Education about retirement affects how employees use distributions from their defined contribution pension plans. Retirement education substantially increases the probability that participants age 40 and under will save a distribution but decreases the probability that college graduates and women will save one. These important differentials are concealed by estimates of the effect of retirement education on participants generally.

*The author is an economist with the Division of Policy Evaluation, Office of Research, Evaluation, and Statistics, Office of Policy, Social Security Administration.

Does Retirement Education Teach People to Save Pension Distributions?

*Leslie A. Muller**

Summary

As defined contribution pension plans have become increasingly common over the past two decades, so have lump sum distributions from those plans. Employees who elect such a distribution take the balance of their pension account with them when they leave a job. They can then choose to maintain the funds in accounts designated for retirement, invest them in other saving vehicles, or spend them. If spent pension distributions are not replaced by other savings, however, the future elderly are unlikely to be able to maintain a desirable standard of living. With employee-funded pensions expected to play an increasingly important role in financing Americans' retirement, saving these funds is essential.

This article is the first to examine the relationship between retirement education—specifically, meetings sponsored by employers or by public and private institutions—and the saving of lump sum distributions. Two definitions of saving are used: one that includes reinvestment only in tax-deferred saving vehicles, and a broader one that includes tax-deferred vehicles, general saving vehicles (stocks, bonds, savings accounts, and so on), and paying off debt. The analysis also evaluates the effects of retirement education on specific groups identified in previous research as being less likely to keep their pension distributions in tax-deferred accounts: namely, women, younger persons, and persons with less than a college education. The same groups tend to be less financially secure in retirement, making the effects of retirement education on them particularly relevant.

With an econometric model using ordinary least squares and data from the 1992 Health and Retirement Study, the analysis finds that retirement education does not affect the overall likelihood that employees will save their distributions, whether in tax-deferred or non-tax-deferred vehicles. The picture is more complicated for subgroups of employees. Attending a retirement meeting is associated with an increased likelihood of saving among persons age 40 and under but a decreased probability of saving among college graduates and women. No effect was found for men, individuals over age 40, or persons who did not graduate from college.

The finding that retirement education increases the likelihood of younger persons' saving a distribution is reassuring, for these workers are America's future retirees. However, the finding

that attending a meeting does *not* increase saving among some of the most financially vulnerable groups is a matter of concern to policymakers. Further study of the long-term effects of spending pension distributions is needed.

Introduction

As defined contribution pension plans have become increasingly common over the past two decades, so have lump sum distributions from those plans. Employees who elect such a distribution take the balance of their pension account with them when they leave a job. They can then choose to maintain the funds in accounts designated for retirement, invest them in other savings vehicles, or spend them.

Policymakers have acknowledged the increasing availability of lump sum distributions by passing tax legislation in 1986 and again in 1992 aimed at increasing the preservation of pension assets in tax-deferred accounts. Although the legislation has been somewhat successful at lowering the number of employees spending their pensions before retirement, the majority of individuals still do not put their balances into tax-deferred savings.

Several reasons for not saving distributions can be put forth. Paying off debts or meeting expenses may represent financially more attractive choices for some workers. Short-sightedness could also affect choices, particularly for young people or those with small account balances. Previous studies support either or both of these theories, as persons with lower incomes, persons with low account balances, and younger workers have been found more likely to spend their lump sum distributions.

Another reason may be that individuals simply do not have the requisite knowledge to make decisions that will maximize the usefulness of their funds. Traditional economic models of saving assume that individuals have such knowledge, or at least that they act as though they do. But retirement planning can be extremely complex and require more financial knowledge than most people have. Private financial planners realized this need decades ago. Employers are increasingly recognizing it and providing retirement education in the workplace. Even the federal government has begun a campaign to educate the public on retirement issues, with the Department of Labor taking charge of the Savings Are Vital to Everyone's Retirement Act passed by Congress in 1997.

This article examines the relationship between retirement education—specifically, meetings sponsored by employers or by public and private institutions—and the saving of lump sum distributions. Two definitions of saving are used: one that includes only reinvestment in tax-deferred saving, and a broader one that includes tax-deferred vehicles, general saving vehicles (stocks, bonds,

saving accounts, and so on), and paying off debt. The analysis also evaluates the effects of retirement education on specific groups of individuals identified in previous research as being less likely to keep their pension distributions in tax-deferred accounts: namely, younger persons, women, and persons with less than a college education. The same groups tend to be less financially secure in retirement, making the effects of retirement education on them particularly relevant.

A sample of participants in defined contribution plans was drawn from the 1992 Health and Retirement Study (HRS). The HRS is unique in that it allows researchers to construct characteristics such as income and marital status at the time of the distribution (rather than at the time of the interview), and it gives the reason (or reasons) for leaving a job. The HRS is also a rich source of data from which researchers can construct proxy variables to control for unobservable individual tastes in saving.

This article describes previous studies of lump sum distributions and retirement education, provides an overview of the data analyzed, and presents an econometric analysis of the effect of retirement education on the lump sum distribution choice. The analysis estimates the effect of retirement education without and with control variables, then adds interaction terms to account for the differences in subgroups at risk of poverty during retirement. Possible selection bias in the model and one method of addressing that bias are also discussed.

Lump Sum Distributions

Employer-sponsored pensions can be categorized into two broad types: defined benefit (DB) plans and defined contribution (DC) plans. DB plans are generally computed using a formula that takes into account years of service, salary, or both and were by far the most common pension plans into the 1980s. DC plans consist of an individual account for every employee into which the employee, the employer, or both may make contributions. In 1988, 19 percent of primary pension plans were DC and 65 percent were DB. By 1993, the percentage of DC plans had risen to 34 percent, and the percentage of DB plans had fallen to 49 percent (Scott and Shoven 1996).

What are the implications of this trend? Lump sum distributions under DB plans have historically been quite rare; in 1988, only 10 percent offered preretirement cashouts (Fernandez 1992).[1] Although more DB plans and DB hybrid plans (that is, cash balance plans) now offer lump sum options, the percentage remains low.[2] The rise in DC pension plans has increased the percentage of workers eligible for a lump sum payout. In 1988, 60 percent of participants in employer-sponsored pension

plans reported that their primary retirement plan offered a lump sum option; by 1993, 72 percent of workers did (Scott and Shoven 1996).

Use of Lump Sums

Participants in DC pension plans often have several options for what to do with their funds when they leave a job. They may leave the balance with their former employer, transfer it to an individual retirement account (IRA) or the new employer's plan, or purchase an annuity. These uses are commonly known as rollovers or fiduciary-to-fiduciary transfers. Their other option is to cash out the distribution. In that case, the employee actually takes possession of the funds and decides whether to reinvest them in a tax-deferred vehicle such as an IRA, invest in non-tax-deferred vehicles, pay off debt, or spend the money on consumer goods.

Studies of rollovers report remarkably different rates, depending on the source of the data used, the year of the survey, and the characteristics of the sample studied. Hurd, Lillard, and Panis (1998) tabulated data from distributions received between the 1992, 1994, and 1996 waves of the HRS and found that 69 percent of job leavers who had DC plans rolled the funds over. Engelhardt (1999) used retrospective data from the 1992 HRS and found that approximately 41 percent rolled over their money. The difference in rollover rates most likely results from whether the lump sum was received before or after 1992. The conclusion that recent distributions are more likely to be rolled over than earlier ones is consistent with previous research (see Andrews 1991; Bassett, Fleming, and Rodrigues 1998).

