Assessing the Effect of Self-Control on Retirement Preparedness of U.S. Households

Kyoung Tae Kim, The Ohio State University[1]
Jae Min Lee, The Ohio State University[2]
Eunice O. Hong, The Ohio State University[3]

Introduction

When we face choices between immediate gratification and future satisfaction, we often experience inner conflicts over time preference (Ainslie, 1975; Khan & Dhar, 2007; Wertenbroch, 1998), which leads to self-control problems. Differences between low actual saving rates and high normative response rates for retirement saving (viewed as one of the most essential financial decisions for households) provide evidence for the self-control conflict in terms of time preference, representing the gap between intentions and actions (Farkas & Johnson, 1997; Laibson et al., 1998). Due to the problem of self-control, people often make systematic or self-acknowledged errors, which cannot be fully explained as a constant discounting factor or the rationality of a good decision maker in the classical economic theories (De Meza et al., 2008; Laibson et al., 1998). By approaching the retirement saving issue with self-control in mind, we expect to discover the difficulties that households commonly suffer in their day-to-day saving decisions, and to therefore give some normative insight to both households and policy makers. The objectives of this study are identified as follows: 1) to investigate effect of the self-control mechanism on the retirement preparedness of U.S households, 2) to develop proxies of self-control in the Survey of Consumer Finances dataset, and 3) to observe changes in the effect of self-control on U.S retirement adequacy from 1995-2007.

Theoretical Background

The behavioral life-cycle hypothesis, suggested by Shefrin and Thaler (1988) is considered one model that modifies the life-cycle model with behavioral reality (Karlsson et al., 1997; Levin, 1998; Thaler & Benartzi, 2004). In order to explain household's savings, the behavioral life-cycle incorporates three important features including self-control, mental accounting, and framing: basically, individuals are constantly under the temptation of doer which makes them prefer current consumption to saving for the future, the so-called “self-control” problem. To overcome this self-control problem in financial decisions, they rely on their “mental accounts” which consist of three categories in wealth- current income, current assets, and future income. Under the assumption on the non-fungibility and different propensity to consume from each mental account, individuals tend to diversify investments of the wealth into assets with different levels of temptation, “framing” which denotes spending is affected by both total wealth and how wealth is distributed among assets.

Literature Review

Self-control in Finance

Self-control theory first appeared in the Psychology field, but researchers also tried to apply self-control to Finance by developing the terminology "financial self-control". Researchers found a positive relationship between self-control and saving behaviors (Baumeister, 2002; Rha et al., 2006), and a negative relationship between self-control and likelihood of having debts (Baumeister, 2002; Bertaut et al., 2008; Mansfield et al., 2003).

[1]Ph.D. candidate, Consumer Sciences Department, 1787 Neil Avenue, 262E Campbell Hall, Columbus, OH 43210, The Ohio State University, Columbus, OH, (614) 565-7835, kim.1970@osu.edu.
[2] Ph.D. candidate, Department of Consumer Sciences, 1787 Campbell Hall, College of Education and Human Ecology, The Ohio State University, Columbus, OH. Email: lee.4166@osu.edu
[3] Ph.D. student, Department of Consumer Sciences, 1787 Campbell Hall, College of Education and Human Ecology, The Ohio State University, Columbus, OH. Email: hong.276@osu.edu

Self-control and Retirement

Thaler and Bernartzi (2004) proposed that saving for retirement requires self-control, and emphasized the role of self-control as there was a rapid change from defined benefit plan to defined contribution plans. Laibson (1997) introduced the concept of commitment devices which are retirement plans as a way to reduce the self-control problem. As an empirical analysis, Abel and Hayslip (1996) found individuals who participated in a retirement preparation program maintained a high score of locus of control, suggesting the positive relationship between locus of control and retirement preparation.

Methodology

Data and Sample Selection

The dataset analyzed in this study is the combined Survey of Consumer Finance (SCF) from the 1995 to the 2007. This study includes a sample composed of households with the head or a spouse/partner who is of age 35 to 70, and employed full time, and indicated the expected retirement age from full-time work followed by previous studies (Yuh, Montalto, & Hanna, 1998; Yao, Hanna, & Montalto, 2003; Chen, 2007; Yuh, 2011). The total sample size of the combined dataset is 21,983. And 8,187 households (37.2%) met the sample restriction.

