Supplemental Plan Offerings and Retirement Saving Choices: An Analysis of North Carolina School Districts

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Abstract:

Unlike private sector employers, public school districts generally offer more than one type of supplemental retirement savings plan and allow multiple vendors to offer products. Using an employer survey coupled with individual-level payroll data from over half of the public school districts in North Carolina, this study examines the impact of inter-district differences in supplemental plan management and offerings on participation in these savings vehicles. We find wide variation in total participation rates and in 403(b) plan participation rates in particular, even among this population of public-sector workers with consistent defined benefit plan, health, and retiree health coverage. Individual and district characteristics explain some, but not all, of the variation observed.

I. INTRODUCTION

"Historically, the 403(b) market has been thought of as the Wild West of retirement savings plans," Mercado (2014).

While considerable insights have been gained regarding individuals' retirement saving by examining 401(k) plans, much less is known about a related retirement saving plan option available only to school district employees and health care workers: 403(b) plans.[1] In fact, the

[1] For a comprehensive overview of savings in 401(k) plans and the effects of design features such as automatic enrollment and automatic escalation, see Choi, et al. (2002) and Choi, Laibson, and Madrian (2004). SigRist and Brown (2000) provide an overview of how 401(k) plans have evolved differently in the public and private sectors since the former are not subject to ERISA regulations.

IRS tax code that extended 403(b) coverage to public education employees predates the code creating 401(k) plans by about 17 years (1961 and 1978, respectively). However, while 401(k) plans are heavily regulated, until recently 403(b) plans operated with little oversight and scrutiny. Mercado (2014) notes that the number of vendors and lack of oversight created an environment where vendors charge high administration fees and offer investment options with high surrender charges. Writing in Forbes, Siedle (2012) states "Whoever is supposed to be making decisions and watching over these plans, isn't, and probably has never been told he or she has a legal, not to mention moral, obligation to establish an investment program that is good for participant workers."[2]

Despite this concern in the popular press, few systematic studies of 403(b) plans exist, in part due to the lack of large enough sample sizes in nationally-representative datasets. Nevertheless, the role of the highly prevalent 403(b) plan among teachers' retirement wealth is undeniable, and the literature from the private sector may not be especially informative with regard to employee behaviors and the employer's impact on retirement savings.[3]

Using survey data of 403(b) plan administrators merged with detailed administrative

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[2] Siedle (2012) also observes that "Generally, no investment committee has ever been established or regularly met and there's no Investment Policy Statement or Guidelines."

[3] For a discussion of primary pension benefit choice in the public sector, see Brown and Weisbenner (2014) and Chalmers et al. (2014). Beshears, et al. (2011) provide a discussion of how lessons learned from retirement saving in the private sector might be applied to the public sector.

records from over half of all school districts in North Carolina, this study documents the variation in plan administration and offerings across districts and then explores the factors that predict individuals' plan participation. We consider whether employees in districts with many plans and vendors experience 'information overload' or whether diversity in offerings and marketing methods attracts more workers to participate in supplemental retirement saving plans. This study provides an examination of the individual and school district characteristics that predict supplemental retirement saving plan participation.

Public sector employer-provided supplemental retirement saving plans differ from their counterparts in the private sector along several dimensions. In the private sector, defined contribution retirement plans, such as the tax-qualified 401(k) plan, are generally the only employer-provided retirement plan offered to employees. In contrast, full-time employees of public employers are typically enrolled in a mandatory pension plan, usually a defined benefit plan (Clark, Craig, and Sabelhaus, 2010). Public employers may also offer employees the opportunity to voluntarily enroll in supplemental retirement saving plans. However, unlike private-sector employers, many public employers may also offer two different supplemental, tax-qualified retirement plan types – the 403(b) plan and the 457 plan. In addition, often multiple vendors are allowed to offer products to school district employees under these plans, whereas private-sector retirement plans with 401(k) plans generally are serviced by a single vendor. The fact that public employers can offer multiple retirement saving plans to their employees raises a number of important issues that have received little, if any, attention, since they do not arise in the private sector.

Findings on supplemental plan participation from the private sector might not apply in the public sector. It might be the case that workers in the public sector are simply different in their characteristics and preferences than employees in the private sector. Public employers may be providing different retirement saving plans in order to cater to these differences and target their workers' distinct preferences. An another possibility is that, given the level of guaranteed retirement income typically provided by defined benefit plans, the need for additional retirement saving is quantitatively or qualitatively different for public sector workers compared to the needs of most private sector employees. Workers who change jobs more frequently may not be able to take advantage of the value of a defined benefit plan. Not all school personnel will remain with the district for a full career. As a result, the value of their defined benefit pension will be significantly lower compared to those that stay for a full career.[4] In addition, those teachers who do work for 30 years generally retire relatively early in their 50s. Thus, these early retirees can expect 30 or more years of retirement and will likely need additional resources during their

[4]Adelman and Rotherham (2014) estimate that across all of the states the median proportion of teachers who remain on the job until they have vested in the mandatory pension is 45 percent with only 20 percent of teachers staying with the system until they attain the age of normal retirement specified in the plan.

retirement years if the defined benefit pension does not increase with inflation or to accommodate an active lifestyle in the early years of retirement.

To provide evidence on these questions surrounding supplemental retirement saving in the public sector, this analysis focuses on how teachers and other school district personnel respond to the retirement saving options offered to them. North Carolina schools offer a useful setting for such an analysis because all of the employees are covered by the same defined benefit plan operated by the state, the same health plan, and the same retiree health plan. In contrast, there is considerable variation across the districts in the supplemental retirement saving plan offerings and the management and oversight the district provides for these plans.

While all school districts have chosen to offer the state-managed NC 401(k) plan, districts vary in whether they offer the state-managed NC 457 plan and/or a district-managed 457 plan. All districts offer a 403(b) plan, but the management and oversight of the vendors and vehicles offered under each district's 403(b) plan varies considerably. Thus, our analysis has the advantage of examining workers covered by the same mandatory pension plan but where the voluntary retirement saving vary considerably from district to district.

II. RETIREMENT SAVING PLANS IN NORTH CAROLINA PUBLIC SCHOOL DISTRICTS

This study relies primarily on individual-level payroll records from March 2013, which were provided by a more than half of the school districts in North Carolina. These data include basic economic and demographic information on school employees, in addition to contributions to the supplemental plans offered by each district. These data are merged with responses to a survey of each school district's Chief Finance Office, Director of Business Operations, or Director of Human Resources.[5] The survey asked for information on all retirement saving plans offered by each district, the management and oversight of these plans and vendors, as well as for information about any employer-provided communications and other information efforts related to retirement plans.[6]

The richness of the combined data allows us to investigate a series of interesting questions concerning how the management of these plans and the information provided to employees influence the retirement saving of teachers. We are able to estimate the saving choices of teachers within and across school districts. Public school personnel in all school

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[5] The survey was conducted in coordination with the North Carolina Treasurer's Office Retirement System Division (RSD). A link to the online survey was sent by the Director of the North Carolina Retirement Systems to all 115 school districts. Responses were received 90 of the 115 districts between August 2013 and November 2013. Our research assistant spoke with 79 of the districts to verify responses and aid in completing the survey.

[6] Data were also gathered from districts' websites. This additional collection of publicly available information served two main purposes. Website information was used to validate districts' survey responses, wherever possible. Perhaps more importantly, researchers created an index of website quality that indicates the amount of information available to employees about each district's supplemental retirement saving plans.

districts across North Carolina are enrolled in the Teachers and State Employees Retirement System (TSERS) and are also enrolled in the State Health Plan (SHP).[7] TSERS and the SHP are broadly representative of pension and health plans available to teachers in other states.[8] While most of the annual salary for school personnel is paid by the state according to a fixed pay scale, individual districts typically provide a local supplement to the state component. Average annual supplements across the districts vary from zero dollars in six districts to around

[7]TSERS is a defined benefit plan with a formula of 1.82 percent per year of service times an average salary over the 4 highest years of earnings. Thus, a teacher with 30 years of service would receive a benefit equal to approximately 55 percent of their final average earnings. Teachers are also covered by Social Security. Retired teachers with sufficient years of service are also eligible to remain in the state health plan (SHP) and be covered by the basic plan without any premium. The retiree health plan is subject to change by the General Assembly. Currently, teachers with 20 or more years of service are eligible to enroll in a 70/30 plan without any premium, while retirees with 10 to 19 years of service must pay 50 percent of the premium. Those with 5 to 9 years can remain in the state plan but must pay the full premium. No subsidy is given for spousal or dependent coverage, although access is permitted.

[8]Clark, Craig, and Sabelhaus (2010) compare state retirement plans for teachers and other state employees. In most regards, the North Carolina retirement has characteristics near the mean of state plans across the country. Clark and Morrill (2011) provide a detailed discussion of state health plans for teachers and state employees. The North Carolina plan has traditionally been one of the more generous retiree health plans but has recently undergone reforms which have increased eligibility requirements and for the first time imposed a fee on some of the plan offerings.

$6,400 provided by three districts.[9]

Historically, 403(b) retirement saving plans have been the most prevalent retirement saving plan available to teachers and other school district employees.[10] In addition to 403(b) plans that school districts manage themselves, typically school districts also can offer employees access to a state-managed 401(k) and state- and/or locally-managed 457 plans.[11] Appendix A compares the characteristics of these plans and the federal regulations of each plan type. Importantly, tax treatments differ such that maximum contribution rates are calculated separately for 401(k)/403(b) and for 457 plans. The similarity of the primary characteristics of these plans and their tax treatment raises the question of why a school board would want to spend resources in offering two or more savings plans.

