

TEACHER RETIREMENT PREFERENCES AND BEHAVIOR

By

Elizabeth Ettema

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Approved:

William Doyle

James W. Guthrie

Michael Podgursky

Mimi Engel

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For My Dad

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CHAPTER I

INTRODUCTION TO TEACHER RETIREMENT PLANS

Teacher pensions are fast becoming a key issue in education policy. Unfunded pension liability, large numbers of retiring teachers, and increasing mobility among existing teachers all contribute to putting pensions in the spotlight (Hansen, 2008). Despite the importance of this issue, little empirical research has been conducted about teacher retirement systems or the retirement preferences of teachers specifically. The purpose of this dissertation is to present an examination of teacher pension preferences and behavior which will provide preliminary insight into this topic, inform policy around teacher pensions, and help frame questions for future research.

Problems with Teacher Retirement Plans

In very broad terms, there seem to be three major problems with the current system of defined benefit teacher pensions. First, teacher pensions may not serve the important dual purposes of increasing employee productivity and reducing turnover costs to firms (in this case school districts) that pensions were created to serve according to economic theory (outlined in Chapter II). Second, the current system may not be financially sustainable as large numbers of teachers retire in the coming years. Finally, the current pension structure may not be providing the necessary incentives to recruit and maintain a high-quality teaching force in the twenty-first century.

One of the primary reasons employers offer pensions to their employees is to increase productivity (Ippolito, 1997). The logic here is that if an employee does not perform her job well and is fired, she will be entitled to little or no retirement benefit (Ippolito, 1997). However, teacher tenure policies in many districts and states make it extremely difficult to dismiss tenured teachers for all but the most serious infractions, such as “incompetence, immorality, insubordination, and neglect of duty” (Cambron-McCabe et al., 2004, p. 412). Indeed, according to Coleman et al. (2005), “the interests of teachers have been expanded regarding the rights of permanent or tenured teachers to due process thus making it often a frustrating and time consuming process to dismiss a teacher (p. 227).” If teachers’ jobs, and therefore retirement benefits, are protected by tenure, the incentive offered by a pension to work hard so as not to be fired is eliminated.

The second important function of pensions is to reduce costs to the firm generated by employee turnover. In the case of most public school teachers, “the firm” would be the district that hires them. It is at the district level that costs for recruiting, interviewing, and providing in-service training for teachers are generally incurred (Milanowski & Odden, 2007). However, most teacher pension plans operate at the state level (Hansen, 2008). There is little reason to believe that a teacher switching districts within a state is more cost-effective (and therefore more desirable) than a teacher switching states, but the current pension system punishes the latter and not the former. It could be argued that states have an interest in retaining high-quality teachers, especially in this era of accountability at the state level spurred by initiatives such as No Child Left Behind and Race to the Top. However, under the current system, pensions are awarded to high- and low- quality teachers equally so there is no way for states to differentiate when it comes to retention.

In addition to not necessarily accomplishing the theoretical goals behind offering employee pensions, the current system of teacher pensions raises serious financial concerns. On a basic level, the funding problems with defined benefit pensions are quite easy to understand. Defined benefit plans pay a predetermined amount each year from retirement until death. The current benefit structure in many states encourages teachers to retire much earlier than people in other professions; often in their early fifties. Add to this the fact that people are living longer than ever and it is easy to understand how such plans could be in financial trouble. A traditional guideline for teacher retirement has been “the rule of eighty,” making a teacher eligible for retirement benefits when her age plus years of teaching add up to eighty (Hansen, 2008). This means that a teacher who entered the profession at twenty-two and teaches for twenty-nine years is eligible for retirement at age 51. If she lives to be eighty, she will collect her pension for as long as she taught. While some states have replaced the rule of eighty with the rule of eighty-five or the rule of ninety, many others offer full retirement benefits after 30 years of service at any age (see Appendix A), again allowing a teacher who started working right out of college to retire in her early fifties and possibly collect a pension for thirty years or more.

While many teachers may be willing and able to stay in the classroom past the point of retirement eligibility, they have a financial disincentive in many systems to do so. As long as a teacher continues to teach, she does not receive any pension. At some point, this will actually cause her to lose pension wealth. Costrell and Podgursky explain in detail how this works in Ohio (2007b) and in four other states (2007a), and it is likely that many other states follow patterns similar to these. With these systems in place, teachers have strong incentives to leave the profession early, resulting in many additional years of pensions to be funded.

In answer to those who wonder why teachers should not be able to retire early with generous pensions, Barro and Buck (2010) point out that “education finance is a zero-sum game (pg. 3).” Each dollar spent funding teacher pensions is a dollar that cannot be spent on reducing class size, improving school facilities, or other important programs that benefit students directly. In Chicago, pension contributions will make up more than 10 percent of the district budget in 2011 (Barro & Buck, pg. 3). Other systems face similar (or even worse) situations (Barro & Buck, 2010).

Given these issues, it makes sense to ask where the funding of teacher pension plans currently stands. As one might expect, the answer again varies by state. Hansen (2008) found that only 8 of 58 state and district had plans funded at 100 percent or more, with an additional nine plans funded at 90-99 percent and 26 plans below 80 percent. Given that a pension system funded at 80 percent or higher is considered “healthy” by the GAO (Hansen, 2008), this means that more than half of the teacher retirement plans in the United States are in financial trouble. Barro and Buck (2010) claim that the funding picture is even bleaker. They argue that the real unfunded state liabilities are much higher than the numbers states report because they do not adjust for discount rate or market value when making their calculations. When they make these adjustments, no state’s plan is fully funded and many states are funded well below 50 percent. The situation becomes even more problematic when the costs of health care are considered, as many teachers retire before they are eligible for MediCare (Costrell and Podgursky, 2007a).

Finally, in addition to not serving their theoretical purpose and suffering from serious funding issues, teacher pension plans as they currently exist simply may not produce the correct incentives that attract and maintain a quality teaching force. We have already seen one example of this- teachers have a financial incentive to retire when they may have many good years left in

the classroom. There is no reason for a dedicated and enthusiastic teacher to be pushed out of the profession in her fifties, when she may have a great deal of wisdom and experience to share with her colleagues. In fact, this practice may contribute to teacher shortages (Hansen, 2008). On the flip side, because defined benefit plans are heavily back-loaded, they may encourage teachers who no longer truly want to teach to remain in the classroom for a few more years in order to receive greater retirement benefits. Since research has shown no impact of teacher experience on student achievement after the first 5 years- with some studies claiming as little as one year (Clotfelter, Ladd, & Vigdor, 2007; Goldhaber & Brewer, 1997; Goldhaber & Brewer, 2000; Hanushek, 1986; Rockoff, 2004)- it may not make sense to offer such a strong financial incentive for senior teachers to stay in the profession.

Another problem is the issue of mobility. According to the Bureau of Labor Statistics, the average person changes jobs 11 times during his or her working life. While the current defined benefit system may be advantageous for teachers who work in one school district or state for their entire career, it penalizes those that do not. If a teacher does not stay in a system for long enough to become vested in the retirement plan (sometimes as long as ten years), she will receive no retirement benefits at all. Even if she is vested, her benefits if she leaves will be much lower than if she stays. Using data from the Schools and Staffing Survey and the U.S. Census, Costrell & Podgursky (2010) estimate that around one-sixth of all public school teachers move states over the course of a 30-year career. They also show that the cost of such mobility can be quite high- up to 74 percent of pension wealth as compared to teachers in similar jobs who do not move states, depending on the timing of the move and the parameters of the state pension plans in question (Costrell & Podgursky, 2010).

While encouraging employee retention is one of the purposes of pensions according to economic theory, it is not always a positive in the teaching profession. Many programs, such as Teach for America, encourage talented and motivated people who might not otherwise consider teaching to do so for a few years. These programs have shown positive results (Glazerman et al. 2006, Miller et al. 1998) and help provide quality teachers for hard-to-staff urban and rural areas. In Washington D.C., for example, more than 25 percent of newly hired teachers in 2004 and 2005 came from Teach for America and the D.C. Teaching Fellows (Rotherham & Sullivan, 2006). The current pension system punishes these teachers by not offering them retirement benefits if they do not remain in teaching long enough to become vested.

The current pension system may also contribute to teacher shortages, as those who do not plan to spend thirty years in the teaching profession may be discouraged from teaching at all (Gustman et al., 1994). Even if a teacher enters the profession intending to teach long term, many career teachers may need to move for personal or family reasons and lose out on their pensions. Finally, defined benefit plans may discourage people from becoming teachers later in life, as they would have to teach for a long time in order to qualify for retirement. In short, today's teaching force is not homogenous, and many teachers lose out under a defined benefit plan. Therefore, according to Gustman et.al., "it has been argued that the increasingly popular 401(k) plan, a type of defined contribution plan that, within limits, allows the benefit to vary among covered workers as the firm matches some portion of the worker's chosen contribution, may better meet the needs of today's heterogeneous work force than do more traditional defined benefit pension plans, in which benefits are more similar across all workers (423)."

Theoretical Framework

I propose that in order for pensions to function effectively as policy levers to recruit and retain high-quality teachers, three conditions must be met. First, the incentives imbedded in the pension structure must be aligned with the desired retirement behavior. Second, teachers must understand the incentives. Finally, teachers must value the incentives provided by the pension. If any of these conditions is not met, pensions cannot serve as an effective policy lever. It is unclear whether *any*, let alone all, of them are met by the teacher retirement system as it currently stands. This dissertation examines these issues.

The first piece that must be in place is the alignment of pension incentives with desired retirement behavior. Currently, defined benefit retirement plans are structured to encourage teachers to remain in one system for around thirty years, then leave. Research (reviewed in Chapter II) provides evidence that teachers do respond to these incentives. Therefore, it is important to consider the employment and retirement patterns we would optimally like teachers to follow, and the extent to which we want to penalize teachers who deviate from these patterns. If different retirement behavior were the desired outcome, pension incentives could theoretically be restructured to reflect this. Real-world legal challenges notwithstanding, the target age or years of service for retirement could be raised or lowered, and additional factors (such as performance measures) could be added to the equation determining final pension value. Alternatively, defined contribution plans, which contain no incentives to remain in the classroom until or retire after a certain point, could be substituted, leaving the separation date up to the preference of the individual teacher. The following literature review discusses in detail the incentives imbedded in most current teacher retirement systems, and concludes that they seem misaligned with the goal of attracting and retaining high-quality teachers. The analysis of

existing and original data in this dissertation provides insight into how pension incentives could be realigned to attract and retain teachers in the areas and subjects in which they are most needed.

