

**IGNORANCE IS NOT BLISS:
THE IMPORTANCE OF FINANCIAL EDUCATION**

**Madeleine B. d'Ambrosio
Executive Director
TIAA-CREF Institute**

Presented to

**Contractual Savings Conference:
Supervisory and Regulatory Issues in Private Pensions and Life Insurance**

Sponsored by

The World Bank

Washington, DC

November 3-7 2003

Individuals are being required to assume greater responsibility for managing their own retirement plans. For many workers, financial knowledge is the key to successfully achieving their retirement objectives. It seems obvious that increased financial awareness would be beneficial to individuals as they develop their retirement plans. However, the linkage between financial education and the likelihood of achieving retirement goals has gone virtually unexplored. A fundamental question confronting individuals and employers is whether financial education programs are cost effective methods of improving retirement planning.

DOES FINANCIAL EDUCATION INFLUENCE RETIREMENT SAVING?

If individuals have insufficient knowledge concerning the saving process, they are unlikely to be able to make optimal retirement plans. A lack of financial education may result in workers starting to save too late in life and saving too little to reach their retirement goals. As a result, they are unlikely to achieve the desired balance between consumption while working and consumption in retirement. In addition, a lack of information concerning the risk-return distribution of various investments might lead workers to misallocate their retirement portfolios.

Recognizing this lack of financial knowledge, many employers now provide financial education for their workers.¹ This may consist of written communications explaining company retirement and other benefit plans, general information on economic conditions, on-line benefit calculators, seminars led by in-house staff, benefit providers, or third parties, and other types of programs.² Some firms also provide partial subsidies to their employees for the development of a financial plan.

Relatively few studies have attempted to estimate the effectiveness of these programs in altering retirement goals or retirement saving. Bayer, Bernheim, and Scholz (1996) estimated that workers employed by firms that offered financial education programs had higher participation rates in and contribution rates to 401(k) plans compared to firms that did not provide such programs.³ Their analysis indicated that seminars were the most effective type of communication.⁴ Clark and Schieber (1998) examined employment records gathered by Watson Wyatt Worldwide from 19 firms covering over 40,000 employees. Company-provided written communications to workers played a significant role in increasing the probability of participating in a 401(k) plan and in increasing the contribution rate to that plan.⁵

Lusardi (2000) found that individuals who did not plan for retirement had lower net wealth and they were less likely to invest in assets with higher expected returns such as equities. Lusardi (1999) concluded that extensive information was needed to plan adequately for retirement and the financial education programs were important to the planning process. Madrian and Shea (2001) examined the administrative records of a large employer in the health care and insurance industry. In 2000, the company offered one-hour financial education seminars at 42 different sites. Individuals who attended a seminar increased participation in the 401(k) plan and they tended to have greater diversification in their retirement plan portfolios after the seminar.⁶

The general conclusion of this limited literature is that financial education provided by employers can increase retirement saving and potentially alter the investment of retirement funds. The mechanism for how education alters retirement saving and investment decisions is unclear.⁷

RESEARCH METHODOLOGY

This analysis is based on information obtained in three surveys of participants in TIAA-CREF Financial Education Seminars. Survey One was given to participants at the beginning of the seminar, Survey Two was completed at the end of the seminar before participants left the room. Survey Three was sent to participants about three months after the seminar. Survey One asked participants to indicate their retirement goals, to provide information on current retirement saving behavior, and to provide baseline demographic and employment data. After completing the survey, individuals participated in a seminar for approximately one hour. Seminars included information on setting retirement goals, employer-provided saving plans, the risk and return characteristics of various asset classes, investment choices available, and the amount of annual saving needed to achieve certain retirement income objectives. At the conclusion of the seminar, participants were asked to complete Survey Two. In this survey, respondents were asked to indicate whether on the basis of the information provided in the seminar, they had changed their retirement goals or whether they now intended to change their retirement saving behavior. Survey Three was sent to participants about three months after their participation in the seminar either by e-mail or through the U.S. mail. The survey is similar in content to Survey Two but asks what actions have actually been taken.

