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## Pension Plan Distributions: The Importance of Financial Literacy

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## Pension Plan Distributions: The Importance of Financial Literacy

### Abstract

This chapter examines workers' plans to take lump sum distributions versus life annuities from employer retirement plans. The analysis is based on before and after surveys of retirement eligible workers who attended employer-provided retirement planning seminars. We consider workers' planned distributional choices from both defined benefit and 401(k) plans. A minority of respondents plan to take the non-default options, highlighting the importance of framing. Additionally, higher financial literacy is associated with lower rates of annuitization in both plans. We explore how participants change their planned distribution choices after attending seminars that enhance financial knowledge and understanding of retirement plans.

### Disciplines

Economics

### Comments

The published version of this Working Paper may be found in the 2011 publication: *Financial Literacy: Implications for Retirement Security and the Financial Marketplace*.

# **Financial Literacy: Implications for Retirement Security and the Financial Marketplace**

EDITED BY

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and Annamaria Lusardi

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## Chapter 3

# **Pension Plan Distributions: The Importance of Financial Literacy**

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*Robert L. Clark, Melinda S. Morrill, and Steven G. Allen*

The disposition of retirement assets is one of the most important and long-lasting decisions that retiring workers confront. If employees are covered by a traditional defined benefit (DB) plan, the default option is that they receive a life annuity that begins when they leave the firm or reach the plan's retirement age. However, many DB plans offer workers the option of receiving a lump sum distribution at retirement, roughly equal to the present value of the annuity.<sup>1</sup> Typically, this is a one-time option that the worker must make upon termination. If the lump sum is selected, retirees cannot subsequently decide that they want the annuity. Of course, they could subsequently purchase a private annuity, but this process would likely result in the individual bearing higher costs and administrative fees. Similarly, in cash balance plans, workers must be given a choice of a life annuity or a lump sum payment.<sup>2</sup>

Workers with defined contribution (DC) plans such as a 401(k), 403(b), or 457 face a similar choice in whether to accept a lump sum or purchase a life annuity, but the distributional choice is framed differently.<sup>3</sup> In these plans, retirees know the value of their accounts and must decide how to allocate these funds over the retirement period. The difference in how pension benefits are reported or framed may influence the distribution decision by retiring workers. This chapter considers what factors appear to shape worker preferences to elect the nondefault options and request alternative forms of distributions from their DB and DC plans.

Standard economic theory predicts that actuarially fair annuitization of assets would be welfare-enhancing for risk-averse individuals, as it provides a hedge against longevity risk and outliving one's assets. However, in the United States and elsewhere, relatively few people voluntarily purchase annuities in the open market.<sup>4</sup> A variety of authors have attempted to explain this tendency of retirees to opt for lump sum distributions from retirement saving accounts by expanding the economic model and by appealing to the concept that how the choice is framed determines whether retirees select annuities as opposed to lump sum distributions.<sup>5</sup> Nevertheless, few studies

## **Pension Plan Distributions: The Importance of Financial Literacy 41**

have examined the lump sum choice in DB plans as a component of retirement income planning.<sup>6</sup> In this chapter, we examine active workers' plans for pension distributions from both DB and DC plans. Thus, we are able to explore two different ways the pension distribution choice is framed. For DB plans, the default option is an annuity. We find that only 30 percent of individuals plan to take a lump sum distribution of their pension. On the other hand, the DC plans default to a lump sum, and we find that only 22 percent plan to annuitize. In addition to describing the individual choices, we are able to assess how individuals combine these two choices.

The choice of the form of distribution will necessarily be based on the individual's financial literacy and knowledge of retirement programs. This chapter examines pension plan distributions using survey data from two large employers. These data are a part of a new unique dataset that we have developed based on surveys of participants in retirement planning seminars provided by employers to retirement-eligible employees. Using these data, we estimate whether the older workers are currently planning to take a lump sum distribution from their DB plan and whether they plan to annuitize some or all of their account balances in their DC plans. The analysis focuses on the role of financial literacy in the choice of benefits and how this choice changes after the seminar.

### **Economics of choosing between an annuity and a lump sum**

Researchers call the low demand for annuities the 'annuity puzzle' and have put forward a number of reasons why individuals might prefer lump sum distributions to annuities. One possible explanation for this seemingly suboptimal choice is the availability of other sources of annuity income, such as Social Security, that may represent a large percentage of total wealth for many retirees. Other reasons that individuals might prefer lump sum distributions include spouses and close relatives with whom risks can be shared, the bequest motive, and concern about large and lumpy future expenditures (especially those associated with health care expenses). Retirees may also worry about rising prices and a fixed retirement income associated with the annuity.

