PRELIMINARY, PLEASE TO NOT CITE

Miracle Drug or Daily Vitamin? The Health Effects of Retirement over Time

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Abstract: 114 words

Using data from the HRS we test for duration effects of retirement on the probability of self-reporting good health. To control for the endogeneity of the retirement decision we exploit exogenous changes in retirement behavior over Social Security and private pension eligibility ages, as well as over the offering of early out windows. We find evidence of a positive effect of retirement on health that changes with time spent in retirement. Recent retirees experience a strong boost to self-reported health relative to non-retirees, with additional positive effects through the fourth year of retirement. The positive effect on health remains stable through the thirteenth year of retirement when the difference between the two groups disappears.

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I. Introduction

In the current political climate perhaps the two most contentious areas of economics are retirement and health. Highly controversial reform proposals to the Social Security program as well as the failure of a few prominent traditional defined benefit pension plans have brought into question who should retire, when they should retire, and how they should pay for retirement. At the same time, skyrocketing health insurance costs for both businesses and individuals and reports of record obesity levels have heightened concerns about health preservation and health care provision. Interestingly, despite extensive research on retirement and health separately, economic research on the two topics jointly is incomplete: economists have examined the effect of health on retirement, but relatively few have looked at the effect of retirement on health.

This paper analyzes the effect of retirement on health over time. Although anecdotal evidence has typically suggested that retirement has a negative effect on health due to the individual's loss of identity and purpose coinciding with the withdrawal from 'productive' labor, this view may be changing as retirement becomes a more accepted part of our society. The current research has mixed results, with different studies showing that retirement has positive, negative, or no effect on health. Most studies employing an instrumental variables approach to control for endogeneity have shown retirement to have a positive effect on health. If retirement boosts health, the cost of early retirement provisions in terms of increased pension liabilities may be partially offset by reduced future medical costs. This paper extends the existing literature to analyze whether the positive health effects of retirement extend over time, or if the positive impact is relatively short-lived.

To empirically test the effect of retirement on health the paper proceeds as follows. Section II briefly examines the existing literature on the topic. We present the empirical methodology and data that we use in Section III. Section IV presents the results while Section V concludes the paper with some directions for future research.

II. Literature on the Health Effect of Retirement

Although the connection between retirement and health has not been examined extensively in economics, some literature does exist on the topic. Methodologically, the major issue in the literature is how to account for the fact that the retirement decision is likely endogenous. Jewell (1992) uses a simultaneous equations model and successive cross sections of data on men in the United States from the 1970s to check for a "shock" effect from the retirement transition. Using the health change measure "Health Compared to Others", Jewell finds tenuous evidence that there is a negative shock effect on men's health from the retirement transition, although the effect disappears and actually becomes positive as the sample ages. A different health change measure "Change in Own Health" displays the same pattern of results but is not statistically significant. While the study shows a potential effect on general health from retirement, the self-reported subjective health measures used by Jewell may be susceptible to justification bias: a need to justify retirement by reporting worse health than is actually experienced. This issue may be particularly strong given that it uses data from a time when retirement as an institution was less socially acceptable.

Two other studies use more recent data from the 1990s, but from the Netherlands (Kerkhofs and Lindeboom 1997; Kerkhofs, Lindeboom, and Theeuwes 1999). Using a fixed effects model to account for the endogeneity of retirement, the authors find some evidence that retirement improves, or at least preserves, the general health of individuals. In contrast, Dave, Rashad & Spasojevic (2008) use a similar fixed-effect estimation approach using Health Retirement Survey

(HRS) data spanning 1992-2005. They find that retirement results in a decline in both physical and mental health status. While interesting, the estimation method assumes that the sources of the endogeneity are individual specific and time invariant, implying that they will drop out during estimation. If this is not the case, the fixed effect methodology may not correct for the endogeneity problem casting some doubt on the accuracy of the results. Even if the methodology does account for the endogeneity, given the distinctly different retirement systems and attitudes between the Netherlands and the United States, it is unclear how applicable the results are across countries.

A study by Charles (2002) pools various data sets to examine the effect of retirement on the well-being of men in the United States during the 1980s and 1990s. The pooled data allows Charles to use legislative discontinuities in the Social Security system, mandatory retirement provisions, as well as age specific pension incentives as instruments, an identification strategy that appears to be quite strong. Charles finds that retirement increases well-being, however, the connection between well-being and overall health is unclear. In addition, the pooled data forces Charles to limit his analysis to only men, and to only two measures of well-being, feelings of depression and loneliness. The narrow focus of the study further calls the applicability of the results to general health into question.

