

# **Time Will Tell: Determinants and Significance of Financial Planning Horizon Changes**

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Recent studies have demonstrated that individuals' financial planning horizons significantly impact their economic decisions, such as saving propensities, credit card usage behaviors, investment choices, retirement decisions as well as estate planning engagements. Motivated by the profound implications and impacts of people's financial planning horizon variations, this study investigates the determinants of individuals' financial planning horizons both cross-sectionally and longitudinally. Using the Health and Retirement Study (HRS) data, this study reveals that American adults' financial planning horizons are strongly determined by their self-perceived life expectancy. Over time, the changes in subjective life expectancy, marital and retirement status, health conditions and wealth level will cause individuals to shift their financial planning horizons. The insight gained in this study helps financial planners to better understand the factors driving the changes of their clients' financial planning horizons and how to encourage the clients to expand their planning horizons.

## **Objective**

The profound implications of the households and individuals' financial planning horizon motivate this study to investigate the different factors which affect planning horizons, with a special focus on analyzing the relationship between older (age 50+) American adults' financial planning horizons and their self-perceived life expectancies. This study seeks to provide help to financial planners in terms of identifying and understanding the underline causes of their clients' financial planning shifts and how to convey the potential benefits of long-term financial planning.

Using the Health and Retirement Study (HRS) data, this study examines which factors and to what extent each of these factors drive the changes in people's financial planning horizons both cross sectionally and longitudinally. First, this study compares the cross-sectional OLS and ordered probit regression results. The results indicate that a respondent's financial planning horizon is strongly correlated with her/his self-perceived life expectancy, race, retirement status, and wealth level. Then we conduct longitudinal robustness check to examine whether intrapersonal changes in these factors cause changes in financial planning horizon over time. The longitudinal OLS, probit and logit regressions all confirm that the changes in self-perceived life expectancy, marital and retirement status, health conditions and wealth level will cause individuals to shift their financial planning horizons.

## **Significance**

Financial planning time horizon is an essential area of economic decision-making for both individuals and households (Dow and Jin, 2013). Various studies have employed

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financial planning horizon as an independent variable to predict various outcomes of interest (Hong and Hannah, 2014). Using the Survey of Consumer Finances data, Fisher and Montalto (2010) identify that households with longer financial planning horizons are more likely to meet saving guidelines. Rutherford and Devaney (2010) find that households with more than five-year planning horizon are more likely to plan their consumption based on their income and use credit cards for convenience rather than as a revolving debt vehicle. He and Hu (2007) point out that households with longer financial planning horizon tend to hold relatively more stocks in their portfolios. Munnell et al. (2001) conclude that employees with short financial planning horizon have a lower taste for saving and a smaller probability of participating in a pension plan. Using the Health and Retirement Study data, Liu and James (2017) find that individuals with longer financial planning horizon are more likely to have valid estate planning documents.

This study provides robust evidence affirming the following hypothesis: Individuals' self-perceived life expectancy significantly affects their financial planning horizon. This relationship reveals that financial planning horizon is, at least in part, a measure of rational (but, not fixed) time discounting, based on subjective life expectancy.

### Model and Method

In the general form of Becker's model of patience formation, a consumer is assumed to live a finite number of periods. The consumer maximizes

(1)

$$V = \sum_{i=0}^T \beta(S)^i \cdot f_i(c_i)$$

Where  $f_i(\cdot)$  is the utility function,  $\beta(\cdot)$  is the discount function, and  $S$  is the "patient" factor. Applying the patience formation model to the determinants of financial planning horizons,  $S$  represents the effort and time spent by the respondents to make long-term financial plans.

