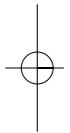
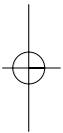


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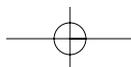
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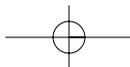
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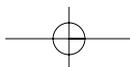
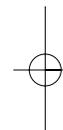
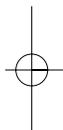
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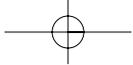
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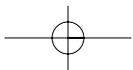
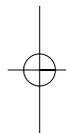
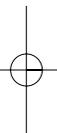
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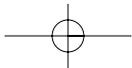
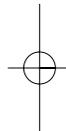
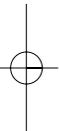
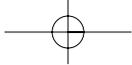




# **Part III**

## **Consequences for Retirement Education**





## Chapter 9

# **Saving and the Effectiveness of Financial Education**

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*Annamaria Lusardi*

This chapter uses information from the Health and Retirement Study (HRS) to examine the financial situation of older households. We show that many families arrive at retirement with little or no wealth, and with rather simple portfolios: The major asset that families own is their house, and around 30 percent of households hold stocks. Yet, many families, in particular those with low education, hold neither high return assets (stocks, IRAs, business equity), nor basic assets such as checking accounts. Next I evaluate the reasons for such low wealth accumulation and simple portfolios. I contend that planning costs play a role in explaining many families' financial situation. To assess the importance of such costs, I examine whether the provision of financial education via retirement seminars fosters savings and investment in stocks. My evidence indicates that seminars can foster saving, particularly for those with low education and those who save little. We also found that, by offering financial education, wealth can be increased sharply, close to 20 percent in the total sample, and much more for families at the bottom of the distribution and those with low education. Retirement seminars also increase total wealth inclusive of pension and Social Security for both high and low education families. Our estimates are comparable with findings of Clark et al. (Chapter 10, this volume), who also confirm that financial education can boost saving, particularly for those with low financial literacy.

### **Previous Studies**

Previous studies have shown that many households make poor provision for retirement. Women appear particularly vulnerable to the death of their spouses and a husband's death can precipitate the widow's entry into

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poverty (Weir and Willis, 2000). Using a nationally representative sample of older Americans, Warshawsky and Ameriks (2000) import their current wealth into one of the most popular financial planners. They find that about half of working middle-class American households will not have fully funded retirements, and many will actually run out of resources very shortly into retirement. One of the problems these authors, and others (Lusardi, 2002) emphasize is that many households have limited resources until late in their life cycles, or they start saving so late that it is impossible to accumulate much. These results are consistent with Hurd and Zissimopoulos (2000), who examine subjective information about past saving behavior. When asked to evaluate their saving, a stunningly high proportion of respondents, 73 percent, indicated they saved too little over the past 20 and 30 years. Similar findings are reported by Moore and Mitchell (2000), who determine how much wealth (including Social Security and pensions) older households have, and how much they would need to save if they wished to preserve consumption levels after retirement. They conclude that most older households will not be able to maintain current levels of consumption into retirement without additional saving. In particular, the median HRS household would still have to save an additional 16 percent of income to smooth consumption after retirement.

Other studies corroborate the lack of preparedness for retirement: For instance, the national Retirement Confidence Survey indicates that a large proportion of workers has done little or no planning for retirement (EBRI, 2001). Only 39 percent of workers tried to determine with some accuracy how much they needed to save to fund their retirement, whereas a decade previously, around one-third of workers indicated that they had tried to calculate how much money they needed to save for retirement. When asked why the calculation was not attempted, many respondents replied that it was too difficult and they did not know where to find help to do it.

Lack of planning is also pervasive among older workers, 5–10 years from retirement, according to Lusardi (2000, 2002). These findings are consistent with several other studies that show many workers lack the information necessary for making saving decisions. For instance, Gustman and Steinmeier (1999*b*) report that many workers are poorly informed about their Social Security and pension benefits, and they often err about the type of pension plan they have and the benefits associated with it. EBRI (2001) suggests that more than half of current workers expect to reach full eligibility for Social Security benefits sooner than they actually will. An earlier EBRI survey (1996) shows that only 55 percent of workers knew that government bonds provided a lower rate of return (over the past 20 years) than the US stock market. Other researchers, including Bernheim (1998) and MacFarland et al. (this volume), also show that workers are often ill-equipped to make saving plans.

An important finding by Lusardi (1999, 2002) is that planning has effects on both saving behavior and portfolio choice. Households whose head does

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not plan for retirement accumulate much less wealth than households whose head does do some planning. This result holds true even after accounting for many determinants of wealth and including levels of pension and Social Security wealth. In addition, households that do not plan are less likely to invest in high return assets such as stocks.

Furthermore, planning for retirement is considered an important but difficult task, so many employers have started offering financial education to their employees. Financial education is particularly prevalent among firms offering DC pensions, where workers have to make their own decisions on how to allocate pension funds. An important question, then, is whether these initiatives have any effects on worker behavior.

A few studies have looked at the effects of financial education in the work place on private savings or contributions to pension funds.<sup>1</sup> Empirical findings are mixed: There is evidence of some positive effect of financial education on saving and pensions, but the form of education seems to matter. For example, Bernheim and Garrett (2003) and Bayer, Bernheim, and Scholz (1996) find that programs that rely on print media (newsletters, plan description, etc.) have generally no effect on pension participation and contributions, even though the quality of financial information seems to matter (Clark and Schieber, 1998). By contrast, retirement seminars are found to be effective, but they seem to affect only certain aspects of behavior—for example, pension participation and the amount of contributions—but not total saving levels (McCarthy and Turner, 1996; Bernheim and Garrett, 2003). These and other similar studies suffer from severe data shortcomings, since they lack information about workers' characteristics, the characteristics of their pension plans and total wealth levels. There remain questions regarding the appropriate measures of wealth when looking at accumulation for retirement, and how to treat housing when calculating retirement wealth. Some studies claim that few elderly sell their houses after retirement and even fewer use contracts such as reverse mortgages to access their housing wealth.<sup>2</sup> Most importantly, most previous studies do not consider pension and Social Security wealth, two major components of total household retirement savings. Leaving out these components of wealth and/or concentrating on narrow definitions of accumulation can have important effects on the empirical findings. In what follows, I evaluate data from the HRS, which provides rich information about household characteristics and wealth measures.

### **Empirical Approach**

The HRS offers unique information that overcomes many of the shortcomings of previous research on saving and financial education. This survey, covering a nationally representative sample of US households born 1931–41, provides detailed information on wealth and the retirement process with a focus on health, labor markets, and economic and psycho-social factors.

