

## A Retirement Investment and Savings Decision Model: Influencing Factors and Outcomes

This research presents a model that can be used to examine the retirement investment decision process used by individuals. Using 1999 Retirement Confidence Survey data, this study found that respondents with higher education, higher income, a lower number of financial dependents, favorable financial attitudes, and those who are exposed to workplace financial education were more likely to have a retirement investment program. It was determined that having a retirement investment program positively influenced retirement confidence.

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Will the average American reach retirement with financial security? This continues to be one of the major questions facing family and consumer economists. The aging of the population, a looming baby boomer crisis, the possible failure of Social Security, changing retirement policies, and a fluctuating investment environment have forced the burden of preparing for a safe retirement from society to individuals.

Financial services professionals have developed, proposed, and promoted various retirement investment and savings strategies for individuals. Professionals in family and consumer economics also have addressed the importance of individual savings and proposed various savings programs, while numerous foundations and non-profit organizations have started developing savings strategy recommendations and tried to increase public awareness. This has all resulted in the issue of retirement investment and savings becoming a high priority matter for policy makers and regulators.

Even though financial services practitioners and family and consumer economists continue to encourage private savings for retirement among their constituencies, little is actually known about the decision-making process that *individuals* undertake when deciding to establish, implement, and monitor a retirement investment and savings program. Further, even less is known about the outcomes (e.g., retirement confidence) of the retirement investment and savings decision. Thus, the purpose of this paper is two-fold: first, to present a model that describes the process that individuals take when establishing a retirement investment and savings program and the resulting outcomes; and second, to examine the following research questions: (a) what factors are related to an individual to have an investment or savings program for retirement? and (b) what is the effect of having a retirement investment or savings program on retirement confidence?

### Background of Study

#### Retirement Investment and Savings Decision Model

The decision making undertaken by individuals when establishing an investment or savings program for retirement depends on various factors. The decision-making process can be analyzed using Engel, Blackwell, and Miniard's (1990) consumer decision-making model. The process developed by Engel and his associates is affected by three different factors: (a) environmental influences, (b) individual differences, and (c) psychological processes. Environmental influences include culture, social class, personal influence, family, and situation. Individual differences are characterized by individual resources, motivation and involvement, knowledge, attitudes, personality, lifestyles, and demographics. Psychological processes include information processing, learning, and attitude and/or behavior change.

When people make decisions to establish retirement investment or savings programs, environmental influences, individual differences, and psychological processes affect the decision-making. Although the consumer decision-making model presented by Engel et al. (1990) was developed based on the experiences and theories of marketing, the framework can be adopted to explain how individual retirement decisions are made. Figure 1 shows how these factors impact decision and outcomes.

Environmental influences include work environment and family environment. For example, whether people work at a non-profit organization or a for-profit organization or whether they are self-employed or not, was hypothesized to have a potential influence on a person's decision to establish a retirement investment or savings

program. Family environment includes an individual's number of financial dependents and household size. Individual differences include demographic and socioeconomic characteristics of an individual, such as age, gender, ethnicity, marital status, education, and income. Psychological processes include financial attitudes, retirement attitudes, and risk tolerance.

Once the decision to establish an investment or savings program for retirement is made, outcomes follow. Those who establish such a program were hypothesized to have greater retirement confidence (i.e., a positive outcome). The following discusses factors other researchers have found that influence retirement investment or savings program choices.

