

# “The Effect of Behavioral Biases on Retirement Planning”

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## Abstract:

The purpose of the study is to examine the effect of self-control bias and perceived knowledge on retirement planning behavior of individuals of New Delhi, India. To generate adequate retirement savings, self-control is indispensable. The study indicates individuals lack self-control and self-discipline that adversely affects the savings ratio. Financial literacy is another very important aspect to study the effectiveness of retirement planning among individuals. Individuals have an unrealistic belief about their perceived knowledge of financial aspects. The paper suggests that individuals get influenced by their behavior that has an effect on retirement planning. With a five-point Likert scale questionnaire, a survey was conducted on 405 individuals to examine the effects of both self-control bias and perceived knowledge of individuals on their retirement planning behavior. Regression analysis was applied to study the causal relationship between the variables. The results provide evidence that individuals fail in effective retirement planning due to a lack of self-control on expenditures. Individuals overestimate their financial knowledge and potential in investment decision-making that leads to errors and lower returns.

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**Keywords:** investor; financial literacy; perceived knowledge; retirement savings; retirement planning; self-control bias.

## 1. Introduction

Planning for retirement savings involves crucial saving and investment decisions. The life of an individual involves both consumption and savings behavior that helps to determine the resources for the retirement years. Economic theory explains the significance of saving decisions which is where an individual sacrifices the benefits of consuming the income today and enjoys the benefits by deferring a portion of the income into the future. The life cycle model was figure 1 suggested by Baker and Ricciardi (2014) explains that the young age group is negative savers whereas middle-aged group

focuses on maximizing savings and prepare for retirement. The life cycle model explains the patterns of household savings behavior. Mitchell (2006) states that the positive relationship between the increase in savings with age, income, education and total health. Households at a younger age have higher debts than financial assets, whereas, the mid-age group tends to save more and accumulate wealth. At a later age, they consume their financial assets. It has been observed that many policymakers have raised concerns that households fail to accumulate retirement savings. Many research studies indicate that many

households have inadequate retirement savings and low wealth accumulation that leads to negative shocks.

Efficiency in retirement planning is achieved with good financial knowledge and confidence in one's knowledge. As retirement investment decisions are complex, low financial knowledge and irrationality can result in huge errors resulting in lower accumulation of retirement savings.

There has been a recent acceptance in the studies indicating the importance of behavioral economics in the process of financial decision making. Tversky and Kahneman (1974) explained how people take short-cuts and commit judgment errors in estimating probabilities. Baker and Ricciardi (2014) explain that individuals contradict the traditional theories of rationality and commit mistakes in making crucial investment decisions due to the exhibition of behavioral biases. Biases are systematic errors committed by individuals when they act irrationally such as self-control bias, overconfidence/overestimation bias, an illusion of control bias, unrealistic optimism, etc. These biases have an effect on financial planning and wealth management.

Retirement planning is an important phase of an individual's life that leads to social and financial security at a later age. Hence, decisions related to retirement planning must be psychologically and behaviorally analyzed. Asher (2003) highlighted the significance of behavioral economics in retirement financing in Asia. The increasing population of old age has enhanced the challenges to obtaining social security in Asia. The paper further states that individuals deviate from the conventional concepts of rationality even in retirement financing.

Wide studies have been done to understand the role of demographic factors such as age, income, education, gender, occupation, etc. in retirement planning. There has been a dearth in understanding the investors' attitude and behavior in retirement planning. Hershey et al. (2007) investigated investor behavior towards retirement planning. From a survey on 265 middle-aged adults, it was found that major four-factor influence investor behavior a) psychological factors b) task characteristics c) cultural ethos d) finance and economic resources as explained in Figure 2. The paper explained how investors had poor retirement goal clarity and self-rated financial knowledge.

This paper studies one of the factors suggested in the study of Hershey et al. (2007), i.e. cognitive factors that influence the behavior of individuals in retirement planning. The paper is divided into different sections, section 2-Review of literature on financial literacy, retirement planning, self-control bias, and perceived knowledge.

## **2. Review of Literature**

### **2.1 Financial Literacy among individuals**

Agarwal et al. (2015) explained the importance of understanding the relationship between financial literacy and retirement planning. It has been observed that more financially literate individuals are positive towards planning for retirement. Individuals should have knowledge about expected dates for retirement, direct contribution and direct benefit retirement plans, the desired standard of living and expected rates of interest. Mitchell (1988) and Gustman and Steinmeier (2005) examined the knowledge and financial literacy of employees about company pension plans, pension entitlements, and social security benefits. It was found that many adults have a poor financial understanding and exhibit money illusions.

