Interactions between Social Insurance Programs: How the Implementation of Medicare Affected Personal Bankruptcy

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Abstract

Medicare aimed to improve access and reduce the out-of-pocket costs of medical care for individuals ages 65 and over, many of whom had low incomes, high medical expenses, and no health insurance. On July 1, 1966, all 19 million Americans aged 65 years and older became eligible for Medicare. Within a year after the rapid implementation of Medicare, the personal bankruptcy rate began a gradual decline that lasted until 1974. I study the impact of the implementation of Medicare on personal bankruptcy. My results suggest that, in the first two to three years, the implementation of Medicare had neither an identifiable impact on personal bankruptcy rates nor a lasting cumulative effect on medical debt under bankruptcy.

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1 Introduction

Social insurance is defined as a government-sponsored program that protects individuals against economic hazards and in which participation is compulsory. Medicare is a social insurance program because it insures all individuals 65 and over against economic loss from illness or injury. Bankruptcy is a type of insurance because it transfers risk of loss from debtors to creditors in exchange for increased interest rates. Bankruptcy is a *social* insurance because it is also compulsory: similar creditors are subject to the same risk. Personal bankruptcy insures individuals against economic losses caused by a wide variety of events.

In fact, bankruptcy has been called the "health insurance of last resort" (Jacoby et al., 2001) because illness and injury are shocks that are major causes of personal bankruptcy (Jacoby et al., 2001; Domowitz and Sartain, 1999). Though there is controversy about measuring the extent of medical bankruptcy (Dranove and Millenson, 2006; Himmelstein et al., 2009; Dobkin et al., 2018), it seems likely that more than half of all bankruptcies today involve medical debt and that additional bankruptcies are caused by the income shortfalls associated with unexpected illness (Himmelstein et al., 2009; Jacoby et al., 2001; Dobkin et al., 2018).

Since Medicare and bankruptcy are social insurance programs that protect against the same risks, they may be substitutes. It has been noted that it is even possible for bankruptcy to crowd out conventional health insurance because bankruptcy allows individuals to smooth their consumption and purchase medical care on credit (Feibelman, 2005; Mahoney, 2012).

Today there is a negative correlation between the extent of health insurance coverage and use of the bankruptcy law. At the aggregate level, bankruptcy filing rates are lower in states where at least 90 percent of the population is covered by health insurance (SMR Research Corporation, 2001). States that expanded Medicaid eligibility in the 2000s experience an eight percent decrease in bankruptcy filings (Gross and Notowidigdo, 2011). At the micro level, individuals who have health insurance are less likely to file for bankruptcy than individuals who lack health insurance coverage (Doty et al., 2005; Gross and Notowidigdo, 2011; Himmelstein et al., 2009). Moreover, older individuals who file for bankruptcy tend to lack Medicare coverage (Chakravarty and Rhee, 1999).

But this research describes the relationship between health insurance and bankruptcy

during the 1990s and 2000s, when most of the population was insured.[1] In the early 1960s, insurance coverage was less common and medical debt may have been a more pervasive problem. In 2010, 14.2 percent of medical expenses were paid out of pocket (Agency for Healthcare Research and Quality, 2010). Before Medicare, almost 70 percent were paid out of pocket (Baicker and Goldman, 2011; Gruber and Levy, 2009). We know that the implementation of Medicare dramatically decreased out-of-pocket medical expenses for millions (Finkelstein, 2007), but we do not know whether it reduced bankruptcy filings by the eligible population.

This study is the first to examine the implementation of Medicare to analyze how changes in health insurance can affect individuals filing for bankruptcy. Prior to Medicare, only about 25 percent of individuals ages 65 and over had adequate hospital insurance coverage (Finkelstein, 2007). Seemingly overnight, on July 1, 1966, nearly all 19 million elderly individuals were provided with meaningful hospital insurance in the form of Medicare Part A (Somers and Somers, 1967).[2] At the same time, personal bankruptcy rates began to decline.

Health insurance typically spreads the expenses of health shocks across policy holders. The cost paid by the policy holder is supposed to protect against overutilization (Feingold, 1966). This can be the largest gain to a risk-averse consumer because health insurance allows for consumption smoothing (Finkelstein et al., 2012). However, Medicare is unique. Current workers pay taxes that finance Medicare coverage for the elderly. This means that during a time when individuals naturally have lower incomes, they do not have to worry about the basic cost of health insurance, providing all elderly individuals with the care they need regardless of income. The vulnerability of health shocks is spread amongst the working population and not the elderly, which further protects the elderly from health shock but not necessarily from overutilization.

To investigate the impact of Medicare, I use two different types of data: district-level aggregate data and individual-level data. District-level aggregate data are used to explore the extent to which the implementation of Medicare had an impact on personal bankruptcy rates. To investigate the specific effect of medical debt under bankruptcy, I use more detailed individual-level bankruptcy case file data.

[1] On average during 2011, 81.5 percent of the population and 98.9 percent of the elderly had health insurance through either public or private sources (Medical Expenditure Panel Survey, 2011).

[2] When Medicare was implemented, there were no restrictions (besides age) on the original Medicare enrollees. Eligibility for Medicare Part A was slowly restricted to include only those age-eligible individuals who also were eligible for Social Security.

I am unable to reject the null hypothesis that Medicare had no effect on personal bankruptcy rates. My results suggest some evidence of lagged impact of Medicare on the prevalence of medical debt under bankruptcy and a contemporaneous impact on total medical debt, but I am still unable to reject the null hypothesis that Medicare had a cumulative effect on medical debt under bankruptcy within the first two years.

2 Bankruptcy Framework

To understand changes in personal bankruptcy, it is helpful to note that the bankruptcy rate is composed of three components: the fraction of the population that is in debt, the fraction of the indebted who default, and the fraction in default who choose bankruptcy. A change in the bankruptcy rate can be caused by a change in any of these three components.

Most studies of bankruptcy rates focus on the first component and attribute the increase in personal bankruptcy rates to an expansion of consumer debt (Stanley et al., 1971; Yeager, 1974; Sullivan, 1983; Mason, 2000; Luckett, 1988). The consumer debt burden nearly doubled from World War II to 1965, growing both absolutely and relative to disposable income (Yeager, 1974; Luckett, 1988). In fact, consumer debt is the major macroeconomic indicator that persistently moves in the direction consistent with personal bankruptcy rates (Luckett, 1988; Sullivan, 1983).

Shepard (1984) attributed the stabilization of bankruptcy rates in the mid-1960s to the expansion of public assistance counteracting the decrease in consumer debt. Medicare was part of the "War on Poverty." The War on Poverty expanded health care, education, and other poverty-reduction strategies such as food stamps. With the guaranteed public assistance that the War on Poverty provided, individuals were more willing to take financial risks that could result in bankruptcy. Bankruptcy rates are expected to move in a direction consistent with levels of public assistance.

Other students of personal bankruptcy focus on the second and third components and examine the variation in bankruptcy rates across states and time. While some economic factors have been shown to influence bankruptcy rates, such as age, occupation, and income levels (Luckett, 1988), most studies find that legal variables explain the variance in bankruptcy rates more than economic variables. In particular, states where creditors can garnish wages easily have higher bankruptcy rates (Stanley et al., 1971; Apilado et al., 1978; Lefgren and McIntyre, 2009). Thus, bankruptcy allows individuals to retain their

incomes by protecting them from garnishment (Shepard, 1984).

Although some bankruptcy filings may be strategic, bankruptcy more typically occurs when a highly-leveraged individual experiences a personal economic shock (Mason, 2000). Individuals between the ages of 20 and 35 tend to be the most vulnerable because they are more likely to experience such personal economic shocks: they are more likely to get divorced, lack health insurance, and experiment with alcohol, drugs, and gambling than individuals of other ages (Mason, 2000). In general, individuals who file for personal bankruptcy usually have lower tenure in their jobs, no Medicare coverage, and money management problems (Chakravarty and Rhee, 1999).

While filers tend to be highly-leveraged individuals, they are not without assets. In fact, individuals with higher wealth tend to file for personal bankruptcy more than those with lower wealth. These wealthy individuals have assets that are protected by filing for bankruptcy, while individuals with little or no wealth have no need for this protection (Mazumder and Miller, 2014) and are more likely to walk away from their debts, a phenomenon known as informal bankruptcy.

Personal bankruptcy, in effect, insures individuals against personal economic shocks such as wage interruption, out-of-pocket medical expenses, disability, and marital dissolution. Petitioners are able to discharge debts they incurred while trying to recover from their misfortunes. In this regard, personal bankruptcy is extremely valuable as a health insurance of the last resort because individuals are able to purchase medical care on credit and smooth their consumption (Feibelman, 2005).

Medical debt is often just one component of the many financial difficulties that might cause a person to file for bankruptcy (Cook et al., 2010). For this reason, there is discrepancy about how much impact illness and injury have on personal bankruptcy. Estimates of medical bankruptcies range from 17 percent to 62 percent of personal bankruptcies (Dranove and Millenson, 2006; Himmelstein et al., 2009), and not all studies find that health problems are statistically significant causes of bankruptcy (Fay et al., 2002; Morrison et al., 2013). However, it does seem as though having medical debt makes households quite sensitive to other unsecured debt: having medical debt is the best predictor of deciding to file for personal bankruptcy (Domowitz and Sartain, 1999). Moreover, medical debt is widespread in bankruptcy even among debtors who did not file for medical reasons (Jacoby et al., 2001). Petitioners sometimes cite illness and injury as the reason they filed for bankruptcy even when they had no indicated medical liabilities (Jacoby and Warren,

2006).

White (2007) found that increases in medical costs do not explain increases in personal bankruptcy filings, although the total number of personal bankruptcies increased directly with the medical CPI, which is a proxy for out-of-pocket medical costs (Brotman, 2006). Individuals who file for bankruptcy are protected from medical shocks up to the level of their exempt assets (Mahoney, 2012). Essentially, this makes bankruptcy a form of publicly subsidized health insurance, transferring risks of loss from the debtors to creditors in exchange for higher interest rates (Wilson et al., 1997).

2.1 Relationship between Health Insurance and Personal Bankruptcy

Individuals who have health insurance are less likely to file for personal bankruptcy than individuals who lack health insurance (Gross and Notowidigdo, 2011; Himmelstein et al., 2009). Health insurance reform in Massachusetts reduced the number of individuals filing for personal bankruptcy (Mazumder and Miller, 2014). At the aggregate level, bankruptcy filing rates are lower in states where at least 90 percent of the population is covered by health insurance (SMR Research Corporation, 2001). States that recently expanded Medicaid to cover more people had smaller increases in bankruptcies than states that did not expand Medicaid as much (Gross and Notowidigdo, 2011). Moreover, individuals who file for bankruptcy tend to lack Medicare coverage (Chakravarty and Rhee, 1999).