The research project was based on seminars conducted from March 2001 to May 2002. Thirty-six seminars at 24 institutions along with 24 community-based seminars in 8 different locations were included in the study. Surveys One and Two were completed by 633 respondents.⁸ Of these, 110 individuals also completed Survey Three. The sample in the first two surveys was reasonably diverse and was not limited to members of

university faculties. The average age of the sample was 54 and just over half of the respondents were female. The distribution of educational attainment was 11 percent with a high school degree, 25 percent with a college degree, 31 percent with a master's degree, 27 percent with a doctoral degree, and 6 percent with a professional degree. Mean annual household income was \$102,677 with \$63,786 coming from the respondents' earnings. Average number of years of service with the current employer was 15.

The basic pension plan for 82 percent of the respondents was a defined contribution plan. The average account balance was \$349,786 with 64 percent of the balance invested in equities. The mean employee contribution to these plans was 7.5 percent while the average employer contribution was 8.9 percent. New contributions were also almost 59 percent invested in equities. More than 49 percent of the respondents were making contributions to a supplemental tax deferred retirement plan. The average account balance for those with a supplemental plan was \$109,016 with 69 percent of these assets invested in equities. The mean contribution to these plans was \$5,546 or 9.2 percent of salary. For a more detailed description of the surveys and the respondents, see Clark and d'Ambrosio (2002) and Clark, et al (2003, 2004).

Workers must decide at what age they want to retire and how much income they desire in retirement relative to their final earnings. In order to achieve these retirement goals, individuals must decide how much to save and how to invest their retirement funds. The key question is whether financial education results in workers altering their retirement goals and/or their retirement saving behavior. Comparing the responses in Surveys Two and Three to those in Survey One we are able to determine whether individuals altered their retirement goals after participating in the seminar and to estimate

how changes in retirement goals vary across individual characteristics. Next, we examine whether individuals modified their saving by increasing voluntary contributions to existing supplemental retirement plans, opening new supplemental plans, and changing how they invest new contributions and existing account balances.

RESPONSES TO FINANCIAL EDUCATION

The response to any educational program depends on how the participants view the quality of the information and whether the program has provided useful new information. In general, participants in the TIAA-CREF seminars thought they had been part of a high quality program with 36 percent of the respondents rating the seminar as excellent and 54 percent good. In response to the statement that the seminar had improved their understanding of the need for retirement saving, 32 percent strongly agreed with the statement and 58 percent agreed with the statement. Respondents also indicated that they now had a greater likelihood of achieving their retirement goals. The surveys indicated that many individuals had altered their retirement goals and intended to change their savings behavior so that they would have a higher probability of achieving these goals.

Initial Retirement Goals

Prior to the seminar, the mean desired retirement age was 64 and respondents had an average retirement income goal of 80 percent of pre-retirement earnings. However there was considerable variation in participants' retirement goals. About 40 percent of the respondents set their age goals between age 60 and age 64, but some had retirement age goals as young as age 50. To explain the differences in retirement ages across participants we estimated a logit probability model.⁹ The results showed that pre-seminar

desired retirement ages varied across demographic groups. Compared to men, women planned to retire at younger ages. For example, females were 14 percentage points more likely to set a retirement age goal younger than 65. Participants under the age of 45 and married individuals were also planning to retire at younger ages while respondents with children tended to set older retirement ages. Those without advanced graduate and professional degrees reported younger desired retirement ages. Secretarial, clerical, and maintenance personnel were more likely to want to retire at younger ages than teaching and professional employees. Participants working with financial advisors planned to retire earlier than those who weren't (Clark, et al, 2003).

Almost half of participants had retirement income goals between 65 and 85 percent of pre-retirement income. About one fifth of the sample had income goals of less than 65 percent of final earnings while 35 percent set goals of over 85 percent. The probability of seminar participants setting retirement income goal less than 65 percent, between 65 and 85 percent, or over 85 percent was estimated as a function of individual and household characteristics using a logit probability model. Participants younger than age 45 were 10 percentage points more likely to set income replacement goals greater than 85 percent. Respondents with children were 7 percentage points more likely to set income goals less than 65 percent. Employees with more years of service tended to have higher target levels of income in retirement. Individuals with higher earnings were more likely to set relatively low-income replacement goals compared to those with lower earnings. For example, workers earning \$60,000 were one percentage point more likely to set income goals less than 65 percent than persons earning \$50,000. Respondents who

were the sole income earner in their households were 9 percentage points more likely to have income goals below 65 percent.

Did participants alter their retirement goals and/or their retirement savings behaviors after attending the seminar? Comparing the responses in Survey Two to those in Survey One, we were able to determine whether individuals altered their expected age of retirement or their desired level of income in retirement or changed their saving plans. We then estimated how these responses vary across individuals.

