

**TEACHERS' KNOWLEDGE 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.

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I. INTRODUCTION

Retirement planning is important for retirees' financial wellbeing (Ameriks et al., 2003; Lusardi & Mitchell, 2011a; van Rooij et al., 2012), health (Elder & Rudolph, 1999), and satisfaction (Topa et al., 2009). Good retirement planning requires knowledge about and coordination between the various savings vehicles available to workers. A metaphorical "three-legged stool" is commonly used to describe 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-sponsored plan and Social Security benefits (Mitchell & Moore, 1998). Lacking knowledge about the various retirement savings components makes planning difficult and can leave workers in retirement insecure positions.

Some aspects of teachers' retirement systems simplify planning and create the perception of security. Teachers are generally automatically enrolled in a state or school district sponsored retirement plan. Most teachers participate in traditional pensions that guarantee lifetime benefits to eligible members. The pension system or sponsoring government manages most decisions, including setting contribution rates and allocating investments. Benefits for experienced teachers are rarely changed. Teachers must make very few decisions to enroll, are invested reasonably well, and earn lifetime income when eligible.

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. Backloading impacts a large share of the teaching workforce. In the median state, 80 percent of

teachers will not work long enough to qualify for full retirement benefits (Aldeman & Rotherham, 2014).

Teachers who work less than a full career or split a career across two states earn less valuable benefits and may face retirement insecurity without supplemental savings (Aldeman & Johnson, 2015; Costrell & Podgursky, 2009, 2010). It is challenging for teachers 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).

Over the past two decades, teachers' pensions have also faced significant funding challenges creating uncertainty around retirement benefits and a potential drag on teacher compensation (Backes et al., 2016; Moody & Randazzo, 2020). Many states and cities reduced benefits for new teachers in response to rising retirement costs, further exasperating retirement planning issues (Marchitello et al., 2021; McGee, 2016).

Understanding how much teachers know about their employer-sponsored retirement plans and their 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 nationally representative sample of teachers from RAND's American Teacher Panel. 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 knowledge and preparation is sparse (DeArmond & Goldhaber, 2010).

Results show that most teachers are taking steps to prepare for retirement. 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 employer-offered retirement plan. However, results also show that teachers, especially early-career teachers, exhibit less financial literacy than other college educated adults, and a lower proportion of teachers have tried to develop a plan for retirement.

In addition, results indicate that many teachers lack the knowledge to plan effectively for retirement. Approximately 45 percent of teachers could not identify their retirement plan type and 30 percent are uncertain 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. Unsurprisingly, late-career teachers were the most knowledgeable.

These results suggest that teachers are not fully equipped to make decisions about their retirement. Teachers' knowledge deficiency could result in poor retirement planning, especially among short- and medium-tenure teachers. States and districts should implement education interventions to improve teachers knowledge about and planning for retirement (Collins & Urban, 2016; Kaiser et al., 2020; Lusardi et al., 2020).

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

II. BACKGROUND

Teachers participate in two basic categories of employer-sponsored retirement plans: defined benefit (DB) and defined contribution (DC). Nationally, 80 percent of public schoolteachers participate in DB plans and 14 percent participate in DC plans (U.S. Bureau of Labor Statistics, 2020). Nearly all teachers who participate in a DB plan are in a traditional

pension, or final average salary (FAS) DB plan.¹ These plans base benefits on a formula using an employee's tenure, age, and average salary over the last few years of the employee's career. On the other hand, DC plans, like private sector 401(k) plans, base benefits on how much money has accrued in an individual's retirement account from employee and employer contributions and investment returns.

Teachers also participate in two less common alternative plans. Cash balance (CB) plans are a type of DB plan where benefits accrue similarly to DC plans but include a minimum guaranteed benefit. Finally, some teachers participate in hybrid systems that include both FAS and DC plan components.

One key difference between designs that affects retirement planning is how benefits accrue. FAS plans are backloaded, meaning that teachers do not earn substantial benefits until they near retirement eligibility (Aldeman & Johnson, 2015; Costrell & Podgursky, 2009). In contrast, DC and CB benefits accrue more evenly across teachers' careers (Costrell, 2019).

Backloading can impact retirement planning due to uncertainty about how long teachers will work under the same system. New teachers are unlikely to know if they will teach for a full-career, much less whether they will do so in one state (Aldeman & Rotherham, 2014; Costrell & McGee, 2019; Costrell & Podgursky, 2010; Lueken, 2017; Marchitello et al., 2021; McGee & Winters, 2019).

In the median state, only 45 percent of teachers work long enough to qualify for retirement benefits and 80 percent do not qualify for full benefits (Aldeman & Rotherham, 2014). Seemingly harmless decisions, such as switching states, can reduce net pension wealth by over 50 percent (Costrell & Podgursky, 2010). These features of traditional pensions underscore the importance of

¹ Only Kansas teachers hired on or after January 1, 2015, participate in Cash Balance DB plans (Costrell, 2019).

the other two legs of the proverbial retirement savings stool – private retirement savings and Social Security participation.

While all private-sector employees participate in Social Security, only 60 percent of teachers participate (Kan & Aldeman, 2014). Teachers in the District of Columbia and 15 states either do not participate in Social Security or leave the decision to participate to districts. Teachers not enrolled in Social Security must rely on their personal retirement savings and their employer-sponsored pension to meet their retirement security needs.

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

Retirement systems provide teachers with information to help them plan for retirement. This information usually concentrates on how long they must work to become eligible for a pension and how to calculate benefits for full-career teachers. However, this information may not include other important aspects that are relevant to early- and mid-career teachers such as how much they have accrued at earlier ages and whether they are on the path to a secure retirement. Benefit handbooks are oftentimes bogged down in the minutiae of plan aspects such as service credit, designating beneficiaries, and divorce, making it challenging for teachers to see their larger retirement savings picture.

Understanding teachers' levels of retirement knowledge, preparation, and financial literacy is vital to ensuring they are equipped to make sound decisions about their retirement. While

previous literature demonstrated 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, but early-career teachers were less likely to be correct. Gustman and Steinmeier (1999) find that half of adults can identify their retirement plan type and less than half of respondents can identify their retirement eligibility age within one year.

Additional literature linked teachers' labor market behavior to pension incentives, suggesting that teachers understand their retirement plans well enough to exit when they maximize the present value of their retirement benefits (Costrell & McGee, 2010; Costrell & Podgursky, 2009; Kim, 2020; Ni et al., 2020; Ni & Podgursky, 2016). While this may be the case, it is not the only piece of information important for retirement planning and is only relevant for full-career teachers.

III. DATA

We combined three data sources to learn about teachers' retirement knowledge and preparation. The primary source was a survey administered through RAND's American Teacher Panel (ATP), 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.

RAND American Teacher Panel

We administered an approximately 15-minute survey using RAND's ATP between February 10 and March 16, 2020. The ATP is a nationally representative online survey research

panel of American public K-12 schoolteachers.² Respondents are compensated \$1 for each minute of expected survey time.

Our 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 it (55 percent response rate).³

Table 1, Panel A, includes summary statistics for the ATP sample, which match the general teacher population well.⁴ Female teachers make up 78 percent of the sample. Teachers identifying as white are 83 percent of the sample and black, Hispanic, and Asian teachers are 8, 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 of 14.73 years of experience in their current states with a standard deviation of 8.2 years. Experience ranged from zero years to 52 years. The average age is 44.15 with a standard deviation of 10.65 years.

² RAND purchased teacher rosters for randomly sampled schools and randomly invited teachers to join the panel (Robbins et al., 2018; Robbins & Grant, 2020).

³ The response rate did not vary substantially from other ATP surveys administered in 2019 (e.g., Johnston et al., 2019; Prado Tuma et al., 2020). We oversampled teachers from Arkansas, California, Florida, Georgia, New York, New York City, and Texas.

⁴ 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. The general teacher population is more evenly split between elementary and secondary schools. Analyses include ATP-provided probability weights.