Health insurance protects against unexpected declines in savings because of rising health care costs or unforeseen out-of-pocket medical expenses (Kim and Lyons, 2008). Individuals without health insurance have a higher increase in debt because of a new health shock compared to individuals with any type of health insurance (Kim et al., 2012). They are more likely to have medical bill problems (Doty et al., 2005) such as collection agencies contacting them (Wiltshire et al., 2011). Unlike those who are uninsured, individuals with health insurance do not have a measurable loss of assets when they fall ill compared with not having health insurance (Cook et al., 2010).

Other research has shown that increases in health insurance coverage lead to a decline in the probability of having out-of-pocket medical costs (Gross and Notowidigdo, 2011; Finkelstein et al., 2012). Increases in health insurance coverage have widespread financial effects by subsidizing preventative care for individuals who had not experienced an illness or injury (Mazumder and Miller, 2014). The implementation of Medicare, in

particular, led to a decrease in out-of-pocket medical expenses for those who spent the most (Finkelstein and McKnight, 2008).

3 Impact of Medicare on Personal Bankruptcy Rates

My analysis on personal bankruptcy rates uses published statistics on bankruptcy in each federal court district from 1950 to 1978—along with data drawn from the Census, the Current Population Survey, and other sources—to measure the extent to which the rapid implementation of Medicare-influenced personal bankruptcy.[3] The district-level data on personal bankruptcy rates come from the *Annual Reports* of the Administrative Office of U.S. Courts (U.S. Department of Justice, various years) that was collected by Hansen et al. (2015b).[4] Although data exist for the whole of the twentieth century, I focus on the pre-implementation period in 1950 to avoid capturing the disruptions to credit markets during and immediately after World War II. I end my study in 1978 because the bankruptcy law underwent a major transformation at that time: the 1898 Bankruptcy Act was replaced with the current Bankruptcy Code.[5] Figure 1 shows that within a year after the implementation of Medicare, the overall national personal bankruptcy rate began a gradual decline that lasted until 1974.

When Medicare was implemented there were no restrictions besides age on the original Medicare enrollees. To measure the impact of Medicare, I include the share of the population ages 65 and over that was enrolled in Medicare Part A. Data on Medicare Part A enrollment are found in the Annual Statistical Supplements of the *Social Security Bulletins* (U.S. Social Security Bulletin, various years). The state-level population of individuals ages 65 and over was compiled by Surveillance, Epidemiology, and End Results Program (various years).

Previous studies looking at the impact of Medicare exploit the age variation in Medicare coverage. I am unable to use this age-based identification strategy because bankruptcy filings are not broken down by age. Instead, I use variation in elderly enrollment and benefits paid as my identification strategy. I also explore geographic variation in the increase in adequate hospital insurance coverage for the elderly to further investigate the

[3]Full details on data sources and how data are compiled can be found in Appendix A.

[4]The bankruptcy district in Puerto Rico is excluded from this analysis.

[5]The personal bankruptcy rates under the Act and Code are not strictly comparable. The Act required each individual debtor to file a bankruptcy petition, while the Code allowed spouses to file a petition jointly.

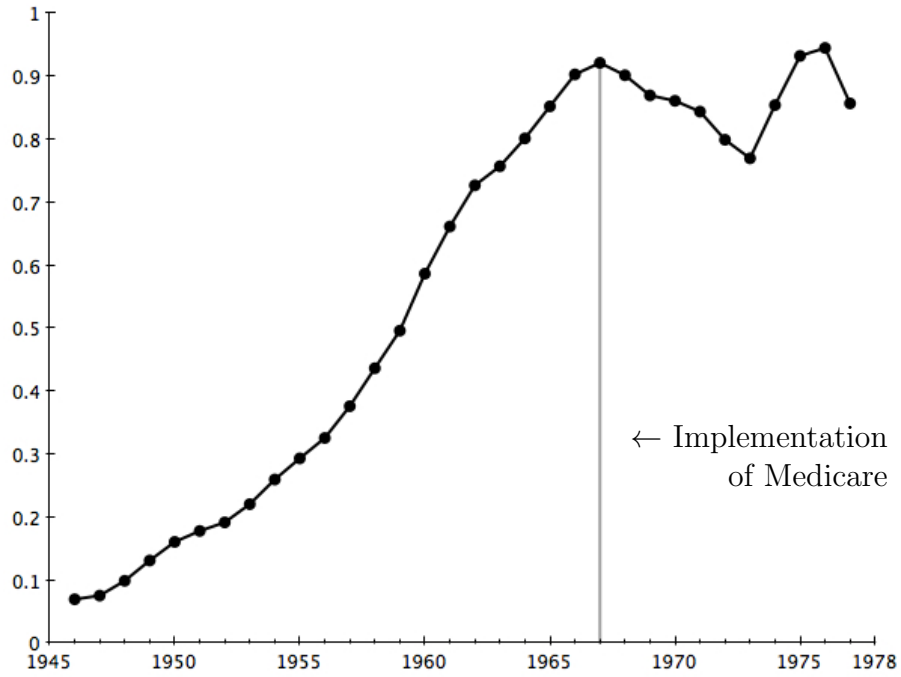

Figure 1: Three-Year Moving Average of U.S. Personal Bankruptcy Filings per 1,000 of Population, 1945-1978

Source: *Annual Reports of the Administrative Office of the U.S. Courts* (U.S. Department of Justice, various years).

impact of Medicare.

I am unable to reject the null hypothesis that Medicare has no effect on personal bankruptcy rates with either specification. These similar results from different empirical strategies increase my confidence in the conclusion that the implementation of Medicare had no impact on personal bankruptcy rates.

3.1 Variation in Medicare Enrollment and Benefits Paid

I compare the change in personal bankruptcy rates across districts with the change in Medicare enrollment. The key identifying assumption is that, absent of Medicare, personal bankruptcy rates would have evolved similarly over time.

The estimating equation is

$$r_{dt} = \sum_{j=0}^{J} \beta_j Mcare_{s(t-j)} + X_{st}\theta + \alpha_d + \delta_t + \gamma D_d * T_t + \epsilon_{dt} \quad (1)$$

The dependent variable is the personal bankruptcy rate r in district d and fiscal year t.[6] To control for any fixed differences across districts and any nationwide year effects, I include district fixed effects (α_d) and year fixed effects (δ_t). I also include a district-specific time trend ($\gamma D_d * T_t$) to account for any variation by district that might occur in the growth rate of personal bankruptcy filings. To account for possible serial correlation over time within districts, I allow for Huber-White robust standard errors clustered within each district.

The key variables of interest are the contemporaneous and lagged effects of Medicare enrollment, $Mcare_{st}$. It is reasonable to expect the implementation of Medicare to have an effect on bankruptcy rates beyond the year in which the implementation occurred. The decision to file for bankruptcy is the end of a process that begins with taking on debts, passes through a period of default and attempts at collection, and ends - often many months later - in federal court.[7] These variables estimate the time delay from the implementation of Medicare to bankruptcy filing. However, the length of the lag between the implementation of a policy that may reduce debt and subsequent changes in the bankruptcy rate is unknown.

I include a series of time-varying state-level covariates (X_{st}) in order to to account for other factors that might also be changing over time that could have an effect on personal bankruptcy rates. My choice of control variables mainly follows Lefgren and McIntyre (2009), who, along with Hansen and Hansen (2012), provide a framework for explaining the geographic variation in the bankruptcy rate as a function of legal, economic, and demographic variables. Of particular concern during this time period is the potential impact of the Kerr-Mills Act, which served as an optional precursor to Medicare, and Medicaid that, like Medicare, was also enacted in fiscal year 1966. I control for Kerr-Mills programs with a dummy variable that indicates whether a state had a Kerr-Mills program in place during the fiscal year, and I control for Medicaid using a proxy of its generosity (state Medicaid expenditures divided by state population).

Table 1 reports the results of estimating equation (1). Column (1) looks only at the contemporaneous effect of elderly enrollment in Medicare with no lags. Columns (2)-(4) include contemporaneous effects as well as lagged effects from one year prior, one and

[6]Results are robust at the state level (not shown).

[7]In my sample of bankruptcy case files in Maryland and Maine, 82 percent of medical debt was incurred within two years before filing for bankruptcy. During the year when Medicare was first implemented, only 45 percent of medical debts for eligible petitioners were incurred after the implementation.

Table 1: The Estimated Impact of Elderly Medicare Enrollment on Personal Bankruptcy Rates

	(1)	(2)	(3)	(4)
Mcare_t	-0.0486	-0.0539	-0.0532	-0.0520
	(0.0789)	(0.0740)	(0.0732)	(0.0724)
Mcare_{t-1}		0.0154	0.0170	0.0160
		(0.0141)	(0.0106)	(0.0118)
Mcare_{t-2}			-0.00470	-0.00218
			(0.0142)	(0.00934)
Mcare_{t-3}				-0.0106
				(0.0209)
Cumulative effect	-0.0486	-0.0385	-0.0410	-0.0488
	(0.0789)	(0.0835)	(0.0883)	(0.0997)
R^2	0.938	0.938	0.938	0.938

Note: Results are from estimating Eq. (1). Dependent variable is personal bankruptcy rate per 10,000 persons; $N = 2557$. Column (1) looks at the contemporaneous effect of elderly enrollment in Medicare Part A with no lags. Column (2) adds a lagged effect from one year prior. Column (3) adds a lagged effect from two years prior. Column (4) adds a lagged effect from three years prior. All models include time varying state-level controls (X_{st}), district and year fixed effects, and a district-specific time trend. Huber-White robust standard errors in parentheses allow for arbitrary correlation of residuals within each district. *, **, *** denotes significance at 10 percent, 5 percent, and 1 percent levels, respectively.

two years prior, and one, two, and three years prior, respectively. To focus attention on the main results, only the effects of elderly enrollment in Medicare Part A are shown. Complete results, including the coefficients for all control variables, appear in Appendix C.