More recently, several studies have suggested that the framing of the annuity choice tends to influence whether individuals purchase annuities. Hu and Scott (2007) posit that the way individuals view annuities drives their decision to purchase an annuity. They refer to this as mental accounting and conclude that the 'most important potential reason for annuities being unpopular is mental accounting'; further, this mental accounting can lead retirees to believe that purchasing an annuity is a gamble that



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increases risk (Hu and Scott, 2007: 18). Brown et al. (2008) suggest that there are two possible ways of viewing annuities: the ‘consumption frame’, which focuses on consumption over time, and the ‘investment frame’, which allows individuals to consider that the total payout is dependent on survival years and thus makes annuities a risky investment. Small-scale experiments (Agnew and Szykman, 2011) indicate that if the choice is put in a consumption frame, individuals will select the annuity; however, if the choice is put in an investment frame, individuals will prefer a lump sum distribution of assets into saving accounts.

Most of the literature focuses on the utilization of funds in retirement saving accounts or other assets that individuals have as they enter retirement. In other words, the question is what decision retirees make in purchasing an annuity with these funds, versus retaining control of their assets and gradually drawing them down to finance consumption in retirement. However, a related decision confronts many individuals who have DB plans. By law, DB plans offer retirees a life annuity, but plan sponsors can also include other choices such as lump sum distributions. Accordingly, this choice should be considered as part of the demand for life annuities facing many retirees. Examining the distributions from both types of plans allows us to examine the importance of how the choice is framed compared to other potential determinants of how retirement funds are accessed and managed.

The data set we use for the analyses was developed to examine the effectiveness of employer-provided financial education and pre-retirement planning programs. The Participants Attending Retirement Seminars (PARS) dataset is based on approximately ninety seminars held in 2008 and 2009 across the country by six large employers. Over 1,000 participants completed a survey before and after the seminars. Participants completed a detailed survey before and after the seminar, including information on their own (and their spouses’) economic and demographic information. Participants were also asked about their retirement plans, including whether they planned to take a lump sum distribution from their DB plan (i.e., decline the annuity and accept a lump sum payment), and whether they would annuitize some or all of their account balances in their DC accounts. Retirement-eligible employees were invited to participate in these programs, which ranged from a half-day to two days in duration.<sup>7</sup>

In this chapter, we focus on the two firms with the largest samples, seminar participants at Progress Energy and Becton, Dickinson and Company (BD). Sample means, shown in Table 3A.1, indicate that the average age was 58, the sample was 58 percent male, and 78 percent of respondents were married. These employees had an average of 27 years of service and almost half had college degrees. All were covered by a DB plan and all had access to a DC plan. Interestingly, 40 percent of the respondents planned on working after they retired from their current jobs. In general, this was a

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relatively high-income sample of older workers who were wealthier than average and who reported that they were in good health.

Employees were asked if their employer allowed them to take a lump sum distribution from their DB plan and if so, did they currently plan on opting for the lump sum. Prior to the seminar, just less than 30 percent reported intending to take a lump sum distribution of their pension, and this number dropped to 28 percent after attending. In addition, participants were asked whether they planned to annuitize some or all of the funds in their DC accounts. Prior to the seminar, approximately 22 percent reported planning to annuitize their DC plans; the fraction increased to 29 percent after the seminar. Next, we explore the determinants of these choices and characteristics of individuals that changed plans.

#### *Company benefits and framing the distribution choice*

As the two companies in this analysis offered a DB plan, a 401(k) plan, and retiree medical coverage, the workers clearly had more generous benefits than many American workers. Both firms allowed retirees the choice of a lump sum distribution from their DB plan; further, one firm, Progress Energy, regularly reported account balances equal to the available lump sum distribution. Annuity options were unavailable for the Progress Energy 401(k) plan but were offered by the BD plan. These differences allow us to consider the distribution choice in both DB and DC plans and also permit a comparison of the framing between a traditional DB plan and a cash balance plan.

Progress Energy froze a final average pay pension formula in 2003 and converted to a cash balance pension formula.<sup>8</sup> Annual statements sent to each employee indicate the annuity they could receive under the old formula and the account balance in the cash balance plan. At retirement, there is an annuity value and a lump sum value associated with the old formula and the new cash balance formula. The pension summary that individuals receive from Progress Energy at retirement includes the higher of the two annuity values from the two formulas and the higher of the two lump sum values of the two formulas. Given that the old formula was frozen in 2003 and the terms of the transition to the cash balance formula at the time of the conversion, most individuals who attended the seminars in 2008 and 2009 would have higher values from the cash balance formula. Payment options include a variety of life annuity options, phased withdrawals, and a total lump sum distribution. Account balances from the 401(k) plan could be withdrawn as a total lump sum, the retiree could specify monthly payouts, the funds could be rolled over to an Individual Retirement Account (IRA), or the funds could be left in the plan until a later date. The individual could not purchase an annuity through the plan, but of course, they could roll the funds over to an IRA

**AQ1**

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and purchase an annuity through the IRA. Retirees were allowed to remain in the employer-provided health plan.