Behnke (2009 & 2012) uses English data collected in three waves from 2002-2007to estimate the health effects of retirement using both a matching model and instrumental variables models. Under the instrumental variables approach, the instrument is whether the individual has reached the pension age, which impacts retirement decisions but should not have a direct impact on health. The results indicate under both models that retirement reduces both self-reported health status and, more significantly, the health index score based on a variety of observable health outcomes.

Coe and Lindeboom (2008) use an instrumental variables approach using HRS data from 1992-2004. Rather than relying on Social Security age thresholds, they instrument based on whether the individual was offered an early retirement window. This provides a stronger instrument as it is not predictable and thus, provides additional variation in retirement that is exogenous to health. They conclude that retirement results in improved self-reported health 2 years following retirement, but that the effect is temporary as it is not shown to have an impact 4 years following retirement.

Coe and Zamarro (2011) use the first wave of data from the Survey of Health, Ageing and Retirement in Europe in 2002 to estimate the impact of retirement on health. The data cover a range of European countries and instrument based on whether the individual has reached the statutory age to receive early and full retirement social security benefits, which vary by country. They conclude that retirement results in both improved self-reported health and health index scores.

Finally, Insler (2014) uses HRS data from 1992-2010 instrumenting for early and full retirement ages for social security benefits as well as their expected retirement age. Insler finds that retirement has a positive, but insignificant effect on health index scores two years following retirement, with larger and significant positive impacts four years following retirement.

While the literature provides mixed results, those studies employing instrumental variable controls largely conclude that retirement has a positive impact on health. However, only Coe & Zamarro and Insler look at the impact over time, and even then, the timeframe is restricted to four years after retirement.

III. Methodology and Data

To test for the effect of retirement on health we estimate a two-stage linear probability model of the following form:

$$H_t = c + \beta R_t + \varphi HS_t + \omega D_t + e_t. \quad (1)$$

In equation (1) H is a dichotomous variable equal to 1 if the individual reports health of good or better (good, very good, or excellent) in time period t, and equal to 0 otherwise. Self-reported health is a useful measure for this type of analysis as the status should represent an overall measure of the individual's health including factors that would not be identifiable by observable objective measures such as disease incidence. This global nature of the variable is supported by findings showing that self-reported health has predictive power even after controlling for objective health conditions. We also control for a variety of initial health characteristics, genetics, and health behaviors (HS), and demographics (D). Variable definitions, means, and standard deviations are presented in Table 1.

The effect of retirement is captured by a set of variables (R) measured in each time period. We define an individual as retired if they respond "completely retired" to a question asking them about their retirement status but also work less than 1,000 hours annually. Retirement duration is calculated for individuals defined as retired by taking the difference between the wave of the survey (even years between 1994 and 2012) and the self-reported retirement year.

To account for the endogeneity of the retirement decision we exploit exogenous variation in benefits across age in the Social Security system and the individual's private pension. Specifically we include indicators for whether the individual is older than 62 but less than 65, and older than 70. We do not include an indicator for age 65 as this group of individuals would simultaneously qualify for normal Social Security benefits and Medicare, potentially influencing both retirement and health. To capture effects from their employer pension, we include indicators for whether the individual is past the early or normal retirement ages of the pension. Finally, following Coe and Lindeboom (2008) we also include an indicator for whether the individual was offered an early out window as part of their pension. This instrumentation strategy should account for the endogenous retirement decision and allow us to obtain consistent coefficient estimates.

While the definition of retirement may seem to be a simple element of the model, the retirement status of an individual can be defined in a physical and mental manner, with the two definitions not necessarily being the same. For an analysis of health in retirement, the definition of retirement is important as both definitions of retirement imply different mechanisms for a health effect. A simple physical manifestation of retirement would be represented by an older individual who is no longer working. These individuals have withdrawn from the labor force and no longer experience the stress and physical demands of being on a job. A mental definition of retirement would be based on whether the individual reports being retired when asked a question about their labor market status. Individuals may report being retired if they are no longer working, but individuals may also report being retired if they are still working but have left their career job. Although individuals who report retirement but are still working would experience some of the health effects related to being on the job, the employment may be much less stressful than their career employment and may reflect a much different set of physical stresses and demands. We chose this joint definition of retirement as it is a blend of the two types of retirement.