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Questions about wealth are asked to the most financially knowledgeable person in the household.<sup>3</sup>

Five types of HRS information are critically important to understand saving and its interaction with planning, past economic circumstances, expectations about the future, individual preferences, and pension and Social Security wealth. The HRS provides several indicators about planning: How much respondents have thought about retirement, whether they attended a retirement seminar, and whether they asked Social Security to calculate their retirement benefits. Hence, I concentrate mostly on the effects of retirement seminars. Moreover, the HRS provides information on several past negative and positive shocks, including past unemployment, episodes of distress, inheritances, insurance settlements, and money received from relatives and friends. Most importantly, the survey reports information about anticipated future resources and future events. This is critically important since decisions to save are intrinsically related to the future. In the HRS, respondents are asked to report how likely it is that future home prices will increase more than the general price level, and how likely it is that Social Security will become less generous in the future. Respondents are also asked to report their expectation of living to ages 75 and 85, to work full-time after ages 62 and 65, and to lose their job in the next year.<sup>4</sup> In addition, respondents are asked to report the chance they will have to give major financial help to family members in the next 10 years.

Another not yet well-explored dimension along which households can differ is preferences, (e.g. risk aversion or impatience), both of which play a pivotal role in saving decisions. One can infer preference information from the HRS using the model developed by Barsky et al. (1997), who explore people's willingness to take gambles, to construct proxies for risk aversion. Demographic variables that could be related to the impatience—such as education, race, and country of origin—are also present in the survey. Additionally, questions on smoking, drinking, health practices, and regular exercise may be used to proxy for individual heterogeneity.

In the HRS, it is possible to link to the Social Security records of respondents and use that information to calculate Social Security wealth.<sup>5</sup> For any household who did not provide consent to link to Social Security records, we have used imputed Social Security wealth.<sup>6</sup> It is also possible to construct pension wealth from the self-reported pension information.<sup>7</sup> Thus, the data set offers a very complete measure of household resources to examine saving behavior.

### **Household Saving Close to Retirement**

Before looking at how financial education influences retirement wealth, it is useful to first describe two measures of household (non-pension) accumulation. The first measure, which I call liquid net worth, is defined as the

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sum of checking and saving accounts, certificates of deposit and Treasury bills, bonds, stocks, and other financial assets minus short-term debt. The second measure, which I call total net worth or simply net worth, is obtained by adding IRAs and Keoghs, housing equity, other real estate, business equity, and vehicles to liquid net worth. Table 9-1 displays the major components of wealth including retirement assets (IRAs and Keoghs) and housing equity. All values are given in 1,992 dollars and the sample includes all financial respondents between the age of 50 and 61 who are not partially or fully retired.

The first important result is that there are tremendous differences in wealth holdings for households on the verge of retirement in the HRS. While some households have amassed large amounts of wealth, others have accumulated very little. Considerable differences in wealth are to be expected, because permanent income (or average income over the lifetime) varies widely. But the actual variation, from \$850 in net worth for households at the 10th percentile to \$475,000 in the 90th percentile, is far larger than variation in permanent income. It is also apparent that housing is an important asset in many household portfolios, and furthermore many people have no assets other than home equity. As mentioned before, whether housing equity serves to sustain consumption at retirement is in dispute. Retirement assets such as IRAs have been one of the fastest growing components of household wealth in the last two decades, but the evidence shows that ownership and the amounts invested in such tax-favored assets

TABLE 9-1 Pre-retirement Household Wealth in the 1992 HRS Components of Household Wealth (Excluding Social Security and Pensions)

<i>Percentile</i>	<i>Liquid Net Worth</i> \$	<i>IRAs and Keoghs</i> \$	<i>Housing Equity</i> \$	<i>Total Net Worth</i> \$
5	-6,000	0	0	0
25	0	0	0	27,980
50	6,000	0	42,000	96,000
75	36,000	15,000	85,000	222,200
90	110,000	45,000	150,000	475,000
95	199,500	75,000	200,000	785,000
Mean	46,171	16,492	61,613	227,483
(Std. Dev.)	(178,654)	(49,754)	(100,646)	(521,467)

*Notes:* This table includes HRS households whose head is 50–61 years old and not fully or partially retired. The total number of observations is 5,292. All figures are weighted using survey weights. Liquid net worth is defined as the sum of checking and savings accounts, certificate of deposits and Treasury bills, bonds, stocks, and other financial assets minus short-term debt. Total net worth is defined as the sum of liquid net worth, IRAs and Keoghs, housing equity, business equity, other real estate, and vehicles. All values are expressed in 1,992 dollars.

*Source:* Authors' computations.

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are heterogeneous across the sample. Even though not shown in the table, a substantial portion of total net worth is accounted for by business equity:<sup>8</sup> households owning one or more businesses are fairly rare (only 15 percent of the sample), but their wealth holdings are large, median holdings are worth \$75,000.<sup>9</sup> A second important point to note in Table 9-1 is the prevalence of households that arrive close to retirement with little or no wealth; one quarter of HRS households have less than \$30,000 in total net worth. Of course, total net worth is only a partial measure of accumulation since it omits Social Security and pension wealth; nevertheless, it is difficult to borrow against retirement assets.

Wealth holdings across education, which can proxy for permanent income, appear in Table 9-2. What is clear is that wealth differences both within and across groups remain large. Wealth holdings are very low for households whose financial respondent has less than a high-school education, while households whose head is college-educated have more than twice the wealth (considering medians) of households with high-school education. If one considers a restricted measure of wealth such as liquid net worth, the scenario worsens considerably. Many of the households with low education have little or zero holdings of financial assets and little net worth.

To account for the fact that normal or permanent income varies across households and is one of the most important determinants of wealth, in the empirical work I always consider wealth as a ratio of permanent income. Permanent income has been constructed by regressing total household income on a set of household demographics (age, sex, race, marital status, region), workers characteristics (working in small firms, working part time, belonging to unions), occupation and education dummies and these occupation interacted with age, and the subjective expectations of income changes in the future (whether future income will increase or decrease, subjective probability of losing work next year and that health will limit work activity in next 10 years).

TABLE 9-2 Pre-retirement Household Wealth by Education in the 1992 HRS

<i>Education Level</i>	<i>Number of Observations</i>	<i>Liquid Net Worth \$</i>		<i>Total Net Worth \$</i>	
		<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>
Elementary	329	0	-707	9,000	82,215
Less than high school	1,042	100	16,429	39,000	110,324
High school	1,876	5,500	29,668	90,000	183,678
Some college	1,041	10,000	47,312	122,700	243,571
College	800	28,000	90,910	186,000	358,848
More than college	204	41,000	175,160	234,000	636,366

*Notes:* This table reports the distribution of liquid and total net worth across education groups. All figures are weighted using survey weights.

*Source:* See Table 9-1.

