

2014

Does Access to Health Insurance Coverage Relieve Financial Distress? Evidence from Expansions in Parental Coverage Laws and the Affordable Care Act

Wendy Wu
wwu@wellesley.edu

Follow this and additional works at: <https://repository.wellesley.edu/thesiscollection>

Recommended Citation

Wu, Wendy, "Does Access to Health Insurance Coverage Relieve Financial Distress? Evidence from Expansions in Parental Coverage Laws and the Affordable Care Act" (2014). *Honors Thesis Collection*. 233.
<https://repository.wellesley.edu/thesiscollection/233>

This Dissertation/Thesis is brought to you for free and open access by Wellesley College Digital Scholarship and Archive. It has been accepted for inclusion in Honors Thesis Collection by an authorized administrator of Wellesley College Digital Scholarship and Archive. For more information, please contact ir@wellesley.edu.

Does Access to Health Insurance Relieve Financial Distress? Evidence from
Expansions in Parental Coverage Laws and the Affordable Care Act

Wendy Wu

Submitted in Partial Fulfillment
of the
Prerequisite for Honors
in Economics

April 2014

© Wendy Wu

Acknowledgements

I would first and foremost like to express my deepest gratitude to my adviser, Professor Courtney Coile, for her continued guidance and support of my research. Her enthusiasm and immense knowledge helped me at every stage of the research and writing process. I am very grateful for her advice and encouragement.

My gratitude extends to Professor Eric Hilt and Professor Robin McKnight for their insightful comments; their feedback played a huge role in the development of this research. My sincerest thanks also go towards ERS student and faculty participants for their helpful comments and suggestions.

Special thanks go to Vivian Dai '14 and Sophie Sun '14 whose encouragements and suggestions helped me improve the writing. I also thank Helen Willis '14 for proofreading my work. In addition, I want to thank Professor Megan Kerr from the Mathematics department for being my external visitor.

I would also like to express my thanks to The Commonwealth Fund for allowing me access to their data.

Table of Contents

I. Introduction.....	4
II. Background.....	7
A. <i>Health Insurance Coverage in the U.S.</i>	7
B. <i>Extended Parental Coverage Laws</i>	9
C. <i>U.S. Bankruptcy Code</i>	12
III. Prior Literature.....	13
IV. Data and Methodology.....	18
A. <i>Commonwealth Fund Biennial Health Insurance Survey</i>	18
B. <i>American Community Survey</i>	21
C. <i>Methodology</i>	22
V. Results.....	24
VI. Robustness Tests.....	29
VII. Conclusion.....	31
References.....	33
Figures.....	35
Tables.....	36

I. Introduction

Individuals hold health insurance as a form of financial security against the risk of incurring large out-of-pocket medical expenses. In 2011, 18 percent of the non-elderly US population was uninsured, with young adults between the ages of 19 and 25 disproportionately uninsured (Fronstin, 2012). The Census Bureau (2012) reports that 28 percent of young adults did not have health insurance in 2011, exposing themselves to significant financial risk for treating unexpected or serious illnesses. Compared to the insured population, the uninsured population not only has poorer access to health care but is also more likely to build up large medical bills when seeking necessary medical care. The uninsured population generally has lower incomes and smaller savings; hence, these medical bills can easily translate to medical debt. Himmelstein et al. (2005) estimated that over half of personal bankruptcies in the U.S. are due to medical reasons.

Between 2008 and 2011, the share of uninsured non-elderly Americans rose from 16.8 percent to 18.0 percent (Fronstin, 2012). At the same time, the share of young adults between 19 and 25 years of age without health insurance fell from 31.7 percent to 28.2 percent (Census, 2012). Against a trend of falling insurance coverage over time for the non-elderly population as a whole, young adults have recently gained new health insurance options under extended parental coverage laws. These laws, which were adopted by 35 states between 1994 and 2009, allow young adults to remain on their parents' private health insurance plans until they reach a certain age. Starting in September 2010, the Affordable Care Act (ACA) extended this coverage to all young people up to the age of 26 in all 50 states.

Having large medical bills can be a significant source of financial distress. Of individuals who sought financial counseling in 2010, approximately 20 percent of

them cited medical debt as their primary reason for thinking of declaring bankruptcy (New York Times, 08/18/2011). A Kaiser Family Foundation (2010) report found one in four Americans faced difficulties in paying medical bills for their household and 54 percent of all individuals surveyed delayed needed medical care because of its associated costs. Among the uninsured respondents, the report found 85 percent of people put off needed care because of cost concerns. The economic and personal consequences of having medical debt can be severe. Some individuals may be able to recover from their debt burden. Others may not be so fortunate and their medical debt could permanently reduce their standard of living. Since the purpose of having health insurance is to provide financial protection from large unexpected medical bills, we hypothesize that expansions in dependent coverage laws would lead to decreases in the likelihood of negative financial outcomes. In this study, we make use of a natural experiment resulting from variation in the timing of the implementation of extended parental coverage laws across the U.S. states.

Previous studies have established that state level parental coverage laws and the ACA increase insurance coverage among young adults (Levine, McKnight, and Heep, 2011; Antwi, Moriya, and Simon, 2013). However there exists no study exploring the impact of extended parental coverage laws on financial distress. A few studies have examined the effect of other expansions in coverage, including Medicaid expansions and the Massachusetts Health Reform, on financial outcomes (Gross and Notowidigdo, 2011; Mazumder and Miller, 2014), but the effect of parental coverage laws could be different from these results because these laws apply to a different population. The population affected by parental coverage laws may have higher incomes than the population affected by Medicaid expansions. In addition, these laws affect Americans across many states (as opposed to just one state such as

Massachusetts). The aim of this paper is to explore how these laws and an early mandate from the ACA affect the financial outcomes of young adults. These outcome measures include: whether an individual has declared bankruptcy, whether an individual has investment income, whether he or she reports difficulty paying for their necessities, difficulty paying medical bills, or having used up most or all of his or her savings on medical bills. We construct a financial hardship index for the latter three outcome measures that refer to self-reports of financial difficulties.

In this thesis, we use a reduced form approach to estimate the impact of these laws on financial outcomes. Specifically, we exploit both state level expansions in health insurance eligibility and a federal level expansion in health insurance eligibility for young adults. We analyze the impact of these laws using data from the Commonwealth Fund Biennial Health Insurance Survey (BHIS) for the years 2001-2012. In our regression analyses, we find that being eligible for health insurance through dependent coverage reduces bankruptcies dramatically by 4.5 percentage points, relative to being ineligible. Given the bankruptcy rate among young adults in our sample is 6.8 percent, this eligibility effect is huge; it translates to a 70 percent decrease in the risk of bankruptcies for the eligible group compared to the ineligible group.

Our main results are robust. We test for robustness in several ways. First, we use an older group of people who would not be eligible for the parental coverage provisions and confirm that there is no effect of the law on bankruptcy rates for this ineligible population. Second, we conduct a falsification exercise where we treat the law as going into effect three years before its actual implementation date. We find no effect of this hypothetical law, which suggests there is no differential trend in the bankruptcy rate between the eligible and ineligible group in states that adopted the

hypothetical laws. Finally, we explore this more formally by conducting an event study that looks at the effect of the laws for a narrow period three years before and after its implementation; again, there is no differential effect on bankruptcy rates before the law is passed.

The results of other financial outcome measures, including having used all of one's savings, having difficulties paying medical bills, and having difficulties paying for necessities, are largely mixed. These results are less significant and less robust than the pronounced results for bankruptcy. We conduct an analysis with new data from the American Community Survey (ACS) to see if the passing of the laws at different times happens to be associated with increases in reported investment income, as a positive measure of financial income (for which data is available). These results, however, are not supportive of our hypothesis that the laws improved financial outcomes generally. Thus we perceive the laws as mainly alleviating financial distress.

The rest of the paper is arranged as follows: Section II provides background information on health insurance coverage in the U.S., expansions in state level dependent coverage and the relevant provision of the ACA, and bankruptcy laws. Section III reviews previous research on the effects of health insurance expansions on financial outcomes. Section IV describes our empirical strategy and the data. Section V presents our main results, and Section VI explains the robustness checks. Section VII concludes.

II. Background

A. Health Insurance Coverage in the U.S.

In the U.S., there are two ways of obtaining health insurance. Individuals receive public insurance if they meet eligibility requirements or they can obtain private coverage through an employer (also known as group insurance) or by directly purchasing insurance (non-group insurance). The largest public insurance programs are Medicare and Medicaid; the government provides Medicare for individuals over the age of 65 and Medicaid for low-income individuals, families with children, and pregnant women, whose yearly income is below a specified level and meet certain categorical eligibility requirement¹. The State Children's Health Insurance Program (SCHIP) provides health insurance for children whose family's income level makes them just ineligible for Medicaid. In 2011, 22.5 percent of the non-elderly population in the US was enrolled in a public insurance program (Fronstin, 2012).

The majority of health insurance coverage in the U.S. is employer based; 54.8 percent of the non-elderly population obtains insurance through their employers (Fronstin, 2012). A small portion of the non-elderly population, or 7.1 percent, purchase health insurance plans on the individual market (Fronstin, 2012). This means the remaining subset of the population is uninsured; this group of individuals typically have income levels just above the cutoff for Medicaid, are too young to qualify for Medicare, or do not satisfy the categorical requirements to be eligible for other public programs. At the same time they are unable to obtain employer-sponsored insurance.