BD maintained a final average pay plan with a 1 percent multiplier for final covered compensation and a 1.5 percent multiplier for final excess compensation.<sup>9</sup> At retirement, individuals had the option of a single life annuity, several joint and survivor annuities, or a lump sum distribution. BD also offered a Saving Incentive Plan with a 75 percent match on the first 6 percent of salary contributed by employees. Retirees were also eligible to remain in the BD health plan.

##### *Choosing a distribution option*

To model respondents' planned distribution choices, we use responses to two questions in the survey, as described in Table 3A.2. Note that the wording differed slightly between the two employers for one of the questions. We consider whether workers report planning to make an active choice of the nondefault option versus responding 'No', 'Have not yet decided', or leaving the question blank.

Table 3.1 separates the distributional preferences reported before participants attended the seminar into several categories. The first category indicates the respondents planned to accept the pension payout in the form indicated by the default; in other words, to accept an annuity from the DB plan and take the account balance from the DC plan as a lump sum payment. Over half reported plans to take the default options, indicating that the defaults were an important predictor of planning. The next column indicates plans to take a lump sum distribution from both plans, that is, to not accept the default annuity from the DB plan and to accept the default lump sum from the DC plan. Twenty-two percent of all respondents reported planning to elect the lump sum of both.

The third column represents respondents planning to take annuities from both their DB and DC retirement plans. This group reported planning to accept the default annuity from the DB plan and also annuitize the account balance in the 401(k) plan. Fourteen percent of respondents reported having these plans. Finally, the fourth column indicates respondents indicating they would take the non-default option in both plans. This combination of pension distributions was planned by 8 percent of these older workers. This group indicated they would annuitize the account balance in the 401(k) plan and take a lump sum distribution from the DB plan. The proportion of workers planning to select a lump sum distribution of their pension assets is broadly consistent with the rates reported by Hurd and Panis (2006) for the respondents in the Health and Retirement Survey.

Next, we report the percentages of each group that elect each of the possible disposition combinations described above. The significance levels

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TABLE 3.1 Disposition choices by respondent characteristics (%)

	Percent of sample	Default options	Lump sum (DB choice)	Annuitize (DC choice)	Nondefault choice
Full sample	100	56.1	21.8	14.4	7.7
Progress Energy	38	61.9**	13.1***	19.1***	5.9
BD	62	52.6**	27.1***	11.5***	8.9
Women	42	60.9**	22.1	12.0	5**
Men	58	52.8**	21.5	16.0	9.7**
Married	78	52.9***	22.6	15.4	9.1**
Not married	22	67.4***	18.8	10.9	2.9**
Some college	47	56.7	24.6	11.6*	7.2
High school	53	55.7	19.3	16.8*	8.3
Years of service <20	22	64.7**	19.9	8.8**	6.6
Years of service 20+	78	53.7**	22.3	15.9**	8.1

Notes: Statistical significance of differences are within the two categories, where \* indicates significance at the 10 percent level,

\*\* is 5 percent, and

\*\*\* is 1 percent. The sample consists of all respondents that completed surveys and answered at least five out of the nine knowledge questions in both surveys 1 and 2 (no more than four blanks allowed). The sample also excludes individuals with missing values for birth year, education, job tenure, marital status, and sex. The sample is restricted to individuals born between 1943 and 1959. The planned choices represented here are all reported by respondents prior to attending the seminar. Data are from surveys conducted by the authors in 2008 and 2009. The total number of observations is 620.

Source: Authors' calculations; see text.

reported indicate differences in means between the groups. Employees at Progress Energy were more likely to choose the default for both plans and more likely to choose annuitizing both (i.e., taking the default option for the DB and annuitizing the DC) than workers at BD. Interestingly, Progress Energy did not allow for the purchase of an annuity from within the 401(k) plan, while BD did, yet far more workers at Progress Energy chose to annuitize. Nevertheless, in the regression analysis reported below there is no statistical difference in the choice to annuitize some, or all, of one's retirement saving plan between workers at Progress Energy and BD once additional controls are added to the model.

The next row presents the planned distribution choices broken down by gender. Previous research has found that women are less likely to purchase annuities, even though they have longer life expectancies, perhaps due to lower level of financial literacy, or a lack of financial planning. We find that women are indeed significantly more likely to choose both default options. In our data, married individuals are significantly less likely to plan to take the default choices, perhaps due to strategic plans of couples in generating

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a diversified portfolio. Somewhat surprisingly, those without a college degree were slightly more likely to report planning to annuitize both their 401(k) and their pension. Individuals with fewer years of service are not more likely to take a lump sum from their pension but are significantly less likely to annuitize their 401(k).

