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Joshua Congdon-Hohman
College of the Holy Cross, jcongdon@holycross.edu

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By

Joshua Congdon-Hohman

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Department of Economics and Accounting
College of the Holy Cross
Box 45A
Worcester, Massachusetts 01610
(508) 793-3362 (phone)
(508) 793-3708 (fax)

<http://holycross.edu/academics/programs/economics-and-accounting>

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Retirement Reversals and Health Insurance: the Potential Impact of the Affordable Care Act *

Joshua Congdon-Hohman[†]
The College of the Holy Cross

Abstract

This paper uses the longitudinal aspect of the Health and Retirement Study to explore the characteristics associated with reversals in retirement (referred to here as “unretirement”). Through the use of survival time analysis, this paper shows that health insurance status and its source are significant predictors of unretirement decisions. The relationship is important as the potential impacts of the Affordable Care Act are considered. By comparing the role of health insurance provision to the impact of financial “shocks”, the analysis finds that insurance is equally important as other financial explanations for retirement reversals. The analysis also shows that health insurance source plays a particularly important role for those who were previously open to the idea of working in retirement while they were still working.

JEL Classification Codes: J26, J22, H55, J32

Keywords: Retirement, Unretirement, Retirement reversals, Health insurance

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[†]Department of Economics and Accounting. Contact via email: jcongdon@holycross.edu. Website: <http://college.holycross.edu/faculty/jcongdon/>.

1 Introduction

Most research in the area of retirement has focused on an individual's binary choice to retire or to continue working, with much of the debate among economists centered on which model best fits retirement decision behavior. This line of research often neglects the fact that an individual's working career does not always end with retirement. A non-trivial share of retirees choose to return to work either on a part-time or full-time basis after fully retiring, or return to full-time work after partially retiring (collectively referred to in this paper as "unretiring"). Based on estimates using Health and Retirement Study (HRS) data from 1992 through 2006, 25 to 35 percent of retirees later reverse their retirement decisions, which is similar to previous findings by Ruhm (1990) using the 1970's Retirement History Longitudinal Survey (RHLS).¹ As the demographic make-up of the labor force in the United States changes, it is important to understand what factors may influence the movement of retirees in and out of the labor force. A better understanding of retirement reversals should help inform policy decision-making and identify the potential impacts of macroeconomic changes. One important policy question that needs to be addressed is how the implementation of the Affordable Care Act (ACA) might impact the labor market, especially among the large group of workers from the baby-boom generation that are approaching or have entered their normal retirement ages. In the analysis that follows, I focus specifically on the role of health insurance sources and find that they are a strong predictor of future retirement reversals.

Though research focusing on the timing of initial retirement has been prolific and focused very explicitly on the role of health insurance provision, research on retirement reversals has been much more limited. Early influential models of retirement behavior incorporated retirement decisions as a consuming state and did not allow for retirees to reverse their decisions (Gustman and Steinmeier (1986), Stock and Wise (1990), and Lumsdaine and Mitchell (1999), for example). Other models recognized unretirement but usually did not attempt to predict reversals with their models due to the complexity and assumed relative infrequency

¹The RHLS followed a random sample of individuals aged 58-63 in 1969 until the survey ended in 1979.

of the event (Berkovec and Stern (1991) and Rust and Phelan (1997), for example). There is a small literature that examines retirement reversals. Ruhm (1990) found that those with pensions and higher levels of education were less likely to unretire than others when controlling for income, age, and gender but omitting health insurance and health care costs. A pair of recent studies have also examined unretirement patterns but have either rejected outright or not explored the role of health insurance provision in retirement reversals. Specifically, Maestas (2010) identified pre-retirement expectations as a primary predictor of unretirement and found that health insurance provision (as measured by the loss of health insurance) and other financial changes at the time of retirement were not significant indicators. Maestas and Li (2007) employed a hazard model approach and found a statistically significant role for health insurance sources, but did not examine this result in detail or identify the contradiction to the findings in Maestas (2010) as it was an ancillary finding to the main focus of their study.² The lack of focus on health insurance concerns in this literature is surprising given the strong link found between retirement timing and health insurance availability. Previous research has found that potential retirees are from 30 to almost 70 percent more likely to retire if their employer offers retiree health insurance (RHI) than if they do not (a few examples include Karoly and Rogowski (1994), Gruber and Madrian (1995), Johnson et al. (2003), Kapur and Rogowski (2011), Marton and Woodbury (2012), Nyce et al. (2013), Shoven and Slavov (2014), Fitzpatrick (2014), and Congdon-Hohman (2015)). This paper puts health insurance at the center of the examination and compares the results to other potential predictors of unretirement.

A separate and more in-depth examination of the role of health insurance in unretirement is important for a number of reasons. First and foremost, this study finds that the importance of health insurance sources in predicting unretirement is on par with financial concerns (such as household wealth and pensions) and cannot be simply explained away with pre-

²The focus of their examination was “psychological burnout” caused by employment stress and measured by survey questions regarding exhaustion. As retirees’ “burnout” level dissipates after leaving their employer, their theory suggests unretirement may become optimal.

retirement expectations as found in earlier work. Prior to the implementation of the ACA, the expectations of retirees regarding health insurance provision would be quite different from other financial measures due to the unfamiliarity with the real cost of premiums, the direct costs for health care, and the high variability of health care costs before one reaches Medicare eligibility age. Additionally, retirement-aged individuals may have faced unforeseen difficulties finding affordable health insurance that is not provided by an employer or the government. The ACA changes this landscape dramatically by providing more cost certainty to all consumers of non-employer based health insurance and by guaranteeing that no one will be refused health insurance or charged more due to pre-existing conditions. The findings of this study suggest that post-retirement behavior may change due to the changing landscape of health insurance provision and this should be accounted for when modeling labor force participation and other fiscal impacts for the ACA.

