Center for Financial Security
UNIVERSITY OF WISCONSIN-MADISON
Retirement & Disability Research Center

Pension Plan Types and Social Security Knowledge: New Survey Evidence

Yang Li
University of Massachusetts Boston

Center for Financial Security

University of Wisconsin-Madison

1300 Linden Drive
Madison, WI 53706

608-890-0229
cfs@mailplus.wisc.edu
cfs.wisc.edu

The research reported herein was performed pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Retirement and Disability Consortium. The opinions and conclusions expressed are solely those of the author(s) and do not represent the opinions or policy of SSA or any agency of the Federal Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation or favoring by the United States Government or any agency thereof.

The project described in this paper relies on data from survey(s) administered by the Understanding America Study, which is maintained by the Center for Economic and Social Research (CESR) at the University of Southern California. The content of this paper is solely the responsibility of the author and does not necessarily represent the views of USC or UAS.

Abstract

Knowledge of the Social Security (SS) Old-Age and Survivors Insurance program affects people's work, consumption, and savings decisions before retirement and in turn impacts financial well-being in retirement. Despite extant literature on retirement planning and SS claiming decisions, little is known about the public's SS knowledge as it intersects with pension plans, two pillars of the "three-legged stool" of retirement security. While research suggests that individuals with defined-contribution (DC) plans, especially men, are more likely to possess higher financial literacy than those with defined-benefit (DB) plans, it remains unclear whether individuals' pension types are associated with their SS knowledge and whether these associations differ by gender. Utilizing merged data from the Understanding America Study, this study explores how the levels of SS knowledge vary across segments of the population by pension status (DB, DC, both, neither), and whether gender moderated the associations between pension type and SS knowledge. Results indicate that relative to those with no pension, people with a pension consistently had higher odds of correctly answering questions assessing SS knowledge. Specifically, those with DC only had higher odds of correctly answering questions on disability benefits, age adjustment, claiming upon retirement, and spousal benefits. Those with DC and DB had higher odds of correctly answering the question on spousal benefits. Women with no pension tend to have lower overall SS knowledge relative to women with DB only. These results suggest that individuals without any type of pension, especially women, could benefit from communication efforts to enhance their SS knowledge.

Keywords: financial literacy; defined contribution pension; defined benefit pension; retirement security; aging; Understanding America Study
JEL: D14, G53, J26, H55

Introduction

Knowledge of the Social Security (SS) Old-Age and Survivors Insurance program, including when to claim benefits and eligibility for benefits, is shown to affect work, consumption, and savings decisions before retirement, especially among women (Liebman & Luttmer, 2015), and in turn impacts financial well-being in retirement (Rohwedder & van Soest, 2006). Although SS remains the primary source of income for many older adults (Dushi, Iams, & Trenkamp, 2017), SS is one of the three pillars of the metaphorical "three-legged stool" of retirement security, along with company or personal pensions as well as savings and investment (DeWitt, 1996).

While a quarter of older adults rely on SS for at least ninety percent of their family income (Dushi, Iams, & Trenkamp, 2017), many receive income from various types of pension plans: defined benefit (DB), defined contribution (DC), or both (Bond & Porell, 2020). The variable sources of retirement income imply that individuals rely on SS for retirement security to different extents. Those who are eligible for SS old-age benefits but have no other retirement pensions or savings will rely mostly on SS benefits in retirement, or must continue to work after claiming SS. On the other hand, individuals with DB, DC, or both may seek to optimize retirement income across pension plans and SS benefits.

Despite extant literature on retirement planning and SS claiming decisions, little is known about the public's knowledge of SS as it intersects with types of pension plans, two pillars of the "three-legged stool" of retirement security. People's understanding of SS program provisions may vary by pension type as individuals with different pension status, including DC only, DB only, both DC and DB, or no pension, have differing access to information related to SS benefits and program rules and may not have the same incentive to acquire financial knowledge as they do not rely to the same extent on SS benefits for a secure retirement (Gustman & Steinmeier, 2005; Li, et al., 2019). Indeed, research suggests that prospective reliance on SS income for retirement security shapes people's SS knowledge (Rabinovich, Peterson, & Smith, 2017), which in turn affects financial decision-making, behaviors, and well-being in retirement (Chard, Rogofsky, & Yoong, 2017; Liebman & Luttmer, 2015).

Evidence on the association between pension plan status and levels of SS knowledge can inform outreach strategies based on beneficiaries' pension status. For decades, the Social

Security Administration (SSA) has sought to improve the public's understanding of its retirement and disability programs, through such platforms as the *Social Security Statement*, which provides information on projected benefits (Alattar, Messel, Rogofsky, & Sarney, 2019), and more recently the "my Social Security" website, which offers interactive access to personalized benefit estimates. To gauge the public's understanding of SS programs, the SSA has sought to identify outreach targets for more effective communications. Research shows, for example, that SS knowledge varies by wealth, age, race and ethnicity (Cook et al, 2010; Chard et al., 2017; Rabinovich et al., 2017), and education (Alattar et al, 2019).

Yet, research is scarce on the intersection of pension types and SS knowledge. Do people with different types of pension plans have differing levels of SS knowledge? If so, pension plan type may serve as a viable intervention pathway for more effective communications to enhance beneficiaries' understanding of program provisions and rules. Relevant research will add to our understanding of the role retirement plans—and potentially the type of pension providers—in SS knowledge disparities and will contribute to SSA's informational intervention efforts by identifying outreach targets based on pension enrollment.

Pension type may serve as an intervention pathway to enhance SS knowledge as different pension types are associated with differing access to information and incentive to acquire financial knowledge (Gustman & Steinmeier, 2005; Li et al., 2019). Among individuals enrolled in retirement plans, those with DC plans (regardless of DB status) tend to have higher general financial literacy relative to those with DB only, as DC holders are incentivized to realize additional financial returns by understanding financial concepts and self-educating to acquire financial literacy (Li et al., 2019). Among those without any pension, many work for employers who do not offer retirement plans and lack access to information on retirement planning (NCLR, 2015). This is of particular concern for "pensionless" individuals as prior research suggests that SS knowledge is systematically associated with information obtained from the work environment (e.g., companies and unions), in addition to the costs and benefits of gathering such information (Gustman & Steinmeier, 2005). Moreover, the shift from DB to DC plans has widened inequality in pension participation, as more Black and Hispanic workers do not have any pension relative to their white counterparts. These discrepancies in pension participation and in turn retirement security are not explained by differences in income or education (Sabadish & Morrissey, 2013),

suggesting that pension type (DB, DC, or neither) may be a viable pathway for informational intervention related to financial knowledge, including SS knowledge.