Assuming the present values of all assets and earnings are calculated into an initial wealth endowment  $A_0$ , then the intertemporal budget constraint can be described as

(2)

$$\sum_{i=0}^T R_i c_i + \pi S = A_0$$

The first-order conditions with respect to consumption at each period are:

(3)

$$\beta'(S) \left[ \sum_{i=0}^T i \cdot [\beta(S)]^{i-1} \cdot f_i(c_i) \right] = \lambda_0 = f_0'(c_0)$$

From the first order conditions in equation (3), if an increase in life expectancy (from  $T$  to  $T + \Delta t$ ) is accompanied by an increase of lifetime earnings' that maintains the marginal utility of wealth,  $\lambda_0$ , then this change ( $\Delta t$ ) will increase the marginal benefit from investing in future-oriented capital – the patient factor  $S$ . Therefore, longer lifetime, or self-perceived life expectancy increase, will directly motivate consumers to plan further into the future. Hence, this model predicts a positive relationship between the consumers' life expectancy and their financial planning horizons.

This study first compares the OLS and ordered probit regression results in a cross-sectional manner. Then it conducts longitudinal robustness checks to examine whether intrapersonal changes in these factors cause changes in financial planning horizon over time. To measure the impact of subjective life expectancy on individuals' financial planning horizon, this study constructs respondent level, self-perceived life expectancy variables for each of the available HRS survey waves. Figure 1 depicts the inverse relationship between the constructed life expectancy variable and the respondent's age at the time of the 2014 survey.

## Results

The results in Table 2 demonstrate significant relationships between the financial planning horizon variable and the various independent variables such as the self-perceived longevity, race, and wealth levels. Note that the age variable becomes significant after omitting the life expectancy variable from the OLS regression. This finding indicates that the effect of aging on financial planning horizon are captured by the self-perceived life expectancy variable.

Table 3 reports the average marginal effect of the ordered probit regression for the 2014 wave data. This regression also takes the 2014 respondent level sample weight into consideration. Based on the results of both OLS and the ordered probit regression, there is a strong relationship between the respondent's self-perceived life expectancy and their financial planning horizon. *Ceteris paribus*, respondents with longer self-perceived life expectancy on average tend to report longer financial planning horizons. This result provides direct evidence to the main hypothesis of this study and agrees with the prediction of Becker's (1997) model of patience formation. Compared to the respondents whose race is not white, relatively longer financial planning horizons are observed among the white-race respondents. Wealth level is also associated with the respondents' financial planning horizon, indicated by both OLS and the ordered probit results. Everything else equal, people who have more wealth are more likely to plan relatively longer into the future.

Interestingly, age is not a significant determinate of people's financial planning horizon. This result agrees with the findings of Dow and Jin (2013), as well as Trostel and Talor. (2001). The graph in Figure 1 captures the average financial planning horizon in each age categories.

The results from the longitudinal OLS regression (Table 5) confirms that the respondents' financial planning horizons are strongly correlated with their self-perceived life expectancy. Moreover, changes in self-perceived longevity result in changes to financial planning horizons.

The marginal effects of the longitudinal ordered probit regression in Table 6 confirm that, *ceteris paribus*, respondents with longer self-perceived life expectancy tend to have longer financial planning horizons, controlling their marital and retirement status, presence of children, wealth levels and health conditions.

By recoding the Financial Planning Horizon Variable into the binary form (less than a year = 1; More than a year = 0), the categorical longitudinal analysis (demonstrated in Table 7) reveals a similar significant relationship between the respondents financial planning horizon and their self-perceived life expectancy.

Therefore, the longitudinal analysis results affirm the main conclusion of this study. The respondents' financial planning horizon is strongly correlated with rational life expectancy changes as well as wealth changes, and hence may be a partial measure of rational (not fixed) time discounting.

### **Conclusion/Relevance**

Using both cross-sectional and longitudinal analyses with the HRS data, this paper examines the potential factors which drive both differences and changes in American adults' (age 50+) financial planning time horizon and reviews the significance of people's financial planning horizon shifts. The empirical analysis in this study provides direct evidence to support the hypothesis that individuals' financial planning horizons are strongly correlated with their self-perceived life expectancy, race, retirement status and wealth level. *Ceteris paribus*, people with longer self-perceived longevity tend to have longer financial planning horizons. Over time, changes in self-perceived life expectancy, marital and retirement status, health conditions and wealth level will cause individuals to change their financial planning horizons.

