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Teachers' Knowledge About and Preparedness for Retirement: Results From

A Nationally Representative Teacher Survey

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ABSTRACT:

Adequately saving for retirement requires both planning and knowledge about available retirement savings options. Teachers participate in a complex set of different plan designs and benefit tiers, and many do not participate in Social Security. While teachers represent a large part of the public workforce, relatively little is known regarding their knowledge about and preparation for retirement. We administered a survey to a nationally representative sample of teachers through RAND's American Teacher Panel and asked teachers about their retirement planning and their employer-sponsored retirement plans. We find that while most teachers are taking steps to prepare for retirement, many teachers lack the basic retirement knowledge necessary to plan effectively. Teachers struggled to identify their plan type, how much they are contributing to their plans, retirement eligibility ages, and who contributes to Social Security. These results suggest that teacher retirement reform may not be disruptive for teachers and that better, simpler, and clearer information about teacher retirement plans would be beneficial.

I.   INTRODUCTION

Retirement planning is important for retirees' financial wellbeing (Ameriks et al., 2003; Lusardi & Mitchell, 2011a; van Rooij et al., 2012), physical and mental health (Elder & Rudolph, 1999), and general satisfaction (Topa et al., 2009). Good retirement planning requires knowledge about and coordination between the various savings vehicles available to workers. The metaphor of a "three-legged stool" commonly describes good retirement planning, illustrating the interdependence of the elements of retirement savings. In this metaphor, three elements support retirement security: personal savings, employer-sponsored plans, and Social Security (DeWitt, 1996). How much an individual must save to reach a secure retirement depends on the value of their employer provided plan and Social Security benefits (Mitchell & Moore, 1998). A lack of knowledge about the value of the various retirement savings components makes planning difficult and can leave workers in a retirement insecure position.

Some aspects of teachers' retirement systems simplify retirement planning and create the perception that these plans protect teachers. Teachers are generally automatically enrolled in a state or school district sponsored retirement plan. For most teachers, that means they participate in a traditional pension that offers lifetime benefits to eligible members. In these plans, the pension system or sponsoring government manages most decisions, including setting contribution rates and investment allocation. Benefits for experienced teachers are rarely changed. Teachers must make very few decisions to enroll, are invested reasonably well, and earn lifetime income.

However, other aspects of teachers' pensions complicate retirement planning. Teachers' pensions are often backloaded, meaning that teachers earn relatively meager benefits in the early and middle portions of their careers and much more valuable benefits towards the end. In the median state, only 45 percent of teachers will work long enough to qualify for retirement benefits

and 80 percent will not qualify for full retirement benefits (Aldeman & Rotherham, 2014). Teachers who work less than a full career or split a career across two states earn much less valuable benefits and may face retirement insecurity without supplemental savings (Aldeman & Johnson, 2015; Costrell & Podgursky, 2009, 2010). For new teachers who are likely uncertain about how long they will work in the classroom or in their current state, it is challenging to predict how much they should be saving privately to offset this uncertainty (Marchitello et al., 2021; McGee & Winters, 2019). In addition, approximately 40 percent of teachers are not covered by Social Security (Kan & Aldeman, 2014); they lack one leg of the stool entirely, and therefore are more reliant on their employer provided plan.

Understanding how much teachers know about their employer-sponsored retirement plans and levels of financial literacy is vital to ensuring all teachers are equipped to make sound decisions about their retirement in this complex environment. This paper investigates teachers' retirement knowledge and preparation using a five-question retirement quiz. The quiz was administered to a nationally representative sample of teachers from RAND's American Teacher Panel as part of a larger survey about teacher retirement. This work is a contribution not only because teachers represent a large and important part of the public workforce, but also because the literature on teachers' retirement plan knowledge is sparse: we only found one study on the topic (DeArmond & Goldhaber, 2010).

Our results indicate that most teachers are taking steps to plan for retirement but that many lack the knowledge to plan effectively. Over half of teachers have tried to develop a plan for retirement and 70 percent are saving separately from their employer-sponsored plan. Of teachers that are or have been married, 70 percent report that their spouse has a separate retirement plan

offered through their employer. But there is room for improvement in teachers' financial literacy, especially for early-career teachers.

Approximately 45 percent of teachers could not identify their retirement plans and 30 percent are unaware about how long their benefits will last. Teachers also struggled to identify how much they contribute to their retirement plans, when they will be able to retire, and who contributes to Social Security. Late-career teachers were the most likely to correctly answer these questions.

These results suggest that teachers are not fully equipped to make decisions about their retirement. Previous research has provided evidence that education interventions help improve how well individuals plan for retirement (Collins & Urban, 2016; Kaiser et al., 2020; Lusardi et al., 2020). States and districts should do more to improve teachers' understanding of their retirement plans. Lacking knowledge could result in poor retirement planning among teachers, especially for short- and medium-tenure teachers.

The lack of basic knowledge is also a potential reason that early- and mid-career teachers exhibited a limited willingness to pay for traditional pensions in prior work (Fuchsman et al., 2020). The combination of these results may mean that, when combined with education around retirement plans, states may be able to make positive changes to retirement plan design with minimal pushback from teachers.

II.   BACKGROUND

Retirement Plan Overview

Teachers participate in three basic retirement plan designs. The two most common designs are final average salary (FAS) defined benefit (DB) and defined contribution (DC). FAS DB plans, also called traditional pensions, base benefits on a formula that includes the employee's tenure, age, and average salary over the last few years of the employee's career. DC plans, such as 401(k) and 403(b) plans, base benefits on how much money has accrued in an individual's retirement account from employee and employer contributions and investment returns. The third plan design, Cash Balance (CB), is a less common type of DB plan in which benefits accrue similarly to DC plans, but CB plans include a minimum guaranteed benefit. Some teachers also participate in hybrid systems that include both a FAS DB plan and a DC plan. Nationally, 80 percent of teachers participate in DB plans and only 14 percent participate in DC plans (U.S. Bureau of Labor Statistics, 2020).[1] Nearly all teachers in DB plans participate in FAS plans.[2]

While there are many differences between designs that can affect teachers' retirement planning, one of the most important is how benefits accrue. FAS DB plan plans are typically backloaded, meaning that teachers do not earn substantial benefits until they near eligibility age (Aldeman & Johnson, 2015; Costrell & Podgursky, 2009). DC and CB benefits, on the other hand, accrue more evenly across teachers' careers, allowing early- and mid-career teachers to earn more valuable benefits (Costrell, 2019).

Pension backloading can impact retirement planning due to uncertainty teachers have in terms of how long they work under the same system. New teachers are unlikely to know if they

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[1] Full-time private industry workers have a DB participation rate of 14 percent and a DC participation rate of 57 percent (U.S. Bureau of Labor Statistics, 2020).

[2] DB participation rates include FAS plans and CB plans. Only Kansas teachers hired on or after January 1, 2015, participate in CB plans (Costrell, 2019).

will teach for a full-career, much less whether that service will occur in a single state or district (Aldeman & Rotherham, 2014; Costrell & McGee, 2019; Costrell & Podgursky, 2010; Lueken, 2017; Marchitello et al., 2021; McGee & Winters, 2019). To this end, only 45 percent of teachers in the median state last long enough to qualify for retirement benefits, and 80 percent will not qualify for full retirement benefits; less than 60 percent of teachers qualify for benefits in 46 states and fewer than 30 percent of teachers will reach full retirement eligibility in 40 states (Aldeman & Rotherham, 2014). Seemingly harmless decisions, such as moving to a different state, can decimate teachers' expected retirement benefits, reducing net pension wealth by over 50 percent (Costrell & Podgursky, 2010). These features of traditional pension plans underscore the importance of private retirement savings.

While all private-sector employees participate in Social Security, the same cannot be said for teachers. Teachers in the District of Columbia and 15 states either do not participate in Social Security or left the decision up to localities. Nationally, approximately 40 percent of teachers are outside of Social Security, reliant on their personal retirement savings and their employer-sponsored pension during their retirement years (Kan & Aldeman, 2014).

Despite the shortcomings of traditional pension plans for early- and mid-career teachers, pension proponents believe these plans operate as an important recruitment and retention tools for schools (Boivie, 2011, 2017). Advocates argue that most teachers would be worse off under alternative plan designs and that pensions facilitate turnover at known retirement eligibility ages (Rhee & Joyner, 2019; Weller, 2017). However, the quality of pensions as workforce management tools depends on teachers' understanding of how pensions work.

Retirement Knowledge

Retirement systems provide new teachers with information about retirement plans, aiming to help teachers plan for retirement and improve retention. The information from states usually concentrates on how long teachers must work to become eligible for a pension and how to calculate benefits for teachers who work a full career in the profession. However, this information may not give teachers adequate knowledge about other important retirement aspects and may not be relevant to early- and mid-career teachers; while teachers might have an idea of how much their benefits will be worth when they reach their retirement ages, they are less likely to know how much they have accrued at an earlier age. Benefit handbooks are oftentimes bogged down in the minutiae of so-called service credit, designating beneficiaries, and divorce. Teachers may simply have faith that state plan-designers will have teachers' best interests in mind regardless of how long teachers remain in the profession.

Understanding teachers' levels of retirement knowledge, preparation, and financial literacy are vital to ensuring all teachers are equipped to make sound decisions about their retirement. While there is literature demonstrating the importance of retirement education for retirement outcomes (Collins & Urban, 2016; Kaiser et al., 2020; Lusardi et al., 2020), the literature on teachers' retirement knowledge is sparse. DeArmond and Goldhaber (2010) find that approximately 80 percent of Washington teachers can identify their retirement plan types based on a common label and plan description, but that early-career teachers were four percentage points less likely to be correct. In the general population, Gustman and Steinmeier (1999) find that half of surveyed adults can identify their retirement plan type based on a DB/DC label and less than half of respondents can identify their retirement eligibility age within one year.