Respondents were asked the same questions concerning plan distributions after their retirement planning seminar ended. It is interesting to observe the changes in retirement plans based on the information presented in the seminar. Figures 3.1 and 3.2 demonstrate how workers altered their reported plans. In Figure 3.1, we see that before attending the seminar 29.5 percent of workers reported planning to take a lump sum distribution of their DB pension, while 70.5 percent (437 observations) reported either not wanting to take the lump sum or that they were unsure. Of the 437 workers that did not plan to take a lump sum distribution from their DB plan prior to the seminar, 11 percent (forty-nine respondents) changed to planning to take a lump sum afterwards. Among the forty-nine respondents that switched plans in this way, forty-nine respondents had previously said they did not know this option was available. This shift clearly indicates how a gain in knowledge concerning the options available in a pension can affect retirement plans. Figure 3.2 presents a similar breakdown of transitions between plans for 401(k) disposition choices. Of the 438 individuals that were not initially reporting plans to purchase an annuity, 22 percent (106 individuals) changed to intending to purchase an annuity.

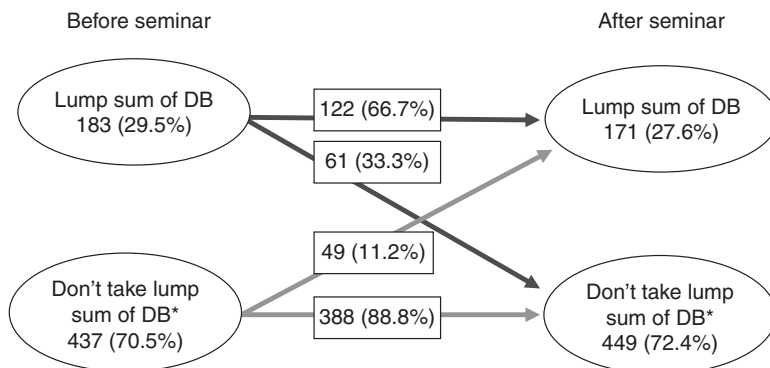


Figure 3.1 How learning affects plans for disposition of employer-provided pensions

Notes: Sample size 620. Data from surveys conducted by the authors in 2008 and 2009. \*These cells include those that responded ‘No’, ‘Don’t know’, or left the question blank.

Source: Authors’ calculations; see text.

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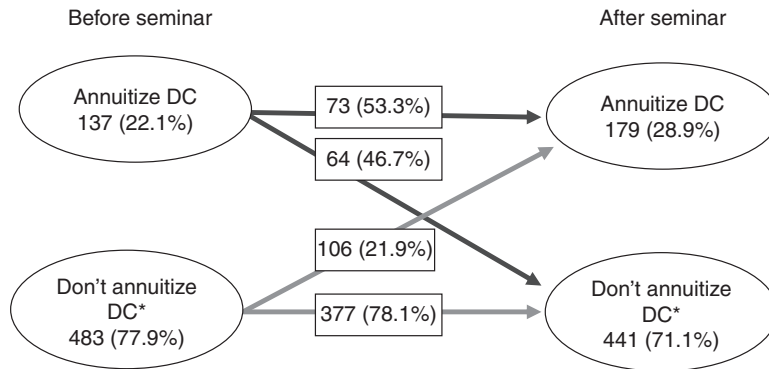


Figure 3.2 How learning affects plans for 401(k) disposition choice

Notes: Sample size 620. Data from surveys conducted by the authors in 2008 and 2009. \*These cells include those that responded ‘No’, ‘Don’t know’, or left the question blank.

Source: Authors’ calculations; see text.

**Factors associated with retirement plan disposition choice**

We more formally explore how these factors interact to predict disposition choice by running a series of multivariate regressions of the choice to take the nondefault options. The first two columns of Table 3.2 report estimates of the factors predicting the following plans prior to attending the seminar: taking a lump sum distribution of one’s pension (Column 1), and purchasing an annuity from one’s retirement saving plan (Column 2). In both cases, the nondefault option was the choice modeled, so in Column 1, the individual is reporting a choice not to accept the default of an annuitized pension, and in Column 2, the individual reports a choice to purchase an annuity from 401(k) saving.

Interestingly, there is a slightly positive and significant correlation between the choice to take a lump sum of the DB pension and to annuitize the 401(k). If plans for distributional choices were based on careful investment planning, we might expect these choices to be negatively correlated; in other words, a person might desire to have all of his/her retirement income as a lump sum, or all as an annuity. If framing of the choice was the main driver of this decision, then the two choices should be positively related. The cost of annuities in the market and the unbundling of DB annuities make annuitizing the retirement saving account, while taking a lump sum distribution from the DB plan makes an unexpected choice. Perhaps, individuals chose both default options because of a lack of finan-

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TABLE 3.2 Disposition choices for defined benefit and defined contribution plans

