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http://aaefe.org/Documents/AAEFE_Ethical_Principles.pdf

As a practicing forensic economist and a member of the American Academy of Economic and Financial Experts, I pledge to provide unbiased and accurate economic analysis for all litigation related engagements, to strive to improve the science of forensic economics, and to protect the integrity of the profession through adherence to the following tenets of ethical practice:

Employment

While all forensic economists have the discretionary right to accept retention for any case or proceeding within their expertise, they should decline involvement in any litigation when asked to take or support a predetermined position, when having ethical concerns about the nature of the requested assignment, or when compensation is contingent upon the outcome.

Honesty and Candor

Forensic economists shall be honest, thorough and open in their analyses and shall not provide the retaining or opposing attorney or the court, any information, through commission or omission that they know to be false or misleading. They shall exert due diligence, and at all times strive to use competent judgment to avoid the use of invalid or unreliable information.

Disclosure

Forensic economists shall clearly state the sources of information and material assumptions leading to their opinions. Such disclosure should be in sufficient detail to allow identification of specific sources relied upon, and replication of the analytical conclusions by a competent economist with reasonable effort.

Neutrality

Forensic economists shall at all times attempt to operate from a position of neutrality with respect to their calculations and analyses. Whether retained by the plaintiff or the defense, the approach, methodology and conclusions should be essentially the same.

Knowledge

Forensic economists shall at all times attempt to maintain a current knowledge base of the discipline and shall provide the retaining attorney with the full benefit of this knowledge regardless of how it may affect the outcome of the case.

Responsibility

Forensic economists shall at all times strive to practice within the boundaries of professional and disciplinary honesty and fairness. To this end, they must assume the responsibility of holding their colleagues in the profession accountable to the ethical principles promulgated herein.

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The Effect of the Intent to Retire at Age 70 or Older on Worklife Expectancy

Jeffrey S. Petersen and Phillip H. Allman

Abstract: *Forensic economists may receive a request from an attorney asking to project lost wages for his or her client to age 70 or older. This request is likely to occur when the plaintiff that attorney is representing is adamant with respect to how long he or she intended to work absent the incident of the legal case. Worklife expectancy tables will not provide a basis to make a computation of wage loss to age 70 or older unless the plaintiff had reached their late sixties as of the date of incident. However, worklife expectancy tables do not take into account “intent” since the tables are based on actual retirement patterns without knowledge of individuals’ retirement plans. Individuals who had the intent to retire at age 70 or older may significantly differ from individuals who planned to retire at earlier ages in the number of years they work. In 1992, participants in the Health and Retirement Study (HRS) were asked when they planned to retire. The HRS followed up with these same individuals every two years from 1994 to 2014 and asked about their work status. HRS participants who stated they planned to work to age 70 or older were indeed statistically different than individuals who planned to retire earlier. The intent to work to age 70 or older accounted for 2.5 increased work years, on average, compared to those who did not plan to work to age 70 or older.*

I. Introduction

Plaintiffs in civil lawsuits (personal injury suits in particular) who have a wage loss claim may state that, absent the incident which is the subject of the legal case, they had planned on working to age 70 or older. It is problematic for forensic economists (FEs) to utilize the

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plaintiff's stated retirement age for projecting lost wages since there are no statistics that show that working to age 70 or older is likely to occur other than for individuals who are in their late sixties. For example, the worklife tables in Krueger, Skoog, and Ciecka (2006) show that the number of full-time work years for males age 66 at all education levels is less than four. Therefore, these worklife tables do not support working to age 70, except for individuals who are age 67 or older. Moreover, the labor force participation rate in 2014 for individuals age 70 to 74 was 18.9 percent (U.S. Bureau of Labor Statistics). This statistic can be cited by the defense as a basis to state it would be speculative to project wage losses into the plaintiff's seventies.

Worklife tables and labor force participation rates do not account for the age at which a person intends to retire. These tables project how long the average person would actually be in the labor force (Richards and Donaldson 2010), without knowledge of when the individual intends, or intended, to retire. It is possible that individuals who planned to work to later ages significantly differ in the number years they work when compared to the average person observed in a worklife table.