The seminar may have provided participants with new information concerning how much money is needed to equalize consumption in retirement with that during the final working years, the basic mathematics of retirement saving, and the risk-return characteristics of investment alternatives. If this is new information or a timely reminder of the need to reassess their position, participants could be expected to reconsider their retirement plans and alter their savings behavior. A comparison of responses given in Survey Two after the seminar to those selected prior to the seminar indicated how participants immediately adjusted their retirement goals and planned to alter savings behavior based on this information.

One third of respondents altered either their income goal or their retirement age goal. In both cases, respondents were more likely to raise these goals. Only 6 percent of the participants changed both goals after the seminar while 22 percent changed only their income goal and 6 percent changed only their retirement age goal. Compared to changes in retirement goals, a much higher proportion of participants indicated that they planned to alter their saving behavior. Ninety one percent of respondents reported that they anticipated making some changes in their retirement saving plans. These changes

include increasing contributions to tax deferred accounts or altering their investment allocations. These expected changes imply that after the seminar, most participants anticipated making some changes in their planned lifetime pattern of work, retirement, consumption, and saving. Thus, we conclude that these seminars provided important new and usable knowledge for the participants.

Altering Retirement Goals

A small percentage of respondents changed their desired retirement age while over a quarter of participants altered their retirement income goal. After the seminar, 7 percent of the sample reported having increased their retirement age goal by an average of three years and 4 percent of respondents reduced this goal by an average of 4 years. As one might expect, a larger proportion of people with relatively low initial desired retirement ages tended to increase expected retirement age. For example, 15 percent of participants with pre-seminar retirement age goals younger than age 60 indicated that they had raised their retirement age goal. The average increase was over four years. In contrast, only 2 percent of those with an initial retirement age goal greater than age 65 indicated an older retirement age after the seminar. The tendency to lower retirement ages was greatest for participants whose pre-seminar retirement age goal was 65. On average, they lowered their age goals by 5 years (see Table 1).

The results of a logistic probability model explaining how these changes in retirement age goals varied across individuals are reported in Table 2. Compared to older seminar participants, respondents under age 45 were less likely to raise their desired retirement ages. Individuals without advanced degrees were more likely to raise their

target ages of retirement while secretarial, clerical, and maintenance workers were more likely to lower their retirement ages.

There was a much greater tendency to adjust retirement income goals (see Table 3). About one fifth of respondents increased their income goal while another 8 percent decreased their income objective. Over one third of the participants who set an income goal less than 65 percent before the seminar revised their retirement income goal upward by an average of 19 percentage points. This finding suggests that based on the information provided in the seminar these individuals determined that their goal was too low and that they should attempt to achieve a higher standard of retirement consumption. About one fourth of those with pre-seminar goals of between 65 and 85 percent revised their retirement income goal upward while less than 5 percent of those with initial targets greater than 85 percent revised their income goals upward. People with higher initial retirement income goals were more likely to revise their income targets downward.

The results of a logit probability model explaining these changes in income goals are shown in Table 4. Women were 6 percentage points more likely to increase their income goal than men. Participants with higher earnings were also more likely to raise their desired income replacement rates. Compared to respondents earning \$50,000, persons earning \$60,000 were one percentage point more likely to have increased their income goals. Individuals with defined benefit plans were 12 percentage more likely points to raise their income goals.

Change in Retirement Saving Behavior

On the basis of the information provided in the seminar, respondents indicated that they planned to be more active in planning for their retirement. Forty percent of those

who did not have a supplemental pension plan said that they planned to establish one with their employer. Among respondents that currently had a supplemental plan, 37 percent stated that they would increase their contributions to them. After completion of the seminar, 29 percent of the respondents stated that they planned to open a new individual retirement account (IRA) or increase their contributions to an existing IRA.

To further examine these changes in savings behavior we estimate two logistic models:

1. If the respondent had not previously established a supplemental retirement plan, did they plan to do so? and
2. If the respondent already had a supplemental plan, did they plan to increase their contributions to that plan?

Each choice is estimated as a function of household and personal characteristics. The results are in Table 5.