Klapper and Panos (2011) studied the relationship between financial literacy, education, and retirement planning in Russia. The survey results indicated that consumer borrowings have increased in Russia with the rising aging population. It was found that only 36% understand the concept of interest compounding, inflation, risk diversification, etc. Financial literacy was found to be highly associated with retirement planning and it was found among younger and highly educated individuals.

Several research studies indicate that low financial literacy discourage investors to invest in stocks. Rooji, Lusardi and Alessie (2012) indicate that individuals with high financial literacy invest in stock to enjoy equity premiums. Higher literacy lowers information costs and increases stock ownership. With an experiment, it was evident that individuals have low cognitive ability and are less risk tolerant and impatient. For them, investment in stocks is quite risky.

Guiso et al. (2008) investigated how households are inadequate knowledge of investment opportunities in the stock market due to lack of trust. Rooji, Lusardi, and Alessie (2007) suggested that financial literacy is strongly associated to the process of financial decision making. It was also observed that individuals with low financial literacy rely on peers and family to seek financial advice and knowledge about stock markets. The paper concluded that a majority of individuals lacked an understanding of finance, economics, and financial markets that discourages them to invest in stock markets. Individuals were found to be risk-averse and rely on others for financial advice. The research suggested that financial literacy has a significant role to play in enhancing retirement savings. An effort must be made to increase the financial literacy of workers and employees that help

them to decide how much and how to save for retirement.

### **Investor Behavior Retirement Planning**

Retirement planning involves challenging decisions to be taken rationally by an investor. Several research papers have discussed the factors that affect the phase of retirement planning. Turner, Bailey & Scott (1994) indicated that retirement planning is quite complex and requires more than financial planning. Apart from demographic factors, investor attitude and behavior plays an important role in determining the efficiency of retirement planning. The survey focused on understanding the preretirement attitude and behavior among midlife employees aged between 40-65 years old. The study indicates that midlife employees with higher education, higher occupational status and income are highly positive about their retirement planning. It was found that investors with higher education. The study also points out the importance of current economic conditions on retirement planning. Ang (2009) explored the savings behavior as per the life cycle model of China and India. India and China, being the emerging markets have growing GDPs and populations. Both countries have experienced great economic reforms in recent years, hence it is very important to study the current social security systems of the countries. Elder and Rudolph (1999) studied the retirement behavior of individuals and determined the relationship between retirement planning and the level of retirement satisfaction. Several factors affect an individual's retirement planning such as marital status, income, wealth, health, etc. whereas it was found that thinking about retirement has a positive impact on satisfaction.

Benartzi and Thaler (2007) discussed how investors think to save for tomorrow.

Investors use heuristics to take complex financial decisions that lead to naïve diversification. The paper discussed how participants exhibit mental accounting and separate “old money” with “new money”. It was found that participants exhibit loss aversion where they valued losses twice more than gains.

HiraRock,&Loibl (2009) applied a conceptual model to understand the risk attitude and behavior towards the retirement of American investors. It was found that investors are influenced by major three factors, perceived or actual personal control, ability to recover from loss, behavioral tendencies. Age is a significant factor that influences the attitude of investors for retirement planning. The study indicated that the age group of 40-59 years focuses on maximizing retirement contributions.

Benartzi and Thaler (2001) identified that the investors exhibit framing effects in retirement planning. From a survey to choose retirement plans ranging from plan A (low risk) to D (high risk), investors choose middle options and avoid extremes

Benartzi and Thaler (2013) addressed the importance of behavioral economics in designing retirement programs for individuals to increase the savings rate. The authors devised a plan Save for Tomorrow (SMT) to deal with the retirement saving crisis in the United States based on behavioral economics. The paper pointed out the rising spending in health care due to obesity and an inadequate diet that has reduced the savings of Americans.

There has been a paradigm shift in retirement plans, investors tend to focus more on defined contribution plans than defined benefit plans. Contribution plans is an attractive concept for retirement saving as it offers more features, tax benefits, flexibility and attractions (Benartzi and Thaler, 2007).

## 2. Self-Control Bias

Money is one major aspect where individuals lack extreme self-control. Pompian (2006) explains self-control bias as an emotional bias among individuals that influences people to consume today instead of saving for tomorrow. Self-control explains the rift between an individual's desires and self-discipline.

