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HOUSEHOLD SAVING BEHAVIOR:  
THE ROLE OF FINANCIAL LITERACY, INFORMATION, AND FINANCIAL EDUCATION PROGRAMS

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Household Saving Behavior: The Role of Financial Literacy, Information, and Financial Education Programs

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**ABSTRACT**

Individuals are increasingly in charge of their own financial security after retirement. But how well-equipped are individuals to make saving decisions; do they possess adequate financial literacy, are they informed about the most important components of saving plans, do they even plan for retirement? This paper shows that financial illiteracy is widespread among the U.S. population and particularly acute among specific demographic groups, such as those with low education, women, African-Americans, and Hispanics. Moreover, close to half of older workers do not know which type of pensions they have and the large majority of workers know little about the rules governing Social Security benefits. Notwithstanding the low levels of literacy that many individuals display, very few rely on the help of experts or financial advisors to make saving and investment decisions. Low literacy and lack of information affect the ability to save and to secure a comfortable retirement; ignorance about basic financial concepts can be linked to lack of retirement planning and lack of wealth. Financial education programs can help improve saving and financial decision-making, but much more can be done to improve the effectiveness of these programs.

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## **1. Introduction**

Individuals are increasingly in charge of their own financial security after retirement. With the shift from Defined Benefit (DB) to Defined Contribution (DC) pensions, workers have to decide not only how much to save for retirement but also how to allocate their pension wealth. Moreover, the complexity of financial instruments has increased and individuals have to deal with new and more sophisticated financial products. How well-equipped are individuals to make saving decisions? Do they possess adequate financial literacy? Are they informed about the most important components of saving plans? Do they even plan for retirement?

This paper shows that a large percentage of workers have not thought about retirement, even when retirement is only five to ten years away. Consistent with the evidence on lack of planning, half of older workers know little about their pensions and the rules governing Social Security benefits. Moreover, most individuals lack knowledge of basic financial concepts, such as the working of interest compounding, the difference between nominal and real values, and the basics of risk diversification. Financial illiteracy is widespread among the general population and particularly acute among specific demographic groups, such as women, African-Americans, Hispanics, and those with low education. Notwithstanding the low levels of literacy that many individuals display, very few rely on the help of experts or financial advisors to make saving and investment decisions.

Low literacy and lack of information affect the ability to save and to secure a comfortable retirement; ignorance about basic financial concepts can be linked to lack of retirement planning and lack of wealth. Several initiatives have been undertaken to foster saving and financial security, such as educating workers to improve their financial literacy and knowledge about pensions, automatically enrolling workers in pension plans, and simplifying workers' pension

enrollment decisions. While these programs have had some impact on saving behavior, much more can be done to improve their effectiveness.

The paper is organized as follows: Section 2 provides an overview of the difficulties inherent in saving decisions; Section 3 examines the evidence on retirement planning, workers' knowledge of pension and Social Security, financial literacy, and reliance on the advice of experts. Section 4 reviews the current initiatives to foster saving and financial security, covering financial education programs, automatic enrollment of workers in pension plans, and other programs. Section 5 provides a discussion of the major findings and suggestions for public policy.

## **2. Theoretical framework**

The theoretical framework used to model consumption/saving decisions posits that rational and foresighted consumers derive utility from consumption over their lifetimes. In the simplest format, the consumer maximizes a lifetime expected utility subject to an inter-temporal budget constraint. According to this model, lifetime resources, the distribution of these resources, and age play a critical role in saving decisions. Thus, those facing an upward-sloping age-income profile will borrow when young to smooth their consumption over the life cycle. Similarly, those who have rich pensions may not need to accumulate a lot of extra private savings to provide for themselves when they stop working. Preferences, such as the rate of time preference, also play an important role. Those who place high value on the present will consume more today than individuals who discount the future less heavily.

However, even in this most basic formulation of the saving decision, the requirements for making saving decisions are demanding: Individuals have to collect and make forecasts about

many variables in the future, from Social Security and pensions to interest rates and expected inflation, to name just a few. Moreover, they have to perform calculations that require, at minimum, an understanding of compound interest and the time value of money.

While the majority of studies have focused on modeling lifetime resources and preferences in the way that best captures characteristics of individuals and the economic environment, including the fact that predictions about the future are uncertain,<sup>2</sup> few studies have recognized that making saving decisions is a very difficult task. Individuals may have to spend considerable time and effort searching for all the information required to make saving decisions. Moreover, individuals may not possess the skills and ability to perform the calculations inherent in devising a saving plan.

This paper focuses on how much individuals plan for retirement, what they know about the variables that should influence a saving plan, and the level of financial knowledge and numeracy that they possess. While many of these characteristics have been overlooked in previous works on saving, they are important predictors of household saving behavior.

### **3. Planning, information, financial literacy, and financial advice**

#### **3.1. Do individuals plan for retirement?**

One simple and direct way to examine whether, consistent with the predictions of theoretical models of saving, individuals look ahead and make plans for the future is to study the extent of retirement planning. Lusardi (1999) looked at that evidence using data from the 1992 Health and Retirement Study (HRS), which surveys respondents 51 years or older. She found that as many as one-third of respondents have not thought about retirement at all. While some of

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<sup>2</sup> See Scholz, Seshadri, and Khitatrakun (2006) and the references therein.

this behavior may be perfectly rational,<sup>3</sup> it is nevertheless surprising that the majority of older respondents have not given any thought to retirement, even when they are only five to ten years away from it. Lack of planning is concentrated among specific groups of the population, such as those with low education, African-Americans, Hispanics, and women. These are potentially vulnerable groups, who are not only less likely to save for retirement, but who also do not have a minimum level of savings to buffer themselves against shocks (Hubbard, Skinner, and Zeldes, 2005).

These findings are not specific to a particular time period. Notwithstanding the many changes in the economic environment, including the increased supply of financial products to facilitate planning, lack of planning is still prominent among the current population of older respondents. Using data from the 2004 HRS and concentrating on respondents who are 51 to 56 years old, Lusardi and Mitchell (2007a) find that close to 30% of respondents also have not given any thought to retirement.

To make a tighter connection with the theoretical framework for saving described above, Lusardi and Mitchell (2006) devised a special module on planning that was added to the 2004 HRS. In that module, they specifically asked respondents whether:

*they have ever tried to figure out how much their household would need to save for retirement.*

To those who answered affirmatively to this question, they further asked whether:

*they were able to develop a plan.*

and to those who did so, they asked whether:

*they were able to stick to a plan.*

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<sup>3</sup> For example, some individuals may not benefit from planning because they face a very uncertain income or have been hit by many shocks. Others may desire to never stop working. This is particularly the case for self-employed and business owners (Lusardi, 2003).

This module has the advantage of measuring different types of planners, from those who merely tried to calculate their saving needs (*simple planners*) to those who were able to develop and carry through on their plans (*committed planners*). Findings are not much different when using this alternative, and perhaps more appropriate, measure of planning: As many as 31% of older respondents in the HRS module do not plan for retirement. However, the percentage of planners decreases significantly when moving from simple to committed planners: Only 18% of respondents were able to develop a saving plan and stick to it. This finding underscores the fact that not only have many families never attempted to devise a saving plan, but even among those who do plan, many did not follow through. In other words, few people make saving calculations and saving plans and even fewer succeed in implementing those plans.