Teacher Retirement Plan Data

We obtained data on specific plan parameters for nearly all state teacher retirement plans from the Urban Institute’s State and Local Employee Pension Plan Database (SLEPP).⁵ These data were originally collected in 2012 and updated in 2018. To ensure accuracy of the SLEPP database, we combed through retirement systems’ member handbooks and annual financial reports. We updated plan data when our interpretation of plan parameters differed from the SLEPP database or if anything had changed since 2018.⁶ We combined these data with Boston College’s Center for Retirement Research’s Public Plans Database (PPD), utilizing 2020 normal cost and employer normal cost rates.⁷

IV. RETIREMENT KNOWLEDGE

Grading the Retirement Plan Knowledge Quiz

Evaluating teachers’ knowledge about their retirement plans is complicated. Each state, the District of Columbia, and five municipalities (Chicago, Kansas City, New York City, Saint Louis, and Saint Paul) operate separate retirement systems with multiple retirement plans, sometimes called “tiers”, within each system.

We consider a benefit tier to be each potential combination of plan parameters that teachers can participate in that could be a correct set of answers to the quiz.⁸ Our data include 210 total tiers

⁵ From SLEPP, we utilized data on plan types, employee contribution rates, normal retirement eligibility ages, and Social Security participation. Local districts decide if teachers are enrolled in Social Security in Georgia, Rhode Island, and Texas. We obtain information on which districts participate from the National Center for Education Statistics. See: <https://nces.ed.gov/programs/maped/storymaps/TeacherSocialSecurity/index.html>

⁶ Retirement plan data are available upon request.

⁷ Data come from the Second Quarter 2021 PPD update. Normal cost rates are the share of salary required to prefund currently accruing pension expenditures. These costs exclude payments on unfunded liabilities.

⁸ This definition differs slightly from how the states define tiers. For example, TRS3 in Washington allows teachers to choose one of six contribution rate paths. We consider these contribution rate paths to be separate tiers even though they are one tier in the state.

across the 56 states and municipalities.⁹ Only 5 states and municipalities have just one tier and 44 have four or fewer.

Most tiers determine eligibility based on when a teacher was hired, but some have additional or alternative eligibility requirements such as the dates teachers vest (qualify for a benefit), retire, or are eligible to retire. We approximate teachers' year of hire using reported experience in the state and assume teachers have worked continuously since their hire year to infer their benefit tier.¹⁰

There are two remaining challenges to determining tier membership. First, some states, such as Ohio and Florida, allow teachers to choose among a set of plans. 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 tier, could be enrolled in the previous tier or the new tier depending on the date they were hired. Since actual hire dates are unknown, we cannot be certain which tier transition year hires are enrolled in. Considering these two challenges, we limit the sample to respondents that could only be enrolled in one tier.¹¹ We retain 78 percent of the sample with this restriction.¹²

Retirement Knowledge Quiz Results

We included five survey questions designed to measure how much teachers know about their retirement plans. Table 1, Panel B, summarizes the responses to these questions.¹³ Figure 1 contains graded responses to the five-item retirement plan knowledge quiz. Table 2 displays the

⁹ Appendix Table A.1 shows the number of tiers for each state and municipality.

¹⁰ DeArmond and Goldhaber (2010) make a similar assumption using administrative data on experience.

¹¹ Appendix C includes sensitivity checks.

¹² 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. The full sample and analysis sample are comparable, see Appendix Table D.1.

¹³ See Appendix B for question and answer text.

share of correct responses by experience quartile. 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).

Retirement Plan Type. Our first question provided descriptions of four common retirement plan types and asked respondents to identify the description that most closely matched their primary retirement plan.¹⁴ Answers corresponded with FAS, DC, CB, and hybrid plans. Table 1, Panel B, 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 CB plans.

Our question design differs from both DeArmond and Goldhaber (2010) who provided plan labels and plan descriptions and Gustman and Steinmeier (2002) who provided plan labels but not a plan descriptions. We use plan descriptions without plan labels for two reasons. First, we are interested in assessing teachers' retirement preparation which depends on their understanding of how benefits accrue. Teachers might be able to identify plan labels without knowing how those plans determine benefits nor how different plans affect them.

Second, teachers may not be familiar with the plan labels we use, especially DC and CB, or their implications for retirement plan design because these are not common in plan literature and educational materials. Retirement systems commonly refer to FAS plans as "pensions" or "defined benefit" plans and systems use a variety of terms to refer to DC and CB plans including "investment plan" and "guaranteed return plan," respectively.¹⁵ The lack of consistency in plan

¹⁴ We always asked teachers about their primary employer-offered retirement plans. Many local districts and some states offer optional supplemental plans.

¹⁵ For example, in Florida, teachers are given the choice between FAS and DC plans, but these plans are called "pension" and "investment" plans, respectively, in the accompanying materials. The same is true in Washington state where TRS3 is a hybrid plan that offers both a FAS and DS plan.

design terminology could lead to respondent confusion and noisy results that do not necessarily reflect teachers' plan design knowledge.

Figure 1 shows that 55.7 percent correctly identified the description matching their retirement plans.¹⁶ Experienced teachers were more likely to identify their retirement plan type correctly than newer teachers (Table 2). Just under half (49.7 percent) of early-career teachers could identify their retirement plans. Mid-career teachers were correct 55.1 percent of the time while 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. The mean reported retirement eligibility age is 59.97, the median is 60, and the standard deviation is 7.23 years (Table 1, Panel B).¹⁷

Most systems have multiple retirement eligibility thresholds. Thresholds usually involve age, years of service, and/or the sum of age and years of service. For example, teachers in Minnesota's Tier 1 plan are eligible to retire at whichever comes first: age 65 with 3 years of service, age 62 with 30 years of service, or once age and years of service sum to 90. We estimate respondents' earliest possible retirement eligibility age using plan eligibility thresholds, reported age and experience, and assuming teachers work continuously until their earliest eligibility age.

Teachers had difficulty identifying their retirement eligibility ages (Figure 1). Less than 20 percent of teachers knew their exact eligibility age, 33.7 percent knew the age within one year, 59.6 percent answered within 3 years, and 74.3 percent identified a retirement eligibility age within 5 years.

¹⁶ Appendix Figure F.1 displays heterogeneity for plan type based on which plan type teachers believe they are enrolled in. Teachers answering FAS enrollment were almost always correct, but those who answered anything else were generally incorrect.

¹⁷ Kernel density plot in Appendix Figure E.1. Two responses were over 2000; we interpreted these responses as if they were the year teachers will retire and imputed retirement ages using respondents' reported birthyears.

Teachers with more experience were more likely to know their retirement eligibility ages (Table 2). Late-career teachers knew their exact 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 provided an age within one year of their actual retirement eligibility age 40.6 percent of the time, and 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.

Social Security. To gauge teachers' knowledge about Social Security participation and contributions, we asked them if they contribute to Social Security or if their school districts do on their behalf. We provided four possible answers: (1) teachers contribute, (2) school districts contribute, (3) both contribute, and (4) no one contributes.

We assume that teachers who say that at least one party contributes to Social Security (i.e., answers 1-3 above) believe that they participate in the program, while those that say no one contributes believe they do not participate. Twenty-nine percent of respondents answer that neither they nor their employers contribute to Social Security, and thus believe that they do not participate. The remaining 71 percent believe that they participate in Social Security. Most teachers knew whether they participated in Social Security: 86.4 percent correctly identified whether they participated in the program (termed "Participation" in the tables and figures).

Teachers were much less knowledgeable about who contributes to Social Security. When teachers participate in Social Security, both teachers and districts contribute to the program. Only 16 percent answered that both they and their districts contribute (Table 1, Panel B). Forty-one percent of teachers believe they contribute to Social Security but that their school district does not,

and 15 percent believe that only their employer contributes on their behalf. The rest answered that no one contributes.

The 56 percent of teachers who think that only they or their employer contribute are incorrect regardless of Social Security participation. The remaining teachers who answered that both contribute or that no one contributes can still be incorrect if they are incorrect about their participation. Overall, only 40 percent of respondents were correct in identifying who contributes to Social Security (termed “Who Contributes” in the tables and figures).

Experienced teachers were more likely to know both whether they participate in Social Security and who contributes. Late-career respondents were correct about participation 91.2 percent of the time, mid-career teachers were correct 88.2 percent of the time, and 78.5 percent of early-career teachers were correct (Table 2). Regarding who contributes to Social Security, 45.8 percent of late-career teachers answered correctly. Early- and mid-career teachers were 12.6 and 4.1 percentage points, respectively, less likely than late-career teachers to be correct.