Additional literature links behavior to pension incentives and plan parameters, suggesting that teachers understand their retirement plans well enough to exit when they maximize or nearly

maximize the present value of their retirement benefits (Costrell & McGee, 2010; Costrell & Podgursky, 2009; Kim, 2020; Ni et al., 2020; Ni & Podgursky, 2016). While teachers appear knowledgeable enough to know when to retire, they may not learn this optimal date until late in their careers. Teachers may not develop a satisfactory understanding of their employer-sponsored retirement plans until they near the retirement eligibility age, calling into question the quality of their previous retirement savings and if pensions are an effective workforce management tool.

III. DATA

We combine three data sources to learn about teachers' retirement knowledge and preparation. The primary data source is a survey administered through RAND's American Teacher Panel, which we merged with retirement plan information from the Urban Institute's State and Local Employee Pension Plan Database and retirement system information from the Boston College's Center for Retirement Research's Public Plans Database. We elaborate on the RAND survey and retirement plan/system data below.

RAND American Teacher Panel

We administered an approximately 15-minute survey using RAND's American Teacher Panel (ATP) between February 10 and March 16, 2020. The ATP is a nationally representative online survey research panel of American teachers in public K-12 schools with approximately 29,000 active respondents. RAND purchased teacher rosters from a vendor for randomly sampled schools and randomly invited teachers from those schools to join the panel (Robbins et al., 2018; Robbins & Grant, 2020). RAND compensates teachers $1 for each minute of expected survey time; teachers earned $15 for completing our survey.

The survey included questions about teachers' knowledge, preparation, and preferences around retirement as well as previously validated scales for financial literacy, personality,

numeracy, and risk tolerance (Frederick, 2005; John et al., 1991; Kimball et al., 2008; Lipkus et al., 2001; Lusardi & Mitchell, 2011b; Toplak et al., 2014). RAND invited 9,904 teachers to take the survey and 5,464 completed the survey, yielding a 55 percent response rate.[3] We oversampled teachers from seven areas in the country.[4]

Panel A of Table 1 includes descriptive statistics for our sample. Descriptive statistics for the ATP sample match the general population well.[5] Female teachers make up 78 percent of the sample. Teachers identifying as Hispanic comprise 8 percent of the sample. White teachers are 83 percent of the sample and black and Asian teachers are 8 and 3 percent of the sample, respectively. Nearly three-quarters of the sample are married or in a domestic partnership while 1 percent are widowed, 9 percent are divorced, 1 percent are separated, and 15 percent are single, never married. Elementary school teachers are 44 percent of respondents and 56 percent teach in secondary schools. Respondents report an average experience in their current states of 14.73 years with a standard deviation of 8.2 years. The sample includes beginning teachers and teachers that report up to 52 years of experience. The average age is 44.15 with a standard deviation of 10.65 years.

State and Local Employee Pension Plan Database and Public Plans Database

We obtain data on retirement plans from the Urban Institute's State and Local Employee Pension Plan Database (SLEPP). These data include nearly all state teacher retirement plans. We utilize data on teachers' eligibility for different plans, plan types, employee contribution rates,

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[3] This response rate did not vary substantially from other ATP surveys administered in 2019 (e.g., Johnston et al., 2019; Prado Tuma et al., 2020).

[4] Oversampled areas were Arkansas, California, Florida, Georgia, New York, New York City, and Texas.

[5] The sample's statistics are somewhat comparable to general teacher population statistics compiled by the National Center for Education Statistics (Hussar et al., 2020). The ATP sample includes more teachers that self-identify as white than the general teacher population. The general teacher population is also more evenly split between elementary and secondary school teachers than the ATP sample. Analyses include probability weights to ensure representativeness.

normal retirement eligibility ages, and Social Security participation.[6] These data were originally collected in 2012 and updated in 2018. To ensure accuracy of the SLEPP database, we combed through member handbooks and annual financial reports from the states and plans. We made the according changes when our interpretation of plan parameters differed from the SLEPP database. The most common changes were to employee contribution rates to substitute in more recent data and to recode several FAS plans as hybrid plans when appropriate.[7]

We combine these data with Boston College's Center for Retirement Research's Public Plans Database (PPD). The PPD collects data from retirement systems aggregated over the individual plans. These data cover actuarial costs and methods the plans use longitudinally beginning in 2001 and are updated quarterly. We obtain normal cost rates and employer normal cost rates for 2020 from the Second Quarter 2021 PPD update.[8]

IV. RETIREMENT KNOWLEDGE

Grading the Retirement Quiz

Evaluating teachers' knowledge about their retirement plans is complicated because teachers participate in many different retirement plans. Each state, the District of Columbia, and five municipalities (Chicago, Kansas City, New York City, Saint Louis, and Saint Paul) operate their own teachers' retirement systems. Governments often have multiple (typically two to four) retirement plans, sometimes called "benefit tiers", within the same system.

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[6] Georgia, Rhode Island, and Texas leave the decision to enroll their teachers in Social Security up to the local districts. We obtain additional information on which districts participate in these states from the National Center for Education Statistics. See: https://nces.ed.gov/programs/maped/storymaps/TeacherSocialSecurity/index.html

[7] Our retirement plan data are available upon request.

[8] Normal cost rates refer to the share of salary required to prefund currently accruing pension expenditures. Payments on unfunded liabilities are not included in the normal cost.

For the purposes of this paper, we consider a benefit tier to be each potential combination of plan parameters that could be a correct set of answers to the quiz.[9] For example, California operates two FAS plans that generate different benefits, have different retirement eligibility requirements, and different contribution rates. We consider these separate benefit tiers that California teachers could be enrolled even though both are FAS plans. Across the 56 states and municipalities that have their own teachers' retirement system, there are 210 total benefit tiers.[10] All but 5 states and municipalities have more than one tier, and 43 states and municipalities have 4 or fewer tiers. Michigan has the most benefit tiers at 15.[11]

Determining which benefit tier a teacher belongs to can be challenging when there are multiple tiers per state/municipality. Most benefit tiers determine eligibility based on when a teacher was originally hired, but some states and tiers have additional or alternative requirements to determine plan eligibility such as the dates teachers vest (qualify for a benefit), retire, or are eligible to retire. We can estimate teachers' year of hire using reported experience in the state and if we assume teachers have worked continuously as a teacher since their year of hire.[12] We compare the approximate hire year to eligibility dates for benefit tiers to infer which tier a respondent is enrolled in.

While using reported experience to estimate a teacher's start date can give us a well-educated guess about benefit tier membership, there are still two remaining challenges. First, some

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[9] This definition of benefit tiers differs slightly from how the states define separate tiers. For example, one tier in Washington allows respondents to choose one of six contribution rate paths. We consider these contribution rate paths to be separate benefit tiers even though they function as one tier in the state.

[10] Appendix Table A.1 shows the number of benefit tiers for each state and municipality.

[11] Michigan operates two FAS plans, two hybrid plans, and a DC plan. At multiple times, the FAS plans allowed teachers to change their FAS benefit by paying a higher contribution rate. After many years, FAS teachers could revert to a different contribution rate if they had elected to pay an increased contribution rate. Given the options afforded to teachers, Michigan teachers enrolled in one of the two FAS plans could have one of twelve contribution rate histories, as well as the opportunity to switch into a DC plan. We consider each contribution rate path to be a separate plan..

[12] DeArmond and Goldhaber (2010) make a similar assumption using administrative data on experience to infer hire years.

states allow teachers to choose among a set of plans within the same tier, such as Florida and Ohio. If teachers in choice states meet eligibility criteria for multiple plans, then we cannot know if the teacher is correct when answering some plan knowledge questions. Second, teachers hired in a transition year, the start year for a new benefit tier, could be enrolled in the previous tier or the new tier depending on the date they were hired. Since the actual hire date is unknown to us, we cannot be certain about which tier that transition year hires would be enrolled in.

Considering these two challenges, we use two primary grading schemes for the retirement knowledge quiz. The first strategy compares responses against the universe of potential answers for teachers in their state/municipality. The response is correct if it matches any correct answer for the state/municipality. For example, Florida teachers answering that are enrolled in the state's FAS plan would be correct because Florida offers a FAS plan even if the teacher is truly enrolled in the state's DC plan.[13] This is our "lenient" grading scheme.

Our second – and preferred – grading scheme is the "strict" scheme. Here, we use reported experience in the state to approximate which benefit tier a teacher is likely enrolled in, but we limit the sample to respondents that could only be enrolled in one tier. These restrictions remove respondents that have a choice among plan parameters and respondents hired in transition years.[14] We retain 78 percent of the sample with these restrictions in place. Each of the five questions on our quiz has only one correct answer under this strict grading scheme.

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[13] Appendix Table A.2 shows which states/municipalities offer each plan type. Appendix Table A.1 shows 210 potential plans for our survey respondents, but there are 74 combinations of states/municipalities and plan types in Appendix Table A.2. This difference is due to some plans of the same type having different parameters. For example, one Washington hybrid plan allows members to choose one of six contribution rates. We consider the six contribution rates to correspond with different hybrid plans even though they function as one tier within the state.

[14] We exclude some teachers in Florida, New York City, Pennsylvania, South Carolina, Utah, and Washington and all teachers in Michigan and Ohio because they have options regarding either plan type or contribution rates. Nevada teachers are excluded because plans have different employee contribution rates depending on locality.

Retirement Knowledge Quiz Results

We included five survey questions designed to measure how much teachers know about how their retirement plans work. Panel B of Table 1 summarizes the responses to these questions.[15] Figure 2 contains graded responses to the five-item retirement plan knowledge quiz using the lenient and strict grading schemes. Our discussion will focus on the strict grading scheme. [16]

We expect that teachers with more experience in their states are likely to be more knowledgeable about their retirement plans since they have been around those plans longer and since they are likely closer to collecting retirement benefits. We show the share of correct responses by experience quartile in Table 2. Teachers in the first quartile of experience have 8 or fewer years of experience (early-career) while quartile four teachers have 20 or more years (late-career).