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[9] The 2013 average supplement for teachers, principals, and assistant principals in each district are made publicly available through a local news organization at: http://www.wral.com/asset/news/state/nccapitol/2014/03/17/13486622/2013-14_salary_supplements_across_nc.pdf, [accessed March 29, 2015]. We do not include these figures in our regression analysis, as the district supplement is already reflected by the salary paid to workers. Note that each district could have its own scale and only the average supplement is released by WRAL.

[10] Scism (2012) reports in the Wall Street Journal that approximately three million elementary and secondary school employees had about $109 billion in 403(b) plans as of 2010.

[11] NC401(k) and NC457 plans are managed by the RSD of the State Treasurer's office. These plans have a single vendor, Prudential. The plans have the same investment options and have the same marketing model. The vendor for these plans is selected through the use of a formal RFP process.

Public employers must consider three important elements concerning the retirement saving plans when deciding upon the type and number of retirement options to offer to their employees: (a) the type of tax-qualified saving plans to offer; (b) the number of vendors allowed to provide retirement plans and products to employees under each tax-qualified plan type offered; and (c) the extent of responsibility to assume in providing oversight for the plan(s) and in communicating information about the plans, the vendors, and the investment fees to district personnel.[12]

Finance and business operations staff may be concerned about time needed to oversee plans and the expertise needed to develop and manage an optimal number and variety of plan types and vendors. Human resource staff may be concerned with the time and expertise required to select the most effective methods of communicating sufficient retirement plan information to employees, the time needed to develop such materials, and the expertise required to offer guidance to employees attempting to choose a supplemental retirement plan. It should be noted that the plan offerings by districts often reflect the various objectives of school board members, highly compensated employees within the district, and finance and

[12] In the public sector, it is often unclear who is actually responsible for making decisions about each of these elements of public employers' retirement plans. In the case examined here, district administrative staff must manage retirement programs, but the local school boards typically make the final decisions.

human resource administrators charged with the day-to-day operations and administration of the district's plan(s) and product(s).[13]

We begin with an overview of plan design, management and oversight. Table 1 presents statistics of district characteristics for the 90 districts that responded to our survey and for the 53 districts with payroll records successfully merged with the survey. Columns (2) and (3) provide payroll data at district level and at individual level, respectively.[14] Payroll records for 70,474 individuals are used with the payroll sample restricted to full-time employees with single job classification. Table 1 illustrates a wide variety of plan offerings and plan oversight and management decisions. We discuss these in turn in the following sections.

[Table 1]

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[13] Scism (2012) summarizes the management of 403(b) plans across the country by noting:

> "Most districts, meanwhile, have taken a hands-off approach; in essence, the 403(b)s in many places are akin to individual retirement accounts."

This is similar to our observation of districts in North Carolina. Many plan managers report that they consider it their job to give employees the opportunity to contribute to a plan, but do not believe that they have the authority or responsibility to regulate the vendors or specify the investments offered and the fees charge to participants.

[14] Appendix B provides a detailed discussion of payroll data collection and sample construction and Appendix C explains how we define the district-level variables.

A. Choice of Plan Types

Historically, 403(b) plans have dominated the retirement plan market among school districts, possibly due to the 403(b) plan's comparatively more relaxed federal regulations governing plan sponsors and vendors; however, recent evidence indicates that other plan types are becoming more common.[15] School administrators often have to decide whether to provide and allow access to a district-managed 457 plan or to allow their employees to participate in state-managed 401(k) or 457 plans. State-managed 401(k) and 457 plans tend to be more closely monitored, have fewer vendors, and vendors are more likely to have been selected through a formal bidding process. Why and how school boards decide to adopt and manage alternative retirement saving plans is an interesting puzzle.[16]

As shown in the first portion of Table 1, all school districts in our sample offer a 403b plan and NC 401(k) plan and, thus, have at least two plans.[17] Further, 75 out of 90 (over 80

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[15]Tax legislation enacted in 1961 extended 403(b) coverage to employees of public education institutions. This legislation preceded 401(k) legislation which was passed in 1978 http://www.irs.gov/pub/irs-tege/eotopici95.pdf in the same year, legislation authorizing 457 plans by state and local governments was enacted. http://www.irs.gov/irb/2003-39_IRB/ar09.html

[16] While employer matching contributions are common in the private sector, based on a search of district websites only one school district (Charlotte) in North Carolina provides matching contributions.

[17] From other state data sources, we have confirmed that all 115 school districts have chosen to make NC 401(k) available to their employees.

percent) of the districts allow their employees to select from at least 3 different retirement saving plans. Twenty-five of the 90 districts added the NC 457 plan within the past 5 years.[18] Among the districts included in our individual-level analysis, the patterns are similar and indicate variation in plan offerings.

B. Choice of Plan Characteristics and Oversight

The management of 403(b) plans differs significantly from most 401(k) plans in both the public and private sectors in that multiple vendors are allowed and there are relatively fewer restrictions placed by the IRS on plan characteristics and vendor practices.[19] In some states, the 403(b) plans are overseen at the state level, meaning that centralized state agencies are responsible for selecting, regulating, and overseeing the vendors approved to offer products in the local school districts' 403(b) plans within the state. In other states, local school districts are

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[18] For the sample reported in Column (2), Table 1 of the 53 districts for which we have payroll data, the six districts that adopted NC 457 in 2008 or before each had less than 750 full-time employees in March 2013.

[19] In addition, the management and regulation of 403(b) plans varies substantially across the states and across school districts within states. An analysis of 403(b) plans by Clark and Hanson (2013) found considerable diversity across the country in the management and operation of these retirement saving plans. Some state-managed plans have a relatively small number of approved providers (between one and six providers), while in other states' plans allow more than 50 vendors to offer 403(b) products to employees (e.g., California and Texas). Similarly, plans managed by individual school districts have a wide range in the number of vendors that are approved to offer 403(b) products to teachers.

entirely responsible for managing their supplemental retirement saving plans.

An important factor influencing wealth accumulation among district employees is the degree of control the plan sponsor maintains over the plan. Some school districts allow all interested vendors to offer 403(b) products, provided that they meet certain specified criteria. This open-access environment can result in a large number of vendors offering products to employees. Since each vendor offers numerous investment options, employees will face the significant challenge of finding information on the providers and their investment options and comparing the differences between them.[20] As a result, individual teachers bear the burden of deciding which provider among all of those approved to offer a 403(b) plan provides the best mixture of products, services, and fee reasonableness. Employers can reduce the informational cost to teachers by providing on-line comparisons of fees and investment options. While offering greater choice of providers and investments, this system can result in an 'information overload' for a teacher that reduces the ability of the individual to adequately assess the cost

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[20] In California, teachers can choose from over 50 vendors with thousands of investment options. CalSTERS provides a useful website, 403bCompare, which provides information on investments and fees for vendors so that teachers can compare alternative products. However, the large number of vendors and options places a significant informational burden on teachers interested saving for retirement.

and benefits of their options.[21] Less oversight and no formal selection process typically implies that vendors can (and do) charge higher fees for the same products.[22]

Among North Carolina districts, the management and oversight practices vary from completely open access to highly controlled environments. This provides the opportunity to evaluate the impact of these different management models on retirement saving plan participation. Among the districts responding to the survey, the 403(b) plans have between 1 to 13 different vendors. The modal structure of the 403(b) plan is to have between 3 and 5 vendors, which 39 out of 90 (or 43 percent) of the districts report having. Employers can limit the number of vendors through a competitive bidding process by issuing a solicitation such as a Request for Proposals (RFP), although very few school districts in North Carolina have done so.[23]

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[21] Madrian and Shea (2001) and Choi et al. (2009) show that complex savings decisions discourage employees from participating in employer sponsored retirement plans. Iyengar, Huberman and Jiang (2004) find a drop in plan participation as the number of fund options rises. Agnew and Skyzman (2005) show that as investment options increase and choices become similar, employees face "information overload" and may end up choosing the default option.

[22] Iyengar and Kamenica (2010) illustrate that access to more funds in a 401(k) plan is associated with individuals seeking a "simplier" rather than less risky option (i.e., greater allocation to money market and bond funds rather than equity funds).

[23]Our survey of district plan managers included a question on whether the district had issued an RFP for 403(b) vendors, with 11 responding in the affirmative. However, we believe this is an overestimate

In 2008, new IRS regulations were imposed that forced school districts to reevaluate their 403(b) offerings in an effort to meet the new standards (see Appendix A for a detailed discussion). Districts began deselecting vendors that were not in compliance with the new rules.[24] In personal interviews with plan managers conducted by the authors, districts reported that when 403(b) vendors would not provide the required information under the new provisions, districts were forced to remove the vendors from their plans. If a district has started the process of removing several 403(b) vendors from their plan offerings, then new employees might find it less appealing to participate because of confusion or concerns over the future of 403(b) plan offerings.

Throughout our analysis we classify districts in three ways based on the management and oversight of the 403(b) plans. First, if the district imposed any selection criteria beyond a minimum enrollment requirement, we classify them as "selective". In Table 1, we see that only

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and that many respondents were confused by the question and responding affirmatively if they had issued an RFP for any vendor, not just 403(b) vendors.