Utilizing novel, nationally representative survey data with detailed information on SS knowledge from the Understanding America Study (UAS) (Alattar, Messel, Rogofsky, & Sarney, 2019), this study examines how nine aspects of SS knowledge, along with overall knowledge captured by a composite index, are associated with plan types (DC, DB, both, none), adjusting for other characteristics. The findings of this study may inform communications strategies to enhance SS knowledge and in turn financial well-being among vulnerable populations.

Background

For decades, the SSA has sought to improve the public's understanding of its retirement and disability programs, and has partnered with Gallup (Smith & Couch, 2014), the American Life Panel (Greenwald et al., 2010), and more recently the Understanding America Study (UAS) (Alattar et al, 2019) to assess SS knowledge disparities and identify outreach targets for more effective communication strategies. Recent research utilizing UAS data demonstrates disparities in SS knowledge by wealth, age, and ethnicity (Chard et al., 2017), and by education and general financial literacy (Alattar et al, 2019). Earlier research based on Gallup surveys yielded largely similar findings (Cook, Jacobs, & Kim, 2010). Also using Gallup surveys, Smith and Couch (2014) found that younger workers had stronger overall SS knowledge than benefit-specific knowledge. For example, fewer younger workers knew the incremental increase of full retirement age and that SS benefits were adjusted for inflation (Smith & Couch, 2014). This body of research has provided SSA with evidence for identifying outreach targets primarily based on beneficiaries' demographic characteristics in order to enhance beneficiaries' knowledge of SS program provisions and rules.

One area relating to knowledge disparities that has received limited attention is the type of beneficiaries' retirement plans. To what extent do levels of SS knowledge vary by pension plan type? People's SS knowledge, conceptualized as a form of human capital, may vary by pension status because SS knowledge is systematically related to the information provided in the work environment as well as the perceived costs and benefits in acquiring such knowledge (Gustman & Steinmeier, 2005). Indeed, human capital theory, and in particular, the allocative

ability hypothesis, suggests that "education and experience influence the efficiency of human beings to perceive, interpret correctly, and to undertake action that will appropriately reallocate their resources" (Schultz, 1975, p. 827). Financial knowledge is seen as a form of human capital (Lusardi & Mitchell, 2014) and people invest in financial knowledge in order to optimize financial returns or reduce investment expenses. In the context of pension and SS knowledge, people with different pension types – DC only, DB only, both DC and DB, or no pension – may have differing access to information related to SS benefits and rules as well as differing incentive to acquire SS knowledge, as they do not rely to the same extent on SS benefits for a secure retirement (Gustman & Steinmeier, 2005). This divergence in access to and incentive to acquire SS knowledge by pension type implies that people with different pension type would possess different levels a SS knowledge. Thus, research is needed to understand the role of pension in SS knowledge disparities, as pension type is a viable intervention pathway for identifying outreach targets to enhance SS communications.

Yet, research is scarce on the intersection of pension plan types and SS knowledge. Are DC holders more or less knowledgeable about SS benefits and rules relative to DB holders? Are those without any pension more or less knowledgeable about SS relative to those with a pension? Do these differences depend on specific aspect of SS knowledge or overall SS knowledge? The variable sources of retirement income imply that individuals rely on SS for retirement security to different extents, given the fact that many receive income from various types of pension plans: (Bond & Porell, 2020). While those with no pension coverage depend mostly on SS for retirement security, individuals with DB, DC, or both may seek to optimize across pension and SS benefits. Relevant research would illuminate our understanding of the role of individuals' retirement plans—and potentially the type of their pension providers—in SS knowledge.

Individuals who are eligible for SS benefits but have no retirement plans rely mostly on SS benefits in retirement (Rabinovich, Peterson, & Smith, 2017). Many Hispanics, for example, do not have any type of pension, either because they have no access to retirement plans given the type of employers they work for, or because they do not participate in retirement plans even when they do have access to them (NCLR, 2015). How much do "*pensionless*" individuals know about SS program provisions? Given the higher prevalence of economic and health care hardship among the more than 40 percent of older adults with no pension coverage (Bond & Porell, 2020), tailored communications and outreach targeting individuals with *no pension* coverage – for

example, by offering detailed information on spousal benefits and disability benefits – may be beneficial, as SS knowledge impacts financial decision-making and well-being (Liebman & Luttmer, 2015; Rohwedder & van Soest, 2006).

Among those who have retirement plans, the increasing prevalence of DC plans over the last 30 years places pressure on more employees to shoulder the responsibility of managing their own retirement security (Copeland, 2019). Having better financial knowledge, including knowledge of SS, may help DC plan holders better prepare for retirement as they optimize across pension investments and SS benefits in the long run. Are DC plan holders more knowledgeable than DB plan holders about specific aspects of SS—for example, when to claim benefits and how much benefit to expect—and potentially better prepared to optimize wealth in retirement across pension and SS benefits? If not, knowing how pension plan types are related to specific SS knowledge may facilitate SS program use by tailoring informational interventions targeting DC plan holders to enhance their SS knowledge.

Prior research suggests that those with DC plans, especially men, are more likely to possess higher general financial knowledge than those with defined benefit (DB) plans (Li, Burr, & Miller, 2019), while many women lack financial knowledge for effective decision making (Lusardi & Mitchell, 2008) and are less likely to have DC plans relative to men (Brown & Weisbenner, 2009). However, it remains unclear whether individuals' plan types are associated with their knowledge of SS and whether these associations differ by gender. Women's lower participation in DC plans, partly a result of less labor force attachment relative to men, would mean that women's average SS knowledge level may be lower. Understanding how levels of SS program knowledge vary across segments of the population with different types of pension plans helps identify potential target groups for informational interventions.

In this study, I examine three research questions: (1) Do levels of SS knowledge vary across groups by pension plan type (DB, DC, both, none)? (2) Are plan types associated with SS knowledge (single-item and overall knowledge), adjusting for other characteristics? (3) Does gender moderate the associations between plan types and SS knowledge, adjusting for covariates? Study findings will help identify target groups for SS communication and outreach efforts based on people's pension plan types and improve communication with women, providing researchers and policymakers with evidence for interventions that enhance financial well-being, particularly among vulnerable populations.

Methods

Data Source

Data for all variables in this study were obtained from the Understanding America Study (UAS), a nationally representative panel of adults aged 18 years or older, administered at the University of Southern California, and supported by the Social Security Administration (SSA) and the National Institute on Aging (Alattar, Messel, & Rogofsky, 2018). The UAS provides timely data with more than 300 surveys (completion rates: 70-95 percent) with the exclusive use of address-based probability sampling at the ZIP-code level, adding to the representativeness of the data (Alattar et al., 2018). The UAS SS knowledge survey is the SSA's latest effort to gauge public knowledge of the Social Security program (Alattar et al., 2019). Since 2015, the UAS SS knowledge survey has been administered every 2 years, and has a number of advantages over traditional surveys in gathering public knowledge of the program, including the use of a preconstructed nationally representative panel, timely availability, and a wide array of topics assessed (Alattar et al., 2019). Further, the UAS enables researchers to merge multiple surveys to combine unique information in each survey. Weighting, applied in this study, is provided by the UAS based on the Census Bureau's Current Population Survey, referencing the civilian population aged 18 years or older in the United States (Alattar et al., 2018).