For this examination, I will focus my empirical analysis on retirees from the HRS prior to the 2008 recession and the passage of the ACA to limit confounding other factors during this traumatic economic period. The HRS, produced by the Institute for Social Research at the University of Michigan, provides a unique opportunity to study the role of health insurance in unretirement decisions. Due to the longitudinal nature of the survey, individuals can be followed and examined over a fourteen-year period. I have used a survival time model (often referred to as a hazard model) to show the relative importance of the provision of health insurance and other characteristics in a retiree's decision to unretire. This approach allows fluid characteristics such as a spouse's retirement status, health, health insurance, and wealth to vary with time, something unexamined in previous studies on retirement reversals which have used stationary models and characteristics only at the time of retirement.

Section 2 describes recent trends in health insurance premium costs and employer provision of insurance as a retirement benefit. Section 3 describes the HRS and the sample used. Section 4 defines retirement and unretirement. Section 5 discusses the general methodology used. Section 6 and 7 presents the main results and compares them to past research.

Section 8 concludes.

2 Background

Health insurance provision for working-aged Americans is centered around employer provided health insurance (EPHI). The majority of workers receive health insurance from either their own or their spouses' employers. When Americans reach 65 years of age, they become eligible for a federal government health insurance program, called Medicare, as long as they have worked ten years in a qualifying job (which most do). Medicare is available prior to age 65 only for those with a qualifying disability. If workers choose to retire before they reach 65 years of age, a number of insurance options exist in addition to the choice to go uninsured. Some employers offer to continue to provide health insurance to retirees who have worked for the employer for a certain number of years. I refer to this as an offer of retiree health insurance (RHI). The level of premium subsidization depends on the employer's specific benefits, but these programs tend to be a retiree's least expensive option due to the risk pooling over all of an employer's employees. Unfortunately for retirees, RHI benefits received at retirement are not guaranteed to continue throughout retirement (unlike pension benefits which are insured through the federal government). A Labor Department report stated that 2 percent of 1994 retirees lost their promised retirement health insurance benefits in the previous year (Government Accountability Office, 1998) and a similar decline of 2 percent was found between 2013 and 2014 in a survey of employers by Towers Watson/National Business Group on Health (2014). Though this number is small, that report was issued at a time of economic expansion; more recent, anecdotal evidence suggests that an increasing number of firms are eliminating health insurance benefits to currently retired individuals. The role of EPHI and RHI has not been changed dramatically by the ACA.

The major implications of the ACA for retirement planning revolve around the fact that the law guarantees issue of non-group health insurance for anyone not covered by an

employer or government health insurance program and that the rates would not depend on pre-existing medical conditions. Prior to the ACA, those who retired before they reached Medicare eligibility age and did not have an offer of RHI may still have had access to health insurance through temporary continuation programs (“COBRA” benefits) or the expensive private, non-group health insurance market. Specifically, COBRA benefits allow individuals to remain on former employers’ health insurance plans for 18 months following separation of employment, but they must pay the full cost of the insurance to the employer plus a two percent administration fee.³ Though it is hard to estimate the average cost of private, non-group health insurance due to the high variability in the terms of each policy, these plans tended to have higher deductibles and co-payments for services than employer provided plans. Furthermore, insurance companies in most states retained the option to limit benefits for pre-existing conditions and to deny coverage to individuals whom they deem too risky. Examination of insurance companies’ offer rates have found that companies rejected 10 to 14 percent of all applicants (Pauly and Nichols, 2002; Merlis, 2005) and up to 37 percent of those with pre-existing conditions (Pollitz et al., 2001). The Congressional Budget Office (2005) estimated that the average annual premium for a private, non-group plan was a third higher than the average total premium cost for EPHI in 2002 despite the fact that this estimate does not control for the level of coverage (copayments and deductibles).

If near-retirement aged individuals choose to go without insurance, they face higher medical costs on average than younger Americans, with much higher variability (Gruber and Madrian, 1996). Tabulations from the Medical Expenditure Panel Survey (MEPS) show that the 2005 mean medical expenditure for individuals between 55 and 64 years of age to be over fifty percent higher than for individuals between the ages of 45 and 54 at \$5923 and \$3775,

³These are commonly referred to COBRA benefits due to the federal Consolidated Omnibus Budget Reconciliation Act of 1986 that granted this benefit. A few states have extended the benefits beyond 18 months for all employees in the state (CT, MA, NH, NJ, NY, TX, MN, ND, SD, CA, and NV extend health insurance benefits to 36 months, FL to 29 months, and IL to 24 months). Six states have addressed the concerns of retirees specifically by requiring former employers of retirees who are near Medicare eligible age to offer continuation coverage until they reach the age of 65 (IL, LA, MD, MO, NH, and OR) (Kaiser Family Foundation, 2007). Unfortunately, the unrestricted HRS data does not include information on respondents’ state of residence.

respectively.⁴ Medical expenditures are also growing faster than inflation. Using the MEPS data, the average medical expenditures between 1996 and 2005 increased at an annualized rate of six percent per year for individuals between 55 and 66 years of age, while annual inflation ranged between 1.6 and 4.1 percent in the same period. Data for 2006 showed medical costs increasing at twice the rate of inflation (Poisal, 2007).

The implementation of the ACA may be particularly important for retirees given the trends in employer health insurance provision in the decade prior. EPHI and RHI have been on a slow decline over the fifteen years that the Kaiser Family Foundation and Health Research and Education Trust have been tracking offer rates by employers (Kaiser Family Foundation and Health Research and Education Trust, 2014). The survey has found the percentage of employers offering EPHI is down from 68 percent in 2000 to 59 percent in 2007 to 55 percent in 2014. Among large employers offering EPHI, the rate of RHI offers went down from 66 percent in 1988 to 40 percent in 1999 and 25 percent in 2014. A larger study using MEPS found that only one-quarter of private-sector employees were working at firms that offered retiree health benefits in 2003 compared to 32 percent in 1997 (Buchmueller et al., 2006). Though the long-term effects of the ACA are still unclear, initial indications are that the law has not dramatically slowed the previous downward trend in offer rates of EPHI and RHI.