To estimate the model we use data from the Health and Retirement Study, a longitudinal data set with biannual waves starting in 1992 and continuing through 2012. To be eligible for our sample, in the initial survey wave of 1992 all respondents had to be between the ages of 45 and 70, report being "not at all retired", and be working more than 1,000 hours annually. These initial selection criteria should allow us to observe the actual retirement decision for individuals in an age range where retirement is most relevant. We then follow individuals across successive waves of the survey, pooling observations from the 1994 to 2012 waves of the HRS. After cleaning missing variables we arrive at a final sample of 34,862 individuals.

IV. Results

We present the second stage coefficients for the retirement variables in the top panel of Table 2. The first column contains results from a basic model including only an indicator for retirement status, no matter the duration. After instrumenting the retirement decision, retirement has a positive, and rather large, effect on the probability of reporting good health. This result matches some of the earlier work on the effect of retirement on self-reported health, but the comparability is complicated by the fact that the individuals have been retired for different periods of time.

The final two columns of the table examine the effect of retirement duration, with the second column including a linear variable for retirement duration and the third column including both a linear and quadratic term for retirement duration. It is important to note that adding the duration variables changes the interpretation of the retired category. Due to the construction of the duration variable, the "retired" coefficient by itself represents the effect of being retired less than 1 year relative to non-retirees (duration has a value of 0). The duration variables then represent the effect of additional years of retirement beyond the first year.

Turning to the results for the linear duration model in the second column, we find a strong short term effect of being retired, with individuals retired less than one year over 40 percentage points more likely to report good health than non-retirees. There is some evidence of a positive duration effect as well, with the linear duration variable indicating that each additional year of retirement increases the likelihood of reporting good health by 2.1 percentage points. Although the duration variable is significant at only the 10% level, the retirement and duration variables are jointly significant at a 1% level indicating a positive effect of retirement.

As a simple first test for the effect of retirement duration the linear model is useful, but the quadratic model presented in the third column allows for a more nuanced effect of retirement duration on health. Once again we find a strong positive short-term effect with those retired less than one year much more likely to report good health. The signs of the duration variables indicate a duration effect that is positive initially but declining over time spent in retirement. Individually the linear duration coefficient is marginally significant with the quadratic term insignificant. However, the joint effect of retirement duration is significant at the 10% level. The overall effect of retirement and duration is highly significant once again.

The pattern of the duration variables suggests a retirement effect that is increasingly positive over the early years of retirement, eventually becoming negative as time is spent in retirement. However, the coefficients alone do not clearly indicate at what point the duration effect of retirement changes. To examine the turning point for retirement duration we calculate the combined effect of being retired for each amount of time. The results for the combined effect of retirement over time retired are presented numerically in the first column of Table 3, and visually in Figure 1.

The simple numerical effects calculated in Table 3 show that relative to non-retirees the effect of retirement is increasingly positive through the 7^{th} year of retirement, positive but declining from years 8 to 19, and negative after the 20^{th} year of retirement. However, it is important to test whether the simple numerical calculations actually represent statistically significant effects of retirement relative to non-retirees. Results from F tests of the joint significance of retirement for each time period relative to non-retirees are presented in the second column of Table 3. The tests indicate significant positive effects of retirement through the 13^{th} year of retirement, with insignificant differences beyond. This pattern of results is important as it suggests that the effect of retirement may diminish before it actually becomes negative. Overall the results suggest a strong

positive short-term effect of retirement that increases through the 7th year, when it begins to diminish but stays positive through the 13th year of retirement.

Along with the comparison of the effect of retirement relative to non-retirees it is also important to test whether each additional year of retirement is significantly different from the year before. Although the joint effect of the variables is significantly different from non-retirees, the pattern of changes over retirement duration suggested by the numerical estimates may not actually be significant. Results from F tests of the joint significance of each year of retirement relative to the prior year are presented in the last column of Table 3. The tests do suggest a somewhat different story than the numerical estimates. There is a significantly increasing positive effect of retirement through the 4th year of retirement, but after this point the changes from year to year are insignificant. This pattern of significance would suggest a slightly different numerical path than that represented in Figure 1. Combining the statistical tests in Table 3, the truer estimate of the effects of retirement over time would be a positive effect, increasing with duration for the first four years as shown in the first segment of Figure 1. Then for years 5 to 13 of retirement, a more accurate representation may be a plateau, where the duration effect is stable, but the combined effect is significantly different and positive relative to non-retirees. Finally, after 13 years in retirement the effect would essentially drop to 0, with no significant effect relative to non-retirees or relative to the prior year of retirement.