Lump sum rollover rates are much lower in studies based on the Employee Benefit Survey, a supplement to the Current Population Survey (CPS) that was administered every fifth year until 1993 and that contains detailed pension information.[3] The majority of research on use of lump sum distributions is based on these data, including studies by Poterba, Venti, and Wise (1998) and Bassett, Fleming, and Rodrigues (1998), who use the 1993 survey. Bassett, Fleming, and Rodrigues used a sample that includes both DB and DC participants who received a lump sum between 1988 and 1992; the authors found that 28 percent of those recipients rolled over their distribution. Poterba, Venti, and Wise studied DB and DC lump sum recipients from all years and reported a 24 percent rollover rate.

What might account for the large differences in rollover rates between studies based on the HRS and the CPS? One possible reason is that the HRS targets individuals between the ages of 51 and 61 in 1992, while the CPS covers individuals who were aged 18 to 65 in the interview year. Research has shown that rollover propensity increases with age (Bassett, Fleming, and Rodrigues 1998; Purcell 2000; Poterba, Venti, and Wise 1998); thus the older HRS sample may partially explain why studies based on HRS data show a higher rate.

The most likely reason for the difference, however, is the nature of the questions each survey asks regarding use of lump sums. While the HRS asks *all* respondents with a previous DC plan what became of the balance, the CPS excludes from further questions those respondents who left their balances with a former employer and those who annuitized their balances. Approximately 40 percent of Hurd, Lillard, and Panis's sample chose one of those two options, resulting in an underestimation of the rollover rate among *all* job leavers.

One pattern has been consistent with respect to lump sum rollovers: a much larger percentage of dollars than percentage of distributions is rolled over. Hurd, Lillard, and Panis found that 18 percent of DC plans were cashed out compared with only 6 percent of DC plan dollars. Yakoboski (1999) observed the same pattern when examining 1995 income tax data. Although only 34 percent of the 5.6 million tax filers who received a lump sum in 1995 rolled over their distribution into an IRA, 77 percent of lump sum dollars were rolled over.

Who Spends or Saves Lump Sums?

It matters not only how many individuals are spending their lump sums, but who is doing the spending. Most lump sum analysis concludes that younger workers, lower earners, and persons with smaller distributions are less likely to roll distributions over (Bassett, Fleming, and Rodrigues 1998; Purcell 2000; Poterba, Venti, and Wise 1998). Workers with less than a college education also tend to cash out their distributions (Bassett, Fleming, and Rodrigues 1998; Poterba, Venti, and Wise 1998), and women have been found to have greater cashout propensities than men (Scott and Shoven 1996).

Why are these findings important? Low earners and the less educated have been found to have less potential for future wage growth (Korczyk 1996), increasing the chance that spent lump sums will have a negative impact on their financial well-being in retirement. In addition, households headed by divorced or widowed women in their 50s and 60s have approximately two-thirds the median net worth of similar households headed by men (Lupton and Smith 1999);[4] spending lump sums may only worsen this situation. Furthermore, Gale (1998) finds that younger individuals, low earners, and those with less wealth are unlikely to substitute pension wealth for other savings. The same people who are spending their lump sums are those for whom a pension would have been most likely to represent new wealth.

Preserving Pension Distributions

In some individual cases, spending a pension distribution may be the financially optimal thing to do. However, public policy must address the possibility of inadequate retirement security for future generations. Some tax legislation has already been enacted to curb cashouts, but the potential of retirement education to affect decisions about the use of lump sums needs to be explored further.

Tax Disincentives

Government policies aimed at preserving lump sum distributions have predominantly taken the form of tax disincentives. The Tax Reform Act of 1986 contains the first changes in the tax code to address pension distributions. That act imposes a 10 percent penalty on distributions for persons under age 59½ if the distribution is not reinvested in a tax-deferred retirement vehicle within 60 days of receipt.[5] In 1992, Congress added the Unemployment Compensation Amendments Act, which mandates that employers withhold 20 percent of the lump sum balance for federal income tax if the balance is not transferred directly into another tax-deferred account upon the employee's leaving the job.

Because portable pensions (such as DC plans) are a relatively recent phenomenon, few studies have examined the effects of tax legislation on them. Chang (1996) looked at the effects of the 10 percent tax penalty and estimated that it increases the probability of a pension distribution's being rolled over by 4 percent for high-income groups (those with annual incomes greater than $39,999). The penalty has no statistically significant effect on low-income groups, particularly when members are under 55 years of age. Scott and Shoven (1996) also documented differences in rollovers by income. For persons earning more than $30,000 annually, the propensity to cash out declined between 1983 and 1988 and continued downward from 1988 to 1993. For those with incomes at or below $30,000, the cashout propensity declined from 1983 to 1988 but rose from 1988 to 1993. Thus, the tax penalty may stem cashouts among high-income groups, but workers with lower incomes still fail to roll over their distributions.

Purcell (2000) used the 1993 Survey of Income and Program Participation (SIPP) to estimate the effects of the 1992 amendments. He found that individuals who took distributions after 1992 were 16 percent more likely to roll them over than those who took lump sums between 1986 and 1993.[6] However, the study did not differentiate between recipients who were under or over the effective age of the 10 percent penalty—that is, 59½—so it is not clear that the cashout difference was due entirely to the tax legislation.[7]

In sum, limited evidence suggests that tax legislation has decreased cashouts of lump sums, especially for those with higher incomes. However, if lack of financial knowledge plays a large role in recipients' decisions, then educating workers about retirement issues may affect behavior in a way that tax legislation has been unable to do.

Retirement Education

Most Americans demonstrate a clear need for financial guidance. Only 33 percent of surveyed adults understand the basics of compound interest, and 42 percent do not know why federally insured certificates of deposit have a lower rate of return than privately held mutual funds (Bernheim 1998). Most people are also uninformed about retirement planning. Results from the 1997 Retirement Confidence Survey (EBRI 1997) show that only 36 percent of workers have tried to determine how much they will need to save for retirement. Of these individuals, 24 percent cannot provide an actual figure (EBRI 1997).

An informed decision about the use of pension distributions requires knowledge about one's pension plan, how much income is needed for retirement, and the advantages of compound interest, among other things. With more knowledge about financial matters and retirement, would workers make different spending and saving decisions than they do now? Evidence suggests that they would.

A college education appears to increase general economic literacy and to help develop the skills needed to process financial information. Bernheim and Scholz (1992) have found that the average college-educated person is likely to engage in more sophisticated financial planning than the average person without a degree and is likely to save more adequately for retirement.

Studies also show that retirement education—employer-sponsored seminars, in particular—affects savings behavior.[8] A 1996 Employee Benefit Research Institute (EBRI) analysis (Milne, VanDerhei, and Yakoboski 1996) reports that 39 percent of workers who have a pension plan said that using employer-provided materials or attending seminars led them to increase their contribution. In addition, individuals who make use of retirement education offered by their employer have an overall saving rate that is 2.2 percent higher than those who do not use educational material, and they accumulate $2,176 more in retirement wealth (Bernheim and Garrett 1996). Furthermore, pension participation rates are 11.5 percent higher among non-highly compensated employees and 10.5 percent higher among highly compensated employees whose employers offer frequent retirement seminars (Bayer, Bernheim, and Scholz 1996).[9,10] Thus it is reasonable to suggest that retirement education may have

an effect on saving behavior—specifically, on the choice of whether to save a pension distribution.

The availability of retirement education, like that of pension distributions, has grown remarkably in the past 20 years. Although private financial planners have been in business for many years, substantially more community colleges and workplaces began to offer retirement education in the 1980s and 1990s. By 1994, 88 percent of large employers offered financial education; two-thirds of those programs were added after 1990 (*Pensions and Investments* 1995).

