How Does Bankruptcy Law Impact the Elderly's Business and Housing Decisions?

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Abstract

The elderly are the population most likely to file for bankruptcy, with filings increasing by 150 percent from 1991 to 2007. This is likely because they live with relatively flat incomes and high medical expenses, and their retirement and housing assets are typically exempt from bankruptcy filings. In addition, nine states adopted higher asset exemptions specifically for the elderly. Using the Health and Retirement Study and recent state-by-time variation in homestead exemptions, we are the first to test whether the benefits of partial wealth insurance or the cost of supply-side credit constraints are predominant for the elderly. Using pooled cross-sectional analysis, we find that an increase in a state's homestead exemption increases the elderly's home equity and business ownership; however, the credit constraint is dominant in unlimited-exemption states, which decreases home and business ownership. Panel analysis reveals that an increase in the homestead exemption positively affects home ownership rates and home equity.

1. Introduction

According to the U.S. Census Bureau, the elderly are the fastest-growing population in the United States; at the same time they remain one of the most understudied populations. The recent "great recession" and housing crisis have depleted the retirement savings and housing assets of the elderly. These challenges have caused seniors to rely more heavily on consumer debt, with the median senior credit card debt rising to $27,213 in 2007 (Lawless 2009). One option the elderly have as a reprieve from this large debt is to file for Chapter 7 bankruptcy. Historically, this practice allowed financially distressed persons to keep

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their homes (Li, White, and Zhu 2011), which is particularly important for the elderly, as the home is the largest nonpension asset in their asset portfolio (Munnell and Soto 2005). Research by the American Association of Retired Persons (AARP) illustrates that many elderly people do in fact rely on bankruptcy as a reprieve from financial troubles, with bankruptcy filings from 1991 to 2007 for those age 65 and older increasing by about 150 percent (Thorne, Warren, and Sullivan 2008).

The large increase in bankruptcy filings is even more pronounced among older seniors, with a 433 percent increase in personal bankruptcy filings for those ages 75–84. Clearly, bankruptcy laws are relevant for the elderly, and it is important to understand how these laws affect their entrepreneurship, asset portfolio, and housing decisions. As a result, economists and policy makers have shown increased interest in the financial and housing security of the elderly, especially as the United States prepares for 75 million baby boomers to enter retirement over the next decade. Policy makers in an increasing number of states have responded to these concerns by electing to adopt special asset exemption levels for the elderly; the number of states with exemption levels for the elderly increased from three in 2002 to nine in 2010. Retirement accounts, including 401(k)s, typically are excluded from bankruptcy filings in all states, which is particularly pertinent for the elderly.

While bankruptcy law is enacted at the federal level, states are given control over setting asset exemption levels. For most states the largest asset exemption is the homestead exemption, which protects the home equity of individuals filing for bankruptcy. These exemption levels vary considerably, with some states allowing no home equity to be exempted from bankruptcy proceedings—for example, Pennsylvania and New Jersey—while others, such as Florida and the District of Columbia, permit filers to exempt an unlimited amount of home equity. Most states vary their homestead exemption laws by marital status and disability status, and by 2010 nine states had special exemption levels for the elderly. The bankruptcy landscape was significantly altered by the Bankruptcy Abuse Prevention and Consumer Protection Act of 2005 (BAPCPA 05) (Pub. L. No. 109-8, 119 Stat. 23 [2005]). This act was explicitly intended to discourage bankruptcy filings by making it more difficult and more expensive to file for a Chapter 7 bankruptcy (complete dismissal of debts) and aimed to force individuals with higher income or asset levels to file under Chapter 13 (reorganization and repayment). Remarkably, even when BAPCPA 05 made bankruptcy law more stringent and filing about 50 percent more expensive, the elderly still increased their filings at a much higher rate compared to the younger population, which shows that the elderly are distinctive in their treatment and response.

Bankruptcy laws disproportionately affect the elderly for three reasons. First, the majority of the debt-carrying elderly use more than half of their income (consisting mostly of Social Security income) to pay down their debt load (see White 2008). Second, the recent housing crash decreased seniors' home equity, which hampered their ability to either apply for reverse mortgages or downsize

their homes. They are also more time sensitive, as they have fewer years to wait to sell their homes or wait for the value to return compared to working-age households. Last, seniors face rising health care costs with relatively flat retirement income. Because of these difficulties, the number of retirees filing for personal bankruptcy is growing. Bankruptcy can be an attractive option for seniors struggling with significant medical debts because they can retain their retirement assets, such as individual retirement accounts (IRAs) and 401(k)s, as well as their houses in some cases, depending on the state in which they reside.

The effect of bankruptcy law on the elderly's housing and entrepreneurship decisions is theoretically ambiguous. There are two competing hypotheses on the effect of an increase in homestead exemptions. There could be a positive effect because of the benefit of the partial wealth insurance it offers. On the other hand, there could be a negative effect because of the decrease in available credit. Banks in states with higher exemption levels have higher interest rates and issue smaller loans, which reflects the fact that increased asset exemptions result in more bankruptcy filings and thus less money paid back to banks. We make an important contribution to the literature by using detailed panel data from the Health and Retirement Study (HRS) to test which hypothesis is predominant for the elderly. This is particularly important as the elderly are different from the working-age population because of the housing decisions that they need to make—usually downsizing as a result of health or mobility issues—and because of their time sensitivity, as they may not have the ability to wait 6 years between bankruptcy filings, as working-age families can. The elderly may be especially sensitive to credit constraints in making entrepreneurship decisions and likely would not use their protected assets to start a new business if their first business failed, because of the 6-year waiting period required between bankruptcy filings. We can test if higher levels of asset exemptions cause the elderly to decrease their home ownership (with less downsizing) or business ownership because of the credit constraints found in the previous literature for the working-age population or if they shelter their assets in the form of owner-occupied housing as they do for Medicaid.[1]

While there is a vast literature on personal and corporate bankruptcy laws and their effects on businesses (see White 2005; Berkowitz and White 2004; Fan and White 2003) and mortgage loans and default (see Lin and White 2001; Li, White, and Zhu 2011), the literature has largely ignored the elderly when analyzing bankruptcy laws. This is surprising, given that the AARP has determined that in the past 8 years, the group of Americans most likely to file for bankruptcy are those age 55 and older. We attempt to fill this gap in the literature by exploiting both state and state-by-time variation in homestead exemptions under Chapter 7 bankruptcy.

Our paper contributes to the literature in four ways. First, to the best of our

[1] Owner-occupied housing assets are exempt from Medicaid spend-down laws, a fact that has led economists to worry that elderly households are overinvesting in housing.

knowledge this paper is one of the first to analyze the effect of bankruptcy law on the elderly. Second, unlike the previous literature, the unique HRS data set allows us to study the effect of credit constraints on housing and business decisions for the same sample. This comes at a time when the elderly are a vital part of the population, as evidenced by policy makers' special consideration for them in bankruptcy laws. In particular, we can see if the elderly respond differently to homestead exemption levels because they have fewer years to recover from bankruptcy filings as a result of their having flat income, little ability to increase their assets, and the highest health expenditures per capita of all populations. Third, we use pooled cross-sectional analysis methods, which allow us to include unlimited-exemption states and to compare and contrast with the previous literature, which predominantly uses cross-sectional methods, and then we extend to panel methods to control for time-invariant state factors that could be confounding the cross-sectional results. Finally, this paper determines if higher homestead exemptions cause owner-occupied housing to make up a larger or smaller proportion of the elderly's wealth portfolio, which is extremely important in light of the recent housing crisis and the fact that the home is already the largest nonpension asset for the elderly. For example, if housing makes up a larger share of their wealth portfolio, then policy makers may worry more about the financial security of the elderly as the housing crisis continues.

Our pooled cross-sectional and panel methods produce a number of results that are similar in magnitude and significance, with the exception of the results on home ownership. Using pooled cross-sectional analysis, we find that in states with high or unlimited homestead exemptions, the credit constraints outweigh the benefits of the partial wealth insurance provided by the exemption levels. We find that unlimited homestead exemptions cause the elderly to decrease both home ownership and business ownership and to increase the share of their total portfolio wealth made up of housing, while an increase in homestead exemptions results in a decrease in home ownership, an increase in business ownership, and an increase in home equity. In addition, our results suggest that homestead exemptions in non-unlimited-exemption states increase entrepreneurship, and among business owners the effect on home equity is the greatest. Moving to a panel analysis, which allows us to exploit state-by-time variation but does not allow for the separate identification of unlimited-exemption states, we find that high homestead exemptions increase home ownership and home equity among the elderly.[2] The panel estimates of the effects on business ownership and portfolio share have similar magnitude and signs as the pooled cross-sectional estimates but are slightly less precise because there are fewer degrees of freedom.

The rest of the paper is organized as follows: Section 2 discusses bankruptcy law and the related literature. Section 3 explains the cross-sectional and panel

[2] We cannot separately identify the effect of a state's adopting an unlimited homestead exemption in the panel framework because no states changed their exemption level to unlimited during our period of study.

Table 1
Homestead Exemption Levels in States with Special Elderly Designation, 2010

State	Single Filers ($)	Married Filers ($)	Older Filers ($)	Exemption Age	Year Enacted
California	50,000	75,000	150,000	65	1990
Colorado	60,000	120,000	90,000	60	2007
Hawaii	20,000	20,000	30,000	65	1997
Maine	47,500	90,000	90,000	60	1983
Michigan	34,450	34,450	51,650	65	2005
Mississippi[a]	75,000	150,000		60	2003
Tennessee	5,000	7,500	12,500	62	2004
Virginia[b]	5,000	10,000	10,000	65	2010

Source. Elias, Renauer, and Leonard (2002, 2004, 2006, 2008, 2010).
[a] Filers over age 60 are allowed to claim their former residence.
[b] Virginia's elderly homestead exemption was enacted after our period of study.

methodologies used in the paper, and Section 4 provides information on the data set on which these methodologies are used. Section 5 presents the results, and Section 6 concludes.