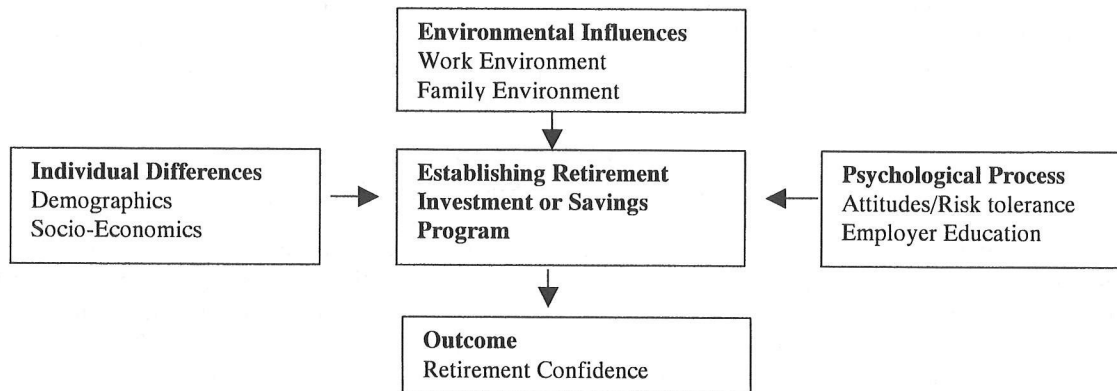


Figure 1  
Retirement Investment and Savings Decision Model

#### Socioeconomic and Demographic Characteristics and Retirement Program Choice

Hogarth (1991) found that age, education, gender, income, and marital status were significant factors influencing saving for the future. Catrambone (1998) also discussed the significant relationship between gender and retirement investment. Zhong (1994) reported that age, income, education, and gender were significant factors related to asset allocation decisions, while Li, Montalto, and Geistfeld (1996) found age and income to be significant factors of retirement savings. Yuh and DeVaney (1996) reported income, years of employment, education, occupation, and ethnicity as significant factors of defined contribution retirement funds of couples. DeVaney, Su, Kratzer, and Sharpe (1997) concluded that age, marital status, and income have a significant relationship with the amount of money saved for retirement. Grable, Lytton, and Kratzer (1998) also found that income, occupation, and education were significantly related with participation in a defined contribution plan.

#### Behavioral and Attitudinal Characteristics and Retirement Program Choice

Research has also shown that behavioral and attitudinal characteristics are significant factors that influence savings and investment activities. For example, risk tolerance has been included in various research studies and found to be a significant factor of retirement investment and savings (Grable & Joo, 1997; Yuh & DeVaney, 1996; Yuh & Olson, 1997). Financial knowledge also has been reported to be a significant factor influencing retirement decisions (Grable & Lytton, 1997).

#### Financial Education and Retirement Program Choice

The relationship between financial education and investment and savings behavior continues to be studied by researchers and educators. The significance of financial education on behavioral change, retirement investment, and retirement confidence has also been reported in the literature. For example, DeVaney, Gorham, Bechman, and Haldeman (1995) reported that the presence of a financial education program was related to the decision to save and invest for retirement. Specifically they found the influence of classmates, a written exercise, and professional presentation had significant effects on retirement investment and savings decisions. Hershey, Walsh, Brougham, Carter, and Farrell (1998) found that educational training effectively increased financial knowledge and improved the retirement planning of pre-retirees. Grable and Joo (1999) also found that financial education had significant effects on financial behaviors.

## Methodology

### Data

The ninth annual Retirement Confidence Survey (RCS) was used as the data source in this study. The 1999 RCS was co-sponsored by the Employee Benefit Research Institute, the American Savings Education Council, and Mathew Greenwald and Associates. The 1999 RCS randomly surveyed 1,002 individuals (751 workers and 251 retirees) ages 25 and older between January 4 and February 28, 1999 through 20-minute telephone interviews (Employee Benefit Research Institute, 1999). Random digit dialing was used to obtain a representative cross section of the U.S. population. Based on the 1,002 respondents, this study was delimited to include only worker respondents (N=751). This delimitation was imposed because the research question in this study involved issues related to planning for retirement rather than planning while retired. Therefore, findings from this study apply only to pre-retirees.

### Analysis

All analyses were conducted using SPSS for Windows. Logistic regression analysis was used to identify the related factors of the decision to establish a retirement investment or savings program. Correlation diagnoses revealed that no multicollinearity constraints were presented in the data. Comparison of means using t-tests was conducted to identify the effect of having a retirement investment or savings program on retirement confidence.

Dependent Variable. Respondents to the 1999 RCS were asked to indicate whether they had an investing or savings program for their retirement. Respondents who answered that they had an investing or savings program for retirement were coded as 1; respondents who did not have such a program were coded as 0. Among the 751 respondents, 527 (70%) respondents had an investing or savings program for their retirement and 177 respondents did not have one. The remaining 47 respondents had missing information.

Independent Variables. Based on the model presented in Figure 1, environmental influences (employer characteristics, self-employment status, number of financial dependents, and household size), individual differences (age, gender, marital status, ethnicity, education, and income), and psychological processes (financial attitudes, retirement attitudes, risk tolerance, and employer education) were included as independent variables.

Dummy variables were created for employer characteristics and self-employment status. Those who worked in a governmental, non-profit organization, or education/academic institution were assigned 1 for the Employer Characteristic variable and those who were self-employed were assigned 1 for the Self-Employed variable. Actual number of financial dependents and household size were used.

A person's reported actual age was used. Gender, marital status, ethnic/racial background, income, and education were dummy coded. Respondents were coded 1, if they were male, married, White/Caucasian, had higher than college degree, and had household income above \$49,999.