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TABLE 9-3 Asset Ownership by Education in the 1992 HRS (%)

<i>Assets and Liabilities</i>	<i>Elementary School</i>	<i>Some High School</i>	<i>High School</i>	<i>Some College</i>	<i>College</i>	<i>More than College</i>	<i>Total</i>
Check and saving	0.30	0.63	0.85	0.90	0.95	0.95	0.82
CDs	0.03	0.14	0.28	0.29	0.34	0.30	0.26
Bonds	0.00	0.01	0.04	0.07	0.14	0.27	0.07
Stocks	0.01	0.10	0.24	0.34	0.51	0.55	0.28
IRAs and Keoghs	0.05	0.16	0.41	0.48	0.62	0.71	0.41
Other assets	0.02	0.07	0.13	0.20	0.25	0.36	0.16
Businesses	0.05	0.09	0.13	0.20	0.18	0.29	0.15
Housing	0.48	0.64	0.80	0.80	0.82	0.83	0.74
Real estate	0.15	0.18	0.27	0.37	0.41	0.49	0.30
Vehicles	0.59	0.79	0.92	0.94	0.95	0.97	0.89
Debt	0.24	0.36	0.40	0.44	0.38	0.37	0.39

*Notes:* This table reports the ownership of assets across education groups. The number of observations is 5,292. Figures are weighted using survey weights.

*Source:* See Table 9-1.

More information on the composition of wealth in household portfolios by education groups is given in Table 9-3. Results show that wealth is concentrated among households whose financial respondent has at least a high-school education; this group is also more likely to hold stocks and bonds. Focusing on households with low education shows that over one-third of Hispanics have only an elementary school education, and almost 60 percent have less than a high-school education. Among Blacks, 40 percent have less than a high-school education. Another important and striking feature among Blacks and Hispanics is that they lack many of the assets common to the portfolios of wealthier households, such as stocks, bonds, and IRAs and few have even a checking account. In this sample, 57 percent of Black households and 47 percent of Hispanic households have a checking account, a finding consistent with results for younger households (Lusardi, Cossa, and Krupka, 2001).

### The Role of Financial Education

Many factors can explain the heterogeneity of wealth holdings close to retirement. Households with low permanent incomes, those who are hit by many shocks, and people who are impatient or expect large capital gains on their assets, may save differently from others. In addition, planning costs can explain some of the differences in wealth. To help confront the problem of planning costs, some employers have started to offer some form of financial education in the workplace. By providing information and improving financial literacy, the hope is that seminars will reduce planning costs and foster savings. Nevertheless, there is still much uncertainty regarding the effects of seminars on savings. Several studies discern

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a positive correlation between attending a retirement seminar and private wealth or contributions to pension funds, yet it is not completely clear what this correlation means. Attending retirement seminars is largely voluntary, so it is possible that those who attend seminars are more likely to have an interest in them, for example, because they have large wealth holdings. Thus, it may be wealth levels that drive participation in retirement seminars, but not the other way around. Similarly, attending retirement seminars could simply reflect individual characteristics, such as patience and diligence, both of which are also likely to affect wealth accumulation. Attending a retirement seminar could then simply be a proxy for individual characteristics and attitudes towards saving, rather than a measure of the effects of providing information, improving financial literacy, and/or reducing planning costs. Furthermore, as reported by Bernheim and Garrett (2003), retirement education is often remedial, and thus offered in firms where workers do very little savings. Since few data sets have enough information to allow researchers to sort these effects out, findings regarding the effects of retirement seminars are often difficult to interpret.

I seek to remedy these shortcomings by using the HRS to examine the effectiveness of retirement seminars. One advantage is that the HRS provides rich information on individual characteristics that might affect saving. Another is that the detailed HRS information is more complete than those used in previous studies; for example, Bernheim and Garrett (2003) use limited and noisy data about private savings and other studies have only information about pension contributions and pension wealth but no information about private wealth.

To illustrate the strength of the HRS financial education variables, Table 9-4 reports two indicators of planning activities: (i) whether the respondent has attended a meeting on retirement and retirement planning organized by his/her spouse's employer and (ii) whether he or she has asked Social Security to calculate retirement benefits (of husband or spouse). The results show that respondents who are male, white, and married are more likely to have attended a seminar. Households whose head has low education or comes from a family of low education are less likely to have attended a seminar. Of course, this might occur if such families work in firms that tend not to offer such seminars. Nevertheless, similar findings are obtained when considering those who have asked Social Security to calculate their retirement benefits. Again, the better-educated, higher-income, white, and married respondents are more likely to ask for information about Social Security benefits. Households who plan are also more likely to have a pension and to invest in retirement assets such as IRAs and Keoghs.

Several other household characteristics are also considered, including whether the financially knowledgeable person in the household smokes or stopped smoking, drinks heavily, thinks he or she should cut down on drinking, does not exercise, and has talked to a doctor about health. All of

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TABLE 9-4 Planning Activities Undertaken by HRS Pre-Retirees

<i>Characteristics</i>	<i>Attended Retirement Seminar</i>	<i>Asked SS to Calculate Benefits</i>	<i>Total Sample</i>
<i>Demographics</i>			
Age 50–53	0.32	0.28	0.36
Age 54–57	0.38	0.34	0.36
Age 58–61	0.29	0.38	0.27
White	0.85	0.90	0.79
Male	0.58	0.54	0.51
Married	0.72	0.73	0.61
Less than high school	0.06	0.09	0.22
High school	0.30	0.38	0.36
More than high school	0.63	0.53	0.42
Family of origin has high education	0.58	0.55	0.47
<i>Income and wealth</i>			
Income < \$25,000	0.11	0.14	0.29
Have pension	0.84	0.60	0.49
Have IRAs or Keoghs	0.63	0.63	0.41
<i>General attitudes</i>			
Heavy smoker	0.10	0.15	0.18
Stopped smoking	0.45	0.42	0.37
Drink heavily	0.04	0.05	0.05
Feel should cut down on drinking	0.21	0.20	0.20
Do not exercise	0.27	0.37	0.46
Talk to a doctor about own health	0.83	0.81	0.77
<i>Subjective expectations</i>			
Expectation that health will limit work activity in the next 10 years+	0.36	0.38	0.39
Expectations to live to age 75 or more	0.68	0.67	0.65
Expectations to work full-time after age 62+	0.43	0.49	0.52
Expectations that SS will become less generous	0.59	0.62	0.59
Expectation that house prices will increase faster than prices in the next 10 years	0.46	0.48	0.49
# of observations	506	1,191	5,292

*Notes:* This table reports the proportion of respondents who have attended a retirement seminar or asked Social Security to calculate retirement benefits. All figures are weighted using survey weights. + indicates that the means are calculated on the sample of workers only.

*Source:* See Table 9-1.

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these correlate strongly with planning activities and underscore the finding that individual heterogeneity should be taken into account in the empirical work (see also MacFarland, Marconi, and Utkus, Chapter 6, this volume).

When looking at the probabilities of future events, another important and unique source of information in the HRS, one finds that those who attend a retirement seminar or asked Social Security to calculate retirement benefits are less likely to work full-time after age 62. Those who plan are also somewhat less likely to report that they expect house prices to increase more than the general price level in the next 10 years.