2. Bankruptcy Law and Literature Review

2.1. Bankruptcy Law

Bankruptcy law is enacted at the federal level, but states are given control over setting specific asset exemption levels. States are free to choose which assets can be withheld from bankruptcy proceedings, such as retirement accounts, home equity, and personal assets, as well as to specify the levels of those assets that can be withheld. As previously stated, we focus on state homestead exemptions, which allow filers to exempt different levels of home equity. The federal bankruptcy law designates a federal homestead exemption level; however, states can decide whether their citizens may use the federal exemption level or the state exemption level. Most states vary their homestead exemption levels by marital and disability status. There is also considerable variation in exemption levels across states, with four states in 2010 allowing no home equity to be exempted from bankruptcy proceedings, while eight states permitted filers to exempt an unlimited amount of home equity. For the nonzero and non-unlimited-exemption states, homestead exemptions range from $5,000 to $550,000. In addition, nine states in 2010 had special exemption levels for the elderly, as detailed in Table 1. Table 2 shows the homestead exemptions of all states over our sample period.

The entire bankruptcy landscape was altered by BAPCPA 05, which was signed into law on April 20, 2005, by President George W. Bush. It aimed to discourage Chapter 7 filings and to increase Chapter 13 filings by those with high income by setting up more stringent regulations (asset tests) and making it more expensive to file by about 50 percent (White 2008). Even when taking into account

Table 2

Homestead Exemption Levels for Married Individuals, 2002–8

State	Exemption Level ($)				Federal Exemption?
	2002	2004	2006	2008	
Alabama	10,000	10,000	10,000	10,000	No
Alaska	64,800	64,800	67,500	67,500	Yes
Arizona	100,000	100,000	150,000	150,000	No
Arkansas	Unlimited	Unlimited	Unlimited	Unlimited	Yes
California	75,000	75,000	75,000	75,000	No
Colorado	90,000	90,000	90,000	120,000	No
Connecticut	150,000	150,000	150,000	150,000	Yes
Delaware	0	0	50,000	50,000	No
District of Columbia	Unlimited	Unlimited	Unlimited	Unlimited	Yes
Florida	Unlimited	Unlimited	Unlimited	Unlimited	No
Georgia	20,000	20,000	20,000	20,000	No
Hawaii	20,000	20,000	20,000	20,200	Yes
Idaho	50,000	50,000	50,000	100,000	No
Illinois	15,000	15,000	30,000	30,000	No
Indiana	15,000	15,000	30,000	30,000	No
Iowa	Unlimited	Unlimited	Unlimited	Unlimited	No
Kansas	Unlimited	Unlimited	Unlimited	Unlimited	No
Kentucky	10,000	10,000	10,000	10,000	No
Louisiana	25,000	25,000	25,000	25,000	No
Maine	50,000	70,000	70,000	70,000	No
Maryland	0	0	0	0	No
Massachusetts	300,000	300,000	500,000	500,000	Yes
Michigan	7,000	7,000	31,900	34,450	Yes
Minnesota	200,000	200,000	200,000	300,000	Yes
Mississippi	75,000	150,000	150,000	150,000	No
Missouri	8,000	15,000	15,000	15,000	No
Montana	60,000	200,000	100,000	500,000	No
Nebraska	12,500	12,500	12,500	60,000	No
Nevada	125,000	200,000	350,000	550,000	No
New Hampshire	60,000	200,000	200,000	200,000	Yes
New Jersey	0	0	0	0	Yes
New Mexico	60,000	60,000	60,000	120,000	Yes
New York	20,000	20,000	100,000	100,000	No
North Carolina	20,000	20,000	37,000	37,000	No
North Dakota	80,000	80,000	80,000	80,000	No
Ohio	10,000	10,000	10,000	10,000	No
Oklahoma	Unlimited	Unlimited	Unlimited	Unlimited	No
Oregon	33,000	33,000	39,600	39,600	No
Pennsylvania	0	0	0	0	Yes
Rhode Island	150,000	150,000	200,000	300,000	Yes
South Carolina	10,000	10,000	10,000	100,000	No
South Dakota	Unlimited	Unlimited	Unlimited	Unlimited	No
Tennessee	7,500	7,500	7,500	7,500	No
Texas	Unlimited	Unlimited	Unlimited	Unlimited	Yes
Utah	40,000	40,000	40,000	40,000	No
Vermont	150,000	150,000	150,000	150,000	Yes
Virginia	10,000	10,000	10,000	10,000	No

Table 2 (*Continued*)

State	Exemption Level ($)				Federal Exemption?
	2002	2004	2006	2008	
Washington	40,000	40,000	40,000	125,000	Yes
West Virginia	50,000	50,000	50,000	50,000	No
Wisconsin	40,000	40,000	40,000	40,000	Yes
Wyoming	20,000	20,000	20,000	20,000	No

these increases in the cost of filing, the elderly are still more likely to file than any other age group. For more details on bankruptcy history, facts, and the 2005 law change, see White (2008).

2.2. Previous Literature

Three strands of literature are particularly relevant to the analysis of the effects of bankruptcy law on the elderly's housing and business decisions. The first strand concerns the effect of bankruptcy law on personal activity. Sullivan, Warren, and Westbrook (1989) find that business debts are present in 20 percent of all bankruptcy filings, which indicates that business debts are a large reason for bankruptcy filings. This is because failed business ventures can be written off as personal debt with full forgiveness under Chapter 7 filings. In addition, White (2008) reports that health care costs (including injury and illness) are listed in 16 percent of bankruptcy filings for all filers represented in the Panel Study of Income Dynamics data set. Health care costs are particularly pertinent for the elderly, as they have the highest rates of hospitalization (the most expensive form of health care) and highest per capita health care expenditures of all populations. This helps to explain why the elderly have a higher incidence of bankruptcy filings.

Second, the literature has presented sufficient evidence, both theoretically and empirically, that higher (and unlimited) state asset exemption levels can actually deter business ownership and have detrimental effects on home ownership because they result in a lower supply of credit available in those states. As Fan and White (2003) model, higher and unlimited asset exemption levels actually create a decreased supply of credit to state residents because they result in more bankruptcy filings and therefore higher rates of default on loans, which causes banks to increase interest rates. Fan and White (2003) suggest that the business landscape is unattractive in high- or unlimited-exemption states and that even risk-averse people with the desire to own a business may instead prefer to live in a low-exemption state. In addition, Berkowitz and White (2004) find that unlimited-exemption states have particularly bad business conditions for small businesses, which have a higher chance of being denied a loan and, even if they are accepted, will receive smaller loans with higher interest rates.

These credit constraints also extend to home ownership decisions. Lin and White (2001) find that individuals living in unlimited-exemption states (relative

to low-exemption states) are more likely to be denied a mortgage or a home improvement loan. Clearly, the credit constraints brought about by higher asset exemption levels result in small businesses having less access to credit and individuals having less access to mortgages or home improvement loans, and even risk-averse people are willing to trade off some asset protection to live in states with lower asset exemption levels that have a higher availability of credit. In fact, Gropp, Scholz, and White (1997) find that the limited credit available in states with high asset exemption levels is actually shifted toward individuals with higher assets, and those with lower assets are more likely to be turned down for loans. Our findings are also consistent with this pattern.

The third strand of the literature discusses the effect of the 2005 changes in bankruptcy law. White (2008) presents an excellent overview of the changes and shows that even though the reforms were intended to discourage Chapter 7 filings and to force filers to reorganize and repay through Chapter 13, because of the way the means-tested restrictions were developed, most filers were still able to qualify and file for Chapter 7 bankruptcy. The reform aimed at and succeeded in raising costs for Chapter 7 bankruptcy filings, partially through higher legal costs for these filings. White finds that there may not be large changes in filing type (Chapter 7 versus Chapter 13) after 2005 because most are still able to file for Chapter 7 bankruptcy. However, she does note that there was an increase in Chapter 7 filings prior to the law change. Li, White, and Zhu (2011) also find that the 2005 reform increased mortgage default rates.

Our paper fills a gap in the literature by considering the effect of bankruptcy law and of the associated partial wealth insurance and supply-side credit constraints on the elderly, a typically understudied group that is differentially affected by bankruptcy law in several ways. The need for a study on the elderly and bankruptcy is further demonstrated by the extent to which policy makers value learning about the effects of bankruptcy policy on the elderly, which is evident from the fact that the AARP has supported several Consumer Bankruptcy Project reports that aim to learn about the specific factors that have led to an increase in filings by the elderly (Cawthorne 2008). In addition, most previous studies use cross-sectional variation (or repeated cross sections), which may be confounded by other factors that vary across states and also affect the elderly's home ownership and business decisions. Our paper improves on this by starting with pooled cross-sectional analysis and then extending to panel estimation techniques.

3. Methodology

Overall, the effect of bankruptcy law's homestead exemption on the elderly's financial and business decisions could be either positive or negative. Homestead exemptions could have a positive effect on financial and business decisions because they provide partial wealth insurance to risk-averse individuals if they

need to file for bankruptcy. However, the effect could be negative because states with higher homestead exemptions face credit constraints, which make it more difficult for individuals to obtain credit. Berkowitz and White (2004) show that a person in a state with a higher homestead exemption is more likely to be denied credit or to receive smaller loans with higher interest rates. This paper uses individual-level data to test these two competing hypotheses among the elderly.

