by Ages 25 and 30

	Age 25		Age 30	
	Logit	ME	Logit	ME
Female	1.369***	0.018***	0.076	0.003
	(2.71)	(2.75)	(0.18)	(0.18)
Marital Status				
Married	0.701**	0.009**	1.062***	0.038***
	(2.39)	(2.39)	(4.17)	(4.36)
Divorced	0.740	0.01	1.484***	0.053***
	(1.32)	(1.32)	(4.54)	(4.67)
Race/Ethnicity				
African-American	-0.816**	-0.011**	-0.315	-0.011
	(-2.09)	(-2.12)	(-1.17)	(-1.17)
Hispanic	-0.393	-0.005	-0.324	-0.012
	(-1.21)	(-1.21)	(-1.24)	(-1.24)
Number of Children				
One	1.120***	0.015***	-0.238	-0.009
	(3.33)	(3.42)	(-0.79)	(-0.79)
	(3.33)	(3.25)	(-0.79)	(-0.79)
Two	1.465***	0.019***	0.325	0.012
	(3.69)	(3.75)	(1.14)	(1.15)
Three or More	1.025*	0.013*	0.502	0.018
	(1.88)	(1.89)	(1.63)	(1.63)
Level of Education				
High School Graduate	0.479	0.006	-0.316	-0.011
	(1.40)	(1.40)	(-1.16)	(-1.16)
College Dropout	0.169	0.002	-0.039	-0.001
	(0.42)	(0.42)	(-0.14)	(-0.14)
College Graduate	-0.982	-0.013	-0.814**	-0.03**
	(-1.25)	(-1.28)	(-1.99)	(-2.01)
Graduate School	-0.051	-0.0007	-1.770***	-0.063***
	(-0.08)	(-0.08)	(-3.17)	(-3.31)
Ill or Injured				
Hospital Visit	-0.017	-0.0002	0.067*	0.002*
	(-0.33)	(-0.33)	(1.88)	(1.88)
Hospital Visit^2	0.002		-0.0004	
	(0.89)		(-0.55)	
No Hospital Visit	-0.031	-0.0004	-0.069*	-0.003*
	(-0.54)	(-0.54)	(-1.89)	(-1.89)
No Hospital Visit^2	0.0002		0.001*	
	(0.09)		(1.79)	
Work Experience	0.362*	0.005**	0.231**	0.008**
	(1.96)	(1.97)	(2.04)	(2.05)
Work Experience^2	-0.023		-0.009	
	(-1.19)		(-1.18)	
Interaction Terms				
Female×Divorced	-0.438		-0.764*	
	(-0.56)		(-1.82)	
Female×African-American	0.880*		0.476	
	(1.90)		(1.43)	
Female×Two Children	-0.945*		0.327	
	(-1.91)		(0.89)	
Female×Three Children	-1.889**		-0.301	
	(-2.42)		(-0.73)	
Female×High School Graduate	-0.801*		0.591	
	(-1.80)		(1.57)	
Female×Graduate School	-1.814**		1.058	
	(-2.05)		(1.62)	
Constant	-5.812***		-4.943***	
	(-9.20)		(-8.58)	
N	7751	7751	5557	5557

t statistics in parentheses
Only interactions significant at 10% or lower are shown
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Ever Declare Bankruptcy Chapter 7 Binomial Logit Estimates with Marginal Effects by Ages 25 and 30