The Health and Retirement Study (HRS) can be utilized to test the proposition of whether individuals who plan to work to age 70 or older are different with respect to the number of years they work when compared to individuals who did not state this intent. In 1992, HRS survey participants were asked the following question: "When do you think you will retire completely?" These same HRS participants were subsequently re-surveyed every two years, where they were again asked to specify their labor force participation status. Therefore, the aggregate number of work years for individuals stating they planned to work to age 70 or older can be compared to those who stated their planned year of retirement as less than age 70.

There are two reasons we chose to place all HRS respondents who stated a retirement age of 70 or greater into one group in order to analyze the difference in their work years compared with individuals who stated retirement ages of less than 70. First, based on our experience, plaintiffs who planned to work to later ages tend to state "I wanted to work until at least age 70." Second, as will be shown in the data and methods section, the number of HRS respondents who planned to work to age 70 or older is relatively small. The small sample size precluded studying individuals at ages of 70 or greater.

Prior research utilizing the responses from the retirement age question in the HRS found that people tended to work longer than anticipated (Banerjee 2014). The longitudinal data in the HRS showed that 48.0 percent of individuals retired later than planned, 38.0 percent retired earlier than planned and 14.0 percent retired when they

planned. This paper also provides a break down between expected and actual retirement ages from age 50 to 80. Early research on the determinants of the planned retirement age found that the two most important factors were the Social Security eligibility age and health (Hall and Johnson 1980). Social Security provided an inducement for individuals to plan to retire earlier than the full eligibility age and poor health caused individuals to plan to retire earlier than they otherwise would. Recent research on retirement ages shows that Social Security and health status continue to play important roles in the retirement decision as does the switch from defined benefit to defined contribution pension plans (Coile 2015). Moreover, individuals will likely choose to work to later ages to cover expected shortfalls in retirement savings linked to increasing longevity (Cahill, Giandrea, and Quinn 2015). McFall (2011) found that the Great Recession had an impact on retirement plans, however, the magnitude of the change was minimal as plans were changed by a few months, not years.

The purpose of this study is to examine whether or not the HRS participants who stated they planned to work to age 70 or older statistically differ in the number of years they actually work compared to HRS participants who did not state this intent. If these individuals do in fact work more years, it may provide a basis to add years to a worklife table when a plaintiff claims he or she planned to work to age 70 or older, absent the incident of their legal case.

II. Data and Methodology

The HRS is a nationally representative longitudinal study of older Americans conducted by the Institute for Social Research at the University of Michigan and funded by the National Institute on Aging. The target population for Wave 1 of the HRS was all adults in the United States born during the years 1931-1941 (Heeringa and Connor 1995). Wave 1 was conducted in 1992, therefore the primary respondents in the HRS were ages 51 to 61. The data also contains individuals outside this age range if they were in the household of a primary respondent. Our analysis only utilizes responses from individuals who are “age eligible” (i.e. born between 1931 and 1941) since they are the only individuals in the data set who are a representative sample of the United States population. The total number of survey participants in Wave 1 of the HRS is 12,652. The number of age eligible survey participants is 9,824.

Wave 1 respondents were asked about their retirement status. The number of age-eligible individuals who labeled themselves as “not retired at all” and who have data available on their age, gender and

Table 1. Response to the HRS question “When do you think you will retire completely?” for individuals age 51-61 in 1992.