The uninsured made up 18 percent of the non-elderly population in 2011; much of this population is the "working poor" (Gruber, 2011). Even with the option of directly purchasing insurance, many individuals and families of this group opt out due to cost concerns. In 2010, the average premium in the individual market costs \$3,606 for single plans and \$7,102 for family plans (Deloitte, 2011); this premium is a

¹ The ACA expanded Medicaid eligibility to all individuals who have incomes below 133 percent of the Federal Poverty Line (FPL), regardless of whether they would have been categorically eligible.

baseline estimate and it reflects the cost for a healthier than average population as some states allow insurers to exclude individuals with pre-existing conditions from coverage. Compared to the average premium for a single individual enrolled in employer-sponsored insurance, \$5,049 in 2009, or a family enrolled in employer-sponsored insurance, \$13,770 in 2009, the individual market premiums are significantly lower (Deloitte, 2011). This suggests insurance premiums are prohibitively high for those who are uninsured and sick. These individuals may not be able to purchase insurance at any price because the market for insurance discriminates against sick individuals; many insurers have “pre-existing conditions exclusion” clauses that exclude from coverage any spending on illnesses that are present at the time the insurance was purchased. Hence individuals outside of employer-based insurance and public insurance programs would face significant financial risk from falling ill (Gruber, 2011). This is particularly significant for young adults who, as a cohort, are disproportionately uninsured. While young adults are generally healthier than older adults, they may still experience negative shocks to their health, for example from an accident or cancer diagnosis. Hence they are still susceptible to financial shocks.

B. Extended Parental Coverage Laws

States have expanded both public and private health insurance coverage among children, teens, and young adults. In the 1990s, more children became eligible for Medicaid coverage as part of poverty-related expansions in the program. The State Children’s Health Insurance Program (SCHIP) was introduced in 1997 and it expanded coverage for children whose family incomes were too high to qualify for Medicaid. Of particular interest for this study, several states passed extended parental coverage laws starting in the mid-1990s, which increased the age of dependency and

allowed adult children to remain on their parents' private health insurance plans for a longer period of time. This private insurance mandate is a way for state governments to increase health insurance coverage without new public spending. The costs of such mandates are generally shifted to employee wages (Gruber, 1994) and the government can justify the implementation of these mandates on paternalistic grounds (Summers, 1989) as employers and employees may not adequately insure unless the government forces them to.

Table 1 presents a list of states that have passed extended parental coverage laws and their corresponding cutoff age for dependency along with requirements on marital status. The average age limit for dependency is 25 years old in states that passed expanded dependent coverage laws;² the lowest age limit is 23 years old and the oldest is 31 years old. Almost all states require dependents to be unmarried. By the end of 2009, 35 states have implemented extended parental coverage laws. There are several other restrictions that may disqualify a young adult from parental health insurance coverage. These include restrictions on student status, number of dependents, and state residency statuses. Some of these restrictions differ conditional on other statuses. For example, Illinois expanded dependent coverage for unmarried young adults under the age of 26 and for military veterans under the age of 30. For our empirical analysis, we will focus on just the age and marital status requirements for non-veterans.

Eligibility for dependent health insurance under parental coverage laws is determined not only by meeting certain restrictions, but also by characteristics of the parents' insurance plans. Parents with employer-sponsored insurance may hold self-insured plans, which means employers bear the financial risk of illness by insuring

² This means coverage expires on the dependent's 25th birthday.

their employees. Under the Employee Retirement Income and Security Act (ERISA), self-insured plans are exempt from state-level health insurance regulation. Instead, self-insured plans are exclusively regulated at the federal level. Out of the population of employer-sponsored plans, 55 percent of employees are covered by self-insured health plans (Pierron and Fronstin, 2008).³ This means a large portion of the population with employer-sponsored health insurance cannot extend coverage to their dependents despite expansions in state laws allowing them to do so.

President Obama signed the ACA into law on March 23, 2010 and one of the first provisions of this reform to go into effect was the federal extension of parental coverage to all individuals under the age of 26. The ACA was designed to improve access to health care, especially for individuals who were ineligible for public insurance and were not offered insurance by employers. The ACA requires that individuals be insured or otherwise pay a penalty. To facilitate individuals satisfying this requirement, the government expanded access to public and private health insurance through Medicaid expansions, subsidies for low- and middle-income individuals to purchase private insurance, and a mandate that firms with more than fifty employees offer insurance coverage or pay a fee. The ACA extended coverage to two types of young adults living in states with a state parental coverage law. One type of young adults being those who were not personally eligible for coverage, for example, those who were under the age requirement but were married (in a state where marriage is a disqualifying condition). The second type being children of parents with self-insured plans. The ACA also expanded parental coverage to all

³ ERISA exempts coverage offered by religious organizations government employers (Pierron and Fronstin, 2008).

young adults under age 26 in states that had not yet passed an extended coverage law.⁴

C. U.S. Bankruptcy Code

One of our measures of financial distress is whether an individual has declared bankruptcy. Under the U.S. Bankruptcy Code, individuals can file for bankruptcy under Chapter 7 or Chapter 13 protection. Bankruptcies under Chapter 7 eliminate dischargeable debt while bankruptcies under Chapter 13 establish a payment plan for debt. Chapter 7 bankruptcies allow trustees to take over the assets of a debtor's estate and reduce them to cash to distribute to creditors. After the liquidation process in most Chapter 7 cases, the debtor receives a discharge that releases him or her from personal liability for certain dischargeable debt, including debt incurred because of medical reasons.⁵

Recent amendments to the Bankruptcy Code have made it harder for individuals to file for Chapter 7 protection; the Bankruptcy Abuse Prevention and Consumer Protection Act of 2005 requires courts to apply a "means test" to determine whether individual debtors qualify to file under Chapter 7. If debtors have an income over a certain threshold, they fail the means test and become ineligible to file for bankruptcy under Chapter 7.⁶ Figure 1 shows the U.S. bankruptcy rate between 1990 and 2012; the sharp decline in the rate between the years 2005 and 2006 reflects the

⁴ Prior to March 2010, the Internal Revenue Service (IRS) stipulated that exclusions of health insurance premiums for dependents from taxable income applied only to dependents under the age of 19 or under the age of 24 if they are students. Under the ACA, this section of the IRS tax code was amended so that health coverage provided for an employee's child under the age of 27 would be tax-free, regardless of whether the child is considered a tax dependent.

⁵ Dischargeable debts are obligations that can be eliminated or forgiven; debtors are no longer obligated to pay the discharged debt and creditors cannot come after the debtor. Dischargeable debts include credit card debt, utility bills, auto accidents claims (unless the accident was due to drunk driving). Examples of non-dischargeable debt include debts for child support or alimony, criminal restitution, debts to government agencies, and student loans (except in rare cases) (US Courts 2014).

⁶ Debtors with incomes below the state median are eligible to file for Chapter 7 bankruptcy protection; debtors with incomes above the state median with a certain level of disposable income are ineligible to file for Chapter 7.

change in the Bankruptcy Code. Chapter 7 bankruptcies accounted for 70 percent of individual bankruptcy filings in 2004, but this figure dropped to 60 percent in 2006.

Because of more stringent laws, many debtors now file for Chapter 13 protection, which is also known as Individual Debt Adjustment. Filing under Chapter 13 allows individuals with a regular income to develop a repayment plan with creditors to repay all or part of their debts over a span of three to five years. Unlike Chapter 7 bankruptcies, filing under Chapter 13 allows debtors to save their houses from foreclosure.

Debtors with large medical bills may choose to file under Chapter 7 or Chapter 13 depending on the size of their assets. Debtors with low income and small assets qualify to file under Chapter 7. In this case, their dischargeable debt disappears. Debtors with higher incomes and large assets are ineligible to file under Chapter 7, so they have to repay part of their medical debt. Studies have estimated that over half of consumer bankruptcies are caused by medical reasons (Himmelstein et al., 2005).

III. Prior Literature

Two lines of literature are relevant for our research. One line examines the impact of medical costs and health insurance eligibility on various financial outcomes. The other line studies the effect of expansions for health insurance on rates of coverage.

One study in the first line of the literature aims to analyze how health insurance affects bankruptcy. Himmelstein et al. (2005) found that over half of all personal bankruptcies in 2001 were due to medical reasons. In interviews with bankruptcy filers, the authors find 54.5 percent of respondents cited “any medical cause” as the reason they declared bankruptcy. A concern with this study is that the authors define “any medical cause” broadly; this measure includes not only having

large medical bills or having to forfeit income as a result of illness or injury, but also facing addictions, uncontrolled gambling, a birth, or a death in the family as a medical cause for bankruptcy. In addition, attempts to replicate this study have yielded significantly different results. Dranove and Millenson (2006) examined the data and find that medical bills contribute to only 17 percent of personal bankruptcies.