Second, in order to act on the incentives provided by their retirement plan, teachers must understand them. This seems obvious enough, but it is not clear that they do. DeArmond & Goldhaber (2009) found that the majority (57%) of teachers in Washington state could correctly identify their retirement plan from three choices, but Gustman & Steinmeier (2002) found that only half of the respondents in the Health and Retirement Study (a nationally representative study of all professions, not just teachers) knew whether they were in a DB or a DC plan. Even if teachers are more knowledgeable about their retirement than the public as a whole, just knowing the plan name or type may be of little value. Rather, teachers need to know when the incentives in their retirement plan encourage them to retire. Chapters III and IV of this dissertation examine the extent to which this is the case and contribute to knowledge in this area.

Finally, teachers need to value the incentives provided by their retirement plan. In order to prefer deferred compensation, workers must value the insurance it provides against future risk (Gustman et al, 1994). This may offer an opportunity to differentiate low-quality teachers from high-quality ones, as low-quality teachers may place more value on this insurance due to lack of opportunity elsewhere. Higher-quality teachers may be more confident in their own abilities to retain their jobs or to obtain better jobs as they desire, and may value flexibility over insurance. This dissertation research does not include any measure of teacher quality, though this is a line of inquiry that should certainly be pursued when possible. Instead, I examine teacher retirement preferences and teacher response to incentives with respect to other variables, including subject

area, grade level, and key demographic variables, in an attempt to help us understand any patterns that exist in the way groups of teachers value their pension incentives.

Overview of the Dissertation

This chapter introduced the three main problems with existing teacher retirement plans: they do not serve the purposes of pensions as outlined by economic theory, they may not be financially sustainable, and they may not provide the proper incentives to attract and retain high quality teachers in the profession. It also proposed a theory of how teacher pensions *could* serve as a policy lever to this end. The next three chapters of this dissertation provide evidence about teacher retirement knowledge, behavior, preferences, and response to incentives in the form of a review of the literature and original research. The final chapter ties this knowledge together and proposes teacher retirement incentive structures to target specific policy objectives.

Chapter II of this dissertation first reviews the existing literature on pensions, including the function of pensions in the labor market, empirical studies of retirement behavior and trends in retirement behavior in general. It then moves on to a discussion of teacher pension plans specifically: their history, the status of teacher pension plans today, and problems with these plans, in addition to a summary of previous research on teacher retirement.

Chapter III draws upon data from the Schools and Staffing Survey and the Teacher Follow-Up Survey to examine the choices teachers are actually making when it comes to retirement. Data on each state's pension system is linked with SASS and TFS data on when teachers retire to determine if teachers are responding to the incentives embedded in their retirement plan to retire at certain ages and levels of experience. This data will then be broken out according to subject area, school type, and other key variables to investigate which types of

teachers are most responsive to these retirement incentives. This provides valuable information on what teachers are actually doing (rather than their plans or preferences), and adds to a small but growing body of knowledge about real-world teacher retirement behavior.

Chapter IV analyzes original data on teacher retirement preferences collected using a survey and embedded focus groups. The survey documents the retirement preferences of teachers and future teachers when presented with a set of options. Three main groups of interest are studied: future teachers (students in teacher preparation programs), alternatively certified teachers, and traditional public school teachers. Their retirement preferences are analyzed according to group as well as across groups by subject area, grade level, and other demographic characteristics. Learning which teachers prefer which type of pension (and why) can provide valuable guidance to policymakers considering retirement reform, especially if preferences of teachers in shortage areas such as math, science, and special education differ from those in other areas. If this is the case, pensions may be able to be used as a policy lever to recruit teachers to these areas.

The qualitative portion of this chapter uses focus groups to probe the extent of teacher and future teacher knowledge about retirement, and to delve deeper into the reasoning behind their retirement preferences. The same three groups are targeted, with participants in the focus groups drawn from the survey sample. Some research (DeArmond & Goldhaber, 2010) has been conducted into whether teachers understand their retirement plans, but more is certainly needed. Whether teachers understand their retirement plan's incentives, and at what point they gain this knowledge, is key information for policymakers who would like to use pensions as a recruitment or retention tool. Additionally, these focus groups provide an opportunity to probe in more detail

what teachers specifically like and dislike about each type of plan, which will provide further information to those considering making changes to teacher pensions.

Chapter V is a concluding essay, which ties together prior research with the original research conducted for this dissertation and discusses how teacher retirement plans could serve as a policy lever to attract and retain high-quality teachers. This is a timely question, as defined benefit pension obligations represent a major education expense for states, many of which are already struggling economically (Barro & Buck, 2010). Implementing changes in teacher retirement plans could save money or free money to be spent more directly on students (Barro & Buck 2010). However, in addition to simply cutting costs, states that are restructuring their retirement system have an opportunity to align teacher retirement incentives with desired behavior. This chapter addresses specific policy objectives and discusses how retirement incentives could be structured to help reach them.

Summary of Findings

I propose that in order for teacher pensions to be used as policy levers to attract and retain high-quality teachers, teachers must understand and value their pension incentives. These two conditions are often difficult to disentangle, because, absent additional information, if we observe a teacher choosing not to retire when she is eligible we cannot be sure whether this is because she did not understand her retirement incentives or because she did not value them highly enough to act upon them. However, if teachers are retiring as soon as they are eligible, this is evidence that they know about their retirement incentives and that they value them highly enough to act. This dissertation uses original survey and focus group data to probe whether and when teachers know about the incentives embedded in their retirement plans and how highly

they value them, as well as nationally representative data from the Schools and Staffing Survey (SASS) and Teacher Follow-Up Survey (TFS) to examine real-world teacher retirement behavior on a larger scale.

Findings from SASS and TFS indicate that teachers are highly responsive to existing retirement incentives, with 76 percent of teachers who are newly eligible for regular retirement choosing to retire. 54 percent of teachers in their first year of eligibility for early retirement took that option. Chi-square tests are used to investigate whether some groups of teachers are more responsive to retirement incentives than others, and several statistically significant relationships are found. High school teachers overall, as well as secondary science, foreign language, and vocational/technical teachers specifically, were more likely to take regular retirement than we would expect, as were teachers that reported using student data regularly and those that had leadership roles in their school or district. Elementary teachers, secondary history teachers, and minority teachers were less likely to retire than expected. In the early retirement sample, high school teachers overall, as well as secondary math, foreign language, physical education, and vocational/technical teachers were more likely than expected to take early retirement, as were teachers who indicated they would leave teaching if they could find a higher-paying job elsewhere. Elementary teachers, secondary arts teachers, and teachers that reported being “very satisfied” with their jobs were less likely to take early retirement.

This paints a mixed picture of the effect of current retirement incentives on attracting and retaining high-quality teachers where they are most needed. Overall, teachers are responsive to these incentives, especially those provided by regular retirement. However, with a few exceptions, we do not find that these incentives are retaining the best teachers or those in areas with the highest demand. In fact, where differences in retirement behavior exist there is

evidence that these teachers may be more responsive to retirement incentives, and therefore choosing to retire earlier, than the overall teaching pool.

Additional evidence from SASS and TFS is examined to learn about reasons teachers give for retirement, and post-retirement reemployment behavior. Out of those teachers who left the profession between SASS and TFS, 54 percent said they did so “to retire,” as opposed to health or family concerns, school staffing action, or other reasons, indicating that retirement incentives play a major role in the timing of teacher retirement. Additionally, 39 percent of retired teachers report being reemployed immediately after retiring from teaching, evidence that they still want (or need) to work and may have remained in teaching if not for the incentive to retire.

The original data collected through a survey with embedded focus groups addressed teacher pension preferences and knowledge. Three groups of interest were studied: future teachers, alternatively certified teachers, and traditionally certified urban public school teachers. In the survey, these teachers were asked what type of pension plan they would prefer when given a choice between defined benefit, defined contribution, cash balance, or a mix of plans. Overall defined benefit (the current plan in the state in which these teachers were surveyed) was the most popular choice, but 71% of teachers surveyed preferred one of the alternatives. The survey also revealed different preferences among the three groups of teachers, with future teachers preferring cash balance plans and alternatively certified teachers preferring defined contribution plans. Further analysis showed that the math teachers surveyed also prefer defined contribution plans.

Focus groups allowed further exploration for the reasons behind these preferences, as well as uncovering what the various groups of teachers know about retirement and when they

know it. Not surprisingly, future teachers knew little about teacher retirement plans, and most often associated retirement with a defined contribution plan. Alternatively certified teachers and regular public school teachers had more knowledge of the plans they participated in, especially those with more teaching experience. Interestingly, pre-service expressed interest in learning more about teacher retirement plans, while new teachers in the classroom said they were too busy to give retirement much thought. This indicates that pre-service may be an ideal time to educate teachers on their retirement plans and incentives (provided these plans are in fact aligned with desired teacher retirement behavior).

In terms of what teachers valued in a retirement plan, three major themes emerged. First, geographical mobility was important, with teachers who planned to move states at some point in their career (or those who already had) preferring a portable pension plan. Career plans were also an important factor, with teachers who did not plan to spend a whole career in teaching again preferring portable plans. Finally, issues of risk, control, and trust emerged. This was perhaps the most interesting factor, because not all teachers viewed pension risk in the same way. Some did not feel comfortable making their own retirement decisions and preferred to trust the state system to act on their behalf, while others expressed a desire to control their own money. Younger teachers, including future teachers, also expressed doubt that state pension systems would actually be able to provide the benefits they were promised by the time they reach retirement age.

The findings presented here suggest interesting directions for further research in the emerging field of teacher retirement. However, due to limitations of the data (missing information on how long a teacher has taught in one state in SASS and small sample size of survey and focus groups), these findings should be viewed as preliminary. Further research

could explore longitudinal data on teacher retirement as well as more detailed state records. Additionally, the survey and embedded focus groups could be administered to a larger sample, possibly including other teacher groups of interest such as charter school teachers as well as teachers in other states. Though much work remains to be done in this field, this dissertation represents an important step in exploring how teacher retirement systems can serve as policy levers to attract and retain high-quality teachers.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter reviews the literature relevant to the issue of teacher retirement. As not much work exists on teacher retirement specifically, I begin with an overview of pension economics, which applies to teachers as well as other professions. Included in this section is a discussion of the key features of various retirement plans, theory about why employers offer pensions and why employees want them, and prior research on worker response to pension incentives. I next move on to research on teacher retirement specifically, including a brief history of teacher pensions in the United States, a discussion of the features of these plans today, and an overview of the small but growing body of research that is specifically focused on teacher retirement.