Figure 3 displays heterogeneity based on which plan type teachers believe they are enrolled in for the share correctly identifying plan type and benefit duration. Panel A deconstructs responses to the plan type question, and Panel B provides the share correctly identifying benefit duration based on the retirement plan type selected.

Retirement Plan Type. Our first quiz question provided four descriptions of common retirement plan types and asked respondents to identify the description that most closely matched their actual primary retirement plan.[17] The options corresponded with FAS plans, DC plans, CB plans, and hybrid plans.

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[15] See Appendix B.1 for question and answer text.

[16] The full sample and sample remaining after imposing strict restrictions are comparable, see Appendix Table C.1, but the strict grading scheme sample teachers report one more year of experience and are one year older on average.

[17] We always asked teacher about their primary employer-offered retirement plans. Many local districts and some states offer optional supplemental plans.

This question design differs from DeArmond and Goldhaber's (2010) design which provided both plan labels and plan descriptions; Gustman and Steinmeier (2002) provided plan labels but not a plan description. Retirement handbooks and benefit guides use both plan labels and describe plans; thus, teachers have access to both pieces of information. We used plan descriptions because we are interested in assessing teachers' retirement preparation which depends on their understanding of how benefits accrue not the label commonly used to describe the plan. Teachers may be able to identify plan labels, but they may not know how those plans determine benefits nor how these plans could affect them.

Panel B of Table 1 shows that 52 percent of teachers believe they are enrolled in FAS plans and another 28 percent believe they are enrolled in hybrid plans. Only 13 percent believe they are enrolled in DC plans and 6 percent think they are enrolled in plans matching the description of a CB plan.

Less than 3 out of 5 respondents could correctly identify their retirement plans based on a description of how benefits are determined. Based on Figure 1, the share correctly identifying plan type is 55.7 percent using the strict grading scheme. Teachers indicating FAS enrollment were almost always correct, but those who answered anything else were generally wrong (Figure 2, Panel A). Respondents answering with the DC plan description were incorrect 98.9 percent of the time, 99.3 percent of the time for CB responses, and 87.2 percent of the time for respondents answering hybrid plans.

Comparatively more experienced teachers were more likely to identify their retirement plan type correctly than newer teachers (Table 2). Just under half (49.7 percent) of first experience quartile teachers could identify their retirement plans based on plan descriptions. Mid-career

teachers were correct 55.1 percent of the time and 62.6 percent of late-career teachers could identify their retirement plan.

Retirement Eligibility Age. We asked teachers at what age they would be eligible for full retirement benefits, asking them to ignore early retirement eligibility. Panel B of Table 1 shows that the mean reported retirement eligibility age is 59.97, the median is 60, and the standard deviation is 7.23 years. The fifth percentile was 52 and the 95th percentile was 68.[18]

Most systems have multiple retirement eligibility thresholds. These thresholds usually involve age, years of service, and/or the sum of age and years of service. For example, teachers in one Minnesota plan can retire at age 65 with 3 years of service, at age 62 with 30 years of service, or any age once age and years of service sum up to 90. We project the earliest possible retirement eligibility age for teachers among all possible retirement eligibility ages for their plans using reported age, experience, and assuming teachers serve continuously until their earliest retirement eligibility age. This projection serves as teachers' actual retirement eligibility age for grading.

Teachers had difficulty identifying their retirement eligibility ages; results are available in Figure 1. Less than 20 percent of teachers knew their retirement ages, 33.7 percent knew the age within one year, 59.6 percent answered within 3 years, and 74.3 percent could identify a retirement eligibility age within 5 years. Teachers graded using the lenient scheme were at least 10 percentage points more likely to be correct about their retirement eligibility ages than when graded using the strict grading scheme's parameters, suggesting that teachers are more likely to know a potential retirement eligibility age in their system rather than their own retirement eligibility age or that they may not know their earliest retirement eligibility age.

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[18] Kernel density plot available in Appendix Figure D.1. Two responses were over 2000; we interpreted these responses as if they were the year teachers will retire and subtract respondents' reported birthyears to impute retirement ages.

Teachers with more experience in their states are much more likely to know their retirement eligibility ages, as shown in Table 2. Top experience quartile teachers knew their initial retirement eligibility age 21.3 percent of the time compared to 18 percent for early-career teachers and 19.5 percent for mid-career teachers. Late-career teachers could identify a retirement eligibility age within one year of their actual retirement eligibility ages 40.6 percent of the time; 67.2 percent could identify an eligibility age within three years. Early- and mid-career teachers were significantly less likely to know their retirement eligibility ages within one or three years (27 percent and 54.5 percent within one or three years, respectively, for early-career teachers and 33.7 percent and 58.4 percent for mid-career teachers).

Social Security. Another question concerned Social Security. Both employees and employers contribute to Social Security when Social Security covers the position. We asked, "Do you currently contribute part of your teaching salary to Social Security or does your school district contribute on your behalf?" The possible answers were "I do", "My school district does", "Both my school district and I do", and "No". Table 1 shows that the most common response was that teachers believe they contribute to Social Security but that their school district does not with 41 percent of respondents answering this way. The second most common answer was that neither employees nor employers contribute to Social Security with 29 percent of teachers believing this to be their case. 15 percent of teachers believe that only their employer contributes on their behalf, and 16 percent of teachers answered that both they and their districts contribute on their behalf.

Technically, answering that only either respondents or school districts pay into Social Security on teachers' behalf is incorrect for respondents participating in Social Security. The 56 percent of respondents who believe that only they or their school districts pay into Social Security are technically incorrect regardless of whether the respondent truly participates in Social Security.

Given this misconception about who pays into Social Security, we grade this question in two ways. First, we consider that only answering that both employees and employers pay into Social Security is the correct response for Social Security participants (termed "Who Contributes"). Second, we consider responses indicating that at least one party contributes as correct since these teachers likely know that they will receive Social Security benefits (termed "Participation").

Figure 1 shows substantial differences when grading responses to the Social Security question with respect to what answers are considered correct. Only 40 percent of respondents were correct in identifying whether they and their employers contribute to Social Security on their behalf (corresponds with "Who Contributes" bars). 86.4 percent were correct, however, in determining whether someone was contributing on their behalf (corresponds with "Participation" bars).

Heterogeneity in the share correctly identifying their Social Security participation by experience is available in Table 2. More experienced teachers were the most likely to answer about who contributes to Social Security correctly with 45.8 percent of late-career teachers correctly identifying if both employees and employers contribute to Social Security. The difference between the top and bottom experience quartiles was 12.6 percentage points and 4.1 percentage points between the top and middle two quartiles.

Most teachers could identify if they participate in Social Security with some differences in the likelihood based on experience. Respondents in the top quartile of experience were correct 91.2 percent of the time and teachers in the second and third quartile were correct 88.2 percent of the time; 78.5 percent of the least experienced teachers were correct.

Benefit Duration. We also asked teachers how long they will receive monthly payments as part of the retirement plan. Potential answers included "As long as I live", "For a fixed time", "Until the money runs out", and "Other, please specify". Summary statistics in Table 1, Panel B,

show that 70 of teachers believe their benefits will last for the remainder of their lives, 22 percent believe they will receive benefits until the money runs out, and 7 percent think the payments will only last for a fixed time.

We consider benefit duration to be directly tied to plan types. While many plans give retirees flexibility in choosing how their benefits will be paid out, FAS plans, CB plans, and the FAS component of hybrid plans generally pay out benefits until the retiree dies and DC benefits until the money in the retiree's plan runs out.[19]

Respondents were most accurate at identifying how long they will be able to collect benefits (Figure 1), suggesting that benefit duration is something that teachers value. The share correctly identifying their benefit duration was 68 percent.

Teachers with more experience were more likely to identify their benefit duration (Table 2). 80.7 percent of top experience quartile teachers could identify their benefit duration while less, 54.4 percent, could in the bottom experience quartile and 68.6 percent of mid-career teachers.

We also test if teachers selected benefit durations that are consistent with the plan types they believe they are enrolled in (Figure 2, Panel B). Overall, 65.4 percent of teachers chose benefit durations that matched with their reported plan types, thus they were more likely to know how long benefits will last in their actual retirement plans. Teachers reporting FAS enrollment were correct about benefit duration 74.9 percent of the time while 63.9 percent of hybrid respondents were correct. In contrast, less than half of the teachers indicating enrollment in DC or CB plans were correct in identifying how long those benefits will last, suggesting one potential educational hurdle when implementing these alternative plans.

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[19] FAS plan members are often afforded the flexibility to take a partial lump-sum of projected FAS benefits when they retire or can guarantee benefits until their spouse dies by taking a benefit cut. Similarly, DC plans can be converted through a private vendor to pay a guaranteed benefit like a pension for life.

Employee Contributions. Another question asked teachers how much they contribute to their retirement plans and how much their employers contribute as a percent of their salary. As shown in Table 1, Panel B, the distribution of responses to the employee contribution question was highly skewed: the average response was 13.08 percent while the median response was 7 percent. The standard deviation was 22.67 percentage points. The fifth percentile was 0 percent and the 95th percentile was 50 percent.[20]

Many benefit tiers have more than one employee contribution rate. We use reported age and experience for tiers where contribution rates vary with age and experience, respectively.[21] New Mexico operates a tier where teachers' earnings place them into a contribution rate bracket. We use teachers' reported salaries to determine contribution rates in this case. Some tiers have progressive contribution rates where contribution rates vary for different salary brackets; we create a blended contribution rate for each respondent based on their reported salary.[22]

Teachers had difficulty identifying their contribution rates based on results in Figure 1. Only 2 percent of teachers knew their exact contribution rates. Less than 25 percent of respondents answered within one percentage point of the correct response. 54.5 percent of respondents identified a contribution rate to be within 5 percentage points of the actual rate and 74.8 percent estimated their contributions within 10 percentage points.