Retirement education takes many forms. Some firms use only written materials such as brochures and pamphlets, and others offer workshops and seminars, Internet work sites, or one-on-one financial advising. In 1993, approximately 65 percent of pension plan sponsors provided newsletters, and 44 percent offered seminars to all workers (Bayer, Bernheim, and Scholz 1996).

Retirement education includes a variety of topics. In 1995, nearly all employer-sponsored programs covered asset allocation, and 95 percent explained risk and risk tolerance. Eighty-eight percent discussed basic investment terminology and explained the characteristics of the pension plan, and 73 percent showed employees how to calculate income for retirement. But only 39 percent specifically addressed the impact of spending pension distributions before retirement (Milne, VanDerhei, and Yakoboski 1995).

What exactly constitutes "retirement education" in the workplace can be fuzzy for many employers. Because most DC plans offer participants a choice of options for investing their pension balances, employees often look to employers for advice on how best to allocate their assets. Advising employees is risky, however—employers who offer anything that resembles advice may be held liable for losses incurred by their employees, even if the employees ultimately make the investment decisions.

Not until the early 1990s did the government provide clear guidelines for employers structuring a retirement education program. In 1992, the Department of Labor finalized section 404(c) regulations of the Employee Retirement Income Security Act, which outline ways for employers to minimize their legal risk. Although following the guidelines does not completely protect a plan sponsor from legal liability, it does provide a defense against allegations of misdirected advice.

Data from the Health and Retirement Study

The 1992 HRS was the first wave of an ongoing survey of 12,057 men and women, most of them between the ages of 51 and 61 in 1992.[11] In addition to standard demographic and financial questions, the survey includes questions related specifically to retirement. Detailed pension information and expectations about retirement provide a rich source of data for researchers analyzing retirement issues.

Since the present analysis is concerned with how retirement education affects employees' use of pension distributions, it includes only the 938 HRS respondents who participated in a DC plan in a previous job.[12] Moreover, since questions about retirement education were asked only in 1992, subsequent waves of the HRS are not included.

Of the HRS respondents who received a distribution, 640 answered the question about attendance at a retirement meeting and indicated the kind of saving vehicle in which they invested their distribution.[13] Table 1 reports summary statistics for this group. Nineteen percent of the 640 reported having attended a meeting; of that group, 72 percent (or 14 percent of the total sample) attended a meeting sponsored by either their employer or their spouse's employer. The mean age at which a distribution was received was 49, the average distribution was $33,797 (in 1993 dollars), and the average year of receipt was 1985.[14]

Information on Lump Sum Distributions

The HRS asks all respondents if they have worked at least 5 years at a previous job. Those who have are asked whether that job had an employer-sponsored pension plan and whether the plan was a DB plan, a DC plan, or had characteristics of both. Because only a small percentage of DB plan participants are given the choice of whether to take a distribution, and lump sum eligibility is not reported for previous jobs, only those with DC plans are included in this analysis.[15,16]

The HRS then asks each respondent what he or she did with the pension distribution upon job separation. Options included leaving it with the former employer to accumulate, rolling it directly into an IRA, rolling it into a new employer's pension plan, converting it to an annuity, or cashing out the balance.[17] For those who elected to cash out the distribution, the use of the distribution is recorded. Choices included spending it, saving or investing it in general saving vehicles or paying off debt, or investing it in an IRA. Although the survey provides for more than one use of the distribution, no respondents in the sample chose more than one.

Two definitions of saving are used in the present analysis. The broader definition includes putting the distribution in either a tax-deferred (retirement) or a non-tax-deferred (general saving) vehicle or paying off debt.[18] A general saving vehicle is one that is not tax-deferred, including (but not limited to) stocks, bonds, certificates of deposit, and bank savings accounts. This

broader definition is referred to as *all types of saving*. The narrower definition includes only tax-deferred saving and is referred to as *retirement saving*. The broader definition of saving is included in the analysis because, all else being equal, investing in non-tax-deferred assets does increase the resources available for retirement.

Uses of the distribution are shown in Table 2. The table includes everyone who got a distribution except those who did not answer the retirement education question or who answered "don't know" to the question regarding use of the distribution.[19] Two points are worth noting. First, just under one-third of the sample chose to leave their balance with their former employer or to buy an annuity. Second, the percentage of dollars saved—using either definition—was much greater than the percentage of individuals who saved their distribution: 58 percent and 50 percent of distributions were saved using the broad and narrow definitions of saving, respectively, while 78 percent and 74 percent of dollars were used in these ways.[20] Although 45 percent of individuals cashed out their distributions, only 24 percent of distributed dollars were cashed out.

Information on Retirement Education

The HRS is the only public source of data that contains information on both retirement education and pension distributions. All respondents are asked two questions

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Table 1.
Summary statistics (in percent unless otherwise specified)

Variable	Mean (N = 640)	Standard deviation
Attended a retirement meeting	19	39
Attended a retirement meeting sponsored by employer	14	45
Female	49	50
Black/other	22	41
College degree	25	43
Married	75	44
Age 40 or under	15	36
Family annual earnings over $35,000 (1993 dollars)	59	49
Left job, family problems	12	32
Left job, involuntary leave	29	45
Left job, disabled	13	34
Left job, retired	17	38
Left job voluntarily	28	45
At least 50 percent chance of living to age 75	35	48
Expects to leave large inheritance	47	50
Does not think at all about retirement	30	46
Short saving horizon (few months to 1 year)	25	44
Medium saving horizon (few years to 10 years)	64	48
Long saving horizon (over 10 years)	11	31
Risk averse	71	43
Age (years)	49	8.5
Year left job	1985	6.4
Family earnings at time of distribution (1993 dollars)	50,247	53,047
Amount of distribution	33,797	81,147
Number of dependents	1.5	1.1
Total net worth	295,039	687,818

SOURCE: Author's tabulations from the 1992 Health and Retirement Study.

NOTES: Variables for marital status, age, earnings, and amount of distribution are given as of the time the respondent left his or her job; other variables are given as of the time of the interview.

Table 2.
Uses of pension distribution and distributed dollars (in percent)

Use of pension	Distributions (N = 778)	Dollars (N = 566)
Saved in all types of vehicles	58	78
Retirement saving vehicles		
Rolled over/invested in an IRA	18	33
Transferred to new employer	2	4
Left in old employer's account	25	26
Invested in an annuity	5	11
General saving vehicles		
Saved or invested in general saving vehicles	5	3
Paid down debt	3	1
Saved in retirement vehicles only	50	74
Took cash lump sum[a]	45	24
Spent	25	14
Categories unable to classify		
Took cash/unidentified use	12	6
Other use	1	2
Lost pension/pension in litigation/traded pension rights for other compensation	4	b

SOURCE: Author's tabulations from the 1992 Health and Retirement Study.

NOTES: Number of respondents in the column for distributions is greater than the number in the column for dollars because of missing dollar amounts.

a. Includes the percentages under general saving vehicles, paying down debt, spent, and took cash/unidentified use.

b. Less than $1.

about retirement education: have they ever attended any meetings on retirement or retirement planning; if so, did their own or their spouse's employer organize the meeting?

The percentage of DC participants who attended a retirement meeting is reported in Table 3 by age, education, sex, family earnings at the time of job separation, and amount of the distribution.[21] Previous studies of distributions have found those five characteristics to be correlated with the likelihood of lump sum rollover.

Looking at these groups, a pattern emerges—the groups with a lower percentage of individuals attending meetings also have a lower percentage of individuals saving their distributions. The most striking differences occur between persons under and over age 40, those with and without a college degree, and those with distributions less than $4,000 and greater than $30,000.