	DB: choice to take lump sum	DC: choice to annuitize	DB: choice to take lump sum if previously No or Don't know	DC: choice to annuitize if previously No or Don't know
	(1)	(2)	(3)	(4)
Plan to annuitize 401(k)	0.079 [0.045]			
Plan to take lump sum DB	[0.040]*	0.069		
Progress Energy	-0.233 [0.040]***	0.034 [0.043]	-0.021 [0.036]	0.095 [0.046]**
Years of service	0.004 [0.002]**	-0.001 [0.002]	0.000 [0.002]	0.002 [0.002]
Women	-0.062 [0.043]	-0.062 [0.044]	0.061 [0.033]*	0.014 [0.045]
Married	0.065 [0.047]	0.057 [0.043]	0.026 [0.035]	0.020 [0.047]
College degree	0.025 [0.038]	-0.090 [0.036]**	-0.020 [0.036]	-0.055 [0.044]
Total wealth 25–100k	0.006 [0.046]	-0.032 [0.046]	-0.036 [0.038]	0.099 [0.052]*
Total wealth 100k+	0.078 [0.047]*	-0.053 [0.044]	-0.016 [0.039]	0.075 [0.047]
DC account 1–5 years' salary	0.009 [0.063]	0.055 [0.054]	-0.099 [0.064]	0.009 [0.063]
DC account 5+ years' salary	0.036 [0.075]	0.069 [0.065]	-0.038 [0.074]	-0.088 [0.073]
Medium health	0.107 [0.057]*	-0.046 [0.056]	0.046 [0.039]	-0.044 [0.065]
High health	-0.003 [0.058]	-0.008 [0.060]	0.053 [0.044]	0.028 [0.069]
25–75% survive 75^	-0.044 [0.076]	-0.051 [0.071]	-0.046 [0.067]	0.097 [0.063]
75–100% survive 75^	-0.013 [0.078]	-0.033 [0.072]	-0.043 [0.072]	0.117 [0.065]*
Medium knowledge score^	0.166 [0.042]***	-0.002 [0.040]	0.030 [0.040]	0.052 [0.050]

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High knowledge score <sup>^</sup>	0.107	-0.103	-0.009	-0.006
	[0.057]*	[0.050]**	[0.043]	[0.053]
Observations	620	620	437	438
R-squared	0.12	0.06	0.04	0.06

*Notes:* Coefficients are from linear probability models with standard errors in brackets, where \* indicates significance at the 10 percent level,

\*\* is 5 percent, and

\*\*\* is 1 percent. Note that all specifications also include the following covariates: age, a constant term, and indicators for no response for total wealth, DC account balance, own health, and own survival probability. The dependent variable in Column (1) is whether the individual planned to take a lump sum distribution of her pension at retirement reported before attending the seminar, and Column (2) is whether the individual planned to annuitize some or all of her 401(k) account at retirement before attending the seminar. Column (3) includes only individuals that did not originally report planning to take a lump sum distribution of their pension, with the dependent variable being a change to reporting after the seminar plans to take a lump sum of the pension. Column (4) includes only individuals that did not originally report planning to annuitize some or all of their 401(k) accounts, with the dependent variable being a change to reporting after the seminar plans to annuitize the 401(k).

<sup>^</sup> Indicates variables that are measured before the seminar in Columns (1) and (2) and after the seminar in Columns (3) and (4). Data are from surveys conducted by the authors in 2008 and 2009.

*Source:* Authors' calculations; see text.

cial literacy and/or a lack of understanding of the two plans. This conclusion would suggest that more educational and retirement planning events would improve choices. It also emphasizes the importance of plan design and defaults on workers' choices.

In Column 1 of Table 3.2, we see that, contrary to expectations, individuals at Progress Energy were significantly less likely to choose a lump sum distribution from their pension, despite the differences between BD and Progress Energy in the framing of the choice (recall that Progress Energy had a cash balance plan). On the other hand, for the choice to annuitize the 401(k) there is no difference between workers at the two firms, even though BD allowed for annuitization within the plan. The importance of framing the choice seems to be rather limited, although here we only consider data from two employers, and the impact of framing may be less important than other unmeasured differences between these companies.

Next, in Column 1 of Table 3.2 we see that a worker's tenure at an employer is positively associated with his/her plans to take a lump sum distribution from his/her DB plan, although the effect is small in magnitude. Note that years of service is positively related to the size of the DB pension annual benefit, so that we can interpret this coefficient as indicating that larger pension amounts lead to higher probabilities of taking lump sum distributions. Economic theory predicts that it may be more sensible to take a lump sum distribution from a pension if the total amount is quite small. Surprisingly, having more years of service is positively related to the probability of taking a lump sum.



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In the first two columns of Table 3.2, there is no statistical difference along gender or marital status once the additional controls are added. However, individuals with a college degree are significantly less likely to plan to annuitize their DC plan relative to their less educated coworkers. This is a surprising finding if we believe that the benefits of purchasing an annuity are felt later in life, indicating the plans to purchase an annuity should be positively associated with patience and risk aversion. However, it may be the case that those with more education feel that they can manage their assets more efficiently and therefore prefer not to purchase life annuities. There is a positive and significant association between having the highest level of wealth, relative to the lowest, and planning to take a lump sum of one's pension.