Experience does have large impacts on how well teachers guess their contribution rates (Table 2). While no first experience quartile teachers could identify their exact contribution rates, these inexperienced teachers were nearly as likely to pick a rate within 1 and 2.5 percentage points

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[20] Kernel density plot available in Appendix Figure D.2.

[21] Massachusetts, Michigan, New York, and New York City operate benefit tiers where employee contribution rates vary by years of service and Washington operates a tier where contributions vary by age.

[22] Delaware, Massachusetts, Michigan, New York, and New York City operate benefit tiers with progressive contribution rates.

as their more experienced counterparts. In fact, bottom experience quartile teachers were the most likely to identify a contribution rate within 5 and 10 percentage points of the actual rate. Perhaps most interesting, over 20 percent of top experience quartile teachers did not pick a contribution rate within 10 percentage points of the actual rate.

Employer Contributions. The distribution of responses to the employer contribution question (Table 1, Panel B) was also highly skewed: the average response was 13.84 percent while the median response was 6 percent. The standard deviation was 26.32 percentage points. The fifth percentile was 0 percent and the 95th percentile was 75 percent.[23]

Many plans do not report employer contribution rates in membership handbooks, opting to explain that it is plan actuaries who determine a required contribution rate; employers pick up what is left over after employees contribute. When it is reported, the total employer contribution rate includes the employer's share of the normal cost and a payment on unfunded liabilities. The relevant component of employer contributions for our purposes is the employer's share of the normal cost since it represents the contribution required to pre-fund the benefits teachers earn in that year. We use data from the PPD on the employer's share of the normal cost rate as the correct employer contribution rate for this quiz question.[24] Because this measure is imperfect, we use a bandwidth around the value from the PPD to determine if respondents answered correctly.

Teachers had more difficulty identifying the employer contribution rates than their employee contribution rates based on results in Figure 1. No teachers knew their employer's exact contribution rate. Less than 15 percent of respondents answered within one percentage point of the

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[23] Kernel density plot available in Appendix Figure D.3.

[24] The employer's share of the normal cost rate and the total normal cost rate for New York and Saint Louis are not available in PPD. Since New York was nearly fully funded in 2020 (the funded ratio was 0.996), we substitute the difference between the total required contribution rate and the employee's share of the normal cost rate. We obtain the total normal cost rate for Saint Louis from its 2020 Comprehensive Annual Financial Report and use the difference between the total normal cost rate and the employee's share of the normal cost rate.

correct response. Approximately 52 percent identified a contribution rate to be within 5 percentage points of the actual rate.

Results in Table 2 show that experience had a small impact on how well teachers guess their employee contribution rates, but early-career teachers were the most likely to be correct. Early-career teachers were 1.6 percentage points more likely to correctly identify their employer's contribution rate within one percentage point than mid-career teachers and were 3.3 percentage points more likely than late-career teachers. Early-career teachers were 4.2 percentage points more likely to be correct within 2.5 percentage points than late-career teachers.

Sensitivity Checks for Retirement Knowledge

The previous results are the product of multiple assumptions and the two grading schemes (lenient and strict) operate on different samples. We perform several sensitivity checks to investigate how the different samples and assumptions impact estimates of teachers' retirement plan knowledge. The first two sensitivity checks investigate to what extent differences across grading schemes can be attributed to sample composition. Full results of these sensitivity checks are available in Appendix E.

First, the estimates from the lenient grading scheme generally correspond with a larger share of teachers answering the questions correctly than under the strict grading scheme. This divergence could be either the result of lenient grading or the sample composition since the strict grading scheme's sample omits teachers in states that can choose their retirement plan and teachers hired during transition years. We re-estimate the lenient grading scheme results for only the strict grading scheme's sample to shed light on if sample construction accounts for the differences between grading schemes.[25] Results when using the lenient grading scheme on the strict grading

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[25] See Appendix Table E.1 for results.

scheme's sample closely resemble the results of the lenient grading scheme on the full sample. These estimates suggest that it is, indeed, the different grading schemes that explain differences between grading schemes rather than sample composition.

The second check relaxes the two sample restrictions that form the strict scheme to see how these assumptions impact the strict estimates separately. The first restriction limits the sample to teachers that could only plausibly be enrolled in one plan. The second restriction limits the sample to teachers who were not hired in transition years. Results from relaxing the two restrictions independently and together do not differ substantially from the strict results: the maximum difference between results is 1.6 percentage points and the median difference is 0.4 percentage points.

The final sensitivity check alters the hire year for teachers. Hire year had been determined using the difference between the year of survey administration and years of experience in the state, relying on the assumption that teachers have no breaks in service. This check relaxes the continuous service assumption by adding and subtracting 1, 3, and 5 years from the assumed hire year, which has the potential to place teachers into different plans.[26] The results do not differ substantially from the initial strict estimates: the maximum difference in estimates is 4.1 percentage points and the median difference is 0.4 percentage points.

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[26] See Appendix Table E.2 for results.

V.   RETIREMENT PREPARATION

We also evaluate teachers' retirement preparation using responses to seven survey questions including three financial literacy questions.[27] The responses to each question are available in Figure 3. Responses are reported for the full sample and by teachers' experience quartiles in their current state.[28]

In the general population, adults that have attempted to figure out how much to save for retirement are more likely to develop retirement saving plans, stick to those plans, and attend retirement seminars or consult with financial planners (Lusardi & Mitchell, 2011a). Over half of teachers in our sample have tried to develop a plan for their retirement (compared to 60 percent of college educated adults have tried to develop a plan for retirement).[29] While only 47 percent of early-career teachers have tried to develop such a plan, 52 percent of mid-career teachers have tried to develop a plan. The most senior teachers were the most likely to indicate they have tried to develop a plan, but 36 percent of teachers with top experience quartile teachers have not tried to develop a retirement plan.

The second question asked if teachers have any money saved for retirement separately from employer-sponsored plans. Since pensions only tend to benefit career teachers (e.g., Costrell & Podgursky, 2009), it is important to understand what steps teachers are taking aside from their employer-sponsored retirement plans. 71 percent of teachers indicate that they have some other money set aside, 27 percent have no other money set aside, and the remaining 2 percent do not know. Experience is associated with an increased likelihood of having additional money saved for

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[27] See Appendix B.2 for question and answer text.
[28] When available, we use data from the Understanding America Study (UAS), an ongoing internet panel of American households run by the University of Southern California comprising a nationally representative sample of the entire U.S, to compare responses of other college graduates with teachers in the ATP sample.
[29] This general population statistic uses data from UAS wave 113.

retirement. Among first experience quartile teachers, 62 percent had money additional money set aside for retirement. The share rises to 83 percent among fourth experience quartile teachers.

Pensions can shortchange teachers who move across state lines (Costrell & Podgursky, 2010), but teachers may decide to move to a different state for a variety of reasons. 21 percent of our sample reported total years of experience as a teacher exceeding experience in their current state, and 11 percent have worked at least five years in a different state and 7 percent have worked at least 10 years.

One potential reason, though maybe not the most common reason for moving across state lines, would be to follow a spouse to a new job, but it seems likely that the spouse's job would also provide a retirement plan. The next two questions were only presented to the 85 percent of respondents who are or have ever been married or in a domestic partnership. We first asked respondents if their partner participates in a separate retirement plan offered through their employer. Overall, 71 percent of respondents with partners report that their partner has a retirement plan offered through their employer. This rate did not meaningfully vary with experience. Another 23 percent of teachers indicated that their partners do not have a separate employer-offered retirement plan and 6 percent of teachers did not know.

Following the spouse's retirement plan question, we asked teachers whose retirement benefits they will primarily rely on in their retirement years: respondents' benefits or respondents' partners' benefits. Overall, 69 percent of teachers said they will rely equally on both their partners' and their benefits, 14 percent said they will rely on their benefits primarily, 8 percent of respondents said they will rely on their partner's benefits primarily, and 9 percent did not know. The share of respondents who will rely equally on both partners' benefits and the share who did not know is relatively constant with experience, but more experienced teachers indicated they

would be more likely to rely on teaching-associated retirement benefits rather than their partners' benefits.

The final element of our retirement preparation module included three additional questions designed to measure financial literacy from Lusardi and Mitchell (2011b) and are correlated with retirement planning (Lusardi & Mitchell, 2007, 2011a).[30] 52 percent of respondents answered all three questions correctly (compared to 68 percent of college educated adults answered all three questions correctly).[31] Teachers with more experience were more likely to answer more questions correctly: 62 percent of top experience quartile teachers answered all three questions correctly compared to 44 percent of bottom quartile teachers and 52 percent of teachers in the middle two experience quartiles.

VI.   CONCLUSION

Retirement planning is important for all. For teachers, knowing how much to save personally for retirement depends on both employer-sponsored retirement plans and Social Security benefits. Understanding how retirement benefits work combined with strong retirement planning and financial literacy are key to financial wellbeing during retirement. We assess how much teachers know about their retirement and what basic steps they have taken to progress towards a comfortable and secure retirement using a nationally representative sample of public K-12 schoolteachers.

Our results show that teachers could know more about their retirement plans. While most teachers knew how their benefits are determined and how long benefits will last, respondents do not appear to be aware of how much they contribute, their retirement eligibility ages, nor who

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[30] The questions are related to compounding interest rates, inflation, and "risk diversification"; responses are multiple choice with an option for "don't know", which we consider to be an incorrect response.
[31] General population statistic uses data from UAS wave 121.

contributes to Social Security. Teachers with more experience demonstrated more knowledge of their retirement plans.

Our results also show that most teachers are taking steps toward preparing for retirement and that more experienced teachers are more likely to take these steps. Many teachers have tried to develop a plan for their retirement and have personal retirement savings. Most teachers that are or have been married report that their spouses have retirement plans and that they will rely equally on both sets of benefits.