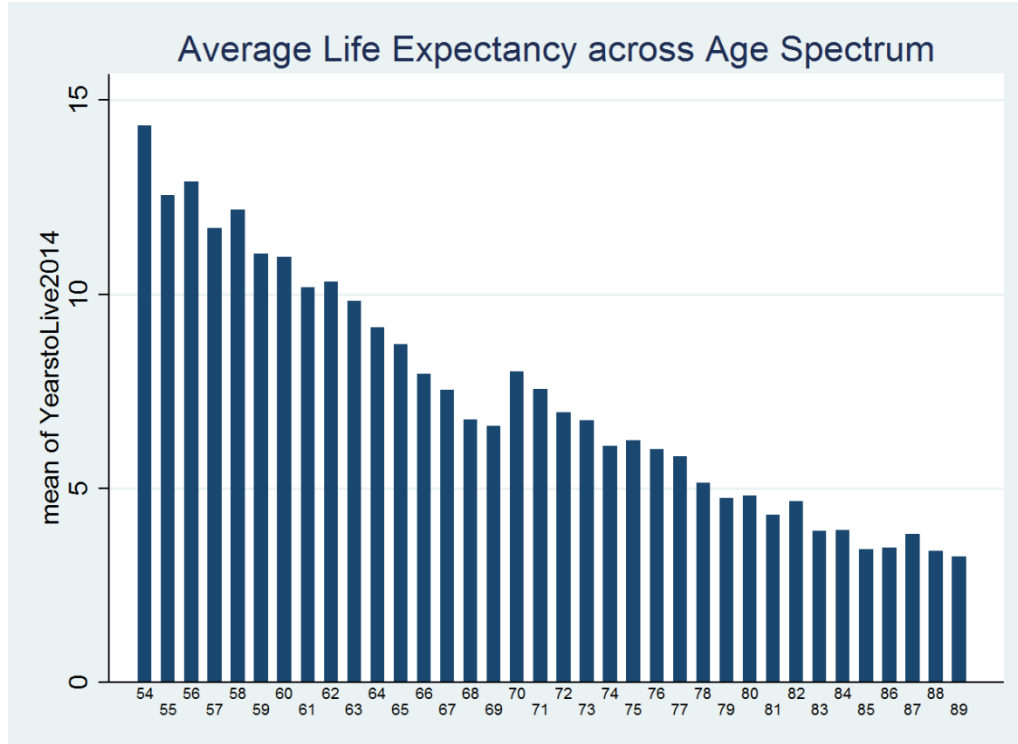
The findings of this paper can help financial planners to identify the factors, such as self-perceived longevity and wealth changes, that may cause potential shifts to the financial planning time horizon of their clients. The discoveries in this paper demonstrate that financial planning time horizon is not stable among older American adults and can be expected to change in later life, both rationally and empirically. Therefore, practitioners should take into consideration that clients' self-perceived life expectancy has a significant impact on their financial planning time horizon later in life. If the practitioners want to encourage longer financial planning horizon at the later life stages, non-consumption issues, such as bequest motives may become more important.

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## Appendix/Supporting Detail

**Figure 1.** Average Life Expectancy across Age Spectrum



**Table 1.** Summary Statistics for the 2014 Wave Cross-Sectional Analysis

Variables	Mean	Standard Deviation
Financial Planning Horizon (Next Few Months = 1; Next Year = 2; Next Few Years = 3; Next 5-10 Years = 4; Longer than 10 Years = 5)	3.275056	.0172094
Years to Live (Constructed Variable measuring Self-Perceived Life Expectancy)	9.062979	0.1193381
Male (Male = 1; Female = 0)	.4674004	.0051683
Age	65.73021	.2595476
Black Race (White = 0; Black = 1; Else = 0)	.0817383	.0054589
Other Race (White = 0; Black = 0; Else = 1)	.0609865	.0041557
Married (Married = 1; Else = 0)	0.696837	0.0080235
Presence of Child	0.907472	0.005067

