The Factors Related with the Decision to Self-direct Own Retirement Plan

HanNa Lim, Kansas State University[1]
Richard Stebbins, University of Alabama[2]
Travis Sholin, Kansas State University[3]

Objective

According to Investment Company Institute (ICI), as of 2019, retirement plans in the U.S. alone held $29.8 trillion in assets with, $5.8 trillion of that invested in 401(k) plans. Considering the growing importance of 401(k) plans in the retirement preparation of Americans, exploring how retirement plan participants manage their assets in 401(k) plans and why they make investment decisions is important. This study uses primary data to investigate the contributing factors associated with the decision to manage investment allocation in retirement plans, focusing on self-directed management versus choosing recommended portfolios such as target-date funds (TDF) or risk-based portfolios. Characteristics related to default effects (financial knowledge, experience, and loss aversion) and characteristics related to customized needs (risk tolerance, retirement age, and life expectancy) are key interests in the current study. This study contributes to the growing literature surrounding the default effect in behavioral economics with findings that can be applied to the largest investment many people make in life.

Significance

Target date funds (TDF), or life-cycle funds, allow participants to target a specific retirement year. The TDF is designed to automatically rebalance into a more conservative asset allocation as the participant approaches the targeted retirement year. TDFs are a popular option among retirement plan participants and became the common default option in many DC plans after the Pension Protection Act of 2006. Using a TDF as the default may increase use of the TDF by almost 60% (Mitchell, Mottola, Utkus, & Yamaguchi, 2009).

Plan participants often remain in the default fund, possibly viewing the fund as investment advice or the recommended option (Madrian & Shea, 2001; McKenzie et al., 2006). Research suggests that while TDFs are not the ideal place for retirement savings (Lewis, 2008), they are a 'satisfactory solution' for unsophisticated investors (Guillemette, Martin, & Gibson, 2015). An argument against this 'satisfactory solution' comes from prior literature suggesting that individual differences in risk tolerance and human capital risk would be much closer to an ideal solution if a second, more conservative fund, were used in conjunction with the TDF (Bodie & Treussard, 2007). Even though risk tolerance and TDF guides were presented to the participants along with their individual risk tolerance score, a part of the participants choose "do it myself" investment options rather than risk-based portfolios or TDFs. This research is interested in those who do not follow the recommended options (which serve as a semi-default option) but are willing to be responsible for investment management in their own retirement plan.

The default effect in behavioral economics suggests that setting a default, meaning those impacted must make an active choice to switch to another option, makes the status quo option more likely to be unchanged (Choi, Laibson, Madrian, & Metrick, 2004; Samuelson & Zeckhauser, 1988). Making an active choice requires effort, and the impacted individual may not feel they have the time or information needed to make a better choice. Researchers have also found that due to the loss aversion, individuals tend to remain with default options, but those who are sophisticated and experienced can overcome the default effect and make active decisions. For example, Guillemette et al. (2015) found a significant association between low sophistication and using TDFs.

Based on the discussion above, we expect those who are sophisticated and less impacted by loss aversion make active decisions rather than sticking with default options. Also, we expect those who

[1] HanNa Lim (hlim@ksu.edu), Assistant Professor, Institute of Personal Financial Planning
[2] Richard Stebbins (rstebbins@ches.ua.edu), Assistant Professor, Department of Consumer Sciences
[3] Travis Sholin (tsholin@ksu.edu), Ph. D. Student, Institute of Personal Financial Planning

have customized needs that default options are not able to fulfill will choose the "do it myself" option. Below are the research hypotheses that we developed.

H1-1: Those who are financially knowledgeable and experienced are more likely to choose self-directed portfolios.

H1-2: Those who have lower loss aversion are more likely to choose self-directed portfolios.

H2-1: Those who have unusual risk tolerance are more likely to choose self-directed portfolios.

H2-2: Those who have unusual retirement age expectations are more likely to choose self-directed portfolios.

H2-3: Those who have unusual life expectancy are more likely to choose self-directed portfolios.

Methods

Dataset and sample selection

Thanks to the generous support of Prime Capital, we were able to survey employer-sponsored retirement plan participants recruited through the emails sent to their clients and other individuals recruited from the advertisement on their social networking services. From April to July, in 2019, 508 survey response was collected. After dropping the missing cases, our analytic sample size was reduced to 378. Most of the missing cases were from those who answered "don't know" to our dependent variable question, followed by those who answered "don't know" or "prefer not to say" to the asset and debt questions.