3 Data

The analysis that follows uses detailed longitudinal data on a nationally representative sample of American households from the University of Michigan's Health and Retirement Study. The initial cohort of the HRS included households where at least one member was between the ages of 51 and 61 in 1992. A new cohort, labeled the War Baby Cohort, was added in 1998 and included households in which one spouse was between the ages of 51 and 56 at

⁴MEPS is available through the U.S. Department of Human Services' Agency for Healthcare Research and Quality at <http://www.meps.ahrq.gov/mepsweb/index.jsp>

the time of their first interview. The HRS includes data from re-interviews of respondents that occur every two years, with the most recent interview “wave” analyzed here occurring in 2006, the final wave before the economic turmoil began in 2008. The HRS data used here is available through the Survey Research Center at the Institute for Social Research and the RAND Center for the Study of Aging (St. Clair, 2008).

Though the HRS includes over sixteen thousand respondents, this study will only examine a restricted subset based on their observable characteristics and retirement timing. Specifically, I eliminate those who were not age eligible for either cohort (respondents who are younger or older than their age-eligible spouses, for example) and those who become deceased or otherwise attrited during the sample period in order to have a full set of observations for those remaining in the sample. Because this study uses employment information from the wave prior to retirement, individuals were also required to be working in the first wave that their cohort was surveyed. Finally, respondents must have been observed to retire and have appeared in at least one proceeding wave. With this restriction, each respondent had at least one opportunity to be observed to reverse their retirement decision. Upon unretirement, respondents are not reintroduced if they retire again. The final analysis sample includes 3,421 HRS respondents which I observe for an average of 2.7 waves after retirement before reversing their retirement or the end of the observation period.

4 Definitions and Summary Statistics

In the HRS, individuals are given multiple opportunities to identify themselves as “retired”. As in much of the literature, full and partial retirement will be defined by both the amount worked by a respondent and their self-reported retirement status. Those who work full-time (defined as 35 hours or more per week and at least 36 weeks in the last year) are not considered retired regardless of their self-designation. Those working part-time are identified as partially retired if they self-report their retirement status as retired or partially retired.

Finally, anyone not working and self-reporting being retired is considered “fully retired” while those not working and not identifying themselves as retired (the unemployed, disabled, and those not in the labor force but not retired) will be excluded from the sample. The alternative of using self-reported identifiers alone has very little impact on the results that are presented below.

When defining retirement and unretirement, one must consider how to treat partial retirement. For the purposes of this study partial retirement will be considered a form of retirement based on the fact that the respondent has made a classification that any work she is doing is part of her retirement plan. Since a response of partial retirement is used to identify the onset of retirement, a “directional definition” of unretirement is used. Under this definition, a respondent would have to move from a higher to a lower state of retirement to be considered unretired. The highest state of retirement for these purposes would be full retirement, followed by partial retirement and not retired. For example, if a respondent was fully retired in the previous wave, she would be considered unretired if she moved to either a partially retired or not retired state, but only a movement to a not retired state would be considered unretiring for a respondent who was previously partially retired. In addition to matching the subjective views of the individual respondent, this definition is also consistent with the work of Maestas (2010) and will allow for a reasonable comparison of results in a later section.⁵

Table 1 presents the unretirement hazard rates following retirement.⁶ The hazard rate is highest between the first observed retirement wave and the second wave (a period of two years) at 18.5 percent. The unretirement hazard falls consistently following the first wave after retirement, but over 5 percent of retirees will unretire between 6 and 8 years after they are first observed to retire. In total, over 31 percent of those in the sample were observed to

⁵A weakness of this definition is that an individual working part-time and classified as partially retired can unretire without changing their work level by simply changing their self-reported retirement status. The same is not true for a full-time worker since the definition does not allow a full-time worker to be classified as retired.

⁶Hazard rates are defined as the rate that an event occurs (here unretirement) in a time period, given that it has not occurred prior to that time period.

unretire in some wave. Both values are similar to the rates found by Ruhm (1990) (25 to 35 percent using the 1970's RHLS) and Maestas (2010) (24 percent using the HRS but limiting the observation period to five years following retirement). The number of observations not unretiring or attriting (due to end of observation period) is also included in Table 1 to provide a sense of the attrition rate.

Though the key focus for this study is the role of health insurance sources in regard to unretirement behavior, Table 2 first looks at the role of demographic (age, gender, race, marital status, educational attainment, and Census region), health (own and spouse's self-rated health), and financial (total wealth at retirement) factors. The table compares the mean values of these factors at the time of retirement for those who are permanent retirees (at least within the period of observation) and future unretirees. At retirement, future unretirees were statistically significantly younger, male, more highly educated, and had better self-rated health. There was no statistical difference between the two groups based on marital status but respondents were less likely to unretire in the future if their spouses were also retired. There was not a statistical difference between groups based on their spouses' self-rated health, race, and region (with the exception of a respondent being statistically less likely to unretire if he or she lives in the north Census region). Though there was not a statistical difference in total household wealth between groups, permanent retirees were significantly more likely to report receiving a pension at their retirement wave than were future unretirees.⁷

Since this study is focused primarily on the role of health insurance in the decision to unretire, Table 2 also presents the means for a number of health insurance sources at the time of retirement. While Maestas (2010) included only the loss of health insurance at retirement and Maestas and Li (2007) included a binary measure for whether a respondent would have group health insurance in the next wave if they were not working (where group health insurance included government health insurance, RHI, or insurance through a spouse's em-

⁷The inclusion of pensions is particularly important when examining the impact of health insurance on retirement reversal decisions. Specifically, RHI might be correlated with retiree pensions. In the analysis that follows, pensions will be included in all specifications.

ployer), this study separates health insurance sources and uses the current source to examine its influence on unretirement before the following wave. Health insurance sources are divided into five categories based on expected cost and risk of large health care expenditures: provision through a governmental program; provision through an employer or union subsidized program (“subsidized” EPHI tend to have the lowest consumer paid premiums among the private health insurance options); provision through an employer or union based program in which the recipient pays the full cost (“unsubsidized” EPHI); provision through a private, non-group health insurer (highest premiums, some exposure to large health care expenditures if there was a pre-existing condition); and those without health insurance (high exposure to large health care expenditures). Subsidized or unsubsidized EPHI could be provided by either the respondent’s current or former employer, or by his or her spouse’s employer. Table 2 presents the share of respondents reporting each of these health insurance sources at the time they were first observed as retired. Future unretirees were significantly less likely to report subsidized EPHI or government provided health insurance and more likely to report having no health insurance or private, non-group health insurance than were permanent retirees. Statistically, there is not a significant difference in the rate that future unretirees and permanent retirees report having unsubsidized EPHI.