Findings from an Econometric Model

A linear probability model using ordinary least squares sheds further light on the relationship between attending a

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Table 3.

Characteristics of individuals who attended a retirement meeting and saved their pension distribution (in percent)

Characteristic	Attended a retirement meeting	Saved in all types of vehicles	Saved in retirement vehicles only
All respondents	19	69	60
Age[a]			
40 and under	14	58	36
Older than 40	20	71	64
College degree	30	80	74
No college degree	15	66	56
Women	18	63	51
Men	20	75	69
Family annual earnings[a] (1993 dollars)			
$35,000 or less	17	58	47
Over $35,000	20	77	69
Amount of distribution (1993 dollars)			
$4,000 or less	16	38	27
$4,001–$12,000	18	62	50
$12,001–$30,000	20	69	55
Over $30,000	26	83	79
Observations	640	640	640

SOURCE: Author's tabulations from the 1992 Health and Retirement Study.

a. Age and family earnings are for the year of job separation.

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retirement meeting and lump sum use.[22] The model is as follows (omitting individual subscripts):

$$S_j = X\beta_j + \alpha_j R + \omega_{1j}(R*y) + \omega_{2j}(R*c) + \omega_{3j}(R*f) + P\zeta_j + \varepsilon_j, \quad (1)$$

where S_j is a dichotomous variable equal to one if the respondent saved his or her distribution and equal to zero otherwise, with j=1,2, depending on the definition of saving used. The independent variable of interest, R, is a dummy variable equal to one if the respondent attended a retirement meeting and zero otherwise. X contains the observed variables that are thought to affect the saving decision (the variables are listed in Table 4).[23,24] The binary variables $(R*y)$, $(R*c)$, and $(R*f)$ are interaction terms of the retirement meeting variable with the binary variables *age 40 and under*, *have a college degree*, and *women*, respectively. These binary variables are included in X. P is a vector of proxy variables to control for unobserved individual saving tastes.

One set of variables included in X merits explanation—the five dummy variables indicating whether an individual left his or her job voluntarily, involuntarily, or because of disability, retirement, or family problems.[25] Respondents to the HRS could give more than one reason for separating from the job. To simplify interpretation of the effects of these variables, this analysis assigned only one response per individual.[26] The reason for leaving a job is important because it affects the former employee's decision about whether to save the pension and helps describe the worker's financial situation at the time of the choice.

The model is first estimated without interaction terms or proxy variables; the results for all types of saving and for retirement saving only are presented in Table 4.[27] Attending a retirement meeting leads to a 5 percent greater likelihood of saving a distribution in all types of saving and a 4 percent greater probability of saving in retirement vehicles only. Neither result is statistically significant, however. After adding the control variables in X, attendance at a retirement meeting exerts a small, negative effect on both types of saving.[28] Both estimates remain statistically insignificant.[29]

The estimated effects of the control variables in Table 4 are qualitatively similar to those in previous pension distribution research. Recipients of larger distributions are more likely to save them (at a rate of 0.5 percent to 0.6 percent per $10,000 in the pension account), regardless of the definition of saving used. Recipients who graduated from college save their distributions 13 percent more often than nongraduates in all types of saving vehicles, and 20 percent more often in retirement vehicles. Those with family earnings over $35,000 at the time of job separation save their distributions more often

than families with lower earnings: 16 percent for all types of saving and 18 percent for retirement saving only.

One interesting result lies in the reason for leaving a job. Those who left their job because of disability or poor health are 20 percent less likely to save their distribution in any type of vehicle than those who left voluntarily (significant at less than the 5 percent level). The number who left because of disability or poor health and who

invested their distribution in retirement saving is much smaller in magnitude and is statistically insignificant. None of the other reasons for leaving a job affects the choice to save a distribution in retirement vehicles.[30]

Leaving a job because of poor health is a situation over which the individual has little control. It is also a situation in which the immediate need for funds—be they for health care costs or daily living expenses—may override

Table 4.
Effects of retirement education on lump sum use

Variable	All types of saving				Retirement saving only			
	Mean	Mean plus control variables	Mean plus control and proxy variables	Mean plus control variables and interaction terms	Mean	Mean plus control variables	Mean plus control and proxy variables	Mean plus control variables and interaction terms
Attended a retirement meeting	0.05 (0.05)	-0.04 (0.06)	-0.04 (0.06)	0.07 (0.10)	0.04 (0.05)	-0.07 (0.05)	-0.07 (0.06)	0.09 (0.09)
Female		-0.06 (0.05)	-0.07 (0.05)	-0.03 (0.05)		-0.09 ** (0.05)	-0.11 ** (0.05)	-0.06 (0.05)
Black/other		-0.10 (0.06)	-0.11 (0.07)	-0.10 (0.06)		-0.13 ** (0.06)	-0.15 ** (0.06)	-0.14 ** (0.06)
College degree		0.13 ** (0.05)	0.12 ** (0.05)	0.19 ** (0.06)		0.20 ** (0.05)	0.19 ** (0.06)	0.25 ** (0.06)
Married		-0.03 (0.06)	-0.03 (0.06)	-0.04 (0.06)		-0.02 (0.06)	-0.01 (0.06)	-0.02 (0.06)
Amount of distribution[a]		0.005 ** (0.002)	0.005 ** (0.002)	0.005 ** (0.002)		0.006 ** (0.002)	0.005 ** (0.002)	0.005 ** (0.002)
Age 40 or under		-0.02 (0.10)	-0.05 (0.10)	-0.08 (0.10)		-0.15 (0.10)	-0.16 * (0.10)	-0.16 (0.10)
Family annual earnings over $35,000		0.16 ** (0.05)	0.12 ** (0.05)	0.16 ** (0.05)		0.18 ** (0.05)	0.15 ** (0.05)	0.18 ** (0.05)
Number of dependents		-0.01 (0.02)	-0.01 (0.02)	-0.02 (0.02)		-0.03 (0.02)	-0.04 * (0.02)	-0.03 (0.02)
Left job involuntarily		-0.02 (0.06)	-0.008 (0.06)	-0.03 (0.06)		0.002 (0.06)	0.02 (0.06)	0.0006 (0.06)
Left job, disabled		-0.20 ** (0.08)	-0.13 (0.08)	-0.19 ** (0.08)		-0.03 (0.08)	0.03 (0.08)	-0.02 (0.08)
Left job, retired		-0.05 (0.07)	-0.06 (0.08)	-0.04 (0.07)		0.01 (0.07)	0.02 (0.08)	0.02 (0.07)
Left job, family problems		-0.13 (0.09)	-0.15 * (0.08)	-0.12 (0.08)		-0.08 (0.08)	-0.09 (0.08)	-0.08 (0.08)
Retirement meeting * college degree				-0.20 * (0.11)				-0.19 * (0.11)

Continued

the need to save for retirement, whether in all types of vehicles or in retirement vehicles only. To determine whether all of the dummy variables belong in the equation, their joint significance was tested for the general definition of saving, resulting in an F statistic of 1.95, with a p-value of 0.10. Thus there is moderate evidence that circumstances at the time of distribution receipt have an effect on decisions regarding lump sum use.[31]

Thus far, retirement education appears to have no effect on lump sum saving. The HRS study design may influence this result, however. The survey does not collect data on the year in which individuals attended the retirement meeting, only the year in which they left their job. Thus, some workers could have attended the meeting *after* deciding how to use their distribution. If so, then the coefficient estimate on the retirement