Study Sample

To construct the analytic file, I merged two UAS surveys to combine information on SS knowledge and pension plans, as each survey offers unique information for the variables analyzed in this study: UAS 94 for SS knowledge and UAS 72 for pension plan types. UAS 94, the latest complete UAS survey on SS knowledge (April 2020), offers unique information on respondents' specific SS knowledge, including eligibility for benefits, when to claim benefits, spousal benefits, and six other aspects (see **Appendix A**). UAS 94 also provides a composite index assessing the overall level of knowledge by combining all nine specific knowledge aspects. UAS 72 provides information on whether a respondent reported any DC (defined contribution) or DB plans from employment. The final analytic sample consisted of 4,210 adult respondents aged 18 or older with valid information on variables of interest.

Measures

Dependent Variable

SS knowledge was evaluated using questions assessing respondents' understanding of nine aspects of the Social Security program: age adjustment, benefit calculation, child survivor benefits, claiming upon retirement, disability benefits, inflation adjustment, payroll tax, spousal benefits, and widow(er) benefits. **Appendix A** shows detailed question wording and the correct response to each question. For each concept, a dichotomous variable was created and coded 1 if a correct response was given and 0 if incorrect. Overall knowledge was assessed using a composite index combing all questions into a single measure to capture the number of questions answered correctly (mean = 6.7; standard deviation = 1.5; range 0–9), following Alattar et al. (2019).

Independent Variables

Variables for pension plans measure whether a respondent reported any DC (defined contribution) or DB plans from employment (1 = yes, 0 = no). DB refers to "a pension plan that provides benefits based on a formula involving age, years of service and salary" and DC refers to "a pension, retirement, or tax-deferred retirement savings plan that provides benefits based on how much money has accumulated in your pension or retirement account, such as a 401(K) or 403(B)." For analytical clarity, pension plans were categorized as follows: 1 = no pension (reference group in regressions), 2 = DC only, 3 = DB only, and 4 = both DC and DB (Li et al. (2019). In addition, a dummy variable was created to represent each of the four pension statuses and coded 1 if a respondent's pension status matched the status described and coded 0 if not: no pension, DC only, DB only, and both DC and DB, consistent with Li et al. (2019).

Covariates

Age was measured in years. Education was assessed with a categorical measure: 1 = less than high school, 2 = high school, 3 = some college, 4 = bachelor's degree or higher. Gender (1 = female, 0 = male), marital status (1 = married/partnered, 0 = other), disability status (1 = yes, 0 = no), work status (1 = yes, 0 = no), and race/ethnicity were included (1 = non-Hispanic White (reference group in regressions), 2 = non-Hispanic Black, 3 = non-Hispanic Asian, 4 = non-Hispanic other race, and 5 = Hispanic). Respondents were assigned to four income groups based on their annual household income: less than $30,000; $30,000 to $49,999; $50,000 to $74,999; and $75,000 or higher, consistent with Alattar et al. (2019).

Analytic Plan

I began by describing the study sample using sample mean or percentages (for categorical variables). To examine whether levels of SS knowledge vary across groups by pension plan type (DB, DC, both, none), I cross-tabulated the sample by SS knowledge and plan type, and evaluated cross-group statistical significance (Chi-sq test for categorical variables and *t*-test for continuous variables). Next, to investigate the associations between pension plan type and SS knowledge, I estimated a series of ordered logit models (for composite categorical knowledge index) and logit models (for single-item knowledge coded as binary), adjusting for other demographic and economic characteristics. Further, to examine the gender moderation effect, I employed two methods. I first used a stratification method to investigate the moderating effect of gender by estimating separate regression models for men and women for the association between pension type and SS knowledge, complemented with joint tests on model parameters to compare male-female differences (Hayes, 2013). In addition, I created interaction terms between gender and pension type to investigate whether the associations between pension type and SS knowledge (ordered logit for knowledge index) were different between men and women, controlling for other characteristics (Hayes, 2013). Finally, to correct for the differential sampling rates, analyses were conducted with sampling weights applied to the data using the post-stratification weight provided by the UAS (Alattar et al., 2018).

Results

Table 1 reports descriptive statistics for the study sample. For individual aspects of SS knowledge: approximately 91 percent of respondents correctly answered the question on disability benefits, 89 percent correctly answered the question on age adjustment, 81 percent on claiming upon retirement, 86 percent on payroll tax, 86 percent on child survivor benefits, 78 percent on spousal benefits, 67 percent on inflation adjustment, 64 percent on widow(er) benefits, and 31 percent on benefit calculation. On average, respondents in the sample correctly answered 7 out of 9 questions measuring their understanding of the SS program. About 59 percent of the sample did not have any pension coverage, 17 percent had a DC but not a DB plan, 8 percent had a DB but not a DC plan, and 17 percent had both DC and DB plans.[1]

Table 1. Study Sample Characteristics

[1] See Appendix A for specific question wording in the survey.

	Mean or %	SD
Social Security knowledge (correct response)		
Disability benefits	91.4%	
Age adjustment	88.6%	
Claiming upon retirement	80.9%	
Payroll tax	85.9%	
Child survivor benefits	86.1%	
Spousal benefits	77.7%	
Inflation adjustment	67.4%	
Widow(er) benefits	64.4%	
Benefit calculation	31.1%	
Social Security knowledge index (range 0-9)	6.7	1.5
Pension plan type		
No Coverage	59.1%	
Defined Contribution (DC) only	16.9%	
Defined Benefit (DB) only	7.5%	
Both (DC and DB)	16.5%	
Female	51.0%	
Age (year)	49.9	16.1
Educational attainment		
Less than high school diploma	8.4%	
High school diploma	32.1%	
Some college	27.6%	
Bachelor's degree or higher	31.8%	
Race/Ethnicity		
White (non-Hispanic)	70.6%	
Black (non-Hispanic)	13.5%	
Asian (non-Hispanic)	3.9%	
Other non-Hispanic	0.5%	
Hispanic or Latino	11.5%	
Household Income		
Income <$30,000	30.2%	
Income $30,000–$49,999	19.0%	
Income $50,000–$74,999	18.3%	
Income >$75,000	32.5%	
Married or partnered	58.1%	
Disabled	10.5%	
Working	59.3%	

N = 4,210. Results based on weighted data using post-stratification weight.