[24] Scism (2012) writes that the average school district now allows between 5 and 10 providers but this is down from 40 before the IRS rules were implemented. Deselecting vendors could take several forms. Vendors could be required to exit the plan and employees could be required to shift all funds to one of the remaining vendors. Alternatively, vendors could be prohibited from accepting new participants but could continue to service the accounts of their existing participants. We find some evidence of such legacy plans in our payroll data.

32 of the 90 districts that responded to our survey had some criteria for vendors beyond just a minimum number of enrollees. Second, we group districts by whether they formally reviewed the selection criteria for 403(b) vendors within the last five years (39 out of 90 districts recently reviewed criteria). Finally, 27 out of 90 districts reported having evaluated their plan offerings to determine whether significant changes needed to be made. Only 8 out of 90 districts reported even attempting to obtain fee information from the 403(b) vendors that offer products to their employees. Within the individual-level data used in our regression analysis, we see a similar pattern of variation in oversight activities with a low average level.

C. Choice of Promotional Activities

Once a school district has determined the plan types and characteristics, the finance officer or human resource manager must determine how best to promote and advertise the plan offerings. One easy venue for disseminating retirement plan information is the district's website. We examined the websites of the school districts in North Carolina to determine what information is provided pertaining to the supplemental retirement plans.[25] We evaluated the availability of key information concerning 403(b) plan vendors, investment options, fees, and methods of enrollment in the plan. As shown in the final rows of Table 1, we created three groups based on the quality of the website in terms of information about supplemental

[25] Two districts require an employee login and password to access information on the retirement plans, thus these districts are not included in these data.

retirement saving plans: good (18 districts), moderate (26 districts), and poor (69 districts). Appendix C provides more detail.

Although the websites sometimes contain information on all plan types, in general districts have distinct marketing strategies for the 403(b) plans relative to the state and local 457 and state 401(k) plans. There are currently more than 150,000 active school system employees who are potential participants in at least one of the NC-administered plans. Prudential markets these plans primarily through the use of e-mail communications and on-line web pages describing the plans and their benefits.[26] These plans are coordinated through the retirement system with account balances available as part of employee's annual statements. In contrast, since each school district approves vendors for its locally administered 403b plan (and 457 plan, if any), vendors typically identify company representatives to be account managers for these local plans which cover only the school personnel in the district. The account manager of the vendor usually is responsible for marketing the plan directly to employees through benefit fairs and personal communications. 403(b) vendors market typically market through locally-oriented events, such as on-site visits and benefit fairs. Sales representatives from approved 403(b) vendors arrange school visits to

[26] Prudential also targets employers as part of their marketing campaigns, providing similar materials to state and local governmental agencies participating in the plans to distribute to their employees on Prudential's behalf.

provide information to teachers about their plans and enroll new participants. Both the 403(b) vendors and Prudential might provide retirement planning workshops. A team of financial advisors visits an employer, who hosts a "retirement workshop" and encourages employees to visit during their work hours and learn about their retirement needs and plan offerings.

Thus, one important difference between the 403(b) plans and local 457 plans and the state-managed NC 401(k) and NC 457 plans appears to be the in-person element, whereby sales representatives sell products directly to employees at school districts. We do not have systematic data on differences in marketing strategies across districts, so cannot quantify the extent to which these differences predict plan choices and participation rates.

III. North Carolina School District Employees' Retirement Saving Decisions

North Carolina school district employees have the option to contribute to employer-sponsored tax-advantaged accounts, so must make decisions about whether to participate and how much to contribute.[27] One unique consideration of the retirement saving choices of school district employees is the decision regarding which retirement saving plan is best for them among 403(b), 457, and 401(k) plan offerings. While the provisions and tax regulations of these plans are similar (see Appendix A), there are differences which could make one plan more appealing to teachers with different career patterns or alternative financial needs

[27] The California Legislative Analyst's Office (2014) provides a detailed assessment of retirement saving plans available to teachers and other public employees.

and objectives.[28]

The diversity in management of 403(b) plans and the number of vendors allowed in the plans influences the information costs that teachers much bear in order to determine the optimal choice of investments. The ability of school districts to offer 401(k) and 457 plans in additional to 403(b) plans only exacerbates the informational problem facing teachers. Thus, this study examines how various aspects of the plan offerings affect teacher saving decisions including the availability of the state-managed or a district-managed 457 plan, the number of 403(b) vendors, the amount of oversight of the 403(b) plans, the quality of the information provided by the district or state, and the fees charged by the vendors.

A. Summary of Supplemental Plan Participation and Contribution Rates

To begin, we present the average participation and contribution rates in each of the plan types for our sample. We focus here on our regression sample using the merged payroll and survey data described in Section II and the Appendix. In the first row of Table 2, we see that 32 percent of school district employees in our sample participate in any supplemental retirement saving plan. 403(b) plans are the most common, with 16.8 percent of employees, while about 13 percent of employees participate in NC 401(k). In Table 1, Column (3), we saw that only 38 percent of employees had access to NC 457. Still, we see only about 1 percent of the sample participating in NC 457. Almost 5 percent are participating in a

[28]Kilgour (2013) provides a detailed discussion of retirement benefit laws and programs.

locally-managed 457 plan. Importantly, we see only 3.4 percent of all employees participating in multiple plans.[29] Future work will consider whether the individuals participating in multiple plans are doing so to take advantage of the separate tax treatment of 401(k)/403(b) relative to 457 plans and whether any of these dual contributors have taken advantage of the tax laws to exceed the individual contribution limit of these plans.

[Table 2]

We next consider contribution rates among participants. Conditional on participating, those in the 403(b) plan are contributing on average $164 per month (about $2,000 annually).[30]

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[29] This number might mask strategic behavior among a small group of individuals (e.g., the most highly compensated). One reason why multiple plans might be offered is for individuals to take advantage of the separate tax treatment of 457 plans from 403(b) and 401(k) plans. We observe only 3 percent of the population participating in multiple plans (2 percent participating in a 457 plan along with either a 401(k) or 403(b) plan). We see just 0.35 percent of the population contributing above $15,000 annually in either 457 plans or combined 401(k) plus 403(b) plans. Although high levels of participation are not common, it still might be the case that the plan offerings reflect the financial needs/desires of a relatively select group of managers and highly compensated workers within the districts.

[30] Over 83 percent of those contributing do so at a level that is less than 6 percent of salary. Similarly, almost 80 percent of active plan participants are contributing less than $2,000 annually. In results not shown, when plotting contribution levels and rates the mean is quite low, but there is a long right tail. Future work will explore further what predicts relatively high versus low contribution levels and rates among participants.

Finally, we see that the average of the contribution rates in each plans are low, between 1 and 4 percent of salary.

Figure 1 shows how the participation rate in any plan and, specifically, in the 403(b) plan varies across the school districts. The proportion of district employees enrolled in any plan differs by *over 50 percentage points* from the lowest to the highest level while the rates for participation in the 403(b) plan vary by *30 percentage points*. These are remarkably large differences when we consider that all of the districts are covered by the same defined benefit retirement plan (TSERS) and health plan and retiree health plan.[31] In the subsequent subsections we explore reasons for these large differences across districts.

[Figure 1]

B. Participation in Retirement Saving plans by School Personnel in North Carolina

We next consider how individual characteristics are related to supplemental plan

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[31] One could consider predicting how much variation one would expect between districts just due to random noise. Future work will explore this "counterfactual" exercise to determine whether the observed level of variation is indeed higher than what would be anticipated. For example, by randomly grouping individuals into districts using the residuals from the regressions reported in Table 3, one could bound the variation that might be observed from random noise if we assume there is no district x individual characteristics variance in the data.

participation. Means of the full sample are presented in Appendix Table B2.[32] We begin by estimating a regression on participation in any supplemental plan.[33] Estimated coefficients are presented in Table 3, Column (1). We then estimate a regression on participation in the 403(b) plan, presented in Column (2), and participation in 403(b) conditional on participating in any plan, presented in Column (3). The estimates presented in Table 3 include a district fixed effect that should control for all district-level characteristics. In results not shown, estimated coefficients in all three models are nearly identical when the district fixed effects are excluded. All three regression models are estimated with a linear probability model with standard errors clustered by district in parentheses.

[Table 3]

Column 1, Table 3 presents the results from estimating whether the employee

[32] We believe that marital status is self-reported only for tax purposes, so will not correctly reflect the marital status of individuals that are married but filing separately. Compared with nationally representative data, we see far fewer married individuals (58 percent in the payroll data versus 72 percent in the American Community Survey). As expected, the labor force in K-12 schools is disproportionately female (78 percent of the labor force) including one third of employment being single women. The racial composition of the labor force closely mirrors the state population with about 72.9 percent being white and 20.6 percent being black. The average annual salary for the employees of these school districts was $38,473.

[33] In the current tables, standard errors are clustered by district. Future work will incorporate boot-strapping methods for calculating standard errors.

contributes to any supplemental retirement plan offered by the district. The proportion of school employees that contribute to any saving plan is 32.0 percent. Table 3, Column 2 reports the estimated coefficients of the probability that a worker will be contributing to a 403(b) plan (mean of the dependent variable is 16.8 percent). Column 3 repeats this analysis but only for workers that are contributing to any plan. The proportion of those contributing to a 403(b) plan among those who are participating in any plan is 52.3 percent.[34] The coefficients in these two equations are always of the same sign; however as one would expect, the magnitude is greater in the analysis that is restricted to only those who are contributing to some retirement saving plan.