Benefit Duration. We asked teachers how long they will receive monthly payments as part of their retirement plan. Potential answers included “As long as I live”, “For a fixed time”, “Until the money runs out”, and “Other, please specify”. Seventy percent of teachers believe their benefits will last until they die, 22 percent believe benefits will last until the money runs out, and 7 percent think the payments will last for a fixed time (Table 1, Panel B).

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 benefits in the form of an annuity that lasts for the

beneficiary's lifetime, and DC plans provide benefits until the money in the retiree's account runs out.¹⁸

Respondents were somewhat knowledgeable about how long they will be able to collect benefits. Sixty-eight percent correctly identified their benefit duration based on their plan participation (Figure 1).¹⁹ Teachers with more experience were more likely to know how long their benefits will last (Table 2). Eighty-one percent of late-career teachers could identify their benefit duration, but only 54.4 percent and 68.6 percent of early- and mid-career could do so, respectively.

Employee Contributions. We asked teachers how much they contribute to their retirement plans as a percent of salary. 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 (Table 1, Panel B). The distribution varied widely. The standard deviation was 22.67 percentage points. The fifth percentile was 0 percent and the 95th percentile was 50 percent.²⁰

Many tiers have more than one employee contribution rate. We use respondent's reported age, experience, and salary to identify the contribution rate for tiers where the rates vary based on these factors.²¹

Teachers had difficulty identifying their contribution rates (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. Fifty-five percent of respondents identified a

¹⁸ FAS plan members are often given the flexibility guarantee benefits until their spouse dies. DC accounts can be used to purchase an annuity that will pay a guaranteed benefit for life.

¹⁹ Appendix Figure F.2 displays heterogeneity for benefit duration based on which plan type teachers believe they are enrolled in. Teachers were marginally more likely to know how long benefits will last in their actual retirement plans.

²⁰ Kernel density plot in Appendix Figure E.2.

²¹ Massachusetts, Michigan, New York, and New York City operate tiers varying employee contribution rates by years of service. Washington TRS3 varies contributions by age. Delaware, Massachusetts, Michigan, New York, and New York City operate tiers with progressive contribution rates. New Mexico teachers' earnings place them into a contribution rate bracket.

contribution rate to be within 5 percentage points of the actual rate, and 74.8 percent were within 10 percentage points.

Experience had a limited impact on teachers' knowledge about their own contribution rates (Table 2). While no early-career respondents could identify their exact contribution rates, they were nearly as likely as mid- and late-career teachers to pick a rate within 1 and 2.5 percentage points and more likely to pick a rate within 5 and 10 percentage points. Strikingly, 28.7 percent of late-career teachers did not pick a contribution rate within 10 percentage points of their actual rate.

Employer Contributions. We asked teachers how much their employer contributed to their retirement plans. The distribution of responses (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.²²

Many plans do not report employer contribution rates in membership handbooks, opting to explain that actuaries determine a required contribution rate. When reported, the total employer contribution rate often includes both the employer's share of the normal cost (i.e., the cost of benefits earned that year) and a debt service payment on unfunded liabilities. We are interested only in the employer normal cost portion because that is the amount that directly benefits the teacher. We use the employer's share of the normal cost rate from PPD as the correct employer contribution rate.²³

²² Kernel density plot in Appendix Figure E.3.

²³ Employer's share of the normal cost rate and total normal cost rate for New York and Saint Louis are not available in PPD. Since New York was nearly fully funded in 2020, we substituted the difference between the total required contribution rate and the employee's share of the normal cost rate. We obtained 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.

Teachers had more difficulty identifying the employer contribution rates than their own contribution rates (Figure 1). None knew their employer's exact contribution rate. Less than 15 percent of respondents answered within one percentage point of the correct response. Approximately 52 percent identified a contribution rate to be within 5 percentage points of the actual rate.

Experience had a small impact on teachers' ability to identify the employer contribution rates (Table 2). 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. As with the employee contribution results, early-career teachers were slightly more knowledgeable about the employer contribution across all bandwidths and late-career teachers were the least knowledgeable.

V. RETIREMENT PREPARATION AND FINANCIAL LITERACY

We evaluate teachers' retirement preparation and financial literacy using responses to seven survey questions. The responses to each question for the full sample and by experience quartiles are available in Figure 2.²⁴

Prior research suggests that adults who have attempted to figure out how much to save for retirement are more likely to develop a retirement saving plan, stick to that plan, and engage in other formal planning activities like attending retirement seminars or consulting with financial planners (Lusardi & Mitchell, 2011a). Planners also accumulate as much as three times more wealth compared to non-planners (Lusardi & Mitchell, 2007a, 2007b, 2011a).

²⁴ When available, we use data from the Understanding America Study (UAS), an ongoing nationally representative internet panel of American households run by the University of Southern California, to compare responses of other college graduates with ATP sample teachers.

Results suggest that teachers plan for retirement at lower rates than other college educated adults. Fifty-three percent of teachers in our sample reported trying to develop a plan for their retirement compared to approximately 60 percent of college educated adults.²⁵

Retirement planning varied somewhat by experience. Only 47 percent of early-career teachers have tried to develop a plan and 52 percent of mid-career teachers have. Late-career teachers were the most likely to try to develop a plan, but even among this group, 36 percent of have not.

The second question asked if teachers have any money saved for retirement separately from their employer-sponsored plan. Since traditional pensions can leave early- and mid-career teachers with insufficient retirement savings, it is important to understand what other steps teachers are taking to save for retirement. Seventy-one percent of teachers indicate that they have some additional money set aside, 27 percent have no other money set aside, and 2 percent do not know. Experience is associated with an increased likelihood of having additional money saved for retirement. Among early-career teachers, 62 percent had money additional money set aside, but that share is 83 percent among late-career teachers.

For the final two questions on retirement preparation, we asked the 85 percent of respondents who reported being married or in a domestic partnership about their partners retirement plans. First, we asked if their partner participates in a separate retirement plan offered through their employer. Overall, 71 percent of these respondents report that their partner has a retirement plan offered through their employer, while 23 percent indicated that their partners do not and 6 percent did not know.

²⁵ General population statistic uses data from UAS wave 113.

Second, we asked these teachers whose retirement benefits they will rely on during retirement. Sixty-nine percent of teachers said they will rely equally on both benefit plans, 14 percent said they will rely primarily on their benefits, 8 percent of respondents said they will rely primarily on their partner's benefits, and 9 percent did not know. More experienced teachers indicated they would be more likely to primarily rely on teaching-related retirement benefits rather than their partners' benefits.

Finally, we included three questions designed to measure financial literacy from Lusardi and Mitchell (2011b) that are correlated with retirement planning (Lusardi & Mitchell, 2007a, 2011a).²⁶ On these questions, teachers exhibited less financial literacy than other college educated adults. Fifty-two percent of respondents answered all three questions correctly compared to 68 percent of college educated adults.²⁷ Teachers with more experience were more likely to answer more questions correctly: 62 percent of late-career teachers answered all three questions correctly compared to 44 percent of early-career teachers and 52 percent of mid-career teachers.

VI. CONCLUSION

Retirement planning is important for wealth accumulation, retirement security, and wellbeing in retirement. Employer-sponsored retirement plans and Social Security are large and important components of retirement savings. It is imperative that teachers understand how these components function to be able to create an effective retirement strategy. Using a representative sample of public K-12 schoolteachers, we assessed how much teachers know about their retirement plans and what basic steps they have taken to plan for a comfortable and secure retirement.

²⁶ Questions ask about compounding interest rates, inflation, and "risk diversification". Responses are multiple choice with an option for "don't know", which is considered incorrect.

²⁷ General population statistic uses data from UAS wave 121.

Our results show that teachers have significant gaps in their knowledge about their retirement plans. While most teachers know what type of plan they participate in, how long benefits will last, and whether they participate in Social Security, a significant share of teachers do not know these basic facts – 44.3 percent, 32 percent, and 13.6 percent, respectively. Teachers exhibited less knowledge about the specifics of their retirement plans. For example, few teachers appear to know how much they or their employers contribute, when they will be eligible to retire, or who contributes to Social Security. Generally, teachers with more experience were more knowledgeable.