In order to identify and isolate the causal effect of bankruptcy law, we use both a cross-sectional and a panel approach. As mentioned earlier, the previous literature tends to rely on cross-sectional regressions to estimate the effect of bankruptcy on different outcome variables. Because the 1978 bankruptcy code required states to choose whether to set their own exemption level or adopt the federal level, all states decided their exemption level by 1983. The time period since 1983 has been characterized by few states changing their exemption levels each year, and most of these changes are inflation adjustments. Therefore, we estimate effects for each even year from 2002 to 2008 and use pooled cross-sectional analysis, which allows for comparison with the previous literature.[3]

The pooled cross-sectional analysis studies how differences in homestead exemptions across states impact the financial and business decisions of the elderly. Empirically, we examine this issue using the following equation:

$$\begin{aligned} \boldsymbol{Y}_{is} = {} & \alpha + \beta_1 \mathrm{HE}_{is} + \beta_2 \mathrm{HE}_{is}^2 + \beta_3 \mathrm{HE}_{is}^3 + \beta_4 \mathrm{Unlimited}_s \\ & + \gamma \boldsymbol{X}_i + \theta \boldsymbol{Z}_s + \mu_t + u_{is}, \end{aligned} \tag{1}$$

where i and s index household and state, respectively. The variable HE represents the level of homestead exemption an individual faces based on his or her state, marital status, and age; HE^2 is the homestead exemption level squared, HE^3 is the homestead exemption level cubed, and Unlimited is a dummy variable denoting whether an individual lives in a state with an unlimited amount of homestead protection.[4] The coefficients of interest, β_1, β_2, and β_3, all test the competing hypotheses that either the benefit of partial wealth insurance or the cost of supply-side credit constraints is predominant for the elderly. If $\beta_1 < 0$, then the credit-constraint hypothesis explains the principal elderly response. If $\beta_1 > 0$, then the partial-wealth-insurance hypothesis is dominant. The variable $\boldsymbol{Y}$ represents the dependent variables of interest, including home ownership, home equity, the housing share of the elderly's total wealth portfolio, and their entrepreneurship decisions. A number of individual demographic variables that impact financial decisions are included in the vector $\boldsymbol{X}$; state variables such as housing price index,

[3] In addition, these individual-year cross-sectional analyses allow us to test whether there were large changes in behavioral responses before and after the 2005 bankruptcy reform.

[4] We ran all regressions with higher order homestead covariates as robustness checks and did not find them to affect the results. These results are available from the authors on request.

per capita income, and unemployment are included in the vector $\boldsymbol{Z}$; and μ is a time fixed effect.[5]

We include the homestead exemption as a dollar value (in $100,000s). The squared term allows us to determine whether the effect of homestead exemptions increases or decreases as the homestead exemption increases. Following previous research (see Berkowitz and White 2004; Fan and White 2003), we set the homestead exemption for unlimited-exemption states equal to the maximum dollar value across all states in 2008, which is $550,000. Then we enter a separate dummy variable that equals one for states with unlimited homestead exemptions. Therefore, the Unlimited coefficient, β_4, represents the marginal effect of being in an unlimited state as compared to a state with a $550,000 homestead exemption.

Also included in the regression are individual demographic variables such as individuals' sex, marital status, minority status, college education, and number of children. We also control for individuals' age, because their financial assets could either increase with age, because they have more time to accumulate assets, or decrease, if they act consistently with the life-cycle model. In addition, elderly individuals' income, assets, and health status may be important when considering their economic decisions, including bankruptcy. As a result, we include detailed information on self-reported health, financial wealth (not total wealth, because home equity is one of the dependent variables we are using), and Social Security income. We use Social Security income because it is the most plausibly exogenous income, as it is determined by decades of work experience. However, while health, wealth, and income are important factors in considering economic decisions, there is a concern that they are endogenous because they are correlated with the discount rate. The estimation is performed both with and without income, assets, and health, and the results are qualitatively and quantitatively similar; however, our preferred specification does not include them.[6]

Other important regressors included are information on the state's economy, housing market, and entrepreneurship environment. We include the state unemployment rate, per capita income, and housing price index to control for differences in state economies and housing markets. Following Fan and White (2003), we include the maximum state income tax rate to proxy for the tax environment of the state because income taxes provide partial wealth insurance to entrepreneurs. We include a housing price index from the Federal Housing Finance Agency to control for state differences in housing markets. To control for differences in business environment we include state per capita income and unemployment rate from the Bureau of Labor Statistics.

The second approach exploits state-by-time variation in state homestead ex-

[5] The state housing price index comes from the Federal Housing Finance Agency, the state maximum income tax rate variable comes from the Tax Foundation, the state per capita income variable comes from the U.S. Census Bureau, and the state unemployment rate is obtained from the Bureau of Labor Statistics.

[6] See Tables A1 (home ownership), A2 (home equity), A3 (business ownership), and A4 (portfolio share) for the results with income, wealth, and health as control variables.

emptions in a panel framework. Using this variation we can determine whether changes in state homestead exemption levels affect different financial decisions of the elderly. Because every year a few states increase their homestead exemptions, including some states that change the homestead exemption specifically for older individuals, we can use this variation to determine how changes in homestead exemptions impact financial and business decisions using the following equation:

$$\begin{aligned} \boldsymbol{Y}_{ist} = {} & \beta_1 \mathrm{HE}_{ist} + \beta_2 \mathrm{HE}_{ist}^2 + \beta_3 \mathrm{HE}_{ist}^3 + \beta_4 \mathrm{Unlimited}_s \\ & + \gamma \boldsymbol{X}_{it} + \theta \boldsymbol{Z}_{st} + \mu_t + \eta_s + u_{ist}, \end{aligned} \tag{2}$$

where i, s, and t index household, state, and year, respectively. We include the same homestead, individual demographic, and state variables but now allow them to vary over time.[7] In addition, we include state fixed effects, η, and time fixed effects, μ, for each year. Last, $\boldsymbol{Y}$ represents the same dependent variables as in the cross-sectional approach. Again, finding that $\beta_1 < 0$ shows that the cost of credit constraints is the dominant hypothesis, whereas finding that $\beta_1 > 0$ illustrates that the benefit of partial wealth insurance is dominant. We present results for regressions that include only the homestead exemption, then add HE^2 and HE^3 and Unlimited in successive columns in our tables to display the marginal effect of adding each variable for the pooled cross-sectional results. For the panel analysis, we show the results for the full model (including HE^2 and HE^3) with and without state-time trends. Note that because no state ever changed from a specific homestead exemption level to an unlimited level, we cannot include Unlimited in the panel analysis.

4. Data

4.1. Health and Retirement Study Data

To study how bankruptcy law affects the elderly's business and financial decisions we estimate equations (1) and (2) using individual-level data from the HRS. The HRS is a comprehensive data set with information on seniors' financial decisions, housing decisions, health outcomes, and income. It is a longitudinal data set that started in 1992 with a cohort of people age 55 and older. New and younger cohorts of elderly people have been added in subsequent years. A major advantage of the HRS is the biannual longitudinal aspect of the data, which allows us to use a panel-data framework and follow the same set of seniors over time. The data are available in even-numbered years; we use data from 2002, 2004, 2006, and 2008. The HRS includes financial and business information on the elderly's home ownership, home equity, portfolio details, and business ownership in even years. In order to do a complete analysis of the effects of bank-

[7] Again the results are quantitatively and qualitatively similar with and without health, wealth, and income controls. See Tables A1–A4 for the results with these variables.

Table 3
Summary Statistics before Exemptions for the Elderly, 2002

	All (1)	With Exemption (2)	Without Exemption (3)
Home ownership (%)	.788	.834	.780
	(.409)	(.372)	(.414)
Business ownership (%)	.101	.133	.0948
	(.301)	(.334)	(.293)
Housing share of portfolio (%)	.508	.524	.505
	(.353)	(.334)	(.356)
Mean home equity ($)	114,632	118,051	114,007
	(180,379)	(135,806)	(187,385)
Median home equity ($)	75,381.7	86,150.5	75,381.7
Mean total wealth ($)	376,474	368,947	377,851
	(945,369)	(552,215)	(1,000,712)
Median total wealth ($)	157,763	187,108	152,917
College (%)	.380	.382	.379
	(.485)	(.486)	(.485)
Female (%)	.590	.585	.591
	(.492)	(.493)	(.492)
Minority (%)	.176	.177	.176
	(.381)	(.382)	(.381)
Kids	3.300	3.232	3.313
	(2.246)	(2.219)	(2.251)
Age (months)	825.878	821.209	826.861
	(125.835)	(122.381)	(126.441)
Live in elderly-exempt state (%)	15.46	100	0

Note. Standard deviations are in parentheses.

ruptcy on the elderly, we also use restricted-access geocoded HRS data to merge state identifiers for each respondent. Another advantage of the restricted-access data is that the HRS gives each respondent's exact age in months, which allows us to calculate the actual homestead exemption for which each respondent qualifies. Table 3 provides summary statistics for all elderly people in our sample as well as presenting separated statistics for those living in states with and without a homestead exemption for the elderly. Unsurprisingly, the elderly have high rates of home ownership (78.8 percent) and business ownership (10.1 percent) and high total wealth, with a mean of $376,474.

4.2. Bankruptcy Exemption Data

Because of the federal Bankruptcy Code of 1978 (11 U.S.C. chaps. 1–15), there is a uniform procedure for filing across the United States. However, states are given the right to designate the amount of home equity and personal assets that individuals are allowed to exempt from the process. We exploit the state-by-time variation in state homestead exemptions not only because the homestead exemption is the largest exemption for most states but also because the home is the largest nonpension asset of the elderly. Using this variation allows us to

determine whether changes in state homestead exemption levels affect the financial decisions of the elderly.

Our data source for the homestead exemption level of each state is the appendix of *How to File for Chapter 7 Bankruptcy* (Elias, Renauer, and Leonard 2002, 2004, 2006, 2008, 2010). For each year we document each state's homestead exemption level for single and married individuals. As stated previously, nine states have special exemption levels for the elderly based on different ages (for example, the age for Colorado is 60, and the age for California is 65); for those states we document the exemption level and the age required to claim it. (See Table 1 for a list of the states that gave special exemption levels to the elderly in 2010.) In addition, the federal government has its own homestead exemption; however, states can choose whether to allow their citizens to claim it, and roughly one-third do. Therefore, we documented the federal exemption level in each year and which states allow their citizens to claim it (see Table 2).

To determine the homestead exemption level that applies to each individual, we use restricted-access HRS data that identify the state in which each person resides in each year. Then we determine whether the single, married, or elderly homestead exemption should be applied to each individual based on his or her state, age, and marital status. If an individual resides in a state that allows its residents to claim the federal homestead exemption and the federal level is greater than the state's homestead exemption, then we apply the federal homestead exemption level to the individual.