These results have important implications for policy. First, given that teachers report they will be heavily reliant on only their retirement benefits or both their own and their spouses' benefits, it is important to consider the likelihood that these teachers will receive these retirement benefits. Teacher retirement systems nationally lack the necessary assets to pay for all retirement benefits and have unfunded liabilities exceeding $600 billion (McGee, 2019; Novy-Marx & Rauh, 2011). States will have to respond to these financial pressures to ensure that teachers receive their benefits in retirement; the long-term viability of guaranteed FAS benefits is becoming questionable (McGee, 2019). Recent theoretical evidence suggests that teachers might actually prefer alternative retirement plans to FAS plans and that teachers may not value FAS plans highly (Fuchsman et al., 2020; McGee & Winters, 2019). Reforming retirement plans to plan types that are fiscally safer for taxpayers might be the best way to ensure that teachers are taken care of in their retirement years.

Second, teachers were more likely to know how long their benefits will actually last than how long benefits will last in the plan they thought they were enrolled in. This might suggest that knowledge of how the different retirement plans operate is lacking, but this knowledge gap might be the result of what teachers value. Teachers place a larger value on elements of retirement plans

such as how large benefits are and when they will be eligible to retire than they place on how those benefits are determined (Fuchsman et al., 2020). Teachers likely value how long they will receive benefits more than how those benefits are set. Further research should consider which retirement plan features are important to teachers.

Third, the lack of knowledge of how Social Security works is noteworthy. While 9 out of 10 respondents knew that someone contributes to Social Security on their behalf, only 4 out of 10 knew that both employees and employers contribute. Over half of respondents thought that only they or their employer contribute to Social Security, with most of these respondents believing they are the only ones who contribute to Social Security. Social Security is a benefit that teachers place a large value on (Fuchsman et al., 2020), but teachers appear unaware that employers provide this benefit.

Finally, these results suggest that employers and teacher preparation programs should do more to educate teachers about their retirement benefits, especially for less experienced teachers. If teachers are unaware how their benefits are set and do not know if they will receive Social Security benefits, then they may not be saving enough on their own. Policymakers should design information interventions that give teachers the information they need to set themselves up for a long, comfortable, and secure retirement.

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FIGURES

Figure 1: Share Correctly Answering Retirement Plan Knowledge Questions
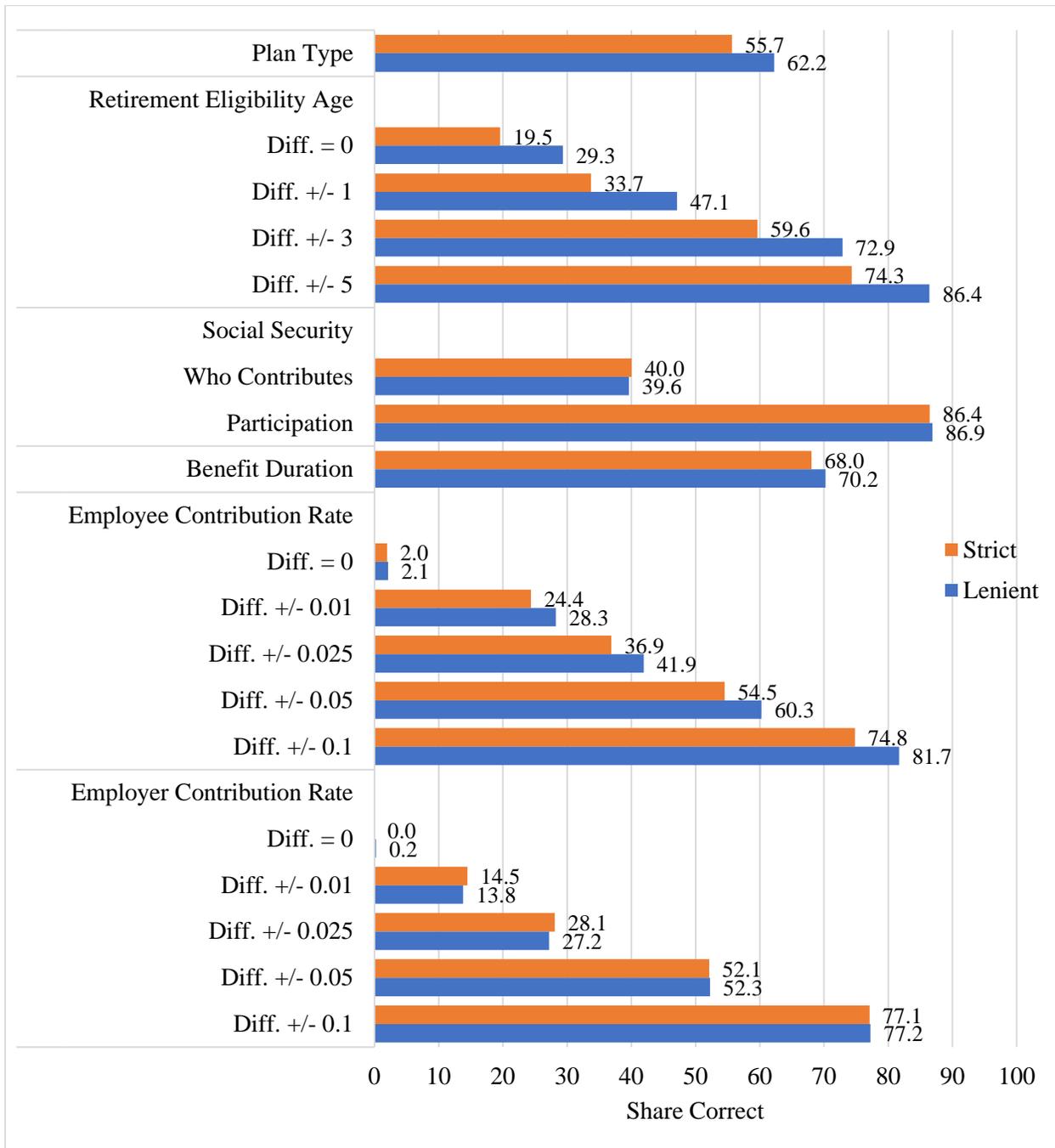
Notes: Lenient grading scheme compares teachers' answers to all potential responses in teachers' states and grades responses as correct if they could have been correct given each state's plan parameters. Strict grading scheme limits correct responses to only those that are most likely correct given teachers' reported years of experience in the state. Strict grading omits teachers that could choose which plan to enroll in or were hired in plan transition years. Differences refer to the difference between reported and actual employee contribution rates and retirement eligibility ages. Question and answer text available in Appendix B. Probability weights included.

Figure 2: Heterogeneity by Retirement Plan Type Response

Panel A: Share Correctly Identifying Plan Type by Reported Plan Type

Panel B: Share Correctly Identifying Benefit Duration by Reported Plan Type
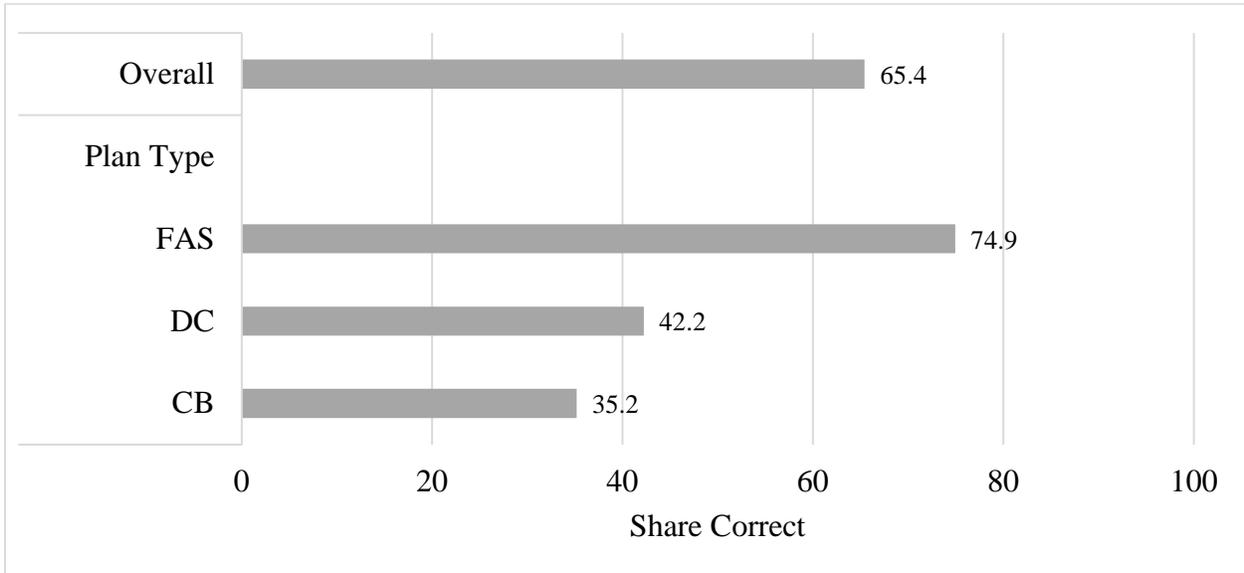
Notes: Panel A shows share correctly identifying retirement plan type by which plan respondents selected. Panel B shows share correctly identifying the benefit duration c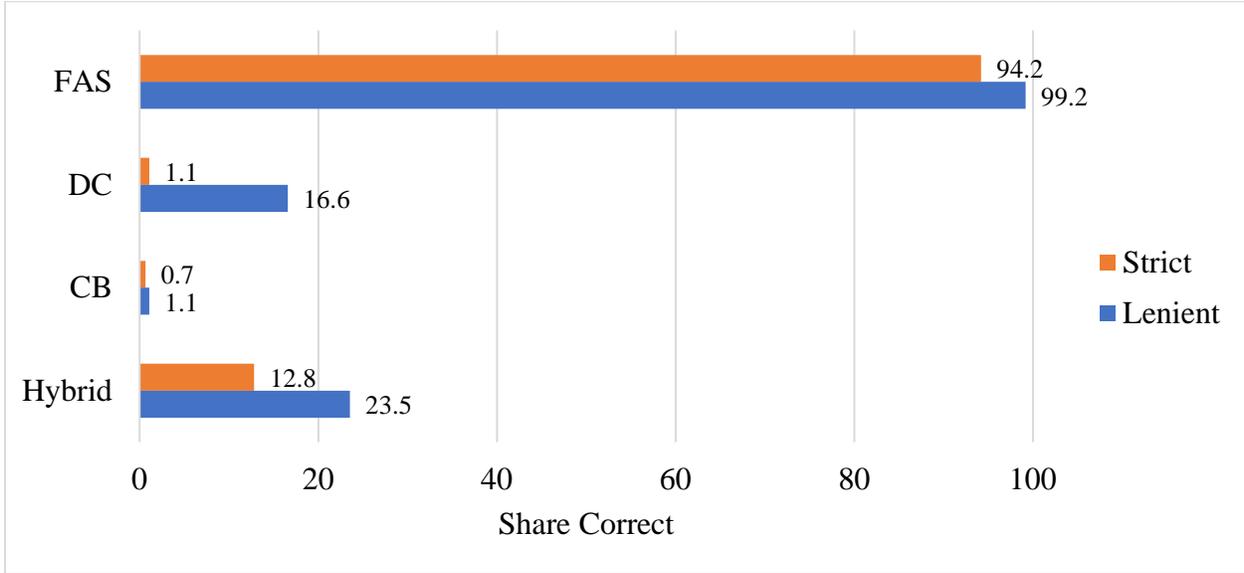orresponding to the retirement plan selected in plan type question. Lenient grading scheme compares teachers' answers to all potential responses in teachers' states and grades responses as correct if they could have been correct given each state's plan parameters. Strict grading scheme limits correct responses to only those that are most likely correct given teachers' reported years of experience in the state. Strict grading omits teachers that could choose which plan to enroll in or were hired in plan transition years. Question and answer text available in Appendix B. Probability weights included.