Additional attention is paid in this study to a specific question in the initial HRS wave (1992) that asked respondents whether they planned to do “paid work in retirement.” Though this does not directly refer to unretirement since a transition through partial retirement would also seem to be included in this expectation, it has been the focus of previous work on the subject of unretirement and has proven to be quite powerful in predicting retirement reversals (Maestas, 2010). Table 2 show that this continues to hold true in the extended dataset used here, at least in comparison of means, as future unretirees were significantly more likely to have reported plans to do paid work in retirement when asked in the 1992 wave.

5 Empirical Methodology

To allow for changes in key variables across time, this study will primarily use a survival time analysis to identify the impact of key static and dynamic characteristics on the unretirement hazard rate. The survival time methodology accounts for censoring (in this case from the end of survey) and for varying lengths of observation. It is also better equipped than static models to evaluate the effects of shocks and other changes to a respondent’s circumstances throughout retirement. This design element is one of the reasons survival time models are commonly used in studies of unemployment and welfare spell duration as many individuals do not become employed or do not exit welfare before the observation period ends. This study assumes a parametric hazard function and uses the Weibull distribution as the form of the baseline hazard, which will allow for negative duration dependence (Wooldridge, 2002).⁸

As evidence of the importance of allowing key indicators to vary with time, Table 3 summarizes the changes in health insurance sources between each respondent’s retirement wave and the period of observed, continued retirement. Of the nine percent of respondents who report no health insurance at their retirement wave, only 36 percent report being uninsured in a subsequent wave. Among those who report private, non-group health insurance at their retirement wave, ten percent later report being uninsured. Similarly, five percent of those with EPHI at retirement that is not subsidized by an employer or union later report being without health insurance and 13 percent later report having non-group, private health insurance. Though 44 percent of respondents report employer subsidized EPHI at retirement, four percent later report being uninsured, seven percent report having private, non-group insurance, and eleven percent report having EPHI that is not subsidized by an employer during some future wave of their retirement. Not surprisingly, government programs tend to

⁸Other parametric forms were also evaluated based on their goodness of fit. The Weibull distribution had the best fit among proportional hazard metrics as evaluated by their Akaike Information Criteria (AIC) values. The log-normal and log-logistic distributions had slightly better fits but are limited to the harder to interpret accelerated failure-time metric. Calculating the mean marginal effects for each type of distribution suggests that the difference in results are minimal with no large changes in magnitudes and no changes in statistical significance. Semi-parametric forms are not used because of the large number of duration ties in the two year periodic data used in this analysis.

have the highest continuation rate throughout retirement, with no more than three percent reporting any other insurance source during their retirement.

The survival time analysis employed in this study examines the unretirement hazard between the current wave and the following wave, given that a respondent has not unretired prior to the current wave. Current conditions are used in the analysis except when examining changes in levels between waves (changes in characteristics such as health or wealth for example), which are measured between the previous wave and the current wave. In addition to the traditional presentation of the results of survival time analysis results as hazard ratios, this study will also present the mean marginal effect (MME) on the predicted hazard from a one unit change in each characteristic for an easier interpretation of the results in our initial examinations.

6 Estimation Results

In order to give a general view of which characteristics are broadly associated with unretirement, Table 4 presents the results of a survival time analysis when only demographic, wealth, and health variables are included. The dependent variable is whether a retiree unretires before the next wave given that he or she is still retired in the current wave. Column [1] presents the hazard ratio and column [2] presents the mean marginal effects (MMEs) on the predicted hazard. Both columns show the same pattern since they are simply different ways to present the same underlying estimation results. Respondents are more likely to reverse their retirement with each addition year of age at retirement but that likelihood drops significantly as respondents reach the critical ages of 62 (earliest age of Social Security eligibility) and 65 (earliest age of Medicare eligibility). While gender and marital status alone do not appear to be major factors when predicting unretirements, married men are six percentage points more likely to unretire than the baseline group (unmarried women),

though the pattern is reversed if the spouse is also retired.⁹ If a respondent rates his or her health as “poor” or “fair” on a five-point scale, he or she is on average 10 percentage points less likely to unretire before the next wave, but that value is cut in half if the respondent is also a male. A spouse’s health does not change the predicted hazard rate by a statistically significant amount.

The results in Table 4 also suggest that wealth and educational attainment are not strong predictors of respondents’ unretirement hazard rates but the receipt of a pension has a statistically significant and negative impact on the likelihood of a retirement reversal. Wealth at the time of retirement has surprisingly little importance when predicting unretirements, while those with an educational attainment of a high school diploma or more are not statistically different from one another in regards to their unretirement rates. Those who do not obtain a high school diploma or General Educational Development (GED) certification are three percentage points less likely to unretire than those with a high school diploma or GED (which is significantly different from zero at the five percent level). Among other demographic variables, only respondents reporting their race as black and those living in the Northeast Census Division (not shown) have significantly different mean predicted hazard rates than the baseline group (non-hispanic, caucasians from the South Census Region).