Pension Economics

Academic interest in teacher pensions specifically is a relatively new phenomenon, so the literature on teacher retirement is limited. However, a body of theoretical and empirical work exists documenting the function of pensions for both employers and employees, and employee response to retirement incentives in public and private pension plans as well as in the Social Security System. I begin with an overview of pension theory, including outlining the key features of the main types of retirement plans. I then summarize key findings from studies in the

general pension literature, before moving on to consider teachers specifically.

Types of Pensions

There are three main types of retirement plans currently in existence. Until recently, the majority of workers were covered by defined benefit plans, and the majority of public school teachers still are (Hansen, 2008). However, most private sector retirement plans have shifted to defined contribution plans, most commonly the 401(k) (Friedberg & Owyang, 2002). There are also hybrid plans, which combine features of both DB and DC plans. A discussion of the features of each type of plan, including vesting, portability, risk, benefit accrual, and payment structure is useful in understanding the strengths and weaknesses of each plan for employees and for firms.

Defined Benefit (DB) Plans

Defined benefit plans are what we typically think of when we refer to a “pension.” In these plans, the worker receives a set amount of money (the “defined” benefit) every year from retirement until death, according to a formula that is based on age, years of experience, and final (or average final) salary (Hansen, 2008). This formula is sometimes, though not always, subject to Cost of Living Adjustments (COLAs). Generally both employers and employees contribute to the retirement plan at a set rate, though these contributions do not determine the final benefit the employee is entitled to receive. Employees usually do not get to choose how much of their salary they contribute to a defined benefit retirement plan (Turner, 2010).

It may take several (often up to ten) years to become vested in a defined benefit plan, meaning that up until vesting, the employee is entitled to no pension. Defined benefit plans are

usually not portable from one employer to another, though some workers (particularly in the skilled trades) belong to multi-employer plans that allow pension portability within a set network of employers (Turner, 2010). Teacher defined benefit plans are generally portable within a state, but not across state lines (Costrell & Podgursky, 2010). Exceptions include large cities that have their own retirement systems.

Most of the risk in a defined benefit pension system is borne by the employer (Friedberg & Turner, 2010; Turner, 2010). Firms bear the risk of increasing life expectancy - the retiree receives an annuity every year from retirement until death, so he cannot outlive his savings. Firms also bear the investment risk in defined benefit plans. If the market performs poorly, they are still expected to pay retirees the same benefit. The main risk borne by the worker in a defined benefit plan is that of early termination. If he is laid off, the worker may not be eligible for a pension or will receive reduced benefits. Additionally, the employee still bears the risk that the pension system will become insolvent and be unable to make the payments promised.

Benefits in a defined benefit pension plan do not accrue smoothly (Costrell & Podgursky, 2008, 2009, 2010). They are heavily backloaded, redistributing pension wealth from workers at the beginning of their careers to those at the end of their careers. The figure below, from Costrell & Podgursky (2010) shows an example of this using data from the teacher retirement system in Missouri:

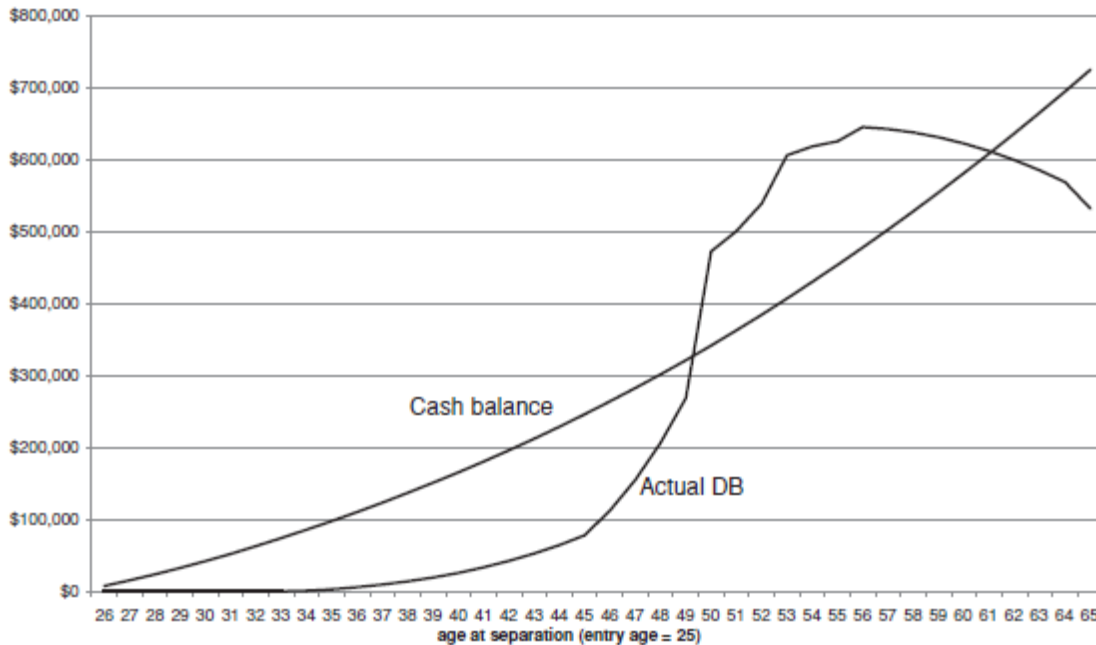


Figure 1: Net Pension Wealth, MO. Actual DB and Hypothetical Cash Balance (Adjusted for Inflation)

Source: Costrell, R. & Podgursky, M. (2010). Distribution of benefits In teacher retirement systems and their implications for mobility. *Education Finance and Policy*, 5(4), pg. 532.

As a result, defined benefit pensions incentivize workers to stay with their employer long enough to receive these redistributed benefits. They also contain incentives for workers to leave the firm at a certain age, as the accrual pattern eventually turns negative (as it does in the above figure at age 55).

Defined Contribution (DC) Plans

Defined contribution plans are retirement savings plans where the employer and employee both contribute to an employee’s individual account, which is invested, often according to the preferences of the employee. The employee receives the money from this account in a lump sum upon retirement, and may choose to convert it into an annuity. The most

common type of defined contribution in the United States is the 401(k), named after the Internal Revenue Code which enabled it (Turner, 2010). Employees often get to choose how much they will contribute to their defined benefit retirement plan within a minimum and maximum range (the minimum may be zero).

Vesting in defined contribution plans is usually quicker than in defined benefit plans, and sometimes immediate. The median vesting period in a defined contribution plan is zero to two years, as compared to five years in a defined benefit plan (Friedberg & Turner, 2010). Because defined contribution plans are individual savings accounts, they are portable, traveling with the worker from one employer to another.

In contrast to defined benefit plans, most of the risk in defined contribution plans is borne by the worker (Friedberg & Turner, 2010, Turner, 2010). If he does not save enough or retires too early, he could outlive his savings. Investment risk is borne by the worker as well. If the market performs poorly, he will have less money in his account and receive less upon retirement and/or have to work longer. Early termination is not a particular risk in defined contributions plans, however, because the worker retains his individual account and can continue contributing to it when he finds work with a new employer, suffering little to no loss in pension benefits.

Benefits accrue smoothly in a defined contribution plan. The figure above from Costrell and Podgursky shows a cash balance plan (a type of hybrid described below), but pension wealth accrual in a defined contribution plan would take a similar shape. As long as contributions to the plan continue, accrual is positive and steady. This means that there are no incentives in a defined contribution plan for a worker to retire at a particular time. Instead, a worker must decide when he has saved enough to stop working.

Hybrid Plans

It is clear that there are positive and negative aspects to both defined benefit and defined contribution plans for workers and for firms. This has led to the development of hybrid plans that try to capture “the best of both worlds.” Turner (2010) defines four main types of hybrid plans in the United States: cash balance plans, pension equity plans, floor offset plans, and multiemployer plans.

Cash balance plans are quite similar to defined contribution plans in many ways. Each worker has an individual account to which the worker and employer contribute, and the worker can see the balance of this account. However, these are actually “hypothetical” or “notional” accounts, because contributions and investment earnings are not actually allocated to individual accounts, but are kept in a common trust fund from which retiree benefits are paid. These plans are regulated by the government as defined benefit plans and insured as defined benefit plans (Turner, 2010).

Pension Equity Plans (PEPs) are plans under which an employee accrues a percentage of his final average salary for each year employed. That percentage can remain stable, or it can increase over time to introduce an incentive for longer worker tenure (Turner, 2010). Upon retirement, the total percentage accrued is multiplied by the final average salary to determine the benefit. The benefit accrual patterns of PEPs are similar to defined benefit plans. They are also regulated and insured as defined benefit plans (Turner, 2010). However, they resemble defined contribution plans in that each employee has an individual retirement account.

Floor offset plans combine defined benefit and defined contribution plans in order to minimize risk and maximize benefits for employees (Turner, 2010). The defined benefit plan

provides a guaranteed minimum benefit, shielding employees from some of the investment risk. The defined contribution plan provides employees the opportunity to gain additional retirement income that is subject to risk. Upon retirement, the defined contribution portion of a floor offset plan is also converted into an annuity.

Multiemployer plans are defined benefit plans, but have some features typically associated with defined contribution plans, most notably portability within a network of employers. These plans are found mainly in skilled labor fields, where workers may work for one employer for a very short time, perhaps only days or weeks (Turner, 2010). Employers in a given field or geographic area agree to administer their retirement plan together, allowing employees to accrue benefits as long as they remain within the network. Turner (2010) points out that advances in technology make these plans increasingly easier to operate for larger and larger groups of employers.

The function of pensions in the labor market

The study of pensions and the incentives they provide is a relatively new one in the field of economics, emerging in the 1970s (Clark et al., 2003). Despite a lack of formal economic research, however, it is clear that employers have long understood the incentives pensions could provide to influence employee behavior (Clark et al., 2003). Companies have offered pensions to their workers for different reasons at different points in history (Logue, 1979). Pensions began as altruism, a reward for long service on the part of the employee and a sense of responsibility for the welfare of employees in old age on the part of the company. This was the rationale behind many of the early civil service pensions, and these pensions were seen as voluntary acts by employers, not rights of employees (Logue, 1979).

However, in the second half of the twentieth century, thinking about pensions shifted. Instead of gifts from the employer for years of faithful service, pensions became deferred pay—“an entitlement rather than a gratuity (Blake, 2006 p. 49).” Employers began using a pension plan as a substitute for a portion of wages, returning the full amount only when the employee reached the desired retirement age (Ippolito, 1991). This deferred pay model of pensions allowed employers to adjust their pension plans to influence employee behavior, particularly in two key areas: length of employee tenure with the firm, and level of effort put forth by employees (Blake, 2006).