These findings regarding lack of planning have been confirmed in other surveys. For example, using data from a representative sample of U.S. workers from the Retirement Confidence Survey (RCS), Yakoboski and Klemperer (1997) report that only 36% of workers have tried to determine how much they need to save to fund a comfortable retirement. However, many of the workers who have done the calculation could not give a figure when asked. Thus, according to this survey, as many as three-quarters of workers have little idea how much money they need to accumulate for retirement. Moreover, consistent with the finding of Lusardi and Mitchell (2007a), the data from the RCS also show that the fraction of non-planners has not changed much over time (RCS, 2001). While planning is strongly correlated with education, a sizable fraction of non-planners is present even among respondents with high educational attainment (Ameriks, Caplin, and Leahy, 2003).

Planning is an important determinant of household wealth. Table 1 reports the distribution of household wealth holdings across different degrees of planning for two groups of

households of the same age but in different time periods: the Early Baby Boomers (age 51–56 in 2004) and the Older Cohort (age 51–56 in 1992).<sup>4</sup> Planners have substantially more wealth than non-planners. Looking at the medians, planners accumulate more than double the amount of wealth of non-planners. Differences are even larger at the first quartile of the wealth distribution. For many, lack of planning is tantamount to lack of saving. However, there is not much difference in the means. This is due to the fact that there are several wealthy households who have not given any thought to retirement. Note that even a little planning goes a long way toward high wealth holdings; those who have thought “little” about retirement hold substantially more wealth than those who have thought “not at all” about retirement.

These findings hold true not only for the Older Cohort in 1992, but also for the Early Baby Boomers in 2004. Thus, the relationship between planning and wealth did not seem to be influenced by changes in financial markets (including the bust in the housing market in 1991, the boom in the housing market before 2004, and the boom and bust in stock prices) and changes in the supply of products to foster financial planning, including the many financial education programs undertaken by employers throughout the 1990s.

{Table 1 about here}

These statistics do not demonstrate yet that planning leads to higher wealth. Because lack of planning is disproportionately concentrated among specific demographic groups, it may simply be a proxy for low education and low income. Moreover, those who have high wealth may also have an incentive to spend time and effort in planning, since they may benefit more from planning than households with little or no wealth. On the other hand, wealthy households may not need to give much thought to retirement.

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<sup>4</sup> Household wealth is the sum of checking and savings account balances, certificates of deposits and T-bills, bonds, stocks, IRAs and Keoghs, home equity, second homes and other real estate, business equity, vehicles, and other assets, minus all debt. All values are expressed in 2004 dollars. For more detail, see Lusardi and Mitchell (2007a).

Lusardi (1999) accounts for many determinants of wealth, using a long set of demographic characteristics including education, gender, race, and marital status, and also a host of variables that proxy for preferences (risk aversion and rate of time preferences), subjective expectations about the future, past negative and positive shocks to wealth, and other motives for low wealth holdings (a weak precautionary and bequest motive). She finds that planning continues to be a determinant of wealth even after accounting for many other reasons why wealth may be low. According to her estimates, at the mean, those who do not plan hold from 10 to 15 percent less wealth than those who plan.

However, as mentioned before, differences are particularly large at the first and second quartile of the wealth distribution rather than at the means. Table 2 reports quantile regressions of the effects of lack of planning on the wealth holdings of the Older Cohort and the Early Baby Boomers and Figure 1 illustrates how lack of planning varies across the wealth distribution. Lack of planning is a dummy equal to one for those who have not thought at all about retirement. For simplicity, the regressions only include the most important demographic characteristics—age, marital status, education, race and ethnicity, gender, number of children, retirement status—and income. The coefficient on lack of planning is always negative and statistically significant for each of the three wealth quartiles, indicating that those who do not plan hold lower amounts of wealth. Estimates are not only sizeable but also very similar between cohorts. Looking at medians, non-planners accumulate from \$17,000 to \$20,000 less wealth than those who do some (a little/a lot of) planning, which corresponds to about 20 percent less wealth.

{ Table 2 about here }

Figure 1 shows that the effect of lack of planning remains negative throughout most of the wealth distribution. However, the sign of the estimates reverses as we move close to the top

of the wealth distribution. Among Early Baby Boomers, as we move past the third quartile of wealth, the effect of lack of planning first becomes insignificant and then positive rather than negative. Thus, many wealthy households do not plan for retirement. The same is true for the older cohort, even though the sign reversal happens at higher percentiles of the wealth distribution. In other words, there is a lot of heterogeneity in the effect of planning on wealth and mean estimates may severely underestimate the effect of lack of planning.<sup>5</sup>

{Figure 1 (panel a and b) about here}

The important question, however, is whether there is a causal relationship between planning and wealth. In other words, if someone were to begin planning tomorrow, would he or she end up with a larger amount of wealth because of it? Lusardi (2003) performs a regression similar to the one reported in Table 2, but instrumenting lack of planning with variables measuring planning costs. Specifically, she uses the age difference between the respondent and his older siblings as an instrument for planning. Those who have older siblings face lower search and information costs, because they can learn simply by observing the behavior of their siblings. Do those who face lower planning costs, and can therefore plan more, accumulate higher amounts of wealth? The answer is affirmative; not only is the effect of planning confirmed, but planning becomes an even stronger determinant of wealth.<sup>6</sup>

Lusardi and Mitchell (2007a) use an alternative strategy to pin down the direction of causality between planning and wealth. They look at changes in wealth outside of households' control and examine whether these changes influence the extent of retirement planning; if households were to become richer, would they plan more as a result of their greater wealth? Specifically, they exploited the increase in wealth generated by the appreciation in housing

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<sup>5</sup> For a discussion of these estimates, see Lusardi and Beeler (2007).

<sup>6</sup> For alternative instrumental variables estimates, which provide very similar results, see Ameriks, Caplin, and Leahy (2003).

equity during 2002 and 2003 and examined whether that increase in wealth led Early Baby Boomers to change their retirement planning behavior. Similarly, they examine whether the housing bust before 1992 and the resultant decrease in wealth that the Older Cohort experienced at the beginning of the 1990s changed the planning behavior of the Older Cohort.<sup>7</sup> In both cases, they do not find any evidence that this change in wealth influenced planning, confirming that the direction of causality goes from planning to wealth rather than from wealth to planning.

Why does planning have such a powerful effect on wealth? As argued later, non-planners lack basic financial literacy. The financially illiterate are less likely to invest in high-return assets, such as stocks (van Rooij, Lusardi and Alessie, 2007). This would lead to low savings, when combined with an elasticity of intertemporal substitution less than one. Others, such as Hurst (2006), argue that those who are planners are less likely to behave like “hand-to-mouth” consumers, who simply set consumption equal to income. A different explanation about how planning might affect wealth is provided by the psychological literature. Gollwitzer (1996, 1999) shows that people are more likely to achieve goals and translate their intentions into actions when they develop concrete plans. His research shows that a simple planning activity, such as getting people to write down the specific steps they will take to implement a task, can greatly increase follow-through. These findings may help explain why merely thinking about retirement can produce wide differences in retirement wealth. Moreover, it may explain the bimodal distribution of wealth observed in Table 1, and why even a little planning generates large wealth differences, as compared to those who did not think about retirement at all. If this is the case,

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<sup>7</sup> They exploit regional variation in home prices in their estimates. There is wide variation in home prices across regions in the United States. For example, while the Pacific region experienced an increase of 10.3% in 2003, the Southeast region experienced an increase of 3.6%. The Older Cohort had the opposite experience; during 1990 and 1991 the housing market experienced a bust that was particularly pronounced in the Eastern regions. See Lusardi and Mitchell (2007a) and Lusardi and Beeler (2007) for detail.

helping individuals plan for retirement or providing a planning aid may help foster wealth accumulation.