The concept of self-control is importantly discussed related to the attitude of investors to save for retirement. (Thaler, 1994) Mithcell&Utkus (2006) highlighted the rising importance of behavioral finance in the phase of retirement planning. Lack of willpower was explained as “bounded self-control” by Thaler and Shefrin (1981). Individuals fail to save for retirement due to lack of self-control and indulge in wrong habits of improper dieting, smoking, drinking, etc. Riaz&Iqbal (2015) explained the self-control bias existing among investors adversely affects their portfolio returns. Investors who exhibit self-control bias also indicate overconfidence bias and an illusion of control in their financial behavior. The study also suggests that due to self-control bias investors have fewer retirement savings. Sahi and Arora (2012) investigated the existence of self-control bias among investors in India to classify the type of investors. From the findings of the study, the authors cited that inexperienced investors show poor self-control on their expenditures. Another class of investors, competent confirmers who are cautious investors has good self-control but low confidence in abilities, hence take less risk. The efficient planners, a class of investors, who have higher confidence abilities, have the highest self-control.

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## 2. Perceived Knowledge among individuals for retirement planning

Moore et al. (1999) highlighted the psychological foundations of investors who have unrealistic beliefs about their potential ability and knowledge in making judgments and decisions. The individuals consider themselves highly intelligent and superior in making investment choices than others. Several aspects play an important role in enhancing the perceived knowledge of investors such as an illusion of control (Langer, 1975), unrealistic optimism, and past performances (Khan et al., 2017).

Parker et al. (2011) discussed how individuals are asked to rate their perceived knowledge that indicates the under-confidence/overconfidence among them. It is calculated by the difference between overall confidence and the actual knowledge of the individual. If the difference is marginal, the individual is considered to be well-calibrated. Overestimation is another term used for depicting the misconceptions among individuals about their self-rated knowledge (Moore and Healy, 2008). Hershey et al. (2007) described the self-rated knowledge of individuals with the help of retirement goal clarity and future time perspective.

Financial knowledge is also tested on the basis of gender where studies have indicated that men have earned high scores in confidence in financial knowledge than women for financial investment and retirement planning (Gustman and Steinmeier, 2005) and (Goldsmith et al. 1997)

### Research Objectives

The purpose of the research is to examine the effect of behavioral biases in the retirement planning of individuals. Several western studies have indicated the increasing importance of behavioral

economics on retirement planning apart from demographics. The studies have also pointed out the effect of financial literacy among individuals that positively correlates with the efficiency in retirement planning.

### Hypotheses

*The paper focuses to study the effect of behavioral biases such as self-control bias and perceived knowledge on the retirement planning of individuals. With the study on in-depth literature review, the paper proposes two hypotheses-*

H1 Poor self-control has an adverse effect on the efficiency of retirement planning

H2 Lower perceived knowledge has an adverse effect on the efficiency of retirement planning.

### 3. Research Methodology

To study the role of psychological and behavioral finance effects on individuals in retirement planning, a survey method was adopted. A questionnaire with five-point Likert scale questionnaire was designed with inputs from Hershey et al. (2007), Rooji, Lusardi, & Alessie (2012), Pompian (2006) and Agarwal et al. (2015). The data was collected from 500 employees working in both the private and government sectors. The research focused only on the salaried class to understand their attitude towards retirement planning. Out of 500, 405 individuals responded positively and filled the questionnaire. New Delhi, being the capital of India was chosen as the sample area to study the effect of behavioral biases on retirement planning.

Two behavioral biases existing in investors have been

### Results

**Cronbach alpha-** To test the reliability and consistency of the questionnaire, Cronbach's



Alpha was used. Several research papers suggest the importance of using this method to validate the study (Prosad, Kapoor and Sengupta, 2015) and (Wood and Zaichkowsky, 2004). The Cronbach's alpha was tested for three variables, retirement for planning, self-control bias, and perceived knowledge. All the three variables were framed in five-point Likert scale questionnaire. The results in table no. 1 show the Cronbach's alpha for self-control bias as .757, table no. 2 for retirement planning show the reliability as .816 and table no. 3 for perceived knowledge as .796.

**Regression Analysis** – A regression analysis was conducted to study the effect of self-control bias on the retirement planning of investors. Similarly, the study proposes that lower perceived knowledge in investors has a negative effect on the retirement planning. Both self-control bias and perceived knowledge were identified as independent variables whereas retirement planning was identified as a dependent variable. Mishra and Metilda (2015) used regression analysis to study the effect of self-attribution bias on overconfidence biases of investors in the investment decision-making process.

Retirement planning is indicated as a dependent variable for regression analysis. The literature suggests that several factors influence the efficiency of retirement planning among individuals as given in Figure no. 2. The model was proposed by Hershey (2004) that depicts the factors influencing retirement planning such as psychological influences, cultural factors, task characteristics, and financial resources. In this study, we have focused on the psychological influences on retirement planning by investigating the effect of self-control bias and perceived knowledge. The participants were asked about questions on

retirement planning about “frequency to gain awareness about financial planning”, discussion of retirement planning with employer, friends or experts”, assessing the true net worth”, and identifying spending plans for the future” (Hershey et al., 2007).