Figure 3: Retirement Preparation Responses
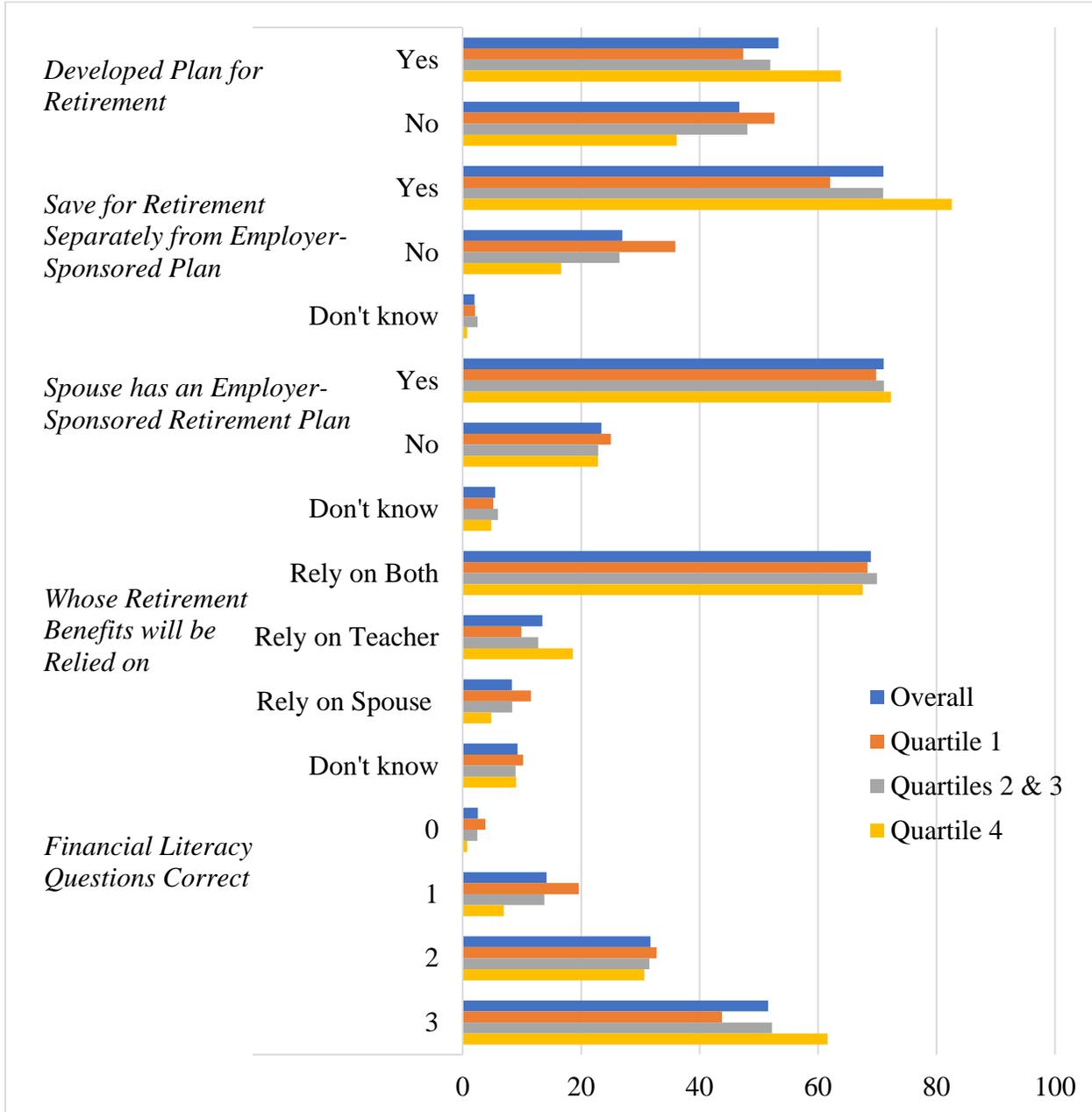
Notes: Question and answer text available in Appendix B. Quartiles refer to experience in the state. Respondents in first experience quartile have less than or equal to 8 years of experience in the state; respondents in the second and third experience quartile have between 9 and 19 years of experience in the state; respondents in the fourth experience quartile have greater than or equal to 20 years of experience in the state. Probability weights included.

TABLES

Table 1: Sample Summary Statistics

Panel A: Teacher Characteristics

	N	Mean	SD	Min	Max
Female	5430	0.78		0	1
Hispanic	5394	0.08		0	1
White	5394	0.83		0	1
Black	5394	0.08		0	1
Asian	5394	0.03		0	1
Married or Domestic Partnership	5210	0.74		0	1
Widowed	5210	0.01		0	1
Divorced	5210	0.09		0	1
Separated	5210	0.01		0	1
Singe, Never Married	5210	0.15		0	1
Elementary Teacher	5210	0.44		0	1
Secondary Teacher	5210	0.56		0	1
Experience in State	5211	14.73	8.2	0	52
Age	5174	44.15	10.65	20	98

Notes: Unweighted responses.

Panel B: Summary of Retirement Knowledge Question Responses

	N	Mean	SD	5th Percentile	Median	95th Percentile
Plan Type						
FAS	5257	0.52				
DC	5257	0.13				
CB	5257	0.06				
Hybrid	5257	0.28				
Employee Contribution Rate	5209	13.08	22.67	0	7	50
Employer Contribution Rate	5204	13.84	26.32	0	6	75
Retirement Eligibility Age	5228	59.97	7.23	52	60	68
Benefit Duration						
As long as I live	5229	0.70				
For a fixed time	5229	0.07				
Until the money runs out	5229	0.22				
Other	5229	0.01				
Social Security						
Employee Contributes	5227	0.41				
Employer Contributes	5227	0.15				
Both Contribute	5227	0.16				
Neither Contribute	5227	0.29				

Notes: Question and answer text available in Appendix B. Unweighted responses.

Table 2: Share Correctly Answering Knowledge Questions by Experience Quartile

	Grading Scheme	**Early-Career**	**Mid-Career**	**Late-Career**
Plan Type	Strict	49.7	55.1	62.6
	Lenient	55.0	62.4	71.1
Retirement Eligibility Age				
Diff. = 0	Strict	18.0	19.5	21.3
	Lenient	27.1	29.2	32.5
Diff. +/- 1	Strict	27.0	33.7	40.6
	Lenient	39.9	47.2	56.3
Diff. +/- 3	Strict	54.5	58.4	67.2
	Lenient	66.5	72.7	81.4
Diff. +/- 5	Strict	71.5	73.1	79.6
	Lenient	82.7	86.5	91.1
Social Security				
Who Contributes	Strict	33.2	40.7	45.8
	Lenient	33.1	40.7	45.7
Participation	Strict	78.5	88.2	91.2
	Lenient	80.2	88.7	91.3
Benefit Duration	Strict	54.4	68.6	80.7
	Lenient	58.8	71.4	82.3
Employee Contribution Rate				
Diff. = 0	Strict	0.0	2.5	2.8
	Lenient	0.3	2.6	3.5
Diff. +/- 0.01	Strict	23.1	23.8	26.7
	Lenient	27.3	28.1	29.6
Diff. +/- 0.025	Strict	36.4	35.2	40.6
	Lenient	41.7	41.1	43.9
Diff. +/- 0.05	Strict	57.3	52.9	54.8
	Lenient	61.9	59.8	58.9
Diff. +/- 0.1	Strict	79.2	74.4	71.3
	Lenient	83.4	81.7	79.4
Employer Contribution Rate				
Diff. = 0	Strict	0.0	0.0	0.0
	Lenient	0.1	0.3	0.2
Diff. +/- 0.01	Strict	16.1	14.5	12.8
	Lenient	15.1	13.5	12.5
Diff. +/- 0.025	Strict	28.2	28.9	26.3
	Lenient	27.8	27.1	26.4
Diff. +/- 0.05	Strict	54.9	51.3	50.8

		Less than 9	Between 9 & 19	More than 19
	Lenient	54.7	51.3	50.8
	Strict	79.7	77.2	74.2
Diff. +/- 0.1	Lenient	80.1	77.1	73.5
Experience Range		Less than 9	Between 9 & 19	More than 19

Notes: Experience range determined using experience in state quartiles: early-career respondents are in the first experience quartile, mid-career respondents are in the second or third experience quartiles, late-career respondents are in the fourth experience quartile. Question and answer text available in Appendix B. Probability weights included.