### **3.2. Lack of information**

Another way to examine whether and how much individuals prepare for retirement and plan for the future is to look at how much they know about crucial components of a saving plan. For example, two very important elements of total wealth holdings are pension and Social Security wealth. For households around the median of the wealth distribution, those two components account for about half of total wealth, and even for households at the top of the wealth distribution, the percentage of wealth accounted for by Social Security and pensions is sizable (Gustman and Steinmeier, 1999).

Earlier studies indicated that workers were woefully uninformed about their pensions and the characteristics of their pension plans (Mitchell, 1988, and Gustman and Steinmeier, 1989). Given that most pensions in the past were DB pensions and workers had to make few or no decisions about their pension contributions, lack of knowledge is perhaps not surprising. However, recent data from the HRS show that workers continue to be uninformed about the rules and the benefits associated with their pensions, despite the shift from DB to DC pensions, which has given more retirement savings responsibility to workers (Gustman and Steinmeier, 2004). The calculations underlying pensions and Social Security wealth are certainly very complex and—as for private savings—individuals do not seem to engage in these calculations. However, Gustman and Steinmeier (2004) simply compare the types of pensions that workers report they have (whether DB, DC, or a combination of both) with the reports of employers. Results are striking: Only half of older workers are able to correctly identify the plan they have. Because errors can abound not only from the reports of workers but also from the reports of firms,

Gustman, Steinmeier and Tabatabai (2007) use different sources of data, including data from Watson Wyatt, where it is possible to correctly identify the pension type from firms' data. They also study different time periods, from the 1980s (when DB plans were prevalent) to the recent period (when DC plans gained popularity). They show that it is workers who are most often erroneous and confused about the type of pensions they have.

Knowledge about Social Security is also scanty. Only 43 percent of respondents in the sample of older workers used by Gustman and Steinmeier (2004) even ventured a guess about their expected Social Security benefits, and many respondents knew little about the rules governing Social Security. Moreover, only a little more than a quarter of older respondents in the HRS have ever asked Social Security to calculate their retirement benefits (Lusardi, 2004). As noted in the Employee Benefit Research Institute report after conducting the 2007 RCS, even though it has been 24 years since legislation was passed that increased in increments the normal retirement age for Social Security, and despite 8 years of annual mailings of individual benefit statements from the Social Security Administration, only 18% of workers knew the correct age at which they would be entitled to full Social Security benefits.

Lack of information about Social Security and pensions is concentrated among low-income households, African-Americans and Hispanics, women, and those with low education (Gustman and Steinmeier, 2005). As mentioned before, these people are also less likely to be planners. Most importantly, Gustman and Steinmeier (2004) document that those who do not know their pension plan type have very low wealth relative to their lifetime earnings. Lack of knowledge may explain why households who have pensions do not save much less than households without pensions; Gustman and Steinmeier (1999) found that pension wealth does not crowd out private wealth.

Lack of knowledge and confusion are also found in regards to other, equally important financial decisions. Bucks and Spence (2007) document that households with adjustable rate mortgages, which are potentially more complex contracts to understand than fixed-rate mortgages, are either incorrect or simply do not know about the terms of their contracts. These are disconcerting results, since mortgages are important and often onerous contracts. Again, those displaying low knowledge about mortgages are disproportionately those with low education, low income, and minorities—those who may benefit the most by knowing the terms of their contracts. These findings are also consistent with the evidence on “mistakes” provided by Campbell (2006). He shows that many households failed to refinance their mortgages during a period of declining interest rates. Lack of knowledge may have contributed to that behavior since lack of refinancing was particularly pronounced among those with low education and low income. Moore (2003) also documents that households that engage in onerous mortgages are less likely to be knowledgeable and financially skilled.

### **3.3. Lack of financial literacy**

One reason individuals do not engage in planning or are not knowledgeable about pensions or the terms of their financial contracts is that they lack financial literacy. Bernheim (1995, 1998) was one of the first to emphasize that most individuals lack basic financial knowledge and numeracy. Several surveys covering the U.S. population or specific sub-groups have consistently documented very low levels of economic and financial literacy. The National Council of Economic Education (NCEE) periodically surveys high school students and working-age adults to measure financial and economic knowledge. The survey consists of a 24-item questionnaire on topics including “Economics and the Consumer,” “Money, Interest Rates and Inflation,” and “Personal Finance.” When results were tallied using standard grading criteria in

2005, adults had an average score of C, while the high school population fared even worse, with most earning an F. These findings are confirmed by the Jump\$Start Coalition for Personal Financial Literacy survey, which also documents very low levels of basic literacy among U.S. high school students (Mandell, 2004). Hilgert, Hogarth and Beverly (2003) examine data from the 2001 Survey of Consumers, where some 1,000 respondents (ages 18–98) were given a 28-question true/false financial literacy quiz, covering knowledge about credit, saving patterns, mortgages, and general financial management. Again, most respondents earned a failing score on these questions, documenting widespread illiteracy among the whole population. Similar findings are reported in smaller samples or among specific groups of the population (Agnew and Szykman, 2005, and Moore, 2003).

Lusardi and Mitchell (2006) devised a special module on financial literacy for the 2004 HRS.<sup>8</sup> Adding these types of questions to a large U.S. survey is important not only because it allows researchers to evaluate levels of financial knowledge but also and, most importantly, because it makes it possible to link financial literacy to a very rich set of information about household saving behavior. The module measures basic financial knowledge related to the workings of interest rates, the effects of inflation, and the concept of risk diversification.<sup>9</sup> Findings from this module reveal an alarmingly low level of financial literacy among older individuals in the United States (50 and older). Only 50% of respondents in the sample were able to correctly answer two simple questions about interest rates and inflation, and only one-third of respondents were able to answer correctly these two questions and a question about risk diversification. Financial illiteracy is particularly acute among the elderly, African-American and

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<sup>8</sup> For a detailed discussion of the importance of financial literacy, see Lusardi (2007b).

<sup>9</sup> For a discussion of the measurement of financial literacy and the extent of measurement error in financial literacy data, see van Rooij, Lusardi and Alessie (2007).

Hispanics, women, and those with low education (a common finding in the surveys of financial literacy).<sup>10</sup>

Lusardi and Mitchell (2007a) have also examined numeracy and financial literacy among the Early Baby Boomers, who should be close to the peak of their wealth accumulation and who should have already dealt with many financial decisions (mortgages, car loans, credit cards, pension contributions, etc.). The following questions were posed to these respondents:

*1) If the chance of getting a disease is 10 percent, how many people out of 1,000 would be expected to get the disease?*

*2) If 5 people all have the winning number in the lottery and the prize is 2 million dollars, how much will each of them get?*

For respondents who answered either the first or the second question correctly, the following question was asked:

*3) Let's say you have 200 dollars in a savings account. The account earns 10 percent interest per year. How much would you have in the account at the end of two years?*

Table 3 summarizes how Early Boomers answered these questions. While more than 80% of respondents were able to do a simple percentage calculation, only about half could divide \$2 million by 5. Moreover, only 18% correctly computed the compound interest question. Of those who got the interest question wrong, 43% undertook a simple interest calculation, thereby ignoring the interest accruing on both principal and interest. These are uncomfortable findings, especially considering that these respondents had already dealt with many financial decisions during their lifetimes.