One potential worry is that homestead exemptions are endogenous. Berkowitz and White (2004) and Fan and White (2003) address this concern and treat homestead exemptions as exogenous because they were essentially determined by each state in 1983 (most changes after that were to reflect inflation). Therefore, because most states set their bankruptcy exemptions shortly after the 1983 law went into effect, following the previous literature we treat exemption levels as exogenous. However, it is still possible that the states that chose to have special exemptions for the elderly did not do so randomly and therefore are potentially endogenous. One-third of the states (three of nine) with a special exemption for the elderly adopted their exemptions for the elderly in the 1980s; these are taken as exogenous, following the previous literature. For the remaining six states with exemptions for the elderly, the main concern is that states making special exemptions for the elderly have a disproportionate number of financially distressed elderly residents who are more likely to file for bankruptcy.

The summary statistics in Table 3 are mixed. States that adopt exemptions for the elderly later have elderly residents who are more likely to own a home and have more home equity; however, they tend to have slightly less wealth. In addition, we ran the results without these six new adopters and found qualitatively and quantitatively similar results.[8] An additional concern is that people may move to states with special asset exemptions for the elderly or high ex-

[8] These results are available from the authors on request.

Table 4
Moves by Elderly over Time (%)

Destination	2002–4	2004–6	2006–8
Any new state	2.17	2.47	2.20
State with elderly exemption[a]	.33	.26	.33
State without elderly exemption	1.84	2.21	1.87
State with high exemption level[b]	.72	.80	.64
State without high exemption level	1.46	1.67	1.56

[a] Any state that has an exemption for the elderly in any year; includes California, Colorado, Hawaii, Maine, Michigan, Mississippi, Tennessee, and Virginia.
[b] States with homestead exemptions of $500,000 or more (including unlimited exemptions); includes Arkansas, the District of Columbia, Florida, Iowa, Kansas, Massachusetts, Montana, Nevada, Oklahoma, South Dakota, and Texas.

emption levels. Table 4 shows that this does not appear to be the case, as only a very small percentage of the elderly in the sample move at all, and even fewer move to states with a special exemptions for the elderly. In addition, we regressed the homestead exemptions against a variety of state background variables that could influence bankruptcy, including state unemployment and income levels, and did not find any correlation.[9] These results support the literature's characterization that changes in homestead exemptions were made independently to address inflationary concerns.

5. Results

Our analysis here focuses on pooled cross-sectional and panel estimation. There are positives and negatives to both approaches, which we outline here and revisit. Pooled cross-sectional regressions allow us to include Unlimited, which separately identifies the marginal effect of a state's having an unlimited homestead exemption as compared to just a high homestead exemption. This allows us to understand if the homestead exemption can be too high. In addition, because the existing literature uses pooled cross-sectional analysis, we present our estimates using the same methodology for comparability. The main downside of using pooled cross-sectional techniques is that we are not able to study the impact of changes in homestead exemptions nor to control for time-invariant factors. However, to address this concern to the best of our ability, we include a full set of relevant state covariates (namely, housing price index, local unemployment rate, state income tax, and so forth). Moving to our panel approach, we augment the previous literature by exploiting state-by-time variation in the homestead exemption. In addition, we can control for time-invariant factors that may have confounded the pooled cross-sectional estimates. The main drawback of using panel data is that we cannot control for the marginal effect of Unlimited because no states adopted an unlimited exemption during the period

[9] These results are available from the authors on request.

of study. In addition, panel analysis on state bankruptcy law remains difficult because state changes in homestead exemptions are relatively sparse. This relative lack of variation and the loss of degrees of freedom result in some of our estimates being less precise; however, in such cases the point estimates are of similar magnitude to the pooled cross-sectional point estimates. Because of the positives and negatives of each estimation strategy, we present estimates from both methods for each outcome of interest to give a complete picture.

5.1. Home Ownership

Table 5 shows the logit marginal effects from estimating equations (1) and (2) using homeownership as the dependent variable.[10] For the panel analysis we display only the regressions including HE^2 and HE^3 for the sake of parsimony.[11] For all panel regressions we cluster the standard errors by individual because there is potential autocorrelation over time for home ownership and business decisions. In addition, in results available on request from the authors, we conducted cross-sectional analyses separately for 2002, 2004, 2006, and 2008 to investigate whether there was a change in the elderly response after the 2005 bankruptcy reform, and in general we found that the reform caused the bankruptcy effect to strengthen.

Beginning with the pooled cross-sectional analysis, results show that a $100,000 higher homestead exemption decreases home ownership by .25 percent, statistically significant at the 1 percent level. (From this point, all results discussed are statistically significant at the 1 percent level unless otherwise noted.) Columns 2 and 3 also show that the credit constraint outweighs the partial wealth insurance benefit, as a $100,000 higher homestead exemption decreases home ownership by 2.7 to 3.3 percent. Interestingly, the coefficient on Unlimited, which measures the marginal effect of being in an unlimited-exemption state rather than a high-homestead-exemption state, shows that elderly individuals in states with an unlimited homestead exemption have a 5.9 percent lower home ownership rate (statistically significant at the 5 percent level). This indicates that the benefit of partial wealth insurance is being outweighed by the negative effects of constraints on credit from financial institutions.

While this may seem surprising and probably would be for working-age families, the elderly are different for several reasons. The negative relationship is attributable to the credit constraints arising from a decrease in the supply of credit and causing an increase in interest rates. The elderly are potentially more likely to sell their homes in relation to bankruptcy filings when dealing with large health care costs. They often need to downsize for reasons such as limitations in their daily activities. Downsizing can often mean moving to smaller housing or rental units to allow for ease of maintenance or moving to a retirement

[10] Following Lin and White (2001), we also estimated the equations using categorical regressions for homestead exemptions and found similar results.

[11] Panel results with HE and HE^2 are available from the authors on request.

Table 5

Logit Regressions on the Effect of Bankruptcy Homestead Exemptions on Home Ownership by the Elderly, Even Years 2002–8

	Pooled Cross-Sectional Regressions			Panel Regressions	
	(1)	(2)	(3)	(4)	(5)
HE	−.00248**	−.02740**	−.03343**	.02915*	.03805*
	(.001)	(.009)	(.009)	(.012)	(.018)
HE^2		.00705*	.01204**	−.00580	−.00691
		(.003)	(.003)	(.004)	(.007)
HE^3		−.00046*	−.00085**	.00033	.00038
		(.000)	(.000)	(.000)	(.001)
Unlimited			−.05991*		
			(.027)		
Female	.00625	.00608	.00613	.00599+	.00602+
	(.005)	(.005)	(.005)	(.003)	(.003)
Married	.26348**	.26514**	.26354**	.25532**	.25370**
	(.006)	(.007)	(.007)	(.005)	(.006)
Minority	−.12142**	−.12304**	−.12223**	−.12671**	−.12664**
	(.007)	(.007)	(.007)	(.005)	(.005)
Kids	−.00456**	−.00441**	−.00440**	−.00427**	−.00426**
	(.001)	(.001)	(.001)	(.001)	(.001)
College	.07480**	.07516**	.07534**	.07624**	.07625**
	(.005)	(.005)	(.005)	(.003)	(.003)
Age	−.00012**	−.00012**	−.00012**	−.00014**	−.00014**
	(.000)	(.000)	(.000)	(.000)	(.000)
State housing price index	.00015+	.00021**	.00021**	−.00010	.00003
	(.000)	(.000)	(.000)	(.000)	(.000)
State maximum income tax rate	−.00411**	−.00341**	−.00420**	−.00276	−.00678
	(.001)	(.001)	(.001)	(.004)	(.007)
State per capita income	−.00001**	−.00001**	−.00001**	−.000002	−.00001
	(.000)	(.000)	(.000)	(.000)	(.000)
State unemployment rate	.00089	.00239	.00248	−.00160	−.00061
	(.002)	(.002)	(.002)	(.004)	(.006)
State fixed effects	No	No	No	Yes	Yes
State × time trend	No	No	No	No	Yes
N	72,267	72,267	72,267	72,243	72,243
R^2	.147	.147	.147	.15	.15

Note. Clustered standard errors are in parentheses. Year fixed effects are included in all regressions.
+ Statistically significant at the 10% level.
* Statistically significant at the 5% level.
** Statistically significant at the 1% level.

community with access to meals, single-story condominiums, and amenities for elderly people with mobility limitations. In addition, the largest negative effect found in the cross-sectional results was for 2006, which indicates that the 2005 bankruptcy reform did alter the elderly's behavior.

However, it is possible that our pooled cross-sectional estimates are confounded by other factors that vary across states and also affect the elderly's housing-tenure decisions. Moving to the panel regressions and accounting for time-invariant factors for even years between 2002 and 2008, columns 4 (full

model) and 5 (full model with state-time trend) of Table 5, we find that the homestead exemption had a positive effect on elderly home ownership. In particular, estimates in column 5 suggest that a $100,000 increase in a state's homestead exemption would lead to an increase in home ownership of 3.8 percent (statistically significant at the 5 percent level). Thus, the panel estimates suggest that the benefit of partial wealth insurance outweighs the credit constraint. While these results contradict the pooled cross-sectional results, they do not allow us to separately identify the effect of being in an unlimited-exemption state and also do not allow us to use any states in the estimation that did not change their homestead exemption level from 2002 to 2008. These results indicate that the elderly in non-unlimited-exemption states value wealth insurance and use their home to shield their assets from bankruptcy filings. This is plausible, as the elderly have been found in the previous literature to use their homes as a shelter for assets when filing for Medicaid, because owner-occupied housing assets are exempt from asset spend-down tests of qualification for Medicaid. It is also consistent with the results that we find for home equity, shown below.