A possible issue with the baseline estimates relates to our definition of retirement. We classified people as retired based on both their mental determination of their status as well as their physical status based on the number of hours worked. This definition differs from some of the other studies which have defined retirement as simply working 0 hours. To check for issues we estimate our models using the hours definition of retirement where we classify respondents as retired if they work 0 hours annually. We present results for these specifications in Tables 4 and 5.

Once again we find a positive effect of being retired regardless of duration, although the effect is somewhat smaller than our baselines estimates. Turning to the duration analysis in the last two columns of Table 4, we do find slightly different results using our hours based definition of retirement. Being retired less than 1 year is now insignificantly different than being a non-retiree in both the linear and quadratic duration models. However, the duration effect seems to be somewhat stronger. The linear duration term is highly significant suggesting that each additional year of retirement increases the likelihood of reporting good health by 2.7 percentage points. The individual duration coefficients are not significant in the quadratic model, but they are jointly significant at the 5% level representing the true combined effect. The combined results of being retired for each amount of time using the quadratic model coefficients are presented in Table 5 and show a similar pattern as the baseline estimates. As with the baseline model, the effect of retirement is increasingly positive through the early years of retirement, eventually declining as duration increases. Each additional year of retirement is significantly different than the prior year up to the 6th year of retirement when the retirement effect levels off. The combined effect of retirement relative to non-retirees is significantly different through the 12th year of retirement, although the first 2 years are not actually significantly different than for non-retirees.

Comparing the overall pattern of results to the baseline estimates the primary difference is the magnitude of the effects with the hours based estimates generally showing a smaller positive effect. Which definition of retirement is better is up to debate, but the choice seems to influence the precision of the effect and not the general effect of retirement itself. The two retirement definitions may define a range of estimates for the effect, but both suggest a positive health effect of retirement that is increasing over the early years and stable afterwards. Future research can help differentiate between the two retirement definitions to see which is most appropriate.

V. Concluding Remarks

Although the literature on the health effects of retirement has grown in the past few years, little research has been conducted on how the health effect may change over the duration of retirement. Using data from the HRS between 1992 and 2014 we test for duration effects of retirement on the probability of self-reporting good health. To control for the endogeneity of the retirement decision we exploit exogenous changes in retirement behavior over Social Security and private pension eligibility ages, as well as over the offering of early out windows. We find evidence of a positive effect of retirement on health that changes with time spent in retirement. Recent retirees experience a strong boost to self-reported health relative to non-retirees, with additional positive effects through the fourth year of retirement. The positive effect on health relative to non-retirees remains stable through the thirteenth year of retirement when the difference between the two groups disappears.

The findings suggest that the effect of retirement on health is not a one-time shock that dissipate quickly, but rather a persistent effect related to being in the retirement state. With this interpretation retirement seems to be less of a "miracle drug" curing an illness, and more like a "vitamin" that makes an individual healthier over time. Knowledge of the duration effect further complicates the analysis of the effects of entitlement reform, but is important in order to understand the full implications of the proposals.

Reference List

Behnke, Stefanie. 2009. "How Does Retirement Affect Health?". IZA Discussion Paper #4253.

- 2012. "Does Retirement Trigger Ill Health?". Health Economics 21, 282-300.

Charles, Kerwin K. 2002. "Is Retirement Depressing?: Labor Force Inactivity and Psychological Well-Being in Later Life". NBER Working Paper 9033.

Coe, Norma and Maarten Lindeboom. 2008. "Does Retirement Kill You? Evidence from Early Retirement Windows". IZA Discussion Paper #3817.

Coe, Norma and Gema Zamarro. 2011. "Retirement Effects on Health in Europe". Journal of Health Economics 30, 77-86.

Dave, Dhaval, Inas Rashad, and Yasmina Spasojevic. 2008. "The Effects of Retirement on Physical and Mental Health Outcomes". Southern Economics Journal 75(2), 497-523.

Insler, Michael. 2014. "The Health Consequences of Retirement". Journal of Human Resources 49(1), 195-233.

Jewell, Robert T. 1992. "The Effect of Retirement on Health As Reported in the Retirement History Survey". Ph.D. dissertation, University of California, Santa Barbara.