### **H1 Poor self-control has an adverse effect on the efficiency of retirement planning**

Previous researches suggest a positive correlation between self-control bias and retirement planning. To test the variables, questions on self-control bias were adapted from the study of Rooji et al. (2012) and Pompian (2006). The participants were asked questions about “difficulty in controlling expenditures”, “spending all the money immediately”, “not investing in risky stocks”, and “having poor self-discipline”. Linear regression was performed to study the effect of self-control bias on the retirement planning of participants as shown in table no. 4 and table no. 5. Table no. 4 shows R and R-square values. R indicates a simple correlation of .761 (medium correlation) between self-control bias and retirement planning. Table no. 5 shows the ANOVA table with p-value as 0.000 indicating that the model is statistically significant. It proves that self-control bias negatively affects the retirement planning behavior.

### **H2 Higher perceived knowledge has an adverse effect on the efficiency of retirement planning.**

The items of questionnaire tested the level of perceived knowledge among individuals by asking about “the confidence in the ability to make investments for retirement”, consider themselves very knowledgeable in matters related to financial and retirement decisions”, “having good knowledge about retirement planning than others” and “obtain information about retirement planning from

appropriate database” (Hershey et al. 2007). Table no. 6 shows the regression analysis of perceived knowledge and retirement planning among investors. The regression table indicates R is .770 (medium correlation) and R-square as .325. The ANOVA table shows the p-value as .000 depicting the model fitness as statistically significant.

### Discussion and Conclusion

The research brings out the effect of behavioral finance in retirement planning behavior. The study of Fischhoff, Slovic, and Lichtenstein (1977) indicates that people overestimate their knowledge abilities make decisions. Financial and retirement planning decisions are very complex and challenging. Individuals perceive that they have high financial knowledge that leads to inadequate retirement planning and lower savings. Savings behavior is deeply affected by the lack of self-control and self-discipline among individuals. The research studies of Pompian (2006), Hershey et al. (2007) and Rooji et al. (2012) portray the lack of self-control among individuals for retirement planning.

The research studies the effect of self-control bias and perceived knowledge among individuals for retirement planning in an Indian scenario. With the rising aging population and inflation, it is important to understand the effect of psychological foundations and behavior of individuals on retirement planning. Effective retirement planning leads to adequate retirement savings and wealth accumulation that enhances social and financial security of people.

The paper concludes that behavioral finance studies can bring out useful insights to understand the retirement planning behavior of individuals. Self-control bias is suggested

as one of the most important biases to understand how an individual deals with money. It directly impacts the retirement savings ratio and efficiency in retirement planning.

With increased financial literacy and self-awareness, retirement planning behavior can be changed. Higher financial literacy helps to overcome the biases and encourage investing rationally. The paper suggests future scope of study in analyzing the effect of age and other behavioral biases on investor’s retirement planning behavior.

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**Figure no. 1 The Lifecycle of Financial Planning Model**

Young Adult: Ages 18–24	Adult with or without Children: Ages 25–34
<ul style="list-style-type: none"> <li>• Establishing a household</li> <li>• Establishing credit</li> <li>• Training for career</li> <li>• Establishing savings</li> <li>• Earning financial independence</li> <li>• Creating a spending plan</li> <li>• Determining insurance needs</li> <li>• Developing a personal financial identity</li> </ul>	<ul style="list-style-type: none"> <li>• Engaging in child-bearing</li> <li>• Managing increased need for credit</li> <li>• Engaging in child-raising</li> <li>• Discussing and managing additional insurance needs</li> <li>• Starting an education fund for children</li> <li>• Creating a will</li> <li>• Expanding career goals</li> </ul>
Working Parent or Adult: Ages 35–44	Midlife: Ages 45–54
<ul style="list-style-type: none"> <li>• Upgrading career training</li> <li>• Building on children's education fund</li> <li>• Developing protection needs for head-of-household</li> <li>• Arising requirement for greater income due to expanding needs</li> <li>• Establishing retirement goals</li> </ul>	<ul style="list-style-type: none"> <li>• Assisting with higher education for children</li> <li>• Investing</li> <li>• Updating retirement plans</li> <li>• Developing estate plans</li> </ul>

**TABLE IV:1 (Continued)**

**Pre-Retirement: Ages 55–64**

- Consolidating assets
- Planning future security
- Reevaluating property transfer (estate)
- Investigating retirement part-time income or volunteer work
- Evaluating expenses for retirement and current housing
- Meeting responsibilities of aging parents

**Retired: Ages 65 and over**

- Reevaluating and adjusting living conditions and spending as related to health and income
- Acquiring assistance in management of personal and financial affairs
- Adjusting insurance programs for increasing risks
- Finalizing estate plans
- Finalizing a will or letter of last instructions

Source: Baker, H.K. & Ricciardi, V. (2014). *Investor behavior: The psychology of financial planning and investing*. New Jersey: John Wiley & Sons.