Health insurance sources are introduced to the survival time analysis in Table 5. Though not reported in the table, the MMEs for demographic, health, and wealth factors do not change dramatically when health insurance sources are introduced. The results for the four included health insurance categories show a clear pattern in relation to the omitted group, those reporting subsidized EPHI. Given that government insurance programs tend to be more secure and often cheaper than RHI programs or insurance through a spouses employer or union, it is not surprising that retirees with this type of insurance are over twenty percentage points less likely to reverse their retirement decision. Those with less stable and likely higher cost insurance sources are more likely to unretire. Those with an

⁹The MMEs and standard errors for interaction terms reported in all tables have been adjusted to reflect the true magnitude of the interaction effect described in Ai and Norton (2003).

employer provided plan but who pay the full cost have a three percentage point higher rate of unretirement, though this is not statistically significant at traditional levels. There is a four percentage point increase in the hazard rate for those with non-group, private health insurance and an almost six percentage point increase for those with no health insurance, with the former statistically significant at the ten percent level and the later at the five percent level. In terms of magnitude, these mean marginal effects are on par with that of retirement pensions for the retiree.

In light of the Great Recession, there has been a great deal of commentary on the level of retirement savings individuals have as they prepare to retire and other shocks that might have occurred in this period (see Brady (2012) and Ondrich and Falevich (2014)). Though I have included income at retirement and the receipt of a pension in the preliminary analysis, Table 6 adds a number of wave-to-wave changes that might predict a reversal in retirements that would not be identified in a static model based on conditions at an individual's retirement. In this table and those that follow, only the hazard ratio results will be presented. Though these shocks are interesting, it should be noted that the inclusion of these shocks has almost no discernible effect on the magnitude or significance of the hazard ratios of the health insurance source indicators.

The impact of financial shocks are examined in columns [1] and [2] of Table 6. In column [1], large shocks to total wealth are included as well as steep increases in out-of-pocket medical (OOPM) expenses. Shocks in these cases are defined as a 50% decline in total wealth or a 50% increase in OOPM between waves above a nominal threshold of \$10,000 for wealth and \$2,000 for OOPM. Though wealth at retirement is not a predictor of unretirement, a shock to total wealth has a positive and significant hazard ratio suggesting a significantly higher rate of unretirement for those who experience such a decrease in their wealth during their retirement. The shock in OOPM does not have a statistically significant impact, possibly because it is so closely linked to health which has already been accounted for elsewhere. The results in column [2] separate total wealth shock into shocks to the housing and non-housing

components reported wealth in the HRS. The 2008 recession included negative shocks to both housing and stock values and based on the results here, we would expect either to have significantly increased the likelihood of an unretirement.

Table 6 also examines other factors that have been discussed anecdotally as being on the rise during the Great Recession: children moving back in with parents and individuals retiring after being forced out of their jobs and facing weak demand for their skills. To address the first, column [3] includes changes in household size between the previous wave and the current wave. Though this does not explicitly capture the narrative of children moving back in with parents, it would capture the results of such changes. When the number of household members decreases, there is a statistically significant increase in an individual’s hazard rate but not in the case of an increase in the household size of either one member or two or more members. This suggests that the departure of a family member, most likely a spouse, could drive retirees out of retirement but additional family members have a much less certain impact. The later may be due to the inability to identify when family members move in because of financial hardships and when retirees move in with their children do to non-financial needs. Column [4] looks at two HRS questions that look at the conditions at the time of retirement. Specifically, this analysis includes the answers to questions regarding whether the respondent felt “forced to retire” by their employer and whether they were given an “early retirement offer” (ERO) at the time they retired. The first was not associated with a change in retirement behavior but those reporting an ERO had statistically significant lower hazard ratios than those who did not.

7 Work Expectations before Retirement

One concern regarding the above analysis is that unretirement might simply be the result of a planned return to work following retirement. As mentioned earlier, this was the findings of Maestas (2010) in a static model using the first three waves of the HRS, where characteristics

were valued at their retirement wave level. Specifically, Maestas (2010) found a 1992 question asking respondents about their work expectations in retirement to be the most important predictor of future unretirement. The question was only asked in 1992 so there is not an opportunity for this response to be measured at the time of retirement. To address this finding and link it to the health insurance source findings above, I include the response to the model and, alternatively, separate the analysis based on the response. Because this question was only asked in the 1992 wave of the HRS, the sample used is limited only to respondents in the Initial HRS cohort (the majority of respondents). The results in column [1] of Table 7 show that the results are not dramatically different when limited to this reduced sample, though the statistical significance of non-group, private health insurance falls below the ten percent level.

Column [2] of Table 7 presents the results when responses to the question about doing “planned work in retirement” are added to the earlier specification. When this expectation indicator is added, the key hazard ratios decrease slightly in magnitude but remain substantial and statistically significant at the ten percent level if the respondent has no insurance, and remains insignificant at the ten percent level if they have non-group or unsubsidized employer provided health insurance. The expectation variable is significant at the one percent level and has a large hazard ratio compared to those of the health insurance variables. Though Maestas (2010) did not find the same significant impact of health insurance in a static model, the finding that work expectation in retirement are a very good predictor of future behavior hold up in the more flexible, hazard model.

The findings regarding the expectation of work in retirement are worth further exploration. Over 70 percent of respondents in 1992 answered that they planned to do some paid work in retirement, but since the unretirement rate is much lower than this, it is informative to examine what factors are associated with retirement reversals amongst those who had different expectations of their retirement labor force participation. Columns [3] and [4] of Table 7 separately examine those who answered yes to the 1992 question and

those who answer no. Though not shown, the two groups have very similar hazard ratios for the demographic variable explored in Table 2. More interestingly, they have very different hazard ratios for their health insurance source variables. While the respondents who did not plan to work in retirement do not appear to have a higher hazard rate when uninsured or possessing non-group health insurance, both of those sources lead to a significant difference in the hazard rate for those who did plan to work in retirement. This result suggests that though not everyone is open to working in retirement, health insurance sources are strongly linked to the decision to reverse a retirement for those who are considering future work as part of their retirement.