Dependent variable

The survey asks the question, "Which investment option did you choose for your retirement plan through your current employer?" The response options were pre-existing risk based mutual funds, TDFs, or self-directing the investment allocation. A binary indicator of self-directed investment allocation was created by using 1 for self-direct and 0 otherwise for a logistic regression analysis. To look deeper into the choices, multinomial logistic regression was used with the responses coded as 1 for risk-based funds, 2 for TDFs, and 3 for the self-direct option.

Key independent variables

Financial knowledge was measured in two ways. First subjective financial knowledge was measured using a 7-point Lichert-type scale with 1 being not at all knowledgeable and 7 being very knowledgeable. Second, financial knowledge was measured objectively using three questions with correct responses coded as 1 and incorrect responses coded as 0. The sum of the three responses serves as a proxy for financial knowledge with a range of 0-3. Also, based on the responses to the job sector question, we created a binary variable of working in the financial industry or not. Loss aversion was measured with the question "By how much could the total value of all your investments go down before you would begin to feel uncomfortable?" and the response was reverse coded, with a higher number translating to more loss averse.

Next, investment risk tolerance was measured with responses to the question, "When thinking of your financial investments, how willing are you to take risks?" The original measure ranges from 1=not at all willing to 7=fully willing. Three categories were created with low (1 and 2), middle (3-5), and high (6 and 7). To measure expected retirement age, we created three categories based on the response distribution: early (less than age 56), normal (age 56-69), and late (over age 69) retirement age. Similarly, life expectancy was originally measured as continuous, but three categories were created as follows: short (less than age 70), normal (age 70-99), and long (over age 99). These categories were also made based on the response distribution.

Control variables

Age, gender, race, education level, marital status, having financially dependent children, assets, and liabilities were included as control variables.

Empirical model specification

We used logistic regression and multinomial logistic regression to analyze the association between the factors related with default effects and customized needs and the choice to self-direct retirement plan investment allocation. First, we conducted a logistic regression using a binary indicator of self-directed retirement plan investment allocation as the dependent model. We also conducted a multinomial logistic regression using all 3 retirement plan investment allocations.

Results

Binary logistic regression

Results from the binary logistic regression are illustrated in Table 1. Among the key independent variables, expected retirement age was the only significant factor. Respondents who expect to retire early (less than age 56) had 2.8 times odds of choosing to self-direct investment options in their retirement plan compared to those who plan to retire in the normal age category (56-69). Also, being males and having more assets were found to be positively related with having self-directed investment portfolios in their retirement plan. Furthermore, being highly educated and married were positively associated with having self-directed investment portfolios but at a marginal level ($p<.1$).

Multinomial logistic regression

We also examined the factors related with choosing to self-direct investment portfolios versus risk-based portfolios and TDFs, respectively. Early retirement age, high education level, and more assets were positively related with choosing self-directed investment portfolios rather than risk-based portfolios. For example, compared to those who are high school dropouts or graduates, those with graduate degrees had 4.5 times odds of choosing to self-direct investment options rather than risk-based ready-made investment options. Interestingly, the effect of expected retirement age disappeared in the decisions between self-directed portfolios and TDFs, but the effect of being male and having more assets were both positively related with choosing self-directed portfolios over TDFs. While only marginally significant ($p<.1$), those with a higher level of loss aversion were less likely to choose self-directed portfolios rather than TDFs, compared to those with a lower level of loss aversion. This finding supports our hypothesis.

Conclusions/Relevance

While findings from this study only partially support our hypotheses, it contributes to our understanding of retirement plan participants' behavior regarding investment portfolio choice and provides policy implications on ready-made default options in employer-sponsored retirement plans.

Overcoming the default effect of TDFs in retirement plan investment allocation takes a certain type of mindset. While financial sophistication and investment risk tolerance were not significant, those who are male, more educated and have more assets, and intend to retire earlier were more likely to choose to self-direct investment portfolios in their retirement plan. These characteristics have been associated with financial sophistication and risk tolerance in previous research.

With concerns over Social Security solvency and the dollars invested in retirement plans, this research on the use of default retirement funds highlights the importance of the composition of TDF retirement investments. Brokerage houses creating the funds must understand the needs of the investors. PPA 2006 provided policy that allowed the use of TDFs as a default allocation, and these allocations must serve the consumer's needs or retirees will struggle.