Table 4.
Continued

Variable	All types of saving				Retirement saving only			
	Mean	Mean plus control variables	Mean plus control and proxy variables	Mean plus control variables and interaction terms	Mean	Mean plus control variables	Mean plus control and proxy variables	Mean plus control variables and interaction terms
Retirement meeting ∗ age 40 and under				0.34 * (0.18)				-0.02 (0.19)
Retirement meeting ∗ female				-0.15 (0.11)				-0.20 * (0.11)
Total net worth			0.0001 (0.0003)				-0.000001 (0.00003)	
Expects to leave large inheritance			0.01 (0.05)				0.05 (0.05)	
At least 50 percent chance of living to age 75			0.13 ** (0.05)				0.07 (0.05)	
Saving horizon 1–10 years			0.09 * (0.06)				0.04 (0.05)	
Saving horizon more than 10 years			0.01 (0.08)				0.03 (0.08)	
Risk averse			0.06 (0.07)				0.10 (0.07)	
Constant	0.68 ** (0.02)	1.13 ** (0.16)	1.13 ** (0.18)	0.76 ** (0.20)	0.59 ** (0.02)	1.24 ** (0.16)	1.10 ** (0.19)	1.07 ** (0.23)
R-squared	0.002	0.19	0.21	0.20	0.001	0.27	0.29	0.28
Observations	640	459	447	459	640	459	447	459

SOURCE: 1992 Health and Retirement Study.

NOTES: Variables for total net worth and amount of distribution are in tens of thousands of 1993 dollars. Omitted dummy variables are left job voluntarily and saving horizon less than a year. Year dummy variables for the year of the distribution are included in all columns except for the two for the mean only.

Robust standard errors are adjusted for cluster correlation within families and are in parentheses.

** Significant at 5 percent level.

* Significant at 10 percent level.

a. In tens of thousands of 1993 dollars.

meeting variable does not measure what is intended in this analysis—the effect of retirement meetings on lump sum use. The estimates may show no effect of retirement education on lump sum use, when in fact an effect does exist in the relevant population.

In order to investigate this possibility, a subgroup of 159 individuals, none of them working at the time of the HRS interview, was identified.[32] Eighty percent of persons in this nonworking subgroup who said they had gone to a retirement meeting attended one sponsored by an employer. Since these persons did not have a current job but attended the meeting of an employer, they must have gone to the meeting before they received their distribution.[33] With this fact in mind, the model was then reestimated using this nonworking subgroup and breaking the sample into three groups: those who attended an employer-sponsored meeting, those who attended a non-employer-sponsored meeting, and those who did not attend a meeting at all. The equation was then reestimated for the full sample, and the results were compared.[34]

The results are reported in Table 5. Individuals in both groups are 6 percent less likely to save their distributions in all types of saving if they attended an employer-sponsored meeting. The full sample is 9 percent less likely to put their lump sum in a retirement saving vehicle, and the group not working is 5 percent less likely. Although the estimates are statistically insignificant, the similarity of the estimates from the two samples suggests that lack of information on when recipients attended a meeting is not driving the overall results.

Possible Selection Bias

The decision to attend a retirement meeting may be motivated by the same unobserved saving tastes that affect the decision to save a pension distribution. In fact, Bernheim and Garrett (1996) test the hypothesis that attending a retirement meeting is correlated with unobserved saving tastes. They conclude that persons with a lower propensity for saving are more likely to be offered retirement education in the workplace and to take advantage of it. If this is in fact the case, then the coefficient of R in the model used in this analysis is underestimated, and all parameter estimates are biased and inconsistent.

The preferred method for addressing this issue is instrumental variable estimation; however, since no appropriate instrument is readily available, and the HRS is a rich source of proxy variables, proxy variables are used to control for unobserved tastes. [35] The vector, P, contains these proxies.

Hurd, Lillard, and Panis (1998) have developed a theoretical framework for choosing relevant proxy variables. By extending a version of a life cycle model (Hurd 1989, 1990, 1999) to include pension distributions specifically, they identify specific saving characteristics that may affect the lump sum saving choice. The following paragraphs include brief descriptions of the proxy variables used in the present analysis—bequest intent, mortality risk, planning horizon, uncertainty about the future and liquidity constraints, and risk aversion—many of which are also used by Hurd, Lillard, and Panis in their empirical model, with similar results. [36]

Bequest intent is measured with a binary variable that equals one if the respondent intends to leave a large bequest, zero otherwise. Expectations about mortality are captured in a binary variable constructed from the respondent's rating of the likelihood that he or she will live to age 75;[37] the variable equals one if the respondent thinks there is at least a 50 percent chance of living to age 75. The fact that this variable is based on the respondent's own assessment of longevity (rather than on estimates from standard longevity tables) is important because it affects his or her rate of future discount. Persons who expect a shorter life—and hence a shorter retirement, if one at all—could well have a shorter time horizon for planning and a correspondingly lower amount of saving, as well as be less likely to save a pension distribution.[38]

The HRS asks respondents what planning period they look to when deciding how much to save. The present analysis groups their responses into three time periods: a few months to a year, a few years to 10 years, and more than 10 years. Individuals with shorter planning horizons may be less likely to plan for retirement, hence decreasing the likelihood of their rolling over distributions. Uncertainty about the future and liquidity constraints are controlled for by a continuous variable for total net worth, measured in 1993 dollars.[39] Those with lower net worth have fewer private resources for retirement and may be more uncertain of their future financial security. In addition, lower net worth may mean more debt, resulting in a lower likelihood of securing future credit.

To control for risk aversion, the analysis constructs a binary variable that equals one if the individual is averse to risk and zero otherwise.[40] Risk-averse individuals may be more likely to save their distributions to guard against uncertain events, particularly those in old age.

Even after adding the proxy variables, the retirement meeting coefficient estimate does not change and remains statistically insignificant (Table 4). If the proxy variables adequately account for unobserved factors that affect both attendance at a retirement meeting and the likelihood of saving lump sums, then these results suggest that estimates of the retirement education coefficient are not biased by respondents' self-selection into retirement meetings.

Table 5.
Effects of retirement education on lump sum use for the full sample and those currently not working

Dependent variable (All types of saving)	Full sample		Currently not working	
	All types of saving	Retirement saving only	All types of saving	Retirement saving only
Attended an employer-sponsored retirement meeting	-0.06 (0.07)	-0.09 (0.06)	-0.06 (0.10)	-0.05 (0.10)
Attended a non-employer-sponsored retirement meeting	0.02 (0.07)	-0.02 (0.09)	0.07 (0.14)	0.08 (0.15)
Female	-0.06 (0.05)	-0.09 ** (0.05)	-0.13 (0.08)	-0.13 (0.08)
Black/other	-0.10 (0.06)	-0.13 ** (0.06)	-0.10 (0.10)	-0.07 (0.10)
College degree	0.13 ** (0.05)	0.20 ** (0.05)	0.18 * (0.11)	0.19 * (0.11)
Married	-0.03 (0.06)	-0.01 (0.06)	-0.009 (0.10)	0.03 (0.10)
Amount of distribution[a]	0.005 ** (0.002)	0.005 ** (0.002)	0.009 ** (0.004)	0.009 ** (0.004)
Age 40 and under	-0.02 (0.10)	-0.15 (0.10)	0.40 (0.48)	0.39 (0.48)
Family annual earnings over $35,000 (1993 dollars)	0.15 ** (0.05)	0.17 ** (0.05)	0.21 ** (0.09)	0.23 ** (0.09)
Number of dependents	-0.01 (0.02)	-0.03 (0.02)	-0.02 (0.04)	-0.01 (0.04)
Left job involuntarily	-0.02 (0.06)	0.005 (0.06)	0.08 (0.17)	0.09 (0.17)
Left job, disabled	-0.19 ** (0.08)	-0.03 (0.08)	0.15 (0.17)	0.17 (0.17)
Left job, retired	-0.04 (0.07)	0.02 (0.07)	0.19 (0.16)	0.19 (0.16)
Left job, family problems	-0.13 (0.09)	-0.08 (0.08)	-0.22 (0.17)	-0.20 (0.18)
Constant	0.93 ** (0.17)	1.00 ** (0.17)	1.08 ** (0.26)	1.00 ** (0.26)
R-squared	0.19	0.27	0.33	0.33
Observations	459	459	165	165

SOURCE: 1992 Health and Retirement Study.