	Age 25		Age 30	
	Logit	ME	Logit	ME
Female	0.902	0.008	-0.026	-0.0006
	(1.49)	(1.50)	(-0.05)	(-0.05)
Marital Status				
Married	0.733**	0.006**	0.901***	0.021***
	(2.14)	(2.13)	(2.83)	(2.92)
Divorced	0.767	0.006	1.547***	0.035***
	(1.18)	(1.18)	(3.96)	(4.06)
Race/Ethnicity				
African-American	-0.684	-0.006	-0.570	-0.013
	(-1.53)	(-1.54)	(-1.54)	(-1.56)
Hispanic	-0.484	-0.004	-0.089	-0.002
	(-1.22)	(-1.22)	(-0.29)	(-0.29)
Number of Children				
One	1.402***	0.012***	0.099	0.002
	(3.51)	(3.63)	(0.27)	(0.27)
Two	1.391***	0.012***	0.406	0.009
	(2.80)	(2.86)	(1.12)	(1.12)
Three or More	1.406**	0.012**	0.636	0.015*
	(2.39)	(2.42)	(1.64)	(1.65)
Level of Education				
High School Graduate	0.151	0.001	-0.110	-0.003
	(0.38)	(0.38)	(-0.31)	(-0.31)
College Dropout	-0.031	-0.0003	0.327	0.008
	(-0.07)	(-0.07)	(0.95)	(0.95)
College Graduate	-0.723	-0.006	-0.491	-0.011
	(-0.90)	(-0.91)	(-0.96)	(-0.96)
Graduate School	0.163	0.001	-1.747**	-0.04**
	(0.23)	(0.23)	(-2.25)	(-2.36)
Ill or Injured				
Hospital Visit	0.078	0.0007	0.057	0.001
	(1.16)	(1.15)	(1.39)	(1.39)
Hospital Visit^2	-0.001		-0.0002	
	(-0.53)		(-0.21)	
No Hospital Visit	-0.101	-0.0008	-0.07*	-0.002*
	(-1.45)	(-1.44)	(-1.67)	(-1.67)
No Hospital Visit^2	0.002		0.002*	
	(0.87)		(1.93)	
Work Experience	0.296	0.003	0.121	0.003
	(1.40)	(1.41)	(0.90)	(0.90)
Work Experience^2	-0.011		0.0003	
	(-0.50)		(0.03)	
Interaction Terms				
Female×African-American	1.166**		0.832*	
	(2.18)		(1.91)	
Female×Three Children	-1.990**		-0.386	
	(-2.25)		(-0.76)	
Female×High School Graduate	-0.772		0.887*	
	(-1.49)		(1.79)	
Female×Graduate School	-2.247**		1.532*	
	(-2.15)		(1.72)	
Constant	-6.274***		-5.460***	
	(-8.46)		(-7.73)	
N	7751	7751	5557	5557

t statistics in parentheses
Only interactions significant at 10% or lower are shown
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.3 Panel Data Estimates of Personal Bankruptcy Filing with Fixed Effects

The fixed effect panel data analysis is used to control for the unobserved individual heterogeneity. The dependent variable, "Declare Bankruptcy," takes value "1" in the year of bankruptcy and "0" otherwise. I generate year dummy variables from 2002 to 2011, since only in 2002 all individuals are 18 years or older.

The estimates of the panel data analysis are reported in **Table 4**. Columns (1) and (2) present the results for bankruptcy filings regardless of type. Columns (3) and (4) provide the results for bankruptcy declaration under Chapter 7.

For total filings, the marital disruption is a major life event that increases the probability to declare for bankruptcy. The marginal effect equals to 50.3% when an individual is in the divorce process. The probability to declare for bankruptcy under Chapter 7 increases if an individual gets married or divorced, but the marginal effects are not significant.

Education level is significant only when filing for Chapter 7 at 10% level of significance, which implies bankruptcy is less common during the period at college education. Migration to Northcentral region of the U.S. decreases the probability to file for bankruptcy by around 60 percent.

Changes in number of children, history of injuries or illnesses, unemployment, and income do not affect the probability to file for bankruptcy. None of the interaction terms or time dummies explain the decision to declare bankruptcy.

Table 4: Declare Bankruptcy Binomial Logit Estimates with Fixed Effects and Marginal Effects

	Bankrupt		Chapter 7 Only	
	Fixed Effects	ME	Fixed Effects	ME
Marital Status				
Married	0.448	0.112	0.665*	0.147
	(1.40)	(1.39)	(1.73)	(1.24)
Divorced	2.015***	0.503***	2.046***	0.451
	(3.46)	(3.41)	(3.10)	(1.52)
Number of Children				
One	-0.097	-0.024	-0.141	-0.031
	(-0.30)	(-0.30)	(-0.36)	(-0.36)
Two	-0.166	-0.042	-0.322	-0.071
	(-0.39)	(-0.39)	(-0.61)	(-0.60)
Three or More	-0.311	-0.078	-0.681	-0.150
	(-0.51)	(-0.51)	(-0.87)	(-0.79)
Level of Education				
High School Graduate	0.393	0.098	-0.636	-0.140
	(0.81)	(0.82)	(-0.93)	(-0.96)
College Dropout	-0.065	-0.016	-1.261*	-0.278
	(-0.12)	(-0.12)	(-1.73)	(-1.52)
College Graduate	-0.446	-0.111	-1.634*	-0.361
	(-0.65)	(-0.64)	(-1.81)	(-1.50)
Graduate School	0.185	0.046	-1.561	-0.344
	(0.23)	(0.23)	(-1.48)	(-1.30)
Region of Residence				
Northcentral	-2.433**	-0.607*	-2.826**	-0.624**
	(-2.07)	(-1.94)	(-2.01)	(-2.30)
South	-1.637	-0.409	-2.093	-0.462**
	(-1.61)	(-1.53)	(-1.51)	(-2.04)
West	-0.989	-0.247	-2.007	-0.443
	(-0.71)	(-0.69)	(-1.16)	(-1.59)
Ill or Injured				
Hospital Visit	-0.235	-0.059	-0.01	-0.002
	(-0.75)	(-0.74)	(-0.03)	(-0.03)
Hospital Visit^2	0.044		0.005	
	(0.80)		(0.07)	
No Hospital Visit	-0.047	-0.012	0.06	0.013
	(-0.15)	(-0.15)	(0.16)	(0.15)
No Hospital Visit^2	0.006		-0.021	
	(0.10)		(-0.31)	
Work Experience	0.799***	0.199***	0.874***	0.193
	(3.16)	(3.33)	(2.84)	(1.31)
Work Experience^2	-0.053***		-0.057***	
	(-3.45)		(-3.09)	
Household Income	0.001	0.0003	0.002	0.0005
	(0.25)	(0.25)	(0.38)	(0.37)
Household Income^2	-0.000008		-0.00002	
	(-0.45)		(-0.70)	
Unemployed	0.426	1.531	0.481	1.618
	(1.44)	(0.453)	(1.35)	(0.579)
N	1848	1848	1321	1321