5.2. Home Equity

Home equity should be affected because individuals, including entrepreneurs, can convert nonhousing assets into home equity by using assets to pay down their mortgages. A typical problem when studying home equity is dealing with the selection bias derived from the fact that only homeowners can have home equity. It would be hard to find an instrument that affected home equity but did not also affect home ownership. Because of the likelihood that home ownership is not random and therefore that selection bias is a concern, we follow the existing literature (namely, Corradin et al. 2011) and use the Heckman method to exploit the nonlinearity of the inverse Mills ratio (IMR), which attempts to control for the endogenous selection into home ownership (see Heckman 1976). We include the IMR in Table 6, which presents results for the effect of homestead exemptions on the home equity of elderly home owners. Our findings are robust to controlling and not controlling for selection bias as well as including and not including renters.[12]

Pooled cross-sectional estimates in columns 2 and 3 of Table 6 show that higher homestead exemptions lead to higher home equity among the elderly. The magnitude of the effect of a $100,000 difference in the homestead exemption on home equity ranges from an increase of roughly $54,120 to $63,665.[13] The squared term suggests that this positive effect increases at a decreasing rate as

[12] These robustness results are available from the authors on request. In addition, while mean regressions are rightward skewed, quantile regressions do not converge without cutting 19 states from the sample, which significantly alters the variation in HE.

[13] The people whom one would expect to have the largest behavioral response would be elderly business owners, because they are most likely to gain from the partial wealth insurance. In regressions not shown, we find that elderly business owners are indeed the most responsive: a $100,000 increase in the homestead exemption results in a $92,145 increase in home equity for them.

Table 6

Ordinary Least Squares Regressions on the Effect of Bankruptcy Homestead Exemptions on the Home Equity of the Elderly, Even Years 2002–8

	Pooled Cross-Sectional Regressions			Panel Regressions	
	(1)	(2)	(3)	(4)	(5)
HE	−2,376.782*	54,120.85**	63,665.87**	54,946.1**	55,189.6**
	(1,158.011)	(17,561.7)	(18,082.41)	(10,745.239)	(10,735.741)
HE^2		−16,960.4**	−21,607.27**	−17,203.4**	−17,273.5**
		(5,233.219)	(6,582.612)	(3,340.386)	(3,337.799)
HE^3		1,164.149**	1,507.14**	1,181.26**	1,186.1
		(362.1173)	(481.1631)	(234.817)	(234.641)
Unlimited			35,087.53		
			(37,976.69)		
Female	4,927.337	2,379.075	1,642.249	2,250.46	2,224.14
	(5,791.945)	(5,911.86)	(5,780.362)	(5,126.651)	(5,126.474)
Married	303,822**	70,350.37	10,423.84	60,325.5**	57,941.6**
	(94,316.22)	(137,066.6)	(151,637.8)	(19,775.888)	(19,441.791)
Minority	−163,783.8**	−57,265.27	−29,319.26	−52,571.5**	−51,493.0**
	(40,943.12)	(59,589.67)	(67,772.15)	(10,960.501)	(10,802.142)
Kids	−9,641.276**	−5,963.50*	−4,955.257*	−5,798.19**	−5,757.8**
	(1,722.823)	(2,342.523)	(2,437.197)	(1,244.019)	(1,241.991)

College	161,078.8**	101,837.4**	86,031.27*	99,246.3**	98,643.9**
	(22,264.01)	(30,964.54)	(34,992.32)	(6,962.136)	(6,885.243)
Age	14.69311	116.3247+	144.8252+	121.040**	122.097**
	(50.46809)	(68.60543)	(76.68706)	(22.621)	(22.546)
State housing price index	1,082.756**	822.0188**	769.9075**	814.198**	812.254**
	(169.0255)	(180.1245)	(198.9777)	(91.533)	(91.471)
State maximum income tax rate	2,701.175+	4,849.843**	6,069.079**	4,999.96	5,030.0**
	(1,572.368)	(1,821.876)	(2,339.701)	(979.164)	(977.809)
State per capita income	2.874869	8.325426*	9.987244*	8.57879**	8.63642**
	(2.813311)	(3.660214)	(4.241413)	(.763)	(.757)
State unemployment rate	24,268.5**	20,553.48**	20,053.29**	20,477.70**	20,452.8**
	(2,115.12)	(2,366.404)	(2,194.317)	(2,783.607)	(2,783.150)
Inverse Mills ratio	2,183,874**	262,306.5	−251,975.7	179,734.2	159,663.3
	(759,708.7)	(1,098,166)	(1,229,601)	(157,788.2)	(153,924.2)
State fixed effects	No	No	No	Yes	Yes
State × time trend	No	No	No	No	Yes

Note. Clustered standard errors are in parentheses. Year fixed effects are included for all regressions. $N = 56{,}885$ and $R^2 = .028$.

+ Statistically significant at the 10% level.

* Statistically significant at the 5% level.

** Statistically significant at the 1% level.

the difference in the homestead exemption increases. Columns 2 and 3 of Table 6 also show that not allowing for curvature or nonlinearity in the functional form of HE results in a misestimation of the actual effect. Unlimited in column 3 is positive in sign, but it is not measured precisely.

The panel regressions show that individuals affected by increased homestead exemptions protect more of their assets from bankruptcy by using their assets to pay down their mortgage and increase their home equity. Column 4 shows that a $100,000 increase in a state's homestead exemption increases the elderly's home equity by $55,000, and this result is robust to including a state-time trend in column 5. Thus, both pooled cross-sectional analysis and panel analysis indicate that the partial wealth insurance benefit outweighs the credit constraints and suggest that the elderly are reinvesting their assets in their home because it is an asset safe from bankruptcy proceedings. This is also consistent with the positive panel results for home ownership, which show that the elderly use their home as an asset shelter from bankruptcy filings.

5.3. Home Equity across the Distribution

Our analysis for home equity measures behavioral responses in levels because homestead exemption policy is made in levels.[14] States choose to set their homestead exemptions in dollars. However, a $100,000 exemption may mean different protection for a household with $100,000 in home equity than for a household with $1,000,000 in home equity. Therefore, we look at different areas of the home value distribution as an extension of the analysis. The results are presented in Table 7. In order to include the marginal effect for the unlimited-exemption states and also include all states in the analysis, not just those that changed their homestead exemption over our sample period, we present pooled cross-sectional results for this analysis. We find that those with less than $100,000 in home value have a negative home equity response (not statistically significant), particularly in unlimited-exemption states, where the additional home equity loss is $19,148 for each $100,000 increase in the homestead exemption level (statistically significant at the 5 percent level), which indicates that they are affected by credit constraints. Elderly people with $100,000–$500,000 in home value increase their home equity modestly, with an increase of $11,675–$20,105 (statistically significant at the 5 percent level) for every $100,000 increase in exemptions. However, we find that the positive relationship between home equity and higher homestead exemptions is strongest among those with more than $500,000 in home value, approximately dollar for dollar, which shows that the partial-wealth-insurance hypothesis dominates for them because they can actually qualify for and receive loans. These results are consistent with Gropp, Scholz,

[14] We believe the main results should be in levels because we expect households to respond to a $100,000 change in the homestead exemption with a dollar amount change in home equity and not a percentage change, since the policy is set in levels and not as a percentage of home value.

and White's (1997) finding that the limited available credit in states with higher homestead exemptions is shifted toward those with higher assets.

5.4. Business Ownership

Next we focus our attention on how homestead exemptions impact the elderly's business ownership decisions. A large and growing literature studies how bankruptcy has impacted entrepreneurship (see Berkowitz and White 2004) or self-employment income (see Fan and White 2003) and generally finds that the positive effect of potential asset protection outweighs the negative effect of credit constraints. However, this paper is the first to specifically study business ownership decisions among the elderly, which will become increasingly important as the baby boomer generation enters retirement age.

Instead of using self-employment income as an indication of entrepreneurship, we use the HRS, which asks individuals whether or not they own a business. With their responses we can estimate the effect of homestead exemptions on the elderly's business ownership decisions. Table 8 displays the marginal effect of estimating equations (1) and (2) with a logit model in which the dependent variable is a dummy variable indicating whether a respondent owns a business. Although column 1 shows a negative statistically significant effect on HE, columns 2 and 3 suggest that it is not correctly estimating the functional form. Column 3, the preferred and full pooled cross-sectional model, estimates that a $100,000 increase in the homestead exemption leads to a 1.49 percent increase in entrepreneurship (statistically significant at the 5 percent level). This indicates that increasing homestead exemption levels could spur entrepreneurial activity. However, Unlimited continues to have a negative effect, with those in unlimited-exemption states experiencing a 3.94 percent decrease in business ownership compared to those in other high-homestead-exemption states. With regard to a panel analysis, columns 4 and 5 display a positive relationship between the homestead exemption and business ownership among the elderly, though the effects are not statistically significant. However, the point estimate of 1.58 percent in column 5 is almost identical to the statistically significant point estimate of 1.49 percent in the preferred pooled cross-sectional specification of column 3, which shows that the panel estimates are consistent with the cross-sectional results but lose precision because of the loss of degrees of freedom. We conclude that when considering both estimation techniques, there is a positive relationship between higher, nonunlimited homestead exemptions and the incidence of business ownership by the elderly.