A broader concern with Himmelstein et al. (2005)'s study is that it does not employ quasi-experimental tools to investigate a causal effect of medical expenses on bankruptcies. It does not address the common empirical problem of endogeneity; medical bills may be correlated with bankruptcy outcomes through unobserved factors such as an individuals' risk preference. Indeed Mahoney (2012) finds individuals file for bankruptcy as an implicit form of health insurance. Households with greater sizeable assets are more likely to hold health insurance. But households with lower sizeable assets can implicitly have "bankruptcy insurance" that may crowd out conventional health insurance coverage. Because Chapter 7 of the U.S. Bankruptcy Code allows households to discharge medical debt in exchange for giving up nonexempt property, households with fewer assets may perceive health insurance as less valuable. This implicit insurance from bankruptcy may distort the insurance coverage decision.

A recent study overcomes the problem of endogeneity in determining the impact of medical costs on bankruptcy by using plausibly exogenous variation. Gross and Notowidigdo (2011) use a quasi-experimental approach to investigate the relative importance of medical costs in the bankruptcy decision using exogenous variation from expansions in Medicaid and the SCHIP. The authors use bankruptcy data from the Administrative Office of the U.S. Courts and they use a constructed measure of public insurance eligibility from the Current Population Survey. The authors find that

a 10 percentage point increase in Medicaid eligibility leads to an 8 percent reduction in declaring consumer bankruptcy.

Several studies examine the effect of Medicaid eligibility on financial outcomes. Results generally show that expansions in Medicaid lead to decreases in several measures of financial difficulties. Finkelstein et al. (2012) study the first year outcomes of the Oregon Health Plan lottery, which randomly assigned the eligibility to apply for Medicaid to individuals. The authors find a negative ‘local average treatment effect,’ meaning that eligible individuals who received Medicaid had reductions in financial difficulties. Individuals who received Medicaid as part of the Oregon Medicaid expansion were 20 percentage points less likely to have out-of-pocket expenses and 15 percentage points less likely to have to borrow money or skip paying bills as a result of medical costs. Baicker et al. (2013) find that two years after the Oregon Health Plan lottery, individuals still had lower incidences of negative financial outcomes. More precisely, Baicker et al. (2013) find Medicaid coverage to be associated with a 15.3 percentage point decrease in out-of-pocket spending and a 14 percentage point decrease in having to borrow money or skip bill payments. Interestingly, the authors find catastrophic expenditures, defined as out-of-pocket medical spending exceeding 30 percent of income, decline by 4.5 percentage points. Compared to the sample mean, this result means catastrophic expenditures are nearly eliminated as a result of taking up Medicaid by the eligible population.

However, Finkelstein et al. (2012) did not find evidence of a relationship between coverage eligibility and bankruptcy outcomes, and Baicker et al. (2013) did not investigate this relationship.

Researchers have also examined the impact of state specific expansions (outside of Oregon) in health insurance eligibility on financial outcomes. For instance,

Mazumder and Miller (2014) study the impact of the 2006 Massachusetts Health Reform Law on financial distress. The authors use panel data of individuals from a national credit-reporting agency and find the Massachusetts reform improved several measures of financial outcomes including credit scores, delinquencies, fraction of debt past due, and incidences of personal bankruptcy. These results, however, may be specific to Massachusetts or influenced by the timing of the reform (occurring just before the recent recession), which makes it difficult to extrapolate their findings for the entire country.

There are several advantages to analyzing expansions in parental coverage. First, these state and federal laws generate plausibly exogenous variation in insurance coverage, which may be used to explore the causal effect of access to health insurance on financial outcomes. Second, these laws are particularly relevant because the population affected by them more closely resembles the target population for the ACA (that is, uninsured adults). Rather than study the impact of eligibility on uninsured individuals with incomes below the Federal Poverty Line (FPL), as per the Oregon Health Plan lottery, or low-income children and pregnant women (Gross and Notowidigdo, 2011), we analyze the impact of expanded insurance access on financial outcomes for all young adults. Hence our findings can be informative of the impact of the ACA. To our knowledge, no previous studies have used this variation in parental insurance coverage across states to study a causal effect of access to medical insurance on financial outcomes.

In addition, we use a broad measure of financial distress to capture many dimensions of individual's financial profile. A considerable amount of attention has been paid to research on severe financial distress, such as bankruptcy. However, it is valuable to understand how health insurance affects less severe, but more common,

sources of financial distress such as the ability to pay for basic necessities and whether one has used up all of their savings in paying medical bills. Because our research considers a range of financial outcomes, our results would give a broad overview of the effect of health insurance eligibility on individual finances.

Turning to the next relevant line of literature, a necessary but not sufficient condition for our research is that expansions in health insurance eligibility affect the take up rate of health insurance. Levine, McKnight, and Heep (2011) find the introduction of SCHIP increased insurance coverage by 3 percentage points for older teenagers; teenagers under 150 percent and those between 150 and 300 percent of the FPL experienced 7 and 4 percentage point increases in health insurance coverage respectively. These results reflect roughly a 20 percent reduction in rates of uninsurance for these two groups. Similarly, the authors find state level expansions in parental coverage laws lead to a 3 percentage point decrease in the uninsurance rate among the eligible population. Based on these results, the authors hypothesize a federal level expansion in parental coverage would have an even larger percentage point decrease in the uninsurance rate among the eligible population. This is because the federal expansion would allow parents with self-insured plans to cover their adult dependents.

Antwi, Moriya, and Simon (2012) continue with Levine, McKnight, and Heep (2011)'s hypothesis and find that the early provision of the ACA, which expanded dependent coverage to young adults under age 26 in all states, leads to a 3.2 percentage point drop in the rate of uninsurance for individuals between the ages of 19 and 25 relative to their control group. This control group consists of individuals between 16 and 18 years of age and between 27 and 29 years of age.

Results from both studies show that expansions in health insurance eligibility improved take up of the health insurance. Cantor et al. (2012) confirms these findings and show the early provision of the ACA increased young adult dependent coverage by 5.3 percentage points, which the authors find to be equivalent to a 3.5 percentage point decrease in the rate of uninsurance. Moreover, the authors find the decline in the uninsurance rate to be more pronounced among young adults affected by both state laws and the ACA. This could be due to increased awareness of such laws in states with both reforms.

Much of the research on expansions of health insurance eligibility has focused on its effect on health utilization and health outcomes. Less attention has been paid to its impact on financial outcomes, which arguably, is the purpose for which individuals have insurance. We hope to use these expansions in insurance access to examine its causal impact on financial outcomes. Specifically, we hope to find an effect of implementing dependent coverage laws on financial distress via financial outcomes such as incidence of bankruptcy, difficulties paying medical bills and paying for necessities, and use of savings.

IV. Data and Methodology

We use two data sets for the empirical analysis: The Commonwealth Fund Biennial Health Insurance Survey (BHIS) and the American Community Survey (ACS).

A. Commonwealth Fund Biennial Health Insurance Survey

The Commonwealth Fund Biennial Health Insurance survey (BHIS) is a novel micro data set managed by the Commonwealth Fund and is conducted every two years. For our analyses, we use data from the 2001, 2003, 2005, 2007, 2010, and 2012 surveys to examine the impact of health care coverage on financial outcomes. The BHIS has

detailed information on individual health insurance coverage and financial behavior. This data set has publicly available state identifiers and age identifiers, which allow us to take advantage of state level variation in expansions of dependent coverage laws. The BHIS surveys adults in the continental U.S. over the age of 19. Since the upper limit of the age restriction for dependent coverage is 31 years of age in some states, we restrict our sample to adults between 19 and 30 years of age.

Each survey interviews between 3,000 and 4,000 individuals and this sample is designed to generalize to the U.S. adult population age 19 and older. Restricting the sample to those ages 19 to 30 and pooling across all sample years yields a final sample size of 4,196. Table 2 shows 56.4 percent of our restricted sample are female and 62.9 percent are white and the average age is 24.7. Approximately one third of the restricted sample is married and around half of them are full-time employees. Approximately 6.8 percent of the sample have declared bankruptcy due to medical reasons and a quarter of the sample have had difficulties paying their or their family's medical bills. 20 percent of the sample has used up their savings trying to pay medical bills and 15 percent have difficulties paying for basic necessities as a result of their medical bills. Our constructed financial hardship index (discussed in detail later) has a mean of 0.13; each component of the index was standardized to a mean of 0 and standard deviation of 1. 28.8 percent of the sample does not have health insurance. Of the survey participants who do have insurance, 74.5 percent of them hold private insurance while 31.3 percent are enrolled in a public program. These percentages add to over 100 percent because individuals may hold both public and private insurance. In the design of these surveys, samples were disproportionately stratified to target low-income, African-American and Hispanic households.