NOTES: Omitted variables are did not attend a meeting and left job voluntarily. Year dummy variables for the year of the distribution are included in all specifications. Marital status, age, and family earnings are for the year of job separation. All other variables were recorded as of the year of the interview.

Robust standard errors are adjusted for cluster correlation within families and are in parentheses.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

a. In tens of thousands of 1993 dollars.

What do these results say in light of Bernheim and Garrett's (1996) finding that those with a *lower* taste for saving tend to go to retirement education meetings? One explanation is that there is actually no self-selection into retirement meetings at all, or that the motivation for attending a meeting is so varied that the addition of the proxies does not affect the estimate in any particular direction. For instance, those with a lower taste for saving (who tend to have less financial knowledge) may use retirement education more often because they want to acquire the knowledge needed to make complex retirement decisions. This explanation supports Bernheim and Garrett's conclusion that individuals with lower tastes for saving are more likely to use retirement education. However, it is also likely that those with a higher taste for saving would be more likely to attend because they are interested in saving and financial issues.

Both of these assumptions could be correct, depending on such things as the quality and content of the retirement meeting, as well as the difficulty of the material presented. The time of day at which the meetings are offered may also play a role in who attends. If offered during work hours, those with a more flexible schedule may be able to get away, while those with a fixed or busy schedule may not be able to attend. The point is that the reasons for attending a meeting may vary widely, so it is quite possible that the addition of the proxy variables should not affect the retirement education estimate.

Alternatively, it is possible that selection bias does exist and that Bernheim and Garrett's proxy variables are better suited to pick it up than the proxy variables in the HRS—and hence the vari-

ables used in this analysis. Bernheim and Garrett use three proxy variables not available in the HRS—a test score quantifying financial knowledge, parents' saving behavior, and spouse eligibility for a 401(k)(Bernheim and Garrett 1996). [41]

Finally, individuals may react differently to retirement education with respect to lump sums than they do to saving in general. [42] This possibility is addressed further in the next section.

Differential Effects of Retirement Meetings

The previous section discusses how heterogeneity among retirement meetings may have an effect on the results of this analysis. But another type of heterogeneity may also be driving the negative, statistically insignificant effects seen in Table 4. Research shows that retirement education may affect different types of people in different ways. For instance, a 1993 study by EBRI and Matthew Greenwald and Associates found that the effect of retirement education on employee contributions to pension plans may vary with the employee's education (Milne, VanDerhei, and Yakoboski 1995). Of workers who read educational material or attended seminars, 41 percent without a college degree reported that the seminars led them to increase the amount of their contributions to their pension plan, compared with 30 percent of college graduates (Milne, VanDerhei, and Yakoboski 1995).

In order to test the possibility that different types of individuals may not react similarly to retirement education, the model was estimated to include the retirement education variable interacted with the variables *age 40 and under, have a college degree,* and *women*. [43]

The results are shown in Table 6. [44] Workers age 40 and under have a 27 percent higher probability of saving their distribution in all types of saving if they attended a meeting, but there is no difference by age with respect to investment in retirement vehicles only. [45] These results are not surprising. Younger people, many of whom are not yet planning seriously for retirement, attend a retirement meeting and realize the importance of saving for retirement. But because tax-deferred vehicles offer little liquidity, such workers are more likely to save their distributions in all types of saving vehicles. Estimates show no effect of retirement meetings on the saving of distributions for workers over age 40.

College graduates who attend a meeting are 15 percent to 19 percent less likely to save their distributions than college graduates who do not attend a meeting, depending on the definition of saving used. Retirement education shows no effect on the use of a pension distribution by nongraduates. The negative effect on college graduates seems counterintuitive, especially

considering evidence that retirement education has a small positive effect on flow savings and net wealth measures (Bernheim and Garrett 1996). If the analysis had found that college graduates experience a smaller positive effect of retirement education than nongraduates, the finding would seem to follow the evidence showing that college graduates possess more financial knowledge and hence might gain less from a retirement meeting. However, the fact that retirement education exerts a negative effect means that college-educated individuals are actually more likely to spend their distribution after attending a meeting.

Perhaps an explanation lies in the difference between deciding to save a pension distribution and to save in general. As noted earlier, the most widely offered topics in retirement education are a description of the pension plan and an estimation of the income needed for retirement. The impact of lump sum consumption on retirement income is the least frequently covered topic (Milne, VanDerhei, and Yakoboski 1995). Because consumption of pension distributions has become a matter of concern only recently, retirement meetings in the 1980s or early

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Table 6.
Ordinary least squares estimates of the effect of retirement education on lump sum use, by age, education, and sex

Group	All types of saving	Retirement saving only
All respondents	-0.04 (0.06)	-0.07 (0.05)
Age 40 and under	0.27 * (0.16)	-0.08 (0.19)
Over age 40	-0.06 (0.06)	-0.05 (0.06)
College degree	-0.15 * (0.09)	-0.19 ** (0.08)
No college degree	0.04 (0.07)	-0.008 (0.07)
Women	-0.09 (0.08)	-0.16 ** (0.08)
Men	0.06 (0.08)	0.04 (0.08)
Observations	459	459

SOURCE: 1992 Health and Retirement Study.

NOTES: Robust standard errors are adjusted for cluster correlation within families and are in parentheses.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

1990s were even less likely to have covered the importance of pension preservation in their educational material.

A recent study shows how workers may react to knowledge gained from retirement education (Milne, VanDerhei, and Yakoboski 1995). In it, employees whose education included an explanation of the company pension plan (40 percent) and the impact of preretirement withdrawals (38 percent) had two of the lowest average equity holdings of any group of employees attending a meeting. The study authors propose that upon learning their distributions are available before retirement, employees treated the funds more like a short-term investment and decreased the aggressiveness of their holdings. Similarly, since the traditional DB plans generally did not offer lump sums, employees who learn through retirement education that they have access to their DC balance before retirement may also decide to spend their distribution upon job separation.

This theory may explain why just any individual chooses to spend his or her pension after attending a meeting, but it does not explain why college graduates in particular are more inclined to spend lump sum distributions. Another factor may be involved. Evidence shows that financially knowledgeable individuals are more likely to have retirement savings outside of Social Security and employer pensions (Milne, VanDerhei, and Yakoboski 1996).[46] Moreover, as noted earlier, college graduates tend to be more financially knowledgeable than nongraduates. Hence, college graduates should have more private savings set aside than nongraduates do. With calculating retirement income and a description of the pension plan being the two most common topics covered in retirement education, college graduates may find that they have overestimated their income needs and do not need to save a pension distribution. With additional private savings set aside, college graduates may be more likely to feel that they can afford to spend their distributions than can the less wealthy, non-college graduates.