Table 1

Self-control Problem Category Table

Variable		Measurement
Health condition self-control problem (HCP)		Smokers answering their perceived health condition were poor
Credit attitude self-control problem (CAP)	Loan payment self-control problem (LPP)	Whether households have ever experienced late loan payments during the last year or not, or for two months or more, or whether they have ever been bankrupt or not, or whether they usually pay off their monthly total balance owed on credit card account or not.
	Credit card revolving self-control problem (CRP)	Whether households have total balance still owed on the account after last payment of credit card or not, or as whether they have revolving charge or any charge on credit cards after last payment.
Saving decision self-control problem (SCP)		Whether households have saving reason for retirement or not, or Saving rule: ‘save income of one family members and spend the other’, ‘spend regular income and save other income’, and ‘save regularly by putting money aside each month.’
Planning Horizon		Household’s time period of planning saving and spending by giving them five categories (Next few months, next year, next few years, next 5-10 years, and longer than 10 years).

Measurement of Variables

Our calculation of resources during retirement follows a retirement adequacy method reported by Yuh et al. (1998). The projection of spending needed in retirement is generally followed the assumptions used by Chen (2007) and are similar to those of Palmer (1992; 1994). We estimated spending benchmarks from the Bureau of Labor Statistics 2007 Consumer Expenditure Survey published results and projected amounts above the published income categories using power function estimation from the lower income categories. The dependent variable is a dichotomous indicator of projected retirement adequacy with value equal to 1 if the replacement ratio is equal to or greater than the benchmark replacement ratio, otherwise the value is 0.

Self-control variables are described in Table 1. As self-control problems are usually viewed as resulting in overconsumption and low wealth (Ameriks et al., 2007), we identify the problem of self-control as a need for self-control, which results in retirement preparedness of households. In addition to the self-control variables, demographic variables, economic status variables, and financial attitude variables are used as independent variables.

Analysis

Descriptive statistics of self-control problem variables is displayed in Table 2. To analyze the influence of independent variables on a dichotomous dependent variable, a logistic regression analysis is used (Table 3).

Table 2

Descriptive Statistics of Self-Control Variables (1995-2007 SCF)

Variable		Percentage
Health condition self-control problem (HCP)		0.9
Credit attitude self-control problem (CAP)	Loan payment self-control problem (LPP)	52.9
	Credit card revolving self-control problem (CRP)	56.2
Saving decision self-control problem (SDP)		21.4
Planning Horizon		
Next few months		14.5
Next year		11.0
Next few years		24.2
Next 5 to 7 years		32.6
Longer than 10 years		17.7

Table 3

Result of Logistic Regression Based on 1995-2007 SCF

Variable		Coefficient	p-value [a]	Standard Error	Odds ratio
Self-Control variables					
Health condition self-control problem (HCP)		-1.0760	0.0013***	0.3353	0.341
Credit attitude self-control problem (CAP)	Loan payment self-control problem (LPP)	-0.0990	0.2010	0.0774	0.906
	Credit card revolving self-control problem (CRP)	-0.1433	0.0584*	0.0757	0.866
Saving decision self-control problem (SDP)		-0.1862	0.0152**	0.0767	0.830
Planning Horizon: reference category: Next few months					
Next year		0.0852	0.4806	0.1208	1.089