To assess the importance of seminars on retirement wealth accumulation, I regressed wealth measures on an indicator variable for whether respondents have attended a retirement seminar and an extensive set of controls.<sup>10</sup> The dependent variable is the ratio of non-pension wealth to permanent income, in some cases also controlling on pension and Social Security wealth. First, I consider financial net worth, which adds IRAs and Keoghs to liquid net worth, and next I consider total net worth; both are divided by permanent income. Even after this normalization, variation in the ratio of wealth to permanent income remains wide. Households in the first quartile of the distribution have financial wealth that is only 1 percent of income, while in the third quartile, financial wealth is approximately equal to permanent income. Considering net worth, households in the first quartile hold wealth equal to approximately 75 percent of their permanent income, while at the third quartile, they hold three times the amount of permanent income. Among the explanatory variables, I use age and age squared (the latter to capture the hump-shaped profile of wealth holdings), and also I evaluate demographic factors, such as the total number of children, the number of children still living at home, sex, race, country of birth, marital status, region of residence, and education. Permanent income is included among the regressors to account for the fact that accumulation can vary across levels of permanent income and to test whether rich households are simply a scaled-up version of poor households. The model also accounts for health status, past shocks, measures of risk aversion and impatience, and future expectations as described above. Additionally, the model accounts for whether households have pensions since these workers are more likely to work at firms that offer retirement seminars.

I also account for other motives to save, apart from providing for retirement. For instance, some may save to leave a bequest to future generations, which I account for by using information on people's reported intention of leaving bequests to heirs<sup>11</sup> and expectations of giving financial help to family member in the future, and I allowed for a precautionary saving by including the subjective variance of earnings risk calculated from the expectation of losing their job in the coming year.<sup>12</sup> I also account for the fact that households accumulate little because they can rely on help from relatives and friends in case they run into severe financial difficulties in the future. Conversely, the possibility of receiving bequests is controlled by a variable indicating whether at least one

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parent is alive. The model also incorporates the respondent's subjective expectation of future events that can affect wealth accumulation, for example his/her expectation that Social Security will be less generous or that house prices will increase more than the general price level.

To explore the impact of retirement education, I turn next to the empirical results. If education is likely to be offered to workers who most need it, one might expect the effect to be stronger at the lower quartiles of the wealth distribution and among those with low education. Thus, I perform quartile regressions and I also perform regressions across different education groups since, as reported above, least educated families save very little and invest in simple assets.

The main empirical results are summarized in Table 9-5 (detailed results appear in the Appendix. Retirement seminars affect the lowest two quartiles of the wealth distribution and they also affect the lowest two quartiles

TABLE 9-5 The Effect of Retirement Seminars on Retirement Accumulation

	<i>Total Sample (%)</i>	<i>1st Quartile (%)</i>	<i>Median (%)</i>	<i>3rd Quartile (%)</i>
<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</i>				
Total sample	20.5**	32.7**	26.8**	19.5**
Low education	20.7**	31.4**	14.6*	18.2**
High education	19.4**	39.3**	31.2**	17.6**
<i>D. 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**

*Notes:* This table reports the percentage changes in different measures of retirement accumulation resulting from attending retirement seminars. See Data Appendix for full estimates.

\* Indicates that the estimates from which percentages are based are statistically significant at the 10% level.

\*\* Indicates that the estimates from which percentages are based are statistically significant at the 5% level.

*Source:* See Table 9-1.

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of the distribution across education groups. Estimated effects are sizable, particularly for the least wealthy. Overall, attending seminars appears to increase financial wealth by approximately 18 percent (Table 9-5, Panel A). This effect derives mainly from the bottom of the distribution, where wealth increased by more than 70 percent. The effect is also large for those with least education with increases in financial wealth close to 100 percent. The reason for such large percentage changes is that households at the bottom of the wealth distribution and those with low education have little financial net worth and increases of \$2,000—the average change in wealth for those with low education that attend a retirement seminar—represent very large percentage increases.

Results for net worth show a similar pattern. Attending a retirement seminar increases net worth in the sample by approximately 6 percent. Again, the effect is mostly coming from those at the bottom of the net worth distribution. For the lowest quartile, attending a retirement seminar increases wealth by close to 30 percent. Seminars affect mostly those with less than a high-school education, increasing wealth by 27 percent for those with low education and at the bottom of the wealth distribution. The effect of seminars decreases steadily as one moves to higher quartiles of wealth (Table 9-5, Panel B).

Note that these estimates may be a lower bound of the effectiveness of retirement seminars, because the HRS provides no information about when the seminars were attended. If workers attended them recently, changes in saving behavior might not have affected wealth yet. Given that wealth is a stock, it takes time for seminars to affect it. The data set also contains no information on the content, length, and features of the seminars and, as mentioned in MacFarland, Marconi, and Utkus (Chapter 6, this volume), these could be important in evaluating and designing seminars. These estimates may also be small because of the large set of controls included in the regressions. Controlling for a smaller set of variables tends to boost estimates for retirement seminars (Lusardi, 2003). Nevertheless, regressions showed that it is important to control for the individual heterogeneity present in savings data.

### **More Comprehensive Retirement Resources Measures**

To extend my analysis, I take into account two additional sources of retirement resources: Social Security and pension. For the median 10 percent of wealth-holding households in the HRS, as much as 60 percent of total wealth is accounted for by Social Security and pensions (Gustman and Steinmeier, 1999*a*). Overall, pensions and Social Security account for half or more of total accumulation for households in all but the top decile of the wealth distribution.

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Pension wealth is not evenly distributed, accounting for 7 percent for those in the bottom quarter of wealth holders, but 31 percent for those in the 75th to the 95th percentile of households (Gustman et al., 1999), while the effect of Social Security on the distribution of wealth is equalizing. As one moves up the wealth distribution, the share of total accumulation due to pensions increases while the share of Social Security falls (Gustman et al., 1999).

Incorporating a more comprehensive measure of total wealth accumulation into the analysis is not without pitfalls. One reason is that pensions and Social Security are not liquid: It is hard (if not impossible) to borrow against such wealth and it is not clear that households with large pension wealth can use it to smooth consumption prior to retirement. Second, complex calculations are required to determine pension and Social Security wealth (Gustman and Steinmeier, 1999*b*), and many workers lack information on their pension.<sup>13</sup> Nevertheless, these two components are so sizable that it is important to analyze the effects of financial education on broader measures of net worth.

In what follows, I first consider a measure of pension wealth, as reported by HRS workers, which I sum to total net worth. I next add Social Security wealth (measured as of the time of the interview) to the previous measure. Hence, these models assess whether attending a retirement seminar influences not just total net worth but also accumulations in pension and Social Security wealth. Panels C and D of Table 9-5 (and Appendix Tables A9-4 and A9-5) report the effects of seminars on these more comprehensive measures of wealth.