Respondents with defined benefit plans were 30 percentage points more likely to report that they wanted to start a new supplemental plan compared to respondents in basic defined contribution plans. Compared to younger individuals, respondents aged 60 and older were less likely to want to start a new plan. Women were 22 percentage points more likely to report that they planned to start a new supplemental plan, and married respondents had a 28 percentage points higher likelihood than others of wanting to start a new plan. As one might expect, individuals with longer-term savings horizons were more likely to report that they now wanted to establish a supplemental plan. Individuals who have worked for their current employer for less than five years are more likely to have indicated that they will establish a new supplemental retirement plan.

The second column of Table 5 reports the probability of increasing contributions to a supplemental plan for participants who had such plans prior to the seminar. Compared to respondents age 45 to 59, individuals age 44 or younger were 17 percentage points more likely to report that they were going to increase their contributions to their supplemental plan after participating in the seminar. Those 60 and older were 29 percentage points less likely to indicate a desire to increase their contributions. Once again women had a greater likelihood of wanting to increase contributions than men did. Secretarial, clerical, and maintenance workers had a much higher desire to increase contributions after the seminar than did faculty, other professionals, and administrators.

These results indicated significant differences in the reaction of individuals to the information presented in the seminars. As one might expect, younger workers were more likely to indicate that they planned changes in their retirement savings. Perhaps the seminar showed them the power of compounding returns and the payoff to saving earlier in life. Women, and individuals employed in secretarial and maintenance positions were also more responsive to the information provided. This may reflect a greater gain in knowledge concerning saving and financial markets among these individuals or simply a different reaction to the same gain in knowledge.

Change in Investment Behavior

In addition to changing their saving rate, some individuals may choose to alter their choices of asset class in their pension accounts. Ten percent of all respondents with basic defined contribution plans indicated that they intended to increase the proportion of their investment in equities while 20 percent reported that they intended to increase their investment in bonds. In addition, one third of those with supplemental retirement plans

intended to change their investment allocations in those plans. The change in investment allocations is estimated separately for balances in the basic retirement plan and in supplemental plans. Women were more likely to plan to alter their investment allocations, especially in their supplemental plans, than men were. Married individuals had a higher probability of changing their investment patterns in both plan types. Those with basic defined benefit plans were less likely to indicate a desire to reallocate their investment allocations in their supplemental plans. Respondents attending a financial seminar for the first time were more likely, after the seminar, to plan to reallocate their investments.¹⁰

GENDER DIFFERENCES

Our analysis consistently indicated that female respondents entered the seminars with different retirement goals and different levels of retirement saving and that women were more likely to alter goals and behavior after the seminar.¹¹ Prior to the seminar, women had a slightly lower expected retirement age (63 years compared to 64 years for the men) and a lower desired income replacement rate of 79 percent compared to 80 percent for the male respondents. Before they have participated in the seminar, women had less confidence in their abilities to attain these retirement goals. On a scale of one to ten, women indicated that they had a 6.7 confidence level in being able to retire at the desired age but only a 5.7 confidence level in their ability to achieve the retirement income goal. In comparison, the men had confidence levels of 7.7 on their retirement age goal and confidence level of 7.0 on achieving the retirement income goal.

After the financial education seminar, sixteen percent of the women modified their expected age of retirement while only 6 percent of the men reported a change in

their desired retirement ages. Women were twice as likely to increase their expected retirement age after the seminar than to lower it while men were split almost equally between those that raised and those that lowered their retirement age goal. Among women, those who had initially hoped to retire before age 65 raised their expected retirement age after learning more about financial markets and the saving process. Almost one quarter of women who had initially indicated a desired retirement age of less than 60 raised this target after the seminar and the increase was by an average of over 4 years. Regardless of their initial retirement goal, relatively few men tended to alter their expected retirement age.

In response to the new knowledge obtained in the seminar, women were also much more likely to alter their retirement income goal. Approximately 35 percent of the women changed their income target compared to only 20 percent of the men. Almost three quarters of women, who modified their goal, raised their desired income replacement rate. Almost half of those women who had initially reported a desired replacement rate of less than 65 percent of final earnings raised their retirement income goal. Similarly, men with relatively low retirement income goals were more likely to increase their desired replacement ratio after the seminar.