For the other covariates shown in **Table 1,** approximately half of the samples were women. Mean age was 50 years. In terms of educational attainment, 8 percent of the sample attained less than a high school diploma, 32 percent attained a high school diploma, 28 percent had some college education, and 32 percent attained a bachelor's degree or higher. Moreover, 71 percent of the sample were non-Hispanic white, 14 percent non-Hispanic Black, 4 percent non-Hispanic Asian, less than 1 percent non-Hispanic other race, and 12 percent Hispanic. Less than a third of the sample had a household income below $30,000, 19 percent between $30,000 and $49,999, 18 percent between $50,000 and $74,999, and 33 percent had a household income higher than $75,000. In addition, 58 percent of the sample were married/partnered, 11 percent reported that they were disabled, and 59 percent were working.

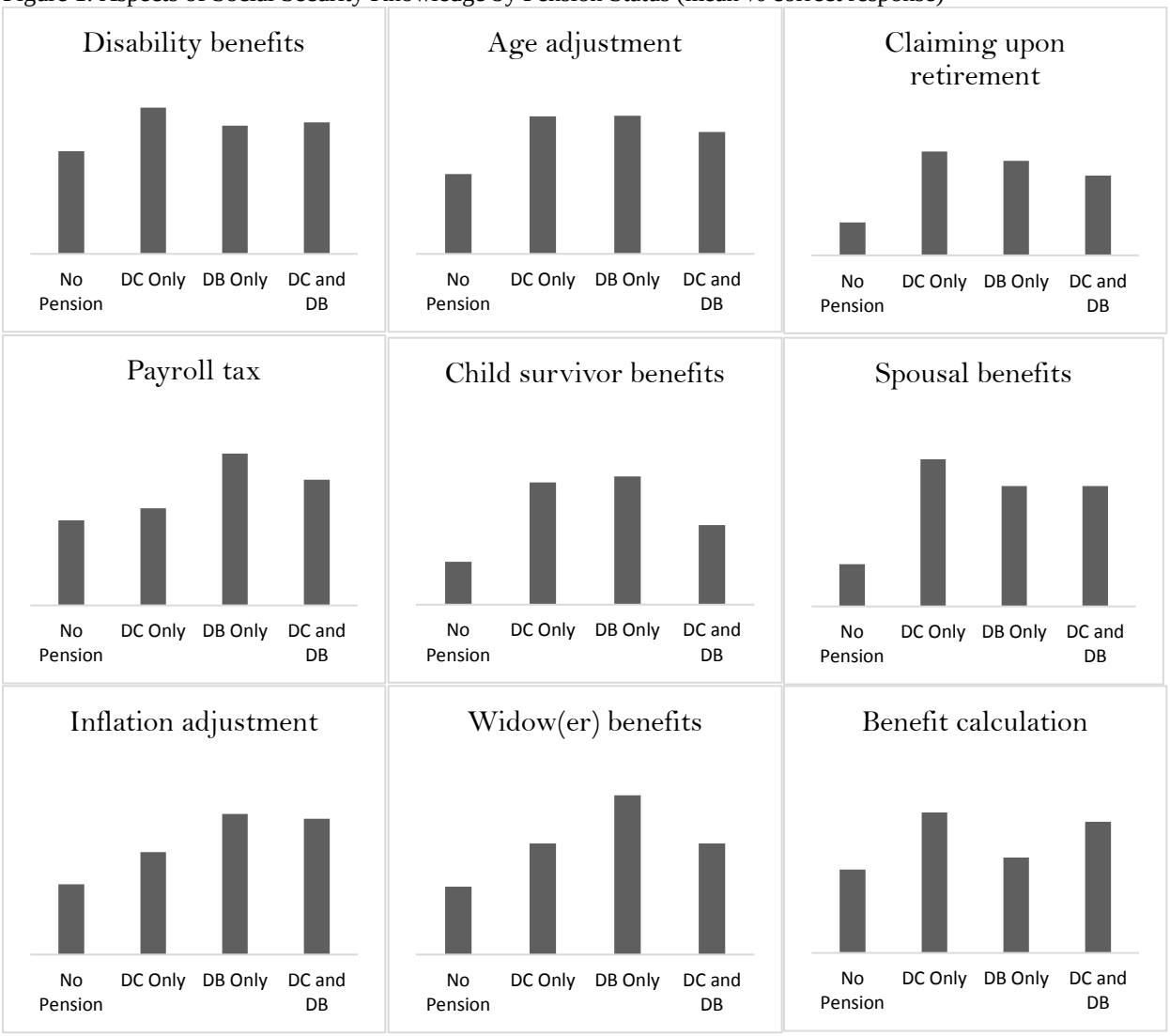
Table 2 reports descriptive statistics for the study sample by pension status: no pension, DC only, DB only, and both. These variables of SS knowledge differed significantly across participants with varying pension status: disability benefits, age adjustment, claiming upon retirement, payroll tax, spousal benefits, widow(er) benefits, and SS knowledge index (all $p < .001$). Demographic factors including gender, age, educational attainment, race and ethnicity, household income, marital status, disability status, and working status also differed significantly across participants with different pension status (all $p < .001$). The results revealed that the public's knowledge of individual SS aspects is fairly high, with the share of correct responses ranging from 60 percent (e.g. widow(er) benefits) to over 90 percent (e.g. disability benefits). One aspect that the public doesn't understand well is how a worker's SS benefits are calculated ("benefit calculation"): less than 35 percent of respondents in any group correctly answered this question. This could be an important area for intervention particularly for those who still have time to save up (e.g. midcareer workers, see Figure 2). Overall, greater shares of respondents with *DC only*, *DB only*, or *both DC and DB* had bachelor's degree or above and were working, relative to those with *no pension*, suggesting that they might possess higher knowledge of or have had greater exposure to SS provisions and program rules than other individuals. The group without any pension disproportionately consists of women, low-income, Black, and Hispanic respondents as well as those with an educational attainment of high school diploma or less. These results are also presented in **Figure 1**, which shows the difference in mean SS knowledge by pension status for each of the nine SS knowledge aspects assessed in this study.