5.5. Housing Share of Total Wealth Portfolio

To get a complete picture of the changes in the economic well-being of the elderly due to changes in bankruptcy law, we study the elderly's portfolio decisions. Changes in homestead exemptions cause the elderly to reassess their asset allocations between protected and unprotected asset classes. In addition,

Table 7

Ordinary Least Squares Regressions on the Effect of Bankruptcy Homestead Exemptions on the Home Equity of the Elderly across the Home Value Distribution

	All Home Values (1)	<$100,000 (2)	$100,000–299,999 (3)	$300,000–500,000 (4)	>$500,000 (5)
HE	63,665.87**	−4,591.95	11,675.5**	20,105.4*	544,883.0*
	(18,082.41)	(3,093.960)	(3,845.611)	(9,176.364)	(249,969.780)
HE^2	−21,607.27**	2,469.47^{+}	−3,193.42*	−5,540.04^{+}	−178,570.0*
	(6,582.612)	(1,310.959)	(1,440.281)	(3,306.316)	(89,611.387)
HE^3	1,507.14**	−184.186^{+}	207.960*	376.053	12,851.8^{+}
	(481.1631)	(96.245)	(104.187)	(238.347)	(6,615.586)
Unlimited	35,087.53	−19,147.7*	−6,471.16	778.573	−8,171.91
	(37,976.69)	(8,165.769)	(8,186.226)	(18,284.198)	(256,301.835)
Female	1,642.249	1,852.617**	4,370.689**	8,862.129**	−43,423.12
	(5,780.362)	(757.580)	(1,279.52)	(3,168.316)	(55,474.43)
Married	10,423.84	−16,410.9	−25,207.3	−190,227.0**	−3,462,630
	(151,637.8)	(14,229.125)	(25,715.924)	(69,245.940)	(2,462,300.358)
Minority	−29,319.26	3,247.20	−3,883.56	69,631.9*	1,537,310
	(67,772.15)	(6,737.068)	(12,002.945)	(32,156.560)	(1,078,748.797)
Kids	−4,955.257*	−628.229*	−1,955.68**	330.857	46,091.0
	(2,437.197)	(278.999)	(518.458)	(1,414.773)	(38,326.326)

College	86,031.27*	2,336.77	−4,545.22	−62,721.8**	−688,395.0
	(34,992.32)	(3,930.670)	(6,780.693)	(18,117.692)	(581,180.366)
Age	144.8252+	63.1218**	157.314**	383.845**	2,287.21+
	(76.68706)	(7.127)	(12.501)	(33.068)	(1,202.708)
State housing price index	769.9075**	−63.7226*	105.972**	−224.146**	−2,604.12
	(198.9777)	(24.464)	(30.019)	(74.667)	(2,641.286)
State maximum income tax rate	6,069.079**	254.925	373.028	3,018.78*	37,362.3
	(2,339.701)	(273.477)	(477.677)	(1,196.398)	(29,357.987)
State per capita income	9.987244*	.44844	3.15284**	6.39141**	67.0544
	(4.241413)	(.388)	(.678)	(1.768)	(59.182)
State unemployment rate	20,053.29**	−1.12669*	2,028.14**	−5,519.19**	−46,272.8+
	(2,194.317)	(478.570)	(662.553)	(1,717.527)	(26,525.301)
Inverse Mills ratio	−25,1975.7	−190,478.8+	−317,975	−1,643,048**	−2,830,000
	(1,229,601)	(118,746.6)	(217,248.4)	(580,944.8)	(1,990,000)
N	56,885	17,816	26,801	7,340	4,928
R^2	.028	.053	.102	.143	.008

Note. Clustered standard errors are in parentheses. All regressions include year fixed effects.
+ Statistically significant at the 10% level.
* Statistically significant at the 5% level.
** Statistically significant at the 1% level.

Table 8

Logit Regressions on the Effect of Bankruptcy Homestead Exemptions on the Business Ownership of the Elderly, Even Years 2002–8

	Pooled Cross-Sectional Regressions			Panel Regressions	
	(1)	(2)	(3)	(4)	(5)
HE	−.00218**	.02067**	.01492*	.00561	.01586
	(.001)	(.006)	(.006)	(.010)	(.015)
HE^2		−.00732**	−.00325	.00177	.00677
		(.002)	(.002)	(.003)	(.006)
HE^3		.00051**	.00020	−.00012	−.00049
		(.000)	(.000)	(.000)	(.000)
Unlimited			−.03942**		
			(.013)		
Female	−.01090**	−.01081**	−.01079**	−.01187**	−.01178**
	(.003)	(.003)	(.003)	(.002)	(.002)
Married	.05785**	.05461**	.05328**	.05504**	.05563**
	(.003)	(.004)	(.004)	(.003)	(.003)
Minority	−.06391**	−.06350**	−.06334**	−.05898**	−.05903**
	(.003)	(.003)	(.003)	(.003)	(.003)
Kids	−.00253**	−.00261**	−.00260**	−.00343**	−.00343**
	(.001)	(.001)	(.001)	(.001)	(.001)
College	.03144**	.03106**	.03111**	.037496**	.03750**
	(.003)	(.003)	(.003)	(.002)	(.002)
Age	−.00012**	−.00012**	−.00012**	−.00014**	−.00014**
	(.000)	(.000)	(.000)	(.000)	(.000)
State housing price index	−.00019**	−.00024**	−.00024**	−.00001	.00012
	(.000)	(.000)	(.000)	(.000)	(.000)
State maximum income tax rate	−.00019	−.00073	−.00107+	−.00647+	−.00708
	(.001)	(.001)	(.001)	(.003)	(.005)
State per capita income	−.00000**	−.00000**	−.00009**	−.0000001	−.00001+
	(.000)	(.000)	(.000)	(.000)	(.000)
State unemployment rate	−.00887**	−.00994**	−.00988**	.00422	−.00198
	(.002)	(.002)	(.002)	(.003)	(.005)
State fixed effects	No	No	No	Yes	Yes
State × time trend	No	No	No	No	Yes
R^2	.039	.039	.039	.061	.062

Note. Clustered standard errors are in parentheses. Year fixed effects are included in all regressions. N = 71,989.

+ Statistically significant at the 10% level.

* Statistically significant at the 5% level.

** Statistically significant at the 1% level.

in pooled cross-sectional regressions we find bankruptcy law positively affecting home equity and business ownership decisions and negatively affecting home ownership overall and business ownership decisions in unlimited-exemption states; therefore, studying the elderly's portfolio decisions helps us to understand how the elderly are responding to these changes. The effect on the home's share of portfolio wealth could be positive if the impact on home equity outweighs the increased likelihood of owning a business. However, the opposite could be true if the increased business ownership in non-unlimited-exemption states out-

weighs the increase in home equity.[15] Also, policy makers may worry more about the financial well-being of the elderly if they do increase the housing share of their total wealth portfolio, because the home is already the largest nonpension asset. Both home equity and total wealth are rightward-skewed variables, but using the housing share of the total wealth portfolio helps take care of their rightward-skewed nature.

Table 9 presents results for the impact of homestead exemptions on housing portfolio share. The pooled cross-sectional analysis shows the direct effect of the homestead exemption to be mixed, though not statistically significant. Again, columns 1–3 show that not properly accounting for the functional form will produce misleading results, as column 1 displays a negative effect while columns 2 and 3 show a positive effect. However, there is suggestive evidence that being in a state with an unlimited homestead exemption increases housing portfolio share among the elderly, as individuals in those states increase their housing portfolio share by 18.1 percent (statistically significant at the 5 percent level) compared to those in other high-homestead exemption states. Overall, we believe that these results suggest evidence of a positive effect of homestead exemptions on housing portfolio share in unlimited-exemption states. Moving to a panel analysis, we see that columns 4 and 5 also show positive estimates that are an order of magnitude larger; however, they are also imprecise. We conclude as a best guess that there is a positive relationship between homestead exemptions and the housing share of the total wealth portfolio.

5.6. Comparison with Previous Literature

Our results are either relatively consistent with or new to the literature, as the majority of the previous studies used cross-sectional analysis, while we use both pooled cross-sectional and panel analysis for our main specifications, and some studies used the categorical method (Fan and White 2003; Lin and White 2001), while we use polynomial homestead exemptions following Berkowitz and White (2004). Our pooled cross-sectional results are comparable with the previous literature, as they include all states and separately identify unlimited-exemption states. With regard to home ownership, Lin and White (2001) found that the number of mortgages and home improvement loans decreased among applicants in states with unlimited rather than low exemptions. In particular, they found a 5-percentage-point decrease in home improvement loans and a 2-percentage-point decrease in mortgages. Our finding that home ownership decreased by 5.9 percent in unlimited-exemption states supports their findings. This large decrease in home ownership associated with living in unlimited-exemption states is consistent with Lin and White's finding that a regime of unlimited exemptions results in a higher likelihood of being turned down for a mortgage. Our panel estimates, which cannot separately identify the marginal effect of unlimited-exemption states,

[15] For a more complete picture of asset portfolios of the elderly overall and elderly business owners, see Table A5.

Table 9

Linear Probability Regressions on the Effect of Bankruptcy Homestead Exemptions on the Housing Portfolio Share of the Elderly, Even Years 2002–8

	Pooled Cross-Sectional Regressions			Panel Regressions	
	(1)	(2)	(3)	(4)	(5)
HE	−.00011	.00301	.02313	.19481	.20608
	(.004)	(.038)	(.034)	(.228)	(.337)
HE^2		.00034	−.01529^{+}	−.05027	−.07048
		(.011)	(.009)	(.073)	(.140)
HE^3		−.00007	.00112^{+}	.00317	.00484
		(.001)	(.001)	(.005)	(.010)
Unlimited			.18146*		
			(.083)		
Female	−.02303	−.02303	−.02309	−.02251	−.02151
	(.054)	(.054)	(.054)	(.050)	(.050)
Married	−.12239**	−.11901**	−.11247**	−.13424^{+}	−.13099^{+}
	(.034)	(.038)	(.039)	(.070)	(.072)
Minority	.08841^{+}	.08881*	.08753^{+}	.12439^{+}	.12592^{+}
	(.045)	(.044)	(.045)	(.079)	(.070)
Kids	.01335	.01329^{+}	.01321	.01254	.01282
	(.008)	(.008)	(.008)	(.012)	(.012)
College	−.10748**	−.10746**	−.10790**	−.09995*	−.10014*
	(.039)	(.039)	(.039)	(.050)	(.050)
Age	−.00064*	−.00064*	−.00063*	−.00059**	−.00057**
	(.000)	(.000)	(.000)	(.000)	(.000)
State housing price index	.00053**	.00051**	.00049**	.00149	.00245
	(.000)	(.000)	(.000)	(.002)	(.003)
State maximum income tax rate	.00934*	.00925*	.01129*	.01068	.16102
	(.004)	(.004)	(.005)	(.080)	(.128)
State per capita income	−.00000	−.00000	−.00000	.00004	.00008
	(.000)	(.000)	(.000)	(.000)	(.000)
State unemployment rate	.00504	.00488	.00471	.17618**	.26983*
	(.007)	(.007)	(.007)	(.066)	(.109)
State fixed effects	No	No	No	Yes	Yes
State × time trend	No	No	No	No	Yes
R^2	.004	.004	.004	.002	.003

Note. Clustered standard errors are in parentheses. Year fixed effects are included in all regressions. N = 56,860.