Retirement seminars affect not only financial and net worth but also total accumulation patterns. The economic significance of the estimated effects is also in line with previous estimates. Overall, attending seminars increases net worth inclusive of pensions by about 20 percent and total net worth inclusive of pensions and Social Security by 16 percent. When using these comprehensive measures of wealth, I find that all education groups are affected by retirement education and estimates are significant as well for every quartile of total accumulation.

### Extensions

One possible concern in the evaluation of the effectiveness of retirement seminars is that seminars may not be offered exogenously. That is, firms may be more likely to offer seminars if they think workers are unprepared for retirement. Moreover, workers who attend such seminars may do so because they have a great deal of wealth and of course, as argued by Selnow (Chapter 2, this volume), the cause and effect relationship between saving and financial education are not entirely clear. If one could identify variation in attending retirement seminars that did not result from differences in saving, then it might be possible to distinguish between the hypothesis that

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knowledge causes the accumulation of wealth, and the hypothesis that wealth causes the acquisition of knowledge. This can be analyzed via randomized experiments, as in Duflo and Saez (Chapter 8, this volume) or by using instrumental variables. This latter approach confirms the finding reported previously: Retirement seminars are found to foster wealth accumulation even when using instrumental variables estimation (Lusardi, 2003).

Additionally, seminars affect accumulation not only by changing how much people save, but also how they invest their portfolios. Several authors have emphasized that there can be large transaction and learning costs associated with investing in stocks, which may explain why so many households, particularly those with low education, do not invest in stocks (Haliassos and Bertaut, 1995; Vissing-Jorgensen, 2002). As reported by Lusardi (2003), retirement seminars influence the ownership of stocks: Those who have attended seminars are more likely to hold stocks. Furthermore, employees with low wealth holdings are most affected by seminars, reinforcing the conclusion that education is remedial and mainly influences those households who otherwise might not hold stocks. Analysis by education groups confirms that those with low education and lower wealth (less than \$60,000) respond to retirement seminars by purchasing more stocks, but there is no effect of seminars for those with high education. This may explain why the effects of seminars are present and significant even for restricted measures of accumulation, such as financial net worth, which includes stocks.

Our estimates compare well with other works: For example, they are consistent with the findings of Bernheim and Garrett (2003) that also show that virtually all measures of retirement accumulation are higher when the respondent's employer offers financial education. Most importantly, as in this work, the effect is concentrated on the 25th and 50th percentile of accumulation and decreases or disappears at higher percentiles, a finding difficult to rationalize simply by appealing to tastes for saving. It is also consistent with the findings of Clark and Schieber (1998) that employer-provided education programs that increase the quality and type of financial information increase participation rates as well as contributions in pension plans. This may explain why the effects of retirement seminars get stronger when I consider measures of wealth inclusive of pension. Our findings are overall consistent with the work of Clark et al. (Chapter 10, this volume), who show that those individuals with less financial knowledge such as women are more likely to change their saving behavior after attending a financial education seminar, again suggesting that seminars may help those who display more difficulties in saving.

To put estimates in perspective, I have examined the effects of retirement seminars across other relevant determinants of wealth. For those in the first quartile of the net worth to permanent income ratio distribution, attending a seminar has as large an effect as not smoking or having received inheritances or money from relative and friends. The effect is also comparable to have high education: College or more than college education.

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When looking at those with low education, seminars have a similar effect on net worth as having pensions. Given the difficulties or costs of changing these other variables, retirement seminars may represent a viable alternative to stimulate savings.

Other studies, such as Garman (1998) and the references therein, have argued that financial education increases workers productivity and reduces absenteeism to deal with personal financial matters and overall absences from work. The value to employers of these benefits of financial education is estimated at around \$400, a figure easily above the costs of providing financial education. While these studies are often qualitative and based on small samples, they represent initial evidence from which to build more research. If saving stimulus improves household well-being, retirement seminars may be a worthy initiative. Examining data for workers who have already retired, Lusardi (2002) shows that those who did not plan are more likely to report a less satisfying retirement. Since lack of planning is usually associated with low wealth, this may explain the link to retirement satisfaction. A similar finding is reported by Panis (Chapter 14, this volume), who finds that retired respondents with low wealth are much less likely to report a satisfying retirement. Similarly, respondents with lower net worth report more frequent signs of depression.

### Conclusions

This chapter examines how retirement seminars help explain the wide differences in retirement accumulation that we observe across older households. The results show that seminars are remedial and appear to affect those at the bottom of the wealth distribution the most. The effects become even stronger for every education group and every quartile of the wealth distribution if pension and Social Security wealth are included in the household wealth measures.

These estimates imply that retirement seminars can influence the accumulation of both net worth and broader measures of wealth. Both financial and net worth can increase by 20 percent and a lot more across subgroups of low education when workers attend retirement seminars. A broader wealth measure, inclusive of pension and Social Security relative to permanent income, rises by 15–20 percent for both high and low-education families.

While the provision of information and the reduction of planning costs could play an important role in improving the financial security of many US households, it should be recalled that only a small number of workers currently attends retirement seminars. Consequently, many remain untouched by employers' efforts to provide financial education. This fact represents an important topic for future research and a challenge for policymakers. Moreover, many of the households with low education or at the bottom of the wealth distribution are minorities, particularly Blacks and Hispanics. They not only save little but often do not hold any high-return and

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tax-favored assets or even simple assets such as checking accounts. To understand the saving behavior and the effectiveness of financial education for these groups, it may be important to study them in isolation.

### **Data Appendix**

The data used in this chapter are taken from the 1992 wave of HRS. The HRS is a representative sample of individuals born in the year 1931–41 (approximately 51–61 at the time of the interview), through Blacks, Hispanics, and Floridians were oversampled. The individual deemed most knowledgeable about the family's assets, debts, and retirement planning was asked questions on housing, wealth, and income. As described in more detail in the text, one distinctive feature of the HRS is the attention paid to expectations about future events. A second innovation of the HRS is the use of bracketing or unfolding techniques to reduce the missing data problems in the measurement of financial variables. In the HRS, respondents who reported they did not know or refused to provide an estimate of the size of a net worth component were asked to report the value in a set of brackets. Smith (1995) and Juster and Smith (1997) evaluate these techniques and a detailed description of their advantages in improving the accuracy of information about household wealth.