Table 2. Social Security knowledge and Other Characteristics by Pension Status

	No Pension	DC Only	DB Only	Both DC and DB	Cross-group difference
Social Security knowledge (correct response)					
Disability benefits	88.9%	96.9%	93.6%	94.2%	***
Age adjustment	84.7%	95.3%	95.4%	92.4%	***
Claiming upon retirement	76.3%	89.8%	88.0%	85.2%	***
Payroll tax	83.7%	85.6%	94.4%	90.2%	***
Child survivor benefits	85.7%	87.0%	87.1%	86.3%	
Spousal benefits	74.1%	84.3%	81.7%	81.7%	***
Inflation adjustment	65.7%	68.3%	71.4%	71.0%	
Widow(er) benefits	61.0%	68.0%	75.8%	68.0%	***
Benefit calculation	29.1%	35.3%	30.4%	34.3%	**
Social Security knowledge index (0-9), mean	6.5	7.1	7.2	7.0	***
Female	56.4%	43.6%	41.9%	43.3%	***
Age (year), mean	49.3	48.9	53.9	51.2	***
Educational attainment					***
Less than high school diploma	12.0%	2.9%	4.4%	2.6%	
High school diploma	37.6%	24.1%	20.3%	26.0%	
Some college	28.6%	26.0%	28.1%	25.7%	
Bachelor's degree or higher	21.7%	46.9%	47.2%	45.7%	
Race/Ethnicity					***
White (non-Hispanic)	67.0%	74.0%	79.2%	75.9%	
Black (non-Hispanic)	15.9%	10.6%	7.6%	10.5%	
Asian (non-Hispanic)	3.5%	6.2%	4.7%	3.0%	
Other non-Hispanic	0.7%	0.4%	0.3%	0.2%	
Hispanic or Latino	12.9%	8.8%	8.2%	10.4%	
Household Income					***
Income <$30,000	42.6%	12.0%	12.1%	12.2%	
Income $30,000–$49,999	19.8%	18.6%	18.8%	16.7%	
Income $50,000–$74,999	17.5%	17.1%	21.0%	21.4%	
Income >$75,000	20.0%	52.3%	48.0%	49.7%	
Married or partnered	51.4%	66.0%	71.0%	68.1%	***
Disabled	15.9%	2.6%	2.2%	3.1%	***
Working	46.3%	81.8%	69.8%	78.6%	***

Results based on weighted data. *p<0.05. **p<0.01. ***p<0.001.

Figure 1. Aspects of Social Security Knowledge by Pension Status (mean % correct response)

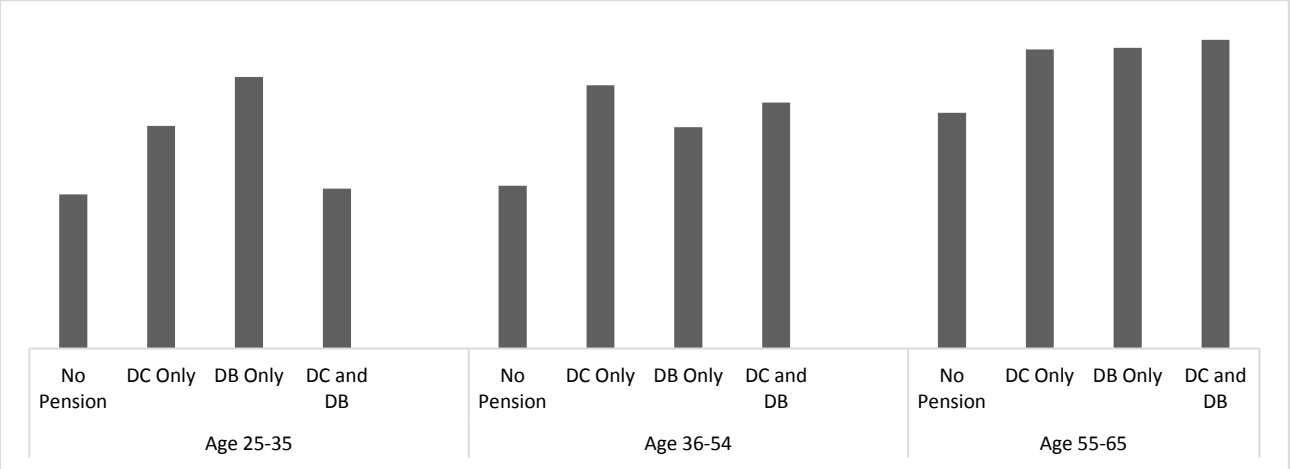


Source: author's calculations. Refer to Table 2 for joint test results on cross-group differences.

Figure 2 reports average scores on the SS knowledge index by pension status for the three relevant age groups targeted by SSA's outreach program: 25–35 (young workers), 36–54 (midcareer workers), and 55–65 (workers near retirement age). Among those aged 25-35, people with *DB only* (7.13) and *DC only* (6.74) had the highest average scores on the composite knowledge index, followed by *both DB and DC* (6.25) and *no pension* (6.21). For the group aged 36-54, those with *DC only* had the highest average score (7.06), followed by *both DB and DC* (6.93) and *DB only* (6.74), and those with *no pension* (6.27) scored the lowest. Among those aged 55-65, respondents with any pension had similarly high average scores on the composite

index (around 7.4 for *DC only*, *DB only*, and *both DC and DB*), in contrast to those with *no pension* who scored the lowest (6.85).

Figure 2. Social Security Knowledge Index by Pension Status and Relevant Age Group (mean)



Source: author's calculations.

Table 3 shows logistic regression results for individual measures of SS knowledge. Relative to those with *no pension*, respondents with *DC only* had a greater likelihood of correctly answering questions on disability benefits (odds ratio [OR] = 1.70, 95% confidence interval [CI] = 1.13, 2.57), age adjustment (OR=2.09, 95% CI =1.43, 3.07), claiming upon retirement (OR = 1.80, 95% CI = 1.34, 2.40), and spousal benefit (OR=1.32, 95% CI =1.05, 1.67), controlling for gender, age, education, race/ethnicity, income, marital status, disability status, and work status. Compared to respondents with *no pension*, those with *DB only* had a 32 percent increase in the odds of correctly answering the question on widow(er) benefits (OR = 1.32, 95% CI = 1.02, 1.70), while those with both *DB and DC* had a 33 percent increase in the odds of correctly answering the question on spousal benefits (OR = 1.33, 95% CI = 1.05, 1.68), again adjusting for controls.[2] The fact that DC holders have higher SS knowledge concurs with prior research which suggests that individuals with DC plans tend to have higher financial literacy as *DC* holders have greater incentive to acquire financial knowledge which would help them maximize returns from savings, pensions, and investment (Li et al., 2019).

[2] Note that the same regression models were also conducted using *DB only* as the reference group (results not shown in Table 3). Relative to respondents with *DB only*, those with *DC only* had a lower likelihood of correctly answering the question on payroll tax (OR=0.51, 95% CI =0.32, 0.82), while those with *no pension* had a lower likelihood of correctly answering the question on widow(er) benefits (OR=0.76, 95% CI =0.59, 0.98), adjusting for controls.