First, in Table 3, we see that controlling for being vested (i.e., tenure of 5 years or more), participation rates decline with age both in any plan and in the 403(b) plan in particular. It should be noted that a school district employee with 30 years of service is eligible to receive an unreduced retirement benefit at any age. Thus, we might expect that individuals ages 55 and older that are still actively employed have not worked at their current school district for their entire career. In that way, it might be less surprising to find participation rates are lower among the older group. Age is not significantly related to choice of 403(b) among

[34] In results not shown, we find that when considering plan participation by year of hire, about half of all participants are in a 403(b) plan at all levels of tenure.

participants.[35] Controlling for broad job class and vested status, every additional $10,000 in higher salary increases the probability of contributing to a saving plan by 7 percentage points and to the 403(b) plan by 4 percentage points. Education professionals (the omitted category) are estimated to have the highest participation rates, holding all else equal, and seem most likely to be choosing the 403(b) plan among participants. While we see the estimated coefficient on executives (relative to education professionals) is large a negative in both Columns (1) and (2), only 0.35 percent of the population falls into this category (approximately 1 or 2 employees per district) and estimated coefficient on salary is large and positive.

There are several interesting differences by racial/ethnic group, gender, and marital status. Black school employees are 1.8 percentage points more likely to be contributing to a plan while Hispanics are 3 percentage points less likely. Interestingly, among those participating in any plan, non-Hispanic black workers are 8 percentage points more likely than non-Hispanic whites to be contributing to a 403(b) plan, holding constant job classification and salary. Both married and single men are less likely to be contributing to a saving plan

[35] Note that due to concerns over both measurement error in years of service and collinearity among variables, we chose not to present results that included a measure of tenure directly. In results not shown, participation rates decline in tenure, but the estimated coefficients are somewhat sensitive to the inclusion of salary and job classification.

compared to married women, 4.0 and 2.2 percentage points respectively.[36] On the other hand, single females are 1.9 percentage points more likely to contribute to one of these plans than married women. Vesting occurs after 5 years of employment, and we find that vested employees are 18.1 percentage points more likely to contribute to a retirement saving plan relative to non-vested employees.

To determine how important individual characteristics are in explaining cross-district variation in participation rates, we calculate the deviation from model predictions by capturing the residual of the actual participation rate minus the predicted participation rate generated from the regression reported in Table 3, Column (1) except without district fixed effects. We then aggregate these individual residuals to the district-level. These mean of residuals by district are plotted in Figure 2 in ascending order of total (unadjusted) participation rates of districts.[37] While for many districts the predicted and actual participation rates are quite similar, the lowest participation rate district has a nearly -0.2 residual while the highest participation rate district has nearly a positive 0.2 residual. Thus, there remains about a 40 percentage point spread between the participation rates of districts, even when adjusting the

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[36] This finding is consistent with Huberman, et al. (2007) who study 647 DC pension plans and find that women are significantly more likely to participate than men.

[37] Future work will explore through simulation the extent of variation that might be anticipated if all district characteristics were held constant.

means for a host of individual demographic characteristics.

C. District Characteristics

The data show that once demeaning for all of the variables shown in Table 3 (except district fixed effects), the district with the lowest participation rate is 40 percentage points lower than the district with the highest participation rate. All employees in all of the districts are covered by the same state retirement plan, the same state health plan, and the same state managed retiree health plan. There may be several explanations for the remaining variation. First, there are unobserved (to the researchers) differences in the underlying population in terms of propensity to save, along with individual-level heterogeneity in desire/need to save that is unmeasured in the data (e.g., spouse's income or financial literacy).[38] These unobserved characteristics might be correlated with district plan offerings and plan management if districts respond to the requests and preferences of their workers, or it might be that district offerings affect individuals differentially in ways that the district fixed effects cannot capture. Differences might also be due to peer effects or the effects of an influential school leader.[39]

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[38] For an overview of how financial literacy and planning affects retirement readiness, see Lusardi and Mitchell (2009, 2014) and references therein.

[39] Duflo and Saez (2002) explore the role of peer effects in supplemental plan participation among employees at a large university. Future work will explore whether the participation choices of school leadership results in differential participation rates of teachers. However, our ability to test this is

We next explore the role of district management and oversight practices in predicting supplemental plan participation in a regression framework. While we expect that district factors, such as management policies, play a major role in encouraging employees to contribute to supplemental retirement plans, the regression analysis does not uncover any robust systematic patterns with the measures of management differences used in this analysis.[40] Earlier we described how districts could vary in their management of 403(b) plans and their decision to offer 457 plans. In that discussion, we raised a series of questions concerning the importance of the management of plans by the districts and how they affect the retirement saving of their employees. Appendix C describes the measures used in more detail.

Holding other factors constant, are school district employees more likely to contribute to a retirement saving plan when there is a small or large number of vendors? Reports by industry groups claim that more choice leads to higher participation (Davis, et al, 2011).[41] Academic studies find that in the 401(k) world information overload associated with a large

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hindered by the fact that our data do not allow for the identification of a particular school within each school district.

[40] Future work will explore whether subsets of the population, such as those hired most recently, are more influenced by district characteristics. Preliminary results, not shown, do not uncover any systematic heterogeneity in the effects of district characteristics by demographic characteristics.

[41] This report was published by the ASPPA Pension Education and Research Foundation. In sharp contrast, Vanguard (2003) finds that more choice reduces participation in retirement saving plans.

number of vendors and investment options typically leads to lower participation rates (e.g., Brown, et al 2007; Iyengar, et al 2004). This is a key policy variable affecting the ability of teachers to accumulate retirement wealth.

In Table 4, we present parallel regression estimates to Table 3, except here we have replaced the district fixed effects with certain district-level characteristics. Note that individual-level demographics reported in Table 3 (but not district fixed effects) are also included in the regressions in Table 4, but are not reported in the table. Many of our measures of management and oversight are likely collinear and all are measured with considerable error, thus any lack of statistical significance might reflect Type II error and insufficient power.[42]

[Table 4]

First, we see that working in a district that has more 403(b) vendors is positively related to participation in any plan and in 403(b) plans in particular. While we had hypothesized that many vendors or many plan offerings would lead to information overload, we instead see that, if anything, more choices leads to higher participation rates.[43] The estimated coefficient on 6

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[42] The current models calculate the standard errors by clustering by district. Future work will incorporate boot-strapped standard errors.

[43] The current measure of the number of vendors is from the survey and indicates the number of vendors that are allowed to enroll new members. Alternatively, one could calculate the number of vendors directly from the payroll data. We chose not to do this because a high number of legacy plans will be mechanically positively associated with higher participation rates. However, we do not have any

or more vendors is statistically significant when considering participation in any plan, indicating that 6 or more vendors is associated with a 8.2 percentage point (26 percent of the mean) higher participation rate than employees that have access to only 1 or 2 vendors. The estimated coefficient on 6 or more vendors in the regression on participation in 403(b) plans is not significant, nor is the number of vendors predictive of 403(b) choices among participants. It is unclear, why more vendors in the 403(b) plan would generate higher overall participation rates but not significantly impact participation in the 403(b) plan itself.[44] In Column (3) we see that, among participants, the existence of a local 457 plan reduces the probability of being in a 403(b) plan, suggesting that at least some of the employees view local 457 plans as substitutes for 403(b) plans.[45]

We find that districts that are more selective in allowing 403(b) vendors (i.e., impose more than a minimum enrollment criteria) have higher participation rates in any supplemental

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evidence on whether our survey responses sometimes include legacy vendors as well. Future work will explore alternative ways of defining "number of vendors."

[44] One possible mechanism is that a greater number of 403(b) vendors have a positive effect in getting workers interested in retirement saving, but, having reviewed all options, employees move away from the multi-vendor 403(b) plans and toward the single vendor state-managed plans.

[45] Interestingly, offering NC 457, and even adopted NC 457 in the past 5 years, is not significantly related to overall plan participation. Recall that in Table 2 we observed very few employees contributing to NC 457.

plan. However, selectivity does not predict 403(b) participation in particular. It might be that districts whose population is more interested in supplemental plans invest more time and resources into managing and promoting plans. The estimated coefficients on having evaluated 403(b) plan offerings or reviewed the criteria for 403(b) vendors within the past 5 years are both not statistically significant in all three regression models.

The effect of website quality is non-monotonic. In Table 4, Column (1) we see that moderate website quality is associated with significantly higher probabilities of participating in any plan and in 403(b) plans. Moderate quality websites provide information only on plan offerings but not much detail and no contact information. On the other hand, high website quality is associated with significantly lower 403(b) plan participation in total and among participants. High quality websites provide more detail on the product offerings (and sometimes on fees) and retirement planning information. Finally, while large districts see lower probabilities of participation, participants in those large districts are more likely to be in 403(b) plans. It might be that 403(b) vendors are more attentive to the larger pool of potential customers.

To explore how much of the variation we saw in Figures 1 and 2 can be explained by the district characteristics described above, Figure 3 plots the residuals from the regression of any supplemental plan participation on individual and district characteristics. Figure 4 plots a similar graph using the residual from the regression reported in Table 4, Column (2) on participation in 403(b) plans particularly. Both Figure 3 and 4 order districts by the total (unadjusted) supplemental plan participation rates. Both figures clearly show substantial remaining unexplained variation across districts, even with the detailed individual and district-level characteristics.