Kerkhofs, Marcel and Maarten Lindeboom. 1997. "Age Related Health Dynamics and Changes in Labour Market Status". Health Economics 6(4), 407-23.

Kerkhofs, Marcel, Maarten Lindeboom, and Jules Theeuwes. 1999. "Retirement, Financial Incentives and Health". Labour Economics 6(2), 203-27.

Table 1: Variable definitions, means, and standard deviations (N=34,862)

Variable	Definition	Mean	Std. Dev.
Health Dep. Variable: '94-'12			
Good Health	Self-rated health of good or better (1=Y)	0.815	0.388
Retirement Measures: '94-'12			
Retired	"Completely retired" & work<1000 hours	0.319	0.466
Retirement duration (N=11,119)	(Current wave - retirement year) if retired	5.485	4.134
Initial Health Chars: '92			
Self-Rated Good Health	Self-rated health of good or better (1=Y)	0.900	0.301
High Blood Pressure	Ever told you have: high blood press. (1=Y)	0.282	0.450
Diabetes	Ever told you have: diabetes (1=Y)	0.059	0.235
Cancer	Ever told you have: cancer (1=Y)	0.038	0.191
Lung Disease	Ever told you have: lung disease (1=Y)	0.024	0.152
Heart Disease	Ever told you have: heart disease (1=Y)	0.067	0.251
Stroke	Ever told you have: stroke (1=Y)	0.011	0.104
Psychiatric Problems	Ever told you have: psych. Probs. (1=Y)	0.033	0.178
Arthritis	Ever told you have: arthritis (1=Y)	0.279	0.449
Prob. Live to 85	Self-reported probability of living to 85	45.203	30.884
Under Weight	BMI < 18.5 (1=Y: Normal weight base)	0.008	0.091
Over Weight	24.9<BMI<30 (1=Y: Norm. weight base)	0.421	0.494
Obese	BMI > 30 (1=Y: Normal weight base)	0.219	0.414
Mom Alive	Mother still alive (1=Y)	0.466	0.499
Dad Alive	Father still alive (1=Y)	0.200	0.400
Ever Smoke	Ever smoke (1=Y)	0.611	0.487
Smoke Now	Smoke now (1=Y)	0.234	0.423
Vigorous Activity	Vigorous activity 3+ times a week (1=Y)	0.198	0.398
Demographics: '92			
White	Race: White (1=Y: non-white base)	0.828	0.377
Hispanic	Ethnicity: Hispanic (1=Y: non-hispanic base)	0.064	0.245
Female	Sex: Female (1=Y: male base)	0.521	0.500
Highest Educ: High School	High school (1=Y: less than HS base)	0.384	0.486
Highest Educ: Some College	Some college (1=Y: less than HS base)	0.208	0.406
Highest Educ: College or More	College or more (1=Y: less than HS base)	0.227	0.419
Longest Occ: White-collar HS	WC: high skill (1=Y: blue-collar other base)	0.341	0.474
Longest Occ: White-collar Other	WC: other (1=Y: blue-collar other base)	0.259	0.438
Longest Occ: Blue-collar HS	BC: high skill (1=Y: blue-collar other base)	0.235	0.424
Total Wealth	Total wealth excluding IRAs in $1992	188,065	457,338
Demographics: '92-'12			
Age (Age squared)	Respondent age (age squared)	62.87	6.24
Married/Coupled	Married/coupled (1=Y: never married base)	0.743	0.437
Divorced/Separated	Divorced/separated (1=Y: never married base)	0.125	0.330
Widowed	Widowed (1=Y: never married base)	0.102	0.302
Health Insurance	Health insurance from any source (1=Y)	0.847	0.360
Work for Pay	Currently work for pay (1=Y)	0.599	0.490

Table 2: Second stage retirement and duration coefficients, various models

Dependent Var: [1] Self-reported good health	Coef. (Robust Std. Er.)	Coef. (Robust Std. Er.)	Coef. (Robust Std. Er.)
Retired	0.549*** (0.106)	0.418*** (0.120)	0.468*** (0.133)
Retirement duration	- -	0.021* (0.011)	0.050* (0.028)
Retirement duration squared	- -	- -	-0.004 (0.003)
Joint Significance:			
Retirement + duration (+ duration^2)	- -	F(2, 5543) = 13.71 Prob > F = 0.000	F(3, 5543) = 9.36 Prob > F = 0.000
Duration + duration squared	- -	- -	F(2, 5543) = 2.40 Prob > F = 0.091
R squared	0.0992	0.1038	0.0788
N=	34,862	34,862	34,862
Instrument F stats (P val)[2]			
Retired	34.79 (0.000)	34.79 (0.000)	34.79 (0.000)
Ret. duration	-	37.26 (0.000)	37.26 (0.000)
Ret. duration squared	-	-	26.21 (0.000)

Statistically significant at the *** 1%, ** 5%, and * 10% level.