Women were also more likely to spend their distribution if they attended a meeting (Table 6). Attendees were 16 percent less likely to put their distribution into retirement vehicles, and no more or less likely to put it in all types of saving. Men did not use their distribution differently if they attended a meeting, regardless of which definition of saving is used. The negative effect for women is logical, given that many women, especially those who were aged 51 to 61 in 1992, are often the secondary earners in a household. These women may not consider preservation of their lump sum to be of primary importance, and learning that they can spend the money may increase the likelihood that they will do so.[47]

Conclusion

This analysis is the first one to evaluate a means other than tax legislation for addressing the consumption of pension distributions. It shows that retirement education substantially increases the probability that persons age 40 and under will save a lump sum distribution but decreases the probability that college graduates and women will save it. These important differentials are concealed by estimates of the effect of retirement education on recipients generally.

The findings do not necessarily contradict Bernheim and Garrett's (1996) conclusion that retirement education has a positive effect on saving behavior. Rather, the results of this analysis suggest that retirement meetings may inform college-educated individuals that they have the option of spending a distribution or give them financial information about their retirement needs that will affect their decision. If this is the case, policymakers should not be terribly concerned about these particular effects of retirement education, since college-educated individuals are likely to be saving enough for retirement in the first place.

However, policymakers should be very concerned that retirement education does not increase the likelihood that financially vulnerable groups—women, persons without a college degree, and particularly persons with lower incomes—will save their distributions.[48] If these groups tend to spend their distributions and do not respond to retirement education or tax penalties, they are at risk of remaining in poverty or falling into poverty in old age. Further study is needed to determine what long-term effects the most vulnerable workers may experience if they spend their pension distributions.

Appendix

Table A-1.
Probit estimates of marginal effects of retirement education on lump sum use

Variable	All types of saving	Retirement saving only
Attended a retirement meeting	-0.03	-0.08
	(0.06)	(0.07)
Female	-0.06	-0.12 **
	(0.05)	(0.06)
Black/other	-0.11 *	-0.16 **
	(0.06)	(0.07)
College degree	0.14 **	0.24 **
	(0.06)	(0.06)
Married	-0.03	-0.03
	(0.06)	(0.06)
Amount of distribution[a]	0.02 *	0.03 **
	(0.01)	(0.01)
Age 40 and under	-0.03	-0.18
	(0.05)	(0.11)
Family annual earnings over $35,000 (1993 dollars)	0.15 **	0.20 **
	(0.05)	(0.06)
Number of dependents	-0.01	-0.03
	(0.02)	(0.02)
Left job involuntarily	-0.03	-0.02
	(0.07)	(0.07)
Left job, disabled	-0.21 **	-0.02
	(0.08)	(0.09)
Left job, retired	-0.09	-0.03
	(0.09)	(0.09)
Left job, family problems	-0.14	-0.09
	(0.09)	(0.10)
Pseudo R-squared	0.15	0.22
Log likelihood	-253.7	-239.4
Observations	450	444

SOURCE: 1992 Health and Retirement Study.

NOTES: Columns correspond to the ordinary least squares specifications in Table 4. Omitted dummy variable is left job voluntarily. Marital status, age, and family earnings are for the year of job separation. All other variables were recorded as of the year of the interview. Year dummy variables for year of distribution are included in both specifications.

Robust standard errors are adjusted for cluster correlation within families and are in parentheses.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

a. In tens of thousands of 1993 dollars.

Notes

[1] The Employee Retirement Income Security Act, passed in 1974, allows employers the option of unilaterally cashing out employees with balances of less than $5,000, regardless of employee preference. The original limit of $1,750 was raised to $3,500 by the Retirement Act of 1984. The $5,000 limit became effective January 1, 1998.

[2] In 1997, 23 percent of DB participants in medium and large private establishments had a lump sum option upon retirement (Bureau of Labor Statistics 1999).

[3] The Employee Benefit Survey was discontinued in 1993.

[4] Net worth includes IRA and Keogh accounts but does not include Social Security or private pension wealth. The difference in net worth found by Lupton and Smith (1999) applies only to white men and women.

[5] If the individual has reached age 55 in the year of job separation, the penalty is not imposed. Other exemptions to the penalty exist (U.S. Congress, Joint Committee on Taxation, 1987).

[6] The 1993 SIPP pension topical module Purcell (2000) used was fielded in late 1995 and early 1996.

[7] Andrews (1991) used the 1988 CPS and found that the probability of rolling over distributions grew in subsequent years. This pattern was evident even before the 10 percent tax penalty was enacted.

[8] There are no known econometric studies on retirement education outside the workplace.

[9] Highly compensated employees are defined as having annual earnings of $100,000 or more, owning more than 5 percent of the company, or having annual earnings of $65,000 or more if this amount is in the top quintile of the firm's salary distribution.

[10] The offering of retirement education has no effect if the education is in the form of written materials or if seminars are offered only occasionally.

[11] Because spouses of respondents in this age group are also interviewed, only 9,673 individuals fit into this age category. Since the present analysis looks at a past event—that is, a pension distribution—the age range at which these distributions occurred is greater than the age range of the respondents at the time of the interview.

[12] Twenty-four percent of those respondents were outside the 51–61 age range in 1992. Although including these individuals changes the random nature of the sample, they are kept in the sample because the issue of lump sum use is universal with respect to age and because approximately one-quarter of the already small sample would be lost without them.

To determine whether including weights would change the conclusions regarding retirement education, the model was estimated with the weights and age-restricted sample. The conclusions did not change.

[13] The drop in sample size from 938 to 640 arises from the inability to classify lump sum use (186 individuals) and nonresponse to the retirement class question (147 individuals). Thirty-five of the respondents did not answer the retirement meeting question and did not give a classifiable lump sum use response.

[14] The HRS does not report the year of lump sum receipt, but it does give the year of job separation. The analysis assumes the two are one and the same.

[15] The assumption is that all DC participants had the option of taking a lump sum, which seems reasonable considering that previous studies show approximately 80 percent to 90 percent of DC plans offering this option (see, for example, Atkins 1986). See Engelhardt (1999) for a more detailed explanation of DC lump sum eligibility in the 1992 HRS.

[16] Individuals whose pension plans had characteristics of both DB and DC plans are omitted from the analysis, given the impossibility of distinguishing plans that typically allowed distributions from those that did not.

[17] Other options include other use, cashing out the balance but use not available, losing the benefits, having benefits in litigation, waiving pension benefits in exchange for other benefits, and "don't know." There is not enough information to classify these responses as saving or spending.

[18] Paying off debt is considered a form of saving because, all else being equal, it increases net wealth and therefore future income.

[19] A total of 778 individuals answered the question on retirement education and use of distribution. Of those, 138 gave uses of distribution that could not be classified as "saved" or "spent" (for example, litigation, took cash, or no use).

[20] Using data from the 1992 HRS, Engelhardt (1999) reports that approximately 42 percent of distributions were rolled over, a figure reasonably close to the 50 percent figure in this analysis. Engelhardt's rollover rates may be slightly lower because he included only preretirement distributions, which would probably be from younger workers and hence less likely to be rolled over.

[21] The age dummy variable *age 40 and under* was created because the age range from 40 to 45 is generally accepted in the economic literature as the age when workers enter the wealth-accumulating stage of the life cycle and begin saving for retirement. *Have a college degree* is used as an educational measure because this is the level of educational attainment found to be significant in the lump sum literature. Chang (1996) uses three income intervals—less than $30,000, $30,000–$39,999, and greater than or equal to $40,000—in her analysis and concludes that individuals with lower incomes did not increase their lump sum rollovers by much, if at all, after the 10 percent tax penalty was enacted. Income intervals of greater and less than $35,000 were used in this analysis to compare the

effect of retirement education on lump sums for similar income brackets. The intervals for the amount of the distribution used in the literature differ widely; this analysis broke the amount of the distribution into quartiles.