APPENDIX A: NUMBER AND TYPES OF RETIREMENT PLANS

Appendix Table A.1: Number of Benefit Tiers per State/Municipality

Benefit Tiers	States/Municipalities				
1	AR	CT	GA	ID	SL
2	AL	CA	CH	DE	DC
	IL	IN	IA	KC	MD
	MN	MO	MT	NC	SD
	TN	WV	WI	WY	
3	AK	AZ	KS	KY	MS
	ND	OR	SC	VT	VA
4	FL	HI	LA	ME	NE
	NH	NM	NY	NYC	OK
5	MA	NJ	SP	UT	
6	CO	NV	TX		
9	OH	PA			
12	RI				
14	WA				
15	MI				

Notes: Benefit tiers are the number of unique plan parameter combinations that a teacher could be enrolled in. There are 210 benefit tiers spread across the 56 states and municipalities. CH is Chicago, IL; KC is Kansas City, MO; NYC is New York City, NY; SL is Saint Louis, MO; SP is Saint Paul, MN.

Appendix Table A.2: Plan Types by State/Municipality

Plan Type	States/Municipalities				
	AL	AK	AZ	AR	CA
	CH	CO	CT	DE	DC
	FL	GA	HI	ID	IL
	IA	KS	KC	KY	LA
	ME	MD	MA	MI	MN
FAS	MS	MO	MT	NE	NV
	NH	NJ	NM	NY	NYC
	NC	ND	OH	OK	PA
	RI	SL	SP	SC	SD
	TN	TX	UT	VT	VA
	WA	WV	WI	WY	
DC	AK	FL	IN	MI	OH
	PA	SC	UT		
CB	KS				
	HI	IN	MI	OH	OR
Hybrid	PA	RI	TN	UT	VA
	WA				

Notes: Plan types refer to general structure of benefit accrual; see text for explanation of different plan types. FAS plans and final average salary plans; DC plans are defined contribution plans; CB plans are cash balance plans; hybrid plans combine elements of FAS and DC plans. There are 74 state/municipality-plan type combinations. CH is Chicago, IL; KC is Kansas City, MO; NYC is New York City, NY; SL is Saint Louis, MO; SP is Saint Paul, MN.

APPENDIX B: SURVEY QUESTION AND ANSWER TEXT

Appendix B.1: Retirement Knowledge

  Retirement Plan Type:

Most retirement plans require employee and employer contributions. However, plans differ on how benefits are earned. Below are 3 descriptions of common plans.

Please click on the plan description that most closely resembles the primary retirement plan offered through your current teaching job.

If you do not know, please make your best guess.

1. Some retirement plans base benefits on a formula involving a person's age, years of service, and salary.

2. Some retirement plans base benefits on how much money has accumulated in a person's individual account from employee contributions, employer contributions, and investment returns.

3. Some retirement plans base benefits on how much money has accumulated in a person's individual account from employee contributions, employer contributions, and investment returns with a minimum guarantee.

4. My primary employer-provided retirement plan combines plans that match options 1 and 2.

  Retirement Eligibility Age:

At what age would you be eligible for full retirement benefits from teaching under your current employer-provided retirement plan?

Please do not include early retirement eligibility. If you do not know, please make your best guess.

  _____ years old

  Social Security:

Do you currently contribute part of your teaching salary to Social Security or does your school district contribute on your behalf?

If you do not know, please make your best guess.

1. I do

2. My school district does

3. Both my school district and I do

4. No

   Benefit Duration:

Once you retire from teaching, how long will you be able to receive monthly payments from your primary employer-provided retirement plan?

If you do not know, please make your best guess.

1. As long as I live

2. For a fixed time

3. Until the money runs out

4. Other, please specify _____

   Employee and Employer Contributions:

As a percent of your teaching pay each month, how much is currently contributed to your current employer-offered retirement plan:

If you do not know, please make your best guess.

1. By me: ___ percent (please choose an answer between 0 and 100)

2. By my employer: ___ percent (please choose an answer between 0 and 100)

Appendix B.2: Retirement Preparation

Retirement Planning:

Have you ever tried to develop a plan for your retirement?

1. Yes
2. No

Separate Retirement Savings:

Do you have any money set aside for retirement separately from your employer-offered retirement plan?

1. Yes
2. No
3. Don't know

Partner has Separate Retirement Plan

Does/did your partner participate in a separate retirement plan offered through their employer?

1. Yes
2. No
3. Don't Know

Whose Benefits Teachers will Rely On:

Will you rely equally on both your and your partner's retirement benefits during your retirement years?

1. Yes, we will rely equally on both mine and my partner's retirement benefits
2. No, we will primarily rely on my retirement benefits
3. No, we will primarily rely on my partner's retirement benefits
4. Don't know

APPENDIX C: SUMMARY STATISTICS FOR STRICT SAMPLE

Appendix Table C.1: Summary Statistics for Strict Sample

	N	Mean	SD	Min	Max
Female	4076	0.78		0	1
Hispanic	4085	0.07		0	1
White	4085	0.84		0	1
Black	4085	0.08		0	1
Asian	4085	0.03		0	1
Married or Domestic Partnership	4092	0.74		0	1
Widowed	4092	0.01		0	1
Divorced	4092	0.1		0	1
Separated	4092	0.01		0	1
Singe, Never Married	4092	0.14		0	1
Elementary Teacher	4091	0.44		0	1
Secondary Teacher	4091	0.56		0	1
Experience in State	4094	15.67	8.42	0	52
Age	4064	44.91	10.64	20	98

Notes: Sample excludes teachers that could choose which plan to enroll in or were hired in plan transition years. Unweighted responses.

APPENDIX D: DISTRIBUTION OF RETIREMENT KNOWLEDGE QUESTION RESPONSES

Appendix Figure D.1: Distribution of Reported Retirement Eligibility Ages
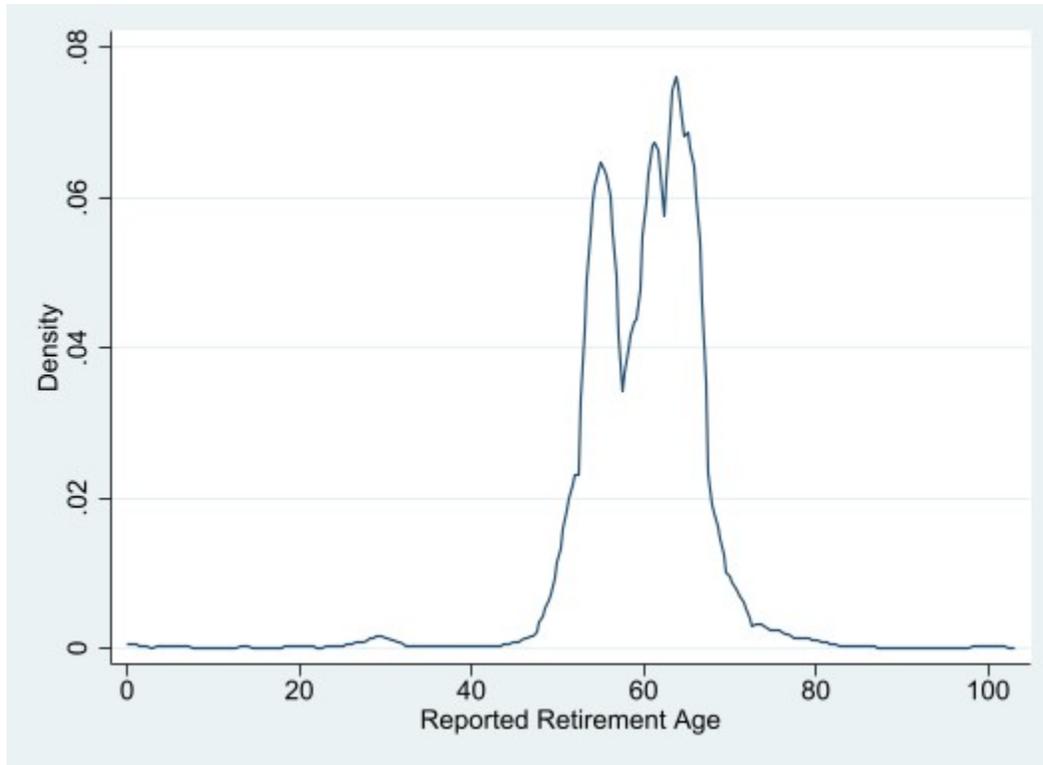
Note: Unweighted responses.