[1]Regressions include controls for initial health and health behaviors and demographics as seen in Table 1. The regressions also include indicators for year of survey.

[2]Instruments included are whether the individual is between the ages of 62 and 65 or past age 70, whether the individual was offered an early out window, and whether the individual is past the early or normal retirement age in their employer pension.

Table 3: Combined effect of retirement over time retired

Years Retired	Effect of Retirement on Prob. of Reporting Good Health	F Test (Prob>F) for Joint Significance From:	
		Non-retirees	Previous year of retirement
Less than 1	0.468*	12.35 (0.000)	-
1	0.515*+	13.52 (0.000)	3.38 (0.066)
2	0.554*+	14.32 (0.000)	4.00 (0.046)
3	0.585*+	15.19 (0.000)	4.69 (0.030)
4	0.609*+	16.39 (0.000)	4.30 (0.038)
5	0.626*	18.14 (0.000)	1.86 (0.172)
6	0.635*	20.59 (0.000)	0.33 (0.563)
7	0.637*	23.76 (0.000)	0.01 (0.934)
8	0.632*	26.97 (0.000)	0.04 (0.834)
9	0.618*	27.91 (0.000)	0.15 (0.694)
10	0.598*	23.66 (0.000)	0.27 (0.605)
11	0.570*	15.80 (0.000)	0.37 (0.545)
12	0.534*	8.96 (0.003)	0.45 (0.502)
13	0.491*	4.72 (0.030)	0.52 (0.470)
14	0.441	2.41 (0.121)	0.58 (0.446)
15	0.383	1.19 (0.276)	0.63 (0.427)
16	0.317	0.55 (0.456)	0.68 (0.411)
17	0.244	0.23 (0.631)	0.71 (0.398)
18	0.164	0.08 (0.784)	0.75 (0.387)
19	0.076	0.01 (0.913)	0.78 (0.378)
20	-0.019	0.00 (0.981)	0.80 (0.370)

* Significantly different from non-retirees. + Significantly different from prior year of retirement.