The sample for the initial analysis I deleted respondents who were partially or fully retired at the time of the interview, and only financial respondents were considered between the ages of 50 and 61. The final sample for empirical analysis (Tables 9A-2–A-5) additionally deletes respondents who lack information on the variables used in the empirical estimation. The self-employed are not asked many of the questions about subjective future probabilities so they are deleted from the sample. Similarly, expectations about changes in income are not asked to respondents who are not working, so they are also excluded from the sample. Since the distribution of the ratio of total and financial net worth to permanent income is so wide, I trim the distribution and exclude the top and bottom 1 percent, resulting in a total number of observations of 3,265. Appendix Table 9A-1 reports descriptive statistics of variables used in the empirical estimation. The original sample which only excluded respondents who are retired or younger than 50 and older than 61 had 5,292 observations; the decrease to 3,265 is mainly due to the fact that some questions were only asked to respondents who were working. There is little reason to believe that the final sample suffers from self-selection. With respect to the original sample, the final sample covers respondents who are a little younger, more likely to be white (the fraction white is 0.79 initially versus 0.818 in my sample), more likely to be born in the United States (0.89 initially versus 0.924 in my sample), a bit more educated (0.11 have a college degree versus 0.129 in my sample). Overall, differences between these two samples are small.

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### Appendix

TABLE 9A-1 Descriptive Statistics

<i>Variables</i>	<i>Mean</i>	<i>(Std.Dev.)</i>
Financial net worth/permanent income	0.758	(1.261)
Total net worth/ permanent income	2.590	(2.628)
(Total net worth + pension)/permanent income	4.214	(3.512)
(Total net worth + pension + SS worth)/ permanent income	6.727	(3.741)
Stock ownership	0.290	(0.454)
Have not thought about retirement	0.224	(0.417)
Attended a retirement seminar	0.126	(0.332)
Age	54.40	(3.857)
# of children at home	0.806	(1.009)
Male	0.507	(0.500)
White	0.818	(0.385)
US born	0.924	(0.264)
Married	0.624	(0.484)
Divorced	0.185	(0.389)
Widowed	0.086	(0.282)
Separated	0.035	(0.177)
Northeast region	0.224	(0.417)
Midwest region	0.249	(0.433)
West region	0.185	(0.389)
High school	0.388	(0.487)
Some college	0.214	(0.410)
College	0.129	(0.336)
More than college	0.106	(0.308)
Excellent health	0.276	(0.447)
Very good health	0.331	(0.470)
Good health	0.275	(0.447)
Past unemployment	0.361	(0.481)
Past shocks	0.328	(0.469)
Received inheritances	0.197	(0.397)
Received money from relatives	0.080	(0.271)
Received money from insurance settlements	0.057	(0.233)
High risk aversion	0.647	(0.478)
Moderate risk aversion	0.130	(0.336)
Medium risk aversion	0.108	(0.311)
Permanent income /1000	51.846	(20.990)
Expectation to live to 75	0.660	(0.276)
Expectation that SS will be less generous	0.605	(0.289)
Expectation that house prices will go up	0.480	(0.286)
Expectation to give major financial help to family	0.406	(0.307)
Heavy smoker	0.168	0.374
Heavy drinker	0.048	(0.214)
No regular exercise	0.416	(0.493)
Talks to doctors about health	0.783	(0.412)
Bequest	0.420	(0.493)
Parents still alive	0.686	(0.464)
Variance of income	2.010	(7.687)
Can rely on help from relatives and friends	0.431	(0.495)
# of observations	3,265	

Source: See Table 9-1.

TABLE 9A-2 Determinants of Financial Net Worth Accumulation in the 1992 HRS

	<i>Total Sample</i>		<i>1st Quartile</i>		<i>Median</i>		<i>3rd Quartile</i>	
	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>
<i>Constant</i>	-0.274	3.000	-0.036	0.494	-0.958	1.753	2.216	3.575
<i>Seminar</i>	0.137**	0.065	0.088**	0.011	0.134**	0.040	0.103	0.086
<i>Health</i>								
Excellent health	0.144*	0.080	0.058**	0.013	0.071	0.048	0.146	0.102
Very good health	0.091	0.075	0.076**	0.012	0.073	0.045	0.108	0.095
Good health	0.069	0.074	0.048**	0.012	0.025	0.044	0.088	0.093
<i>Pos./Neg. shocks</i>								
Past unemployment	-0.004	0.047	-0.023**	0.008	-0.027	0.028	-0.055	0.061
Past shocks	-0.287**	0.045	-0.067**	0.008	-0.13**	0.028	-0.279**	0.059
Received inheritances	0.248**	0.055	0.043**	0.009	0.254**	0.034	0.350**	0.072
Money from relatives	0.229**	0.077	0.022	0.013	0.118**	0.049	0.301**	0.103
Money from insurance	0.490**	0.101	0.089**	0.017	0.359**	0.063	0.570**	0.133
<i>Risk aversion</i>								
High risk aversion	-0.113*	0.068	0.007	0.011	0.004	0.041	0.021	0.087
Medium risk aversion	-0.127	0.084	0.036**	0.014	0.020	0.052	0.042	0.109
Moderate risk aversion	-0.186**	0.088	0.014	0.015	-0.019	0.054	-0.126	0.113
<i>Subjective expectations</i>								
Expectation to live to 75	0.022	0.081	-0.020	0.014	-0.029	0.049	0.042	0.103
Expecting SS more gener.	0.067	0.073	0.007	0.012	0.015	0.044	0.105	0.095
Expecting house price up	-0.261**	0.075	-0.029**	0.013	-0.064	0.045	-0.280**	0.096
Expectation to give help to family	0.167**	0.070	0.031**	0.012	0.025	0.042	0.126	0.092

<i>Bequests and help</i>								
Bequests	0.312**	0.043	0.099**	0.007	0.203**	0.027	0.428**	0.057
Parent alive	-0.068	0.050	0.011	0.008	-0.011	0.030	-0.004	0.064
Can rely on help	0.031	0.043	0.027**	0.007	0.045*	0.026	0.053	0.056
<i>General attitudes</i>								
Heavy smoker	-0.179**	0.058	-0.038**	0.010	-0.09**	0.036	-0.190**	0.077
Heavy drinker	-0.028	0.099	-0.002	0.017	-0.015	0.060	-0.015	0.127
No regular exercise	-0.091**	0.045	-0.022**	0.008	-0.06**	0.028	-0.099*	0.059
Talk to doctor about health	0.161**	0.052	0.016*	0.009	0.035	0.032	0.172**	0.067
<i>Income and pension</i>								
Permanent inc./1000	-0.004	0.003	0.0008	0.0005	-0.0005	0.002	-0.001	0.004
Variance of income	0.003	0.003	0.003**	0.0007	0.008**	0.001	0.014**	0.003
Pension	-0.029	0.050	0.0006	0.008	0.005	0.030	0.008	0.066
Adjusted/Pseudo $R^2$	0.129		0.049		0.097		0.131	

\* Indicates statistical significance at the 10% level.

\*\* Indicates statistical significance at the 5% level.

*Notes:* This table reports OLS and quantile regressions of the determinants of the ratio of financial net worth to permanent income. Models include additional demographic controls including age, sex, race, marital status, number of children, education, regions, and a dummy for whether the respondent is born in the United States.

*Source:* See Table 9-1.