The BHIS's main advantage is it includes data on financial behavior, while also including state identifiers (unlike many other surveys of household finances, such as the Survey of Consumer Finances). Since the financial behavior questions vary somewhat across survey years, we focus on four main questions regarding financial outcomes that can be defined reasonably consistently over time. The first question asks, *During the last 12 months, were there times when you had problems paying or were you unable to pay for medical bills?* Responses were either yes or no, or the respondent refused to answer the question. The next three questions are similarly dichotomous: *Have you ever been unable to pay for basic necessities like food, heat, or rent because of medical bills?* *Have you ever used up all your savings because of medical bills?* and *Have you had to declare bankruptcy because of medical bills?* In earlier surveys before 2007, these three questions asked respondents if they *ever* had to face these outcomes at any point in their lives. After 2007, the phrasing of the survey question changed and they asked if the respondents have experienced any outcome in the *past two years*. In our analysis, we ignore this change in the question wording in order to be able to use all years of the BHIS data.⁷

Because we have several outcome measures that are similar, we create a summary index of financial hardship that aggregates these outcome measures. Using this index improves the statistical power of the analysis and gives us better overview of an individual's financial health. It is plausible that the outcomes are not mutually exclusive and that if an individual is experiencing difficulties in one aspect of their finances, they may also be experiencing difficulties in another dimension. Hence, including a financial hardship index would be appropriate. We create this index by equally weighting averages across standardized z-score measures of each dependent

⁷ In theory, the year fixed effects (described below) should be able to handle any difference in the mean rate of bankruptcy that might occur due to this change in question wording.

variable; the dependent variables we include are difficulties paying bills, difficulties paying necessities, and whether the respondent used all their savings towards paying medical bills. These outcomes are similar in nature and when indexed together, give us a good overview on an individual's financial profile.

B. American Community Survey

We use data from the American Community Survey (ACS) between the years 2001 and 2012 to complement our analyses of financial distress in the BHIS. The ACS contains information on investment income, which is valuable in our analysis of financial outcomes. An advantage to using the ACS is it has a large sample size and many demographic variables. However, investment income is the only possible outcome variable we can use because the ACS has no information on asset holdings (or bankruptcy or other measures of financial distress); investment income can be viewed as an indirect measure of asset holdings and thus a proxy for overall financial health. The ACS is a nationally representative annual sample of individuals and as per our treatment of the BHIS we restricted this sample to adults between the ages of 19 and 30, generating a final sample size of 3,998,806.

Table 3 gives a summary of the ACS sample; the average age is 24.4, 50.1 percent of the sample are female, and 73.5 percent are white. Approximately 28.6 percent of our sample is married and the average annual income is \$18,400. Around 5.8 percent of our sample has nonzero investment income and the average amount of this income is \$188. Investment income in this context is defined as the pre-tax money respondents received or loss in the form of income from an estate, trust, interest, dividends, royalties and rents. This is bottom coded at -\$9,999 and top coded at the 99.5th percentile within each state. Values higher than the 99.5th percentile are the state means of all the cases above this cutoff. We drop observations of negative

investment income (0.11 percent of the sample). With the ACS, we explore both the impact of young adult dependent coverage laws on the level of investment income and if individuals are likely to have investment income. We also explore whether individuals are likely to have investment income over \$2,000.

The key independent variable in our regression analysis is an indicator for whether an individual was eligible for health insurance coverage under extended parental coverage laws. In our analyses, eligibility is determined by state, year, age, and marital status; that is, the eligible dummy is set to one only for individuals who are actually eligible based on their personal characteristics. We coded the year of implementation of the law to be one year later than the actual implementation. This is to account for our survey questions that normally ask individuals to consider activities that have occurred in the prior year and to account for laws that may have passed towards the end of a calendar year.

C. Methodology

We employ a reduced form approach to take advantage of the exogenous variation generated by expansions in dependent coverage. Our regression specification can be expressed as:

$$outcome_{ist} = \alpha + \beta eligible_{ist} + \delta X_{ist} + \gamma_s + \gamma_t + \varepsilon_{ist} \quad (1)$$

where $outcome_{ist}$ is a measure of financial outcome for individual i in state s and year t . Within the BHIS, there are several outcome variables including whether the individual has declared bankruptcy, has had difficulties paying for necessities, has used up most or all of his or her savings, and whether the individual has been unable to pay their medical bills, and the financial hardship index. The independent variable of interest, $eligible_{ist}$, is an indicator for being eligible for health insurance coverage under the extended parental coverage law in state s and time t . This regression

includes a full set of year and state fixed effects to control for any changes in time trends or state trends. This regression also controls for individual level covariates, including sex, marital status, employment status, age, age squared, and income. It also controls for external macroeconomic shocks by including the state-year unemployment rate.

The ACS data set contain the same key independent variable and covariates but the dependent variables are different. In this data set, we look at whether an individual has investment income, whether an individual has investment income over \$2,000, and the natural log of investment income. Note that the natural log of investment income can only be generated for positive nonzero levels of investment income, which is why the sample size is smaller for this regression (N=227,027 compared to N=3,998,806 in other regressions).

The validity of our design depends on the exogeneity of the introduction of the extended parental coverage laws. Specifically, it is important that there is no legislative endogeneity and that these laws were not passed as a result of certain trends in financial outcomes. Most of the expansions in parental coverage laws in the 2000s were passed towards the end of the decade when the global economy faced a recession and many people experienced poor outcomes. To take this possibly confounding event into account, we control for characteristics of the macro-economy by controlling the state-year unemployment rate. The key identifying assumption for this model is that in the absence of extended coverage laws, trends in financial outcomes would evolve similarly over time in states that did and did not adopt the laws. We conduct a number of robustness checks that probe the validity of this assumption, as detailed below.

The number of observations varies for each outcome variable in the BHIS for several reasons. Financial outcomes were not collected every year of the survey; for example, information on whether a respondent has declared bankruptcy was only collected in three surveys whereas information on whether the respondent has had difficulties paying her or her medical bill was collected in all six surveys. Data on whether individuals had difficulties paying for necessities and whether they used up all of their savings were collected in five surveys, and the difference in the number of observations is attributed to respondents refusing to answer the questions. We calculate the standard error by clustering at the state level. This mitigates the effect of unobserved state-specific common factors that would potentially inflate the reported t-statistics.

V. Results

Table 4 presents estimates for bankruptcy and financial hardship outcomes for young adults. The effect of being eligible for health insurance under parental coverage laws on bankruptcy, as shown in column 1, is -0.0451 and is statistically significant at the 10 percent level. The magnitude of this coefficient implies moving from being ineligible to being eligible for health insurance under these laws reduces the likelihood of declaring bankruptcy by 4.51 percentage points. To gauge the economic significance of this coefficient, we find that it decreases the risk of bankruptcy by around 66 percent. Given the bankruptcy rate of the sample is 6.8 percent, a 4.5 percentage point decrease in this rate for the eligible group reflects a huge reduction in the risk of bankruptcy.

As shown in column 2 of Table 4, the effect of being eligible for dependent coverage on the financial hardship index, is -0.168. Although this coefficient is not

statistically significant, its magnitude indicates being eligible for health insurance under parental coverage laws relative to being ineligible reduces financial hardship by 0.168 standard deviations. This suggests that eligible individuals experience a smaller magnitude in financial hardship relative to ineligible individuals.^{8,9} The remaining three columns of Table 4 show the regression estimates for the individual components of the financial hardship index. All three results are suggestive of the effect we expect. While not statistically significant, they do provide economic significance. The estimates inform us that the likelihood of facing difficulties paying for necessities fall by 3.32 percentage points for those who became eligible for coverage under the laws. This translates to a 21.7 percent drop in the risk of being unable to pay for necessities for the eligible group from the mean of this sample. Likewise, a 1.54 percentage point reduction in likelihood of having difficulties paying for medical bills translates to a 5.9 percent drop in such risk. The risk of having to use up most or all of one's savings decreases by 3.6 percent.

In Table 4, we also present the results of the regression for our control variables including the individual's age, education level, employment status, and income. For the bankruptcy outcome in column 1, these variables are statistically significant. As expected, they affect an individual's bankruptcy outcome meaningfully. Hence it is important to have controlled these variables, and their significance suggests the controls are implemented correctly.

⁸ Since the index is calculated by averaging across the standardized z-score measures of each dependent variable, the mean of the financial hardship index is 0.132 and the standard deviation is 2.43. We can think of the 0.168 standard deviation decrease in the index as capturing a smaller dispersion from the mean of the index for the eligible group relative to the ineligible group. This means there are fewer eligible individuals that experience greater financial hardship relative to ineligible individuals.

⁹ An alternative way of constructing this index is to simply aggregate the components of the financial hardship index. When we do this, we find the results behave in the same way as the results from the original index presented in the paper.

Table 5 presents estimates for the impact of the law on investment income. We find that being eligible for the law increases the likelihood of having investment income by 0.05 percentage points and it increases the likelihood of having investment income over \$2,000 by 0.03 percentage points. If we compare the magnitude of these effects to their mean, we find that eligibility for the law increases the chances of having investment income by less than one percent. In column 3, we find being eligible for health insurance coverage under extended dependent coverage laws reduces the level of investment income by 10.3 percent and this estimate is statistically significant at the one percent level. This seems to contradict our hypothesis, as we assumed being eligible for the law would lead to better financial outcomes, meaning we expected a positive coefficient. This decrease suggests eligible individuals have lower investment incomes than ineligible individuals as a result of this law. We probe our results further in the next section.