{Table 3 about here}

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<sup>10</sup> See Lusardi and Mitchell (2007b) for a review.

Does financial literacy matter? Lack of knowledge may be inconsequential, if, for example, individuals rely on the help of others to make decisions, or if knowledge or the type of precise knowledge derived from the above questions has little effect on behavior.

Table 4 explores the link between financial literacy and planning. Two sets of dummies are defined to characterize those who correctly answered the literacy questions and those who did not know the answers. The table shows that those who are more financially knowledgeable are also much more likely to have thought about retirement. In terms of economic importance, both the knowledge of interest compounding and the inability to perform simple calculations (such as a lottery division) matter the most for planning. This is expected, given that any saving plan requires some numeracy, the ability to calculate present values, and an understanding of the advantages of starting to save early. Financial literacy is not simply a proxy for low education, race, or gender; as noted earlier, these groups are disproportionately less likely to be financially literate. Even after accounting for many demographic characteristics, including education, marital status, number of children, retirement status, race, and sex, Table 4 (column III) shows that financial literacy continues to be an important determinant of planning.

{ Table 4 about here }

One may argue that financial literacy and retirement planning are both decision variables and that planning may also affect financial knowledge. For example, those who want to plan for retirement may invest in acquiring financial knowledge. Lusardi and Mitchell (2007c) address this question using the module on financial literacy and planning they have designed for the Rand American Life Panel, which contains a more extensive set of data on financial literacy than the HRS. Specifically, they use information on financial literacy in the past—before individuals

entered the job market —and show that those who were financially literate when young are more likely to plan for retirement later in life.

Other studies have confirmed the positive association between financial knowledge and household financial decision making. Hilgerth, Hogarth, and Beverly (2003) document a positive link between financial knowledge and financial behavior. Stango and Zinman (2007) show that those who are not able to correctly calculate interest rates out of a stream of payments end up borrowing more and accumulating lower amounts of wealth. Van Rooij, Lusardi and Alessie (2007) and Kimball and Shumway (2006) find that financially sophisticated households are more likely to participate in the stock market. Agarwal, Driscoll, Gabaix and Laibson (2007) show that financial mistakes are most prevalent among the young and elderly, who are also those displaying the lowest amount of financial knowledge and cognitive ability.

### **3.4. Lack of financial advice**

The findings that individuals are uninformed about the most important components of their total savings and lack basic financial knowledge would not be so troubling if individuals relied on professional advice and financial experts to make their saving decisions. In fact, only a small fraction of households consult financial advisers, bankers, certified public accountants, and other professionals, while the majority of households rely on informal sources of advice. According to the Survey of Consumer Finances, most individuals rely on the help of family and friends for their financial decisions, and this is particularly true for those with low education (Lusardi, 2003). Insofar as there is a positive correlation between the education level of individuals and the education level of their family or peers, low education individuals may simply rely on crude sources of advice. For example, given the rapid changes in financial markets and in the pension landscape in recent history, it may be difficult to benefit from the

advice or experience of parents. Similarly, those with low financial literacy may be particularly disadvantaged in overcoming lack of knowledge. Van Rooij, Lusardi and Alessie (2007) show that low literacy individuals are disproportionately more likely to rely on family and friends for financial advice, while more financially sophisticated individuals are more likely to rely on newspapers, books, and the Internet.

When asked about the tools individuals use to calculate how much their household would need to save for retirement, few planners have indicated they use work-sheets or retirement calculators, while the majority indicate they talk to family and friends and many seem to use no tools at all! This may explain why many were unable to either develop a saving plan or carry the plan through. Decisions about pension contributions also seem influenced by the interaction with colleagues (Duflo and Saez, 2004, and Madrian and Shea 2001). Investment in complex assets, such as stocks, is also found to be affected by word of mouth, the advice of neighbors and even fellow church-goers (Hong, Kubik and Stein, 2004, and Brown, Ivkovich, Smith, and Weisbenner, 2007).

It is hard to know whether the limited use of financial advice is due to the demand versus the supply of professional advice and the many problems affecting the functioning of this market, but findings from the 2007 RCS suggest some reluctance to rely on financial experts. For example, when asked whether respondents would take advantage of professional investment advice offered by companies that manage employer-sponsored retirement plans, about half of respondents reported they would do so. However, two thirds of the respondents who were willing to take advantage of professional investment advice also state they would probably only implement recommendations that were in line with their own ideas, and one in ten respondents

think they would implement none of the recommendations. Thus, the effect of financial advice may be elusive as workers may not act upon the recommendations of advisors.

We still know little about the effects of financial advice and whether it can improve financial decision-making, but there is some evidence that financial counseling can be effective in reducing debt levels and delinquency rates (Hirad and Zorn, 2001, and Eliehausen, Londquist and Staten, 2007). Mottola and Utkus (2007) also provide evidence in favor of relying on professionals to manage financial investments. They compare the portfolios of individuals before and after shifting to a professionally managed account. Those who shifted are not a randomly chosen group of the population but, nevertheless, the effects are remarkable. Those who shifted to managed accounts changed their asset allocation dramatically. Most importantly, their new portfolios did not suffer from several of the “mistakes” identified in the finance literature, such as investing too little or too much in the stock market and holding poorly diversified portfolios (Campbell, 2006).

A similar analysis was performed earlier by Warshawsky and Ameriks (2000) that focused on the evaluation of wealth holdings. They input the wealth holdings of a representative sample of U.S. households, as reported in the Survey of Consumer Finances, into one of the most popular financial planners: Quicken Financial Planner. According to the predictions of this planner, about half of working middle-class American households will not have a fully funded retirement. Some will actually run out of resources very shortly after retirement. One of the features of household wealth holdings that this exercise highlighted is that many households, particularly those with low education, have little wealth until late in their life-cycle or start saving very late, making it difficult to do much accumulating. Clearly, the predictions of financial planners are based on a very specific set of assumptions, which tend to vary across

planners. But the main message remains: Without planning and periodic evaluations, household saving and portfolio choice behavior may stray from optimality.

#### **4. Three different approaches to promoting saving and financial security**

The evidence reported thus far points to the existence of several obstacles to saving. Many initiatives have been undertaken to promote financial decision-making and retirement security. Three major initiatives are discussed below.

##### **4.1 Financial education**

As additional evidence that financial illiteracy is considered a severe impediment to saving, both the government and employers have promoted financial education programs. Most large firms, particularly those with DC pensions, offer some form of education program (Bernheim and Garrett, 2003). The evidence on the effectiveness of these programs is so far very mixed.<sup>11</sup> Only a few studies find that those who attend a retirement seminar are much more likely to save and contribute to pensions (Bernheim and Garrett, 2003, and Lusardi, 2002, 2004). Clearly, those who attend seminars are not necessarily a random group of workers. Because attendance is voluntary, it is likely that those who attend have a proclivity to save and it is hard to disentangle whether it is seminars, per se, or simply the characteristics of seminar attendees that explain the higher savings of attendees shown in the empirical estimates. However, Bernheim and Garrett (2003) argue that seminars are often remedial, i.e., offered in firms where workers do little or no saving. Thus, the effects of seminars may have been underestimated.