Variable	Coefficient	p-value [a]	Standard Error	Odds ratio
Next few years	0.1949	0.0540*	0.1011	1.215
Next 5 to 7 years	0.1576	0.1074	0.0979	1.171
Longer than 10years	0.2526	0.0209**	0.1093	1.287
Age of head: reference category: Age 25 to 34				
35 - 44	-0.5051	0.0137**	0.2050	0.603
45 - 54	-0.4982	0.0158**	0.2065	0.608
55 - 64	-0.6631	0.0018***	0.2123	0.515
65 - 70	-0.6082	0.0118**	0.2417	0.544
Education of head: reference category: Less than high school				
High school	0.3320	0.0039***	0.1152	1.394
Some college	0.1448	0.2579	0.1280	1.156
Bachelor degree or higher	0.1287	0.2912	0.1219	1.137
Marital status: reference category: Married				
Partner	0.3184	0.0047***	0.1125	1.375
Separated or divorced	-1.9181	<.0001	0.1012	0.147
Widow	-1.6526	<.0001	0.2471	0.192
Never married	-1.9120	<.0001	0.1373	0.148
Racial-ethnic category: reference category: White				
Black	-0.0162	0.8808	0.1081	0.984
Hispanic	0.0125	0.9161	0.1187	1.013
Asian or others	0.0219	0.8821	0.1474	1.022
Household income: reference category : Less than $10,000				
$10,000 - $24,999	-0.8988	0.0175**	0.3785	0.407
$25,000 - $49,999	-0.4608	0.2093	0.3671	0.631
$50,000 - $99,999	-0.0565	0.8785	0.3694	0.945
More than $100,000	1.7906	<.0001	0.3753	5.993
Retirement plan: reference category: Yes				
Have Defined Contribution (DC) plan	0.3193	<.0001	0.0716	1.376
Have Defined Benefit (DB) plan	1.6781	<.0001	0.0914	5.355
IRA	0.2567	0.0002***	0.0695	1.293
Expected retirement age: reference category : Before 62				

Variable	Coefficient	p-value [a]	Standard Error	Odds ratio
62 ≤ Retirement age ≤ 65	0.2177	0.0020***	0.0706	1.243
Retirement age > 65	0.6692	<.0001	0.0806	1.953
Risk tolerance: reference category: Take no risk				
Average risk	0.1805	0.0199**	0.0775	1.198
Above average risk	0.2913	0.0021***	0.0948	1.338
Substantial risk	0.5439	0.0005***	0.1560	1.723
Year: reference category:2004				
1995	-0.2279	0.0171**	0.0956	0.796
1998	-0.3521	<.0001	0.0924	0.703
2001	-0.1878	0.0425**	0.0926	0.829
2007	-0.1007	0.2718	0.0917	0.904
Intercept	0.2697	0.5385	0.4384	

Note: a < denotes 0.01% significance level; ***denotes 1% significance level; **denotes 5% significance level; * denotes 10% significance level

Results

Descriptive Analyses

From descriptive statistics in Table 2, we found that more than 52% of households have loan payment self-control problem (LPP) while the proportion of credit card revolving self-control problem (CRP) is 56%. About 21% of households have saving decision self-control problem (SDP). It is showing that households have loan control and credit control problems, more than the saving control problems. In terms of saving horizon, more than half of households answered either "next few years" or "next five to ten years". Overall, our descriptive results are suggesting that there are substantial portion of households have self-control problems except for health control problems.

Multivariate Analyses

At the 5% significance level, health condition self-control problem (HCP) and saving decision self-control problem (SDP) are significantly related to the likelihood of the adequate retirement. Moreover, credit card revolving self-control problem (CRP) is significant at the 10% significance level. As we expected, households having self-control problems are less likely to have an adequate retirement than those not having self-control problems. For planning horizon variable, households with the longest saving horizon (longer than 10 years) have higher likelihood of having an adequate retirement than households with next few months of planning horizon. Other than self-control variables, marital status, having DC, DB or IRA plan, expected retirement age and risk tolerance are positively related to the likelihood of having an adequate retirement.

Implications

Results show that the self-control problem, often considered far away from the financial decision area, but which recurs in our daily life, matters to household retirement preparedness. We discover the importance of setting a saving goal for retirement in having regular principles for spending and saving income for retirement preparedness through the specific way of managing money. Habitual practice and daily principles of self-control problems will play important roles in improving the adequate retirement preparedness. In order to reduce self-control problem and to prepare retirement adequately, commitment

devices (e.g. higher default rate of DC pension) should be considered and emphasized both by financial educators and policy makers.

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