Our key identification assumption in this model is that there would be no differential changes in outcomes between the eligible and ineligible group in the absence of this law. We investigate the trends in outcomes before and after the adoption of parental coverage laws to test for the validity of the design. In this event study, our key independent variables are a series of interactions between eligibility and the years before and after a law was passed. Our regression specification is:

$$\begin{aligned}
outcome_{ist} = & \alpha + \beta eligible_{ist} + \theta_{-3}(eligible * year_{-3}) + \theta_{-2}(eligible * year_{-2}) + \\
& \theta_{-1}(eligible * year_{-1}) + \theta_0(eligible * year_0) + \theta_1(eligible * year_1) + \theta_2(eligible * year_2) + \\
& \theta_3(eligible * year_3) + \delta X_{ist} + \gamma_s + \gamma_t + \varepsilon_{ist}
\end{aligned} \tag{2}$$

where $eligible_{ist}$ represents whether an individual is eligible for the law and $year_j$ where $j = -3, \dots, 3$ represents the number of years away from the implementation of the law. For example, $year_{-3}$ is an indicator for a time period three years before a

dependent coverage law was adopted and $year_0$ is the year the law is implemented. We omit the indicator for three or more years prior to the adoption of the law to keep a meaningfully short event window. If the laws had a causal effect, we would expect these θ coefficients to be 0 in the pre-implementation period (for the years when $j = -3, -2, -1, 0$). We would then expect θ to be negative in the post-implementation years and possibly growing with time since the law implementation. Similar to our prior method, we take the year of implementation as the actual year of implementation plus one.

Table 6 presents the results of this exercise. These results rule out the presence of pre-trends that would lead to false findings for the bankruptcy effect. We hypothesized that the impact of extended parental coverage laws would lead to a decrease in financial distress after the law's adoption, and the results in column 1 are consistent with our predictions. We present these results in Figure 2 and they show that prior to the implementation of the law, being eligible for these laws (e.g. having the characteristics that would make one eligible, if the law had already passed) relative to being ineligible had no differential effect on bankruptcy outcomes as the differences-in-differences estimates in the pre-period hovers around zero. However, once the laws are adopted, we observe a differential change in bankruptcy outcomes for the eligible population and this effect continues to be negative in the following years. The difference in outcomes between the eligible and ineligible population are statistically significant one year after the law was implemented. More specifically, there was a 7.57 percentage point decrease in the bankruptcy rate for the eligible population one year after implementation relative to the level of bankruptcy four or more years earlier. This event study lends credibility to our implicit assumption that

in the absence of parental coverage laws, the eligible and ineligible group would have had parallel trends in bankruptcy outcomes.

However, we do not find as consistent results for the financial hardship index and its components. The estimates for difficulties paying for necessities in column 3 are suggestive of a break in trend when the law is implemented. But there are some outliers in the trend, which suggests our results may be subject to the influence of outliers as a result of the limited data available.

Table 7 presents the results of the event study for investment income outcomes. The results in column 3 are indicative of a differential trend in investment income beginning prior to the passage of the laws. One reason for this may be investment income was influenced by the 2008 financial recession. The recession severely impacted the housing market and stock market so the Federal Reserve slashed interest rates to virtually zero. Since investment income is partially defined as gains or losses in income from rent, dividends, and income, we can assume the recession affected investment income through intricate interest rate channels. To investigate this, we ran our main specification in equation (1) with a restricted sample between 2001 and 2007. Table 8 shows the results for level of investment income are no longer significantly negative when we exclude potential factors from the recession.

Our main results on investment income seem to contradict our hypothesis but the results can be partially explained as capturing the effects of the global recession. We used investment income in our analysis because it is a readily available proxy for an individual's asset holdings; however investment income is a flow variable that can vary greatly from year to year; for future research, it may be more relevant to consider a stock variable, which would be a better proxy for an individual's wealth. However,

such variable is hard to find in a data set that also meets the other requirements of this project.

VI. Robustness Tests

To run robustness checks for our bankruptcy results, we rely on two falsification tests. The first falsification specification assumes the expansion in young adult dependent coverage and the ACA are implemented three years earlier than their actual year of adoption. The regression specification for this exercise is identical to equation (1) but we code eligibility differently. We recode the eligibility variable by shifting the year of implementation earlier by three years and then dropping observations from our data set of the individuals who became eligible for the law three years later.

$$outcome_{ist} = \alpha + \beta eligible_{ist} + \delta X_{ist} + \gamma_s + \gamma_t + \varepsilon_{ist} \quad (3)$$

As shown in Table 9, the results of this exercise show the hypothetical laws lead to a tiny 0.06 percent increase in the likelihood of declaring bankruptcy. This lends support to our interpretation of the main results as reflecting a causal effect of the dependent coverage laws on bankruptcy. By hypothetically adopting the laws three years earlier than their actual adoption, we find the effect of being eligible leads to an almost zero change in the likelihood of declaring bankruptcy.

However, the robustness results are not as clear in supporting the results for the financial outcomes. The hypothetical laws reduce financial hardship by 0.36 standard deviations, which is larger than the original effect, and is now statistically significant. If we look at the individual components of the financial hardship index, we find larger and significant results. This does not necessarily mean extended parental coverage laws had the opposite effect of what we expected. Instead, it is suggestive of a “pre-trend” in the components of the financial hardship index in the

years leading up to the implementation of extended dependent coverage laws. If these outcomes were already on a downward trend, then the falsification test would have been capturing that effect. These results are confirmed in our previous event study. Similarly, the results for the level of investment income, presented in Table 10, are also suggestive of a pre-trend (which has been confirmed by estimates from our event study).

The second specification in our robustness check is to look at the effect of the laws for a different demographic, which theoretically should not be affected by these laws. If we examined the effect of these laws on a sample of 31 to 40 year olds, we would expect these laws to have no effect on their financial outcomes. More precisely, these individuals are not directly eligible for the laws and most of them would not have children eligible for the laws. Hence the spillover effect for this group would be minimal, making them the ideal sample for checking robustness. The regression specification is identical to equation (3) but our key independent variable becomes $spillover_{ist}$, an indicator for the individual living in a state s during year t when the state has implemented the law.

As shown in Table 11, the results of this regression confirm the law did not have the same effects for the older adults as it did for the young adults. The coefficient for bankruptcy turns out to be positive and small, lending support to our belief that there is no common trend in bankruptcy rates across the population.

Also reported in Table 11, the magnitude of the coefficient for the financial hardship index and its components are around a third smaller than those in our main findings. These coefficients are negative, which suggest decreases in financial distress. However, these findings are much smaller in magnitude compared to our main findings and are similarly not statistically significant. It is plausible that there

are underlying trends influencing the financial outcomes of both younger and older adults. But the effect of the law is most pronounced on younger adults in terms of relieving their financial distress.

VII. Conclusion

In this paper, we present new evidence suggesting eligibility under expanded parental health insurance coverage laws can lead to significant reductions in bankruptcy risk. More precisely, this new eligibility for young adults significantly reduces the incidence of declaring bankruptcies for medical reasons by 4.51 percentage points, compared to their ineligible peers. Given the bankruptcy rate of 6.8 percent for the entire sample, this eligibility effect is large.

This main result passes several robustness checks using falsification tests and an event study. However, our results for other financial outcomes are generally mixed. Our findings for the impact of this eligibility for health insurance on the financial hardship index and its individual components are suggestive of a mitigating effect on bad financial outcomes but this is not conclusive. The sign of the effect is consistent with prior studies that have examined the impact of increased health insurance access on financial outcomes. One reason why we find a significant effect for bankruptcy but muted significant effects for other variables may be due to how these measures are defined; bankruptcies are well documented and well defined whereas it is unclear what the threshold is for individuals with “difficulties in paying medical bills.” This is left to the survey respondent to interpret. In some instances, this may lead to an underestimate because individuals may be transferring their medical bills to their credit cards. In other cases, this may lead to an overestimate because survey respondents may perceive a lower threshold for what “difficulties”

are. Thus having “difficulties” undefined leads to difficulties in interpreting what constitutes a financial burden for individuals.

We can extrapolate our findings and hypothesize the ACA is likely to significantly reduce financial distress. Our results for extended parental coverage laws are significant for a bankruptcy effect and suggestive of decreases in other financial hardships. Since the reach of the ACA would be wider and able to cover more previously uninsured individuals, we expect these results to be stronger, more significant, and more persistent across financial outcomes.