The first column indicates that the implementation of Medicare is associated with an instantaneous decline in personal bankruptcy rates of approximately 4.86 percentage points (-0.0486x100), but is not statistically significant. The addition of Medicare lags neither increases the goodness of fit nor dramatically changes the cumulative effect of Medicare on personal bankruptcy. The results in Table 1 suggest that the implementation of Medicare had no discernible impact on personal bankruptcy rates. However, the results imply that the implementation of Medicare was associated with a statistically insignificant decline in personal bankruptcy rates.

A major concern with this analysis is the limited geographic variation of Medicare Part A enrollment. Medicare was implemented for all states on July 1, 1966. In the first year of implementation, all but six states had 100 percent elderly enrollment in Part

Table 2: The Estimated Impact of Medicare Benefit Payments on Personal Bankruptcy Rates

	(1)	(2)	(3)	(4)
Benefits_t	0.413	0.607*	0.571*	0.576*
	(0.309)	(0.314)	(0.302)	(0.305)
Benefits_{t-1}		-0.432	-0.283	-0.286
		(0.289)	(0.177)	(0.181)
Benefits_{t-2}			-0.295	-0.227
			(0.308)	(0.225)
Benefits_{t-3}				-0.119
				(0.380)
Cumulative effect	0.413	0.175	-0.00724	-0.0571
	(0.309)	(0.361)	(0.493)	(0.578)
R^2	0.938	0.939	0.939	0.939

Note: Results are from estimating Eq. (1). Dependent variable is personal bankruptcy rate per 10,000 persons; $N = 2557$. Column (1) looks at the contemporaneous effect of elderly Medicare Part A benefit payments with no lags. Column (2) adds a lagged effect from one year prior. Column (3) adds a lagged effect from two years prior. Column (4) adds a lagged effect from three years prior. All models include time varying state-level controls (X_{st}), district and year fixed effects, and a district-specific time trend. Huber-White robust standard errors in parentheses allow for arbitrary correlation of residuals within each district. *, **, *** denotes significance at 10 percent, 5 percent, and 1 percent levels, respectively.

A.[8] Of those six states, all but Colorado had close to 100 percent elderly enrollment. Besides the first year in Colorado, state elderly enrollment in Part A does not fall below 80 percent during my sample period. Therefore, it is likely elderly Part A enrollment is collinear with the year fixed effects.

To introduce geographic variation in how Medicare was implemented, I conduct the same analysis but with Part A benefit payments per 10,000 elderly individuals instead of enrollment. Benefit payments are found in the *Statistical Abstracts of the United States* (U.S. Bureau of the Census, various years). I limit the analysis to elderly benefits paid for Part A even after the expansion of Medicare in 1972 to cover individuals under the age of 65 who had long-term disabilities and individuals with End Stage Renal Disease (ESRD).

Table 2 reports the results for Medicare Part A benefits paid. There is some suggestion that an increase in Medicare benefits paid is associated with an instantaneous increase in personal bankruptcy rates. However, this increase is only statistically significant when

[8]California, Colorado, District of Columbia, Florida, Maryland, and Utah.

lags are added to the model and thus is not robust. Moreover, the cumulative effect of Medicare on personal bankruptcy rates is not statistically significant. Therefore, I once again find no evidence that the implementation of Medicare affected personal bankruptcy rates.

3.2 Geographic Variation in Hospital Insurance

A limitation of the above specifications is that it imposes ex-ante assumptions on when Medicare would have an impact on personal bankruptcy rates. The model suggests that, at least in its first three years, Medicare played essentially no role in the decline in personal bankruptcy rates that began within a year after the implementation. Therefore, I examine an alternative strategy that imposes no such restrictions and allows the data to show where changes in the time pattern due to Medicare might occur.

I use the geographic variation in private health insurance coverage among the elderly prior to the implementation of Medicare to predict the effect of Medicare. The percent of elderly individuals without Blue Cross hospital insurance in 1963 is a measure of the percent of elderly individuals without adequate hospital insurance prior to Medicare. Prior to Medicare, only 25 percent of the elderly individuals had adequate hospital insurance, thus increasing hospital insurance coverage by 75 percentage points, nationally. However, by region, the implementation of Medicare increased health insurance coverage for the elderly as much as 88 percentage points in Alabama, Kentucky, Mississippi, and Tennessee, and as little as 49 percentage points in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont (Finkelstein, 2007).[9]

Using this strategy of geographic variation, Finkelstein (2007) shows that the implementation of Medicare is associated with larger increases in hospital spending than individual-level changes in health insurance would predict, and Finkelstein and McKnight (2008) show the implementation of Medicare was not associated with an impact on mortality rates within the first 10 years. I follow Finkelstein's (2007) empirical strategy and estimate the impact of the implementation of Medicare on personal bankruptcy rates.

This empirical strategy is to compare changes in personal bankruptcy rates in regions of the country where Medicare has a larger effect on the share of the elderly with health insurance to areas where it had less of an effect. The identifying assumption is that in

[9]Finkelstein (2007) compiles insurance data from the 1963 National Health Survey. A complete list of the share of elderly individuals without hospital insurance by region can be found in Finkelstein (2007) and Finkelstein and McKnight (2008).

the absence of Medicare, there would exist no break in any pre-existing trend differences in coverage. The estimating equation is

$$r_{dt} = \sum_{t=1950}^{t=1978} \beta_t (Uninsured)_z * 1(Year_t) + X_{st}\theta + \alpha_d + \delta_t + \gamma D_d * T_t + \epsilon_{dt} \qquad (2)$$

The key variables of interest in this model are the interactions of the year fixed effects with the percent of the elderly population in region z without private Blue Cross hospital insurance in 1963. The coefficients of these variables show the flexibly estimated pattern over time in the personal bankruptcy rate in areas where Medicare had a larger impact on insurance coverage relative to areas where it had a smaller impact. The change in trend of these coefficients before and after the implementation of Medicare provides an estimate of Medicare's impact. I estimate Equation (2) by OLS. I once again allow for Huber-White robust standard errors clustered within each district.

Figure 2 shows the β_ts from estimating Equation (2). The dotted lines indicate the 95 percent confidence interval for each coefficient, which increases with the distance from the reference year 1966. A vertical line demarcates 1966, which is the fiscal year in which Medicare was enacted as well as the fiscal year before Medicare was implemented. The figure shows an upward trend suggesting that, prior to the implementation of Medicare, personal bankruptcy rates were rising faster in regions with less insurance relative to the areas with more insurance prior to the implementation of Medicare. If Medicare had no impact on personal bankruptcy rates, one would expect this general upward trend to continue. Any divergence after fiscal year 1967 suggests that Medicare had an impact. Visual inspection suggests there is a possible divergence in trend. After 1966, personal bankruptcy rates appear to experience a generally flat trend, suggesting that personal bankruptcy rates grew at similar rates in regions with less insurance.

Again following Finkelstein (2007), I conduct statistical tests of the N-year impact of the implementation of Medicare to confirm my visual impression. I calculate the n-year change in β_t after the implementation of Medicare related to the n-year change in β_t prior to Medicare using

$$\Delta N = (\beta_{1967+N} - \beta_{1967}) - (\beta_{1967} - \beta_{1967-N}) \qquad (3)$$

These statistical tests for the two-year, five-year, ten-year and second five-year change are shown in Table 3 with p-values reported in parentheses. The statistical tests do not

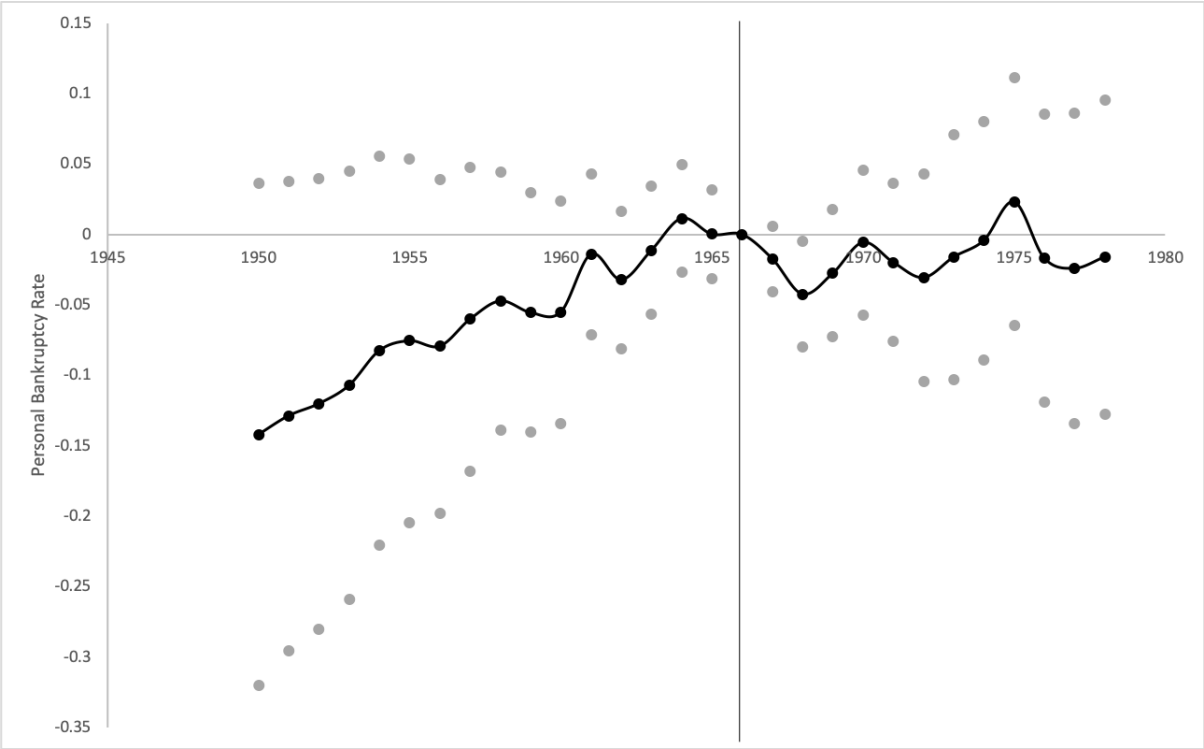

Figure 2: The Effect of Medicare Using the Geographic Variation in Health Insurance

The figure graphs the coefficients, β_t, of estimating Eq. (2). Dependent variable is personal bankruptcy rate per 10,000 persons in district d and year t. Other covariates include time varying state-level controls (X_{st}), district and year fixed effects, and a district-specific time trend. Huber-White robust standard errors allow for arbitrary correlation of residuals within each district. Vertical line indicates 1966, the fiscal year before Medicare was implemented. Dotted lines represent a 95 percent confidence interval for each coefficient.

confirm a statistically significant divergence in trend. Again, I am unable to reject the null hypothesis that Medicare had no effect on personal bankruptcy. However, similar to the previous Medicare benefits paid results, these results imply that, nationwide, Medicare was associated with a statistically insignificant increase in personal bankruptcy rates of 1.38 percentage points (0.0184x75) in its first two years, but a statistically insignificant decline of 3.72 percentage points (-0.0496x75) in its first ten years.