Lusardi (2004) uses data from the HRS and confirms the findings of Bernheim and Garrett (2003). Consistent with the fact that seminars are remedial, she finds that the effect of

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<sup>11</sup> See Lusardi (2004) and Lusardi and Mitchell (2007a) for a review of the effectiveness of financial education programs, and Hogarth (2006) for a description of many education programs currently offered in the United States.

seminars is particularly strong for those at the bottom of the wealth distribution and those with low education. As shown in Table 5, retirement seminars are found to have a positive effect mainly in the lower half of the wealth distribution and particularly for those with low education. Estimated effects are sizable, particularly for the least wealthy, for whom attending seminars appears to increase financial wealth (a measure of retirement savings that excludes housing and business equity) by approximately 18 percent.<sup>12</sup> Note also that seminars affect not only private wealth but also measures of wealth that include pensions and Social Security wealth, perhaps because seminars provide information about pensions and encourage workers to participate and contribute. This can be important because, as mentioned before, workers are often uninformed about their pensions.

{ Table 5 about here }

In a series of papers, Clark and D'Ambrosio (2007) have examined the effects of seminars offered by TIAA-CREF to a variety of institutions. The objective of the seminars is to provide financial information that would assist individuals in the retirement planning process. Their empirical analysis is based on information obtained in three surveys: participants completed a first survey prior to the start of the seminar, a second survey at the end of the seminar, and a third survey several months later. Respondents were asked whether they had changed their retirement age goals or revised their desired level of retirement income after the seminar.

After attending the seminar, several participants stated they intended to change their retirement goals and many revised their desired level of retirement income. Thus, the

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<sup>12</sup> Moreover, Lusardi (2005) uses the supply of retirement seminars to pin down the direction of causality between seminars and saving. Specifically, she uses the proportion of large firms across states as an instrument for retirement seminars. She finds that those who are more likely to be exposed to retirement seminars because they live in states with a high proportion of big firms accumulate more wealth.

information provided in the seminars does have some effect on behavior. However, it was only a minority of participants who were affected by the seminars. Just 12% of seminar attendees reported changes in retirement age goals, and close to 30% reported changes in retirement income goals. Moreover, intentions did not translate into actions. When interviewed several months later, many of those who had intended to make changes had not implemented them yet. Other authors, including Choi, Laibson, Madrian and Metrick (2004), also argue that seminar participants who say they will start contributing to pensions or boost their contributions often fail to follow through.

It is not surprising that one retirement seminar does little to change behavior. Few surveys provide information on the number of seminars that were offered or that the participants attended, but it seems that participants often attend only once or a handful of times (Clark and D'Ambrosio, 2007). Evidence from the financial education sessions offered in programs aimed to promote Individual Development Accounts (IDAs), which are subsidized savings accounts targeted at the poor, show that multiple education sessions are effective in stimulating saving (Schreiner, Clancy, and Sherraden, 2002).

Other papers find more modest effects of education programs. Duflo and Saez (2003) investigate the effects of exposing employees of a large not-for-profit institution to a benefit fair. This study is notable for its rigorous methodology; a randomly chosen group of employees were given incentives to participate in a benefit fair, and their behavior was compared with that of a similar group in which individuals were not offered any incentives to attend the fair. This methodology overcomes the problem mentioned before that those who attend education programs may already be inclined to save. This is clearly important, and findings from this study show that benefit fair attendance induced participants to increase participation in pensions, but

the effect on saving was almost negligible. Perhaps the most notable result of this study is how pervasive peer effects are: not only benefit fair attendees but also their colleagues who did not attend were affected by it, providing further evidence that individuals rely on the behaviors of those around them to make financial decisions (Duflo and Saez, 2004).

## 4.2 Automatic enrollment

One way to stimulate participation and contribution to pensions is to automatically enroll workers into employer-provided pension plans. Thus, rather than let workers choose whether or not to *opt in*, employers enroll workers and let them choose whether or not to *opt out* of a pension plan. This simple but ingenious method has been proven to be very effective in increasing pension participation. For example, according to Madrian and Shea (2001), after a company implemented a change in its 401(k) plan and automatically enrolled its new hires in the plan, pension participation went from 37% to 86%. Sharp increases in participation have been documented in several other papers (Choi et al. 2004, 2006, Thaler and Benartzi, 2004). Not only has the increase been very large but participation rates have remained high for several years (Choi et al. 2004, 2006). Even legislators took notice of this remarkable success, and the 2006 Pension Protection Act made it much easier for firms to automatically enroll their workers in pension plans.

In principle, employers could automatically enroll workers in a pension plan but ask workers to go to the Human Resources (HR) office and choose the contribution rate and the allocation of pension assets. In fact, automatic enrollment programs also specify the rate at which workers are enrolled and how the pension assets are allocated. These are very difficult decisions. According to most theoretical models of saving, the optimal saving rate depends on a long list of variables, including individual preferences and expectations about the future, which are unknown

to the employer. In reality, automatic enrollment is rarely individual-specific. For example, in the firm analyzed by Madrian and Shea (2001), the enrollment rate was set at 3% for every worker. This choice has drawbacks since, in that particular firm, 6% of workers' contributions received a 50 percent employer match. Thus, a 3% contribution fails to take advantage of part of the employer match.<sup>13</sup> Irrespective of this problem, not only did new hires stay at the 3% contribution rate, but other workers also changed their contribution to 3%. Moreover, pension contributions were invested in money market mutual funds. This is another problem since this type of default prevents workers from taking advantage of higher returns in the bond or stock market. Nevertheless, most workers did not opt out of the allocation in money market mutual funds (Madrian and Shea, 2001).<sup>14</sup>

The design of automatic enrollment programs is very important.<sup>15</sup> If the objective of employers is to foster workers' financial security after retirement, contribution rates and asset allocation have to be chosen very carefully because workers tend to stay with what is chosen as the default. This includes not participating in pensions if the default is to not enroll workers.

Several papers have recognized that default contribution rates that are too low may prevent workers from accumulating enough retirement wealth, taking advantage of employer matchers, as well as exploiting the tax-advantage of investing in pension assets. Thaler and Benartzi (2004) have devised a program—Save More Tomorrow (SMarT)—that incorporates not only automatic enrollment but also increases in the default rate as the income of workers

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<sup>13</sup> Note, however, that when left to their own devices, many employees simply do not enroll in pensions, so they do not exploit the employer match *at all*, if it is available.

<sup>14</sup> As noted by Choi et al. (2004), many companies have chosen low contribution rates and conservative asset allocations. For example, a survey by the Profit Sharing/401(k) Council of America in 2001 reports that 76% of automatic enrollment companies have either a 2% or 3% default contribution rate and 66% of automatic enrollment companies have a stable value or money market default fund. See Choi et al. (2004) for a discussion of these findings.

<sup>15</sup> Note that there are several limitations imposed by the law. For example, because of fiduciary issues, many employers were reluctant to enroll and invest workers' assets in the stock market for fear of being sued if the markets experience a downturn. The Pension Protection Act takes away some of the existing limitations.

increases. The success of this program is remarkable. Workers enrolled in SMarT have achieved saving rates of more than 13% versus an average of 5–6% for workers who did not enroll.