REFERENCES

- Antwi, Yaa Akosa, Asako S. Moriya, and Kosali Simon.** 2013. "Effects of Federal Policy to Insure Young Adults: Evidence from the 2010 Affordable Care Act's Dependent-Coverage Mandate." *American Economic Journal: Economic Policy*, 5(4): 1-28.
- Baicker, Katherine, Sarah L. Taubman, Heidi L. Allen, Mira Bernstein, Jonathan H. Gruber, Joseph P. Newhouse, Eric C. Schneider, Bill J. Wright, Alan M. Zaslavsky, and Amy N. Finkelstein.** 2013. "The Oregon Experiment — Effects of Medicaid on Clinical Outcomes." *New England Journal of Medicine*, 368 (18): 1713–22.
- Cantor, Joel C., Alan C. Monheit, Derek DeLia, and Kristen Lloyd.** 2012. "The Role of Federal and State Dependent Coverage Eligibility Policies on the Health Insurance Status of Young Adults." *NBER Working Paper No. 18254*.
- Census Bureau.** 2012. "Health Insurance Coverage Status and Type of Coverage—All Persons by Sex, Race and Hispanic Origin: 1999 to 2012." http://www.census.gov/hhes/www/hlthins/data/historical/HIB_tables.html.
- Census Bureau.** 2012. "Health Insurance Coverage of Young Adults Aged 19 to 25: 2008, 2009, and 2011." <https://www.census.gov/prod/2012pubs/acsbr11-11.pdf>.
- Deloitte.** 2011 "The Impact of Health Reform on the Individual Insurance Market: A strategic assessment." https://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/Health%20Reform%20Issues%20Briefs/u_s_chs_HealthReformAndTheIndividualInsuranceMarket_IssueBrief_101011.pdf.
- Dranove, David, and Michael L. Millenson.** 2006. "Medical Bankruptcy: Myth Versus Fact." *Health Affairs*. February: W74-83.
- Finkelstein, Amy, Sarah L. Taubman, Bill Wright, Mira Bernstein, Jonathan H. Gruber, Joseph P. Newhouse, Heidi Allen, and Katherine Baicker.** 2012. "The Oregon Health Insurance Experiment: Evidence from the First Year." *Quarterly Journal of Economics*, 127(3): 1057-1106.
- Fronstin, Paul.** 2012. "Sources of Health Insurance and Characteristics of the Uninsured: Analysis of the March 2012 Current Population Survey." *Employee Benefit Research Institute Issue Brief*, 376.
- Gross, Tal, and Matthew J. Notowidigdo.** 2011. "Health Insurance and the Consumer Bankruptcy Decision: Evidence from Expansions of Medicaid." *Journal of Public Economics*, 95(7-8): 767-778.
- Gruber, Jonathan.** 1994. "The Incidence of Mandated Maternity Benefits." *American Economic Review*, 84(3):622-641.
- Gruber, Jonathan.** 2011. "The Impacts of the Affordable Care Act: How Reasonable are the Projections?" *NBER Working Paper 17168*.
- Himmelstein, David U., Elizabeth Warren, Deborah Thorne, and Steffie Woolhandler.** 2005. "MarketWatch: Illness and Injury As Contributors To Bankruptcy." *Health Affairs*, February: W5-66.
- Internal Revenue Service.** 2010. "Tax-Free Employer-Provided Health Coverage Now Available for Children under Age 27." <http://www.irs.gov/uac/Tax-Free-Employer-Provided-Health-Coverage-Now-Available-for-Children-under-Age-27>.
- Kaiser Family Foundation.** 2010. "Kaiser Health Tracking Poll." <http://kff.org/health-costs/poll-finding/kaiser-health-tracking-poll-december-2010/>.

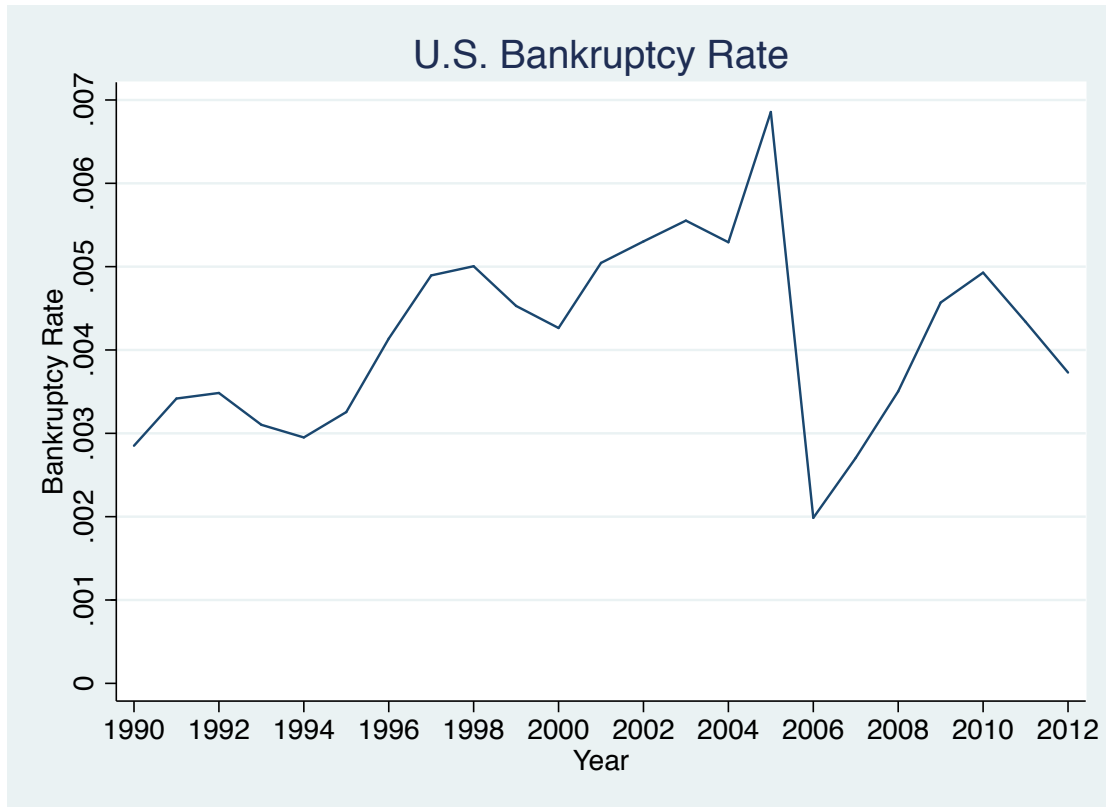
- Kaiser Family Foundation.** 2014. “Medical Debt Among People With Health Insurance.” <http://kff.org/private-insurance/report/medical-debt-among-people-with-health-insurance/>.
- Levine, Phillip B., Robin McKnight, and Samantha Heep.** 2011. “How Effective Are Public Policies to Increase Health Insurance Coverage among Young Adults?” *American Economic Journal: Economic Policy*, 3(1):129-156.
- Mahoney, Neale.** 2012. “Bankruptcy as Implicit Health Insurance.” *NBER Working Paper No. 18105*.
- Mazumder Bhashkar, and Sarah Miller.** 2014. “The Effects of the Massachusetts Health Reform on Financial Distress.” *Federal Reserve Bank of Chicago*.
- National Conference of State Legislatures.** 2010. “Covering young adults through their parents’ or guardians’ health policy.” http://www.ncsl.org/research/health/dependent-health-coverage-state-implementation.aspx#State_Actions
- New York Times.** 2011. “Medical Debt Cited More Often in Bankruptcies.” <http://bucks.blogs.nytimes.com/2011/08/18/medical-debt-cited-more-often-in-bankruptcies/>.
- Pierron, William, and Paul Fronstin.** 2008. “ERISA Pre-emption: Implications for Health Reform and Coverage.” *Employee Benefit Research Institute Issue Brief*, 314.
- Rosenbaum, Sara.** 2011. “The Patient Protection and Affordable Care Act: Implications for Public Health Policy and Practice.” *Public Health Reports*, 126(1):130-135.
- Summers, Lawrence.** 1989. “Some Simple Economics of Mandated Benefits.” *American Economic Review*, 79(2):177-183.
- United States Courts.** 2014. “Bankruptcy Basics.” <http://www.uscourts.gov/FederalCourts/Bankruptcy/BankruptcyBasics.aspx>

DATA

- The Commonwealth Fund Biennial Health Insurance Survey.** 2014. New York: The Commonwealth Fund.
- Ruggles, Steven J., Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek.** 2010. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota.
- United States Courts.** 2013. “Quarterly and Monthly Filings by Chapter and District.” <http://www.uscourts.gov/Statistics/BankruptcyStatistics/quarterly-filings-3-month-chapter-district.aspx>.

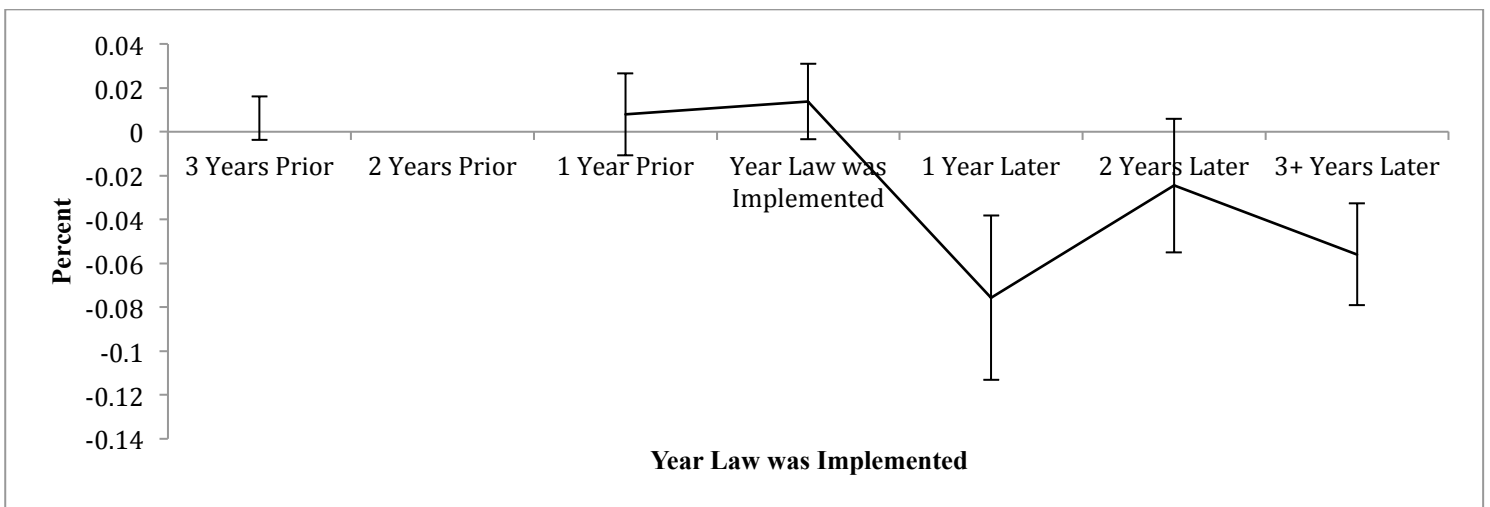
FIGURES

FIGURE 1: U.S. Bankruptcy Rate, 1990 – 2012



Source: Data from U.S. Courts

FIGURE 2: Bankruptcy Rates Before and After Law Implementation, Event Study Results