Appendix Figure D.2: Distribution of Reported Employee Contribution Rates
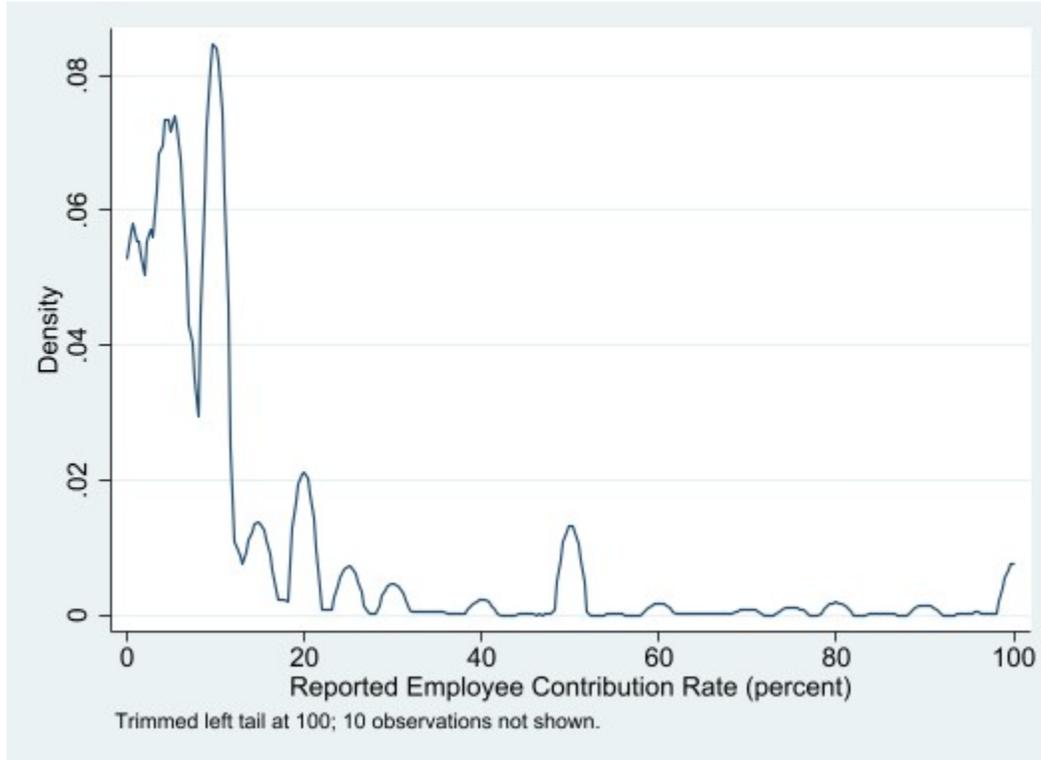
Note: Unweighted responses.

Appendix Figure D.3: Distribution of Reported Employer Contribution Rates
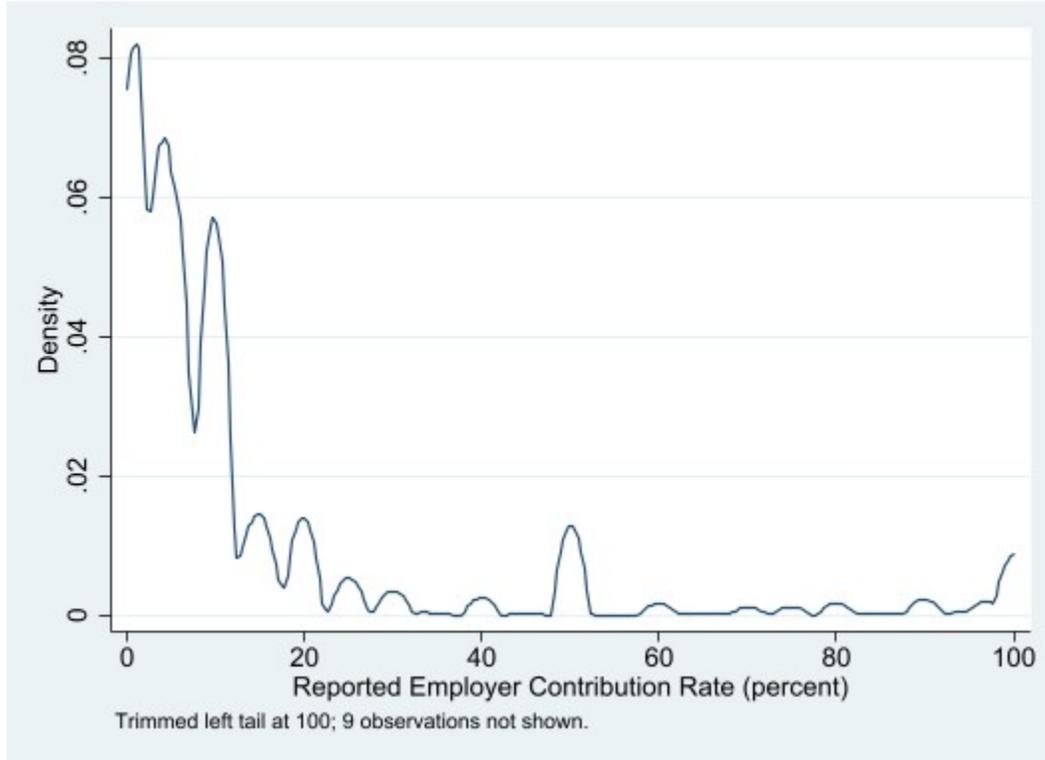
Note: Unweighted responses.

APPENDIX E: SENSITIVITY CHECKS OF KNOWLEDGE RESULTS

Appendix Table E.1: Alternative Grading Schemes

	Strict	Lenient	Lenient, Strict Sample	Any Plan	Any Year	Any Plan, Year
Plan Type	55.7	62.2	61.2	56.1	55.8	56.2
Retirement Eligibility Age						
Diff. = 0	19.5	29.3	28.9	20.0	19.2	19.6
Diff. +/- 1	33.7	47.1	47.4	34.0	32.8	33.1
Diff. +/- 3	59.6	72.9	73.5	59.4	59.2	59.1
Diff. +/- 5	74.3	86.4	86.6	74.7	73.9	74.3
Social Security						
Who Contributes	40.0	39.6	40.0	39.4	40.3	39.6
Participation	86.4	86.9	86.4	87.0	86.3	86.8
Benefit Duration	68.0	70.2	69.4	69.6	67.1	68.7
Employee Contribution Rate						
Diff. = 0	2.0	2.1	2.1	1.9	1.8	1.8
Diff. +/- 0.01	24.4	28.3	26.8	25.4	24.5	25.4
Diff. +/- 0.025	36.9	41.9	40.4	38.0	37.4	38.4
Diff. +/- 0.05	54.5	60.3	59.3	55.3	54.8	55.4
Diff. +/- 0.1	74.8	81.7	81.3	75.0	75.5	75.5
Employer Contribution Rate						
Diff. = 0	0.0	0.2	0.2	0.0	0.0	0.0
Diff. +/- 0.01	14.5	13.8	14.5	13.6	14.7	13.8
Diff. +/- 0.025	28.1	27.2	28.1	26.8	28.4	27.2
Diff. +/- 0.05	52.1	52.3	52.1	51.7	52.7	52.2
Diff. +/- 0.1	77.1	77.2	77.1	76.8	77.5	77.1

Notes: Lenient grading scheme compares teachers' answers to all potential responses in teachers' states and grades responses as correct if they could have been correct given each state's plan parameters. Strict grading scheme limits correct responses to only those that are most likely correct given teachers' reported years of experience in the state. Strict grading omits teachers that could choose which plan to enroll in or were hired in plan transition years. Lenient and Strict columns report same estimates as Figure 2. Lenient, Strict Sample uses Lenient grading scheme with

Strict sample restrictions. Any Plan grading scheme is Strict scheme but allows for teachers to choose plans. Any Year grading scheme is Strict grading scheme but allows for teachers hired in plan transition years. Any Plan, Year grading scheme is Strict grading scheme but allows for teachers to choose plans and for teachers hired in plan. Differences refer to the difference between reported and actual employee contribution rates and retirement eligibility ages. Question and answer text available in Appendix B. Probability weights included.

Appendix Table E.2: Alternative Hire Year for Strict Grading Scheme

	Minus 5 Years	Minus 3 Years	Minus 1 Year	Strict	Plus 1 Year	Plus 3 Years	Plus 5 Years
Plan Type	55.2	55.8	56.0	55.7	55.7	55.9	55.7
Retirement Eligibility Age							
Diff. = 0	17.7	18.5	19.1	19.5	19.7	19.0	18.8
Diff. +/- 1	31.5	32.5	33.2	33.7	33.1	32.4	31.7
Diff. +/- 3	55.5	57.3	58.7	59.6	59.8	59.3	58.4
Diff. +/- 5	71.2	72.7	73.9	74.3	74.6	74.7	74.7
Social Security							
Who Contributes	39.4	40.1	40.6	40.0	40.7	40.3	39.9
Participation	86.5	86.4	86.8	86.4	86.2	86.0	85.6
Benefit Duration	67.0	67.2	67.9	68.0	67.6	67.6	67.2
Employee Contribution Rate							
Diff. = 0	1.8	1.9	1.9	2.0	1.9	1.7	1.5
Diff. +/- 0.01	24.7	24.6	24.4	24.4	24.6	24.3	23.9
Diff. +/- 0.025	38.0	37.8	37.2	36.9	37.4	37.1	37.1
Diff. +/- 0.05	54.9	54.9	54.8	54.5	55.0	55.0	55.1
Diff. +/- 0.1	75.7	75.7	75.5	74.8	75.6	75.6	75.8
Employer Contribution Rate							
Diff. = 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diff. +/- 0.01	14.3	14.5	14.7	14.5	14.9	15.1	14.8
Diff. +/- 0.025	28.0	28.3	28.4	28.1	28.4	28.9	28.3
Diff. +/- 0.05	52.3	52.6	52.5	52.1	52.9	52.7	52.7
Diff. +/- 0.1	77.3	77.5	77.4	77.1	77.5	77.5	77.3

Notes: Only uses Strict grading scheme. Strict column reports same estimates as Figure 2. Each column changes the approximate year of hire by plus or minus 1, 3, or 5 years. Differences refer to the difference between reported and actual employee contribution rates and retirement eligibility ages. Question and answer text available in Appendix B. Probability weights included.