There were 13 combined questions that measured personal finance and retirement attitudes and behaviors in the 1999 RCS. Each question was measured using a 4-point Likert-type scale, with 1 = not at all, 2 = not too well, 3 = well, and 4 = very well. The 13 questions measured four different areas of personal finance and retirement attitudes and behaviors: (a) financial behaviors and attitudes; (b) optimistic retirement attitude; (c) pessimistic retirement attitude, and (d) risk tolerance. Financial behaviors and attitudes were measure with six items (for individual item, contact the authors). Higher scores represented positive financial behaviors and attitudes. Possible financial behavior and attitude scores ranged from 6 to 24, with a mean score for respondents of 16.85. The optimistic retirement attitude was composed of two items. Higher scores represented a more optimistic attitude toward retirement. Possible scores ranged from 2 to 8 and the mean score was 3.21. The pessimistic retirement attitude was composed of two item questions. Higher scores represented more pessimistic attitude toward retirement. The mean score for this variable was 5.29. Based on the two retirement attitude scales, as a group, the sample had a rather pessimistic attitude toward retirement. The risk tolerance-scale used in this analysis included three questions. Possible risk-tolerance scores ranged from 3 to 12, with higher scores representing increased risk tolerance. The mean score of the respondents was 7.46.

Another psychological process variable was employer education. Those who received educational material or seminar information about retirement investments and savings from their employer during the past 12 months (42.7%) were assigned 1 for Employer Education, otherwise 0.

## Results

### Characteristics of the Sample

The mean age of the sample was 43 years old. Slightly over one-half of the respondents were female (50.1%). The majority of the respondents were White/Caucasian (83.3%). The average number of financial dependents was 1.52. The majority of respondents (64.8%) were married. On the average more than three people (M=3.02) lived in the household. The majority (62.1%) of the respondents had less than college degree of educational attainment. More than one half of the respondents (66.8%) had household income less than \$50,000. The majority (68.6%) were employed by a for-profit corporation or other institution, while about a quarter (31.4%) worked at a governmental, non-profit organization, or educational/academic institution. Slightly over 20 percent (20.5%) were self-employed. Overall, the sample resembled the general characteristics of U.S. workers.

### Factors Associated with the Decision to Establish a Retirement Investment and Savings Program

Results of the logistic regression are shown in Table 1. Those who worked at non-profit organizations were not significantly different from those who worked for for-profit organizations in terms of having a retirement investment or savings program. Self-employed workers were not statistically significantly different from others either. Among the two family environment variables, only the number of financial dependents was statistically significantly related with whether or not have retirement investment or savings program. Specifically, those who had more financial dependents were less likely to have an investment or savings program for retirement.

Table 1

### Logistic Regression Results on Decision to Establish a Retirement Investment or Savings Program

Variable	B	Sig.	Exp. (B)
<b>Environmental Influences</b>			
Government/non-profit workers	-.2120	.4962	.8090
Self-employed	-.2705	.4446	.7630
Financial Dependents	-.1911	.0128	.8261
Household Size	-.1457	.1129	.8644
<b>Individual Differences</b>			
Age	.0108	.4382	1.0108
Gender (male = 1; female = 0)	-.3427	.2234	.7098
Marital Status (married = 1; otherwise 0)	.5313	.0993	1.7011
White/Caucasian (ETHNIC1)	.3000	.3513	1.3498
Education (Higher than College Degree)	1.0973	.0004	2.9961
Income over \$50,000	.5849	.0485	1.7948
<b>Psychological Process</b>			
Employer Education	1.1992	.0000	3.3175
Financial attitudes	.1374	.0013	1.1472
Optimistic Retirement Attitudes	.1162	.1985	1.1232
Pessimistic Retirement Attitudes	-.1444	.1192	.8655
Risk Tolerance	.0974	.2022	1.1023
Constant	-2.645	.0461	
Model Chi-square	97.016	.0000	
Number of cases included in the analysis	462		

Those who had an investment or savings program for retirement were not statistically significantly different from those who did not have such programs in terms of their age, gender, marital status, and ethnicity. However, those who had higher educational attainment levels (i.e., college graduate and higher) were more likely to have an investment or savings program for retirement than those who had lower educational attainment levels. Those who had higher incomes (i.e., income of \$50,000 and higher) were also more likely to have a retirement investment or savings program than those who had lower levels of income.

Among the psychological processes, employer education and financial attitudes significantly influenced the decision to establish a retirement program. Researchers and educators have argued the need for and the effectiveness of financial education at the workplace (Bernheim & Garrett, 1996; Brown, 1993; Grable & Joo, 1999). However, skepticism has existed regarding whether workplace financial education actually works. This study showed the positive effect between workplace education and retirement investment and savings behavior. Those who received

some kind of information from their employer were more likely to have a retirement investment or savings program compared to those who did not receive any information. This confirmed the effectiveness of workplace financial education as an influencing factor in the choice to establish a retirement investment and savings program. Individuals' financial behaviors and attitudes were also related to retirement planning behavior. As one might expect, those who exhibited proactive/desirable behaviors and attitudes toward personal finance were more likely to have a retirement program.