Results also show that most teachers are taking steps to prepare for retirement and that more experienced teachers are more likely to take steps. However, teachers have deficiencies here too . While most teachers have tried to develop plans for their retirement and have personal retirement savings, they are planning at lower rates and exhibit less financial literacy than college educated adults. On the positive side, most teachers that are or were married or in a domestic partnership report that their partners' have retirement plans.

These results have important implications for policy. First, teachers limited knowledge about the specifics of their retirement plans indicate that positive reforms could be implemented with minimal disruption. Nationally, teacher retirement systems face significant funding shortfalls with unfunded liabilities exceeding \$600 billion (McGee, 2019; Novy-Marx & Rauh, 2011). Due to these shortfalls, annual per-pupil teacher retirement costs have nearly tripled since 2004, and now account for 11 percent of total per-pupil education expenditures (Costrell, 2021). Recent evidence suggests that teachers might prefer alternative retirement plans to FAS plans and that teachers may not value FAS plans highly as other aspects of their compensation (Fuchsman et al.,

2020; McGee & Winters, 2019). Reforming retirement plans to be fiscally safer and to work better for a larger share of the teaching workforce might be the best way to protect teachers' retirement.

Second, improving knowledge about Social Security and increasing teachers' participation could have positive labor market impacts. While 86 percent of teachers knew whether they participate in Social Security, only 40 percent knew that both employees and employers contribute. Prior research suggests that Social Security is a benefit that teachers value more than its cost (Fuchsman et al., 2020). However, teachers appear unaware that they and their employers share in the cost of this benefit, and 40 percent of teachers do not participate due to a long-ago choice by their employer. Given the value teachers place on Social Security, increasing participation in and knowledge about who pays could positively impact recruitment and retention.

Finally, these results suggest that employers, teacher preparation programs, and retirement systems could do more to educate teachers about their retirement benefits and improve financial literacy. If teachers do not know how their employer-sponsored retirement benefits and Social Security work, then it will be very challenging for them to effectively plan for retirement. These key stakeholders are well situated to help educate teachers so that they can plan effectively for and achieve a secure retirement.

REFERENCES

- Aldeman, C., & Johnson, R. W. (2015). *Negative Returns: How State Pensions Shortchange Teachers* [Policy Report]. Bellwether Education Partners and Urban Institute. https://www.teacherpensions.org/sites/default/files/TeacherPensions_Negative%20Returns_Final.pdf
- Aldeman, C., & Rotherham, A. J. (2014). *Friends Without Benefits: How States Systematically Shortchange Teachers' Retirement and Threaten Their Retirement Security*. Bellwether Education Partners. https://bellwethereducation.org/sites/default/files/BW_PensionPaper_031314.pdf
- Ameriks, J., Caplin, A., & Leahy, J. (2003). Wealth Accumulation and the Propensity to Plan*. *The Quarterly Journal of Economics*, 118(3), 1007–1047. <https://doi.org/10.1162/00335530360698487>
- Backes, B., Goldhaber, D., Grout, C., Koedel, C., Ni, S., Podgursky, M., Xiang, P. B., & Xu, Z. (2016). Benefit or Burden? On the Intergenerational Inequity of Teacher Pension Plans. *Educational Researcher*, 45(6), 367–377. <https://doi.org/10.3102/0013189X16666812>
- Boivie, I. (2011). *The Three Rs of Teacher Pension Plans: Recruitment, Retention, and Retirement* [Issue Brief]. National Institute on Retirement Security. <https://www.nirsonline.org/reports/the-three-rs-of-teacher-pension-plans-recruitment-retention-and-retirement/>
- Boivie, I. (2017). *Revisiting the Three Rs of Teacher Retirement: Recruitment, Retention and Retirement* [Issue Brief]. National Institute on Retirement Security. <https://www.nirsonline.org/reports/revisiting-the-three-rs-of-teacher-retirement-systems-recruitment-retention-and-retirement/>
- Collins, J. M., & Urban, C. (2016). The Role of Information on Retirement Planning: Evidence from a Field Study. *Economic Inquiry*, 54(4), 1860–1872. <https://doi.org/10.1111/ecin.12349>
- Costrell, R. M. (2019). Reforming Teacher Pension Plans: The Case of Kansas, the 1st Teacher Cash Balance Plan. In *EdWorkingPapers.com* (EdWorkingPaper No. 19–92). Annenberg Institute at Brown University. <https://www.edworkingpapers.com/ai19-92>
- Costrell, R. M. (2021). *Employer Contributions Per Pupil for Retirement Benefits: U.S. Public Elementary and Secondary Schools, teachers & other employees, 2004-2021*. https://edre.uark.edu/_resources/pdf/costrellemployercontributionsperpupil.pdf
- Costrell, R. M., & McGee, J. B. (2010). Teacher Pension Incentives, Retirement Behavior, and Potential for Reform in Arkansas. *Education Finance and Policy*, 5(4), 492–518. https://doi.org/10.1162/EDFP_a_00013

- Costrell, R. M., & McGee, J. B. (2019). Cross-Subsidization of Teacher Pension Costs: The Case of California. *Education Finance and Policy*, 14(2), 327–354. https://doi.org/10.1162/edfp_a_00253
- Costrell, R. M., & Podgursky, M. (2009). Peaks, Cliffs, and Valleys: The Peculiar Incentives in Teacher Retirement Systems and Their Consequences for School Staffing. *Education Finance and Policy*, 4(2), 175–211. <https://doi.org/10.1162/edfp.2009.4.2.175>
- Costrell, R. M., & Podgursky, M. (2010). Distribution of Benefits in Teacher Retirement Systems and Their Implications for Mobility. *Education Finance and Policy*, 5(4), 519–557. https://doi.org/10.1162/EDFP_a_00015
- DeArmond, M., & Goldhaber, D. (2010). Scrambling the Nest Egg: How Well Do Teachers Understand Their Pensions, and What Do They Think about Alternative Pension Structures? *Education Finance and Policy*, 5(4), 558–586. https://doi.org/10.1162/EDFP_a_00010
- DeWitt, L. (1996, May). *Research Note #1: Origins of the Three-Legged Stool Metaphor for Social Security*. Social Security Administration. <https://www.ssa.gov/history/stool.html>
- Elder, H. W., & Rudolph, P. M. (1999). Does retirement planning affect the level of retirement satisfaction? *Financial Services Review*, 8(2), 117–127. [https://doi.org/10.1016/S1057-0810\(99\)00036-0](https://doi.org/10.1016/S1057-0810(99)00036-0)
- Frederick, S. (2005). Cognitive Reflection and Decision Making. *Journal of Economic Perspectives*, 19(4), 25–42. <https://doi.org/10.1257/089533005775196732>
- Fuchsman, D., McGee, J. B., & Zamarro, G. (2020). Teachers' Willingness To Pay For Retirement Benefits: A National Stated Preferences Experiment. In *EdWorkingPapers.com* (EdWorkingPaper No. 20–313). Annenberg Institute at Brown University. <https://www.edworkingpapers.com/ai20-313>
- Gustman, A. L., & Steinmeier, T. L. (1999). *What People Don't Know About Their Pensions and Social Security: An Analysis Using Linked Data from the Health and Retirement Study* (Working Paper No. 7368; Working Paper Series). National Bureau of Economic Research. <https://doi.org/10.3386/w7368>
- Gustman, A. L., & Steinmeier, T. L. (2002). *The Influence of Pensions on Behavior: How Much Do We Really Know?* (TIAA-CREF Institute Working Paper No. RD71). <https://doi.org/10.2139/ssrn.308565>
- Hussar, B., Zhang, J., Hein, S., Wang, K., Roberts, A., Cui, J., Smith, M., Mann, F. B., Barmer, A., & Dilig, R. (2020). *The Condition of Education 2020*. (NCES 2020-144). National Center for Education Statistics, Institute for Education Sciences, U.S. Department of Education. <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2020144>
- John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The big five inventory—Versions 4a and 54*.