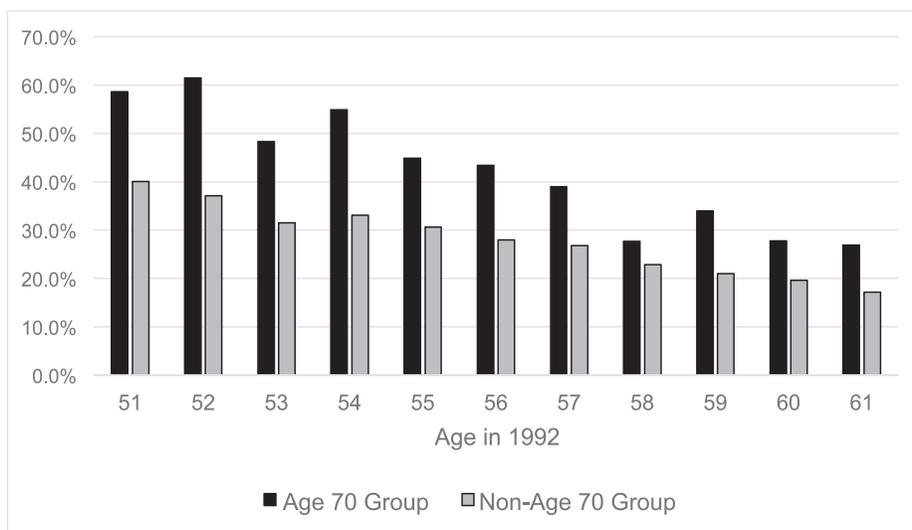
	Number of Respondents	Percentage of Respondents
No Response	1,765	27.8%
Age 55 or Younger	134	2.1%
Age 56 to 59	325	5.1%
Age 60 to 64	2,236	35.3%
Age 65 to 69	1,609	25.4%
Age 70 or Older	272	4.3%
Total	6,342	100.0%

level of education is 6,342. These individuals are the group we analyzed since plaintiffs with a wage loss claim do not consider themselves retired. Our research question concerning this group is as follows – are the individuals who planned to retire at age 70 or older (hereinafter “age 70 group”) statistically different than those who did not state this retirement plan (hereinafter “non-age 70 group”) in terms of the number of years they actually work? The HRS data analyzed in this study to answer this question were from the waves conducted from 1992 to 2014. The group of respondents who were age 51 to 61 in 1992 were interviewed every two years until they turned ages 73 to 83 in 2014.

The number of individuals in Wave 1 who answered the question “When do you think you will retire completely?” is 4,576. The response was an exact age. The number of respondents who gave an age of 70 or older was 272. Therefore, based on the individuals who answered the question, the percentage of respondents who planned to work to age 70 or older was 5.9 percent. If the denominator is changed to include individuals who did not specify a retirement age (i.e. all of the individuals in our analysis), then the percentage of individuals planning to retire at age 70 or older was 4.3 percent. The range of responses to the “When do you think you will retire completely?” question is shown in Table 1.

Survey respondents were given seven choices to describe their employment status in each wave of the HRS: (1) working now, (2) unemployed and looking for work, (3) temporarily laid off, (4) disabled, (5) retired, (6) homemaker, or (7) other. Figure 1 aggregates the responses for all survey waves (1992 to 2014) of the HRS and shows that the age 70 group had a much higher likelihood of stating “working now” than the non-age 70 group. For example, individuals in the age 70 group who were age 52 at the start of the HRS, stated they were “working now” in 61 percent of the wave interviews compared to

Figure 1. Percentage of “Working Now” Responses.



37 percent for the non-age 70 group. The higher likelihood of stating “working now” was spread across all ages.

The age 70 group also had a higher likelihood of a “working now” response at age 70 or older. The percentage of individuals in the age 70 group who gave a “working now” response in an HRS wave when they were age 70 or older is 39.7 percent compared to 18.9 percent for the non-age 70 group. Therefore, individuals who plan to work to age 70 or older actually do work at some point in their seventies at more than double the frequency of individuals who plan to retire before age 70. The fact that the age 70 group has a significantly higher frequency of working to age 70 or older shows the need to analyze how many more years they actually work compared to the non-age 70 group.

Our research question is to determine whether the number of work years is statistically different between the age 70 group and the non-age 70 group when controlling for other factors that may influence the number of years individuals work. For example, the age 70 group may be populated with highly educated individuals who work longer simply because of their education level. To answer our research question, we develop a regression model that utilizes work years as the dependent variable. Our proxy for work years is the “working now” response. Since the HRS is conducted every two years, we assigned an individual respondent two work years for each “working now” response. For example, if a respondent answered “working now” in 1994, 1996, 1998, 2000 and 2002, and “retired” in 2004, 2006, 2008, 2010, 2012, and 2014; the respondent was assigned ten work years for the period 1992 to 2014. This method does not yield an exact count of

work years since someone could have worked in 1995 and then retired in 1996. This person would have replied “retired” to the employment status question so we assigned them zero work years for the 1996 wave when the actual amount of work years would be some fraction of two years. However, *a priori*, we see no reason our method should lead to biased estimators. Our results will only be biased if one group is systematically more likely to receive a higher count of work years than the other. For example, utilizing the above person who retired in 1995, this issue would only lead to bias if the age 70 group was more likely to retire earlier in the year than the non-age 70 group and therefore the non-age 70 group would have systematically undercounted work years. We see no reason for this to occur. For example, we see no reason why the age 70 respondents would be more likely to retire in February and the non-age 70 respondents would be more likely to retire in November. Therefore, due to the large sample size for both groups, these types of potential errors should balance out, and result in a work years count that is valid for comparison purposes.