[Figure 3]

[Figure 4]

V. Discussion and Conclusions

Public school teachers are like many other American workers – they need to save for their retirement. Retirement saving through tax-qualified plans provided by employers is one of the most effective methods of accumulating resources to provide sustainable income during retirement. The options available to K-12 school personnel differ substantially from the typical retirement saving environment dominated by 401(k) plans in the private sector. First, the traditional retirement saving vehicle for public school has been the 403(b) plan; however, school districts can, and often do, offer employees access to state and/or locally-managed 401(k) and 457 plans alongside their own 403(b) plan options. Thus, the typically school employee might have to select from among several distinct tax-qualified retirement saving vehicles – a choice that most private-sector employees do not need to make.

The management of 403(b) plans by school districts varies considerably across states and across school districts within each state. Important elements of oversight of these plans by school boards and district administrators include: the number of vendors allowed to offer retirement savings products to district employees; the vendor selection process; the district-imposed restrictions on the investments offered and fees charged by vendors participating the district's plan; and the manner in which, as well as the extent to which, school districts communicate information about their retirement plan(s) to district employees. In many cases, employees who choose to enroll in the 403(b) plan must decide not only on the vendor, but also the investments offered by their chosen vendor. Most 403(b) plans have multiple vendors with each vendor offering a wide range of investment options. Without employer oversight, the cost of identical investments can vary greatly across vendors.

In this paper, we examine retirement saving plans among school districts in North Carolina. Using individual characteristics, we estimate the probability of contributing to any supplemental plan and then focus specifically on participation in 403(b) plans. As expected, individuals with higher annual salaries are more likely to save for retirement, as are individuals who have vested in the defined benefit plan. We find that women and non-Hispanic black workers have higher probabilities of contributing to a retirement saving plan and to a 403(b) plan in particular, all else equal. Among participants, non-married individuals are more likely to be choosing 403(b) plans relative to married individuals. The estimated coefficients on the demographic characteristics do not change qualitatively when district fixed effects are included, suggesting that these patterns are not driven by differential selection of certain types of workers to districts with different offerings.

Considering the residuals from the regression on individual characteristics, we illustrate that, holding constant individual characteristics and state benefits that are common to all school personnel, participation varies significantly across the districts. These differences may reflect unobserved population characteristics or peer effects within schools. We observe detailed information about 403(b) plan management and oversight, in addition to total plan offerings and information provision. Regressions of participation that include these district characteristics provide evidence that having more vendors in the 403(b) plan is associated with higher participation rates in any plan. District-managed 457 plans appear to be substitutes for 403(b) plans among participants. Selectively of the district in allowing 403(b) vendors is associated with higher rates of plan participation, but not of 403(b) participation, suggesting that district practices might be reflecting interest from employees. We also see that moderate website quality, as proxied by whether the districts advertise the plans at all, is associated with higher participation rates, but that high website quality (providing information on investment options) is associated with lower rates of participation in 403(b) among participants. Still, even with these detailed controls, much of the variation is left unexplained.

This study is unique in a number of ways that address the current scarcity of literature examining retirement savings plans in the public sector. Few studies have looked at public-sector supplemental retirement savings plans and even fewer have studied the 403(b) plan in particular. Because of the differences in retirement plan design, choices, and offerings in the public sector compared to the private sector, research from case studies of retirement saving behaviors in primary defined contribution plans in the private sector may not apply to this population of workers or their employers. Moreover, this study incorporates data from many different public-sector employers with a similar population of workers who share retirement benefits, health benefits, retiree health benefits, and similar salary schedules.

Limiting the number of providers may lower fees primarily due to economies of scale. Furthermore, a plan with fewer providers reduces administrative requirements and allows the plan sponsor to better oversee and monitor the providers' products (Clark and Richardson, 2010). Thus, plans with many vendors may draw more people in through providing greater choice, more tailored products, and greater marketing efforts; however, this process could also result in lower quality product offerings, potential 'information overload,' and less transparent fees. We find some evidence that when plan quality is controlled, individuals substitute away from 403(b) plans.

Future work should consider how product offerings and fees directly affect not only participation and contribution rates, but also retirement wealth accumulation. Choi, et al. (2010) find in an experimental setting that subjects "overwhelmingly fail" at the goal of minimizing index fund fees even when fees are made more salient. This suggests that while fee transparency and information provision might have some impact on the retirement saving decisions of public employees, access to high quality plans will likely improve wealth accumulation on average but not necessarily draw individuals into saving on the margin. Supplemental retirement saving plans that are state-managed or locally-managed, but with high levels of oversight, could improve the welfare of public employees that participate through lower fees and higher wealth accumulation, but might also lead to lower participation rates on average if fewer choices leads to lower participation rates.

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Table 1. Sample Means and Descriptive Statistics

Description of Data:	(1) Districts Means Survey Sample	(2) Districts Means Payroll Sample	(3) Districts Means Weighted by Employees
School Districts	90	53	53
Number of Individuals			70,474
Number of Plans:			
2	*15 districts*	*5 districts*	5.81%
3	*50 districts*	*35 districts*	64.32%
4	*25 districts*	*13 districts*	28.87%
Offers NC 457	*38 districts*	*21 districts*	37.62%
Offers Local 457	*63 districts*	*40 districts*	85.44%
Adopted NC 457 w/in last 5 years	*25 districts*	*15 districts*	32.63%
Average Number of Vendors	4.17	4.15	5.95
Number of 403(b) Vendors			
1-2	*25 districts*	*15 districts*	16.12%
3-5	*39 districts*	*22 districts*	27.30%
6 or more	*26 districts*	*16 districts*	56.58%
Selective	*32 districts*	*18 districts*	40.12%
Reviewed Criteria w/in last 5 years	*39 districts*	*20 districts*	37.73%
Evaluate Plans	*27 districts*	*12 districts*	45.06%
Attempted to obtain fee information	*8 districts*	*3 districts*	10.83%
Website Score			
Low	*57 districts*	*35 districts*	46.90%
Moderate	*17 districts*	*9 districts*	33.30%
High	*15 districts*	*9 districts*	19.80%

Notes: Numbers in italics are the count of districts that fall into each category. Data are gathered from the district survey. Columns 2 and 3 restrict the sample to districts that provided payroll data, with population weights applied in column 3 using employment levels from the payroll data.

Table 2. Mean Participation and Contribution Rates

Source of Data:	Payroll Records + Survey
School Districts	53
Number of Individuals	70,474
Participation Rates	
Total	32.02%
403(b)	16.82%
NC 401(k)	12.98%
NC 457	1.35%
Local 457	4.74%
Participates in multiple plans	3.41%
403(b) Participation among participants	52.25%
Contribution amounts among participants (Monthly)	
403(b)	$163.87
NC 401(k)	$194.16
NC 457	$80.87
Local 457	$190.75
Contribution rate (% of salary) among participants	
403(b)	3.85%
NC 401(k)	4.13%
NC 457	1.46%
Local 457	3.92%

Notes: Data are from merged records from administrative data and district survey data for 53 school districts in North Carolina in March 2013.

Table 3: Plan Participation, Individual Characteristics, and District Fixed Effects

	Any Plan	403(b) Plan	403(b) Plan | Participation
	(1)	(2)	(3)
35-49.99	-0.010	-0.005	-0.008
	(0.0071)	(0.0065)	(0.0191)
50-54.99	-0.024++	-0.019++	-0.029
	(0.0107)	(0.0094)	(0.0289)
55 and above	-0.063+++	-0.030++	-0.001
	(0.0103)	(0.0119)	(0.0338)
Annual Salary (1K)	0.007+++	0.004+++	0.000
	(0.0004)	(0.0003)	(0.0003)
Administrative	-0.032+++	-0.062+++	-0.156+++
	(0.0116)	(0.0096)	(0.0224)
Support	-0.068+++	-0.053+++	-0.034
	(0.0114)	(0.0133)	(0.0377)
Management	-0.025	-0.037++	-0.072+++
	(0.0218)	(0.0165)	(0.0169)
Executive	-0.189+++	-0.187+++	-0.174+++
	(0.0526)	(0.0450)	(0.0508)
Black	0.018++	0.036+++	0.080+++
	(0.0087)	(0.0074)	(0.0146)
Hispanic	-0.028+++	-0.009	-0.003
	(0.0102)	(0.0084)	(0.0203)
Other	0.008	0.008	0.012
	(0.0091)	(0.0095)	(0.0214)
Single Male	-0.022+++	-0.001	0.027++
	(0.0075)	(0.0059)	(0.0130)
Married Male	-0.040+++	-0.023+++	-0.013
	(0.0060)	(0.0063)	(0.0127)
Single Female	0.019+++	0.024+++	0.041+++
	(0.0034)	(0.0037)	(0.0065)
Vested	0.181+++	0.111+++	0.062+++
	(0.0080)	(0.0127)	(0.0203)
Observations	70,474	70,474	22,571
Mean Dep. Var	0.3202	0.1682	0.5225