- Johnston, W. R., Hamilton, L. S., Grant, D., Setodji, C. M., Doss, C. J., & Young, C. J. (2019). *Learn Together Surveys: 2019 Technical Documentation and Survey Results*. https://www.rand.org/pubs/research_reports/RR4332.html
- Kaiser, T., Lusardi, A., Menkhoff, L., & Urban, C. J. (2020). *Financial Education Affects Financial Knowledge and Downstream Behaviors* (Working Paper No. 27057; Working Paper Series). National Bureau of Economic Research. <https://doi.org/10.3386/w27057>
- Kan, L., & Aldeman, C. (2014). *Uncovered: Social Security, Retirement Insecurity, and 1 Million Teachers* [Policy Report]. Bellwether Education Partners.
- Kim, D. (2020). Worker retirement responses to pension incentives: Do they respond to pension wealth? *Journal of Economic Behavior & Organization*, *173*, 365–385. <https://doi.org/10.1016/j.jebo.2019.10.016>
- Kimball, M. S., Sahm, C. R., & Shapiro, M. D. (2008). Imputing Risk Tolerance from Survey Responses. *Journal of the American Statistical Association*, *103*(483), 1028–1038. JSTOR.
- Lipkus, I. M., Samsa, G., & Rimer, B. K. (2001). General performance on a numeracy scale among highly educated samples. *Medical Decision Making*, *21*(1), 37–44.
- Lueken, M. F. (2017). *(No) Money in the bank: Which retirement systems penalize new teachers?* Thomas B. Fordham Institute.
- Lusardi, A., Michaud, P.-C., & Mitchell, O. S. (2020). Assessing the impact of financial education programs: A quantitative model. *Economics of Education Review*, *78*, 101899. <https://doi.org/10.1016/j.econedurev.2019.05.006>
- Lusardi, A., & Mitchell, O. S. (2007a). *Financial literacy and retirement planning: New evidence from the Rand American Life Panel* (CFS Working Paper Series No. 2007/33). Center for Financial Studies (CFS). <https://econpapers.repec.org/paper/zbwcfswop/200733.htm>
- Lusardi, A., & Mitchell, O. S. (2007b). Financial Literacy and Retirement Preparedness: Evidence and Implications for Financial Education. *Business Economics*, *42*(1), 35–44. <https://doi.org/10.2145/20070104>
- Lusardi, A., & Mitchell, O. S. (2011a). *Financial Literacy and Planning: Implications for Retirement Wellbeing* (Working Paper No. 17078; Working Paper Series). National Bureau of Economic Research. <https://doi.org/10.3386/w17078>
- Lusardi, A., & Mitchell, O. S. (2011b). Financial literacy around the world: An overview. *Journal of Pension Economics & Finance*, *10*(4), 497–508. <https://doi.org/10.1017/S1474747211000448>
- Marchitello, M., Rotherham, A. J., & Squire, J. (2021). *Teacher Retirement Systems: A Ranking of the States*. Bellwether Education Partners.

<https://bellwethereducation.org/sites/default/files/Teacher%20Retirement%20Systems%20-%20A%20Ranking%20of%20the%20States%20-%20Bellwether%20Education%20Partners%20-%20FINAL.pdf>

McGee, J. B. (2016). *Feeling the Squeeze: Pension Costs Are Crowding Out Education Spending* (No. 22). Manhattan Institute. <https://www.manhattan-institute.org/html/feeling-squeeze-pension-costs-are-crowding-out-education-spending-9368.html>

McGee, J. B. (2019). *How to Avert a Public-Pension Crisis* (No. 40). National Affairs. <https://www.nationalaffairs.com/publications/detail/how-to-avert-a-public-pension-crisis>

McGee, J. B., & Winters, M. A. (2019). Rethinking the Structure of Teacher Retirement Benefits: Analyzing the Preferences of Entering Teachers. *Educational Evaluation and Policy Analysis*, 41(1), 63–78. <https://doi.org/10.3102/0162373718798488>

Mitchell, O. S., & Moore, J. F. (1998). Can Americans Afford to Retire? New Evidence on Retirement Saving Adequacy. *The Journal of Risk and Insurance*, 65(3), 371–400. <https://doi.org/10.2307/253656>

Moody, J., & Randazzo, A. (2020). *Hidden Education Funding Cuts: How Growing Teacher Pension Debt is Eating into K-12 Education Budgets* [Equable Institute Research Report]. Equable Institute.

Ni, S., & Podgursky, M. (2016). How Teachers Respond to Pension System Incentives: New Estimates and Policy Applications. *Journal of Labor Economics*, 34(4), 1075–1104. <https://doi.org/10.1086/686263>

Ni, S., Podgursky, M., & Wang, F. (2020). How Teachers Value Pension Wealth: A Reexamination of the Illinois Experience. In *Working Papers* (No. 2007; Working Papers). Department of Economics, University of Missouri. <https://ideas.repec.org/p/umc/wpaper/2007.html>

Novy-Marx, R., & Rauh, J. (2011). Public Pension Promises: How Big Are They and What Are They Worth? *The Journal of Finance*, 66(4), 1211–1249. <https://doi.org/10.1111/j.1540-6261.2011.01664.x>

Prado Tuma, A., Doan, S., Lawrence, R. A., Henry, D., Kaufman, J. H., Setodji, C. M., Grant, D., & Young, C. J. (2020). *American Instructional Resources Survey: 2019 Technical Documentation and Survey Results*. https://www.rand.org/pubs/research_reports/RR4402.html

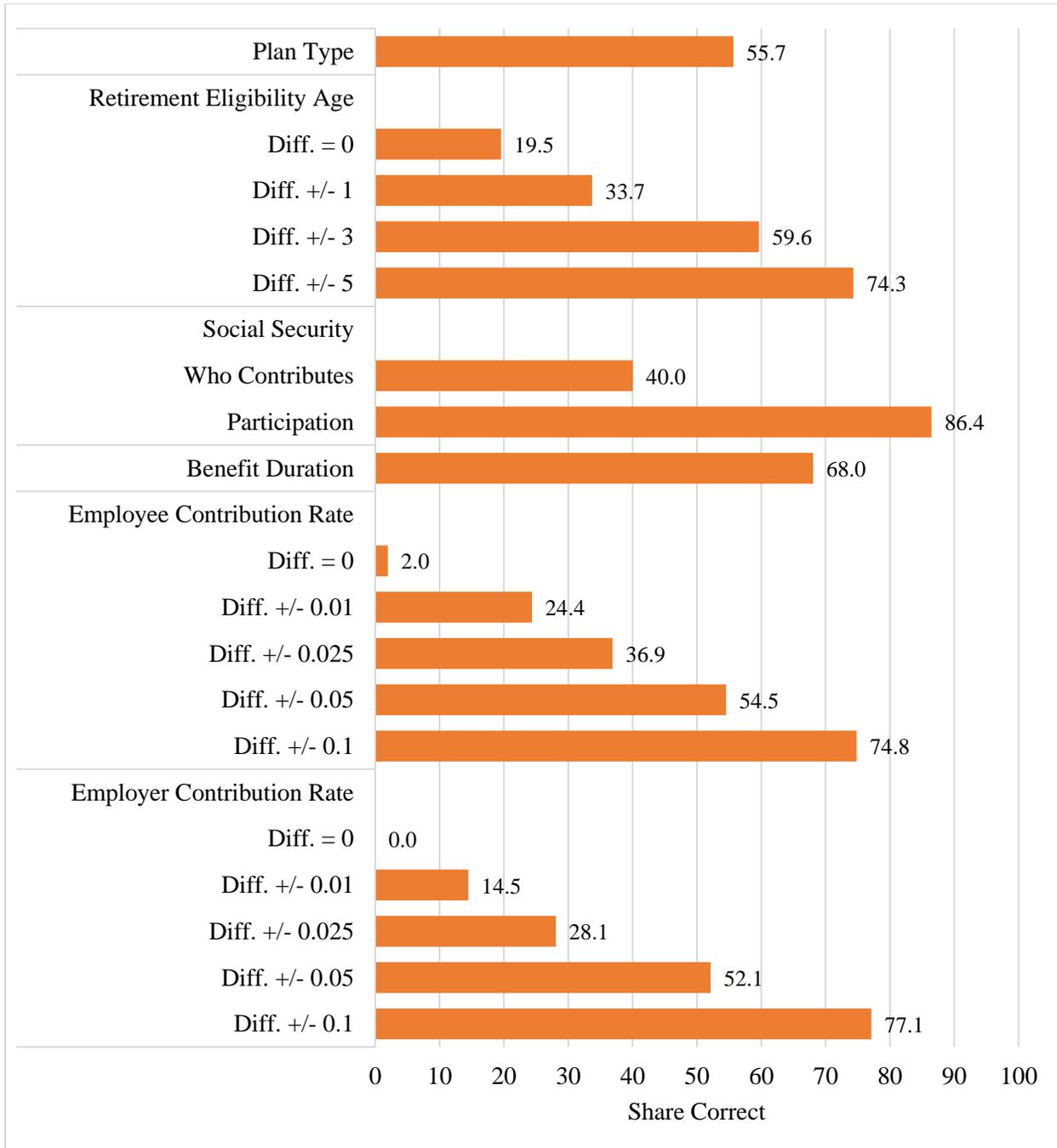
RAND American Educator Panels, A. T. P. (2020). *2020 ATP Survey on Finances, Retirement, and Job Preferences, UAR0120T*. RAND Corporation.