TABLES

TABLE 1: States that passed Extended Parental Coverage Laws

State	Year Law was Implemented	Limiting Age of dependency	Must be Unmarried
Colorado	2006	25	X
Connecticut	2009	26	X
Delaware	2007	24	X
Florida	2007	25	X
Georgia	2006	25	
Idaho	2007	25	X
Illinois	2009	26	X
Indiana	2007	24	
Iowa	2009	25	X
Kentucky	2008	25	X
Louisiana	2008	24	X
Maine	2007	25	X
Maryland	2008	25	X
Massachusetts	2006	26	
Minnesota	2008	25	X
Missouri	2008	26	X
Montana	2008	25	X
New Hampshire	2007	26	X
New Jersey	2006	31	X
New Mexico	2005	25	X
New York	2009	30	X
North Dakota	2009	26	X
Ohio	2009	28	X
Oregon	2009	23	X
Pennsylvania	2009	30	
Rhode Island	2007	25	X
South Carolina	2008	22	X
South Dakota	2005	24	
Tennessee	2010	24	X
Texas	2003	25	X
Utah	1994	26	X
Virginia	2007	25	
Washington	2007	25	X
West Virginia	2007	25	X
Wisconsin	2009	27	X
Wyoming	2009	23	X

Source: National Conference of State Legislatures

TABLE 2: Sample Characteristics of Young Adults aged 19-30 from the BHIS

Characteristic	Percentage
Age (mean)	24.7
Female	56.4
Race	
White	62.9
African-American	19.9
Education	
Less than High School	14.4
High School Graduate	30.4
Some College	30.6
College Graduate	18.2
Post-Graduate	5.7
Married	29.9
Employment	
Full-time	50.6
Part-time	16.9
Unemployed	12.0
Income (mean)	\$20,000 to under \$30,000
Financial Outcome	
Declared Bankruptcy	6.79
Financial Hardship Index	0.132 [^]
Difficulties paying for Necessities	15.3
Difficulties paying for Medical Bills	26.1
Used up all of Savings	20.4
Health Insurance ⁺	
Private Insurance	53.1
Public Insurance	22.3
Uninsured	28.8
Number of Observations	4,196

[^]No unit

⁺May sum to up over 100 as individuals can hold multiple forms of insurance.

TABLE 3: Sample Characteristics of Young Adults aged 19-30 from the ACS

Characteristic	Percentage
Age (mean)	24.4
Female	50.1
Race	
White	73.5
African-American	11.33
Education	
Less than High School	9.98
High School Graduate	37.5
Some College	30.7
College Graduate	17.3
Post-Graduate	4.55
Married	28.6
Employed	68.2
Income	
Personal Income (mean)	18,400
Household Income as percent of FPL	
0 – 100 percent of FPL	22.6
100 – 200 percent of FPL	18.1
200 – 300 percent of FPL	16.8
300 percent or more of FPL	42.5
Financial Outcome	
Has Investment Income	5.78
Has Investment Income over \$2,000	0.0113
Investment Income (mean)	188
Health Insurance ⁺	
Private Insurance	61.8
Public Insurance	12.6
Uninsured	27.5
Number of Observations	3,998,806

+May sum to up over 100 as individuals can hold multiple forms of insurance.

TABLE 4: Reduced Form Regression Estimates of the Impact of Eligibility under Extended Parental Coverage, BHIS

	Components of Financial Hardship Index				
	(1) Bankruptcy	(2) Financial Hardship Index	(3) Difficulties Paying for Necessities	(4) Difficulties Paying Medical Bills	(5) Used all of Savings
Eligible	-0.0451* (0.0259)	-0.168 (0.150)	-0.0332 (0.0226)	-0.0154 (0.0384)	-0.00726 (0.0187)
Age	0.0411** (0.0184)	0.382** (0.155)	0.0147 (0.0334)	0.0959*** (0.0296)	0.0363 (0.0281)
(Age) ²	-0.000637* (0.000377)	-0.00640** (0.00315)	-0.000149 (0.000698)	-0.00171*** (0.000600)	-0.000525 (0.000570)
Education	-0.0211*** (0.00544)	-0.205*** (0.0331)	-0.0303*** (0.00537)	-0.0340*** (0.00999)	-0.0164** (0.00611)
Married	0.0128 (0.0144)	0.797 (0.0984)	0.00207 (0.0175)	0.0296* (0.0161)	0.0329 (0.0196)
Employment Status	-0.000331* (0.000196)	0.00910 (0.00673)	0.000748 (0.000846)	0.00123 (0.000766)	-0.000312 (0.00151)
Unemployment Rate	-0.00166 (0.00586)	0.138 (0.0525)	0.00812* (0.00457)	0.0293*** (0.0102)	0.0199* (0.0107)
Income	-0.00609* (0.00322)	-0.111 (0.0210)	-0.0142*** (0.00269)	-0.0244*** (0.00336)	-0.0107*** (0.00322)
Mean of Dependent Outcome	0.067 (0.252)	0.132 (2.43)	0.153 (0.360)	0.261 (0.439)	0.204 (0.403)
Observations	2,033	2,784	2,802	3,898	2,798
R-squared	0.159	0.167	0.098	0.056	0.124

All regressions include year and state fixed effects. Standard errors are clustered by state and are in parentheses.

*, **, and *** indicate the estimates are significant at the 10 percent, 5 percent, and 1 percent levels.

TABLE 5: Reduced Form Regression Estimates of the Impact of Eligibility under Extended Parental Coverage, ACS

	(1) Has Investment Income	(2) Has Investment Income over \$2,000	(3) Ln (Investment Income)
Eligible	0.000523 (0.000961)	0.000348 (0.000238)	-0.103*** (0.0235)
Age	-0.0184*** (0.00150)	-0.00448*** (0.000341)	0.326*** (0.0502)
(Age) ²	0.000364*** (0.0000276)	0.000100*** (0.00000727)	-0.00488*** (0.000952)
Education	0.0164*** (0.000482)	0.00274*** (0.0000909)	-0.00909 (0.00548)
Married	0.00146*** (0.000128)	0.000379*** (0.0000393)	0.00515* (0.00291)
Employment Status	0.00465*** (0.000396)	0.00456*** (0.000232)	0.418*** (0.0196)
Unemployment Rate	0.000747 (0.000564)	0.0000742 (0.0000854)	0.0199** (0.00930)
Income	0.00000114 (0.0000000288)	0.000000424 (0.0000000241)	0.00000816 (0.000000236)
Mean of Dependent Outcome	0.0568 (0.231)	0.0113 (0.106)	5.41 (2.36)
Observations	3,998,806	3,998,806	227,027
R-squared	0.053	0.015	0.067

All regressions include year and state fixed effects. Standard errors are clustered by state and are in parentheses. *, **, and *** indicate the estimates are significant at the 10 percent, 5 percent, and 1 percent levels.

TABLE 6: Event Study Estimates of the Impact of Eligibility under Extended Parental Coverage, BHIS

	(1)	(2)	Components of Financial Hardship Index		
			(3)	(4)	(5)
	Bankruptcy	Financial Hardship Index	Difficulties Paying for Necessities	Difficulties Paying Medical Bills	Used all of Savings
3 Years Prior	0.00622 (0.00992)	-0.194 (0.281)	-0.0745* (0.0444)	0.0285 (0.0409)	0.0212 (0.0474)
2 Years Prior	Omitted	-0.768 (0.375)	0.0206 (0.0707)	-0.115** (0.0544)	0.0601 (0.0614)
1 Year Prior	0.00796 (0.0188)	-0.134 (0.248)	0.00770 (0.0387)	-0.00232 (0.0389)	-0.0534** (0.0264)
Year Law was Implemented	0.0138 (0.0172)	0.0113 (0.304)	-0.0406 (0.0291)	0.0465 (0.0590)	0.00569 (0.0362)
1 Year Later	-0.0757** (0.0374)	-0.0563 (0.253)	-0.0368 (0.0400)	-0.0493 (0.0508)	0.0113 (0.0340)
2 Years Later	-0.0245 (0.0305)	-0.0526 (0.275)	-0.0476 (0.0339)	0.0208 (0.0475)	0.0112 (0.0514)
3+ Years Later	-0.0559** (0.0232)	0.0267 (0.279)	-0.0272 (0.0273)	-0.00197 (0.0387)	0.0115 (0.0232)
Observations	2,033	2,784	2,802	3,898	2,798
R-squared	0.164	0.168	0.102	0.061	0.129

All regressions include year and state fixed effects. Standard errors are clustered by state and are in parentheses.