Table 3: The Impact of Medicare on Personal Bankruptcy Rates

First 2 years:	0.0184
(1969-1967 vs 1967-1976)	(0.537)
First 5 years:	-0.0282
(1972-1967 vs 1967-1962)	(0.545)
First 10 years:	-0.0496
(1977-1967 vs 1967-1957)	(0.565)
Second 5 years	-0.00829
(1977-1972 vs 1967-1976)	(0.835)

Note: Results are from estimating Eq. (2) and calculating test statistics as shown in Eq (3). Dependent variable is personal bankruptcy rate per 10,000 persons in district d and year t; $N = 2557$. Other covariates include time varying state-level controls (X_{st}), district and year fixed effects, and a district-specific time trend. p-values are in parentheses and are calculated allowing for Huber-White robust standard errors within each district. *, **, *** denotes significance at 10 percent, 5 percent, and 1 percent levels, respectively.

4 The Impact of Medicare on Medical Debt under Bankruptcy in Maryland and Maine

To examine the impact of Medicare on medical debt at the time of filing, I augment the publicly available aggregate data with new micro-data collected from 2,161 original bankruptcy court case files in Maryland and Maine between fiscal years 1961 to 1974. The original court case files provide a micro-level dataset that contains detailed information about assets, debts, and income.

Only 13 states have bankruptcy records available at the National Archives for this time period.[10] Maryland is part of a pilot study to determine sampling procedures, and thus data were already collected and available for years 1940 to 2003. More data were needed because Maryland is a low-bankruptcy state. I chose to collect data from Maine because it had the highest proportion of individuals ages 65 and over in 1966 (16 percent).

Since the implementation of Medicare only affected personal debts, 232 corporate and other business bankruptcy cases are excluded from the sample. Age of the petitioner is an essential variable in order to determine Medicare eligibility, but petitioners were not required to report any demographic information when filing for bankruptcy during this period. I determine age by matching debtors to historic records via their Social Security

[10]Georgia, Illinois, Louisiana, Maine, Maryland, North Carolina, Ohio, Oregon, Rhode Island, South Carolina, Tennessee, Virginia, and Washington.

numbers and name. Following Block et al. (1983), I also create an algorithm predicting date of birth from Social Security numbers. From these methods, I am able to determine age for 1,661 petitioners.

The bankruptcy case file data allow me to observe debt more clearly than other studies because the records are highly detailed and credit cards were not widely used during the period I study.[11] Petitioners are asked to list the name of each creditor and the reason for the debt on the schedules they submit to the court. From this level of detail, I am able to classify medical debt.[12] I analyze three medical debt outcomes: the prevalence of medical debt, the total dollar amount (in 1968 dollars) of medical debt, and medical debt as a percent of unsecured debt.[13]

My empirical strategy is the first to look at a deviation in trend using my full case file sample and then to compare the changes in medical debt for filers ages 65 and over to changes in spending for individuals under the age of 65 between fiscal years 1961 and 1974. I find that Medicare had no statistically significant cumulative effect on medical debt under bankruptcy.

4.1 Trends in Medical Debt Under Bankruptcy

If the implementation of Medicare caused a reduction in medical debt under bankruptcy, this reduction would be expected to be concentrated after the implementation. To evaluate this possibility, I first examine a simple deviation-from-trend analysis:

$$MedDebt_{ist} = \alpha t_t + \beta max(0, (t - 1966)_t) + \delta_s + \epsilon_{ist} \tag{4}$$

where $MedDebt_{ist}$ represents medical debt for petitioner i in state s at time t. I include a control for if the petitioner filed in Maryland, δ_s. The explanatory variables are a linear time trend t prior to Medicare and allows for a trend shift after the implementation of

[11]Store-specific cards were issued in the United States as early as 1914. The Diners Club card (first issued in 1949) was the first to be honored at different establishments across the country. In 1958, American Express and BankAmericard were first issued. BankAmericard was the first general purpose credit card (Evans and Schmalensee, 2000). However, because of non-duality and state usury laws, credit card use grew slowly. Only 16 percent of households owned at least one credit card in 1970, and even fewer used credit cards regularly. Moreover, credit cards were used mainly by higher-income household (Evans and Schmalensee, 2000).

[12]Four cases are excluded because they did not contain detailed debt information.

[13]A complete description of how the data are compiled and how all variables are created can be found in Appendix B.

Table 4: Trends in Medical Debt at Filing

	Has Medical Debt	Total Medical Debt	Share of Medical Debt
Pre-Medicare trend	0.00798**	0.0478*	0.00850
	(0.00374)	(0.0266)	(0.0319)
Post-Medicare trend	-0.00332	-0.0351	0.00207
	(0.00660)	(0.0389)	(0.0465)
R^2	0.154	0.0054	0.077
N	1,925	1,333	1,333

Note: Results are from estimating Eq. (4). All specifications include state fixed effects. Robust standard errors in parentheses. *, **, *** denotes significance at 10 percent, 5 percent, and 1 percent levels, respectively.

Medicare $max(0, (t - 1966))$. The coefficient of interest is β, which measures the average slope change in medical debt after 1966.

Table 4 presents the trend break regression results. There is a statistically significant positive trend for the share of petitioners with medical debt and the total amount of medical debt under bankruptcy before the implementation of Medicare. This means that before Medicare, both the likelihood of petitioners having medical debt and the amount of medical debt they had was increasing every year. The implementation of Medicare was associated with a decline in the number of petitioners with medical debt and the total medical debt under bankruptcy, but this decline is statistically insignificant. There is no statistically significant trend either before or after the implementation of Medicare for the share of medical debt under bankruptcy. However, the results imply that the share of medical debt under bankruptcy was increasing at at slower rate after Medicare.

4.2 Estimates Based On Age

Next, I exploit the fact that Medicare was implemented quickly for all individuals ages 65 and over in order to assess the causal impact of Medicare by contrasting medical debt reported in the filings of eligible and non-eligible petitioners. I estimate a difference-in-difference model:

$$MedDebt_{ist} = \sum_{j=0}^{J} \beta_j Imp_{t-j} * Over65_i + \gamma Over65_i + X_{it}'\theta + \delta_t + \alpha_s + \epsilon_{ist} \qquad (5)$$

where $MedDebt_{it}$ represents one of the three measures of medical debt for petitioner i in state s at time t, $Over65_i$ is an indicator of whether an individual is eligible for Medicare, $Imp_t * Over65_i$ is an interaction between eligibility and implementation of Medicare, X is a vector of individual-specific control variables (age, age^2, gender, employment status, Chapter 13 indicator, and geographical proximity to medical services proxied by living in an urban area).[14] I also include year dummies, δ_t, and an indicator of whether a petitioner filed in Maryland, α_s.

The primary drawback of the previous trend break analysis is that it restricted any shift to occur in 1967. To make some sense of the dynamics of the implementation of Medicare and medical debt under bankruptcy (does medical debt grow after Medicare was implemented, does this impact accelerate, stabilize, or revert); I once again include lags of the implementation of Medicare.

In applying the difference-in-difference framework to the data, it is important to consider the natural experiment created by the implementation of Medicare. In the ideal case, Medicare would have no spillover effects to non-elderly petitioners. If this is true, β will provide an unbiased estimate of the average treatment effect. However, it is possible that individuals younger than 65 also experienced a change in medical debt. In his 1964 State of the Union Address, President Johnson (1964) said, "every American will benefit by the extension of Social Security to cover the hospital costs of aged parents," indicating that Medicare would help the adult children of the eligible because they no longer would be responsible for covering the cost of their parents' medical care. The difference-in-difference framework will fail to capture these effects if present, thereby potentially understating the total contribution of Medicare ro relieving medical debt under bankruptcy. The average treatment effect of Medicare might also be overstated because Medicaid was enacted during the same year as Medicare in both Maryland and Maine, and therefore the effect would be included in Imp_t.

This model assumes that in the absence of Medicare, trends in medical debt would be the same for the elderly and non-elderly. The assumption of parallel trends is reasonable for the prevalence of medical debt and the share of medical debt in all unsecured debt because the pre-implementation trends of petitioners of ages 65 and over and petitioners younger than 65 are not significantly different from one another.[15] This assumption is

[14]Race and educational attainment were considered, but I was unable to find information on these variables for a sufficient sample size.

[15]Prevalence of medical debt: z = -0.17, p-value = 0.862; share of medical debt in all unsecured debt

not reasonable for total dollar amount of medical debt at filing because the pre-trends are significantly different.[16] Therefore, the regressions on total dollar amount of medical debt at filing must be viewed as descriptive and not quasi-experimental.

Table 5 reports the results for the three measures of medical debt. Full results can be found in Appendix C. Panel A reports the results for the prevalence of medical debt. I use a maximum entropy logit to measure the effect on the prevalence of medical debt at filing because it works well with a small sample size.[17] Maximum entropy is also more efficient than other multinomial probability distributions. The generalized maximum entropy marginal effects display the impact of each variable on the probability of a positive outcome.

The coefficient on Imp_t*Over65 in the first column of Panel A indicates that the implementation of Medicare is associated with an increase in the likelihood of having medical debt at filing by elderly petitioners relative to petitioners younger than 65 of about 6 percentage points. But, this result is not statistically significant. With lags for one and two years prior, the results are statistically significant for those specific years. After one year, the implementation of Medicare is associated with a 30 percentage point increase in the likelihood of elderly petitioners filing with medical, but after two years the implementation of Medicare is associated is a 68 percentage point decline in the likelihood of elderly petitioners having medical debt. While the the cumulative effect of Medicare is not statistically significant, the results suggest that Medicare could have a lagged negative effect on the prevalence of medical debt.

The second and third columns of Panel B suggest that the total amount of medical debt for elderly petitioners more than tripled compared to that of non-elderly petitioners immediately after the implementation of Medicare. This result is not statistically significant when lags are not included, and the cumulative effect of Medicare is not statistically significant. However, these results suggest that initially Medicare was associated with a huge increase in medical debt for petitioners followed by smaller decreases in medical debt.