[22] The model is also estimated using probit analysis, with similar qualitative results. See the appendix for probit marginal effects for the specification reported in Table 4 ("mean plus control variables").

[23] One of the variables in X is the amount of the distribution. A large decrease in the sample size of 938 occurred in the regressions because of missing retirement education responses as well as missing distribution amounts. In calculations not reported here, it was found that individuals with missing distribution amounts were more likely to have saved their distributions, using either savings definition. Therefore, when the equation was estimated (without proxies or interactions), the missing account balances were assigned to zero and a dummy was included to flag these observations. The resulting estimates did not change the basic conclusions drawn from the model.

[24] A model that included spouse variables in X was also estimated because family interaction may affect lump sum decisions. It added variables describing whether the spouse attended a meeting, the spouse's age at the time of the distribution, the spouse's education, and whether the spouse had a pension plan at the time of the respondent's job separation to the specification in Table 4 ("mean plus control variables"). None of the spouse variables was statistically significant, so they were not included in the final model.

[25] These five variables were constructed using the following responses from the HRS: left involuntarily (business closed/moved, laid off/let go, strike, contract ended, decline in business, loss of profits, lack of work), disabled (poor health/disabled), family care (spouse's wishes, pregnancy/child care, divorce, personal problems, respondent/family moved), left voluntarily (better job, start own business, go back to school, burned out, problem with supervisor, lack of promotion, sold own business, transportation/distance to work), and retired.

[26] Those who gave retirement as a reason for leaving were classified as retired no matter what other choices they checked because the use of pension money is specific to retirement income. Being disabled took precedence over leaving voluntarily or because of family issues because it describes more specific circumstances. Leaving involuntarily was chosen when any of the others except retirement was also checked. Leaving involuntarily is very specific and may be attended by subsequent economic hardship. Family problems were chosen only when the worker also voluntarily left his or her job.

[27] Because the HRS questions both husband and wife and sometimes both have a distribution, the analysis corrects the standard errors for cluster correlation within families. In addition, because discrete dependent variables are used, the analysis estimates the model using heteroskedasticity-robust standard errors. For a discussion of robust standard errors used in this analysis, see White 1980.

[28] Table 4 includes year dummies for when the distribution

was received, as well as a dummy flagging respondents whose spouse's earnings were set to zero because of refusal to interview or to answer the income question. A joint F-test for the year dummies yields an F statistic of 13.9 using the broad definition of saving and 22.2 using the narrow definition. P-values equal zero in both cases.

[29] Because the mean year of distribution receipt was 1985, distributions received in the more distant past are more likely to be subject to recall (measurement) error, hence biasing the retirement education estimate toward zero. Since the sample size is relatively small to begin with, these past observations are kept. The possibility that measurement error is affecting the estimates is explored by first eliminating all observations with a distribution year before 1975, then eliminating those before 1980, and then those before 1985 (not shown in tables). The retirement education coefficient estimate remains small, negative, and statistically insignificant in all models and specifications.

[30] Hurd, Lillard, and Panis (1998) also found that poor health increases the probability of cashing out; however, their definition of cashing out is equivalent to the narrow definition of saving in this analysis. Engelhardt (1999) did not find any effect for poor health/disability, but he did find a large negative correlation between family issues and rolling over the distribution. Aside from the fact that these two studies and the present analysis have slightly different samples, and that Hurd and his colleagues use more recent lump sum distributions, there is no identifiable reason for the differences in estimates.

[31] The model was also estimated with the same dummy variables, but allowing for multiple responses given in the survey (not shown in tables). The coefficient estimates for these variables do not change by more than 1 percentage point in magnitude, and statistical significance remains the same for either definition of saving.

[32] There were actually 299 respondents currently not working, but only 159 provided all of the relevant data. They were not working for various reasons, including (but not limited to) retirement, disability, and unemployment.

[33] Since only the most recent distribution is being used in this analysis, the possibility that a nonworking respondent took an employer-sponsored class from an employer previous to the one from which he or she received the distribution is not a concern.

[34] There may be differences in the effects of retirement education depending on whether the individual took a class from an employer or someone else. The retirement meeting variables are not separated into employer- and non-employer-sponsored meetings in the main analysis because the small number of individuals who took a non-employer-sponsored class increases the standard error on this term significantly. This is especially true when interaction terms are included, as they are later in the analysis.

[35] The models were estimated using both occupation and industry as instruments for the retirement meeting variable. Coefficient estimates and standard errors were up to 10 times larger than those estimates using ordinary least squares, both

with and without the proxy variables. Subsequent Hausman tests (not reported in tables) show that instrumenting is not necessary.

[36] Hurd, Lillard, and Panis (1998) do not examine retirement education in their model. Moreover, they find no statistically significant effect of net wealth or planning horizon on lump sum cashouts, but they do find that individuals are more likely to cash out if they estimate the probability of surviving to age 85 at zero. Because the authors' model uses the equivalent of the narrow definition of saving, their results cannot be compared directly with results of the present analysis using the broader definition of saving.

[37] The HRS also asks respondents to rate their chances of living to age 85. A model was also estimated using this measure, but the age 75 measure was found to be a better predictor of lump sum use.

[38] This finding holds unless the individual is planning on using the pension to cover medical costs. The analysis attempts to control for this in the variable indicating that a respondent left the job because of disability.

[39] Net worth includes financial and housing wealth, as well as mortgage and other debt at the time of the survey.

[40] This measure is constructed from a question regarding an income gamble. Respondents were asked whether they would take a new job that had a 50 percent chance of doubling income and a 50 percent chance of cutting it in half. Respondents who chose not to take the job were labeled risk-averse.

[41] Spouse 401(k) eligibility *at the time of the interview* is available in the HRS; however, it is not given for the time of the distribution.

[42] Another possibility has to do with the type of retirement education measured in each analysis. The HRS asks questions only about retirement *classes*, whereas Bernheim and Garrett's study includes not only classes but *written* educational material and *other miscellaneous* methods of communication as well. The method of delivery of information may make a difference: Bayer, Bernheim, and Scholz (1996) found that 401(k) participation rates rose when employers offered retirement classes, but there was no effect when they offered written materials.

[43] Table 3, which examines lump sum use and retirement meeting attendance, also includes statistics broken down by earnings and amount of distribution; however, the interaction terms in this model do not include those two measures because earlier estimates (not included here) showed them to be statistically insignificant.

[44] For coefficient estimates for all independent variables from these regressions, see Table 4 ("mean plus control variables and interaction terms").

[45] The effect of retirement education on those age 40 and under is calculated by evaluating the linear combination $a_j + w_{1j} + (c)w_{2j} + (f)w_{3j}$, where c and f are the sample means for college graduates and women, respectively. Effects for the other five groups are calculated in a similar manner.

[46] It is possible that those who are more financially knowledgeable got that way because they chose for some other reason to start saving for retirement. Bernheim (1998) rejects this line of causation by estimating a model using macroeconomic knowledge as an instrument for financial knowledge.

[47] Whether a woman is married or not may make a difference in her reaction to retirement education. Tabulations separating women by marital status show that 46 percent of married women who take a class save their distributions in a retirement vehicle, whereas 55 percent of unmarried women do. However, regression analysis that includes the covariates in the model and a separate interaction term for married versus unmarried women shows no statistically significant effect on spending a distribution (not reported in tables).

[48] Note that the role of women as secondary wage earners is more specific to this 1992 HRS group than to the current and future pool of female workers. As women increasingly move into full-time employment that offers attractive pension packages, the importance of their pensions should increase. The finding that retirement education is negatively correlated with saving a distribution may be dependent on women's role in the labor force remaining similar to the experience of the women in the 1992 HRS wave.

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