The first way pensions can influence employee behavior is to encourage retirement at a certain time, regulating the length of employee tenure with the firm (Gustman & Steinmeier, 1995; Blake, 2006). By withholding some of an employee’s pay until a desired retirement age, pensions provide an incentive for a worker to stay with the firm long enough to collect that money. Most defined contribution plans have a vesting period, before which the employee is entitled to no pension upon separation. One reason for this is to reduce the costs associated with employee turnover (Blake, 2006). When new employees are hired, firms often expend significant resources recruiting and training them (Blake, 2006). Additionally, for the first few years of employment, new employees are not expected to be as productive as veterans of the firm. In order to recruit and retain them in these early years, companies pay newer employees more than their “marginal product.” To make up for this, they may later pay them less than their marginal product but encourage them to stay with the firm by using a pension scheme which will pay a significant amount if they stay with the firm until retirement but not if they leave (Blake, 2006). Once a worker reaches the retirement age specified by his defined benefit plan, there is usually a narrow window within which he can retire without financial penalty because each year

he continues to work past the firm's set retirement age is one year he does not collect a pension (Ippolito, 1997). This encourages workers to retire once they reach the age at which the firm determines they are no longer productive (Blake, 2006). Such plan features trace their origins in America back to the Civil War, when military pensions were offered to remove aging officers from battle (Clark et al., 2003).

The function of pensions in regulating the length of employee tenure is the best documented function in the empirical pension literature. Some of the earliest work documented the tendency of workers covered by pensions to be less likely to leave their jobs over a given period than those without pensions. Research attempting to explain the relationship between pensions and mobility followed. Mitchell (1982) estimated a probit model to predict the likelihood of a worker changing jobs which included measures of wages and fringe benefits (including pension, stock options, profit sharing, health insurance, and life insurance) as well as demographic characteristics. She found that male workers with pension plans were 10-15 percent less likely to quit their jobs than those not covered by pensions, depending on model specification (the effect of pensions on quit rate was not significant for female workers in this study).

Allen, Clark, & McDermed (1993) estimated a three-equation model where pension and turnover effects are estimate separately to account for worker sorting according to pension preferences. They find that, controlling for sorting and for observable characteristics, there is a statistically significant difference in turnover between workers with pensions and those without, with workers covered by pensions are between six and nine percent less likely to leave their jobs. The authors attribute this difference to the large capital losses in pension wealth covered workers incur by switching jobs.

Lumsdaine, Stock, and Wise (1990, 1991, 1992, 1993, 1994) studied the response to retirement incentives among employees at individual firms, where detailed information about retirement plans and employee records were available. Findings from these analyses illustrated the strong incentives provided by employer-provided pension plans for employees to retire at certain ages, and the impact of changes in these plans on retirement behavior. They also found that in these firms, the effect of pension incentives on retirement behavior was much stronger than that of Social Security. Findings were similar in analyses of three different firms.

An important contribution of these studies is the “option value model of retirement” presented by Stock and Wise (1990a, 1990b). In this model, workers are assumed to compare the value of retiring now to the value of retiring at all possible future ages. If the maximum value of retirement is at a future date, the employee continues to work. This model is used in many other studies of retirement behavior, both for the general population and for teachers specifically. As a group, these studies are quite useful in the level of detail they are able to analyze regarding the pension plans of specific firms, and present strong and coherent findings on the response of workers to retirement incentives. However, unlike studies based on Health and Retirement Study data, they are not nationally representative.

Samwick (1998) addresses the issue of detailed vs. nationally representative data by creating a unique data set linking household data from the Surveys of Consumer Finances (SCF) (1983, 1986) with information on their pension plans in the Pension Provider Survey. The Pension Provider Survey attempted to interview the plan provider for every pension identified in the SCF, thus providing a valuable source for detailed pension information. Samwick estimates the probability of retirement based on accrual of retirement wealth and other factors. He also includes Stock & Wise’s (1990) option value of retirement measure, and finds that it is a

“parsimonious but comprehensive measure of future retirement incentives in this more representative sample (pg. 4).” He also finds that it is the change in retirement wealth, not its overall level that predicts retirement, indicating that workers are sensitive to incentives in their retirement plans that cause retirement wealth accrual to spike at certain ages or years of service. Finally, he points out that pensions, not Social Security, are the major determinants of changes in pension wealth. This may be good news for those attempting to analyze teacher retirement incentives, as some teachers are covered by Social Security, while others are not.

Friedberg and Webb (2005) use data from the first four waves of the HRS to analyze how the decline in defined benefit pension coverage influenced retirement behavior. They first estimate a model predicting retirement based on pension wealth, peak pension value, type of retirement plan, and demographic and job-related variables. They find that workers with a defined benefit plan retire earlier than those with a defined contribution plan due to incentives provided by the peak pension value of defined benefit plans (defined contribution plans have no peak value). They find similar incentives in Social Security. They then conduct simulations to predict retirement for individuals covered by defined benefit plans if they were switched to defined contribution plans. They find that such a switch would cause workers to retire later, and cite this as an explanation for rising retirement ages as employers move from defined benefit to defined contribution plans, as has been the trend in recent years.

Coile and Gruber (2007) use HRS data to examine the relationship between Social Security and retirement behavior, specifically whether the incentives provided by Social Security can help explain the decline in labor force participation of older men over the second half of the twentieth century. They estimate three models that predict retirement based on wealth accrual, peak value, and option value (using the model developed by Stock and Wise, see below)

respectively for both Social Security and private pensions, and report three major findings. First, they find that retirement decisions are responsive to incentives provided by retirement wealth accrual and by the level of retirement wealth. Second, they point out that these incentives are stronger when the variables are defined with reference to a worker's entire future stream of benefits rather than the return to a single additional year of work. Finally, they find that retirement decisions are roughly equally responsive to incentives in Social Security and in private pensions.

The second way employers can use pensions to influence employee behavior is to encourage better job performance. This is the case because workers who are fired for insufficient job performance before they are vested in a pension plan will not be eligible to collect a pension, and those who are fired post-vesting but pre-retirement will collect a smaller pension than they would had they stayed with the firm. Gustman et al. point out that “employers for whom continuous monitoring of workers' effort is difficult or costly may find it particularly useful to induce workers to post this bond (428).” Certainly this condition applies to teaching, where employees are rarely supervised directly and methods of holding teachers accountable for their work are the subject of much debate. The literature on this topic is largely theoretical, perhaps due to the difficulty in measuring productivity in many occupations and a lack of experimental or quasi-experimental data.

An offshoot of the idea of pensions improving employee productivity is that the pension itself can serve a sorting function. A pension represents a trade-off on the part of the worker—they sacrifice a portion of their current income in order to receive a benefit in the future (Blake, 2006). Given this arrangement, not all workers value pensions equally. Montgomery and Shaw (1997) argue that workers who value pensions more highly might include “older workers, those

in high marginal tax brackets, those with low rates of time preference, and those who are more risk averse. These workers will seek firms offering more pension benefits relative to wages, or would be more willing to pay higher compensating differentials for pensions (511).” Older workers may value pensions more because they are closer to collecting them, while younger workers may not yet be thinking about, let alone planning for, retirement. Those in higher tax brackets likely prefer pensions because of the tax incentives they provide compared to additional salary. Risk averse workers would prefer defined benefit plans in particular, since most of the risk is borne by the employer rather than the employee. Ippolito (1997) considers the issue of internal discount rate as a signal of worker quality. He argues that “low-discounters attach higher value to the long-term consequences of their current performance and are thus more productive than high discounters, given any level of monitoring effort by firms (107).” He presents a model that proposes how defined benefit plans might attract workers with lower internal discount rates, as well as how defined contribution plans can be utilized to encourage “selective quitting” by high discounters.

Sorting effects are difficult to measure, so it is not clear how they actually play out in the choices of workers to seek jobs with pension coverage. Additionally, the extent that the qualities outlined above are present in more desirable workers is unknown, and is likely job-specific. For example, in some fields it might be better to have risk-averse employees who may also be more dependable in day-to-day work and likely to stay with the firm for a long time. In other fields, innovation might be key, and risk aversion a negative quality in an employee. Additionally, it may be the case that more desirable workers do not value pensions as highly because they want to be free to change jobs if a better opportunity comes along. If less desirable workers do not expect to be offered better opportunities, they might place a higher value on the security their

pension provides. In short, while pensions may serve to sort workers, further research is needed to determine exactly how this can be accomplished. In examining teacher pensions, however, it is important to consider how sorting may occur based on the characteristics of defined benefit, defined contribution, and hybrid retirement plans, and how this may influence who chooses to become a teacher.

General Trends in Retirement Behavior

Given the differing incentives provided by different types of retirement plans and the shift in popularity of these plans over time, I also examined general retirement trends for evidence that workers are responsive to their pension incentives. I would expect to see average retirement age fall as more firms offer their workers defined benefit plans (as opposed to no retirement at all), and possibly to rise with the shift to defined contribution plans (though this may not be the case since defined contribution plans do not provide an incentive to retire at any particular age). There is, in fact, evidence of this pattern. In the United States, average retirement age fell throughout most of the 20th century (Johnson, 2002; Mulvey, 2003; Mermin, 2007). In 1870, 84 percent of men over age 65 were still working. This fell to 46 percent by 1950 and 16 percent by 1990 (Mermin, 2007). However, in the 1990s and into the 21st century this trend began to reverse, with 34 percent of men between ages 65 and 69 still employed (Johnson, 2007).

Several reasons are cited for this trend. First is the increase, then the decline, of private defined benefit pensions (Johnson, 2002; Mulvey, 2003; Mermin, 2007). In the mid-20th century it was common for employers to offer their employees defined benefit retirement plans, which provide an incentive for the employee to retire at an age selected by the company (Mulvey, 2003;

Mermin, 2007). Commonly, this retirement age was set at 55 (Mulvey, 2003). Over the past three decades, however, employers have been increasingly switching to defined contribution plans, which have no set retirement age and under which workers can continue to accrue retirement wealth at a steady rate at any age (Mermin, 2007). Since defined contribution plans do not penalize later retirement, workers covered by this type of plan work an average of two years longer than those covered by defined benefit plans (Friedberg & Webb, 2005).

Another reason cited for the retirement trends of the last century is Social Security. The introduction of Social Security in 1935 provided retirement benefits for workers over age 65 (Johnson, 2002; Mulvey, 2003; Mermin, 2007). However, reforms in the latter part of the 20th century made Social Security less generous (Johnson, 2002). Congress first taxed Social Security benefits in 1983, and in 1993 they increased these taxes (Johnson, 2002). Such changes reduced benefits to retirees, creating an incentive for individuals to remain in the workplace longer (Johnson, 2002). Additionally, from its inception in 1935 until changes in 2000, Social Security penalized work over the age of 65 with a reduction in benefits. This penalty was reduced in the 1980s and 1990s before being removed completely in 2000 (Johnson, 2002).