Women had much lower account balances in their retirement plans than did men; however, prior to the seminar, there were relatively small differences in investment choices for account balances and in the allocation of new contributions. Building on the new information provided in the seminar, women were much more likely to increase their retirement saving and alter their investment choices. Among persons without a supplemental retirement plan, 48 percent of the women but only 33 percent of the men

indicated that they would establish such a plan in the future. Among persons who already had a supplemental plan, 53 percent of women compared to only 33 percent of the men were planning on increasing their annual contributions. Women were also more likely to report that they were going to alter their investment choices in both basic and supplemental pension plans. Statistical tests, reported in Clark et al (2004), confirm that there are significant differences in how men and women responded to the financial education seminars.

ACTUAL AND INTENDED CHANGES

Responses to Survey Two provided information on respondents' desire to change their saving behavior while in Survey Three individuals were asked to report whether they actually had altered their savings behavior in the first few months following the seminar. We received 110 completed questionnaires or only 17 percent of the 633 respondents who completed Surveys One and Two. The substantial decline in the number of respondents is due to several factors including: (1) not all respondents provided a contact address so they could be sent Survey Three, (2) some incorrect addresses were given or individuals had moved, and (3) some simply did not want to provide the additional information requested.

In Survey One, half of the respondents reported that they did not have a supplemental retirement plan. Of these, 41 percent indicated in Survey Two that in response to the seminar they planned to establish a supplemental plan. Of the individuals who returned Survey Three and who had indicated that they planned to open a new account, 25 percent had actually established a new plan and 63 percent stated that they still intend to open a new supplemental plan. Of those who did not initially have a

supplemental plan and who indicated in Survey Two that they did not plan to open one, 72 percent reported that they had not opened a plan and still did not plan to open a plan while 22 percent now indicated that they intended to establish a supplement plan.

Among those who had pre-existing supplemental plans, 37 percent indicated in Survey Two that they were going to increase future contributions. Of these respondents who completed Survey Three, 42 percent had increased contributions. In contrast, 30 percent of those who stated that they were not going to increase contributions had actually increased their contributions to the supplemental plan. Limited follow-up was also found among those that indicated that they were going to be more active in their retirement planning. About 40 percent of individuals who said that they were going to use automated telephone services or the Internet to monitor retirement accounts reported that they had done so and only about 20 percent had used a telephone counseling center or a financial adviser since the seminar.

Responses to Survey Three indicate a substantial disconnect between the stated intent to change saving behavior immediately following the seminar and the actual actions taken in the next three months. Individuals who had stated in Survey Two that they intended to increase retirement savings but who reported on Survey Three that they had not taken any such action were asked why they had failed to fulfill their intentions. Just over one fifth replied that funds were diverted to paying off existing debts, 16 percent stated that they had lower than expected income following the seminar and thus could not increase their savings, and 16 percent replied that they had changed their minds and now did not want to increase retirement savings. However, over one third of these

respondents reported that they had simply failed to take the necessary steps to increase their retirement savings.

These findings imply that financial education programs would be more effective if they included methods that would facilitate timely changes in retirement plans or the programs included formal follow-up or reminder messages. The current results are suggestive; however, they are based on a relatively small sample of individuals who completed all three of the surveys. Further research is needed to explore the actual responsiveness of participants to educational programs, the reasons why desired actions are not taken, and what policies would increase the link between desired changes in retirement plans and the actions necessary to achieve new retirement goals.

CONCLUSIONS AND POLICY IMPLICATIONS

This project has shown that financial education can produce significant changes in how individuals think about and plan for retirement. Workers may learn that they have based their desired retirement age and income on inadequate saving behavior. Thus, many tended to revise the goals and stated that they wanted to alter their behavior. Importantly, individuals with low desired retirement ages often increased their expected retirement ages based on the information provided while those with low retirement income goals also tend to raise their income target toward a level more consistent with having retirement incomes similar to their net income while working.

Our analysis indicated that many workers intended to alter their savings behavior by opening new retirement savings plans and increasing contributions to existing plans. Presumably, they are considering making these changes to increase the likelihood that they achieve their retirement goals. Throughout this analysis, we found that women were

more likely to revise their goals and alter their behavior. Finally, we found that plans for changes in retirement savings made during the seminar were not immediately acted on by many respondents. Thus, it would be useful if arrangements are made so that participants can open new supplemental plans or alter contributions rates at the conclusion of educational programs. The ability to make on-site changes in their savings plans at the end of a seminar would tend to reduce the forces of inertia and procrastination.