Fixed Effects: t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

6 Discussion

Why are some people with certain characteristics more likely to choose to file for bankruptcy and others are not? Here are some possible scenarios that can explain such behavior.

Freedman (2005) discusses that one of the reasons why women are more likely to file for bankruptcy is their lower paying jobs. This can explain the estimated rates for women 25 years old or younger in my study. The gender discrimination might be apparent when young people have just graduated from college and starting their first job. Also, the race discrimination can be the case since there is an evidence of African-American women having higher probability of filing for bankruptcy.

The result that divorced women are less likely to file for bankruptcy can be explained considering the BAPCPA. Martin (2007) suggests that women and children benefit from the new bankruptcy reform. He points out that under the new reform former spouses cannot exempt their obligations. Thus, women, who take care of children, would continue receiving alimony even if the husband declares for bankruptcy.

In 2015, according to the U.S. Census Bureau, Americans on average choose to marry only by age 27 for females and age 29 for males, which is higher in comparison to many developing countries. After making a new family, individuals try to create a more comfortable living by investing in houses, cars and other things. The consumption needs require large funds; as a result, individuals take mortgages and loans. In turn, it makes them more vulnerable to external shocks, and they declare for bankruptcy more often. A similar observation is documented in the study by Zhu (2011).

Divorce does not only imply separating assets, but also there is a psychological cost.

Zhu (2011) points out that divorce is an adverse event and has positive marginal effect on bankruptcy filing. Traczynski (2011) finds that divorce rates increased due to high exemption levels, which decreased the value of marriage decreased.

The U.S. Census Bureau states that in 2015 the first baby in one out of four cases were born to women who were not legally married and around 10% of those women were 15 to 19 years old. It means that the birth of the first child is an unplanned event in quite a few cases, and individuals are not ready for taking care of a baby, which is costly. Parents, under pressure, can decide to take loans that they cannot afford leading to bankruptcy later on. My estimates suggest that it has a pronounced effect when individuals are young (18-25).

While most people consider the process of filing for bankruptcy as a negative action, White (2006) identifies two strategies of individual bankruptcy behavior that benefits households. The first strategy is the ability to turn non-exempt assets into exempt assets. The second one is to move to a state with a higher exemption level. It can be the case that individuals who migrate to the Northcentral part of the U.S. do so to escape from debt obligations.

Due to the fact that people who are more educated are more financially literate, it minimizes their possibility to file for bankruptcy. However, individuals who pursue higher degree of education are burdened with expensive schooling costs, including tuition, and loans taken to cover these costs. **Table 5** summarizes the mean amount of debts individuals accumulated by age 30 for each education group. Individuals pursuing graduate degree on average have six times higher accumulated debts than high school dropouts. A possible explanation for the negative relationship between the level of education and the probability to declare for bankruptcy might be the higher motivation of those to pay their debts back

Table 5: Mean of Accumulated Debt by Age 30 by Education Level

Variable	**Mean**	**Std. Dev.**	N
High School Dropout	13289.613	45161.885	785
High School Graduate	32880.237	66674.825	1032
College Dropout	36411.991	69594.352	990
College Graduate	72543.177	97769.244	597
Graduate School	80686.939	105851.583	617

and build a career, so that years spent in school are worth the investment.

Medical services in the US are also costly. It is postulated that when requesting medical services individuals are aware of the high bills and are ready to cover them either out of their pocket or through their health insurance. However, since emergency is not foreseeable situation, it creates an income shock for those without health insurance. Among youth, however, there is no evidence that health problem was an immediate adverse event causing to file for bankruptcy. The reason might be the good health younger people have that deteriorates with age.