(Have Children = 1; No Children= 0)		
Retired	0.429521	0.0108724
(Retired = 1; Else = 0)		
Years of Education	13.62080	0.0722506
Disabled	0.142172	0.0048222
(Disabled = 1; Not = 0)		
Cancer	0.215629	0.0057998
(Have Cancer (excluding skin) = 1; Else = 0)		
Heart Condition	12.181280	0.0457459
(Diagnosed with heart condition = 1; Else = 0)		
Wealth	0.696837	0.0080235
(Natural logarithm of total wealth)		

Notes: Respondent level sample weights of the 2014 wave HRS data is applied to the summary statistics.

**Table 2.** OLS Regression Results on Financial Planning Horizon

Variables	Coefficients	Coefficients (“Years to Live” Variable omitted)
Years to Live (Constructed Variable measuring Self-Perceived Life Expectancy)	0.0175*** (0.00268)	
Male (Male = 1; Female = 0)	0.0419 (0.0305)	0.0100 (0.0289)
Age	-0.0040 (0.0025)	-0.0101*** (0.0020)
Black Race (White = 0; Black = 1; Else = 0)	-0.184*** (0.0382)	-0.1572*** (0.0351)
Other Race (White = 0; Black = 0; Else = 1)	-0.206*** (0.0541)	-0.2028*** (0.0582)
Married (Married = 1; Else = 0)	0.0446 (0.0346)	0.0543 (0.0334)
Presence of Child (Have Children = 1; No Children= 0)	-0.0258 (0.0689)	-0.0293 (0.0694)
Retired (Retired = 1; Else = 0)	0.0825* (0.0395)	0.0682 (0.0395)
Years of Education	-0.00597 (0.00518)	-0.0015 (0.0051)
Cancer (Have Cancer (excluding skin) = 1; Else = 0)	-0.0273 (0.0373)	-0.0575 (0.0366)
Heart Condition (Diagnosed with heart condition = 1; Else = 0)	-0.0675 (0.0405)	-0.0840* (0.0408)
Wealth (Natural logarithm of total wealth)	0.1352*** (0.00808)	0.1352*** (0.0078)

Notes: The number of observations is 11,061 for the OLS regression including the all the variables listed above. The number of observations is 11,584 for the OLS regression without the “Years to Live” variable. Respondent level ample weights are applied. Standard errors are reported in parentheses.

\*\*\*Statistically significant at 0.1- percent level.

\*\*Statistically significant at 1- percent level.

\*Statistically significant at 5- percent level.

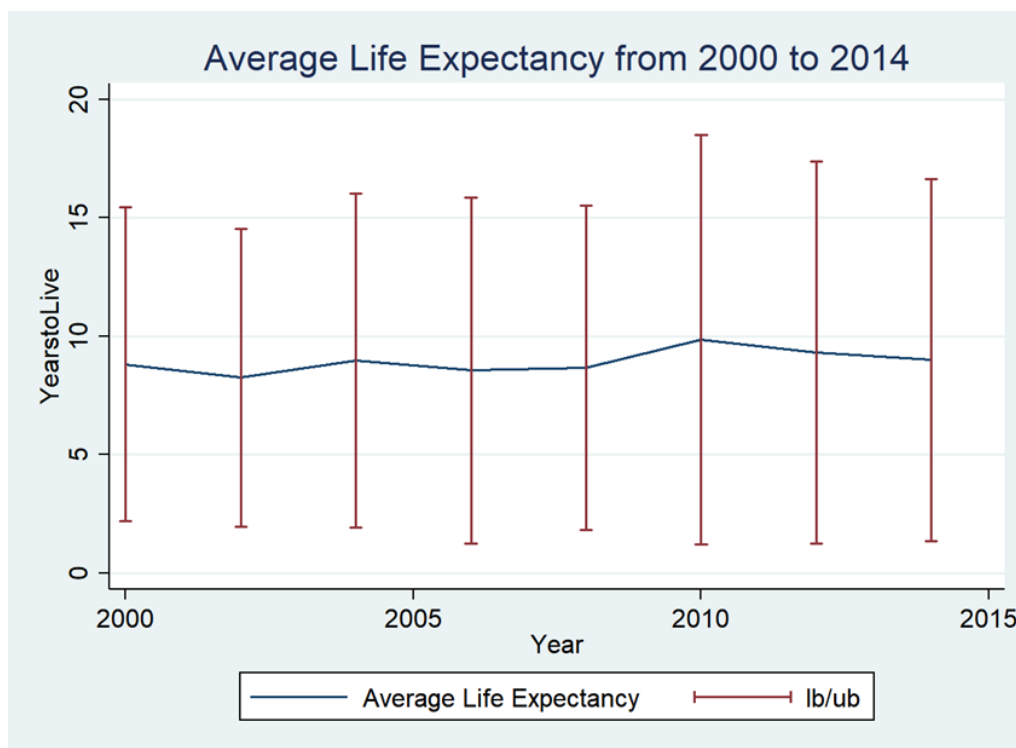
**Table 3. Average Marginal Effect of the Ordered Probit Regression Results**