Table 3. Logistic Regression Results for Aspects of Social Security Knowledge

	Disability benefits			Age adjustment			Claiming upon retirement		
Pension plan type	OR	95% CI		OR	95% CI		OR	95% CI	
No pension (ref.)									
DC only	1.70*	1.13	2.57	2.09***	1.43	3.07	1.80***	1.34	2.40
DB only	1.04	0.64	1.70	1.49	0.91	2.43	1.30	0.89	1.88
Both	1.22	0.84	1.77	1.33	0.95	1.86	1.30	0.99	1.70

Table 3 (continued)

	Payroll tax			Child survivor benefits			Spousal benefits		
Pension plan type	OR	95% CI		OR	95% CI		OR	95% CI	
No pension (ref.)									
DC only	0.79	0.60	1.03	1.10	0.84	1.45	1.32*	1.05	1.67
DB only	1.53	0.98	2.39	1.05	0.73	1.50	1.37	1.00	1.88
Both	1.01	0.76	1.34	1.17	0.88	1.55	1.33*	1.05	1.68

Table 3 (continued)

	Inflation adjustment			Widow(er) benefits			Benefit calculation		
Pension plan type	OR	95% CI		OR	95% CI		OR	95% CI	
No pension (ref.)									
DC only	0.92	0.76	1.11	1.17	0.97	1.42	1.13	0.93	1.36
DB only	1.01	0.78	1.29	1.32*	1.02	1.70	0.96	0.76	1.23
Both	1.01	0.84	1.22	1.04	0.86	1.25	1.09	0.90	1.31

OR = Odds Ratio. CI = Confidence Interval.
*p<0.05. **p<0.01. ***p<0.001.
Controls: gender, age, education, race/ethnicity, income, marital, disability, and work statuses.

The ordered logistic regression results for SS knowledge index for the full sample and female and male respondents are reported in **Table 4**. Respondents who had *DC only*, *DB only*, or *both DC and DB plans* had a greater likelihood of possessing high SS knowledge relative to respondents with *no pension*. Increasing age, higher educational attainment, and higher household income were associated with a greater likelihood of high SS knowledge. Non-Hispanic blacks (OR = 0.50, 95% CI = 0.42, 0.59), non-Hispanic other race (OR = 0.43, 95% CI = 0.21, 0.90), and Hispanics (OR = 0.61, 95% CI = 0.52, 0.72) tend to have lower SS knowledge than non-Hispanic whites, as were those who reported being disabled (OR = 0.77, 95% CI = 0.63, 0.94). Also shown in **Table 4** are analyses stratified by gender. Findings indicated that men with *DC only* had a greater likelihood of possessing high SS knowledge than men with *no pension* (OR = 1.42, 95% CI = 1.11, 1.80). For women, those with *DC only* (OR = 1.33, 95% CI

= 1.06, 1.66) or *DB only* (OR = 1.50, 95% CI = 1.09, 2.06) tend to have higher knowledge, relative to women with *no pension*. The difference between men and women in the association between pension type and SS knowledge was not significant. Statistically significant differences between men and women were found with respect to the coefficients for education and ethnicity.[3]

Table 4. Ordered Logistic Regression Results for Social Security Knowledge Index for Full Sample and Gender-stratified Sample

	Full sample				Stratified sample								
					Male				Female				Male-female diff.
	OR	Sig.	95% CI		OR	Sig.	95% CI		OR	Sig.	95% CI		
Pension plan type													
No pension (ref.)													
DC only	1.39	***	1.18	1.63	1.42	**	1.11	1.80	1.33	*	1.06	1.66	
DB only	1.27	*	1.02	1.57	1.11		0.82	1.52	1.50	*	1.09	2.06	
Both	1.23	*	1.04	1.45	1.24		0.97	1.59	1.18		0.95	1.48	
Female	0.91		0.82	1.02	-				-				
Age	1.03	***	1.03	1.04	1.04	***	1.03	1.04	1.03	***	1.02	1.03	
Education													
< high school (ref.)													
High school	1.24	*	1.00	1.53	0.84		0.60	1.16	1.97	***	1.49	2.60	**
Some college	1.81	***	1.45	2.26	1.16		0.82	1.63	3.02	***	2.26	4.03	**
Bachelor's +	2.21	***	1.75	2.79	1.51	*	1.06	2.13	3.48	***	2.54	4.77	**
Race/Ethnicity													
White (ref.)													
Black	0.50	***	0.42	0.59	0.46	***	0.34	0.61	0.51	***	0.41	0.63	
Asian	0.99		0.74	1.33	1.02		0.64	1.61	0.94		0.64	1.37	
Other	0.43	*	0.21	0.90	0.65		0.18	2.41	0.31	*	0.13	0.76	
Hispanic	0.61	***	0.52	0.72	0.85		0.64	1.13	0.46	***	0.37	0.57	*
Household Income													
<$30,000 (ref.)													
$30,000–$49,999	1.34	***	1.13	1.58	1.38	*	1.04	1.82	1.28	*	1.04	1.59	
$50,000–$74,999	1.48	***	1.24	1.77	1.45	**	1.10	1.92	1.54	***	1.22	1.95	
>$75,000	2.03	***	1.70	2.43	2.05	***	1.54	2.73	2.04	***	1.62	2.58	
Married or partnered	0.98		0.87	1.11	0.94		0.77	1.14	0.99		0.85	1.16	
Disabled	0.77	**	0.63	0.94	0.80		0.58	1.11	0.76	*	0.58	0.98	
Working	0.95		0.83	1.10	1.06		0.84	1.35	0.87		0.73	1.04	

OR = Odds Ratio. CI = Confidence Interval. *p<0.05. **p<0.01. ***p<0.001.

[3] The author also analyzed models using a non-linear term of age (e.g. age squared). Results (not shown) indicated little improvement in model fit or change in coefficients. Main conclusions from Table 4 remain.

Table 5 reports ordered logistic regression results for SS knowledge index with interaction terms between pension type and gender. To investigate whether gender moderated the association between pension type and SS knowledge, eight interaction terms were included in the analysis: four pension types (none, DC, DB, both) × gender (male, female), where the base group was female with *DB only*. Results showed that relative to women with *DB only*, men with other types of pensions were not significantly associated with higher or lower SS knowledge, although women with *no pension* had a lower likelihood of correctly answering various questions contained in the SS knowledge index (OR = 0.68, 95% CI = 0.49, 0.95). Results suggested that the association between pension type and SS knowledge did not differ between men and women, after controlling for age, education, race/ethnicity, income, work status, disability status, and marital status, similar to results reported in Table 4 based on analysis of gender-stratified sample.

Table 5. Ordered Logit Results for Social Security Knowledge Index with Pension * Gender Interaction

	OR	Sig.	95% CI	
Pension type * Gender				
DB only * Female (ref.)				
DB only * Male	0.85		0.57	1.27
DC only * Female	0.90		0.63	1.29
DC only * Male	1.07		0.75	1.53
No pension * Female	0.68	*	0.49	0.95
No pension * Male	0.74		0.53	1.03
Both * Female	0.81		0.56	1.17
Both * Male	0.94		0.66	1.35
Age	1.03	***	1.03	1.04
Education				
Less than high school diploma (ref.)				
High school diploma	1.24	*	1.00	1.53
Some college	1.81	***	1.45	2.26
Bachelor's degree or higher	2.21	***	1.75	2.78
Race/Ethnicity				
White (non-Hispanic) (ref.)				
Black (non-Hispanic)	0.50	***	0.42	0.59
Asian (non-Hispanic)	0.98		0.73	1.32
Other non-Hispanic	0.43	*	0.20	0.90
Hispanic or Latino	0.61	***	0.52	0.72
Household Income				
Income <$30,000 (ref.)				
Income $30,000–$49,999	1.33	***	1.13	1.58
Income $50,000–$74,999	1.49	***	1.24	1.78
Income >$75,000	2.03	***	1.70	2.43
Married or partnered	0.98		0.87	1.11
Disabled	0.77	*	0.63	0.94
Working	0.95		0.83	1.10
Pseudo R^2	0.21			

OR = Odds Ratio. CI = Confidence Interval. *p<0.05. **p<0.01. ***p<0.001.