This does not seem implausible. During this time period, the price of medical care was rising at a much faster rate than the cost of all other items. However, the price of medical care was rising at different rates for the elderly than the non-elderly. One

at filing: $z = 1.48$, p-value $= 0.139$.

[16] $z = 3.24$, p-value $= 0.001$.

[17] I only have 44 observations of individuals who are eligible for Medicare.

Table 5: Changes in Medical Debt at Filing

	Panel A			Panel B			Panel C		
	Has medical debt			Total medical debt			Percent of medical debt		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Over65	0.0517	0.0504	0.0542	0.153	0.148	0.144	-0.258	-0.256	-0.260
	(0.118)	(0.118)	(0.118)	(0.502)	(0.503)	(0.504)	(0.687)	(0.687)	(0.688)
Imp_t*Over65	0.0626	0.0210	0.0221	0.848	1.542**	1.539**	0.966	0.722	0.720
	(0.130)	(0.195)	(0.194)	(0.549)	(0.646)	(0.646)	(0.641)	(0.702)	(0.702)
Imp_{t-1}*Over65		0.0552	0.298***		-0.949	-0.622		0.334	0.592
		(0.182)	(0.0364)		(0.729)	(0.850)		(0.542)	(0.502)
Imp_{t-2}*Over65			-0.678***			-0.448			-0.353
			(0.213)			(0.898)			(0.557)
Cumulative Effect	0.0626	0.0762	-0.358	0.848	0.593	0.469	0.966	1.056	0.959
	(0.130)	(0.136)	(0.262)	(0.549)	(0.618)	(0.727)	(0.641)	(0.679)	(0.749)
R^2	0.208	0.208	0.209	0.047	0.049	0.049	0.142	0.142	0.142
N	1,629	1,629	1,629	1,144	1,144	1,144	1,144	1,144	1,144

Note: Results are from estimating Eq. (5). All specifications include state and year fixed effects. Robust standard errors in parentheses. *, **, *** denotes significance at 10 percent, 5 percent, and 1 percent levels, respectively.

reason is because physicians tended to charge elderly patients less for services than the general population; however, as the implementation of Medicare approached, physicians started to adjust their fees for elderly patients to match those for the general population (Rice and Horowtiz, 1967). Moreover, medical care was changing during this time period. Advances were made in cardiac care, which could dramatically influence medical costs for the elderly (Mehta and Khan, 2002).

Similar to the deviation-from-trend analysis above, the implementation of Medicare has no statistically significant impact on medical debt as a share of unsecured debt. The results though are consistent with the prevalence of medical debt and total medical debt in implying that Medicare initially increases medical debt for elderly petitioners but after two years starts to have a statistically insignificant negative impact. This suggests the possibility of a lagged impact of Medicare on medical debt that cannot be fully explored with this data.

The results for all measures of medical debt do suggest some validity in using difference-in-difference estimations to infer the impact of Medicare. The coefficient on Over65 is always statistically insignificant, indicating that prior to Medicare, petitioners under the age of 65 did not have statistically significant different medical debt trends compared to elderly petitioners. This provides some confidence to the identifying assumption that in the absence of Medicare, elderly and non-elderly petitioners would have experienced similar changes in medical debt under bankruptcy.

5 Conclusion

Researchers have noted that bankruptcy tends to offer more generous protections in countries where there are fewer social safety nets, and weaker protections in countries with generous social safety nets (Feibelman, 2005). The United States offers some of the most generous bankruptcy protections.

This study examines the extent to which the implementation of Medicare contributed to the decrease in personal bankruptcy rates by acting as a substitute for personal bankruptcy. Using different empirical approaches, I find no evidence that the implementation of Medicare had an immediate impact on personal bankruptcy rates.

On the one hand, these results are surprising because my findings suggest that Medicare was not a substitute for personal bankruptcy and did not play a part in the decline in

personal bankruptcy rates that occurred immediately after Medicare was implemented. On the other hand, my findings are not surprising because bankruptcy among elderly individuals is much less prevalent than among the rest of the population (Meadows, 1999). While personal bankruptcy offers these same protections to elderly individuals, it is also associated with hazards specific to their age group. Social Security benefits are typically protected from creditors, but individuals' savings are not. Thus, unlike younger individuals who rely on salaries instead of savings, the elderly have less time and capacity to enjoy a fresh start offered by bankruptcy (Skoler, 1989).

While I find no impact on personal bankruptcy, my results suggest that Medicare had some impact on the prevalence and amount of medical debt under bankruptcy. However, my results also indicate that the implementation of Medicare had no statistically significant cumulative effect on medical debt under bankruptcy, at least within the first two years after its implementation.

My analysis focuses mainly on the impact of Medicare in its first two to three years with some analysis extended to the first 10 years. An important question for future work is how Medicare has impacted personal bankruptcy for future generations of elderly adults. Recent work finds that hospital admissions contribute to bankruptcy for non-elderly adults but not elderly adults, suggesting that Medicare is providing some protection from bankruptcy to elderly adults today.

Medicare covered approximately 39 percent of medical costs. After eliminating expenses from mental hospitals, government hospitals, and nursing homes, Medicare Part A covered 70 to 75 percent of costs and about 91 percent of inpatient hospital expenses (Myers, 1970). However, the implementation was also associated with an increase in total spending on health care. Total spending went up in part because of the increase in hospital entry, and in part because of the use of new cardiac technologies. At the same time, spending also increased for patients who were not eligible for Medicare (Finkelstein, 2007). Moreover, the implementation of Medicare did not erase medical debt built up previously. Thus, an interesting question for future work is not just how Medicare affected medical debt for future generations but also how it affected medical debt more than two years past the implementation.

A Bankruptcy Rate Data

Aggregate data on personal bankruptcy come from the *Annual Reports* of the Administrative Office of U.S. Courts (U.S. Department of Justice, various years). The data cover federal fiscal years and was reported for each federal district court. Hansen et al. (2015b) collected the data spanning fiscal years 1899 to 2007.

The data break down the statistics on bankruptcies several ways. In the early 1930s, the statistics changed from reporting the number of bankruptcies concluded to the number of bankruptcies commenced. Total employee filings commenced for each district are provided for 1946-1947 and 1960-1978. In order to determine the number of personal bankruptcy filings for 1950-1959, I interpolate the share of personal bankruptcy by district for the years not reported. Then assuming that voluntary Chapter 7 bankruptcies are reported as other voluntary bankruptcies for 1948-1957 and straight voluntary bankruptcies for 1958-1959, I estimate straight personal bankruptcy filings by district for years not reported. The personal bankruptcies for the years not reported are then the estimated straight personal bankruptcies plus Chapter 13 bankruptcies.

States contain one or more federal district courts. Federal district court boundaries do not cross state boundaries, but they occasionally change within a state by federal statute. Hansen et al. (2015a) documented the district boundary changes across the same time period. To transform the raw bankruptcy data into bankruptcy rates for each district, I first determine population in each district using *Population of Counties by Decennial Census: 1900 to 1990* (U.S. Census Bureau, Population Division, 1995) and the federal district court boundaries (Hansen et al., 2015a). I interpolate the population by county for the years not reported. From this, I divide total personal bankruptcy filings by district population by 10,000.

Fraction of Chapter 13 Bankruptcies The data also give information about the use of the various chapters of the bankruptcy law. I create a variable that equals the ratio of Chapter 13 filings to all personal bankruptcy filings. Lefgren and McIntyre (2009) suggest that the fraction of personal bankruptcies that were filed under Chapter 13 provides a proxy control for legal culture that drives the attractiveness and availability of filing for Chapter 7 and Chapter 13.

A.1 Data from Social Security Bulletins

Medicare Data on Medicare Part A enrollment are found in the Annual Statistical Supplements of the *Social Security Bulletins* (U.S. Social Security Bulletin, various years). Percentage of elderly individuals enrolled in Part A is determined by dividing the number of individuals ages 65 and over enrolled in Medicare Part A by the number of individuals ages 65 and over in the state. State-level elderly population is compiled by Surveillance, Epidemiology, and End Results Program (various years). I interpolate the elderly population by state for years not reported. Due to rounding in the Medicare enrollee statistics, some percentages are slightly higher than 100 percent. For these occurrences, I assume 100 percent of elderly individuals are enrolled in Medicare Part A.

A.2 Data from Credit Manual of Commercial Laws

Wage Garnishment Wage garnishment is a collection procedure regulated by states that allows creditors to collect a certain proportion of debtor's wages directly from his or her employer. Each state defines the wages that are *exempt* from garnishment. From the information provided in the *Credit Manual of Commercial Laws* (National Association of Credit Management, various years), I am able to determine the wage garnishment laws and how they changed over time. There is much heterogeneity in how the states define their laws.[18] I account for this heterogeneity by including an indicator that equals one if the state exempted at least 75 percent of wages from garnishment. I chose the 75 percent threshold because on July 1, 1970, a federal law was implemented that encouraged states to exempt at least 75 percent of wages from garnishment.

Homestead Exemption States define their laws in a variety of different ways. Some states simply give a dollar amount.[19] Some states list different exemptions in the city versus in the country.[20] Other states only provide acreage and no dollar amount.[21]

If given a choice, I choose the highest possible exemption listed, which means I use the homestead exemption for the head of the household and cities. If the exemption depends only on acreage, I assume there is an unlimited dollar amounted exempted, following

[18] In 1950, West Virginia exempted $10 per week from garnishment, while Kentucky exempted 90 percent of monthly earnings that did not exceed $75, otherwise $67.50 was exempted.

[19] New Hampshire in 1974 had a homestead exemption of $2,500.

[20] The homestead exemption in Missouri was 160 acres or $1,500 in the country and $1,500-$3,000 in the city depending on population.

[21] Kansas exempted 160 acres of farm and one acre in the city.

Hynes et al. (2004). For each year, I create categorical variables that divide the states into three equal groups by whether they allow large or liberal exemptions, states that allow average exemptions, and states that allow very few exemptions. In the analysis, I use the large groups as the base category.

Personal Property Exemption Personal property laws are the most heterogeneous. As with the homestead exemptions, I determine the highest possible exemption an individual could receive.[22] This means I assume the individual was the household head, and I chose the occupation or county with the highest exemption value. The one exception is that I did not include insurance provisions.