The logistic regression results from Table 1 also offer the opportunity to predict the probability of having an investment or savings program for retirement. For example, a married man who is working at a for-profit organization, who also has less than a college degree, household income less than \$50,000, and the mean characteristics of the sample for other environmental, individual, and psychological factors, yet did not receive any information from his employer, would have a 62% probability of having a retirement investment or savings program. However, if the same person received some information or education from his employer the predicted probability increases to 85%.

#### Assessing the Process Outcome: Retirement Confidence

A further analysis was conducted to answer the question of "what is the effect of having a retirement investment or savings programs on retirement confidence?" Table 2 shows the t-test results among the two groups using the RCS retirement confidence questions. Overall retirement confidence was higher for those who had a retirement investment or savings program. Specific areas of retirement confidence (e.g., confidence with retirement preparation, medical expenses, basic expenses, and the coverage compare to individual longevity) were also higher for those who had a retirement investment or savings program. Among those who had a retirement investment or savings program, 60% of workers had attempted to figure out how much money they will need to live comfortably in retirement. On the other hand, only 20% of those who did not have a retirement investment or savings program took steps to figure out this critical figure. Overall, findings from the sample showed that those had an investment or savings program for retirement were more confident about their retirement.

Table 2

#### Process Outcome: Retirement Confidence

Retirement Confidence Item	Group Mean		T-value(Sig.)
	1	2	
1. Overall Confidence	3.06	2.42	9.02 (.000)
2. Doing a good job of preparing financially for retirement	3.16	2.37	11.77(.000)
3. Will have enough money to take care of medical expenses when retire	2.82	2.22	7.88 (.000)
4. Will have enough money to take care of basic expenses during retirement	3.30	2.70	9.42 (.000)
5. Will have enough money to support retirement, no matter how long I live	2.99	2.41	8.31(.000)
6. Have figured out how much will be needed for comfortable retirement	.60‡	.20‡	9.61(.000)

Note: Group 1 is composed of those who had investment or savings program and group 2 is composed of those who did not have such programs. Means for first five items were calculated from the following answer categories 4 = very confident, 3 = somewhat confident, 2 = not too confident, and 1 = not at all confident. ‡ Means for item 6 were from 1 = yes, 0 = no, therefore, should read as a percentage of who answered yes.

### **Discussion and Conclusion**

One of the most pressing concerns for family and consumer economists involves the retirement preparedness of average Americans, and how policies can be enacted to improve the retirement well-being and confidence of individuals. This research proposed a model that can be used to explain and examine the decision involved when establishing a retirement investment or savings program and its outcomes. With the model, an understanding and examination of the process of retirement preparedness can be more effectively accomplished because of the specification of related variables and outcomes. Therefore, practitioners in the retirement planning area, researchers, and educators can acquire useful information through the model and in tests of the model. For future research, however, the expansion of variables is recommended. For example, for work environment influences, additional variables such as employer size, work atmosphere, and impact from other employees can be included.

This research also examined the related factors of having a retirement investment or savings program using 1999 RCS data. Findings showed that people with higher attained education, higher income, a lower number of

financial dependents, favorable financial attitudes, and those who are exposed to workplace financial education, were more likely to have a retirement investment or savings program.

These findings are useful because they offer an insight into ways family and consumer economists can influence retirement preparedness. For example, family and consumer economists can help individuals to improve financial behaviors and attitudes by providing education, information, and other services. As the findings suggest, workplace financial education significantly increases the likelihood of having a retirement investment or savings program. Family and consumer economist can actively participate in the improvement of public awareness towards the importance of workplace financial education by contributing to education initiatives at the workplace.

It was also determined that having an investment or savings program for retirement can be a first step in increasing retirement confidence. Therefore, to improve retirement well-being and retirement confidence, efforts to increase an individual's participation in a retirement investment or savings program can be effective. Family and consumer economists can play an important role in improving retirement well-being through (a) financial education via different settings, including the workplace; (b) research efforts to specify models that can be used by practitioners; and (c) outreach efforts to increase public awareness of the importance of retirement issues. Finally, replication of this study to broader populations and further tests of the model is recommended. The development of the model to fully explain the process of the decision to establish a retirement investment or savings program and its outcomes, is also recommended.

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### Endnotes

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