The results of this study are interesting and have direct policy implications for plan sponsors and workers. The analysis indicates that financial education matters and ignorance is not bliss in the area of retirement planning. Quality educational programs encourage workers to reassess their retirement goals, to make more realistic plans, and to change their behavior in order to achieve their objectives. Follow through on plans made during a seminar remains problematic and introducing methods for immediate action would be useful additions to educational programs.

Table 1. Changes in Retirement Age Goals

	All Respondents	Less than 60	60 - 64	65	Over 65
Change	Mean	Mean	Mean	Mean	Mean
Sample Percentage		10.9	39.5	27.7	21.8
No Change (percent)	88.3	81.1	88.4	85.7	95.3
Age Goal	63.7	56.1	61.4	65.0	69.6
Raise Age Goal (percent)	7.4	15.1	8.7	6.8	1.9
New Age Goal	64.9	59.6	64.6	68.7	69.5
Amount of Increase	3.5	4.3	3.2	3.7	2.0
Lower Age Goal (percent)	4.3	3.8	2.9	7.5	2.8
New Age Goal	60.0	57.0	56.8	60.2	68.0
Amount of Decrease	-4.1	-1.0	-5.0	-4.8	-2.0

Table 2. Estimates of Changes in Retirement Age Goals

Variable	Lower Goal	No Change	Raise Goal	Significance Level
DB Plan	-0.0047	-0.0020	0.0066	0.788
Age				
Age 44 or younger	0.0366	0.0155	-0.0520	0.044
Age 45 and older				
Female	-0.0157	-0.0067	0.0224	0.230
Education				
High School Degree	-0.0524	-0.0222	0.0746	0.022
College Degree	-0.0301	-0.0128	0.0429	0.058
Graduate/Professional Degree				
Occupation				
Teaching/Research				
Professional/Technical, Other				
Administration/Management	0.0206	0.0087	-0.0294	0.157
Secretarial/Clerical				
Maintenance/Service	0.0506	0.0214	-0.0720	0.039
Household Income (% change)	-0.0001	0.0000	0.0001	0.622
Conservative/Moderate Investor	0.0246	0.0104	-0.0351	0.069
Focus of Savings				
Short Term				
Long Term				
Long Term/Short/Intermediate	-0.0182	-0.0077	0.0259	0.329
Number of Observations	19	345	26	
Percent of Sample	4.8	88.2	6.9	

Shown are the estimated marginal effects. The derivatives are evaluated at the sample means.

Table 3. Changes in Retirement Income Goals

	All Respondents	Less than 65	65-85	Over 85
Change	Mean	Mean	Mean	Mean
Sample Percentage		18.8	47.1	34.1
No Change (percent)	71.4	59.8	66.4	84.5
Income Goal	83.0	53.4	76.6	101.1
Raise Income Goal (percent)	20.4	36.8	25.3	4.8
New Income Goal	85.1	70.9	89.1	111.3
Amount of Increase	14.8	18.9	12.3	17.5
Lower Income Goal (percent)	8.3	3.4	8.3	10.7
New Income Goal	69.9	40.0	63.5	81.9
Amount of Decrease	-15.2	-19.0	-13.3	-16.7

Table 4. Estimates of Changes in Retirement Income Goals

Variable	Lower Goal	No Change	Raise Goal	Significance Level
DB Plan	-0.0486	-0.0719	0.1205	0.013
Age				
Age 44 or younger	0.0237	0.0351	-0.0588	0.247
Age 45 - 59				
Age 60 and over				
Female	-0.0258	-0.0382	0.0640	0.099
Education				
High School Degree	-0.0297	-0.0439	0.0736	0.252
College Degree	-0.0154	-0.0228	0.0382	0.389
Graduate/Professional Degree				
Annual Earnings (% change)	-0.0003	-0.0004	0.0007	0.050
Respondent Sole Income Earner	0.0204	0.0302	-0.0506	0.245
Conservative/Moderate Investor	0.0305	0.0450	-0.0755	0.050
Works with Financial Advisor	0.0131	0.0193	-0.0324	0.426
Focus of Savings				
Short Term				
Long Term	0.0480	0.0710	-0.1191	0.006
Long Term/Short/Intermediate				
Number of Observations	29	272	79	
Percent of Sample	7.6	71.5	20.7	

Shown are the estimated marginal effects. The derivatives are evaluated at the sample means.