Rhee, N., & Joyner, L. F. (2019). *Teacher Pensions vs 401(k)s in Six States: Connecticut, Colorado, Georgia, Kentucky, Missouri, and Texas* (p. 52) [Report]. National Institute on Retirement Security. <https://www.nirsonline.org/reports/teacher-pensions-vs-401k/>

- Robbins, M. W., & Grant, D. (2020). *RAND American Educator Panels Technical Description*.
https://www.rand.org/pubs/research_reports/RR3104.html
- Robbins, M. W., Grimm, G., Stecher, B., & Opfer, V. D. (2018). A Comparison of Strategies for Recruiting Teachers Into Survey Panels: *SAGE Open*.
<https://doi.org/10.1177/2158244018796412>
- Topa, G., Moriano, J. A., Depolo, M., Alcover, C.-M., & Morales, J. F. (2009). Antecedents and consequences of retirement planning and decision-making: A meta-analysis and model. *Journal of Vocational Behavior*, 75(1), 38–55. <https://doi.org/10.1016/j.jvb.2009.03.002>
- Toplak, M. E., West, R. F., & Stanovich, K. E. (2014). Assessing miserly information processing: An expansion of the Cognitive Reflection Test. *Thinking & Reasoning*, 20(2), 147–168. <https://doi.org/10.1080/13546783.2013.844729>
- U.S. Bureau of Labor Statistics. (2020). *National Compensation Survey: Employee Benefits in the United States, March 2020*. <https://www.bls.gov/ncs/ebs/benefits/2020/home.htm>
- van Rooij, M. C. J., Lusardi, A., & Alessie, R. J. M. (2012). Financial Literacy, Retirement Planning and Household Wealth. *The Economic Journal*, 122(560), 449–478.
<https://doi.org/10.1111/j.1468-0297.2012.02501.x>
- Weller, C. E. (2017). *Win-Win: Pensions Efficiently Serve American Schools and Teachers* [Report]. National Institute on Retirement Security.
<https://www.nirsonline.org/reports/win-win-pensions-efficiently-serve-american-schools-and-teachers/>

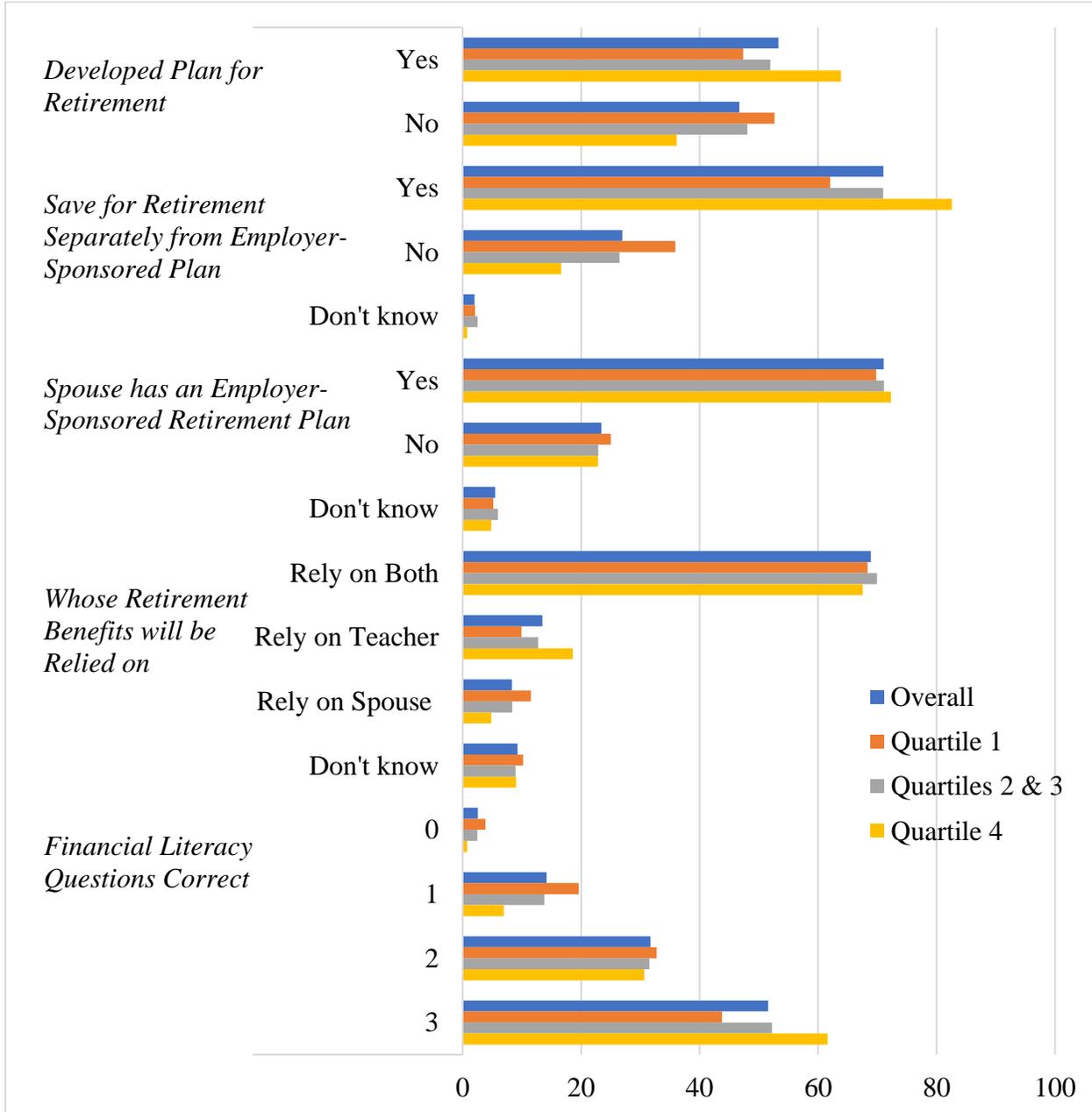
FIGURES

Figure 1: Share Correctly Answering Retirement Plan Knowledge Questions



Notes: Grading scheme limits correct responses to only those that are most likely correct given teachers' reported years of experience in the state. 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. ATP-provided probability weights included.

Figure 2: 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. ATP-provided 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
<i>Plan Type</i>						
FAS	5257	0.52				
DC	5257	0.13				
CB	5257	0.06				
Hybrid	5257	0.28				
<i>Employee Contribution Rate</i>	5209	13.08	22.67	0	7	50
<i>Employer Contribution Rate</i>	5204	13.84	26.32	0	6	75
<i>Retirement Eligibility Age</i>	5228	59.97	7.23	52	60	68
<i>Benefit Duration</i>						
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				
<i>Social Security</i>						
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

	Early-Career	Mid-Career	Late-Career
<i>Plan Type</i>	49.7	55.1	62.6
<i>Retirement Eligibility Age</i>			
Diff. = 0	18.0	19.5	21.3
Diff. +/- 1	27.0	33.7	40.6
Diff. +/- 3	54.5	58.4	67.2
Diff. +/- 5	71.5	73.1	79.6
<i>Social Security</i>			
Who Contributes	33.2	40.7	45.8
Participation	78.5	88.2	91.2
<i>Benefit Duration</i>	54.4	68.6	80.7
<i>Employee Contribution Rate</i>			
Diff. = 0	0.0	2.5	2.8
Diff. +/- 0.01	23.1	23.8	26.7
Diff. +/- 0.025	36.4	35.2	40.6
Diff. +/- 0.05	57.3	52.9	54.8
Diff. +/- 0.1	79.2	74.4	71.3
<i>Employer Contribution Rate</i>			
Diff. = 0	0.0	0.0	0.0
Diff. +/- 0.01	16.1	14.5	12.8
Diff. +/- 0.025	28.2	28.9	26.3
Diff. +/- 0.05	54.9	51.3	50.8
Diff. +/- 0.1	79.7	77.2	74.2

Experience Range	Less than 9	Between 9 & 19	More than 19
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Notes: Grading scheme limits correct responses to only those that are most likely correct given teachers' reported years of experience in the state. 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. 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. ATP-provided probability weights included.