Our method for determining the number of work years is validated by examining average work years by age and level of education and observing that they trend as expected. Younger individuals had higher numbers of work years, on average, compared to older individuals. Individuals with higher levels of education had more work years, on average, compared to less educated individuals. Therefore, our count of work years is behaving in the same manner as published worklife expectancy tables such as Krueger, Skoog, and Ciecka (2006), Richards and Donaldson (2010), and Skoog, Ciecka, and Krueger (2011), but the number of work years measured with HRS data is slightly less. The lower count is likely due to missing values in the data since every respondent did not answer the employment status question in all waves.

Education is likely to be an important factor in the decision to work to age 70 or older. Table 2 shows the distribution of individuals in the age 70 group and the non-age 70 group by level of education. Individuals in the age 70 group had higher levels of education, on average, than the non-age 70 group. For example, 12.1 percent of individuals in the age 70 group had a PhD or professional degree compared to 1.9 percent of individuals in the non-age 70 group.

A regression model was developed to answer our research question as to whether the age 70 group was statistically different than the non-age 70 group with respect to the number of years worked. The dependent variable of the model is the number of work years and the independent variables are age, education, gender, self-reported health status in 1992 and intent to retire at age 70 or older. Age, education and gender are traditional variables utilized in determining worklife

Table 2. Plans to retire at age 70 by level of education for individuals age 51-61 in 1992.

Level of Education	Age 70 Group	Non-Age 70 Group
Less Than High School	15.4%	25.2%
High School	21.0%	36.1%
Some College	23.2%	20.0%
Bachelor's Degree	19.1%	11.3%
Master's Degree	9.2%	5.6%
PhD or Professional Degree	12.1%	1.9%
Totals	100.0%	100.0%

expectancy. Thus, the inclusion of the intent to retire at age 70 or older along with traditional worklife variables should estimate the magnitude of the effect of the intention to retire at age 70 or older. The inclusion of health status should strengthen the predictive power of the model since healthier individuals should have the capacity to work more years. The intent to retire at age 70 or older variable is a dummy variable that was assigned a “1” if the HRS participant responded with a planned retirement age of 70 or older. The respondents who gave a planned retirement age of 69 or younger and the respondents who did not specify an age were assigned a zero. The regression model is specified as follows:

$$\begin{aligned} \text{WORK YEARS}_i = & \alpha + \beta_1 \text{AGE}_i + \beta_2 \text{HS}_i + \beta_3 \text{SC}_i + \beta_4 \text{BA}_i + \beta_5 \text{MA}_i \\ & + \beta_6 \text{PhD}_i + \beta_7 \text{GENDER}_i + \beta_8 \text{HEALTHVG}_i \\ & + \beta_9 \text{HEALTHG}_i + \beta_{10} \text{HEALTHF}_i \\ & + \beta_{11} \text{HEALTHP}_i + \beta_{12} \text{AGE70RETIRE}_i \end{aligned}$$

where

WORK YEARS = total number of years worked from 1992 to 2014

AGE = age in 1992

HS = dummy variable for high school education

SC = dummy variable for some college education

BA = dummy variable for bachelor's degree

MA = dummy variable for master's degree

PhD = dummy variable for PhD or professional degree

HEALTHVG = dummy variable for self-reported health of “very good”

HEALTHG = dummy variable for self-reported health of “good”

HEALTHF = dummy variable for self-reported health of “fair”

HEALTHP = dummy variable for self-reported health of “poor”

GENDER = dummy variable for gender (1 = male)

AGE70RETIRE = dummy variable for plan to retire at age 70 or older

A second regression model was developed to test whether the age 70 group may work fewer hours than the non-age 70 group during their work years. If this is true, the above model would overstate the effect of the Age 70 variable. Survey participants were asked about the number of weekly hours they usually worked. The response to this question was utilized to weight the work years variable. The weighting was done relative to a 40-hour work week. In other words, if a person reported working 40 hours per week, the count of work years for a response of “working now” remained two years. If the person reported working 20 hours per week, the count of work years for a response of “working now” was reduced from two years to one year.