Analyses were also conducted without controls for the model reported in Table 5. Results (not shown) indicated that the coefficients were greater in magnitude when not adjusting for controls, although women without any pension were still significantly less likely to understand the SS program (OR=0.41, 95% CI = 0.30, 0.57).

Discussion

The purpose of the study was to examine the association between pension type and knowledge of SS program provisions and rules. Pension type may serve as an intervention pathway as different pension types are associated with differing access to information and incentive to acquire financial knowledge (Gustman & Steinmeier, 2005; Li et al., 2019). Results from this study indicated that, relative to those with *no pension*, and controlling for other characteristics, those with pension consistently had higher odds of correctly answering questions measuring their SS knowledge. In particular, those with *DC only* had higher odds of correctly answering questions on disability benefits, age adjustment, claiming upon retirement, and spousal benefit; those with *DC in addition to DB* had higher odds of correctly answering the question on spousal benefits. This is broadly in line with prior research suggesting that individuals with DC plans (with or without DB) tend to have higher general financial literacy including knowledge of interest rate, inflation, and risk diversification, as *DC* holders have greater incentive to acquire financial knowledge which would help them maximize returns from savings, pensions, and investment (Li et al., 2019). As well, given that women are less likely to have DC plans (Brown & Weisbenner, 2009, 2014), partly a result of less labor force attachment, it may be expected that women's average SS knowledge level would be lower relative to men.

Moreover, in comparison to respondents with no pension, having any pension was associated with higher overall SS knowledge. Women with *no pension* tend to have lower overall knowledge of SS program provisions and rules relative to women with *DB only*. Among those without any pension, many work for employers who do not offer retirement plans and lack access to information on retirement planning (NCLR, 2015). In the current sample, fifty-six percent of women aged 25-65 have no pension, compared to forty-four percent of men. This is of particular concern for "pensionless" individuals as prior research suggests that SS knowledge is systematically associated with information obtained from the work environment (e.g. companies and unions) (Gustman & Steinmeier, 2005).

In addition, the shift from DB to DC plans has widened inequality in pension participation, as more black and Hispanic workers do not have any pension relative to their white counterparts, and these discrepancies in pension participation and in turn retirement security are not explained by differences in income or education (Sabadish & Morrissey, 2013). In the current study sample, for example, well over sixty percent of Black and Hispanic respondents aged 25-65 have no pension, compared to forty-seven percent of white respondents. Still, 43 percent of white respondents aged 25-65 reported having a DC pension (regardless of DB status), in comparison to 34 percent Black and 31 percent Hispanic respondents who reported having a DC pension. This evidence suggests that pension type (DB, DC, or none) may be a viable pathway for informational intervention related to financial knowledge, including SS knowledge.

Little prior research has examined the role of pension type in SS knowledge, making it difficult to compare results of this study with results from other studies. The study conceptualized SS knowledge as a form of human capital to explain the association between pension types and SS knowledge. SS knowledge may vary by pension status because SS knowledge is systematically associated with information obtained from the work environment as well as the perceived costs and benefits in acquiring such knowledge (Gustman & Steinmeier, 2005). Individuals with different types of pension, including defined contribution (DC) only, defined benefit (DB) only, both DC and DB, or no pension, have differing access to information related to SS benefits and program rules as well as differing incentive to acquire SS knowledge as they do not rely to the same extent on SS benefits for a secure retirement (Gustman & Steinmeier, 2005). This divergence in access to and incentive to acquire SS knowledge implies that individuals with different pension types may possess different levels of SS knowledge, potentially making pension type an intervention pathway for communications.

Study findings indicated that those with DC, DB, or both DC and DB plans had stronger SS knowledge than those with no pension. These results support the expectation that, in general, individuals with DB, DC, or both may seek to optimize retirement income across pension plans and SS benefits, and are potentially more incentivized to acquire SS knowledge. As well, there may be selection where individuals with pensions are more likely to be exposed to information relating to SS benefits and program rules in their work environment relative to those with no pension. Among those who have retirement plans, those with DC plans tend to have the highest SS knowledge. One possibility is that having better financial knowledge, including knowledge of

SS, may help DC plan holders better prepare for retirement as they optimize across pension investments and SS benefits in the long run, even more so than DB plan holders, thereby providing greater incentive to acquire SS knowledge and overall financial literacy (Li et al., 2019). Further, the fact that some employers with DC plans provide financial education and retirement planning materials not typically available from employers with DB plans (EBRI, 1995; Olsen & Whitman, 2007) may also contribute to enhanced financial and SS knowledge among DC plan holders relative to those with DB only.

A few limitations of the study merit discussion. First, given the likelihood of omitted variables bias and that the relationship between pension plan types and SS knowledge could be bidirectional, no causal inferences should be made from this descriptive study. Second, these findings may not extend to measures of SS knowledge beyond the questions included in the UAS survey. Third, data limitations precluded differentiating among types of DC plans. Where data permit, future research should examine the association between SS knowledge and specific types of DC plans, including profit-sharing plans, 401(k) arrangements, thrift savings plans, and employee stock ownership plans.

Despite these limitations, this study contributed to the scientific literature in a number of ways. First, this study is the first to examine the association between pension type and SS knowledge, differing from past research on SS knowledge which emphasized retirement planning and SS claiming decisions. Second, the shift from DB plans to DC plans in the United States means that middle-aged and older adults must increasingly shoulder the responsibility for managing their own financial security in retirement. To do so, SS knowledge plays an important role in people's retirement well-being as individuals prepare for retirement and navigate the plethora of pension funds. This innovative study looked at the intersection of specific SS knowledge and specific plan types (including having no pension), expanding upon prior research documenting disparities in SS knowledge by demographic strata (Alattar et al., 2019; Chard et al., 2017; Smith & Couch, 2014) and variations in pension plan types (Brown & Weisbenner, 2009; Copeland, 2019).