$^{+}$ Statistically significant at the 10% level.

* Statistically significant at the 5% level.

** Statistically significant at the 1% level.

estimate a positive relationship with home ownership, but this is not comparable to the previous literature, as we are the first to do a panel analysis. In addition, the divergence between our pooled cross-sectional estimates and panel estimates likely suggests that the unlimited-exemption states are driving the results.

While the previous literature did not always consider home equity outright, Gropp, Scholz, and White (1997) found evidence that the presence of higher homestead exemptions led to limited loan availability, which predominantly affected low-income households. They found evidence that in states with high

exemption levels, low-income households experienced credit constraints, while high-income households benefited from the partial wealth insurance. We find results consistent with Gropp, Scholz, and White (1997), in that those households considered to have lower levels of assets decrease their home equity when they face higher exemptions, yet those with higher levels of assets increase their home equity in the same circumstances.

With regard to business ownership, we find results that are somewhat similar to the previous literature, but again we are not considering the same outcome of interest. Fan and White (2003) considered the probability of business ownership and found that there was a 29 percent increase in this probability from the lowest exemption states to the unlimited-exemption states. We find that higher homestead exemptions tend to positively impact entrepreneurship, with the exception that in states with unlimited exemptions, the constraints on credit from banks deter entrepreneurship. However, a big difference in our studies is that our outcome of interest is determined by reported business ownership, while theirs is determined by self-employment status. Our results are more consistent with those of Berkowitz and White (2004), who find that small firms are hurt by being in states with unlimited exemptions and are more likely to be denied credit.

6. Conclusions

From 1991 to 2007, the elderly were most likely to file for bankruptcy. This paper provides the first analysis focusing on measuring the actual effect of bankruptcy law on the elderly. We find that bankruptcy homestead exemptions play an important role in the housing, financial, and entrepreneurial decisions of the elderly. With regard to home ownership, we find that in general the credit constraints outweigh the partial wealth insurance benefit provided by higher and unlimited homestead exemptions, which means that there is a negative effect on home ownership due to the supply-side constraints resulting from higher interest rates. However, when we control for time-invariant factors in our panel analysis, we find a positive effect on home ownership. We also find a strong positive effect with both pooled cross-sectional and panel methods for home equity, which is the intensive margin of housing decisions and should be more responsive to homestead exemptions. We find that homestead exemptions in general have a positive effect on entrepreneurship, but it turns negative in credit-constrained states with unlimited asset exemptions.

Overall we find that having an unlimited exemption is highly detrimental to the elderly. The findings of this paper suggest that policy makers can use changes in state homestead exemptions to promote entrepreneurship among the elderly and/or to improve their financial well-being. At a minimum, policy makers must understand the unintended consequences of bankruptcy law on the elderly. The findings also suggest that making the homestead exemption unlimited is too much for financial institutions to bear and will substantially raise borrowing costs, which causes harm to the elderly.

Appendix

Table A1

Logit Regressions on the Effect of Bankruptcy Homestead Exemptions on the Home Ownership of the Elderly, Even Years 2002–8, Controlling for Health, Wealth, and Income

	Pooled Cross-Sectional Regressions			Panel Regressions	
	(1)	(2)	(3)	(4)	(5)
HE	−.00138^{+}	−.02711**	−.03157**	.01436	.01745
	(.001)	(.009)	(.009)	(.012)	(.017)
HE^2		.00756**	.01124**	−.00368	−.00354
		(.003)	(.003)	(.004)	(.007)
HE^3		−.00050**	−.00078**	.00023	.00020
		(.000)	(.000)	(.000)	(.001)
Unlimited			−.04338^{+}		
			(.025)		
Female	.0034	.00324	.00328	.00323	.00326
	(.005)	(.005)	(.005)	(.003)	(.003)
Married	.20469**	.20771**	.206660**	.20097**	.20008**
	(.007)	(.007)	(.007)	(.005)	(.005)
Minority	−.0872**	−.0887**	−.08816**	−.09323**	−.09313**
	(.007)	(.007)	(.007)	(.004)	(.004)
Kids	−.0035**	−.00336**	−.00335**	−.00328*	−.00326**
	(.001)	(.001)	(.001)	(.001)	(.001)
College	.04571**	.04612**	.04629**	.04762**	.04763**
	(.005)	(.005)	(.005)	(.003)	(.003)

Age	−.00026**	−.00025**	−.00026**	−.00027**	−.00027**
	(.000)	(.000)	(.000)	(.000)	(.000)
Bad health	−.09095**	−.09098**	−.09073**	−.09131**	−.09148**
	(.005)	(.005)	(.005)	(.003)	(.003)
Financial wealth	.00014**	.00014**	.00014**	.0000001**	.0000001**
	(.000)	(.000)	(.000)	(.000)	(.000)
Social Security income	.00433**	.00433**	.00432**	.000004**	.000004**
	(.000)	(.000)	(.000)	(.000)	(.000)
State housing price index	.00011+	.00017*	.00017*	−.00015	.00002
	(.000)	(.000)	(.000)	(.000)	(.000)
State maximum income tax rate	−.00372**	−.00296**	−.00354**	−.00015	−.00709
	(.001)	(.001)	(.001)	(.000)	(.006)
State per capita income	−.00677**	−.00662**	−.00678**	−.000001	−.00001+
	(.000)	(.000)	(.000)	(.000)	(.000)
State unemployment rate	.00111	.00268	.00276	−.00311	−.00125
	(.002)	(.002)	(.002)	(.004)	(.006)
State fixed effects	No	No	No	Yes	Yes
State × time trend	No	No	No	No	Yes
N	72,267	72,267	72,267	72,243	72,243
R^2	.147	.147	.147	.175	.175

Note. Clustered standard errors are in parentheses. All regressions include year fixed effects.
+ Significant at the 10% level.
* Significant at the 5% level.
** Significant at the 1% level.

Table A2

Ordinary Least Squares Regressions for Bankruptcy Homestead Exemptions on the Home Equity of the Elderly, Even Years 2002–8, Controlling for Health, Wealth, and Income

	Pooled Cross-Sectional Regressions			Panel Regressions	
	(1)	(2)	(3)	(4)	(5)
HE	−686.32	61,570.4**	71,412.7**	52,999.0**	53,421.6**
	(1,010.99)	(18,275.7)	(18,915.6)	(10,723.609)	(10,713.647)
HE^2		−18,881.6**	−24,429.7**	−16,255.6**	−16,383.7**
		(5,790.49)	(6,982.81)	(3,339.090)	(3,336.082)
HE^3		1,293.97**	1,709.06**	1,109.08**	1,118.04**
		(409.843)	(513.008)	(234.815)	(234.605)
Unlimited			48,544.2		
			(36,471.3)		
Married	138,432	−53,456.2	−92,523.9	24,566.3	20,912.1
	(94,645.3)	(140,638)	(148,036)	(17,714.429)	(17,316.215)
Minority	−87,246.4*	547.387	19,075.1	35,478.4**	−33,809.7**
	(41,038.3)	(60,743.4)	(64,936.7)	(10,158.514)	(10,021.504)
Kids	−7,216.47**	−3,864.41	−3,112.78	−5,344.23**	−5,274.57**
	(1,880.29)	(2,627.88)	(2,727.72)	(1,241.552)	(1,239.423)
College	107,043**	65,532.3*	56,446.1*	82,638.7**	81,842.2**
	(18,007.3)	(26,168.3)	(28,115.0)	(6,239.261)	(6,189.300)
Age	−117.666	86.8381	133.099	.39644	4.399086
	(96.493)	(142.515)	(152.849)	(31.676)	(31.417)

Bad health	−86,063.2*	−4,191.92	13,417.3	−38,232.3**	−36,637.5**
	(38,152.0)	(56,914.1)	(60,571.0)	(9,156.352)	(9,010.965)
Financial wealth	.046540**	.039782*	.038319*	.042533**	.042405**
	(.017)	(.017)	(.017)	(.003)	(.003)
Social Security income	4.261850**	1.263038	.609929	2.51734**	2.458699**
	(1.242)	(1.862)	(2.002)	(.408)	(.404)
State housing price index	1,017.01**	758.638**	718.550**	827.924**	824.649**
	(166.885)	(185.608)	(194.346)	(91.152)	(91.095)
State maximum income tax rate	5,056.19**	6,641.49**	7,774.96**	5,524.97**	5,574.24**
	(1,581.71)	(1,868.56)	(2,228.51)	(972.099)	(970.911)
State per capita income	5.441775+	10.6676*	12.0696**	8.38843**	8.493827**
	(3.161)	(4.302)	(4.645)	(.771)	(.764)
State unemployment rate	23,690.6**	19,564.3**	19,127.0**	20,314.8**	20,279.9**
	(2,092.26)	(2,428.71)	(2,358.64)	(2,775.081)	(2,774.642)
Inverse Mills ratio	1,129,880	−695,612	−1,093,970	−365,519	1,129,880
	(873,918)	(1,290,389)	(1,372,002)	(1,583,705)	(873,918)
State fixed effects	No	No	No	Yes	Yes
State × time trend	No	No	No	No	Yes
N	72,267	72,267	72,267	56,885	56,885
R^2	.147	.147	.147	.035	.035

Note. Clustered standard errors are in parentheses. All regressions include year fixed effects.
+ Significant at the 10% level.
* Significant at the 5% level.
** Significant at the 1% level.