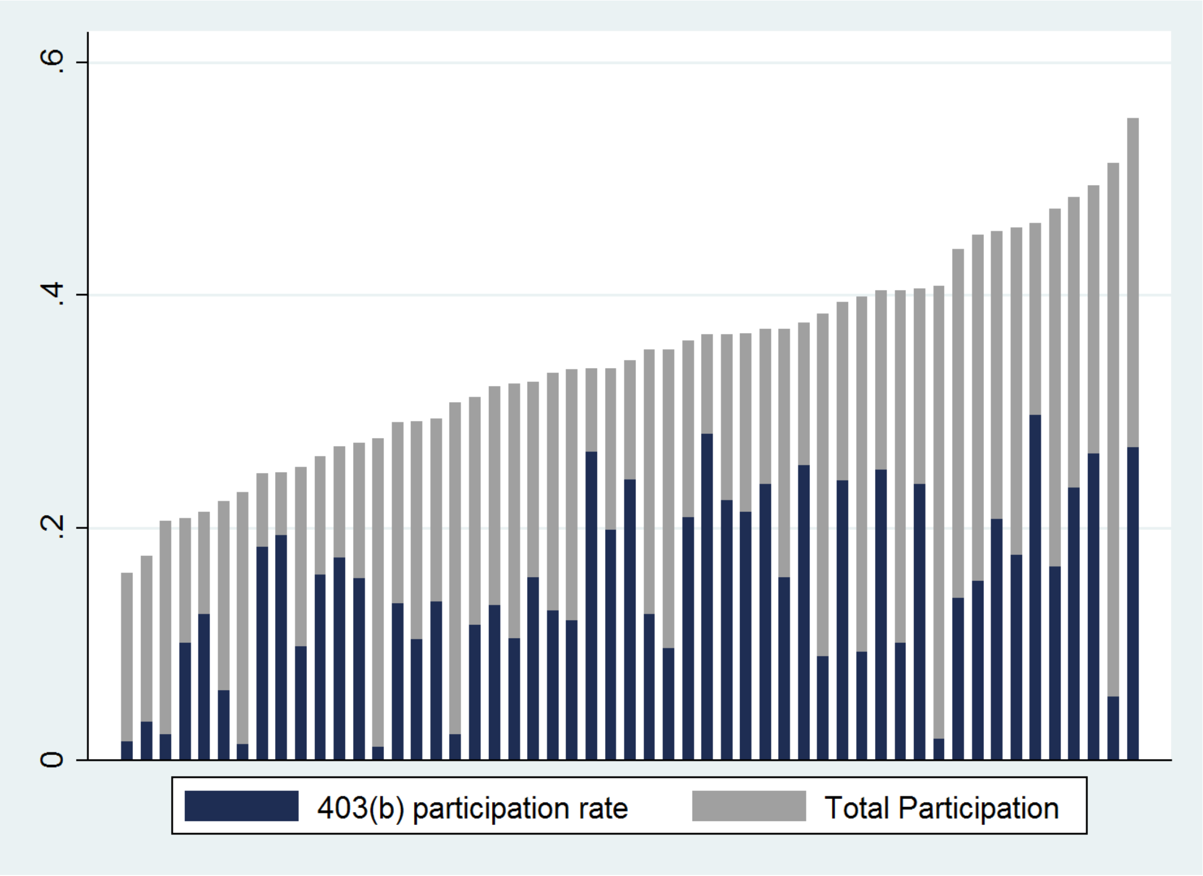
Notes: Data are from payroll records, as reported in Table 1, Column 3. The omitted occupation category is "education professional." All models include district fixed effects. Coefficients are estimated with a linear probability model, robust standard errors in parentheses clustered at district level +++ $p<0.01$, ++ $p<0.05$, + $p<0.1$.

Table 4: **Plan Participation and district characteristics**

	Any Plan	403(b) Plan	403(b) Plan | Participation
	(1)	(2)	(3)
3-5 vendors	0.063+	0.054+	0.099
	(0.0348)	(0.0316)	(0.0811)
6 or more vendors	0.082++	0.056	0.062
	(0.0345)	(0.0337)	(0.0864)
Offers NC 457	0.021	0.016	0.024
	(0.0336)	(0.0308)	(0.0661)
Offers Local 457	-0.010	-0.053+	-0.140++
	(0.0275)	(0.0288)	(0.0612)
Adopted NC 457 w/in 5 yrs	0.023	0.001	-0.037
	(0.0351)	(0.0334)	(0.0777)
Selective	0.066++	0.028	-0.022
	(0.0257)	(0.0248)	(0.0550)
Evaluate plans	-0.031	-0.033	-0.057
	(0.0289)	(0.0298)	(0.0756)
Criteria reviewed w/in 5 years	-0.034	0.022	0.099
	(0.0284)	(0.0282)	(0.0685)
Moderate quality website	0.131+++	0.078++	0.042
	(0.0272)	(0.0314)	(0.0754)
High quality website	0.027	-0.054+	-0.196++
	(0.0306)	(0.0309)	(0.0811)
District Size (in 00s)	-0.002+++	-0.001	0.004++
	(0.0007)	(0.0008)	(0.0017)
Observations	70,474	70,474	22,571
Mean Dep. Var	0.3202	0.1682	0.5225

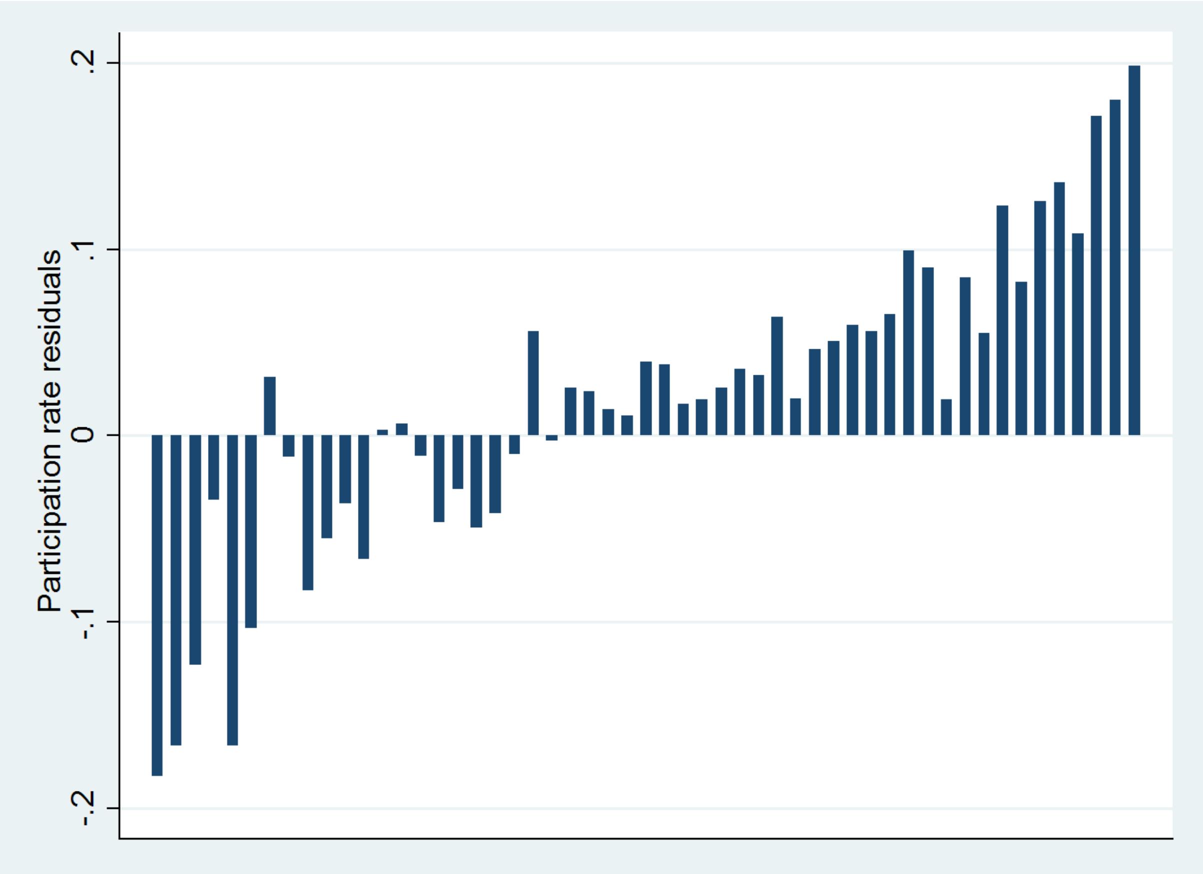
Notes: Coefficients are estimated with a linear probability model, robust standard errors in parentheses clustered at district level +++ p<0.01, ++ p<0.05, + p<0.1. All specifications include individual level characteristics from Table 1.