8 Conclusion

Despite the fact that unretirement is an important and relatively common phenomenon among retirement-aged Americans, it has been largely ignored in the existing literature. This paper has set out to both identify important factors in the decision to reverse retirement decision and identify the potential channels in which the ACA's reform of health insurance markets could potentially influence these decisions. In addition to linking retirement reversals to a number of traits including gender roles, the influence of coordinated retirements, and health concerns, the analysis found that the relative importance of retirees' health insurance sources was similar to that of other purely financial measures such as pensions and total wealth. Similarly, though less stark, retirees who obtained health insurance from the private, non-group source were also more likely to reverse their retirement, and statistically significantly so if they were already open to the idea of doing work in retirement before retiring. The purchase of unsubsidized health insurance through an employer also had a positive link to future unretirement, but not at a statistically significant level in most of analysis above. These findings suggest that the more accessible and lower cost insurance options provided under the ACA might lead to fewer retirement reversals than under the old

regime.

The findings here suggest that previous retirement models should be modified to include the option of “unretirement” to truly capture retirement behavior. Models will need to include both the motivations behind anticipating a future return to work when current work is more lucrative (as done in Maestas and Li (2007)) and the role that health insurance plays in continued labor force decisions after retirement. Changes to the existing models will allow policy makers to better evaluate the impact of changes to the health care payment system in the United States. The implications of changes to the health care system have been studied in the context of the choice to retire, but not in the area of a retiree’s decision to return to work. The results of this study suggest that the more accessible health insurance markets mandated under the Affordable Care Act (which would be most similar to an employer provided health plan not subsidized by the employer) would decrease the likelihood of unretirement, but not by as much as a government run program (similar to Medicare or subsidized employer provided plans) funded by tax revenues. On the other hand, a policy that increased the eligibility age for the Medicare program may influence both the timing of initial retirement but also the likelihood that retirees might later reverse their retirement.

References

- Ai, Chunrong and Edward C. Norton**, “Interaction Terms in Logit and Probit Models,” *Economic Letters*, 2003, 80, 123–129.
- Berkovec, James and Steven Stern**, “Job Exit Behavior of Older Men,” *Econometrica*, 1991, 59 (1), 189–210.
- Brady, Peter J**, “Can 401(k) Plans Provide Adequate Retirement Resources?,” *Public Finance Review*, 2012, 40 (2), 177–206.
- Buchmueller, Thomas, Richard W Johnson, and Anthony T Lo Sasso**, “Trends in Retiree Health Insurance, 1997-2003,” *Health Affairs*, 2006, 25 (6), 1507–1516.
- Congdon-Hohman, Joshua**, “Love, Toil, and Health Insurance: Why American Husbands Retire When They Do,” *Contemporary Economic Policy*, 2015, 33 (1), 118–140.
- Congressional Budget Office**, “The Price Sensitivity of Demand for Nongroup Health Insurance,” Background Paper 2005.
- Fitzpatrick, Maria D**, “Retiree Health Insurance for Public School Employees: Does It Affect Retirement?,” *Journal of Health Economics*, 2014, 38, 88–98.
- Government Accountability Office**, “Private Health Insurance: Declining Employer Coverage May Affect Access for 55- to 65-year-olds,” Report to the Chairman, Committee of Labor and Human Resources, U.S. Senate GAO/HEHS-98-133 1998.
- Gruber, Jonathan and Bridgitte Madrian**, “Health Insurance and Early Retirement: Evidence from the Availability of Continuation Coverage,” in David A. Wise, ed., *Advances in the Economics of Aging*, Chicago: University of Chicago Press, 1996.
- **and Brigitte C. Madrian**, “Health Insurance Availability and the Retirement Decision,” *American Economic Review*, 1995, 85 (4), 86–102.
- Gustman, Alan L. and Thomas L. Steinmeier**, “A Structural Retirement Model,” *Econometrica*, 1986, 54 (3), 555–584.
- Johnson, Richard W., Amy J. Davidoff, and Kevin Perese**, “Health Insurance Costs and Early Retirement Decisions,” *Industrial and Labor Relations Review*, 2003, 56 (4), 716–729.
- Kaiser Family Foundation**, “Expanded COBRA Continuation Coverage for Small Firm Employees,” Technical Report 2007.
- Kaiser Family Foundation and Health Research and Education Trust**, “Employer Health Benefits: 2014 Annual Survey,” Technical Report 2014.
- Kapur, Kanika and Jeannette Rogowski**, “How Does Health Insurance Affect the Retirement Behavior of Women?,” *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 2011, 48 (1), 51–67.

- Karoly, Lynn A. and Jeannette A. Rogowski**, “The Effect of Access to Post-Retirement Health Insurance on the Decision to Retire Early,” *Industrial and Labor Relations Review*, 1994, 48 (1), 103–123.
- Lumsdaine, Robin L and Olivia Mitchell**, “New Developments in the Economic Analysis of Retirement,” in Orley Ashenfelter and David Card, eds., *Handbook of Labor Economics*, Vol. 3, Chicago, IL: Chicago University Press, 1999, pp. 3261–3307.
- Maestas, Nicole**, “Back to Work: Expectations and Realizations of Work after Retirement,” *Journal of Human Resources*, 2010, 45 (3), 718–748.
- **and Xiaoyan Li**, “Burnout and the Retirement Decision,” Working Paper WP 2007-166, University of Michigan Retirement Research Center 2007.
- Marton, James and Stephen A Woodbury**, “Retiree Health Benefits as Deferred Compensation: Evidence from the Health and Retirement Study,” *Public Finance Review*, 2012, p. 1091142112449375.
- Merlis, Mark**, “Fundamentals of Underwriting in the Nongroup Health Insurance Market: Access to Coverage and Options for Reform,” Background Paper, National Health Policy Forum 2005.
- Nyce, Steven, Sylvester J Schieber, John B Shoven, Sita Nataraj Slavov, and David A Wise**, “Does Retiree Health Insurance Encourage Early Retirement?,” *Journal of Public Economics*, 2013, 104, 40–51.
- Ondrich, Jan and Alexander Falevich**, “The Great Recession, Housing Wealth, and the Retirement Decisions of Older Workers,” *Public Finance Review*, 2014, p. 1091142114551600.
- Pauly, Mark and Len Nichols**, “The Nongroup Market: Short on Facts, Long on Opinion and Policy Disputes,” Technical Report, Health Affairs 2002.
- Poial, John A.**, “Health Spending Projections Through 2016: Modest Changes Obscure Part D’s Impact,” *Health Affairs: Web exclusive*, 2007, 26 (2), 242–253.
- Pollitz, Karen, Richard Sorian, and Kathy Thomas**, “How Accessible is Individual Health Insurance for Consumers in Less-than-Perfect Health?,” Technical Report 3133, Kaiser Family Foundation 2001.
- Ruhm, Christopher J.**, “Bridge Jobs and Partial Retirement,” *Journal of Labor Economics*, 1990, 8 (4), 482–501.
- Rust, John and Christopher Phelan**, “How Social Security and Medicare Affect Retirement Behavior in a World of Incomplete Markets,” *Econometrica*, 1997, 65 (4), 781–831.
- Shoven, John B and Sita Nataraj Slavov**, “The Role of Retiree Health Insurance in the Early Retirement of Public Sector Employees,” *Journal of Health Economics*, 2014, 38, 99–108.