Individuals with higher level of experience are more likely to declare for bankruptcy. One of the possible reasons may be that such individuals have higher chances to be approved for mortgages and loans by showing longer/extended history of wages. Usually, the history of salary payments is used as a proxy for consumer stability. As a result, individuals with higher level of experience are exposed to bankruptcy declaration in more cases than those who do not borrow money from the bank.

7 Conclusion

The current study shows how demographic and socioeconomic variables affect the probability of filing for personal bankruptcy among the young Americans. Using National Logitudinal Survey of Youth 1997 (NLSY97) data and utilizing a Logit model, I find that women are more exposed to the bankruptcy filing than men by age 25, and having more than one child increases the probability to declare bankruptcy. The probability to file for bankruptcy increases if a person is married by age 30. Moreover, the probability to file for bankruptcy is higher for individuals with a history of divorce and lower for individuals with a history of migration to Northcentral region of the U.S.

The probability to declare for bankruptcy decreases with the level of education as individuals might be more financially literate with education. The results of this study are consistent with the current literature and improves upon it by studying the bankruptcy behavior of the young Americans. The estimates for the analysis of Chapter 7 are very similar to the ones of entire bankruptcy cases that does not distinguish bankruptcy types.

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8 Appendix

Table 6: Description of Variables

Variable	Variable Description	Reference Group
Female	Dummy variable for gender; 1 if female, 0 if male	Male
Work Experience	Number of years worked since age 18	N/A
Household Income	Total yearly income by respondent and spouse/partner if applicable	N/A
Unemployed	Dummy variable for employment status; 1 if unemployed, 0 if otherwise	
Race/Ethnicity:		
White	Dummy variable for race/ethnicity; 1 if respondent identified himself/herself as "White" in NLSY97, 0 if otherwise	White
African-American	Dummy variable for race/ethnicity; 1 if respondent identified himself/herself as "Black" in NLSY97, 0 if otherwise	White
Hispanic	Dummy variable for race/ethnicity; 1 if respondent identified himself/herself as "Hispanic" in NLSY970, if otherwise	White
Level of Education:		
High School Dropout	Dummy variable corresponding to 0-11 years of education; 1 if respondent completed 0-11 years of education, 0 if otherwise	High School Dropout
High School Graduate	Dummy variable corresponding to 12 years of education; 1 if respondent completed 12 years of education, 0 if otherwise	High School Dropout
College Dropout	Dummy variable corresponding to 13-15 years of education; 1 if respondent completed 13-15 years of education, 0 if otherwise	High School Dropout
College Graduate	Dummy variable corresponding to 16 years of education; 1 if respondent completed 16 years of education, 0 if otherwise	High School Dropout
Graduate School or More	Dummy variable corresponding to 17 years of education or more; 1 if respondent completed 17 years of education or more, 0 if otherwise	High School Dropout
Marital Status:		
Single	Dummy variable corresponding to singles; 1 if respondent has never been married, 0 if otherwise	Single
Married	Dummy variable corresponding to married; 1 if respondent is married, 0 if otherwise	Single
Divorced	Dummy variable corresponding to divorced; 1 if divorced, also includes separated, 0 if otherwise	Single

Number of Children:		
No Children	Dummy variable corresponding to not having any children (residing and not residing with respondent); 1 if respondent doesn't have any children, 0 if otherwise	No Children
One Child	Dummy variable corresponding to having one child (residing and not residing with respondent); 1 if respondent has one child, 0 if otherwise	No Children
Two Children	Dummy variable corresponding to having two children (residing and not residing with respondent); 1 if respondent has two children, 0 if otherwise	No Children
Three Children or More	Dummy variable corresponding to having three children (residing and not residing with respondent) or more; 1 if respondent has three children or more, 0 if otherwise	No Children
Ill or injured	**(emergency, not a chronic condition)**:	
No Hospital Visit	Number of times when respondent was ill or injured but did not visit hospital or was not treated by doctor or nurse	N/A
Hospital Visit	Number of times when respondent was ill or injured and visited hospital or was treated by doctor or nurse	N/A
Region of Residence:		
Northeast	Dummy variable corresponding to Northeastern Census region; 1 if respondent condition applies, 0 if otherwise	Northeast
Northcentral	Dummy variable corresponding to Northcentral Census region; 1 if respondent condition applies, 0 if otherwise	Northeast
South	Dummy variable corresponding to South Census region; 1 if respondent condition applies, 0 if otherwise	Northeast
West	Dummy variable corresponding to individual residing in West Census region; 1 if respondent condition applies, 0 if otherwise	Northeast