Active participants in defined contribution plans in the United States need an array of options, and if TDFs become the norm, these funds must meet the needs of those expecting to retire in the next year and every subsequent year. Our findings suggest a need for future research with data that allows researchers access to retirement portfolio beta to better understand the self-directed investment allocation mindset. In addition, knowing whether financial advisors were helping with the respondent's investment allocation would be useful.

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Table 1. Binary logistic regression results on choosing to self-direct retirement plan

Variables	b	S.E	p-value	Odds ratio
Intercept	-3.631	1.204	0.003	
Subjective financial knowledge (1~7)	0.089	0.104	0.393	1.093
Objective financial knowledge (0~3)	-0.072	0.163	0.660	0.931
Working in finance industry	0.224	0.335	0.504	1.251
Loss aversion (1~7)	-0.020	0.076	0.792	0.980
Investment risk tolerance (ref: Middle)				
Low	-0.122	0.487	0.802	0.885
High	-0.159	0.353	0.652	0.853
Expected retirement age (ref: Normal)				
Early	1.037	0.389	0.008	2.821
Late	0.545	0.438	0.213	1.725
Life expectancy (ref: Normal)				
Short	0.485	0.885	0.584	1.625
Long	0.725	0.487	0.136	2.065
Male	0.602	0.304	0.047	1.826
Age	-0.010	0.013	0.432	0.990
White	0.140	0.535	0.794	1.150
Education (ref: High school or less)				
Some college	1.151	0.675	0.088	3.162
Bachelor's degree	0.664	0.672	0.323	1.943
Graduate degree	1.235	0.727	0.089	3.439
Married	0.746	0.400	0.062	2.108
Having financially dependent children	-0.138	0.314	0.660	0.871
Asset (thousand dollars)	0.001	0.000	0.019	1.001
Debt (thousand dollars)	-0.002	0.002	0.281	0.998
Pseudo R-square		0.157		

Table 2. Multinomial logistic regression results on choosing to self-direct portfolio

	Self-directed vs. Risk-based				Self-directed vs. TDF			
Variables	b	S.E.	p-value	Odds ratio	b	S.E.	p-value	Odds ratio
Intercept	-3.580	1.247	0.004		1.195	2.143	0.577	
Subjective financial knowledge (1~7)	0.080	0.106	0.447	1.084	0.122	0.170	0.472	1.130
Objective financial knowledge (0~3)	-0.091	0.166	0.583	0.913	0.096	0.244	0.695	1.100
Working in finance industry	0.372	0.343	0.277	1.451	-0.596	0.491	0.225	0.551
Loss aversion (1~7)	0.003	0.077	0.970	1.003	-0.241	0.145	0.096	0.786
Investment risk tolerance (ref: Middle)								
Low	-0.259	0.492	0.598	0.772	1.343	1.133	0.236	3.829
High	-0.113	0.358	0.753	0.894	-0.302	0.539	0.575	0.739
Expected retirement age (ref: Normal)								
Early	1.026	0.398	0.010	2.791	1.237	0.752	0.100	3.444
Late	0.484	0.443	0.275	1.622	0.999	0.775	0.197	2.716
Life expectancy								
Short	0.482	0.891	0.589	1.619	0.669	1.476	0.650	1.953
Long	0.755	0.501	0.132	2.127	0.821	0.908	0.366	2.273
Male	0.514	0.308	0.095	1.672	1.200	0.462	0.010	3.320
Age	-0.010	0.013	0.449	0.990	-0.018	0.022	0.413	0.982
White	0.169	0.548	0.758	1.184	-0.412	0.845	0.626	0.663
Education (ref: High school or less)								
Some college	1.165	0.676	0.085	3.205	0.084	1.269	0.947	1.088
Bachelor's degree	0.701	0.675	0.300	2.015	-0.699	1.250	0.576	0.497
Graduate degree	1.504	0.739	0.042	4.500	-1.174	1.316	0.372	0.309
Married	0.727	0.404	0.072	2.070	0.861	0.608	0.157	2.365
Having financially dependent children	-0.102	0.319	0.749	0.903	-0.417	0.506	0.410	0.659
Asset (thousand dollars)	0.001	0.000	0.034	1.001	0.002	0.001	0.032	1.002
Debt (thousand dollars)	-0.002	0.002	0.364	0.998	-0.003	0.003	0.250	0.997
Pseudo R-square				0.212				