*, **, and *** indicate the estimates are significant at the 10 percent, 5 percent, and 1 percent levels.

TABLE 7: Event Study Estimates of the Impact of Eligibility under Extended Parental Coverage, ACS

	(1) Has Investment Income	(2) Has Investment Income over \$2,000	(3) Ln (Investment Income)
3 Years Prior	-0.00007 (0.000835)	0.000226 (0.000286)	-0.0108 (0.0319)
2 Years Prior	0.000720 (0.000792)	0.000724** (0.000285)	-0.0266 (0.0278)
1 Year Prior	0.000911 (0.000705)	-0.0000721 (0.000254)	-0.100*** (0.0305)
Year Law was Implemented	0.00102 (0.00124)	-0.0000146 (0.000312)	-0.117*** (0.0318)
1 Year Later	0.000748 (0.00148)	0.000274 (0.000290)	-0.145*** (0.0394)
2 Years Later	-0.00172 (0.00171)	0.000257 (0.000433)	-0.122*** (0.0354)
3+ Years Later	0.000732 (0.00147)	0.000658 (0.000440)	-0.115** (0.0489)
Observations	3,998,806	3,998,806	227,027
R-squared	0.053	0.015	0.067

All regressions include year and state fixed effects. Standard errors are clustered by state and are in parentheses. *, **, and *** indicate the estimates are significant at the 10 percent, 5 percent, and 1 percent levels.

TABLE 8: Reduced Form Regression Estimates of the Impact of Eligibility under Extended Parental Coverage, Restricted Years 2001-2007, ACS

	(1) Has Investment Income	(2) Has Investment Income over \$2,000	(3) Ln (Investment Income)
Eligible	-0.000955 (0.00123)	-0.000173 (0.000812)	0.00885 (0.0573)
Age	-0.0247*** (0.00211)	-0.00582*** (0.000498)	0.163*** (0.0444)
(Age) ²	0.000490*** (0.0000389)	0.000123*** (0.0000102)	-0.00192** (0.000845)
Education	0.0189*** (0.000562)	0.00301*** (0.000104)	-0.00111 (0.00632)
Married	0.00140*** (0.000165)	0.000391*** (0.0000523)	0.00529 (0.00428)
Employment Status	0.00341*** (0.000464)	0.00487*** (0.000252)	0.416*** (0.0218)
Unemployment Rate	-0.00161** (0.000785)	-0.000176 (0.000436)	-0.0184 (0.0225)
Income	0.00000122*** (0.0000000366)	0.000000465*** (0.0000000224)	0.00000876*** (0.000000323)
Observations	1,821,054	1,821,054	121,454
R-squared	0.056	0.016	0.068

ACS data restricted to the years 2001 to 2007. All regressions include year and state fixed effects. Standard errors are clustered by state and are in parentheses. *, **, and *** indicate the estimates are significant at the 10 percent, 5 percent, and 1 percent levels.

TABLE 9: Falsification Test Estimates of the Impact of Eligibility under Extended Parental Coverage, 3 Years Prior to Implementation, BHIS

	(1) Bankruptcy	(2) Financial Hardship Index	Components of Financial Hardship Index		
			(3) Difficulties Paying for Necessities	(4) Difficulties Paying Medical Bills	(5) Used all of Savings
Eligible	0.00695 (0.0112)	-0.357* (0.182)	-0.0510** (0.0243)	-0.0331 (0.0314)	-0.0542** (0.0238)
Age	-0.0223 (0.0169)	0.0836 (0.197)	-0.0298 (0.0407)	0.0583* (0.0323)	0.0207 (0.0363)
(Age) ²	0.000568 (0.000351)	-0.000918 (0.00397)	0.000686 (0.000844)	-0.00101 (0.000662)	-0.000271 (0.000719)
Education	-0.0113* (0.00572)	-0.176*** (0.0460)	-0.0274*** (0.00749)	-0.0301*** (0.0111)	-0.0121 (0.00855)
Married	0.0206 (0.0159)	0.0911 (0.108)	0.00102 (0.0177)	0.0336* (0.0168)	0.0397* (0.0216)
Employment Status	-0.000175 (0.000175)	0.00666 (0.00613)	0.00153 (0.00160)	0.000768 (0.000889)	-0.00126 (0.00135)
Unemployment Rate	0.00391 (0.00510)	0.204*** (0.0613)	0.0153* (0.00764)	0.0423*** (0.0133)	0.0262** (0.0126)
Income	-0.00755** (0.00333)	-0.111 (0.0245)	-0.0172*** (0.00338)	-0.0233*** (0.00360)	-0.00985** (0.00383)
Observations	1,373	2,076	2,090	3,186	2,086
R-squared	0.218	0.178	0.107	0.057	0.131

All regressions include year and state fixed effects. Standard errors are clustered by state and are in parentheses.

*, **, and *** indicate the estimates are significant at the 10 percent, 5 percent, and 1 percent levels.

TABLE 10: Falsification Test Estimates of the Impact of Eligibility under Extended Parental Coverage, 3 Years Prior to Implementation, ACS

	(1) Has Investment Income	(2) Has Investment Income Over \$2,000	(3) Ln (Investment Income)
Eligible	0.00134** (0.000659)	0.000181 (0.000251)	-0.0891*** (0.0238)
Age	-0.0180*** (0.00177)	-0.00489*** (0.000408)	0.204*** (0.0525)
(Age) ²	0.000358*** (0.0000322)	0.000104*** (0.00000833)	-0.00263** (0.000986)
Education	0.0173*** (0.000516)	0.00290*** (0.0000968)	-0.00514 (0.00545)
Married	0.00155*** (0.000131)	0.000430*** (0.0000399)	0.00571* (0.00316)
Employment Status	0.00453*** (0.000429)	0.00500*** (0.000239)	0.431*** (0.0199)
Unemployment Rate	0.000676 (0.000535)	0.00000259 (0.000120)	0.0136 (0.0103)
Income	0.00000118*** (0.0000000307)	0.000000449*** (0.0000000226)	0.00000806*** (0.000000277)
Observations	3,026,202	3,026,202	190,417
R-squared	0.056	0.016	0.064

All regressions include year and state fixed effects. Standard errors are clustered by state and are in parentheses. *, **, and *** indicate the estimates are significant at the 10 percent, 5 percent, and 1 percent levels.

TABLE 11: Falsification Test Estimates of the Impact of Eligibility under Extended Parental Coverage, 31-40 years old, BHIS

VARIABLES	(1) Bankrupt	(2) Financial Hardship Index	Components of Financial Hardship Index		
			(3) Difficulties Paying for Necessities	(5) Difficulties Paying Medical Bills	(4) Used All of Savings
Spillover	0.0147 (0.0321)	-0.265 (0.186)	-0.0236 (0.0238)	-0.0440 (0.0373)	-0.0278 (0.0348)
Age	-0.0398 (0.0824)	0.0879 (0.410)	-0.00714 (0.0590)	-0.0543 (0.0598)	0.0625 (0.0639)
(Age) ²	0.000580 (0.00115)	-0.00116 (0.00575)	0.000117 (0.000829)	0.000776 (0.000842)	-0.000875 (0.000891)
Education	-0.00735 (0.00526)	-0.147*** (0.0409)	-0.0235*** (0.00525)	-0.0130* (0.00667)	-0.0166** (0.00819)
Married	0.0112 (0.0150)	0.0494 (0.0803)	-0.00840 (0.0116)	0.00261 (0.0193)	0.0442*** (0.0161)
Employment Status	0.0000793 (0.000652)	0.00624 (0.00898)	0.00120 (0.00104)	-0.0000182 (0.00129)	0.000993 (0.00162)
Unemployment Rate	0.00546 (0.00901)	0.152*** (0.0531)	0.0180** (0.00713)	0.0121 (0.00901)	0.0204 (0.0123)
Income	-0.0130*** (0.00357)	-0.186*** (0.0383)	-0.0246*** (0.00468)	-0.0356*** (0.00614)	-0.0202*** (0.00654)
Mean of Dependent Outcome	0.094 (0.292)	0.291 (2.47)	0.158 (0.364)	0.285 (0.452)	0.240 (0.427)
Observations	1,731	2,750	2,764	3,701	2,762
R-squared	0.131	0.197	0.125	0.072	0.129

All regressions include year and state fixed effects. Standard errors are clustered by state and are in parentheses. *, **, and *** indicate the estimates are significant at the 10 percent, 5 percent, and 1 percent levels.