Annuities may be more valuable to those individuals having private information indicating a longer than average life expectancy. It may also be the case that individuals concerned about the potential costs of a sudden health shock might want to keep some or all assets liquid. Interestingly, with the exception of being in medium health in Column 1, there is no statistically significant relationship between a respondent's health or subjective survival probability and his/her plans to annuitize. These results indicate that distributional choices are based on something besides a simple present value calculation and an attempt to insure against longevity risks.

Finally, using a measure of financial knowledge described in the data appendix, we see that the most knowledgeable individuals are more likely to report planning to take a lump sum of their pension and less likely to be planning to annuitize their 401(k). Often lack of financial literacy is cited to explain why individuals do not purchase annuities or simply accept the default options. These results indicate that individuals with the most financial literacy prefer to retain control over their assets. One limitation of this study is that we do not ask how an individual plans to invest (or divest) saving in retirement. It may be the case that individuals are planning to take a lump sum from their pension and roll it over to an IRA or an alternative retirement account that provides an annuity option. It may be that the most financially savvy are best able to navigate the secondary market for annuities.

Column 3 of Table 3.2 presents results from a sample of individuals who had not intended to take the lump sum distribution of their pension preseminar. For these individuals, we then model those who change to reporting plans to take a lump sum from their DB plans after attending the seminar. Similarly, Column 4 of Table 3.2 reports estimates for the sample of individuals that did not report intentions to annuitize some or all of their DC plans prior to the seminar. In that column, we then model the change after the seminar to planning to annuitize one's DC plan. When interpreting the change in intentions, it is important to consider that these

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estimates apply only to the group that previously was planning to accept the default or had not developed a plan, rather than the entire population of attendees. Because the questions were asked at the end of the seminar, we can infer that (except for response error and measurement error inherent in surveys) respondents were changing their plans due to information they obtained during the seminar.

The estimates reported in Columns 3 and 4 of Table 3.2 indicate that among participants who initially planned on taking the default option (or who had not yet decided), the standard economic and demographic variables are not significantly related to the probability of changing plans after the seminar. Although in Column 1 we found that workers at Progress Energy were significantly less likely to report planning to take the lump sum option from their DB plan prior to the seminar, among those that were not planning initially we see no difference in the propensity to change plans between workers at the two companies. Similarly, in Column 2 of Table 3.2, we found no significant difference between workers at BD and Progress Energy in their choice to annuitize their DC plans, but we now find a large and statistically significant effect indicating that workers at Progress Energy were around 10 percentage points more likely to change their plans relative to workers at BD regarding the choice to annuitize some or all of one's DC plan. This is approximately 50 percent of the total probability of changing plans (22 percent).

In Column 3 of Table 3.2, we see that women were significantly more likely to change their plans to take a lump sum from their pension. Higher wealth was associated with changing plans to annuitize retirement saving, while higher levels of DC wealth were associated with a reduced probability of changing plans to annuitize. There is no significant effect of knowledge on changes in plans, but we do find that individuals with higher life expectancies were slightly more likely to change plans to annuitize some or all of their 401(k) account balance after the seminar.

## **Conclusion**

This chapter examined data on retirement-eligible workers from two large employers, focusing on their preferences for retirement income before and after their participation in a retirement planning seminar. These two companies offered workers both DB plans and the opportunity to contribute to 401(k) plans. The employers also allowed workers to remain in the company health plans in retirement. We show that about three-quarters of all respondents planned to accept the default option in their retirement prior to participation in the seminar. Nevertheless, this means that one-quarter of the respondents rejected the default and planned to make an

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active choice to receive their benefit in another form. After the program, 18 percent of participants modified their plans concerning the DB plan and 28 percent changed their preferred distributional choice for the DC. Thus, the presentation of material fundamental to making retirement choices seemed to influence the distributional choices of approximately one-quarter of retirees. How many workers were influenced by the framing of the benefit choice is uncertain, as many retirees likely would have chosen this form of retirement benefit in any case.

The choice between annuitized retirement income or lump sum distributions and self-management is one of the most important decisions a person will make. Making the right decision requires workers to have sufficient financial literacy and knowledge of their retirement programs. Company-provided retirement planning programs can provide information that allows workers to re-evaluate their plans. Many retiring workers seek to maintain a portion of their retirement assets in accounts that they can continue to control and spend according to their preferences. While framing of the distributional choice with annuity defaults can increase the proportion of retirees selecting an annuity option, simply making an annuity the first choice is not sufficient to entice many workers to prefer this type of retirement income.