St. Clair, Patricia, “RAND HRS Data Documentation, Version H,” Documentation, RAND Labor & Population Program 2008.

Stock, James H. and David J. Wise, “Pensions, the Option Value of Work, and Retirement,” *Econometrica*, 1990, 58 (4), 1151–1180.

Towers Watson/National Business Group on Health, “The New Health Care Imperative: Driving Performance, Connecting to Value,” Report May 2014.

Wooldridge, Jeffrey, *Econometric Analysis of Cross Section and Panel Data*, The MIT Press, 2002.

Table 1
Unretirement Hazard Rate by Wave after Retirement

Waves after Retirement	Observations	Hazard Rate
1	3421	0.185
2	2336	0.107
3	1611	0.068
4	1083	0.050
5	665	0.035
6	261	0.023
Percent of Sample Observed to Unretire		0.314

Table 2
Comparison of Characteristics at Retirement

	Permanent Retirees	Future Unretirees	t-stat
Age in Years	61.6	60.8	5.72
Male	45.5%	51.0%	-2.98
Married or 'Partnered', including Absent Spouse	0.759	0.776	-1.06
Respondent (R) and Spouse retired at R's Retirement Wave	40.2%	33.9%	3.54
Self-rated 'Poor' or 'Fair' Health	24.0%	14.9%	6.08
Spouse's Self-rated 'Poor' or 'Fair' Health	14.9%	13.9%	0.76
Total Wealth (in millions) in 2000 \$'s	0.370	0.418	-1.73
R Receives Pension	36.4%	33.2%	1.83
R has less than High School Diploma or GED	19.9%	16.5%	2.37
R has High School Diploma or GED	39.7%	37.8%	1.04
R has Some College but No Degree	20.0%	22.2%	-1.46
R has College Degree or More	20.5%	23.6%	-2.05
R Reports Being White	83.0%	81.8%	0.86
R Reports Being Black	14.1%	15.4%	-0.97
R Reports Being 'Other Race'	2.9%	2.9%	0.09
R Reports Being Hispanic	6.4%	5.7%	0.80
North Census Region	16.7%	13.9%	2.08
Midwest Census Region	26.5%	28.5%	-1.24
South Census Region	41.0%	41.3%	-0.19
West Census Region	15.8%	16.1%	-0.22
R Has No Health Insurance	8.4%	11.5%	-2.89
R Buys Private Health Insurance	6.8%	10.1%	-3.41
Unsubsidized EPHI	11.4%	10.1%	1.14
Subsidized EPHI	42.8%	45.9%	-1.71
Governmental Program	30.7%	22.4%	5.02
Respondent Plans to Do Paid Work in Retirement	70.7%	80.5%	-5.61
Observations	2347	1074	

Note: "Subsidized" and "unsubsidized" employer provided health insurance (EPHI) refers to whether an employer contributes to the payment of the premiums for EPHI.

Table 3
Observed Changes to Health Insurance Sources after Retirement

Health insurance source at retirement (percent of retirees)	Percent reporting each HI status in at least one wave following retirement				
	No Health Insurance	Private, Non-group Health Insurance	Unsubsidized EPHI	Subsidized EPHI	Governmental Program
No Health Insurance (9.4%)	36.4%	3.7%	0.5%	6.0%	86.6%
Private, Non-group Health Insurance (7.8%)	10.5%	43.5%	10.0%	9.4%	78.5%
Unsubsidized EPHI(10.9%)	5.5%	13.4%	24.9%	22.5%	83.0%
Subsidized EPHI (43.8%)	3.8%	6.7%	11.0%	61.5%	75.4%
Governmental Program (28.1%)	3.0%	2.3%	0.2%	2.7%	99.2%

Note: “Subsidized” and “unsubsidized” EPHI refers to whether an employer contributes to the payment of the premiums for employer provided health insurance (EPHI). Percentages only include waves after an individual retires but before any retirement reversals. Rows sum to more than 100% since each row represents health insurance sources in all waves after their retirement wave which may, therefore, include more than one source.

Table 4

Survival Analysis of Unretirement Including Demographic, Wealth, and Health Controls