Variables	Average Marginal Effects					
	Financial Planning Horizon	Next Few Months	Next Year	Next Few Years	Next 5-10 Years	Longer than 10 Years
	Threshold Parameters	1	2	3	4	5
Years to Live	-0.0032*** (-0.0005)	-0.0018*** (-0.0003)	-0.0015*** (-0.0002)	0.0027*** (-0.0004)	0.0038*** (-0.0006)	
Male	-0.0075 (-0.0054)	-0.004 (-0.0028)	-0.0034 (-0.0024)	0.0062 (-0.0044)	0.0087 (-0.0062)	
Age	0.0008 (-0.0004)	0.0004 (-0.0002)	0.0004 (-0.0002)	-0.0007 (-0.0004)	-0.0009 (-0.0005)	
Black Race	0.0277*** (0.0063)	0.0150*** (0.0035)	0.0127*** (0.0032)	-0.0231*** (0.0053)	-0.0323*** (0.0076)	
Other Race	0.0329*** (0.0091)	0.0178*** (0.0049)	0.0151*** (0.0042)	-0.0274*** (0.0074)	-0.0384*** (0.0106)	
Married	-0.0057 (-0.006)	-0.0031 (-0.0033)	-0.0026 (-0.0027)	0.0048 (-0.005)	0.0067 (-0.007)	
Presence of Child	0.0055 (-0.0126)	0.003 (-0.0068)	0.0025 (-0.0058)	-0.0046 (-0.0105)	-0.0065 (-0.0147)	
Retired	-0.0180* (-0.0069)	-0.0097* (-0.0037)	-0.0083* (-0.0032)	0.0150* (-0.0057)	0.0210* (-0.0081)	
Years of Education	0.0012 (-0.0009)	0.0007 (-0.0005)	0.0006 (-0.0004)	-0.001 (-0.0008)	-0.0014 (-0.0011)	
Cancer	0.0037 (-0.0066)	0.002 (-0.0036)	0.0017 (-0.0031)	-0.0031 (-0.0055)	-0.0043 (-0.0077)	
Heart Condition	0.0113 (-0.007)	0.0061 (-0.0038)	0.0052 (-0.0032)	-0.0094 (-0.0058)	-0.0132 (-0.0081)	
Wealth	-0.0229*** (-0.0016)	-0.0124*** (-0.0007)	-0.0105*** (-0.0009)	0.0190*** (-0.0013)	0.0267*** (-0.0017)	

Notes: Number of observations is 11,061. Respondent level ample weights are applied. Standard errors are reported in parentheses.