Table A3

Logit Regressions on the Effect of Bankruptcy Homestead Exemptions on the Business Ownership of the Elderly, Even Years 2002–8, Controlling for Health, Wealth, and Income

	Pooled Cross-Sectional Regressions			Panel Regressions	
	(1)	(2)	(3)	(4)	(5)
HE	−.00195**	.01944**	.01411*	.00643	.015900
	(.000)	(.006)	(.006)	(.010)	(.015)
HE^2		−.00682**	−.00305	.00190	.00643
		(.002)	(.002)	(.003)	(.006)
HE^3		.00047**	.00019	−.00013	−.00046
		(.000)	(.000)	(.000)	(.000)
Unlimited			−.03674**		
			(.013)		
Female	−.01072**	−.01063**	−.01062**	−.01167**	−.01166**
	(.003)	(.003)	(.003)	(.002)	(.002)
Married	.05686**	.05392**	.05271**	.05758**	.05814**
	(.003)	(.004)	(.004)	(.003)	(.003)
Minority	−.06066**	−.06030**	−.06015**	−.05562**	−.05569**
	(.003)	(.003)	(.003)	(.003)	(.003)
Kids	−.00199**	−.00207**	−.00207**	−.00294**	−.00293**
	(.001)	(.001)	(.001)	(.001)	(.001)
College	.02477**	.02443**	.02451**	.030980**	.03099**
	(.003)	(.003)	(.003)	(.002)	(.002)
Age	−.00008**	−.00008**	−.00008**	−.00010**	−.00009**
	(.000)	(.000)	(.000)	(.000)	(.000)
Bad health	−.03620**	−.03606**	−.03593**	−.035685**	−.03566**
	(.003)	(.003)	(.003)	(.002)	(.002)
Financial wealth	.000000005	.000000005	.000000005	.00000001**	.000000001**
	(.000)	(.000)	(.000)	(.000)	(.000)
Social Security income	−.00053**	−.00053**	−.00053**	−.000001**	−.000001**
	(.000)	(.000)	(.000)	(.000)	(.000)
State housing price index	−.00018**	−.00024**	−.00023**	−.00002	.00012
	(.000)	(.000)	(.000)	(.000)	(.000)
State maximum income tax rate	−.00012	−.00063	−.00094	−.00668*	−.00737
	(.001)	(.001)	(.001)	(.003)	(.005)
State per capita income	−.00433**	−.00439**	−.00454**	.0000001	−.00001*
	(.000)	(.000)	(.000)	(.000)	(.000)
State unemployment rate	−.00851**	−.00950**	−.00945**	.00426	−.00184
	(.002)	(.002)	(.002)	(.003)	(.005)
State fixed effects	No	No	No	Yes	Yes
State × time trend	No	No	No	No	Yes
R^2	.039	.039	.039	.065	.066

Note. Clustered standard errors are in parentheses. Year fixed effects are included in all regressions. N = 71,989.

+ Significant at the 10% level.

* Significant at the 5% level.

** Significant at the 1% level.

Table A4

Linear Probability Regressions on the Effect of Bankruptcy Homestead Exemptions on the Housing Portfolio Share of the Elderly, Even Years 2002–8, Controlling for Health, Wealth, and Income

	Pooled Cross-Sectional Regressions			Panel Regressions	
	(1)	(2)	(3)	(4)	(5)
HE	.00006	.05131	.06486	.20956	.22348
	(.004)	(.057)	(.055)	(.228)	(.337)
HE^2		−.01384	−.02444	−.05260	−.07301
		(.017)	(.016)	(.073)	(.140)
HE^3		.00087	.00169	.00329	.00496
		(.001)	(.001)	(.005)	(.010)
Unlimited			.12104^{+}		
			(.066)		
Female	−.00253	−.00231	−.00235	−.01579	−.01521
	(.050)	(.050)	(.050)	(.051)	(.051)
Married	.06101^{+}	.05968	.06333	−.10962	−.10875
	(.036)	(.040)	(.041)	(.073)	(.075)
Minority	.02627	.02857	.02752	.10367	.10566
	(.042)	(.042)	(.043)	(.070)	(.070)
Kids	.01253^{+}	.01222^{+}	.01221^{+}	.01147	.01170
	(.007)	(.007)	(.007)	(.012)	(.012)
College	−.01209	−.01277	−.01321	−.07208	−.07252
	(.039)	(.038)	(.038)	(.051)	(.051)
Age	−.00031	−.00031	−.00031	.00050^{+}	−.00049^{+}
	(.000)	(.000)	(.000)	(.000)	(.000)
Bad health	.01939	.01945	.01891	.13041*	.12978*
	(.048)	(.048)	(.048)	(.057)	(.057)
Social Security income	−.00186	−.00185	−.00185	−.000002	−.000002
	(.000)	(.000)	(.000)	(.000)	(.000)
State housing price index	.00098**	.00085**	.00084**	.00152	.00246
	(.000)	(.000)	(.000)	(.002)	(.003)
State maximum income tax rate	.00264	.00128	.00270	.01176	.16217
	(.003)	(.004)	(.004)	(.080)	(.128)
State per capita income	−.00375	−.00411	−.00359	.00004	.00008
	(.000)	(.000)	(.000)	(.000)	(.000)
State unemployment rate	.00053	−.00221	−.00232	.17705**	.27001*
	(.006)	(.008)	(.008)	(.066)	(.109)
State fixed effects	No	No	No	Yes	Yes
State × time trend	No	No	No	No	Yes
N	71,989	71,989	71,989	56,860	56,860
R^2	.039	.039	.039	.002	.004

Note. Clustered standard errors are in parentheses. All regressions include year fixed effects. Financial wealth is not included as a regressor because it is a component of the housing portfolio share.

$^{+}$ Significant at the 10% level.

* Significant at the 5% level.

** Significant at the 1% level.

Table A5

Asset Breakdown ($) for the Elderly Overall and Elderly Business Owners, Even Years 2002–8

Asset	Full Sample	Business Owners
Total wealth	460,526	1,269,905
	(1,650,075)	(3,410,851)
Financial wealth	130,680	237,887
	(853,992)	(1,059,790)
Nonhousing wealth	300,643	978,656
	(1,438,404)	(3,130,206)
Home equity	147,922	253,233
	(525,868)	(764,982)
House value	175,386	300,209
	(526,292)	(773,394)
Stocks and/or mutual funds	69,997	126,248
	(761,443)	(888,132)
Other real estate assets	48,700	160,000
	(522,019)	(1,020,744)
Net value of all other savings	14,126	32,960.9
	(193,753)	(395,113)
Value of other debt	3,598.5	7,463.9
	(28,161)	(59,747)
Savings and/or checking accounts	27,011.7	41,304
	(152,031)	(90,342)
Individual retirement accounts	59,415	92,341,96
	(395,748)	(324,965)
Transportation assets	14,914.1	26,336
	(43,460.4)	(55,933)
Certificates of deposit, government savings bonds, and/or treasury bills	14,147.4	23,276
	(59,906)	(86,481)
Net value of business	46,935.1	461,891
	(676,037)	(2,083,672)
N	72,267	7,417

Note. Standard errors are in parentheses.

References

Berkowitz, Jeremy, and Michelle J. White. 2004. Bankruptcy and Small Firms' Access to Credit. *RAND Journal of Economics* 35:69–84.

Cawthorne, Alexandra. 2008. Elderly Poverty: The Challenge before Us. Issue brief. Center for American Progress, Washington, D.C., July 30. http://www.americanprogress.org/issues/2008/07/elderly_poverty.html.

Corradin, Stefano, Reint Gropp, Harry Huizinga, and Luc Laeven. 2011. Who Invests in Home Equity to Exempt Wealth from Bankruptcy? Working Paper No. 1337. European Central Bank, Frankfurt am Main.

Elias, Stephen, Albin Renauer, and Robin Leonard. 2002. *How to File for Chapter 7 Bankruptcy*. 9th ed. Berkeley, Calif.: Nolo Press.

———. 2004. *How to File for Chapter 7 Bankruptcy*. 10th ed. Berkeley, Calif.: Nolo Press.

———. 2006. *How to File for Chapter 7 Bankruptcy*. 12th ed. Berkeley, Calif.: Nolo Press.
———. 2008. *How to File for Chapter 7 Bankruptcy*. 14th ed. Berkeley, Calif.: Nolo Press.
———. 2010. *How to File for Chapter 7 Bankruptcy*. 16th ed. Berkeley, Calif.: Nolo Press.
Fan, Wei, and Michelle J. White. 2003. Personal Bankruptcy and the Level of Entrepreneurship Activity. *Journal of Law and Economics* 46:543–67.
Gropp, Reint E., John Karl Scholz, and Michelle J. White. 1997. Personal Bankruptcy and Credit Supply and Demand. *Quarterly Journal of Economics* 112:217–52.
Heckman, James. 1976. The Common Structure of Statistical Models of Truncation, Sample Selection and Limited Dependent Variables and a Simple Estimator for Such Models. *Annals of Economic and Social Measurement* 5:475–92.
Lawless, Robert M., Angela K. Littwin, Katherine M. Porter, John A. Pottow, Deborah K. Thorne, and Elizabeth Warren. 2009. Interpreting Data: A Reply to Professor Pardo. *American Bankruptcy Law Journal* 47:47–62.
Li, Wenli, Michelle J. White, and Ning Zhu. 2011. Did Bankruptcy Reform Cause Mortgage Defaults to Rise? *American Economic Journal: Economic Policy* 3(4):123–47.
Lin, Emily Y., and Michelle J. White. 2001. Bankruptcy and the Market for Mortgage and Home Improvement Loans. *Journal of Urban Economics* 50:138–62.
Munnell, Alicia H., and Mauricio Soto. 2005. The House and Living Standards in Retirement. Issue in Brief No. 39. Center for Retirement Research, Boston College, Chestnut Hill, Mass.
Sullivan, Teresa A., Elizabeth Warren, and Jay Lawrence Westbrook. 1989. *As We Forgive Our Debtors: Bankruptcy and Consumer Debt in America*. New York: Oxford University Press.
Thorne, Deborah, Elizabeth Warren, and Teresa A. Sullivan. 2008. *Generations of Struggle*. Washington, D.C.: AARP. http://assets.aarp.org/rgcenter/consume/2008_11_debt.pdf.
White, Michelle J. 2005. Economic Analysis of Corporate and Personal Bankruptcy. Working Paper No. 11536. National Bureau of Economic Research, Cambridge, Mass.
———. 2008. Bankruptcy: Past Puzzles, Recent Reforms, and the Mortgage Crisis. Working Paper No. 14549. National Bureau of Economic Research, Cambridge, Mass.