Table 5. Estimates of Changes in Retirement Savings Behavior

Variable	Plans to Establish Supplemental Plan	Plans to Increase Contributions to Supplemental Plan
DB Plan	0.2992 (0.024)	0.0451 (0.579)
Age		
Age 44 or younger	-0.0637 (0.541)	0.1731 (0.095)
Age 45 - 59		
Age 60 and over	-0.2065 (0.049)	-0.2936 (0.001)
Female	0.2219 (0.019)	0.1392 (0.053)
Married	0.2827 (0.014)	0.0497 (0.587)
Occupation		
Teaching/Research		
Professional/Technical, Other	0.0871 (0.330)	0.1470 (0.045)
Administration/Management		
Secretarial/Clerical	0.0465 (0.735)	0.2747 (0.033)
Maintenance/Service		
Annual Earnings (% change)	-0.0006 (0.466)	0.0005 (0.576)
Earnings % Household Income	0.0046 (0.050)	0.0013 (0.497)
Worked for Employer 5 Years or Less	0.2310 (0.033)	
Conservative/Moderate Investor	-0.0751 (0.396)	0.1404 (0.054)
Works with Financial Advisor	-0.0961 (0.269)	0.1281 (0.072)
Focus of Savings		
Short Term		
Long Term	0.2408 (0.031)	0.2012 (0.153)
Long Term/Short/Intermediate	0.3956 (0.010)	0.2510 (0.150)
Number of Observations	131	196

Shown are the estimated marginal effects. The derivatives are evaluated for each observation and averaged over the sample. Significance levels are in parentheses.

REFERENCES

- Arnone, William. 2002. "Financial Planning for Employees Post-Enron," *Benefits Quarterly*, Fourth Quarter, pp. 35-41.
- Bayer, Patrick, Douglas Bernheim, and Karl Scholz. 1996. "The Effects of Financial Education in the Workplace: Evidence from a Survey of Employers." Stanford University: unpublished paper.
- Bernheim, Douglas. 1998. "Financial Illiteracy, Education, and Retirement Savings," in Olivia Mitchell and Sylvester Schieber (eds.), *Living with Defined Contribution Plans*. Philadelphia: University of Pennsylvania Press, pp. 38-68.
- Bernheim, Douglas and Daniel Garrett. 2000. "The Determinants and Consequences of Financial Education in the Workplace: Evidence from a Survey of Households." Stanford University: unpublished paper.
- Clark, Robert and Madeleine d'Ambrosio. July 2002. "Saving for Retirement: The Role of Financial Education," TIAA-CREF Institute Working Paper 4-070102-A. Published on-line in *Retirement Implications of Demographic Family Change Symposium*, Society of Actuaries, http://www.soa.org/library/monographs/retirement_systems/m-rs02-2_tableofcontents.html.
- Clark, Robert, Madeleine d'Ambrosio, Ann McDermed, and Kshama Sawant. 2003. "Financial Education and Retirement Savings." Paper presented at *Sustainable Community Development: What Works, What Doesn't and Why*, a conference sponsored by the Federal Reserve System. Washington, March 2003. TIAA-CREF Institute Working Paper 11-020103.
- Clark, Robert, Madeleine d'Ambrosio, Ann McDermed, and Kshama Sawant. 2004. "Managing Retirement Accounts: Gender Differences in Response to Financial Education," in Olivia Mitchell and Stephen Utkus (eds.), *Developments in Decision-making Under Uncertainty*, Oxford University press, forthcoming. TIAA-CREF Institute Working Paper 12-040103.
- Clark, Robert and Sylvester Schieber. 1998. "Factors Affecting Participation Rates and Contribution Levels in 401(k) Plans," in Olivia Mitchell and Sylvester Schieber (eds.), *Living with Defined Contribution Plans*. Philadelphia: University of Pennsylvania Press, pp. 69-97.
- Lusardi, Annamaria. 1999. "Information, Expectations, and Savings for Retirement," in Henry Aaron (ed.), *Behavioral Dimensions of Retirement Economics*. Washington: Brookings Institution and Russell Sage Foundation, pp. 81-115.

Lusardi, Annamaria. 2000. "Saving for Retirement: The Importance of Planning," *Research Dialogue*, No. 66. New York: TIAA-CREF Institute.

Madrian, Brigitte and Dennis Shea. 2001. "Preaching to the Converted and Converting those Taught: Financial Education in the Workplace." University of Chicago unpublished paper.

Maki, Dean. 2001. "Financial Education and Private Pensions," paper presented at the Conference on Public Policies and Private Pensions at the Brookings Institution, September 21-22, 2001.