	[1] Hazard Ratio	[2] Mean Marginal Effects
Age in Years at Retirement Wave	1.248*** [0.0185]	0.0309*** [0.00201]
Age 62 to 64 at Retirement	0.273*** [0.0252]	-0.180*** [0.0129]
Age 65 or over at Retirement	0.0650*** [0.00972]	-1.116*** [0.264]
Male	0.924 [0.142]	-0.0124 [0.0212]
Married or "Partnered"	1.126 [0.123]	0.0179 [0.0124]
Married and Male	1.449** [0.248]	0.0582*** [0.0191]
Respondent (R) and Spouse Were Retired in Previous Wave	0.589*** [0.0431]	-0.0795*** [0.00894]
Self-rated 'Poor' or 'Fair' Health	0.471*** [0.0633]	-0.0963*** [0.0119]
Male and Self-rated 'Poor' or 'Fair' Health	1.455** [0.258]	0.0430** [0.0179]
Spouse's Self-rated 'Poor' or 'Fair' Health	1.13 [0.149]	0.0199 [0.0209]
Male and Spouse's Self-rated 'Poor' or 'Fair' Health	0.775 [0.148]	-0.0397 [0.0270]
Total Wealth (in millions) at Retirement in 2000 Dollars	1.03 [0.0456]	0.00447 [0.00635]
R Receives a Pension	0.734*** [0.0498]	-0.0467*** [0.00869]
R has Less than High School Diploma or GED Certificate	0.817** [0.0836]	-0.0294** [0.0115]
R has Some College but No Degree	1.02 [0.0884]	0.0031 [0.0112]
R has College Degree or More	1.102 [0.0973]	0.0156 [0.0115]
R Reports Race as Black	1.304*** [0.130]	0.0455*** [0.0165]
R Reports Race as "Other"	1.254 [0.256]	0.0392 [0.0348]
R Reports Being Hispanic	1.077 [0.165]	0.0119 [0.0200]
Census Region Dummies	Yes	Yes
Observations		9186
Mean Predicted Hazard		0.155

Robust standard errors in brackets; *** significant at 1%, ** significant at 5%, * significant at 10%

Note: Mean marginal effect represent the average impact of a one unit change on the predicted hazard across the sample. Dummy variables for Northeast, Midwest, and West Census divisions are also included. Only the Northeast division is significantly different from the South Census division (negative relationship).

Table 5

	[1]	[2]
	Hazard Ratio	Mean Marginal Effects
Respondent (R) Has No Health Insurance	1.349** [0.177]	0.0583** [0.0290]
R Buys Private, Non-group Health Insurance	1.242* [0.149]	0.0406* [0.0246]
Unsubsidized Employer Provided Health Insurance	1.171 [0.133]	0.0289 [0.0204]
R Has Health Insurance through a Governmental Program	0.293*** [0.0335]	-0.217*** [0.0327]
Demographic, Health, and Wealth Controls	Yes	Yes
Observations		9115
Mean Predicted Hazard		0.171

Robust standard errors in brackets; *** significant at 1%, ** significant at 5%, * significant at 10%

Note: Mean marginal effects represent the average impact of a one unit change on the predicted hazard across the sample. “Subsidized” and “unsubsidized” EPHI refers to whether an employer contributes to the payment of the premiums for employer provided health insurance (EPHI).

Table 6

Survival Analysis of Unretirement Including In-retirement “Shocks”

	[1]	[2]	[3]	[4]
	Hazard Ratio			
Respondent (R) Has No Health Insurance	1.339** [0.175]	1.365** [0.178]	1.347** [0.177]	1.290* [0.186]
R Buys Private, Non-group Health Insurance	1.223* [0.147]	1.221* [0.147]	1.233* [0.148]	1.209 [0.154]
R Has Unsubsidized Employer Provided Health Insurance	1.154 [0.132]	1.162 [0.132]	1.172 [0.133]	1.124 [0.137]
R Has Health Insurance through a Governmental Program	0.290*** [0.0333]	0.292*** [0.0334]	0.292*** [0.0334]	0.291*** [0.0360]
Total Wealth Dropped Over 50% and More Than \$10000 Since Previous Wave (PW)	1.251** [0.112]			
Housing Wealth Dropped Over 20% and More Than \$10000 Since the PW		1.176** [0.0908]		
Non-housing Wealth Dropped Over 20% and More Than \$10000 Since the PW		1.136** [0.0736]		
OOPM Expenses Rose at Least 50% and by Over \$2,000 Since the PW	1.122 [0.0902]	1.123 [0.0903]		
R’s Household Size Decreased since the PW			1.228** [0.103]	
R’s Household Size Increased by One since the PW			1.019 [0.132]	
R’s Household Size Increased by Two or More since the PW			1.394 [0.291]	
R Felt Forced to Retire at Retirement Wave (RW)				1.011 [0.0832]
R was Received an Early Retirement Offer at RW				0.773** [0.0977]
Demographic, Health, and Wealth Controls	Yes	Yes	Yes	Yes
Observations	9,115	9,115	9,115	8,308
Predicted Hazard Rate	0.171	0.171	0.172	0.165

Robust standard errors in brackets; *** significant at 1%, ** significant at 5%, * significant at 10%

Note: “Subsidized” and “unsubsidized” EPHI refers to whether an employer contributes to the payment of the premiums for employer provided health insurance (EPHI). “OOPM” refers to out-of-pocket medical expenditures. Sample is smaller in column [4] due to missing data regarding retirement reasons and whether an Early Retirement Offer was made.

Table 7

Analysis of Unretirement Based on Expectations of Retirement

	[1]	[2]	[3]	[4]
	All	All	No Planned Work in Retirement	Planned Work in Retirement
Respondent (R) Has No Health Insurance	1.366** [0.199]	1.333** [0.191]	0.84 [0.324]	1.528*** [0.239]
R Buys Private, Non-group Health Insurance	1.216 [0.157]	1.2 [0.154]	0.605 [0.214]	1.371** [0.193]
R Has Unsubsidized Employer Provided Health Insurance	1.237* [0.156]	1.22 [0.155]	1.064 [0.284]	1.267 [0.185]
R Has Health Insurance through a Governmental Program	0.300*** [0.0374]	0.297*** [0.0369]	0.214*** [0.0557]	0.324*** [0.0461]
R Plans to do Paid Work in Retirement (Asked only in 1992)		1.655*** [0.151]		
Demographic, Health, and Wealth Controls	Yes	Yes	Yes	Yes
Observations	8,070	8,070	2,395	5,675
Predicted Hazard Rate	0.163	0.165	0.104	0.191

Robust standard errors in brackets; *** significant at 1%, ** significant at 5%, * significant at 10%

Note: "Subsidized" and "unsubsidized" EPHI refers to whether an employer contributes to the payment of the premiums for employer provided health insurance (EPHI). "OOPM" refers to out-of-pocket medical expenditures. Planned work in retirement question was only asked in the initial wave, 1992.