Figure 1. Participation Rates by District



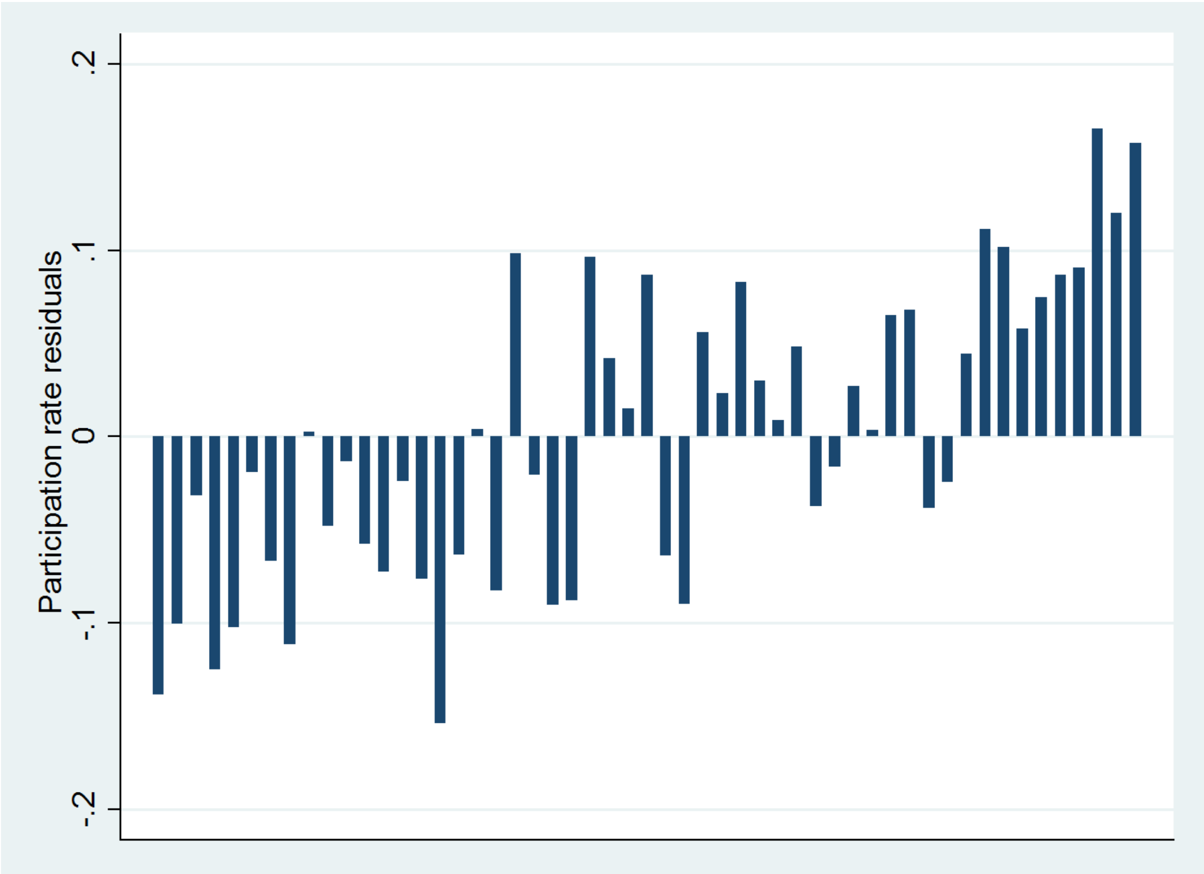
Notes: Each bar represents a district ordered by lowest to highest total participate rate.

Figure 2: Residuals Controlling for Individual Characteristics



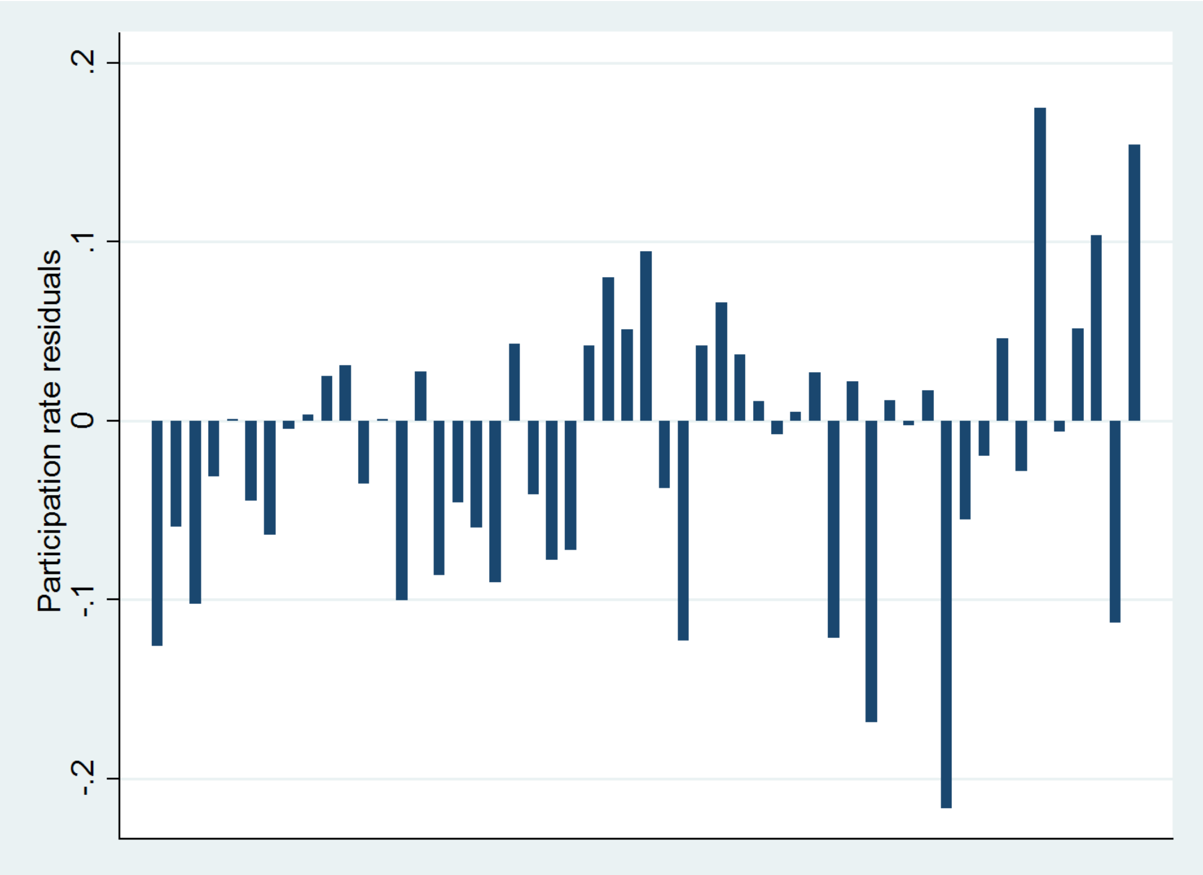
Notes: Each bar represents a district ordered by lowest to highest total participate rate, as in Figure 1. Here the residual is calculated as the difference between the actual and predicted total participation rate with predicted values from a regression of participation in any plan on individual characteristics, as in Table 3, Column 1.

Figure 3: Residuals Controlling for Individual and District Characteristics



Notes: Each bar represents a district ordered by lowest to highest total participation rate, as in Figure 1. Here the residual is calculated as the difference between the actual and predicted total participation rate with predicted values from a regression of participation in any plan on individual and district characteristics, as in Table 4, Column 2.

Figure 4: Residuals Controlling for Individual and District Characteristics (403(b) participation)



Notes: Each bar represents a district ordered by lowest to highest total participation rate, as in Figure 1. Here the residual is calculated as the difference between the actual and predicted total participation rate with predicted values from a regression of participation in any plan on individual and district characteristics, as in Table 4, Column 1.

APPENDIX A

How Public Retirement Saving Plans Differ from Private Sector 401(k) Plans

In the private sector, employers seeking to provide retirement saving plans for their employees are limited to 401(k) plans. In most cases, firms select a single vendor for these plans and negotiate with the vendor the number and type of investment options, fees for investment products, the communication and advice provided by the vendors to employees, and how the plan will be marketed to workers. At many firms, the 401(k) plan is the only retirement plan; however, some large employers retain a defined benefit plans with the 401(k) plan being a supplemental plan.

The retirement saving landscape is much different in the public sector. Public employers have the option of offering alternative types of saving plans regulated under special tax codes. Both state and local governmental employers have the option of offering 457 plans. In addition, state governments may offer a state-managed 457 plan that local employers can allow their employees to join. States may also offer 401(k) plans that were grandfathered in before 1986 legislation, but no new 401(k) plans are allowed.[46] Public schools, hospitals, and charitable organizations are allowed to offer 403(b) plans.[47] In some states, public school

[46] See the Tax Reform Act of 1986, which prohibited governmental employers from establishing new 401(k) plans. Governmental employers who had established 401(k) plans prior to the new legislation were allowed to continue offering these plans.

[47] A comparison of the provisions of the 401(k) and 457 plans offered by the state of North Carolina can be seen at https://www.nctreasurer.com/ret/401k%20Plan%20Features/PlanComparisonChart.pdf, [accessed March 29, 2015].

Also see the following for a discussion of the new NC403(b) plan employees are considered state workers and are thus able to contribute to any available plans offered by their school district or the state government.[48] All of these plans allow employees to make pre-tax contributions; however, government employers can also offer Roth options in the various plans.

Two important distinctions exist between 401(k)/403(b) and 457 plans. The annual dollar limit on employee contributions is the same in all of the plans, $18,000 in 2015, and this maximum is typically increased annually. Importantly, contributions to 401(k) and 403(b) plans count toward the same maximum contribution limit; however, contributions to 457 plans are viewed independently from the other two plans. Second, distributions without tax penalties are allowed at retirement after age 55 in both the 401(k) and 403(b) plans while the 457 plans allow such distributions at termination of employment at any age. In service distributions are allowed prior to age 59 and a half in both the 401(k) and 403(b) plans with a 10 percent tax penalty. In service distributions are not allowed in 457 plans.

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https://www.nctreasurer.com/Retirement-and-Savings/Managing-My-Retirement/Pages/NC-403b-Program.aspx, [accessed March 29, 2015].

[48] IRS discussion of 403(b) plans can be found at: http://www.irs.gov/publications/p571/index.html, [accessed March 29, 2015] and at:

http://www.irs.gov/Retirement-Plans/Retirement-Plans-FAQs-regarding-403(b)-Tax-Sheltered-Annuity-Plans, , [accessed March 29, 2015].