ENDNOTES

This paper is based on a two-year research project with Robert L. Clark of North Carolina State University and forthcoming in TIAA-CREF *Research Dialogue*. I acknowledge the cooperation of numerous TIAA-CREF consultants who administered the surveys in conjunction with seminars around the country and would like to thank Pirie McIndoe, Al Gonzalez, and Brian Usischon of the TIAA-CREF Raleigh-Durham office for their assistance in pre-testing the surveys and Robert Romano for his efforts in coordinating the integration of the surveys with the financial educational seminars. Paul Mulvey assisted in the development of the surveys, Juanita Kreps contributed to the development of the overall research design, and Kshama Sawant and Ann McDermed were collaborators and co-authors in the research. Research by Clark and Sawant was supported by a grant from the TIAA-CREF Institute.

¹ Arnone (2002) estimates that 40 percent of employers with more than 1,000 employees offer some type of educational program; however, he believes that only half of these companies provide a high quality educational program. He defines such a program as “an employer-paid program available throughout the year during working hours and including both education that is custom tailored to the employer’s specific benefit plans and counseling that is individualized to each employee.” It is his assessment that most of the 42 million participants in 401(k) plans are in effect “on their own” as they plan for retirement.

² Some of the programs are provided with the specific goal of increasing participation and contribution levels to help the company meet nondiscrimination standards.

³ This analysis is based on the KPMG Peat Marwick Retirement Benefits survey. Other studies using this survey include Bernheim (1998), Bernheim and Garrett (1996), and Bernheim and Garrett (2000).

⁴ Sponsorship of financial education seminars was associated with a 12 percentage point increase in the participation rate of nonhighly compensated workers and a six percentage point increase among highly compensated employees. Company sponsored retirement seminars produced a one percentage point increase in the contribution rate of the nonhighly compensated and no significant increase among highly compensated employees. This increase in the contribution for nonhighly compensated is quite large given that the average contribution rate for these employees is only 3 percent.

⁵ Providing written documents to workers about retirement savings increased the probability of participating in the 401(k) plan between 15 and 21 percentage points. In addition, they found that the provision of information concerning the company’s 401(k) plan increased the annual contribution rate by two percentage points while generic financial and economic information did not have any significant influence on the contribution rate.

⁶ Their estimates indicated that there are small but statistically significant effects of attendance at financial education seminars. However, most seminar participants made no changes in their savings behavior. It is important to note that the authors had a very short post-seminar period of observation.

⁷ Maki (2001) provides three possibilities. First, financial education could increase household savings by causing the family to reduce its discount rate. Second, increased knowledge could lead the household to become less risk averse and thus increase investment in assets with a greater level of risk and expected return. Finally, financial education programs could change the household’s knowledge of its investment choice set. Maki dismisses the first two possibilities and argues that greater knowledge of what is possible is the primary mechanism through which these programs alter household decision-making.

⁸ In total, 2,157 people attended part or all of these seminars and 725 individuals completed some parts of the two surveys for a response rate of 34 percent. The sample included in the analysis contains 633 usable surveys in which participants completed both survey one and survey two. It is important to recognize that some individuals arrive after the seminar has begun and are not given either of the surveys. In addition, some participants who have completed Survey One leave the seminar early and do not complete Survey Two.

⁹ In this specification, the probability of seminar participants setting retirement age goals younger than age 60, between ages 60 and 64, age 65, or over 65 is a function of individual and household characteristics. The demographic characteristics include age, gender, marital status, and children. Human capital variables are education, occupation, and years of service with their employers. Measures of financial resources are household income, whether respondents are the sole income earners in their households, and whether their basic pension plans are defined benefit. Finally to control for potential differences in financial knowledge before the seminar an indicator variable for whether or not they worked with a financial advisor is included. The marginal effects estimate the change in the probability of observing an individual reporting an expected retirement age in each of the four age groups given a change in each characteristic holding the other characteristics constant at the sample means. The model is ordered. This means that more of attributes with positive effects on the desired retirement age increase the probability of being in the older age groups and decrease the probability of being in the younger age groups. Because the probabilities across the four age groups add to one, the marginal effects sum to zero for each characteristic.

¹⁰ For a more detailed discussion of these results, see Clark et al (2003).

¹¹ For a detailed discussion of these results, see Clark et al (2004).