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## **Data Appendix**

The data are from a survey of workers attending employer-provided pre-retirement planning seminars during 2008 and 2009. Surveys were completed immediately before and after the seminar, which enables the comparison of knowledge and retirement plans before and after acquiring information at the seminar. We received 431 surveys from BD and 274 from Progress Energy, for a total of 705. Once we restricted the sample to those answering at least five out of nine knowledge questions (rather than leaving them blank) in both survey one and two the final sample was 620 observations. Table 3A.1 presents the means for the sample, while Table 3A.2 describes how the key dependent variables are defined. Table 3A.3 describes some covariates used. Table 3A.4 defines the knowledge score.

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TABLE 3A.1 Respondents' descriptive statistics

Variable	Before seminar	After seminar
Age	58.2	
Male (%)	58.4	
Married (%)	77.7	
Years of service	27.1	
College degree (%)	47.3	
Plan to work after retirement (%)	39.2	
Annual earnings of \$50,000–\$100,000 (%)	47.7	
Annual earnings of \$100,000 and over (%)	23.1	
Account balance in 401(k)/403(b) plans 1–5 years of earnings (%)	64.5	
Account balance in 401(k)/403(b) plans over 5 years of earnings (%)	20.5	
Home equity \$50,000–\$200,000 (%)	46.8	
Home equity over \$200,000 (%)	32.6	
Financial assets \$25,000–\$100,000 (%)	27.1	
Financial assets over \$100,000 (%)	35.6	
Fair or poor health (%)	12.3	
Very good or excellent health (%)	44.7	
Postretirement investment strategy: no change (%)	14.4	
Postretirement investment strategy: more aggressive (%)	3.5	
Planned to take lump sum of pension (%)	29.5	27.6
Planned to annuitize all or part of DC saving (%)	22.1	28.9
Mean knowledge score	5.2	6.3
Percent low knowledge (%)	53.1	26.6
Percent high knowledge (%)	13.4	30.3
Probability of living to 75: 0–24% (%)	8.1	8.3
Probability of living to 75: 75–100% (%)	56.6	51.1
Probability of living to 85: 0–24% (%)	23.1	20.5
Probability of living to 85: 75–100 (%)	28.0	25.4
Number of respondents that were married	482	
Spouse earned more than \$50,000 in the past year (%)	24.9	
Number of observations of valid retirement age before and after	504	526
Mean retirement age	62.4	62.6

Notes: The total number of observations is 620.

Source: Authors' calculations; see text.

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TABLE 3A.2 Dependent variable definitions

Dependent variable	Definition	Survey wording	Response options
Choice to take a lump sum of pension	1: if response is Yes 0: if response is No, Have not yet decided, or left blank	[BD:] Do you plan on taking your entire pension as a lump sum distribution so that you will not receive a monthly benefit from the pension plan?  [Progress Energy:] If your pension plan allowed lump sum distributions of some or all of the pension benefit, would you take this option when you retire?	1: Yes 2: No 3: Have not yet decided
Choice to annuitize some or all of 401 (k)	1: if response is Yes 0: if response is No, Have not yet decided, or left blank	Are you planning on buying a life annuity with your retirement savings?	1: Yes 2: No 3: Have not decided

*Notes:* The survey included a lead-in question which asked the respondent if he/she could take a lump sum of his/her pension. The actual survey question is as follows: Can you take a lump sum distribution of some or all of your pension plan (do not include income from your [Savings Incentive Plan/401(k) Plan])? Answer options were: Yes; No (skip to question 14); Don't know (skip to question 14).

*Source:* Authors' calculations; see text.

TABLE 3A.3 Key covariate definitions

Covariate	Question	Responses
Total wealth	What is the total value of the stocks, bonds, and savings accounts that you own outside of the retirement plans offered by BD (include any 401 (k), 403(b) or 457 plans or IRAs you have from previous employers (do not include retirement plans owned by your spouse or partner)?	1: Less than \$25,000 2: \$25,001–\$50,000 3: \$50,001–\$75,000 4: \$75,001–\$100,000 5: \$100,001–\$250,000 6: Over \$250,000
Earnings	Last year, what were your total earnings, including earnings from BD and any other payments you may have had from other employers (do not include income earned by other members of your household or income from interest, rents, or dividends)?	1: Less than \$25,000 2: \$25,001–\$50,000 3: \$50,001–\$75,000 4: \$75,001–\$100,000 5: \$100,001–\$150,000 6: Over \$150,000
DC Acct	[BD:] What is the total value of your Saving Incentive Plan (do not include the value of retirement plans held by your spouse or partner)? [Progress Energy:] What is the total value of the stocks,	1: Less than one year salary 2: One to two years salary 3: Three to five years salary 4: More than five years salary

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bonds, and savings accounts that you own outside of the retirement plans offered by your current employer (include any 401 (k), 403(b) or 457 plans or IRAs you have from previous employers; do not include retirement plans owned by your spouse or partner)?