Similarly, VanDerhei (2007) shows that low contribution rates and investment in conservative assets result in very low median replacement rates at retirement. For example, an automatic enrollment program with a 3% contribution rate and investment of pension assets in money market mutual funds results in a median replacement rate for the lowest income quartile of workers of only 37%. However, the replacement rate for this income group increases to 52% when the contribution rate is increased to 6% and the default investment is changed to a life-cycle fund. Moreover, and most importantly, workers seem favorable to default rates greater than 3%. As many as 44% of respondents in the 2007 RCS state they would continue to contribute to pensions at a rate of between 6% to 10%, and 27% of respondents were willing to go for even higher contribution rates. While these are self-reported figures, they suggest that increases in default contributions are possible. Moreover, the Pension Protection Act has taken away some of the fiduciary problems that were keeping employers from using riskier investment assets than money market mutual funds or offering advice on how to invest pension assets.

What explains the success of defaults? If individuals are poorly informed about their pensions, lack basic literacy, and do not have good sources of financial advice to turn to, defaults are very useful because they tell workers exactly what to do. In fact, they do even more: they not only provide potent advice but also induce action, overcoming the problem that workers may fall prey to inertia and simply not follow through on their intentions. Moreover, if there is any learning in saving, another advantage of defaults is that they may help workers appreciate the value and perhaps ease of saving.

However, there are potential problems with defaults that need to be addressed. First, the success of defaults should not be measured according to the rate of participation in pension plans, but according to resulting improvement in household financial security. Because an active decision has not been made and individuals have not had to calculate how much they need to save, they may not end up with adequate resources for retirement. In fact, they may not learn much or become financially savvy. This is a problem because there are no default enrollments (yet) in mortgage loans, credit cards, or children's education funds. Second, individuals have other motives to save, in addition to retirement. We do not know yet how these other motives interact with defaults. For example, individuals may be carrying credit card debt or high-interest mortgages while enrolled in pensions. This behavior may detract from the benefit of increasing retirement savings. Finally, about half of private-sector workers have jobs that do not offer any pensions. Thus, automatic enrollment is currently leaving out a substantial fraction of workers—about 75 millions people—who could benefit from such a program. The next section investigates other methods to induce people to save that adopt some of the ideas implicit in defaults while overcoming some of their limitations.

### **4.3 New ways to make people save**

If, as argued previously, saving decisions are very complex, one way to help people save is to find ways to simplify those decisions. Providing financial education, as discussed above, has the drawback of not necessarily translating into behavioral changes. Thus, what may be more effective is to find ways to ease people into action. This is the strategy analyzed by Choi, Laibson and Madrian (2006). They study the effect of Quick Enrollment, a program that gives workers the option of enrolling in the employer-provided saving plan by opting into a preset default contribution rate and asset allocation. Unlike defaults, workers have the choice to enroll

or not, but the decision is much simplified as they do not have to decide at which rate to contribute or how to allocate their assets. In other words, it is possible to exploit the power of suggestion implicit in defaults to induce workers to enroll in pensions.

When new hires were exposed to the Quick Enrollment program, participation rates in 401(k) plans tripled, going from 5% to 19% in the first month of enrollment. When the program was offered to previously hired non-participants, participation increased by 10 to 20 percentage points. These are large increases, particularly if one considers that the default rate is not particularly advantageous: the contribution rate in the most successful program is set at only 2%, with 50% of assets allocated to money market mutual funds and 50% allocated to a balanced fund. Moreover, Quick Enrollment is particularly popular among African-Americans and lower income workers (those earning less than \$25,000) who, as the research mentioned before shows, are less likely to be financially literate. Thus, changes in pension design can have a significant impact on participation. Most importantly, this is a low-cost program.

Another approach designed to simplify the decision to save and, in addition, motivate employees to make an active choice is the one by Lusardi, Keller and Keller (2007). They devised a planning aid to be distributed to new hires during employee orientation. The planning aid displays several critical features. First, it breaks down the process of enrolling in supplementary pensions into several small steps, describing to participants what they need to do to be able to enroll online. Moreover, it provides several pieces of information to help overcome barriers to saving, such as describing the low minimum amount of income employees can contribute (in addition to the maximum) and indicating the default fund that the employer has chosen for them (a life-cycle fund). Finally, the planning aid contains pictures and messages designed to motivate participants to save.

The planning aid was designed after a thorough data collection. For example, the researchers devised a survey asking explicitly about barriers to saving, sources of financial advice, level of financial knowledge, and attractive features of a pension plan. Moreover, they conducted focus groups and in-depth interviews (with both employees and HR administrators) to shed more light on the impediments to saving. These data collection methods, which are common in the field of marketing, are well suited to capturing the wide heterogeneity that exists in saving decisions. Even though the sample is small and hardly representative of the U.S. population, it displays findings that are consistent with the evidence described before. For example, many employees state they consult only family and friends when making saving decisions. Moreover, close to 40% state they do not have enough knowledge about finance/investing and close to 20% state they do not know where to start. Given this evidence, it is not surprising that the program was so successful; contribution rates to supplementary pensions tripled after the introduction of the planning aid.

This program shares several features with other programs. First, while economic incentives, such as employers' matches or tax advantages may be useful, they do not exhaust the list of options to make people save. In fact, given the massive lack of information and financial knowledge, there may exist other, more cost-effective, programs that can induce people to save. Second, employees are more prone to decision-making at specific times. For example, the start of a new job makes people think about saving (often because they have to make decisions about their pension). As discussed before, many people do not think about retirement even at an advanced age, and it may be very important to exploit those "teachable moments." Both the papers by Choi, Laibson and Madrian (2006) and Lusardi, Keller and Keller (2007) find that new hires are particularly open to making changes. Third, to be effective, programs have to recognize

the many differences that exist among individuals, not only in terms of preferences and economic circumstances, but also in levels of knowledge, financial sophistication, and ability to carry through with plans. In other words, relying on “one-size-fits-all” principles can lead to rather ineffective programs.

## 5. Discussion

Saving decisions are derived from maximizing utility not only under a lifetime budget constraint but also under the limitations imposed by low financial literacy, lack of information, and crude sources of financial advice. Thus, policies that aim to stimulate saving and financial security after retirement should consider a variety of incentives, including how to decrease informational barriers and simplify decision-making. Other fields have already recognized the difficulties that individuals face in collecting information and making decisions. For example, hospitals have set up “centers for shared decision-making” to help patients make decisions about medical treatments.<sup>16</sup>

The choices confronting policy makers are not easy. Financial literacy cannot be taken for granted among the population, particularly among specific groups (including those with low education, women, and minorities). This raises concerns about how to communicate information effectively, particularly to those who need it most. Given low numeracy and low literacy, it may be useful to consider more effective ways of communication. In the health literature for example, there is an increasing reliance on testimonials and stories rather than on figures and hard data.<sup>17</sup>

Given the increased complexity of financial instruments, the evidence of illiteracy raises the question of whether consumers will appreciate and take advantage of the opportunities

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<sup>16</sup> Dartmouth-Hitchcock Medical Center is one example of a hospital with such a center.