III. Results of Analysis as to Whether Individuals Who Plan to Work to Age 70 are Statistically Different in Their Work Years

Table 3 shows the regression results. All of the independent variables are highly statistically significant in projecting their effect of the number of work years. The t statistics are very high and the concomitant p-values are very low. In general, the coefficients behave as expected. Age has a negative effect on work years while education has a positive effect. The self-reported health status variables have a negative sign since they are being measured relative to the “excellent” health response. These variables show that health status is strongly correlated with working at older ages.

Our main variable of interest – planned to retire at age 70 or older – has a coefficient of 2.801. The 95 percent confidence interval around this coefficient is 2.133 to 3.469 years. Therefore, on average, individuals who planned to work to age 70 or older worked 2.8 years more than individuals without plans to work to age 70 when controlling for age, education, health status and gender.

Table 4 shows the results of the second model where work years are weighted by hours worked per week yielded slightly different results. The coefficient on the planned to retire at age 70 or older variable dropped to 2.502 with a 95 percent confidence interval of 1.932 to 3.072. The other independent variables were relatively unchanged. The results of this model suggest that the age 70 group likely did lower their work hours slightly as they aged. Therefore, we recommend using the results of this model to estimate for the number

Table 3. Estimation of the magnitude of planning to work to age 70 or older on work years.

<i>Independent Variables</i>	<i>Dependent Variable = Number of Work Years</i>					
	Coefficient	Standard Error	T Statistic	P-value	Lower 95%	Upper 95%
Intercept	33.178	1.245	26.645	0.0000	30.737	35.619
Age	-0.480	0.022	-27.677	0.0000	-0.523	-0.436
High School	0.200	0.183	1.092	0.2747	-0.159	0.559
Some College	0.744	0.211	3.529	0.0004	0.331	1.158
Bachelor's Degree	1.277	0.251	5.080	0.0000	0.784	1.771
Master's Degree	1.004	0.324	3.094	0.0019	0.368	1.640
PhD or Prof Degree	1.874	0.473	3.961	0.0000	0.946	2.801
Male Gender	0.420	0.137	3.057	0.0022	0.150	0.690
Very Good Health	-0.434	0.183	-2.363	0.0181	-0.794	-0.074
Good Health	-1.132	0.189	-5.961	0.0000	-0.150	-0.760
Fair Health	-1.972	0.253	-7.790	0.0000	-2.468	-1.475
Poor Health	-3.085	0.425	-7.247	0.0000	-3.919	-2.250
Planned to Retire at Age 70 or Older	2.801	0.340	8.222	0.0000	2.133	3.469

Adjusted R Square = 0.1100, Number of Observations = 6,342
 F Value = 66.34, Significance F = 0.0000

of increased work years when someone plans to work to age 70 or older. Our estimate of this work plan is that it adds 2.5 work years to an individual's career.

IV. Utilizing the Results of this Study in a Wage Loss Case

The results of this study show that individuals who intend to work to age 70 or older do in fact work more years than individuals who plan to retire earlier. However, this does not mean that a forensic economist can apply the results of this study each time a plaintiff in a legal case states that absent injury he or she was planning to work to age 70 or older. The standard that should be met to apply these results is a compelling case that the retirement plan was established prior to injury.

Table 4. Estimation of the magnitude of planning to work to age 70 or older on work years when work years are weighted by hours worked.