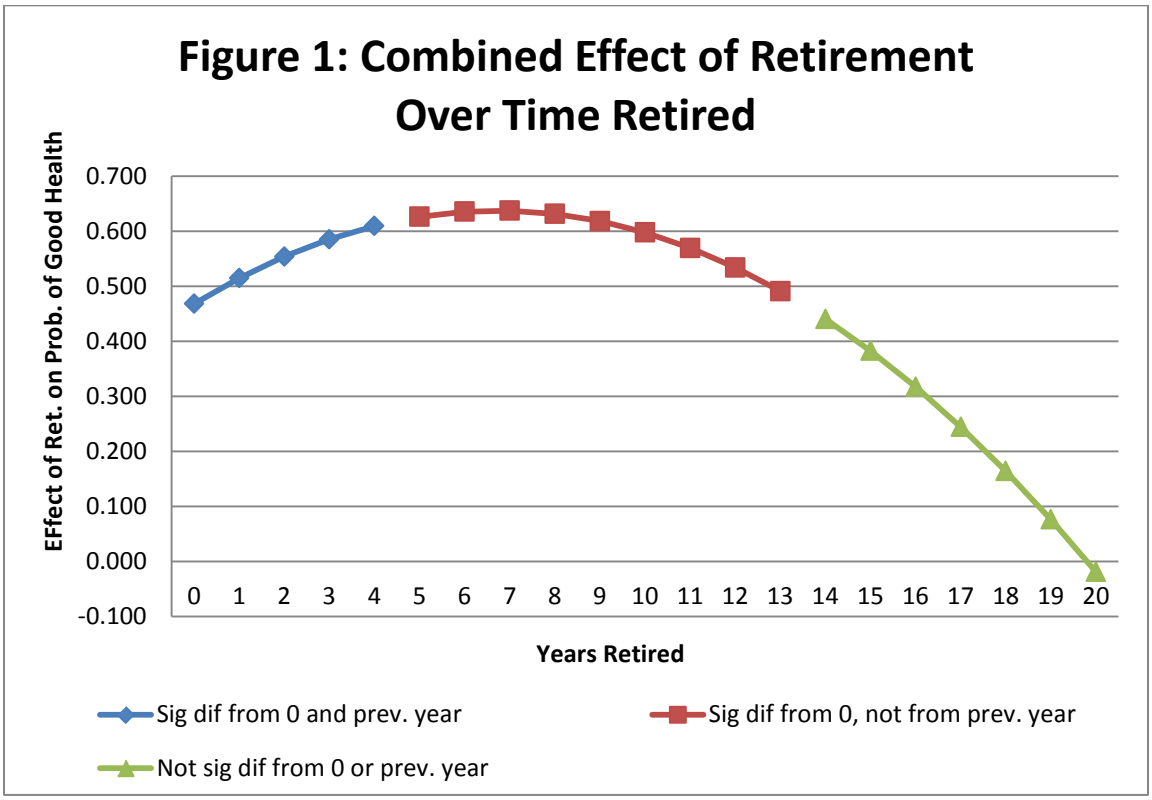

Table 4: Second stage retirement and duration coefficients, retirement at 0 annual hours

Dependent Var: [1] Self-reported good health	Coef. (Robust Std. Er.)	Coef. (Robust Std. Er.)	Coef. (Robust Std. Er.)
Retired	0.157*** (0.045)	0.001 (0.060)	0.002 (0.059)
Retirement duration	- -	0.027*** (0.011)	0.038 (0.024)
Retirement duration squared	- -	- -	-0.001 (0.003)
Joint Significance:			
Retirement + duration (+ duration^2)	- -	F(2, 5477) = 7.44 Prob > F = 0.001	F(3, 5477) = 5.29 Prob > F = 0.001
Duration + duration squared	- -	- -	F(2, 5477) = 3.67 Prob > F = 0.025
R squared	0.1585	0.1595	0.1652
N=	34,862	31,552	31,552
Instrument F stats (P val)[2]			
Retired	54.62 (0.000)	54.62 (0.000)	54.62 (0.000)
Ret. duration	-	33.29 (0.000)	33.29 (0.000)
Ret. duration squared	-	-	22.80 (0.000)

Statistically significant at the *** 1%, ** 5%, and * 10% level.

[1]Regressions include controls for initial health and health behaviors and demographics as seen in Table 1. The regressions also include indicators for year of survey.

[2]Instruments included are whether the individual is between the ages of 62 and 65 or past age 70, whether the individual was offered an early out window, and whether the individual is past the early or normal retirement age in their employer pension.

Table 5: Combined effect of retirement over time retired, retirement at 0 annual hours

Years Retired	Effect of Retirement on Prob. of Reporting Good Health	F Test (Prob>F) for Joint Significance From:	
		Non-retirees	Previous year of retirement
Less than 1	0.002	0.00 (0.977)	-
1	0.038+	0.47 (0.494)	2.94 (0.086)
2	0.072+	1.60 (0.206)	4.06 (0.044)
3	0.104*+	3.07 (0.080)	5.76 (0.016)
4	0.133*+	4.90 (0.027)	7.29 (0.007)
5	0.159*+	7.36 (0.007)	6.20 (0.013)
6	0.183*+	10.70 (0.001)	3.49 (0.062)
7	0.205*	14.40 (0.000)	1.71 (0.191)
8	0.224*	15.78 (0.000)	0.85 (0.358)
9	0.241*	12.88 (0.000)	0.43 (0.511)
10	0.256*	8.55 (0.004)	0.22 (0.637)
11	0.268*	5.31 (0.021)	0.11 (0.736)
12	0.277*	3.33 (0.068)	0.06 (0.815)
13	0.284	2.14 (0.143)	0.02 (0.877)
14	0.289	1.42 (0.233)	0.01 (0.928)
15	0.291	0.97 (0.326)	0.00 (0.969)
16	0.291	0.67 (0.413)	0.00 (0.996)
17	0.288	0.47 (0.493)	0.00 (0.967)
18	0.283	0.33 (0.564)	0.01 (0.942)
19	0.275	0.24 (0.627)	0.01 (0.921)
20	0.265	0.17 (0.682)	0.02 (0.902)

* Significantly different from non-retirees. + Significantly different from prior year of retirement.