The finding that individuals with DB, DC, and both DB and DC have a greater likelihood of understanding various aspects of SS highlights the potential exposure to information associated with the type of work environment and the incentive for individuals with DB, DC, or both DB and DC pension types to acquire SS knowledge for enhanced financial well-being in

retirement. Most importantly, the finding that individuals with no pension are consistently less knowledgeable about aspects of SS suggests that efforts to enhance the public's SS knowledge may benefit from targeting these *"pensionless"* individuals – individuals who are potentially most financially vulnerable – who have either limited access to relevant information about retirement benefits or limited incentive to acquire SS knowledge for enhanced retirement security. In particular, women with no pension are a logical outreach target for communications, as they are especially vulnerable to poor SS knowledge and in turn limited financial well-being.

References

Alattar, L., Messel, M., & Rogofsky, D. (2018). An introduction to the Understanding America Study internet panel. *Social Security Bulletin, 78,* 13.

Alattar, L., Messel, M., Rogofsky, D., & Sarney, M. A. (2019). The Use of Longitudinal Data on Social Security Program Knowledge. *Social Security Bulletin, 79,* 1.

Bond, T. & Porell, F. (2020). *Examining the Nest Egg: The Sources of Retirement Income for Older Americans.* Washington, DC: National Institute for Retirement Security.

Brown, J. R., & Weisbenner, S. J. (2009). *Who Chooses Defined Contribution Plans? Social Security Policy in A Changing Environment* (pp. 131–161). Chicago, IL: University of Chicago Press.

Brown, J. R., & Weisbenner, S. J. (2014). Why do individuals choose defined contribution plans? Evidence from participants in a large public plan. *Journal of Public Economics, 116*, 35-46.

Chard, R., Rogofsky D., & Yoong J. (2017). Wealthy or wise: How knowledge influences retirement savings behavior. *Journal of Behavioral and Social Sciences* (4): 164–180.

Cook, F. L., Jacobs, L. R., & Kim, D. (2010). Trusting what you know: Information, knowledge, and confidence in Social Security. *The Journal of Politics, 72*(2), 397-412.

Copeland, C. (2019). Current Population Survey: Checking in on the retirement plan participation and retiree income estimates. *EBRI Issue Brief, no. 483.* Washington, DC: Employee Benefit Research Institute.

DeWitt, Larry.(1996). Origins of the three-legged stool metaphor for Social Security. *Research Notes and Special Studies from the Historian's Office, Note No. 1.* Woodlawn, MD: Social Security Administration. Retrieved from: https://www.ssa.gov/history/stool.html.

Dushi, I. , Iams, H. M. , & Trenkamp, B. (2017). The importance of Social Security benefits to the income of the aged population. *Social Security Bulletin,* 77(2), 1–12.

EBRI. (1995). *Can we save enough to retire? Participant education in defined contribution plans. EBRI Issue Brief, No. 160,* April, 1995.

Greenwald, M., Kapteyn, A., Mitchell, O. S., & Schneider, L. (2010). What do people know about Social Security?. *RAND Working Paper* WR-792-SSA. Santa Monica, CA: RAND Corporation.

Gustman, A. L., & Steinmeier, T. L. (2005). Imperfect knowledge of Social Security and pensions. *Industrial Relations: A Journal of Economy and Society*, *44*(2), 373-397.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Publications.

Li, Y., Burr, J. A., & Miller, E. A. (2019). Pension plan types and financial literacy in later life. *The Gerontologist*, *59*(2), 260-270.

Liebman, J. B., & Luttmer, E. F. (2015). Would people behave differently if they better understood Social Security? Evidence from a field experiment. *American Economic Journal: Economic Policy*, *7*(1), 275-99.

Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare? *American Economic Review*, 98: 413-417.

Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, *52*(1), 5-44.

NCLR (National Council of La Raza). 2015. *Enhancing Latino Retirement Readiness in California.* Washington, DC: National Council of La Raza.

Olsen, A., & Whitman, K. (2007). Effective retirement savings programs: Design features and financial education. *Social Security Bulletin*, *67*, 53.

Rabinovich, L., Peterson, J., & Smith, B. A. (2017). Hispanics' understanding of Social Security and the implications for retirement security: A qualitative study. *Social Security Bulletin*, *77*, 1.

Rohwedder, S., & van Soest, A. (2006). The impact of misperceptions about Social Security on saving and well-being. *Michigan Retirement Research Center Research Working Paper No. 2006-118*. Ann Arbor, MI: Michigan Retirement Research Center.

Sabadish, N., & Morrissey, M. (2013). *Retirement Inequality Chartbook: How the 401(k) Revolution Created a Few Big Winners and Many Losers*. Washington, DC: Economic Policy Institute.

Smith, B. A., & Couch, K. A. (2014). How Effective Is the Social Security Statement: Informing Younger Workers about Social Security? *Social Security Bulletin, 74*, 1.

Schultz, T. W. (1975). The value of the ability to deal with disequilibria. *Journal of Economic Literature*, *13*, 827–846. Retrieved from: http://www.jstor.org/stable/2722032.

Appendix A. Understanding America Study survey questions measuring aspects of Social Security knowledge

Aspect	*Question* and answers (**correct response in bold**)
Age adjustment	*The amount of Social Security retirement benefits is not affected by the age at which someone starts claiming.* True **False**
Benefit calculation	*Which of the following best describes how a worker's Social Security benefits are calculated?* They are based on how long you work as well as your pay during the last five years that you are employed; **They are based on the average of the highest 35 years of your earnings**; They are based on how much Social Security taxes you paid; They are based on your income tax bracket when you claim benefits
Child survivor benefits	*If a worker who pays Social Security taxes dies, any of his/her children under age 18 may claim Social Security survivor benefits.* **True** False
Claiming upon retirement	*Social Security benefits have to be claimed as soon as someone retires.* True **False**
Disability benefits	*Workers who pay Social Security taxes are entitled to Social Security disability benefits if they become disabled and are no longer able to work.* **True** False
Inflation adjustment	*Social Security benefits are adjusted for inflation.* **True** False
Payroll tax	*Social Security is paid for by a tax placed on both workers and employers.* **True** False
Spousal benefits	*Someone who has never worked for pay may still be able to claim benefits if his or her spouse qualifies for Social Security.* **True** False
Widow(er) benefits	*If a worker who pays Social Security taxes dies, his/her spouse may claim Social Security survivor benefits only if they have children.* True **False**

Source: UAS 94 and Alattar, L., Messel, M., Rogofsky, D., & Sarney, M. A. (2019). The Use of Longitudinal Data on Social Security Program Knowledge. *Social Security Bulletin*, *79*, 1. Note: survey question wording has been edited for clarity.

Center for Financial Security

School of Human Ecology
University of Wisconsin-Madison

1300 Linden Drive
Madison, WI 53706

608-890-0229
cfs@mailplus.wisc.edu
cfs.wisc.edu

The Center for Financial Security's Working Papers are available at *cfs.wisc.edu/publications-papers.htm*