Finally, employee health care plans are cited as contributing to retirement trends (Johnson, 2002; Mulvey, 2003; Mermin, 2007). In the 1970s and 1980s, approximately 80 percent of “medium to large employers” offered at least partial health insurance coverage for retirees (Mulvey, 2003). At the end of the 20th century, however, employers increasingly began cutting or eliminating these health care benefits, providing an incentive for those not covered to remain employed until they are eligible for Medicare at age 65 (Mulvey, 2003).

Overall, it is clear from retirement trends in the last century that workers respond to retirement incentives that either encourage or discourage earlier retirement. For teachers,

however, these incentives have not changed much over time. Most teachers are still covered by defined benefit plans and not all teachers participate in Social Security (Hansen, 2008). While this would logically lead to teachers retiring at younger ages relative to the rest of American workers, this has not been documented and remains an open question.

Teacher Pensions

While the above literature discusses pensions in general as well as worker response to pension incentives, there is a limited body of work that addresses teachers specifically. Researchers have documented the structure and incentives of teacher retirement plans generally, and in specific states, and a few empirical studies provide evidence on teacher responses and behavior. Additionally, understanding the historical development of teacher retirement systems over time can help us understand how some of the features of today's plans came to be in place.

A Historical Perspective on Teacher Pensions

An investigation of the origin of teacher pensions in the United States can provide useful insight into their current function. The first pensions in America (as well as the first pensions anywhere, dating back to ancient Rome) were military pensions. In exchange for their service, soldiers were offered security for their families if they were killed or injured during battle. These pensions served to motivate soldiers, as well as to retain them in the military. This last function was especially important, as the cost of training military personnel was high, and soldiers quitting during battle would have been devastating (Clark, 2003). Similar logic applied to hazardous public service jobs, such as police officers and firefighters (Mitchell & Husted,

2001). Additionally, pensions served to move older employees out of physically demanding situations in which they might no longer be able to perform (Mitchell & Husted, 2001).

Because teachers are employed by districts or states (as opposed to the military, who are employed by the federal government), teacher retirement plans have been local and varied since their inception (Clark, 2003). The first teacher pension systems appeared in large eastern and Midwestern cities around the turn of the twentieth century, and statewide plans soon followed. By 1916, 33 states had some type of teacher retirement plan (Clark, 2003). However, these plans varied widely between states in terms of eligibility rules, benefits, and funding sources. Some were nothing more than forced savings plans, funded entirely by teacher contributions, while others involved large contributions from state and local governments (Clark, 2003).

One interesting difference in most of these plans compared to those of today, however, was the age at which a teacher was eligible for benefits. Originally, many plans set retirement age at 70 (Graebner, 1978). This is interesting, given that a common criticism of teacher retirement today is how early (sometimes in their mid-fifties) teachers are eligible to retire. Retirement age began to drop around the same time retirement plans were becoming more widespread (Graebner, 1978). During the industrial revolution, efficiency was paramount and older teachers were considered inefficient. Graebner (1978) quotes teacher advocate Rebecca E. Shanley, who testified in support of a proposal to lower the retirement age of Washington D.C. teachers to 62 in 1919: “We felt at that age the teacher who had been in the schoolroom with 40 or 50 children for so many years will have lost much of her efficiency . . . We felt that a teacher- a great majority of the teachers in the schoolrooms in the graded schools- at the age of 62 ought to be retired for the good of the service (404).”

In addition to encouraging those who were no longer “efficient” to leave the profession, Graebner (1978) argues that pensions were also intended to draw more men to the teaching profession. It was thought that men would bring stability to the profession of teaching, as many women teachers at the time either quit or relocated when they married. Additionally, as the focus of education in America shifted from moral values to scientific preparation for future employment, men were perceived to be better suited for the job. In order to attract men to the teaching profession, states and districts had to provide salaries and benefits comparable to what men could make elsewhere, and pensions were a major part of this incentive package.

Teacher Pensions Today

Given their history, it hardly seems surprising that the specific features of various pension plans vary among the fifty states, and even among school districts within states, in several ways. The first is whether teachers participate in Social Security. Originally, no state employees (including teachers) were a part of the Social Security program, but legislation changes in the 1950s allowed individual states to participate if they chose (Clark, 2003). Today, teachers in most states do participate in Social Security, but those in 15 states and the District of Columbia do not (Hansen, 2008). To make matters more complicated, some school districts within nonparticipating states do participate in Social Security.

Another difference among state pension plans is the level at which teachers contribute to the plan. In most states, teachers contribute a percentage of their salaries to their pension. In states without Social Security this percentage is typically higher to make up for the income that would otherwise be provided by this program. Teacher contributions range from three percent in Delaware to 13.5 percent in Missouri with most states requiring contributions around six percent

(for a complete list of teacher contributions, see Appendix A). However, some states vary the employee contribution according to years of service or plan type, and other states (Florida, Nevada, and Utah) do not require any employee contribution at all.

In addition to teacher contributions, each state contributes a different percentage to its employees’ pensions. Again, these contribution levels vary widely, from 25.6 percent in West Virginia to one percent in New Jersey (see Appendix A). State contributions are often recalculated on a yearly basis. The ratio of teacher contribution to employer contribution also varies. In some states, including Oklahoma, Maine, Maryland and Indiana, employers contribute significantly more than (sometimes twice as much as) employees. In other states, such as Arizona, Missouri, North Dakota and South Dakota, employer and employee contributions are identical, and in many other states they are close to equal. Finally, in some states, employees contribute more than employers. States following this model include New Jersey, North Carolina, Illinois and Oklahoma. In an added layer of complexity, some districts actually pay the “teacher contribution” to the pension plan on behalf of their teachers, so actual teacher contributions can vary widely even within states.

Table 1: Summary of Key Features of State Retirement Plans

Variable	Mean	SD	Min	Max
Years to Vest	6.06	2.24	3	12
Teacher Contribution	6.43%	2.57	0%	13.5%
Employer Contribution	9.71%	5.33	0%	25.6%
Years of Service for Full Retirement	25.18	7.86	5	35
Age for Full Retirement	61.63	3.78	50	65

Despite variance across (and within) states, teacher pension plans today are more similar than they are different. The main reason for this is that they are almost all defined benefit plans, the final value of which is determined by several factors, years of service and final salary. Costrell and Podgursky (2008) represent this in equation form as:

$$\text{Annual Benefit} = (\text{years of service}) \times (r) \times (\text{final average salary})$$

Where r is the “replacement factor,” the percentage of her final salary a teacher receives as her pension. This varies by state (see Appendix A), and some states change the replacement factor based on teacher age and/or experience. Iowa, New Hampshire, and New Jersey use formulas based on years of service and final average salary that are similar to the one above but do not include a replacement factor. Additionally, state pension systems often add additional rules concerning early retirement or delayed retirement incentives, counting sick days toward retirement, and other provisions that make the final formula much more complicated. Before a teacher can receive any pension at all she must become vested in the pension system by working for a minimum period of time, which again varies by state, up to as long as ten years (see Appendix A for vesting requirements by state).

In contrast to defined benefit plans, some states are moving toward defined contribution plans, where the employer and employee each contribute a set amount of money to the employee’s retirement account, which the employee converts to an annuity upon retirement. Colorado, Ohio, South Carolina, and Washington are moving toward a Defined Contribution model by offering newly hired (and sometimes veteran) teachers a choice of retirement plans. Depending on the state, teachers may choose between the traditional DB plan and a straight DC plan and/or a hybrid plan (Ohio offers teachers all three options). Indiana and Oregon have introduced hybrid DB-DC plans for all new teachers. In Indiana this takes the form of a required

three percent contribution by the teacher to a DC account, and in Oregon the six percent teacher contribution goes toward the DC portion of the plan and the state contribution funds the DB portion. Finally, in Alaska, school districts have a choice to participate in either a DB or a DC plan.

Teacher Pension Preferences

Little is known about the actual pension preferences of individual teachers. It is possible to determine, given certain information about an individual teacher, what sort of retirement plan would be most beneficial to that individual, but we do not know if teachers are aware of this. In order for a teacher to make an optimal decision (if she in fact has a choice), she must understand the different types of plans available- no easy task. Gustman et al. (1994) point out that in order for workers to place a value on their pensions, they must understand and value the insurance they provide. They also indicate that for many workers, this is not the case.

Where do teachers obtain information about their pensions? How often do they access this information, and at what point in their careers? Logically as they approach retirement teachers may become more knowledgeable about their pensions, but do pension benefits play a role in the jobs for which teachers apply? How do teachers factor in their pensions when considering changing teaching jobs, or changing careers altogether?

One possible source of information for many teachers is their union. According to the Bureau of Labor Statistics, more than half of all elementary, middle, and secondary teachers belonged to unions as of 2006, with the National Education Association's 3.2 million members (National Education Association, 2010) and the American Federation of Teachers' 1.5 million members (American Federation of Teachers, 2010) accounting for a majority of that

membership. Given this, it is logical to consider the position of these unions regarding teacher pensions. According to their websites, both the NEA and the AFT are strongly opposed to any shift away from traditional defined benefit pensions. The NEA has written letters to Congress opposing several pieces of legislation that would weaken defined benefit plans (National Education Association 2004, 2006). The AFT, in addition to publishing such letters, has an entire section on their website devoted to teacher pensions featuring an article entitled “The Top 10 Disadvantages of Replacing Defined Benefit Plans with Defined Contribution Plans” (American Federation of Teachers, 2010). If teachers are turning to their unions for pension information, they are clearly not receiving the whole story.

Studies of Teacher Retirement Behavior

Research on teacher retirement is a fairly new field, though the number of studies on the topic is growing. In 2009, Vanderbilt’s National Center on Performance Incentives held a conference focused on the issue entitled “Rethinking Teacher Retirement Benefit Systems,” and in 2010, *Education Finance and Policy* put out an issue devoted entirely to teacher retirement containing selected papers from this conference. However, in the introductory paper of this issue, Costrell and Podgursky (2010) still characterize the literature on teacher retirement as “remarkably slender.” This literature falls into two main categories: studies of the incentives in teacher retirement systems, including simulations, and studies examining various issues surrounding teacher retirement using administrative data from a single state.