Some states list items but not dollar amounts.[23] For these, I create an indicator variable that equals one if the state did not provide a dollar amount. Then, I use Hynes et al. (2004) and White et al. (1998) to decipher correct dollar amounts for these states. As with homestead exemptions, I create categorical variables that divide the states into equal groups by whether they allow large or liberal exemptions, averages exemptions, and very few exemptions. In the analysis, I use the large groups as the base category.

A.3 Data from Statistical Abstracts of the United States

Elderly Part A Benefit Payments Benefit payments include the value of payment vouchers drawn by the intermediaries and direct payments to the providers of services excluding expenses paid. I focus on elderly Part A benefit payments. To account for elderly population, I use elderly benefit payments per 10,000 elderly individuals.

Kerr-Mills The Kerr-Mills Act was enacted in 1960 to help elderly individuals demonstrating severe financial need with their medical payments. States implemented Kerr-Mills programs slowly. Only four states had a program in the first year of enactment. Kerr-Mills reached its peak in 1965, with 44 states having a program. As Medicare and Medicaid were implemented, states continuously phased out their Kerr-Mills programs such that Kerr-Mills was fully replaced by Medicaid by January 1970.

Data on Kerr-Mills were not consistently reported throughout its existence. Due to the inconsistency, I create an indicator variable that shows whether a state had any Kerr-Mills data reported for that fiscal year, indicating that states had a Kerr-Mills program.

[22]Some states made the debtor chose between a homestead exemption and a personal property exemption. I still included the highest exemption value for both in my analysis.

[23]Texas exempted household articles, clothes, implements, tools, and apparatuses of trade, certain farm animals, 1 wagon, 1 carriage, and 1 buggy or automobile.

Since data are reported in calendar years, I lag the variable to create fiscal years.[24]

Medicaid Generosity Medicaid was enacted at the same time as Medicare, but states chose when to implement Medicaid and the amount of coverage they provided beyond what was required by federal law. Therefore, not only do states differ as to when their Medicaid programs were implemented, but they also differ in generosity of coverage. True generosity of Medicaid - at the benefits levels - cannot be determined because I do not have the information about the number of Medicaid recipients per state. I use Medicaid expenditures divided by state population as a proxy for Medicaid generosity in each state.

Old-Age and Survivors Insurance Old-Age and Survivors Insurance (OASI) provides monthly payments to retired workers and their dependents, as well as survivors of deceased workers. I create a measure of OASI generosity by dividing the number of OASI monthly benefits in current-payment status by population.

Life Expectancy Life expectancy is determined both at birth and at age 65. Life expectancy is found in the *Statistical Abstracts of the United States* (U.S. Bureau of the Census, various years) for 1950 and *Variations in State Mortality from 1960 to 1990* (Oossee, 2003) for years 1960, 1970, and 1980. Life expectancy is depicted separately by gender and race. To determine overall life expectancy, I calculate the weighted average, but because non-white life expectancy is not given for all states, I use life expectancy for whites at birth and at age 65. I then interpolate life expectancy by state for the years not reported.

A.4 Other Data Sources

Voluntary Hospitals Voluntary hospitals are defined as non-profit hospitals that are not operated by the government. The voluntary hospital was originally credited to provide charity care for the poor and hopelessly ill (Somers and Somers, 1967). Though the concept of charity care was disappearing during this time period, the number of voluntary hospitals provides some proxy for charity care.

The total number of voluntary hospitals per state is found in the annual surveys of the American Hospital Association (The American Hospital Association, various years). Information on voluntary hospitals was missing for 1963, 1965, 1966, 1970, and 1975. For these years, I interpolate the number of voluntary hospitals by state. The total number

[24]For example, the 1960 calendar year would be the 1961 fiscal year.

of voluntary hospitals is divided by state population (in hundreds of thousands).

Demographic Variables The demographic variables used are marital status, household size, female household head, age, educational attainment, race, employment status, household income, and fraction homeowners. The demographic data for 1963-1978 are obtained from the Current Population Survey (CPS) (U.S. Census Bureau and Bureau of Labor Statistics, various years). Data from 1950 and 1960 are obtained from the Integrated Public Use Microdata Series (IPUMS) (Ruggles et al., 2010). From these data, I construct state-level variables. Summary statistics for these variables are provided in Table 6.

The CPS was not originally intended to be a state-representative sample, so I am not always able to uniquely identify states for all of 1963-1978. I interpolate the missing demographic densities by state for the years where states are not uniquely identified and therefore not reported. For 1950-1962, I interpolate the missing values by state and year from IPUMS. For calculating marital status, educational attainment, race, and employment status, I restrict the sample to all individuals over the age of 18.

Urban Density Urban density includes all the population in urbanized areas and incorporated places with a population of 2,500 or more that is located outside an urbanized area.

B Micro-Level Data from Bankruptcy Case Files

The data from bankruptcy case files used in this study are part of a larger data collection effort to obtain a sample of historical bankruptcy cases. The goal of the project is to collect a 1 percent national sample of all bankruptcy cases from 1898 to the advent of electronic court records.[25] This sample will be detailed, nationally representative, have good geographic coverage, and cover the whole of the 20th Century.

My specific data come from the original court records of 2,161 bankruptcy cases filed between fiscal years 1961 and 1974 in Maryland and Maine. The federal bankruptcy statute only requires certain bankruptcy case files to be permanently saved; however, nearly all of the bankruptcy cases under the Bankruptcy Act have been saved. Because the volume of the bankruptcy case records is over two million cubic feet, boxes are sampled (as opposed to opening boxes to sample cases). The Maryland sample includes every 33rd

[25]For more information see http://www.american.edu/cas/economics/bankrupt/index.cfm.

Table 6: State-Level Summary Statistics

Variable	**Mean**	**(SD)**	**Variable**	**Mean**	**(SD)**
Bankruptcy filings	6.56	(6.15)	Completed high school	54.76	(10.69)
Fraction Chapter 13	10.63	(17.40)	Completed college	9.02	(3.37)
Urban	63.37	(15.95)	White	88.84	(13.63)
Married	71.12	(4.71)	Black	8.71	(10.92)
Divorced	3.23	(1.48)	Unemployed	4.79	(2.07)
Household size:			Self-employed	10.35	(6.49)
Two	34.92	(10.69)	Household income:		
Three	18.08	(2.65)	$\leq$\$1,000	9.57	(6.66)
Four	14.25	(3.81)	\$1,001-\$2,250	13.26	(4.39)
Five	8.01	(3.37)	\$2,251-\$3,500	11.61	(3.07)
Six	3.99	(2.23)	\$3,501-\$4,750	11.60	(3.08)
More than six	3.74	(2.79)	\$4,751-\$6,000	11.36	(2.32)
Age:			\$6,001-\$8,000	14.60	(3.57)
<19	29.65	(9.75)	\$8,001-\$10,000	10.47	(3.76)
19-29	17.44	(3.34)	\$10,001-\$20,000	15.35	(8.26)
30-39	14.24	(2.76)	Fraction homeowners	66.15	(7.63)
40-49	13.19	(2.58)	Female household head	18.60	(4.99)
50-64	15.45	(3.21)	N	1479	
$\geq$65	10.03	(3.18)			

Note: Bankruptcy filings are per 10,000 residents

box of each accession into the National Archives or transfer to the Federal Records Center. If this initial sample contained fewer than 30 cases for a year, an additional box for that year was randomly selected. The Maine bankruptcy case files had already been sampled by the National Archives. For 1961-1970, "historically significant" cases were kept, as well as every tenth case of the remaining case files. For 1971-1973, a 2.5 percent sample was created by sampling boxes. The data set contains information about key documents from each case file sampled. Key documents include the petition, schedules of debts and assets, summary of schedules, statement of affairs, confirmed Chapter 13 repayment plan, final reports of the trustee, referee, and receiver, application for attorney's fees, and closure documents (such as the order of discharge).

Eliminating Non-Consumer Bankruptcy Cases The sample of bankruptcy cases includes corporate, other business, and individual or *consumer* cases. Since the implementation of Medicare only affected personal debts, corporate bankruptcies and other business bankruptcies are excluded from the analysis. Non-consumer bankruptcies are identified by involuntary petitions,[26] chapter,[27] and debtor's name. Debtors' names are identified as non-consumer cases if they contain obvious business indicators such as "Company," "Corporation," and "Incorporate." Other debtors' names identify that the debtor was "doing business as" or "trading as." A total of 232 cases (12 percent) are identified as non-consumer cases and excluded from the sample.

Filing Date Knowing when the petition was filed is necessary in order to know if the bankruptcy occurred before or after the implementation of Medicare. Filing data is the date the petition was filed with the District Court and is usually found stamped on the petition. This date sometimes differs slightly from the date the petition was signed, which is found at the bottom of the petition. The filing date is missing for 39 cases, so the date of signing is used as an approximation of the filing date for these cases.

Identifying Medical Debt Petitioners are asked to list the names of all creditors and the reason for the debt on the schedules. From this level of detail, I am able to classify medical debt.[28] Medical debt is found on Schedule A-3, which details each unsecured debt owed by the petitioner. Medical creditors typically include "Doctor" at the start of their name or "MD" or "Hospital" at the end of the name. The debt description for medical debts ranges from very broad with "medical expense" to very specific like

[26]Involuntary proceedings cannot be brought forth upon a wage earner.
[27]Chapter 13 cases are consumer bankruptcies and Chapter 11 cases are non-consumer cases.
[28]Four cases are excluded from analysis because they did not contain detailed debt information.

"emergency room visit" or "Physiotherapist." I create an indicator variable that equals 1 if any type of medical debt was included on the bankruptcy schedule. Size of medical debt is determined both by adding the total medical debt in each case and determining the share of medical debt to unsecured debt. Medical debt is adjusted to 1968 dollars using the CPI-U.

I identify credit card debt that could have been used to pay medical debt. This means I only identify general-purpose credit cards and not credit cards with specific purposes, such as store specific credit cards or credit cards used solely for entertainment and food. I also eliminate any credit cards where the debt description indicates exactly what the credit card paid for. Less than one percent of unsecured debts in my sample could be medical debt disguised as credit card debt.

Determining Petitioner Age Debtors are not required to report any demographic information when filing for bankruptcy during this period. I use three methods to determine age of the bankrupt.

1. Beginning in 1967, the bankruptcy records included Social Security numbers. For these records, Social Security numbers are linked to the Social Security Death Index (SSDI) via Ancestry.com to obtain birth date.