<i>Independent Variables</i>	<i>Dependent Variable = Number of Work Years</i>					
	Coefficient	Standard Error	T Statistic	P-value	Lower 95%	Upper 95%
Intercept	30.222	1.062	28.441	0.0000	28.139	32.305
Age	-0.467	0.018	-24.704	0.0000	-0.504	-0.430
High School	0.098	0.156	0.630	0.5286	-0.208	0.405
Some College	0.477	0.180	2.653	0.0079	0.124	0.830
Bachelor's Degree	0.895	0.214	4.174	0.0000	0.475	1.316
Master's Degree	0.795	0.276	2.871	0.0041	0.252	1.337
PhD or Prof Degree	1.646	0.403	4.077	0.0000	0.855	2.438
Male Gender	1.029	0.117	8.764	0.0000	0.798	1.259
Very Good Health	-0.479	0.156	-3.055	0.0022	-0.786	-0.171
Good Health	-0.906	0.162	-5.593	0.0000	-1.224	-0.589
Fair Health	-1.503	0.216	-6.957	0.0000	-1.926	-1.079
Poor Health	-2.403	0.363	-6.614	0.0000	-3.115	-1.691
Planned to Retire at Age 70 or Older	2.502	0.290	8.607	0.0000	1.932	3.072

Adjusted R Square = 0.1312, Number of Observations = 6,342
 F Value = 80.86, Significance F = 0.0000

There are likely many sources of evidence that establish a pre-injury retirement plan. Two that we find compelling are as follows. First, there is written documentation of the retirement plan dated prior to injury. This could be a human resources survey that an employee filled out with a question on retirement plans. Or, an e-mail with detailed retirement plans that included a specific retirement age or range of ages. Second, there is testimony from a spouse about the plaintiffs' pre-injury retirement plans. A spouse is in a unique position to affirm retirement plans since the decision about labor force exit is often made jointly and couples have likely discussed these plans at length. This would also allow defendants the ability to cross examine two witnesses, the plaintiff and spouse, concerning the legitimacy of the retirement plan in order to verify the consistency of their responses. A spouse has the same potential bias to overstate a planned retirement age since he or she stands to gain from a damages award. However, if the testimony of the spouse and plaintiff are not consistent, they could

be subject to a potential perjury claim, which is a strong disincentive to overstate a planned retirement age.

V. Conclusion

The intent to retire at age 70 or older has a significant impact on the number of work years for HRS participants. The magnitude of this intent was an increase of 2.5 years of work compared to individuals who did not intend to work to age 70 or older. This conclusion was derived from HRS participants age 51 to 61 in 1992. We estimated their work years from 1992 to 2014 utilizing the longitudinal data in the HRS where survey participants were asked every two years to indicate their work status during this time frame.

The percentage of HRS participants age 51 to 61 who answered the planned retirement age question with a response of 70 or older was 4.3 percent. Therefore, approximately 96 percent of the individuals in published worklife expectancy tables do not intend to work to age 70 or older. This means that the individuals who do intend to work to age 70 or older are not comprehensively represented in the tables. Individuals who intend to work to age 70 or older are such a small fraction of the population that their effect on the work years in worklife expectancy tables is of little significance.

FEs should keep in mind that 40 percent of individuals who planned to work to age 70 or older actually worked that long. Therefore, the results of this study do not provide the basis for projecting that a plaintiff would actually work past age 70. The results of this study show that individuals who planned to work to age 70 worked more years than those who planned an earlier retirement age.

FEs should exercise caution when utilizing the results of this study. The results of this study can be generalized to the population of the United States since the HRS is a nationally representative data set. Therefore, the increased number of work years for individuals who planned to work to age 70 or older could possibly be added to worklife expectancy tables to arrive at a worklife projection for these individuals. However, participants in the HRS likely did not suffer from response bias when estimating their planned retirement age because they did not stand to receive financial gain from their response. Plaintiffs in civil lawsuits can receive substantial financial gain by claiming they planned to work to age 70 or older since it increases the number of their lost working years.

The results of this study can be utilized for plaintiffs who make compelling cases that they would have worked to age 70 or older absent the incident of their lawsuit. A very compelling case could be

made if the plaintiff had documentation of a plan to work to age 70 or older that was dated prior to the incident which is the subject of their legal case. This plaintiff would be comparable to an HRS participant since at the time they stated their retirement plans, they had no financial incentive to state a retirement age of 70 or older. Another compelling case would be testimony from a spouse of the plaintiff's pre-injury retirement plan. Since other compelling cases likely exist, a FE will have to use his or her judgment as to whether a jury will find the plaintiff's retirement plans compelling when deciding whether to utilize the results of this study.

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