TABLE 9A-3 Determinants of Financial Net Worth Accumulation in the 1992 HRS

	<i>Low Education Sample (High School or Less)</i>							
	<i>Total Sample</i>		<i>1st Quartile</i>		<i>Median</i>		<i>3rd Quartile</i>	
	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>
<i>Constant</i>	3.560	4.069	0.094	0.614	0.572	1.582	2.756	4.202
<i>Seminar</i>	0.127	0.099	0.051**	0.015	0.088**	0.041	0.070	0.115
<i>Health</i>								
Excellent health	0.257**	0.099	0.025*	0.015	0.027	0.040	0.137	0.109
Very good health	0.198**	0.091	0.060**	0.014	0.064*	0.037	0.114	0.098
Good health	0.145*	0.087	0.023*	0.013	-0.004	0.035	0.077	0.094
<i>Pos./Neg. shocks</i>								
Past unemployment	0.001	0.059	-0.02**	0.009	-0.025	0.024	-0.064	0.067
Past shocks	-0.249**	0.061	-0.04**	0.009	-0.115**	0.025	-0.25**	0.069
Received inheritances	0.166**	0.080	0.033**	0.012	0.183**	0.034	0.225**	0.093
Money from relatives	0.055	0.117	0.052**	0.019	0.034	0.050	0.010	0.137
Money from insurance	0.473**	0.137	0.082**	0.021	0.243**	0.058	0.737**	0.157
<i>Risk aversion</i>								
High risk aversion	-0.038	0.096	0.002	0.014	-0.009	0.039	0.115	0.105
Medium risk aversion	-0.038	0.121	0.035*	0.019	0.019	0.050	0.143	0.135
Moderate risk aversion	-0.081	0.123	0.010	0.019	-0.050	0.050	-0.011	0.135
<i>Subjective expectations</i>								
Expectation to live to 75	0.017	0.101	-0.010	0.015	-0.035	0.041	0.024	0.112
Expecting SS more gener.	0.061	0.095	-0.005	0.014	0.025	0.038	0.0007	0.105
Expecting house price up	-0.277**	0.095	-0.04**	0.015	-0.046	0.039	-0.200*	0.105
Expected to give help to family	0.116	0.091	0.030**	0.014	0.031	0.037	0.093	0.104

<i>Bequests and help</i>								
Bequests	0.291**	0.059	0.063**	0.009	0.148**	0.024	0.341**	0.068
Parent alive	-0.038	0.064	0.011	0.010	-0.017	0.026	-0.024	0.072
Can rely on help	-0.019	0.057	0.008	0.009	0.022	0.024	0.036	0.065
<i>General attitudes</i>								
Heavy smoker	-0.165**	0.072	-0.02**	0.011	-0.058*	0.030	-0.194**	0.082
Heavy drinker	-0.144	0.131	-0.007	0.020	-0.054	0.053	-0.008	0.138
No regular exercise	-0.049	0.058	-0.012	0.009	-0.06**	0.024	-0.024	0.066
Talk to doctor about health	0.127*	0.065	0.012	0.010	0.047*	0.027	0.114	0.075
<i>Income and wealth</i>								
Permanent inc./1000	-0.003	0.003	0.002**	0.0005	0.003**	0.001	0.004	0.004
Variance of income	0.017**	0.008	0.006**	0.001	0.011**	0.003	0.023**	0.011
Pension	0.021	0.062	-0.002	0.009	-0.001	0.025	-0.005	0.071
Adjusted/Pseudo $R^2$	0.105		0.028		0.076		0.121	

\* Indicates statistical significance at the 10% level.

\*\* Indicates statistical significance at the 5% level.

*Notes:* See Table 9A-2. Estimates refer to the sample of respondents with high school education or lower.

*Source:* See Table 9-1.

TABLE 9A-4 Determinants of Total Net Worth Accumulation in the 1992 HRS

	<i>Total Sample</i>							
	<i>Total Sample</i>		<i>1st Quartile</i>		<i>Median</i>		<i>3rd Quartile</i>	
	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>
<i>Constant</i>	-2.044	6.148	-2.061	3.112	-4.044	5.454	-1.904	7.108
<i>Seminar</i>	0.149	0.133	0.308**	0.069	0.175	0.124	0.019	0.164
<i>Health</i>								
Excellent health	0.560**	0.164	0.304**	0.088	0.455**	0.149	0.907**	0.195
Very good health	0.195	0.154	0.186**	0.081	0.291**	0.139	0.407**	0.181
Good health	0.170	0.152	0.218**	0.078	0.264*	0.136	0.432**	0.177
<i>Pos./Neg. shocks</i>								
Past unemployment	-0.290**	0.096	-0.142*	0.050	-0.313**	0.088	-0.344**	0.117
Past shocks	-0.522**	0.093	-0.293**	0.050	-0.392**	0.087	-0.571**	0.115
Received inheritances	0.672**	0.112	0.293**	0.061	0.507**	0.106	0.813**	0.138
Money from relatives	0.723**	0.158	0.359**	0.085	0.728**	0.150	0.794**	0.200
Money from insurance	0.797**	0.208	0.561**	0.108	0.760**	0.198	0.641**	0.252
<i>Risk aversion</i>								
High risk aversion	0.009	0.139	0.124*	0.072	0.131	0.128	0.369**	0.165
Medium risk aversion	0.106	0.173	0.140	0.092	0.166	0.161	0.421**	0.208
Moderate risk aversion	-0.093	0.181	0.167*	0.095	0.231	0.168	0.103	0.218
<i>Subjective expectations</i>								
Expected to live to 75	0.078	0.166	-0.128	0.088	0.036	0.153	-0.018	0.198
Expecting SS more gener.	-0.125	0.149	0.021	0.078	0.045	0.137	-0.139	0.184
Expecting house price up	-0.452**	0.153	-0.236**	0.082	-0.447**	0.141	-0.489**	0.186
Expected to give help to family	0.359**	0.143	0.079	0.074	0.284**	0.132	0.551**	0.176

<i>Bequests and help</i>								
Bequests	1.115**	0.089	0.543**	0.047	0.877**	0.083	1.288**	0.110
Parent alive	-0.142	0.102	0.034	0.053	0.023	0.094	-0.180	0.124
Can rely on help	0.008	0.088	0.084	0.046	0.135*	0.082	0.194*	0.109
<i>General attitudes</i>								
Heavy smoker	-0.479**	0.119	-0.287**	0.065	-0.433**	0.112	-0.702**	0.146
Heavy drinker	-0.324	0.203	-0.232**	0.110	-0.102	0.188	-0.094	0.238
No regular exercise	-0.268**	0.093	-0.176**	0.050	-0.219**	0.087	-0.286**	0.114
Talk to doctor about health	0.309**	0.106	0.084	0.056	0.157	0.099	0.460**	0.129
<i>Income and wealth</i>								
Permanent inc./1000	-0.033**	0.006	-0.001	0.003	-0.013**	0.006	-0.036**	0.008
Variance of income	0.007	0.005	0.003	0.004	0.021**	0.005	0.026**	0.005
Pension	0.174*	0.102	0.189**	0.054	0.186**	0.094	0.164	0.126
Adjusted/Pseudo $R^2$	0.158		0.112		0.113		0.130	

*Notes:* This table reports OLS and quantile regressions of the determinants of the ratio of total net worth to permanent income. Models include additional demographic controls including age, sex, race, marital status, number of children, education, regions, and a dummy for whether the respondent is born in the United States.