**Figure 2. Average Life Expectancy Summary and Shift-Trend (2000-2014)**





**Table 4.** Longitudinal OLS Regressions on Financial Planning Horizon

Variables	Fixed-Effect	Random-Effect
Years to Live	0.00614*** (-0.00151)	0.0105*** (-0.000969)
Married	-0.0740* (-0.0341)	0.0537** (-0.0184)
Presence of Child	0.161 (-0.103)	-0.0293 (-0.032)
Retired	0.0779*** (-0.0218)	0.0302 (-0.0157)
Cancer	-0.0513 (-0.0446)	-0.0135 (-0.0244)
Heart Condition	-0.0436 (-0.035)	-0.0569** (-0.0203)
Wealth	0.0344*** (-0.00919)	0.115*** (-0.00436)

Notes: The number of observations is 32,347.

**Table 5.** Marginal Effects of Longitudinal Ordered Probit Regression

Variables	Average Marginal Effects				
	Next Few Months	Next Year	Next Few Years	Next 5-10 Years	Longer than 10 Years
Threshold Parameters	1	2	3	4	5
Financial Planning Horizon					
Years to Live	-0.0022*** (-0.0002)	-0.0011*** (-0.0001)	-0.0007*** (-0.0001)	0.0018*** (-0.0002)	0.0022*** (-0.0002)
Married	-0.0100** (-0.0034)	-0.0048** (-0.0016)	-0.0033** (-0.0011)	0.0083** (-0.0028)	0.0098** (-0.0033)
Presence of Child	0.0086 (-0.0059)	0.0041 (-0.0028)	0.0028 (-0.0019)	-0.0071 (-0.0048)	-0.0084 (-0.0058)
Retired	-0.0078** (-0.003)	-0.0037** (-0.0014)	-0.0025** (-0.001)	0.0064** (-0.0024)	0.0076** (-0.0029)
Cancer	0.0026 (-0.0045)	0.0012 (-0.0021)	0.0008 (-0.0015)	-0.0021 (-0.0037)	-0.0025 (-0.0044)
Heart Condition	0.0114** (-0.0038)	0.0054** (-0.0018)	0.0037** (-0.0012)	-0.0094** (-0.0031)	-0.0112** (-0.0037)
Wealth	-0.0212*** (-0.0008)	-0.0100*** (-0.0004)	-0.0069*** (-0.0003)	0.0174*** (-0.0007)	0.0207*** (-0.0008)

Notes: Number of observations is 32,347. Respondent level ample weights are applied. Standard errors are reported in parentheses.

**Table 6.** Longitudinal Results for Short Financial Planning Horizon

Variable	Average Marginal Effects				
	OLS		Probit <sup>(1)</sup>	Logit	
	Random Effects	Fixed Effects	Random Effects	Random Effects	Fixed Effects
Short Financial Planning Horizon <sup>(2)</sup> (Less than or equal to a year = 1; More than a year = 0)					
Years to Live	-0.00194*** (0.00035)	-0.00157** (0.00056)	-0.00199*** (0.00034)	-0.00198*** (0.00034)	-0.00176** (0.00068)
Married	-0.02383***	0.02316	-0.02397***	-0.02372***	0.02367

	(0.00649)	(0.01261)	(0.00620)	(0.00617)	(0.01500)
Presence of Child	-0.00845	-0.07599*	-0.00434	-0.00491	-0.07726*
	(0.01114)	(0.03819)	(0.01070)	(0.01071)	(0.03476)
Retired	0.01132*	-0.00869	0.01152*	0.01139*	-0.01055
	(0.00565)	(0.00806)	(0.00557)	(0.00558)	(0.00936)
Cancer	0.00024	0.00297	0.00056	0.00028	0.00302
	(0.00859)	(0.01651)	(0.00836)	(0.00838)	(0.01880)
Heart Condition	0.01642*	0.00515	0.01642*	0.01628*	0.00474
	(0.00717)	(0.01294)	(0.00692)	(0.00691)	(0.01475)
Wealth	-0.04146***	-0.01179***	-0.03960***	-0.03921***	-0.01157***
	(0.00154)	(0.00340)	(0.00142)	(0.00142)	(0.00265)

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*Notes:* (1) Probit fixed-effect analyses are not available with our statistical software.

(2) Short financial planning horizon indicates the respondents financial planning horizon is less than or equal to one year in this analysis.