APPENDIX A: NUMBER AND TYPES OF RETIREMENT PLANS

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

Benefit Tiers	States/Municipalities					
1	AR	CT	GA	ID	SL	
	AL	CA	CH	DE	DC	
2	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: Tiers are the number of unique plan parameter combinations that a teacher could be enrolled in. There are 210 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	
	AK	FL	IN	MI	OH
DC	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: SENSITIVITY CHECKS OF KNOWLEDGE RESULTS

The main results are the product of multiple assumptions and a sample restriction. We perform several sensitivity checks to investigate how the sample construction and assumptions impact estimates of teachers' retirement plan knowledge. The first three sensitivity checks relax the sample restrictions and uses a lenient grading scheme. Results reported in Figure 1 are recreated in the column titled "Strict" in Appendix Tables C.1 and C.2.

First, we compare responses to the universe of potential answers for teachers in teacher's state/municipality. The response is considered correct if it matches any correct response 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. Results for this check are available in the column titled "Lenient" in Appendix Table C.1. Knowledge estimates from the lenient grading scheme generally correspond with a larger share of teachers answering the questions correctly than under the strict grading scheme. Except for retirement eligibility age results, all estimates are within 7 percentage points of the main (strict) estimates.

Second, the divergence in results from the lenient and strict grading schemes 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. Results when using the lenient grading scheme on the strict grading 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 third 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. 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.

Appendix Table C.1: Alternative Grading Schemes

	Strict	Lenient	Lenient, Strict Sample	Any Plan	Any Year	Any Plan, Year
<i>Plan Type</i>	55.7	62.2	61.2	56.1	55.8	56.2
<i>Retirement Eligibility Age</i>						
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
<i>Social Security</i>						
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
<i>Benefit Duration</i>	68.0	70.2	69.4	69.6	67.1	68.7
<i>Employee Contribution Rate</i>						
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
<i>Employer Contribution Rate</i>						
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: 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 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 column reports 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. ATP-provided probability weights included.

Appendix Table C.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
<i>Plan Type</i>	55.2	55.8	56.0	55.7	55.7	55.9	55.7
<i>Retirement Eligibility Age</i>							
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
<i>Social Security</i>							
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
<i>Benefit Duration</i>	67.0	67.2	67.9	68.0	67.6	67.6	67.2
<i>Employee Contribution Rate</i>							
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
<i>Employer Contribution Rate</i>							
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: 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. ATP-provided probability weights included.

APPENDIX D: SUMMARY STATISTICS FOR STRICT SAMPLE

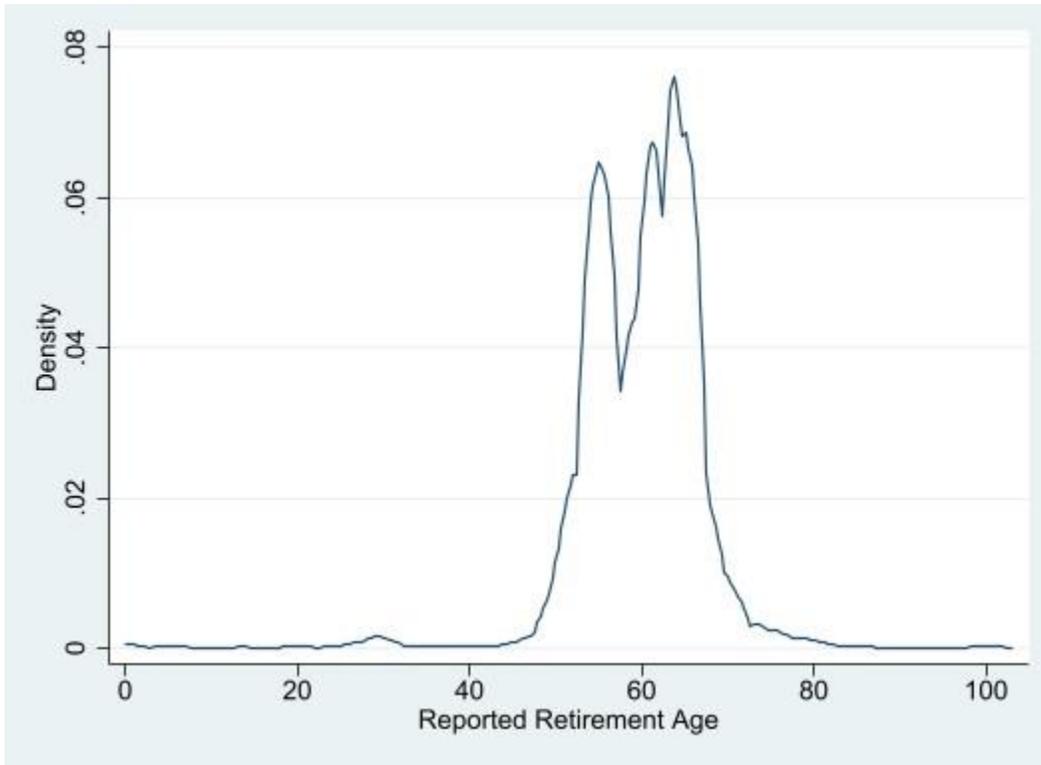
Appendix Table C.1: Summary Statistics for Strict Sample

	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.