<sup>17</sup> See Volk (2007).

offered by financial markets or more easily fall prey to scams or unscrupulous brokers. The effectiveness of financial education programs has been measured with respect to specific outcomes, such as increased saving or participation in pensions, but there are other potential—though less easy to measure—outcomes, such as avoiding being taken advantage of and confidence in making financial decisions.<sup>18</sup> No studies definitively provides an evaluation of the costs of financial education programs and, without that information, it is not possible to estimate a return on financial education programs. Moreover, as previous studies show, few employees ever attend education programs and of those who attend, many do not modify behavior, at least in the short run. While these are drawbacks, financial education programs cannot be dismissed. Information and financial knowledge can affect many financial decisions, not simply saving for retirement. Moreover, that knowledge may be put to use over long periods of time and should be evaluated in the long run rather than just in the few months or years after a program is offered. For example, according to Bernheim, Garrett and Maki (2001), those who were exposed to financial education programs while in high school were more likely to save later in life. Finally, given the extent of financial illiteracy, it is not surprising that exposing individuals to a benefit fair or offering workers one hour of financial education does little to improve saving. To be effective, programs have to be tailored to the size of the problem they are trying to solve. While it is not possible to transform low literacy individuals into financial wizards, it is feasible to emphasize simple rules and good financial behavior, such as diversification, exploitation of the power of interest compounding, and taking advantage of tax incentives and employers' pension matches.

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<sup>18</sup> See also Hogarth (2006).

Another potential role of financial education is to help individuals assess their abilities to make saving and investment decisions and perhaps make them appreciate the value of financial advice or equip them with tools to deal effectively with advisors and financial intermediaries.

If lack of literacy, lack of information, inability to plan, or procrastination prevent people from saving and contributing to pensions, default options are clearly an effective remedy. Defaults are the most powerful and innovative programs in the field of saving and pensions and they should be exploited. However, the design of defaults is crucial; low contribution rates and investment in too-conservative assets may eventually offset the benefits of default enrollment in saving programs. Moreover, since close to half of private-sector workers do not have pensions, it is important to expand automatic enrollment to other saving instruments.

Contrary to what the previous literature seems to imply, defaults and financial education programs are not necessarily substitutes for each other. In fact, they can complement each other well.<sup>19</sup> Combining default options with financial education programs or financial advice may prevent workers from saving at sub-optimal rates. Moreover, the combination may help workers evaluate their total savings, not only pension but also private savings and, for example, help them save for their children's education, to build a buffer to insure against shocks, or for other reasons. Several big firms, such as IBM, have adopted such initiatives and it will be possible to evaluate the outcome of these combined programs in the future.

Similarly, it is possible to exploit some of the features of automatic enrollment to make saving programs more effective. For example, if there is such power in providing a suggestion about how much to save and where to invest pension assets, why not provide such information to workers when they start a new job or when they have to renew their benefit selection every year.

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<sup>19</sup> For a discussion, see Lusardi (2007).

Such “suggestions” can be made more individual-specific, and could differ according to age, number of children, and earnings. Similarly, if information is so scarce but, at the same time, so vital, there may be more cost-effective ways to provide it. Information and education campaigns could be implemented at the national level to reach a wider population, including those who are unlikely to be offered education programs in the workplace.

Another finding that emerges from both the literature on saving and studies on financial literacy is that there are specific segments of the population—those with low education and low income—that save in very different ways than other, more educated and affluent households. It may be important to target these groups and devise programs that are better tailored to their needs and barriers to saving. There is evidence that existing targeted programs have had some success in increasing saving among the poor (Schreiner and Sherraden, 2007).

Recognizing that individuals possess limited literacy and do not plan for retirement brings us inevitably to the issue of mistakes. Some of the papers mentioned before document that mistakes are not rare; left to their own devices, individuals may not save enough for retirement, may invest in assets that are either too risky or too conservative, and may not exploit employer matches or tax advantages. Who will pay for these mistakes? The individual or society at large? If taxpayers will be asked to support those who have made mistakes, there is a role for regulation and for implementing “mandatory” programs. One such program could be to require people to acquire some basic financial knowledge (Alesina and Lusardi, 2006). In the same way people are required to have a drivers license before they venture out on the road, a “financial license” could be required before individuals contribute to pensions, invest pension assets, or borrow to buy a house. In this way, individuals may learn about some basic financial concepts and may reduce their reliance on random advice and tips from those around them.

It is also important to recognize that, while the private industry is spending millions of dollars every year advertising products to entice consumers to spend more, relatively little is spent in encouraging people to save and provide for their future. However, if consumption is excessive and saving too scarce, taxpayers may be asked to support those who have not provided enough for retirement. Thus, the government may have to think of ways to engage in marketing campaigns. It's up against tough competition: One recent ad from American Express, advertising cash back to card holders on the amount spent with their card, argues that by spending more, people ... save!

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**Table 1: Distribution of Net Worth by Planning (\$2004)****A. Early Baby Boomers: Age 51–56 in 2004**

<i>Group</i>	% of Sample	<b>25<sup>th</sup> Percentile</b>	<b>Median</b>	<b>Mean</b>	<b>75<sup>th</sup> Percentile</b>
<b>Planning</b>					
Hardly at All	27.9%	9,000	<b>79,000</b>	315,579	271,000
A Little	17.0%	62,800	<b>173,400</b>	356,552	390,500
Some	27.7%	51,000	<b>189,000</b>	365,354	447,200
A Lot	27.4%	54,000	<b>199,000</b>	517,252	470,000

**B. 1992 Older Cohort: Age 51–56 in 1992**

<i>Group</i>	% of Sample	<b>25<sup>th</sup> Percentile</b>	<b>Median</b>	<b>Mean</b>	<b>75<sup>th</sup> Percentile</b>
<b>Planning</b>					
Hardly at All	32.0	10,100	<b>76,910</b>	224,3110	200,610
A Little	14.3	37,700	<b>126,560</b>	343,110	292,170
Some	24.8	71,360	<b>172,340</b>	340,340	367,300
A Lot	28.9	71,390	<b>173,690</b>	353,520	356,800

Note: All data weighted using HRS household weights. Total net worth is defined as the sum of checking and savings accounts, certificate of deposits and Treasury bills, bonds, stocks, IRAs and Keoghs, home equity, second homes and other real estate, business equity, vehicles and other assets minus all debt. Adapted from Lusardi and Mitchell (2007a).

**Table 2: Quantile Regressions of Net Worth on Planning for Older Cohort (Older) and Early Baby Boomer (EBB ) Respondents**