2. Before Social Security numbers were provided or if they are missing from either the bankruptcy records or the SSDI, I match debtors in the SSDI on first name, last, name, middle initial, city, county, and state. When debtors cannot be matched to the SSDI (mainly because the debtor is still living), I match debtors to the 1940 United States Federal Census, World War II Draft Registration Cards, and local birth indices.

3. For petitions with Social Security numbers on bankruptcy documents but not found in other sources, I predict birth year from the Social Security number using a method developed by Block et al. (1983). This method relies upon the fact that Social Security numbers are composed of three fields that make it possible to determine the year they were issued.

Age is determined for a total of 1,661 petitioners. I match 1,486 petitioners (77 percent) to SSDI and other records, with 803 (54 percent) being perfect or strong matches. The Social Security number algorithm predicts age for 568 petitioners (30 percent).

Table 7: Mean and Standard Deviation of Petitioner Age when Predicted by All Methods

Method	Mean	Std Dev
Link to Ancestry.com	39.74	11.77
SSN Algorithm	37.64	9.69

Strong and perfect matches were used before the Social Security algorithm, but the Social Security algorithm was used before weak matches. The methods of determining age yield similar means and standard deviations, as shown in Table 7, and are strongly correlated ($\rho = 0.74$).

Urban I use the debtor's address to encode an indicator variable that equals one if the debtor lives in an urban area. The definition of rural and urban comes from the Standard Metropolitan Statistical Area (SMSA) as defined in 1963 by the United States Census Bureau.

Gender Gender can usually be determined from the use of pronouns on the key bankruptcy documents. For 2.2 percent of cases sampled, pronouns are not used on any of the court documents. For these cases, I identify gender by using personally identifying information on the petition to link the bankruptcy to other documents via Ancestry.com. If gender still is not determined, I use www.genderchecker.com to identify gender.[29]

Employment Status Debtor's occupation at the time of filing is found on the Petition and the Statement of Financial Affairs. From this, I determine employment status. I create an indicator variable that equals one if the debtor is employed or self-employed. Examples of petitioners' occupations include tree climbers, lobster dealers, and office managers. Petitioners are identified as unemployed if their occupation indicates they were unemployed, retired, or a housewife.

B.1 Summary statistics

Something to consider is possible sample selection bias. Not all variables can be determined for all petitioners, so there could be selection bias caused by only using observations of petitioners where age is determined. Table 8 contains the summary statistics of the full sample and my estimation sample and shows that the variables remain consistent. Age remains steady when the sample is restricted to petitioners with medical debt. Petition-

[29]GenderChecker.com contains the largest database of names and the gender associated with those names.

Table 8: Summary Statistics

	Full Sample		Estimation Sample	
Variables	Mean	Mean	Mean	Mean
Has Medical Debt	0.69	1.00	0.70	1.00
Total Medical Debt	$341.61	$493.32	$347.35	$494.61
Share of Medical Debt	0.15	0.22	0.15	0.22
Age	36.79	35.45	36.68	35.35
Employed	0.87	0.89	0.88	0.89
Male	0.78	0.82	0.80	0.83
Urban	0.53	0.51	0.54	0.51
Over65	0.028	0.026	0.026	0.024
Observations	–	–	1629	1144

Note: Observations for each variable vary for the full sample summary statistics because variables cannot be determined for all observations.

ers with medical debt are slightly more likely to be male and younger than the average petitioner.

C Full Results

Table 9. The Impact of Elderly Medicare Enrollment on Personal Bankruptcy Rates: Full Results

	(1)	(2)	(3)	(4)
Mcare_t	-0.0486	-0.0539	-0.0532	-0.0520
	(0.0789)	(0.0740)	(0.0732)	(0.0724)
Mcare_{t-1}		0.0154	0.0170	0.0160
		(0.0141)	(0.0106)	(0.0118)
Mcare_{t-2}			-0.00470	-0.00218
			(0.0142)	(0.00934)
Mcare_{t-3}				-0.0106
				(0.0209)
Kerr Mills	0.400	0.400	0.400	0.402
	(0.416)	(0.416)	(0.416)	(0.417)
Medicaid Generosity	0.0385***	0.0385***	0.0385***	0.0386***
	(0.0139)	(0.0139)	(0.0139)	(0.0139)
Voluntary Hospital	-0.289	-0.284	-0.285	-0.289
	(0.398)	(0.398)	(0.398)	(0.399)
Garnish>Federal Min	0.130	0.131	0.133	0.136
	(0.522)	(0.522)	(0.523)	(0.525)

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Table 9 – *Continued from previous page*

	(1)	(2)	(3)	(4)
Fraction Chapter 13	0.0574***	0.0574***	0.0574***	0.0574***
	(0.0157)	(0.0157)	(0.0157)	(0.0157)
Low Homestead Exemptions	-1.240	-1.249	-1.248	-1.248
	(0.832)	(0.836)	(0.835)	(0.835)
Average Homestead Exemptions	-0.246	-0.255	-0.255	-0.253
	(0.507)	(0.511)	(0.511)	(0.512)
Personal Property No Dollars Given	-1.746**	-1.745**	-1.743**	-1.739**
	(0.733)	(0.733)	(0.733)	(0.734)
Low Personal Property Exemptions	0.278	0.279	0.278	0.274
	(0.746)	(0.747)	(0.747)	(0.747)
Average Personal Property Exemptions	-0.214	-0.214	-0.214	-0.213
	(0.602)	(0.602)	(0.602)	(0.602)
Urban	0.427**	0.425**	0.426**	0.427**
	(0.205)	(0.205)	(0.206)	(0.206)
Married	0.0690	0.0692	0.0692	0.0691
	(0.0531)	(0.0532)	(0.0532)	(0.0532)
Divorced	-0.380***	-0.380***	-0.380***	-0.381***
	(0.144)	(0.145)	(0.145)	(0.145)
Age:				
<19	0.169	0.170	0.170	0.170
	(0.115)	(0.116)	(0.115)	(0.115)
19-29	0.305**	0.304**	0.304**	0.305**
	(0.124)	(0.124)	(0.124)	(0.124)
30-39	0.296**	0.295**	0.295**	0.296**
	(0.136)	(0.135)	(0.135)	(0.135)
40-49	0.217*	0.217*	0.217*	0.217*
	(0.127)	(0.127)	(0.127)	(0.127)
50-64	0.162	0.161	0.161	0.162
	(0.152)	(0.151)	(0.151)	(0.151)
Household Size:				
Two	-0.103**	-0.104**	-0.103**	-0.103**
	(0.0495)	(0.0495)	(0.0495)	(0.0497)
Three	-0.166**	-0.166**	-0.166**	-0.166**
	(0.0717)	(0.0716)	(0.0716)	(0.0717)
Four	-0.124**	-0.126**	-0.125**	-0.125**
	(0.0594)	(0.0594)	(0.0594)	(0.0596)
Five	-0.0923	-0.0945	-0.0942	-0.0927
	(0.101)	(0.101)	(0.101)	(0.102)
Six	-0.348**	-0.351**	-0.350**	-0.349**
	(0.136)	(0.136)	(0.136)	(0.137)
More than Six	0.165	0.165	0.164	0.164

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Table 9 – *Continued from previous page*

	(1)	(2)	(3)	(4)
	(0.164)	(0.164)	(0.164)	(0.164)
Completed High School	0.0147	0.0151	0.0150	0.0148
	(0.0463)	(0.0463)	(0.0463)	(0.0463)
Completed College	-0.188**	-0.189**	-0.188**	-0.188**
	(0.0910)	(0.0910)	(0.0912)	(0.0914)
White	-0.0139	-0.0141	-0.0138	-0.0131
	(0.0900)	(0.0901)	(0.0899)	(0.0897)
Black	-0.0640	-0.0638	-0.0636	-0.0633
	(0.100)	(0.100)	(0.100)	(0.100)
Unemployed	0.0983	0.0976	0.0976	0.0974
	(0.0729)	(0.0729)	(0.0729)	(0.0729)
Self-employed	0.0539	0.0534	0.0536	0.0541
	(0.0824)	(0.0826)	(0.0827)	(0.0828)
Household Income				
≤$1,000	-0.114	-0.116	-0.116	-0.115
	(0.115)	(0.115)	(0.115)	(0.116)
$1,001-$2,250	-0.180*	-0.181*	-0.181*	-0.180*
	(0.107)	(0.107)	(0.108)	(0.108)
$2,251-$3,500	-0.330***	-0.332***	-0.332***	-0.331***
	(0.109)	(0.109)	(0.109)	(0.110)
$3,501-$4,750	-0.0840	-0.0856	-0.0852	-0.0846
	(0.125)	(0.126)	(0.126)	(0.126)
$4,751-$6,000	-0.148	-0.150	-0.150	-0.149
	(0.114)	(0.115)	(0.115)	(0.116)
$6,001-$8,000	-0.119	-0.121	-0.121	-0.120
	(0.113)	(0.114)	(0.114)	(0.115)
$8,001-$10,000	-0.158	-0.159	-0.159	-0.158
	(0.124)	(0.124)	(0.124)	(0.125)
$10,001-$20,000	-0.130	-0.132	-0.131	-0.131
	(0.0866)	(0.0869)	(0.0872)	(0.0875)
Fraction Homeowners	-0.0565	-0.0564	-0.0564	-0.0562
	(0.0703)	(0.0704)	(0.0703)	(0.0702)
Female Household Head	-0.00336	-0.00355	-0.00342	-0.00287
	(0.0521)	(0.0521)	(0.0521)	(0.0521)
OASI	26.04	26.72	26.61	26.20
	(30.60)	(30.71)	(30.78)	(30.96)
White Life Expectancy at Birth	-0.125**	-0.125**	-0.125**	-0.125**
	(0.0567)	(0.0568)	(0.0567)	(0.0568)
White Life Expectancy at 65	-2.114	-2.111	-2.110	-2.108
	(1.905)	(1.909)	(1.909)	(1.906)

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Table 9 – *Continued from previous page*

	(1)	(2)	(3)	(4)
R^2	0.938	0.938	0.938	0.938

Results are from estimating Eq. (1). Dependent variable is personal bankruptcy rate per 10,000 persons; $N = 2557$. Column (1) looks at the contemporaneous effect of Medicare with no lags. Column (2) adds a lagged effect from one year prior. Column (3) adds a lagged effect from two years prior. Column (4) adds a lagged effect from three years prior. All models include time-varying state-level controls (X_{st}), district fixed effects, and an annual time trend. Huber-White robust standard errors in parentheses allow for arbitrary correlation of residuals within each district. *, **, *** denotes significance at 10 percent, 5 percent, and 1 percent levels, respectively.