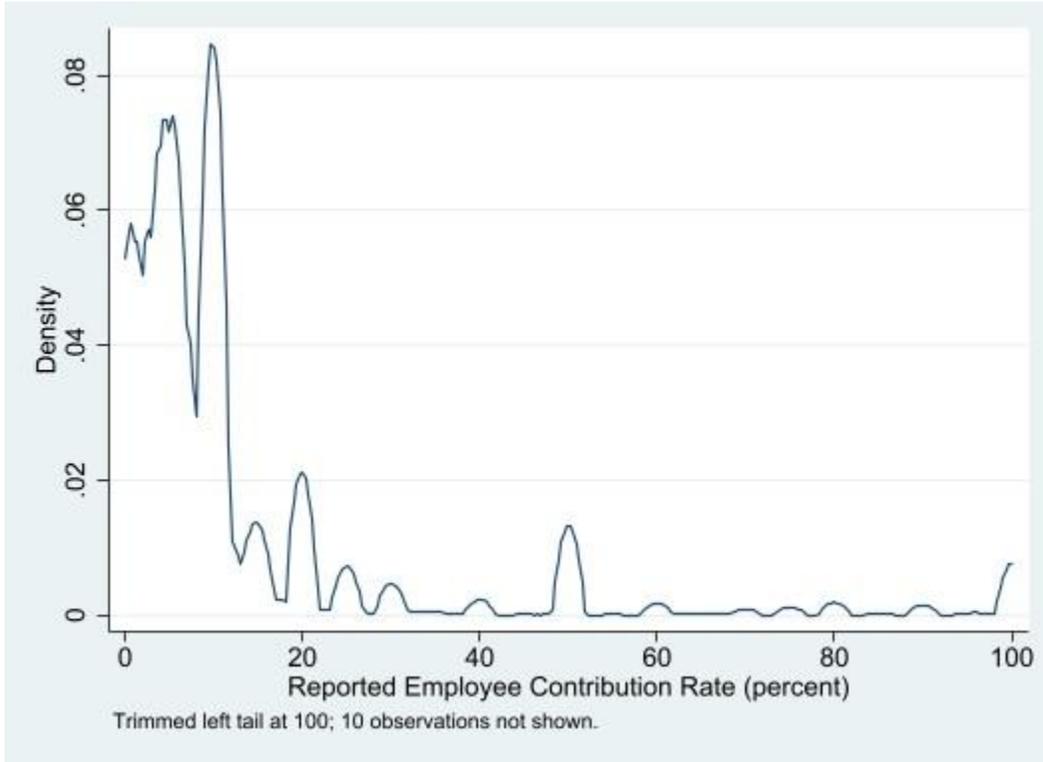
APPENDIX E: DISTRIBUTION OF RETIREMENT KNOWLEDGE QUESTION RESPONSES

Appendix Figure E.1: Distribution of Reported Retirement Eligibility Ages



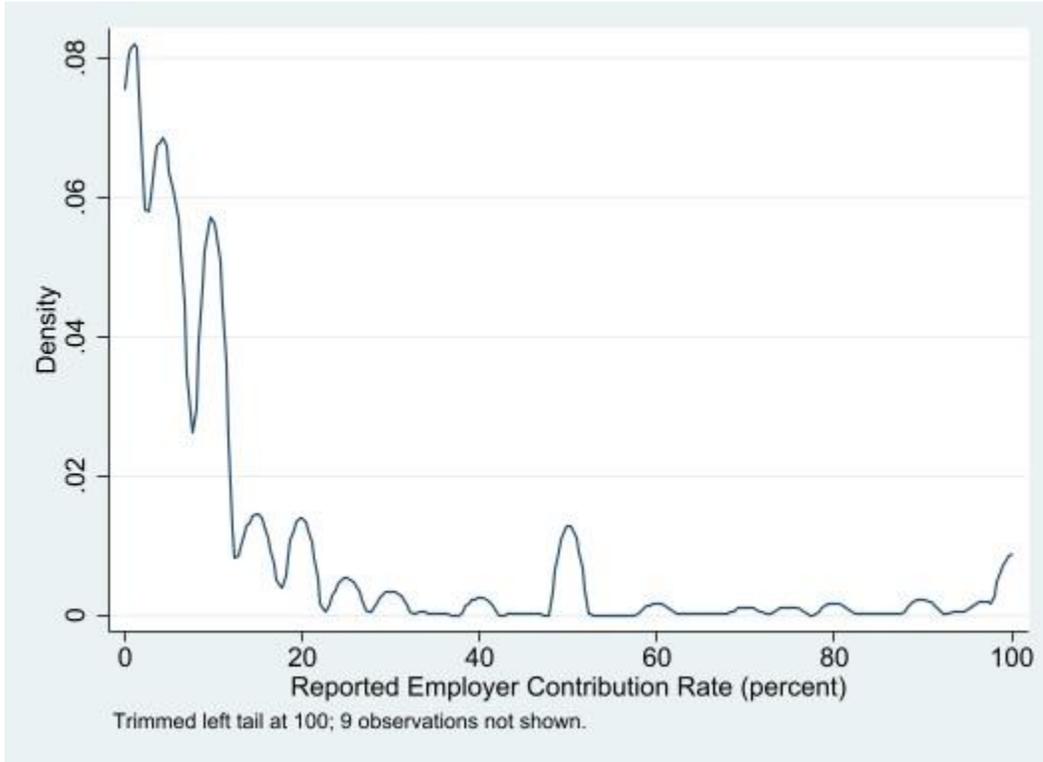
Note: Unweighted responses.

Appendix Figure E.2: Distribution of Reported Employee Contribution Rates



Note: Unweighted responses.

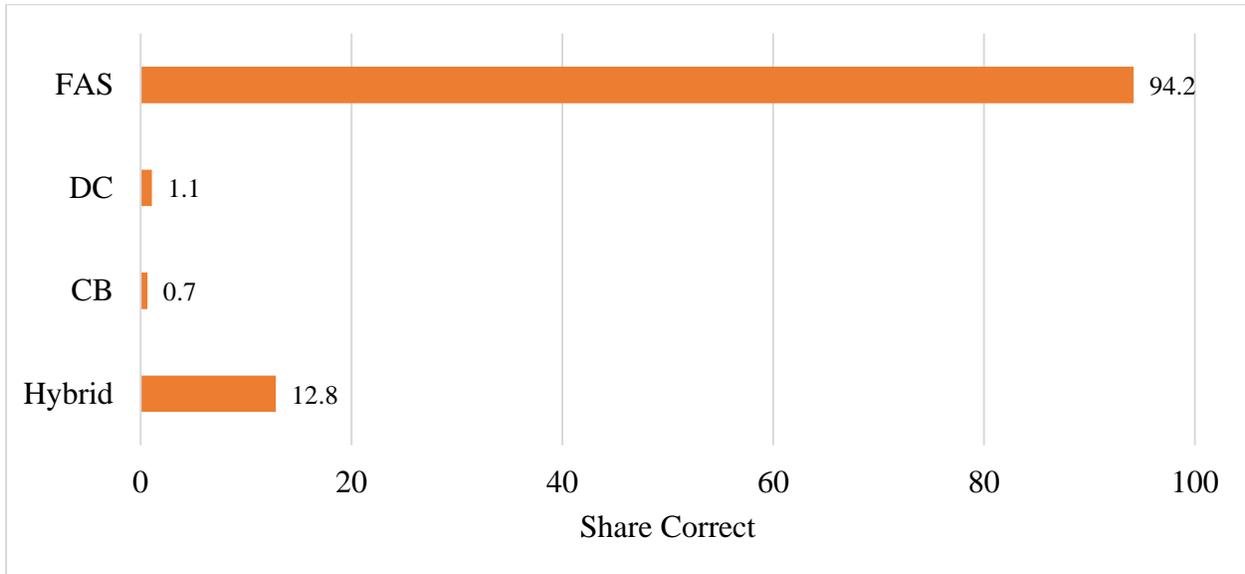
Appendix Figure E.3: Distribution of Reported Employer Contribution Rates



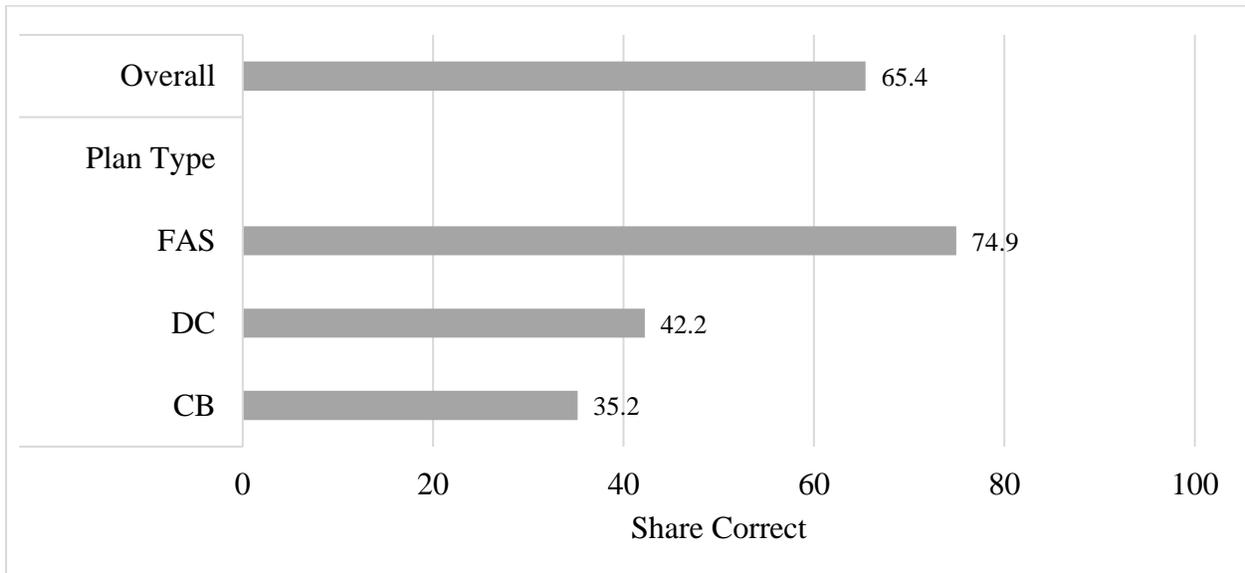
Note: Unweighted responses.

APPENDIX F: HETEROGENEITY BY RETIREMENT PLAN TYPE RESPONSE

Appendix Figure F.1: Share Correctly Identifying Plan Type by Reported Plan Type



Appendix Figure F.2: 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 corresponding to the retirement plan selected in plan type question. Grading scheme limits correct responses to only those that are most likely correct given teachers' reported years of experience in the state. 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. ATP-provided probability weights included.