The first group of studies is dominated by the work of Costrell and Podgursky, who first documented the “peaks, cliffs, and valleys” in the structure of defined benefit teacher retirement plans in 2007. Their work includes analysis of the teacher retirement plan in Ohio (2007) as well

as comparisons of plans in multiple states (2009). In each of these papers, Costrell & Podgursky demonstrate that there is a strong monetary incentive introduced by the defined benefit pension structure that encourages teachers to remain in the profession until a certain time (often their mid-50s), and then to retire. They argue that these incentives may cause teachers to “put in their time” whether or not they are suited to the profession, as well as push experienced teachers out of the classroom when they may have many good years left.

Costrell & Podgursky (2010) also document the penalties for mobility inherent in defined benefit pension systems. They show how pension wealth is transferred from early-career to late-career teachers, and how this penalizes those who switch pension systems (generally by moving across state lines) or leave the profession before becoming eligible for full retirement benefits. They use Missouri’s teacher retirement system to estimate the pension wealth lost by a teacher who moves states mid-career (54 percent in their example), and then compare these figures to the pension systems in five other states (up to 74 percent). They conclude that defined benefit pension systems impose large costs on mobile teachers, which may impede the efficient allocation of teachers to states where they are most needed.

While these studies provide a great deal of insight into the dramatic incentives faced by teachers to retire at certain points in their career, they do not document the extent to which teachers respond to these incentives. Teachers may not have complete or accurate information about their retirement, or they may be more influenced by nonmonetary factors than by pension wealth and choose to ignore the incentives provided by their plan. Studies (including work by both Costrell and Podgursky) are beginning to investigate this issue by utilizing state administrative data.

Ni, Podgursky, & Ehlert (2009) conduct such a study using data from Missouri. They show how Missouri's retirement system grew more generous in the 1990s due to rule changes inspired by a booming stock market, introducing such features as "25 and out" (eligibility for reduced benefits at any age after 25 years of service) in 1995 and a "rule of 80" (eligibility for retirement when age plus years of service equals 90) in 1999. They document the spikes in teacher retirement ages in Missouri, showing that most teachers retire at 30 years of service, when they are eligible for full benefits, which results in a median retirement age of 56. They also calculated the year when teacher retirement benefits are maximized using data from the Missouri Department of Elementary and Secondary Education and the Missouri Public School Retirement System. They find that most Missouri teachers retire at or near this point, which is earlier for many teachers than it would have been under the pension plan's rules before 1992 when the changes took effect. They conclude that this results in Missouri teachers retiring earlier overall, and may contribute to teacher shortages in the state.

Costrell & McGee (2009) focus on teacher retirement in Arkansas. They discuss the structure and incentives of the Arkansas plan, and include empirical evidence of teachers' retirement behavior in the state. As in most states, Arkansas teachers participate in a defined benefit plan, and the authors document the incentives of this plan to remain in the classroom for a certain number of years and then to retire. In Arkansas, the plan provides a strong incentive to retire after 28 years of service. They then utilize data from the Arkansas Teacher Retirement System and the Arkansas Department of Education to document spikes in teacher retirement, which they find at 30 years of service prior to 1997 and at 28 years of service after 1997 when rule changes allowed full retirement benefits two years earlier. They then estimate the probability of teacher retirement based on accrual of pension wealth as well as other factors, and

find that pension wealth accrual has a negative effect on retirement, meaning that teachers are less likely to retire when pension wealth accrual is positive, but more likely to retire when it turns negative. This was an expected finding, but one that had not been previously documented using empirical methods.

Furgeson, Strauss & Vogt (2006) studied teacher retirement in Pennsylvania in 1997-98 and 1998-99, years when the state temporarily increased teacher retirement incentives. In these years, the state offered a “thirty and out” feature, allowing teachers to retire with full pension benefits after 30 years of service, regardless of age. This meant that some teachers would be eligible for full retirement in 1999, but not in 2000, providing a strong retirement incentive. The authors show a corresponding spike in Pennsylvania teacher retirement. They go on to estimate a model predicting teacher retirement based on both monetary (pension wealth, Social Security benefits) and non-monetary (working conditions, demographic variables) factors. Results of this study indicate that teacher retirement is influenced by both monetary and non-monetary factors. Current and future pension wealth, as well as Social Security, were statistically significant predictors of retirement, as expected. However, the authors also found that schools with less appealing working conditions (lower test scores, higher crime rates) had higher retirement rates, indicating that the decision to retire is not explained entirely by monetary factors.

Brown (2009) studied teacher retirement behavior in California, exploiting a reform that occurred in the California State Teachers’ Retirement System in 1999. The reform was in the opposite direction of those in the previous studies, doubling the incentive to work past age 60 and providing a bonus for teachers with 30 or more years of service. Contrary to the findings of other studies here, Brown found that teachers’ response to the incentives to remain in the classroom was small, and concludes from this that defined benefit programs “do not greatly

distort retirement timing, and so the deadweight burden of such programs is minimal (pg. 38).”

This is an interesting study because it examines incentives to delay retirement rather than to retire sooner. It may be the case that teachers are willing to respond to the latter type of incentive, but not the former.

The majority of these studies provide strong evidence that teachers do, in fact, respond to pension incentives, as we would expect given the findings of similar studies of the general worker population. However, they are limited to individual states, and in most cases focus on a single retirement reform initiative. While we have no reason to believe that teacher retirement varies in any systematic way by state, evidence from more states would be helpful, especially since teacher retirement plans are generally administered at the state level. A national study of these issues would also be worthwhile, though differences in plans by state complicate analysis.

DeArmond & Goldhaber (2009) conduct a different type of study about the retirement knowledge and preferences of teachers in Washington State. This was the first published paper on this topic, and one that I plan to build upon in my research. In this study, the authors utilize data from the 2006 Washington State Teacher Compensation Survey, which includes questions about teacher retirement. Washington teachers are covered by one of three retirement plans (two traditional defined benefit plans and one hybrid plan), and DeArmond & Goldhaber found that most teachers could correctly identify which plan they belonged to. They also found that many teachers (49 percent) would prefer to invest in a defined contribution plan, if they had an additional 10 percent of their pay to invest. The survey does not ask teachers whether they would prefer to change their plan entirely, and it is possible that this question would produce quite different results. Additionally, being able to identify the name of their retirement plan does

not necessarily indicate that teachers understood its structure or incentives, but the survey utilized in this study did not probe teachers about the details of their retirement plan. A more detailed survey (or a qualitative analysis) would allow analysis of teacher understanding in greater depth.

Overall, research on teacher retirement remains an emerging field. Studies generally focus on one state, due to differences in retirement plans between states, and data is limited. Thus far, there is evidence that teacher retirement plans in most states contain strong incentives for teachers to retire at a certain point (or points) in their careers, and that teachers are generally responsive to these incentives. This dissertation adds to the growing body of work on teacher retirement, analyzing existing data from the Schools and Staffing Survey and Teacher Follow-Up Survey and presenting findings from original qualitative and quantitative data collection.

CHAPTER III

EVIDENCE FROM THE SCHOOLS AND STAFFING SURVEY AND TEACHER FOLLOW-UP SURVEY

This chapter investigates the responses of teachers to the incentives presented by defined benefit retirement plans. Costrell and Podgursky (2007, 2008) discuss the “peaks, cliffs, and valleys” inherent in these plans, created by the return to an additional year of work at a given point in a teacher’s career. Typically there are two major peaks- one when a teacher is eligible for early retirement and one when she is eligible for normal retirement. Eligibility varies by state, but is based on age, years of service, or a combination of these. Given a teacher’s age, years of service, and the provisions of her pension plan, it is possible to calculate when these peaks occur for that teacher. Based on this information, this chapter addresses the following research questions:

1. To what extent do teachers respond to the incentives to retire presented by their pension plans? Does this vary among different groups of teachers?
2. What reasons do teachers give for retiring, and what are they doing after they retire?

The first question addresses the first two pieces of the theoretical framework proposed in Chapter I. If teachers understand and place a high enough value on the incentives embedded in their retirement plans, we would expect them to retire as soon as they are eligible for either early or regular retirement. If they do not understand these incentives, or if they do not value them highly enough, we would expect them to remain in teaching even after they are eligible to retire. While the available data do not provide the information to identify which of these pieces is not in

place (whether teachers who stay past retirement age do so because they don't understand their retirement plan or because they don't place enough value on the incentives offered by the plan), looking at the characteristics of teachers who retire as soon as they are eligible compared to those who do not can provide some preliminary insight into this issue.

Examining the reasons those teachers who do retire give for their choice and what they are doing after they retire from teaching can provide further information. For example, a teacher who retires and takes another full-time job in education likely retired because of the incentives in her pension plan, not because she was burned out or in failing health. On the other hand, teachers who give reasons for retirement that have nothing to do with financial incentives, such as health or family issues, may have retired regardless of the structure of their pensions. While this analysis will not fully be able to answer the question of whether teachers understand and value their retirement plan incentives, it does utilize some of the only nationally representative data on teacher retirement to provide as much insight as possible. This may be a starting point for the development of other surveys that more directly address the reasons teachers retire.

Data

The data for this study are obtained mainly from the Schools and Staffing Survey (SASS) and the Teacher Follow-Up Survey (TFS). SASS is a nationally representative survey of public and private school districts, teachers and principals conducted by the National Center for Education Statistics (Cox et al., 2007). The TFS follows a sample of teachers who were surveyed for SASS and either stayed at their current school, changed schools, or left teaching completely, including retirees (Cox et al., 2007). For this study, I use the 2003-2004 SASS and the 2004-2005 TFS. Teacher weights provided in the SASS and TFS datasets were used in the

analysis to preserve the nationally representative nature of the data (Cox et al., 2007). A more recent SASS and TFS are available, but more current data on teacher retirement plans are not. Further research may involve obtaining updated retirement plan information and replicating this study using the 2007-2008 SASS and the 2008-2009 TFS.

Data on teacher pension plans is obtained from the National Education Association's 2008 report *Characteristics of Large Public Education Pension Plans* (National Education Association, 2008). This report contains eligibility requirements for early and regular retirement under the pension plan of each state or district. The report also contains information on changes to these plans over time, so it is possible to determine which eligibility rules affect which cohort of retirees in the event that more than one retirement plan or set of eligibility rules is on the books for a given state (as is often the case).

A total of 7429 teachers participated in the 2004-2005 Teacher Follow-Up Survey and were classified in one of three ways: leavers, who left the teaching profession (for retirement or other reasons); movers, who remained in teaching but switched schools between the SASS and the TFS; and stayers, who remained teaching at the same school at which they were surveyed for SASS. For the purposes of this study, movers and stayers are considered because both groups are still teaching and not retired.