Table 10. The Impact of Elderly Medicare Benefits Paid on Personal Bankruptcy Rates; Full Results

	(1)	(2)	(3)	(4)
Benefits_t	0.413	0.607*	0.571*	0.576*
	(0.309)	(0.314)	(0.302)	(0.305)
Benefits_{t-1}		-0.432	-0.283	-0.286
		(0.289)	(0.177)	(0.181)
Benefits_{t-2}			-0.295	-0.227
			(0.308)	(0.225)
Benefits_{t-3}				-0.119
				(0.380)
Kerr Mills	0.372	0.387	0.399	0.405
	(0.415)	(0.417)	(0.419)	(0.419)
Medicaid Generosity	0.0325**	0.0357**	0.0376**	0.0379**
	(0.0151)	(0.0158)	(0.0163)	(0.0163)
Voluntary Hospital -0.311	-0.298	-0.285	-0.286	
	(0.389)	(0.389)	(0.390)	(0.390)
Garnish>Federal Min	0.159	0.134	0.119	0.116
	(0.519)	(0.518)	(0.516)	(0.515)
Fraction Chapter 13	0.0566***	0.0569***	0.0572***	0.0572***
	(0.0158)	(0.0158)	(0.0158)	(0.0158)
Low Homestead Exemptions	-1.312	-1.284	-1.280	-1.283
	(0.842)	(0.844)	(0.844)	(0.846)
Average Homestead Exemptions	-0.255	-0.239	-0.247	-0.246
	(0.520)	(0.522)	(0.521)	(0.522)
Personal Property No Dollars Given	-1.760**	-1.747**	-1.740**	-1.740**
	(0.739)	(0.740)	(0.741)	(0.742)
Low Personal Property Exemptions	0.301	0.286	0.290	0.289

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Table 10 – *Continued from previous page*

	(1)	(2)	(3)	(4)
	(0.751)	(0.752)	(0.750)	(0.751)
Average Personal Property Exemptions	-0.193	-0.206	-0.209	-0.208
	(0.602)	(0.604)	(0.606)	(0.606)
Urban	0.413**	0.420**	0.428**	0.429**
	(0.204)	(0.202)	(0.202)	(0.202)
Married	0.0791	0.0739	0.0702	0.0697
	(0.0561)	(0.0543)	(0.0550)	(0.0547)
Divorced	-0.388**	-0.384**	-0.379**	-0.378**
	(0.149)	(0.149)	(0.148)	(0.148)
Age:				
<19	0.165	0.166	0.167	0.168
	(0.114)	(0.114)	(0.113)	(0.114)
19-29	0.299**	0.298**	0.298**	0.299**
	(0.126)	(0.124)	(0.123)	(0.124)
30-39	0.290**	0.292**	0.294**	0.295**
	(0.134)	(0.133)	(0.132)	(0.133)
40-49	0.209	0.210*	0.212*	0.213*
	(0.126)	(0.126)	(0.126)	(0.126)
50-64	0.153	0.156	0.155	0.157
	(0.152)	(0.151)	(0.150)	(0.151)
Household Size:				
Two	-0.103**	-0.103**	-0.101**	-0.100**
	(0.0479)	(0.0486)	(0.0483)	(0.0485)
Three	-0.168**	-0.162**	-0.158**	-0.157**
	(0.0705)	(0.0712)	(0.0715)	(0.0716)
Four	-0.127**	-0.128**	-0.130**	-0.130**
	(0.0595)	(0.0590)	(0.0587)	(0.0588)
Five	-0.0951	-0.0908	-0.0906	-0.0884
	(0.100)	(0.0999)	(0.101)	(0.102)
Six	-0.352***	-0.349**	-0.345**	-0.345**
	(0.133)	(0.133)	(0.133)	(0.133)
More than Six	0.180	0.172	0.164	0.164
	(0.165)	(0.164)	(0.163)	(0.163)
Completed High School	0.0114	0.0138	0.0144	0.0147
	(0.0468)	(0.0464)	(0.0465)	(0.0462)
Completed College	-0.200**	-0.195**	-0.189**	-0.189**
	(0.0940)	(0.0930)	(0.0942)	(0.0940)
White	-0.0128	-0.0131	-0.00884	-0.00807
	(0.0902)	(0.0901)	(0.0905)	(0.0909)
Black	-0.0563	-0.0595	-0.0588	-0.0588
	(0.101)	(0.101)	(0.100)	(0.100)

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Table 10 – *Continued from previous page*

	(1)	(2)	(3)	(4)
Unemployed	0.0952	0.0955	0.0944	0.0946
	(0.0722)	(0.0722)	(0.0723)	(0.0726)
Self-employed	0.0625	0.0583	0.0551	0.0543
	(0.0828)	(0.0821)	(0.0815)	(0.0816)
Household Income				
≤$1,000	-0.113	-0.104	-0.0986	-0.0971
	(0.115)	(0.113)	(0.114)	(0.113)
$1,001-$2,250	-0.177	-0.170	-0.166	-0.165
	(0.107)	(0.107)	(0.107)	(0.107)
$2,251-$3,500	-0.342***	-0.329***	-0.322***	-0.320***
	(0.114)	(0.111)	(0.111)	(0.110)
$3,501-$4,750	-0.0902	-0.0806	-0.0755	-0.0743
	(0.127)	(0.127)	(0.128)	(0.127)
$4,751-$6,000	-0.154	-0.141	-0.135	-0.133
	(0.116)	(0.116)	(0.116)	(0.116)
$6,001-$8,000	-0.123	-0.113	-0.107	-0.106
	(0.115)	(0.113)	(0.114)	(0.113)
$8,001-$10,000	-0.149	-0.137	-0.132	-0.130
	(0.124)	(0.120)	(0.121)	(0.120)
$10,001-$20,000	-0.122	-0.119	-0.119	-0.118
	(0.0862)	(0.0855)	(0.0858)	(0.0855)
Fraction Homeowners	-0.0605	-0.0613	-0.0597	-0.0595
	(0.0669)	(0.0666)	(0.0672)	(0.0673)
Female Household Head	0.00114	-0.00177	-0.00391	-0.00387
	(0.0511)	(0.0518)	(0.0516)	(0.0516)
OASI	27.58	29.28	30.63	30.80
	(30.45)	(30.64)	(30.97)	(31.04)
White Life Expectancy at Birth	-0.124**	-0.127**	-0.130**	-0.130**
	(0.0564)	(0.0561)	(0.0555)	(0.0552)
White Life Expectancy at 65	-2.106	-2.066	-2.058	-2.062
	(1.929)	(1.936)	(1.943)	(1.941)
R^2	0.938	0.939	0.939	0.939

Results are from estimating Eq. (1). Dependent variable is personal bankruptcy rate per 10,000 persons; $N = 2557$. Column (1) looks at the contemporaneous effect of Medicare with no lags. Column (2) adds a lagged effect from one year prior. Column (3) adds a lagged effect from two years prior. Column (4) adds a lagged effect from three years prior. All models include time-varying state-level controls (X_{st}), district fixed effects, and an annual time trend. Huber-White robust standard errors in parentheses allow for arbitrary correlation of residuals within each district. *, **, *** denotes significance at 10 percent, 5 percent, and 1 percent levels, respectively.

Table 11: Changes in Medical Debt at Filing: Complete Results

	Prevalence of medical debt			Total medical debt			Percent of medical debt		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Over65	0.0517	0.0504	0.0542	0.153	0.148	0.144	-0.258	-0.256	-0.260
	(0.118)	(0.118)	(0.118)	(0.502)	(0.503)	(0.504)	(0.687)	(0.687)	(0.688)
Mcare_t*Over65	0.0626	0.0210	0.0221	0.848	1.542**	1.539**	0.966	0.722	0.720
	(0.130)	(0.195)	(0.194)	(0.549)	(0.646)	(0.646)	(0.641)	(0.702)	(0.702)
Mcare_{t-1}*Over65		0.0552	0.298***		-0.949	-0.622		0.334	0.592
		(0.182)	(0.0364)		(0.729)	(0.850)		(0.542)	(0.502)
Mcare_{t-2}*Over65			-0.678***			-0.448			-0.353
			(0.213)			(0.898)			(0.557)
Age	-0.0173**	-0.0174***	0.0171**	0.0282	0.0281	0.0276	-0.0405	-0.0404	-0.0408
	(0.00676)	(0.00679)	(0.00679)	(0.0253)	(0.0253)	(0.0276)	(0.0278)	(0.0278)	(0.0279)
Age^2	0.000131	0.000133	0.000129	-0.000436	-0.000433	-0.000428	0.000234	0.000234	0.000237
	(0.0000835)	(0.0000839)	(0.0000839)	(0.000329)	(0.000329)	(0.000332)	(0.000362)	(0.000362)	(0.000364)
Male	0.0855***	0.0853***	0.0853***	0.219*	0.220*	0.220*	0.0606	0.0602	0.0598
	(0.0280)	(0.0280)	(0.0279)	(0.124)	(0.124)	(0.124)	(0.139)	(0.139)	(0.139)
Employed	-0.0119	-0.0120	-0.0118	-0.104	-0.105	-0.103	0.103	0.103	0.104
	(0.0344)	(0.0344)	(0.0344)	(0.134)	(0.134)	(0.135)	(0.179)	(0.179)	(0.180)
Urban	0.0361	0.0364	0.0355	0.0630	0.0585	0.0569	0.0824	0.0840	0.0827
	(0.0247)	(0.0247)	(0.0247)	(0.0837)	(0.0837)	(0.0837)	(0.0964)	(0.0965)	(0.0966)
Chapter 13	0.0240	0.0238	0.0221	-0.380***	-0.375***	-0.377***	0.328***	0.326***	0.324***
	(0.0274)	(0.0274)	(0.0274)	(0.0885)	(0.0889)	(0.0890)	(0.0963)	(0.0968)	(0.0971)
R^2	0.208	0.208	0.209	0.047	0.049	0.049	0.142	0.142	0.142
N	1,629	1,629	1,629	1,144	1,144	1,144	1,144	1,144	1,144

Note: Results are from estimating Eq. (5). All specifications include state and year fixed effects. Robust standard errors in parentheses. *, **, *** denotes significance at 10 percent, 5 percent, and 1 percent levels, respectively.

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