	25 <sup>th</sup> % <u>Older</u>	25 <sup>th</sup> % <u>EBB</u>	Median <u>Older</u>	Median <u>EBB</u>	75 <sup>th</sup> % <u>Older</u>	75 <sup>th</sup> % <u>EBB</u>
No Planning	-12.495 (3.563)***	-14.390 (4.022)***	-17.233 (4.391)***	-20.025 (8.818)**	-42.059 (7.450)***	-47.362 (21.751)**
High School Graduate	13.241 (4.297)***	-5.132 (6.220)	21.493 (5.151)***	2.733 (13.753)	31.133 (8.563)***	9.228 (31.611)
Some College	19.963 (5.101)***	-4.127 (6.403)	38.655 (6.150)***	20.278 (14.134)	73.552 (10.406)***	44.360 (32.831)
College Graduate	46.990 (6.344)***	51.527 (7.382)***	83.054 (7.691)***	113.995 (16.195)***	188.936 (13.229)***	237.035 (38.294)***
More than College	70.954 (6.847)***	62.327 (7.966)***	121.807 (8.318)***	169.988 (17.136)***	252.906 (14.153)***	441.711 (40.818)***
Hispanic	-10.389 (5.125)**	-13.237 (6.040)**	-13.289 (6.290)**	-18.879 (13.226)	-25.028 (10.651)**	-45.239 (30.783)
Black	-23.053 (4.058)***	-22.463 (4.656)***	-33.550 (4.875)***	-33.360 (10.032)***	-74.087 (8.062)***	-71.828 (24.231)***
Divorced	-31.876 (4.821)***	-28.229 (4.727)***	-41.669 (5.820)***	-53.389 (10.372)***	-47.224 (9.912)***	-91.769 (25.910)***
Separated	-19.096 (8.528)**	-28.862 (9.091)***	-31.846 (9.942)***	-43.898 (18.951)**	-7.757 (16.231)	-80.357 (44.329)*
Widowed	-13.250 (6.799)*	-18.524 (8.414)**	-25.976 (8.313)***	-21.952 (18.043)	10.445 (14.764)	57.775 (48.528)
Never Married	-33.322 (8.055)***	-26.127 (7.075)***	-44.268 (9.714)***	-52.984 (15.418)***	-41.714 (16.204)**	-105.520 (39.251)***
Female	1.985 (3.384)	-9.671 (3.748)***	12.805 (4.171)***	-10.073 (8.174)	23.687 (7.184)***	-13.595 (19.895)
Log of Income	31.160 (1.891)***	30.540 (1.449)***	45.063 (2.577)***	46.719 (3.854)***	61.048 (5.283)***	61.415 (13.278)***
Adjusted R-Squared	0.12	0.11	0.15	0.15	0.17	0.17

Note: Even though not reported, these regressions include controls for age, number of children and retirement status. See Table 1 for the definition of total net worth. \* significant at 5% level; \*\* significant at 10% level; \*\*\* significant at 1% level. Adapted from Lusardi and Beeler (2007).

**Table 3: Financial Literacy Among Early Baby Boomers**

<i>Question Type</i>	<b>Correct (%)</b>	<b>Incorrect (%)</b>	<b>Do Not Know (%)</b>
Percentage Calculation	83.5	13.2	2.8
Lottery Division	55.9	34.4	8.7
Compound Interest*	17.8	78.5	3.2

Note: \*Conditional on being asked the question. Percentages may not sum to 100 due to a few respondents who refused to answer the questions. Observations weighted using HRS household weights. The total number of observation is 1,984. Adapted from Lusardi and Mitchell (2007a).

**Table 4: Empirical Effects of Financial Literacy on Retirement Planning**

	<i>Probability of Being a Retirement Planner</i>		
	<b>I</b>	<b>II</b>	<b>III</b>
Correct Percentage Calculation	-.016 (.061)	-.012 (.062)	-.034 (.060)
Correct Lottery Division	.059* (.030)	.034 (.031)	.001 (.032)
Correct Compound Interest	.153*** (.035)	.149*** (.035)	.114*** (.039)
DK Percentage Calculation		.021 (.068)	.054 (.067)
DK Lottery Division		-.154*** (.050)	-.141*** (.051)
DK Compound Interest		-.114 (.080)	-.073 (.081)
Demographic controls	No	No	Yes
Pseudo R <sup>2</sup>	.031	.038	.074

Note: This table reports Probit estimates of the effects of literacy on planning; marginal effects reported. Analysis sample consists of HRS Early Baby Boomers who responded to financial literacy questions. Being a planner is defined as having thought a little, some, or a lot about retirement. Demographic controls include age, education, race, sex, marital status, retirement status, number of children, a dummy variable for those not asked the question about interest compounding, and dummies for those who can correctly state and those who do not know the name of the president and vice-president of the United States. DK indicates respondent who did not know the answer. Observations weighted using HRS household weights. The total number of observations is 1,716. \* Significant at 10% level; \*\* significant at 5% level ; \*\*\* significant at 1% level. Adapted from Lusardi and Mitchell (2007a).

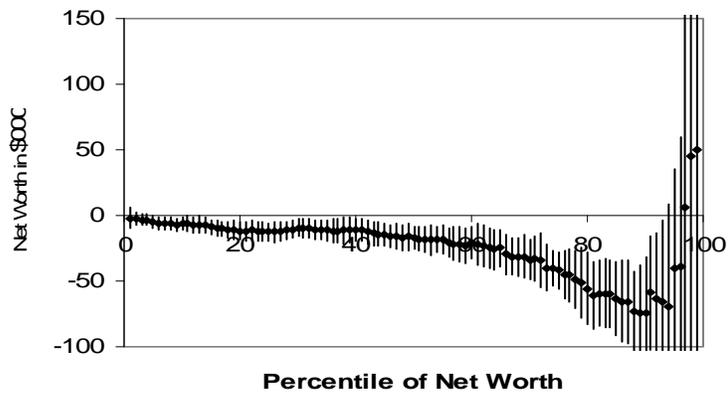
**Table 5: The Effect of Retirement Seminars on Retirement Accumulation**

	Total sample	1 <sup>st</sup> quartile	median	3 <sup>rd</sup> quartile
<i>a. Financial net worth</i>				
Total sample	17.6 %**	78.7%**	32.8%**	10.0%
Low education	19.5%	95.2%**	30.0%**	8.8%
High education	13.1%	70.0%**	19.4%**	10.2%
<i>b. Total net worth</i>				
Total sample	5.7%	29.2%**	8.7%	0.5%
Low education	3.4%	27.0%**	7.1%	4.0%
High education	7.3%	26.5%**	6.5%	3.6%
<i>c. Total net worth + Pensions and Social Security</i>				
Total sample	16.0%**	18.6%**	20.4%**	17.2%**
Low education	12.7%**	14.7%**	12.7%**	9.5%**
High education	17.7%**	25.4%**	25.8%**	17.0%**

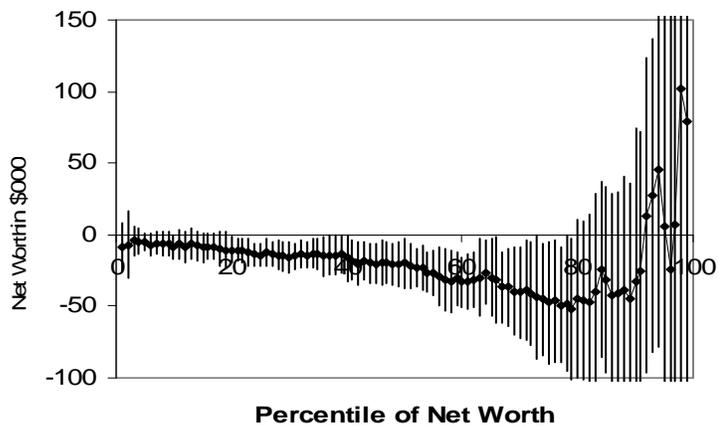
Note: This table reports the percentage changes in different measures of retirement accumulation resulting from attending retirement seminars. Financial net worth is defined as the sum of checking and savings accounts, certificate of deposits and Treasury bills, bonds, stocks, IRAs and Keoghs and other financial assets minus short-term debt. See Table 1 for the definition of total net worth. \* significant at the 10% level \*\* significant at the 5% level. Adapted from Lusardi (2004).

**Figure 1. Estimates of the Effect of “Not Planning” on Net Worth by Percentile of the Wealth Distribution**

**A. Pattern for Original HRS Cohort**



**B. Pattern for Early Boomer Cohort**



Source: Adapted from Lusardi and Beeler (2007)