Within this study, two groups of interest are identified: teachers who are eligible for regular retirement and teachers who are eligible for early retirement. In each group, teachers who chose to retire are compared to those who did not. Data from the NEA report was used to construct variables indicating teachers' eligibility for early and regular retirement in each plan (most at the state level, but some cities operate their own plans). Using age and years of service

information from SASS, teachers were determined to be eligible for early retirement, regular retirement, both, or neither. Only teachers who were eligible for some type of retirement were included in the sample for this study. Denver, CO; Chicago, IL; Boston, MA; St. Paul, MN; Duluth, MN; Kansas City, MO; St. Louis, MO; New York, NY; Omaha, NE; and Fairfax, VA have separate teacher retirement systems from the state in which they are located. Using school ZIP codes, teachers at schools in these cities were identified and assigned to the city rather than the state plan. SASS and TFS sampled teachers from all 50 states. However, Ohio and Washington were excluded from the sample in this analysis because teachers in these states have a choice of retirement plans and data were not available in SASS to determine which plan a teacher chose. St. Paul, MN was excluded for the same reason.

Several states were excluded from the sample of teachers eligible for early retirement because they do not offer this option to their teachers. Alabama, Kansas, Mississippi, New Mexico and Rhode Island are not included in the early retirement sample for this reason, but are included in the regular retirement sample. Florida and Nevada were also dropped from the early retirement sample. In these states, teachers are eligible for early retirement after only one year of service, making all the teachers sampled for TFS in these states eligible for early retirement. Including all teachers in these states might mask the true relationships between teacher characteristics and early retirement behavior, especially since Florida teachers comprised 15% of the early retirement sample.

The retirement eligibility variable was examined in two ways. First, all teachers who were eligible for regular retirement are identified and those who chose to retire are compared to those who did not. Next, the sample is limited to only teachers who became eligible for retirement after the 2003-2004 school year, that is, those who were first eligible to retire between

the administration of the 2003-2004 SASS and the 2004-2005 TFS. In this sample, teachers who chose to retire are again compared to teachers who did not. Those who chose to retire as soon as they were eligible represent the teachers who are most responsive to retirement incentives. The teachers who did not retire This process was repeated for the early retirement sample, yielding four total groups for analysis, the compositions of which appear in Table 2 below

Table 2: Teachers in TFS Eligible for Regular and Early Retirement

	Eligible for Regular Retirement (n=672)	Regular Retirement Year (n=143)	Eligible for Early Retirement (n=408)	Early Retirement Year (n=177)
Retired	67.92%	75.52%	50.98%	54.24%
Did Not Retire	32.08%	24.48%	49.02%	45.76%
Total	100%	100%	100%	100%

In addition to examining overall retirement trends, determining which teachers are more responsive to retirement incentives can provide valuable insight into how these incentives can best be used to attract and retain high-quality teachers. For example, if teachers in shortage areas or teachers with certain desirable qualifications are more responsive to retirement incentives, it is especially important to make sure that the incentives are properly aligned with the desired retirement behavior. On the other hand, if teachers do not respond differentially to the current incentives, it makes sense to pursue alternative retirement options that are better able to target teachers with the desired qualities rather than producing the same retirement behavior across the board.

Variables of interest are grouped into five categories: school and teaching assignment, teacher demographic characteristics, teacher quality, teacher job satisfaction, and financial and political factors. The first group of variables includes the region (Northeast, Midwest, South, or West), urbanicity (urban, suburban, or rural), and school type (elementary, middle, or high school) of the school where each teacher was (or still is) employed. Also included in this group is the main subject area taught. These variables allow us to examine whether teachers in harder to staff subjects or locations respond differently to retirement incentives.

The second group of variables includes teacher demographic characteristics: gender, marital status, and race. Because there are so few teachers in many of the reported racial groups, race is examined as a binary variable, with minority teachers (Hispanic, African American, Asian, and other minorities) in one group compared to Caucasian teachers.

A key factor in whether a teacher chooses to retire as soon as possible may well be the extent to which she enjoys her job. Therefore, a number of indicators of teacher job satisfaction are examined. Both positive and negative indicators are included. The positive indicators are whether a teacher indicated she is “very satisfied” with her job (the highest category out of five on the SASS questionnaire) and whether she agrees with the statement “in this school, staff members are recognized for a job well done.” Negative indicators are whether teachers agree with the statements “if I could get a higher paying job I’d leave teaching as soon as possible” and “I don’t seem to have as much enthusiasm now as when I began teaching.” These indicators are especially interesting, as we might hope that teachers will retire if they are no longer enthusiastic about the job or if they are only teaching because they do not have a better option.

The next group of variables is comprised of observable teacher characteristics. Because teacher value-added measures or other such data are not available to be linked to teachers in

SASS, variables are selected to correspond to characteristics and credentials that principals might value in their teachers or with the requirements of the Elementary and Secondary Education Act of 2002 (No Child Left Behind) and the American Recovery and Reinvestment Act of 2009 (Race to the Top). Variables in this group include measures of teacher education: whether the teacher holds an advanced degree (any degree beyond a bachelor's), the number of teacher education courses taken (a binary variable, with those teachers who had 10 or more courses- the highest category documented in SASS- compared to those with fewer), hours spent on professional development in the last year (those with 33 hours or more, again the highest category, compared to those with fewer), and National Board Certification. Variables are also included for teaching practices: use of student test data in planning and teaching (teachers who reported that they "often" use test data compared to those that did not), collaboration with other teachers (those who indicated they "participate regularly in scheduled collaboration with other teachers on issues of instruction"), and teacher leadership roles (teachers who indicated they served as a department head or curriculum chair, or served on a district-wide committee or task force).

The final variables are financial and political factors that might influence teacher retirement. The first of these is union membership. Teachers unions include information about retirement on their websites and newsletters (see Chapter II), which may be a valuable source of information that non-union teachers do not have. If teachers in unions are better informed, a differential response to retirement incentives among union members and non-union members may help explain whether lack of information or not valuing retirement incentives is the bigger factor in teachers deciding not to retire when they are eligible. Whether a teacher is in a retirement plan that participates in Social Security may also be important. If a teacher is eligible

for Social Security, her decision to retire may be influenced by the age at which she can collect Social Security payments in addition to (or instead of) the age at which she can collect her pension. Currently, retirees are first eligible for Social Security benefits at age 62 with full benefits at age 65 (Social Security Administration, 2010), but many teachers are eligible for a pension at a younger age. If teachers who participate in Social Security remain in the classroom until they are eligible to receive benefits, we would expect to see these teachers delaying retirement past the retirement age of their pension plan.

Table 3: Summary statistics for key variables by retirement eligibility for teachers in the 2003-04 TFS sample

	Eligible for Regular Retirement (N=692)	Eligible for Early Retirement (N=511)	Regular Retirement Year (N=143)	Early Retirement Year (N=194)
School Location and Teaching Assignment				
Region				
Northeast	18.50%	16.44%	18.88%	18.56%
Midwest	17.49%	18.20%	19.58%	13.92%
South	39.31%	41.49%	41.96%	52.58%
West	24.71%	23.87%	19.58%	14.95%
Urbanicity				
Urban	27.02%	29.94%	23.78%	35.57%
Suburban	44.36%	48.73%	43.36%	45.36%
Rural	28.61%	21.33%	32.87%	19.07%
School Level				
Elementary School	33.67%	43.25%	31.47%	34.54%
Middle School	15.61%	17.03%	13.99%	15.98%
High School	43.93%	31.90%	47.55%	41.24%

Subject Area

Elementary, all subjects	29.19%	32.88%	29.37%	24.74%
Special Education	9.54%	12.33%	9.09%	10.82%
Math	7.51%	8.81%	4.90%	3.61%
Science	7.23%	5.09%	14.69%	13.92%
History/Social Studies	8.38%	5.68%	0.70%	2.06%
English	12.57%	12.72%	1.40%	5.15%
Foreign Language	2.75%	3.13%	6.99%	4.12%
Physical Education	6.65%	4.50%	6.29%	8.76%
Arts	4.05%	5.09%	4.90%	9.28%
Vocational/Technical	8.96%	7.44%	7.69%	8.25%
Other Subjects	3.18%	2.35%	10.49%	9.28%

Teacher Demographics

Male	32.23%	30.72%	39.86%	27.84%
Minority	15.75%	18.59%	7.69%	26.29%
Married	72.25%	74.17%	79.02%	79.90%

Teacher Satisfaction

"Very Satisfied"	54.91%	52.05%	54.55%	55.67%
"Teachers Get Recognition"	67.63%	76.91%	66.43%	52.06%
Not As Enthusiastic	44.51%	48.53%	54.55%	77.84%
Would Leave for More Money	27.46%	27.59%	32.17%	30.41%

Teacher Characteristics and Practices

Advanced Degree	63.29%	50.10%	56.64%	53.09%
10+ Teacher Education Courses	30.20%	27.59%	27.27%	24.74%
Leadership Role(s)	55.64%	58.71%	58.74%	57.73%
National Board Certification	8.96%	10.18%	6.29%	11.34%
Collaborate Regularly	68.93%	69.86%	67.13%	67.53%
Use Student Data Frequently	50.87%	51.27%	47.55%	45.88%
33+ Hours Prof. Development	41.04%	41.68%	37.76%	48.45%

Financial and Political Variables

Union Member	77.02%	78.47%	82.52%	71.65%
Participate in Social Security	82.95%	70.06%	83.22%	71.65%

Limitations

SASS does not document many years a teacher taught in her current state. This is important since most teacher retirement plans are administered at the state level and teachers may not get credit for years of service in other states. The most relevant teacher experience variable in SASS was years teaching in any public school, which was used instead. However, even if state-level data were available, it would not be possible to perfectly determine retirement eligibility because some states allow teachers to “buy” years of service if they move from another state (Hansen, 2008) and data are not available in SASS to determine if a teacher did this. Being unable to identify years of teaching in the current state will only bias the results of this study to the extent that teachers with certain characteristics or in certain teaching assignments move across state lines more often than others. We might have reason to believe that this could be the case for mobility overall (for example, an elementary school teacher might be more mobile than a high school teacher if there are more elementary schools than high schools in her district to choose from or be reassigned to), but no research exists documenting interstate mobility of teachers with this level of detail. However, the possibility that teachers may be misidentified as eligible for retirement when they are not actually eligible due to interstate mobility should be taken into account when considering the results of this study, as they are limited by the noisiness of this measure.

Additionally, because no statistical corrections are made for multiple comparisons, there is an increased possibility of Type I error in this analysis. For this reason, as well as those noted above, this analysis should be viewed as a preliminary exploration of relationships between teacher characteristics and retirement behavior, and causal inferences about the data should not be made.