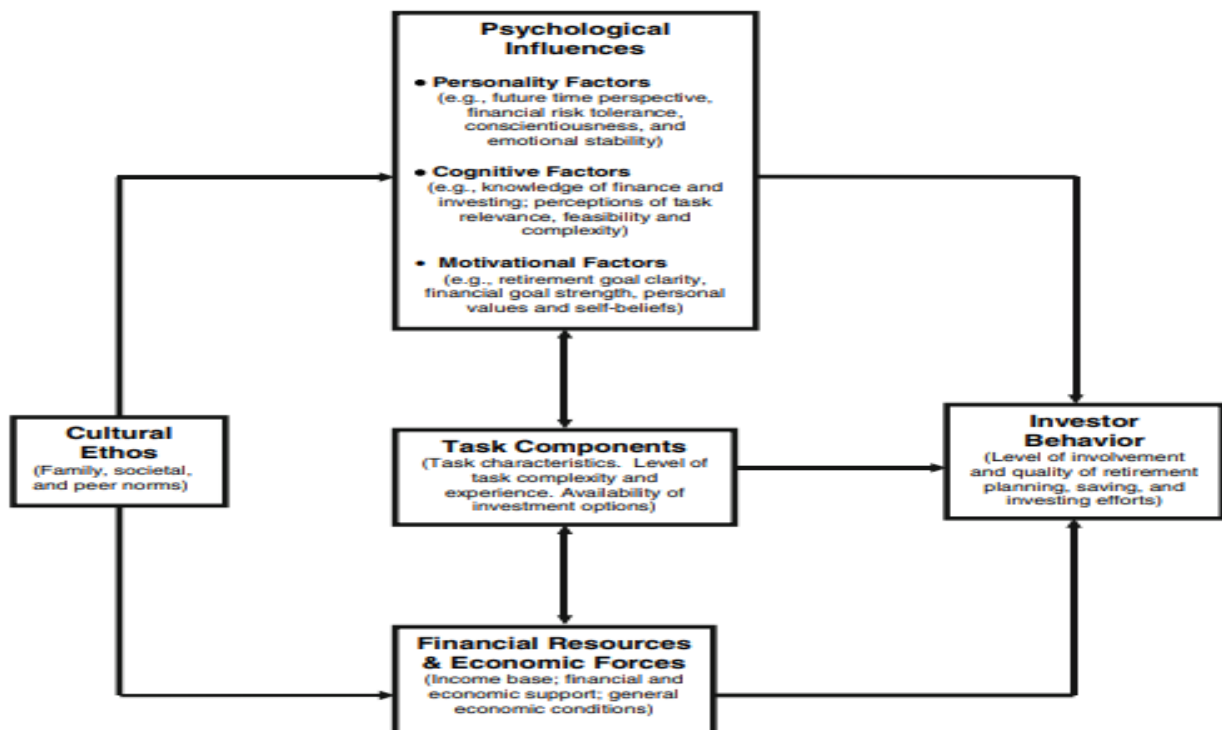


Figure 2- Source: Hershey, D. A. (2004). Psychological influences on the retirement investor. *CSA: Certified Senior Advisor*, 22, 31–39.

**Table No. 1 Self-control bias-  
Reliability Statistics**

Cronbach's Alpha	N of Items
.757	4

**Table No. 2 Retirement planning**

**Reliability Statistics**

Cronbach's Alpha	N of Items
.816	4

**Table No. 3- Perceived Knowledge**

**Reliability Statistics**

Cronbach's Alpha	N of Items
.796	5

**Table no. 4 Regression analysis of self-control bias and retirement planning**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.761 <sup>a</sup>	.437	.436	.629

**Table No. 5-ANOVA Table**

**ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	131.871	1	131.871	333.583	.000 <sup>b</sup>
Residual	169.591	429	.395		
Total	301.463	430			

**Table No. 6- Regression analysis of perceived knowledge and retirement planning**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.770 <sup>a</sup>	.325	.324	.689

**Table No. 7- ANOVA table**

**ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	98.015	1	98.015	206.679	.000 <sup>b</sup>
Residual	203.448	429	.474		
Total	301.463	430			