Readers may also find the Department of Labor’s discussion of 403(b) interesting: http://www.dol.gov/ebsa/regs/fab2010-1.html, [accessed March 29, 2015].

The California Teachers association provides a useful comparison of all three types of plans, http://ctainvest.org/home/403b-457-Plans/403b-457-overview/comparing-401k-403b-457-plans.aspx, [accessed March 29, 2015].

All of the plans have age 50 and over catch-up provisions, but the policies are slightly different. All of the plans have a required minimum distribution at age 70 and a half. All distributions in each of the non-Roth plans are treated as ordinary income for federal income tax purposes. All of the plans allow rollovers to other retirement saving plans or IRAs.

Prior to the passage of the Economic Growth and Tax Relief Reconciliation Act in 2001, 401(k), 403(b) and 457 plans were subject to difference regulations related to elective deferrals, employer contributions and other areas. After the passage of new legislation, 403(b) plans were subject to greater oversight. Now, despite similar treatment by the IRS, certain characteristics of each of the plans may appeal to public employers and employees. Historically, it seems that 403(b) plans were the primary option selected by school districts. This could be because they were not subject to ERISA regulations and thus involved less administrative work on local personnel.

Appendix B: Payroll Data

The research team developed a detailed administrative records request in collaboration with North Carolina State Treasurer's Office, Retirement Systems Division staff and legal counsel to ask for and securely obtain the payroll data needed for the analysis presented in this paper. Two companies provide the payroll software database and programs to virtually all public school districts in North Carolina. Developers of K12 Enterprise's "SunPac" program and Education Management System's "ISIS" program each constructed a query that would extract the information needed. Both created a software update patch so that all school districts would have this query pre-loaded in their software when we requested their data file. This allowed districts to easily pull a consistent set of records corresponding with all salary and other forms of compensation paid in March 2013, along with various demographic variables and employees' contributions to all supplemental retirement plans. Complete payroll data was received from 53 districts (43 used SunPac software and 10 used ISIS software).[49]

Appendix Table B2 illustrates the data cleaning process. The sample was restricted to full-time employees with a single job classification who were age 17 or older in March 2013. While data from Sunpac included a field for employment type, full time employees in the ISIS database were identified using job and payment descriptions and contract period. Data from ISIS included detailed job and payment descriptions which helped identify payments for supplements, irregular payment types (e.g., overtime or annual leave), and part-time positions. Individuals with contract period less than 10 months, as well as, those with negative salary and deduction amounts were removed from the sample. We removed entries corresponding to

[49] Out of the 115 school districts in North Carolina, we received data from a total of 68 districts. We excluded 10 that did not respond to our survey and 5 that provided incorrect or incomplete data. We further excluded 10 districts that did not provide a response to our survey, yielding 53 districts.

retroactive payments for pay periods in 2012 and earlier. We then converted job classifications from ISIS data to match these categories. For individuals with multiple payment records for the same job classification, the most recent record was included in the sample. We further restrict the sample to individuals with imputed annual salary more than $14,240 (i.e., annual salary based on 30 hour workweek for the lowest salary grade for public school employees in North Carolina). Payroll data were merged with survey data and dropped individuals from 10 districts that provided payroll records but did not respond to the survey.

Appendix Table B1: Data Construction

	SUNPAC		ISIS	
	Number of records	Unique Individuals	Number of records	Unique Individuals
Removal Criteria	120,759	113,803	30,352	17,714
Age <=16	32	32	0	0
Contract	N/A	N/A	32	18
Job classifications indicate part-time, payment for supplements or temporary positions	N/A	N/A	1878	400
Employment type: Part-time or Unknown	25107	24671	N/A	N/A
Multiple positions	326	87	3450	1389
Retroactive payments	430	428	16	0
Negative deduction amounts			4	0
Unknown pay-frequency			3	0
Irregular pay type	118	29		
Negative salary/ deduction amounts	11	4		
Contract period < 10 months	373	369	2	2
Annual salary < 14240 [a]	14329	14067	2529	1234
Duplicate entries	2	0	123	0
Hire date after March 2013	127	127	83	83
Obs from districts with incomplete/ incorrect data	1142	1142	2232	2232
Sample	77843	72847	16595	12346
Total		85,193		
Survey Responses Not Available		14,719		
FINAL ANALYSIS SAMPLE		**70,474**		
Final Number of Districts	43		10	

Notes: Cells count the number removed due to the criterion per row.

Appendix Table B2: Payroll Data Means and Comparison to NC and US Data

Characteristics	Payroll Data	NCDPI	ACS
School Districts	53	53	53
Number of Individuals	70,474		3,289
Age below 35	20.73%		22.41%
Age 35-49.99	39.52%		35.88%
Age 50-54.99	14.58%		15.54%
Age 55+	25.17%		26.18%
Annual Salary (1K)	$38,473		$42,818
Education	77.51%		
Administrative	7.52%		
Support	9.20%		
Management	5.61%		
Executive	0.16%		
White	72.85%	74.53%	79.54%
Black	20.63%	21.75%	16.90%
Hispanic	1.41%		1.40%
Other	5.11%		2.16%
Tenure [b]			Imputed Experience
Less than 1	7.74%		9.39%
1 – 2.99	10.06%		3.62%
3 – 4.99	8.75%		3.50%
5 - 10 .99	29.13%		12.86%
11 – 20.99	29.61%		23.87%
21 or more	14.71%		46.76%
Vested	73.45%		83.49%

Notes: Data are from the merged payroll and survey data, reported at the individual-level. Column (2) reports data on all full-time public school employees provided by the NC Department of Public Instruction. (http://www.ncpublicschools.org/fbs/resources/data/). Column (3), data were extracted from the American Community Survey 5 year estimates (2008-2012) for full-time public school employees.

Appendix C: Definition of Key District-Level Variables from Survey

Number of Plans and 457 plan offerings:
Survey question: "Which of the other supplemental retirement savings plans, if any, does your school district offer?"
Response Options:

- North Carolina 401(k) Plan from Prudential
- 401(k) plan from other vendor(s)
- North Carolina 457 Plan from Prudential**
- 457 plan from other vendor(s)**
- None
- Other

All 90 districts offered the NC 401(k) and a 403(b) plan. Survey questions about 403(b) plans and Prudential participation information for NC 401(k) were used to verify the accuracy of these responses. It was necessary to determine the number of plans offered by the district as of March 2013 (i.e. when the payroll records were obtained).

NC 457 participation information provided by Prudential did not match survey responses as several school districts adopted NC 457 during school year 2013-14. In order to accurately determine plan offerings as of March 2013, the research team used survey responses in conjunction with NC 457 adoption dates for school districts provided by the RSD team. Also, to ensure accuracy of information on 457 plan offerings, payroll deduction codes and descriptions in the payroll data were used when available.

Adopted NC 457 within last 5 years:
The variable determines if the district adopted the NC 457 plan between 2009 and March 2013 using NC 457 adoption year information provided by the RSD team. All but 4 districts adopted after 2008. Those districts were all small in size and had less than 750 full-time employees.

Number of vendors
Number of vendors is defined as the number of vendors approved to enroll new participants in your district's 403(b) plan at the end of the most recent plan year.

Survey Question: "Which of the following vendors were approved to enroll new participants in your district's 403(b) plan at the end of the most recent plan year?"

Selective
This is a binary variables indicating if the district is selective in approving vendors to offer 403(b) plans. The survey asked
Survey Question: "Which of the following criteria, if any, does your school district consider in selecting 403(b) vendors?"

Response Options:

- Minimum number of employees enrolled with vendor,
- No load fees
- Cap on administration fees
- No surrender charges
- No 12B-1 fees
- Array of investment options
- Access to on-site advising provided by vendor
- Online access to accounts and financial literacy programs
- Access to individualized investment advising, either in person, via phone, or via email
- Other

Districts are classified as *selective* if they adopt any vendor selection criteria apart from minimum enrollment.

Reviewed Criteria
This is a dichotomous variable indicating if the district reviewed their vendor selection criteria in the past 5 years.

Survey Question: "How long has it been since these criteria were reviewed and/or updated?"

Evaluate plans
This is a dichotomous variable indicating if the district evaluates any aspect of their plan offerings. The district is classified as evaluating plans if they use any evaluation techniques among the survey response options.

Survey Question: "Does your school district use any of the following tools to evaluate its 403(b) plans?"
Response options:

- We do not review or evaluate any aspects of our 403(b) plans.
- Periodic review of net and gross investment returns compared to benchmarked funds
  Periodic review or evaluation of investment lineup

- Periodic review of fee reasonableness
- Conducting periodic participant surveys
- Periodic review or evaluation of enrollment, participation, or deferral rates
- Other

Attempted to obtain fee information

A binary variable to indicate if the district has attempted to obtain information on fees charged by 403(b) vendors.

Survey Question: "Has your school district attempted to collect data on fees being charged by vendors in its 403(b) plan?"

Website Quality

Based on the quality of information provided regarding supplemental plans, we classified districts into three categories:

Ranking	Description	Number of Districts
High	Vendor list, contact information, and, if TPA, TPA information, retirement planning information	18
Moderate	List of vendors and links to websites, no local representative information	26
Poor	No mention of a supplemental plans or information is not easily accessible (i.e., board minutes)	69
N/A	Requires employee log-in and password	2

District Size

District size calculated as number of individuals in payroll records in each district.