\* Indicates statistical significance at the 10% level.

\*\* Indicates statistical significance at the 5% level.

*Source:* See Table 9-1.

TABLE 9A-5 Determinants of Total Net Worth Accumulation in the 1992 HRS

	<i>Low-Education Sample (High School or Less)</i>							
	<i>Total Sample</i>		<i>1st Quartile</i>		<i>Median</i>		<i>3rd Quartile</i>	
	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>	<i>Coeff.</i>	<i>Std. Err.</i>
<i>Constant</i>	4.485	8.556	-1.939	3.418	-0.915	5.813	0.632	14.238
<i>Seminar</i>	0.085	0.209	0.272**	0.089	0.134	0.146	0.131	0.373
<i>Health</i>								
Excellent health	0.561**	0.207	0.243**	0.084	0.464**	0.145	0.862**	0.373
Very good health	0.233	0.190	0.203**	0.084	0.451**	0.131	0.355	0.338
Good health	0.052	0.182	0.113	0.079	0.304**	0.125	0.271	0.321
<i>Pos./Neg. shocks</i>								
Past unemployment	-0.225*	0.124	-0.109**	0.054	-0.269**	0.086	-0.275	0.224
Past shocks	-0.452**	0.128	-0.270**	0.058	-0.344**	0.091	-0.420*	0.231
Received inheritances	0.895**	0.169	0.474**	0.075	0.658**	0.121	0.993**	0.310
Money from relatives	0.736**	0.246	0.436**	0.113	0.825**	0.178	0.757*	0.450
Money from insurance	0.994**	0.288	0.602**	0.129	0.971**	0.203	0.519	0.516
<i>Risk aversion</i>								
High risk aversion	0.022	0.202	0.192**	0.088	0.110	0.141	0.440	0.343
Medium risk aversion	0.275	0.254	0.253**	0.111	0.337*	0.178	0.331	0.451
Moderate risk aversion	-0.056	0.258	0.265**	0.114	0.053	0.182	0.059	0.449
<i>Subjective expectations</i>								
Expected to live to 75	0.137	0.213	-0.116	0.095	0.049	0.149	-0.078	0.377
Expecting SS more gener.	-0.071	0.199	0.101	0.086	0.096	0.137	-0.047	0.355
Expecting house price up	-0.568**	0.200	-0.277**	0.090	-0.537**	0.139	-0.425	0.357
Expected to give help to family	0.107	0.191	0.059	0.082	0.255*	0.133	0.198	0.353

<i>Bequests and help</i>								
Bequests	1.118**	0.124	0.513**	0.055	0.860**	0.087	1.280**	0.226
Parent alive	0.006	0.134	0.035	0.059	0.175*	0.095	0.120	0.243
Can rely on help	-0.035	0.121	0.024	0.053	0.070	0.085	0.321	0.223
<i>General attitudes</i>								
Heavy smoker	-0.367**	0.151	-0.284**	0.070	-0.357**	0.108	-0.481*	0.277
Heavy drinker	-0.422	0.276	-0.256**	0.125	-0.221	0.190	-0.269	0.460
No regular exercise	-0.227*	0.123	-0.091*	0.054	-0.165*	0.086	-0.271	0.224
Talk to doctor about health	0.183	0.137	0.073	0.061	0.063	0.096	0.247	0.250
<i>Income and wealth</i>								
Permanent inc./1000	-0.038**	0.007	0.004	0.003	-0.012**	0.086	-0.038**	0.014
Variance of income	0.043**	0.017	0.031**	0.007	0.030**	0.012	0.062**	0.027
Pension	0.392**	0.130	0.269**	0.057	0.220**	0.091	0.397*	0.237
Adjusted/Pseudo $R^2$	0.155		0.121		0.124		0.132	

*Notes:* See Table 9A-4. Estimates refer to the sample of respondents with high school education or lower.

\* Indicates statistical significance at the 10% level.

\*\* Indicates statistical significance at the 5% level.

*Source:* See Table 9-1.

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### Notes

<sup>1</sup> Author's computations among others is from the US Department of Labor's Abstract of 1998 Form 5500 Annual Reports.

<sup>2</sup> Cf. McCarthy and Turner (1996), Bernheim (1995, 1998), Bayer, Bernheim, and Scholz (1996), Clark and Schieber (1998), Madrian and Shea (2001), Bernheim and Garrett (2003), Clark d'Ambrosio, McDermed, and Sawant (Chapter 10, this volume).

<sup>3</sup> The implementation of new techniques to elicit information about wealth in the HRS has led to rather accurate wealth reports. For a thorough examination of the quality of HRS data and comparisons with other data sets, see Juster and Smith (1997) and Smith (1995), and the Data Appendix.

<sup>4</sup> An excellent examination of subjective probabilities in the HRS is provided in Hurd and McGarry (1995) and Hurd (1996). See Lusardi (1998) analyzes the probability of losing one's job next year and how this variable can be used to construct a measure of the variance of earnings.

<sup>5</sup> Special authorization is needed to access Social Security records. For detail on the construction of Social Security wealth, see Mitchell, Olson, and Steinmeier (2000).

<sup>6</sup> Alan Gustman and Tom Steinmeier provided the imputed Social Security wealth data; see Gustman and Steinmeier (1999*a,b*).

<sup>7</sup> For a detailed explanation of the construction of the pension data, see Venti and Wise (2001).

<sup>8</sup> For a more detailed discussion of the importance of business owners to explain wealth accumulation, see Hurst and Lusardi (2004) and Gentry and Hubbard (2000).

<sup>9</sup> Whether business equity represents accumulation for retirement is unclear.

<sup>10</sup> The description of the sample is provided in the Data Appendix.

<sup>11</sup> HRS respondents are asked whether "they plan to leave a sizable inheritance to their heirs." Here, I have grouped together all respondents who answered "yes" to this question, although several degrees of certainty exist (very likely, likely, etc.).

<sup>12</sup> For detail on the construction of this variable, see Lusardi (1998).

<sup>13</sup> Social Security wealth is calculated as the present value of the Social Security benefit payable in the form of an annuity from retirement until death. The variable I consider refers to the HRS respondent entitlement as of 1992; see Mitchell, Olson, and Steinmeier (2000) for calculations of Social Security wealth.

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