Health	How would you rate your health generally?	1: Poor 2: Fair 3: Good 4: Very good 5: Excellent
Survive 75	As you plan for retirement, what do you think the chances are that you will live to age 75?	1: 0–24% 2: 25–49% 3: 50–74% 4: 75–99% 5: 100%

*Source:* Authors' calculations; see text.

TABLE 3A.4 Knowledge score questions

Survey question	Responses
What is the earliest age you can start Social Security benefits?	62 (correct)
What is the age that you can receive a full or unreduced Social Security benefit (this is called the normal retirement age)?	66 (correct)
If you start Social Security benefits at the earliest possible age, you will receive a benefit that is _____ percent of the benefit that you would have received at the normal retirement age	60% 75% (correct) 80% 100%
Is the reduction in Social Security benefits for early retirement permanent or does the reduction end when you reach the normal retirement age?	Don't know <i>Benefit decrease is permanent</i> (correct) Benefit decrease ends when you reach the normal retirement age Don't know
After you start receiving Social Security benefits, these benefits are:	The same for the rest of my life Are increased annually by the rate of inflation (correct) <i>Are increased annually but by less than the rate of inflation</i> Are increased annually but by more than the rate of inflation Don't know 65 (Correct)

(continued)

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TABLE 3A.4 Continued

Survey question	Responses
What is the earliest age that you will be eligible for Medicare?	
Do you think the following statement is true or false? 'Buying a single company stock usually provides a safer return than a diversified portfolio.'	True False (Correct)
Assume that your retirement income increases by 2 percent per year and that the annual rate of inflation is 4 percent per year. After one year, will you be able to:	Buy more goods and services with your increased income Buy fewer goods and services with your increased income (correct) Buy exactly the same amount of goods and services with your increased income Don't know
Does (your company) offer you the opportunity to stay in the company health plan after you retire?	Yes (correct) No Don't know

Source: Authors' calculations; see text.

## Endnotes

- <sup>1</sup> The US Bureau of Labor Statistics (BLS, 1990) reported that in 1989 only 2 percent of DB plans offered by medium and large firms gave workers the option of taking a lump sum distribution, but by 1997, the proportion of these firms with plans that included a lump sum distribution had risen to 23 percent (BLS, 1999; also see Moore and Muller, 2002). Data from the National Compensation Survey indicated that 48 percent of workers covered by a DB plan in 2003 and 52 percent in 2007 were in plans that provided employees with the option of selecting a lump sum distribution instead of accepting the life annuity (BLS, 2005, 2007; Purcell, 2009).
- <sup>2</sup> Lump sum distributions from DB plans are calculated using an interest rate to determine the present value of the promised life annuity. The interest rate used by the plan to make this conversion may not be equal to an individual's discount rate. Thus, retiring workers can assess whether the lump sum equivalent is worth more or less than that of the life annuity in utility terms.
- <sup>3</sup> Ameriks (2002) provides evidence of the desire for lump sum distributions among individuals in DC plans by examining the response of participants in TIAA-CREF to a change in its distributional policy. Prior to 1989, TIAA-CREF required participants to annuitize their account balances. After this restriction

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was removed, the proportion of participants electing life annuities fell to 46 percent in 2001.

- <sup>4</sup> An exception to this observation seems to be the behavior of retirees in Switzerland. Avanzi (2009) reports that almost two-thirds of the Swiss converted all of their retirement assets into annuities, while only one-fourth requested that all of the assets be paid as a lump sum.
- <sup>5</sup> Mitchell et al. (1999), Johnson et al. (2004) and Brown (2008) provide in-depth reviews of these and other reasons why so few individuals purchase annuities to help smooth consumption in retirement. Individuals may also have better information concerning their life expectancy than the actuarial calculation. Thus, the value of an annuity to an individual might differ from the offer price. For individuals with poor health or lower life expectancies, the price of the annuity may be too high and it would be optimal to select a lump sum distribution. In fact, sellers facing unknown longevity of the population willing to purchase annuities may price the product too high for the average retiree (Friedman and Warshawsky, 1990). Davidoff et al. (2005) provide a formal model that explains the lack of demand for annuities in this way.
- <sup>6</sup> Much of the research examining lump sum distributions from DB plans focuses on workers who terminate service prior to retirement. The major focus of these studies tends to be whether the funds are spent on current consumption or saved for retirement. In comparison, this study examines the planned distributional choices of workers who are retiring from career jobs.
- <sup>7</sup> A more detailed description of this project, the employer partners, and the surveys can be found in Clark et al. (2010).
- <sup>8</sup> Employees could accrue no new benefits in the old plan after 2003.
- <sup>9</sup> In 2007, BD introduced a cash balance plan and gave workers a one-time option of switching to the cash balance plan. Virtually all older workers with significant tenure would have had higher values in the old plan, and thus would have chosen to stay in the old plan.

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## **Author Query**

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