Teacher Response to Retirement Incentives

The first part of this study examines differences between the teachers who chose to retire and those who did not in each of the groups described above: all teachers who are eligible for regular retirement, those who are in their first year of regular retirement eligibility, all teachers eligible for early retirement, and teachers in their first year of early retirement eligibility. Chi-square tests are conducted to uncover statistically significant differences between teachers that retired when eligible and teachers that did not. To account for the survey design of SASS and TFS, the chi-square statistic is converted to an F statistic in STATA using a second-order Rao and Scott correction (StataCorp, 2009). The p value for the corrected F statistic can be interpreted in the same way as the p value of a regular chi-square statistic.

Response to Regular Retirement Incentives

The first important finding, as shown in Table 2, is that two-thirds (67.92%) of teachers who were eligible to retire chose to do so. Even more interesting, 75% of teachers who were newly eligible to retire chose to do so. This indicates that overall, teachers are responsive to the incentives in their retirement plans. Choosing to retire as soon as they are eligible in particular indicates that most of these teachers understand the incentives embedded in their retirement plans, at least by the time they retire (the timing of this knowledge is explored in the following chapter). It further shows that they value these incentives enough to act on them. In order to determine if some teachers are more responsive to retirement incentives than others, the data are next examined for differences between various groups of teachers. The results of these chi-square tests appear in Table 4 below.

Table 4: Teacher Retirement Behavior by Key Characteristics, Regular Retirement

	ALL ELIGIBLE				FIRST YEAR ELIGIBLE			
	Retired*	Did Not Retire*	<i>F</i>	<i>p</i>	Retired*	Did Not Retire*	<i>F</i>	<i>p</i>
School Location and Teaching Assignment								
Region								
Northeast	0.06	0.11	3.55	0.06	0.21	0.03	2.63	0.11
Midwest	0.10	0.06	0.78	0.38	0.15	0.07	0.01	0.94
South	0.22	0.20	0.39	0.53	0.27	0.19	1.91	0.17
West	0.11	0.13	2.37	0.12	0.05	0.02	0.02	0.89
Urbanicity								
Urban	0.12	0.17	6.19	0.01	0.08	0.15	11.1	0.001
Suburban	0.30	0.21	2.79	0.31	0.38	0.09	3.74	0.06
Rural	0.13	0.07	2.59	0.11	0.22	0.08	0.44	0.51
School Level								
Elementary School	0.25	0.25	2.53	0.11	0.33	0.17	0.08	0.77
Middle School	0.11	0.12	1.28	0.26	0.15	0.10	0.61	0.43
High School	0.17	0.07	12.22	> 0.001	0.18	0.05	1.95	0.16
Subject Area								
Elementary, all subjects	0.20	0.23	4.35	0.04	0.27	0.17	1.14	0.29
Special Education	0.03	0.04	0.71	0.40	0.06	0.02	0.22	0.64
Math	0.03	0.02	0.16	0.69	0.03	0.03	0.53	0.47
Science	0.03	0.03	0.01	0.94	0.02	0.001	4.26	0.04
History/Social Studies	0.03	0.05	4.41	0.04	0.03	0.03	0.78	0.38
English	0.06	0.03	3.41	0.07	0.08	0.02	1.36	0.25
Foreign Language	0.02	0.002	6.25	0.01	0.01	0.00	0.54	0.47
Physical Education	0.04	0.03	0.02	0.90	0.05	0.03	0.06	0.80
Arts	0.02	0.01	2.09	0.15	0.04	0.01	1.01	0.32
Vocational/Technical	0.05	0.01	29.89	> 0.001	0.09	0.01	5.13	0.03
Other Subjects	0.02	0.01	1.74	0.19	0.004	0.01	3.01	0.09
Teacher Demographics								
Male	0.16	0.10	1.28	0.26	0.27	0.08	1.08	0.30
Minority	0.05	0.10	6.84	0.01	0.01	0.03	14.42	> 0.001
Married	0.4	0.32	0.01	0.92	0.54	0.24	0.03	0.85
Teacher Satisfaction								
"Very Satisfied"	0.30	0.27	1.01	0.31	0.38	0.16	0.12	0.73
"Teachers Get Recognition"	0.37	0.29	0.4	0.53	0.46	0.16	1.33	0.25

Not As Enthusiastic Would Leave for More Money	0.22	0.18	0.02	0.90	0.31	0.2	2.06	0.15
	0.12	0.11	0.27	0.61	0.18	0.07	0.04	0.84
Teacher Characteristics and Practices								
Advanced Degree	0.34	0.27	0.06	0.80	0.36	0.18	0.14	0.71
10+ Teacher Education Courses	0.17	0.14	0.01	0.94	0.21	0.10	0.004	0.95
Leadership Role(s)	0.30	0.23	0.25	0.62	0.35	0.25	4.80	0.03
National Board Certification	0.06	0.05	0.06	0.81	0.04	0.02	0.001	0.97
Collaborate Regularly	0.39	0.36	2.57	0.11	0.50	0.28	3.71	0.06
Use Student Data Frequently	0.27	0.03	6.13	0.01	0.34	0.18	0.22	0.64
33+ Hours Prof. Development	0.23	0.18	0.05	0.83	0.32	0.14	0.04	0.85
Financial/Political Characteristics								
Union Member	0.44	0.38	0.63	0.43	0.60	0.24	0.86	0.35
Participate in Social Security	0.41	0.30	1.64	0.20	0.60	0.25	0.69	0.41

*Weighted proportions of total sample

In the full sample of teachers who were eligible for retirement, school level had a significant relationship with retirement, with high school teachers retiring at higher than expected rates. There were also statistically significant differences in some subject areas. Elementary and history teachers were less likely to retire, and foreign language and vocational/technical teachers were more likely to retire. Teachers in all other subjects retired as expected. It should be noted, however, that small sample sizes of teachers in individual subject areas could cause true differences in retirement rates to fall short of statistical significance. Similar analysis using a larger sample may reveal more differences in teacher retirement rates by subject area.

Urbanicity also had a significant relationship with retirement rates, with teachers in urban areas less likely to retire. It is possible that this difference is due to the difficulty identifying a

teacher's years of experience in one retirement system in the SASS data. Some large urban areas, including New York, Chicago, Boston, and Denver, have their own teacher retirement systems, and teachers may be more likely to move between the city and state systems than they are to move across state lines. To the extent this is the case, urban teachers may be misidentified as eligible for retirement when they are not, which could explain a finding of lower than expected retirement rates. The same problem may also explain the finding that teachers in the northeast retire at lower than expected rates. Since these states are geographically smaller than those in other areas of the country, teachers may again be more likely to teach in more than one state during their careers, leading to a misidentification of their retirement eligibility. We cannot be sure if misidentification of retirement eligibility contributes to either of these findings, but this possibility dictates that they should be viewed with caution. More precise data on retirement eligibility is needed to further explore these issues.

Among the demographic variables, only minority status had a significant relationship with retirement, with minority teachers less likely to retire than nonminority teachers. To the extent that states wish to retain minority teachers to establish a teaching force that more closely resembles their student population, this may be seen as a good thing. However, in this case it is important to determine whether this pattern exists because minority teachers do not understand their retirement incentives or because they do not value them as highly as nonminority teachers do. If minority teachers are aware that they are losing pension wealth by staying in the classroom past regular retirement age but choose to do so anyway, this is not a problem from a policy perspective. However, if they are staying because they are not aware of the incentives in their retirement plans, this may indicate a breakdown in communication that should be addressed. It is not possible to determine from the SASS and TFS data which of these factors is

at work, or even if the relationship between race and retirement can be explained by something else entirely. More targeted survey data and/or qualitative data is needed to further explore this issue.

Only one of the teacher characteristics and behaviors had a statistically significant relationship with retirement behavior, with teachers who report using student data regularly more likely to retire than those that do not. Since use of student data is a major component of both No Child Left Behind and Race to the Top, losing teachers who report using student data frequently may not be desirable from a policy perspective. However, it is possible that retirement plans may be restructured to retain these teachers at higher rates.

Finally, while it might be expected that indicators of teacher satisfaction would be highly correlated with teacher retirement behavior, it is interesting to note that the data does not support this assumption. None of these variables had a statistically significant relationship with retirement behavior, nor did union membership or participation in Social Security.

I next examine the subsample of teachers who retired as soon as they were eligible. The teachers who retired in this group may be viewed as being the most responsive to retirement incentives, as they acted on them immediately. A smaller sample size in this group would lead us to expect fewer statistically significant findings, which is in fact the case. Those relationships that do exist, however, parallel those in the overall regular retirement sample. Once again, urban teachers are less likely to retire than expected, again possibly explained by the misidentification of retirement eligibility as explained above. Subject area again had a significant relationship with retirement behavior, with science teachers and vocational/technical teachers more likely to retire as soon as they are eligible. This is a problem for states facing a shortage of science

teachers, and these states may want to consider restructuring retirement incentives to retain these teachers. Minority status was also significant, with minority teachers less likely to retire in their first year of eligibility than nonminority teachers.

Finally, teacher with leadership roles were more likely to retire as soon as they were eligible. This may indicate that states should consider restructuring retirement incentives to keep their teacher-leaders in the system. It may also be the case that teachers with the most leadership experience are retiring as soon as possible to pursue more challenging and/or lucrative careers elsewhere, in which case career ladder-type programs, as well as restructured retirement incentives, may be necessary to retain them.

Response to Early Retirement Incentives

I next examine early retirement rates. Table 2 shows that around half (51%) of all teachers eligible for early retirement chose to retire, and 54% of teachers in their first year of early retirement eligibility chose to retire. It is important to note that these are the teachers who were eligible for early retirement but *not* regular retirement. While early retirement rules and provisions vary by state (see Appendix A), in those states where early retirement is offered it represents a tradeoff: a teacher accepts less overall pension wealth for the opportunity to leave the classroom early. Therefore, the fact that around half of the teachers who were eligible would choose to accept a smaller pension rather than continue teaching is an interesting finding in itself. More interesting, however, would be uncovering differences between teachers who choose to take early retirement and those that do not. Are burned-out teachers using this opportunity to exit the profession, or are the most motivated and capable teachers leaving to pursue

opportunities elsewhere? Results of the chi-square tests using the early retirement sample appear in Table 5 below.

Table 5: Teacher Retirement Behavior by Key Characteristics, Early Retirement

School Location and Teaching Assignment	ALL ELIGIBLE				FIRST YEAR ELIGIBLE			
	Retired*	Did Not Retire*	<i>F</i>	<i>p</i>	Retired*	Did Not Retire*	<i>F</i>	<i>p</i>
Region								
Northeast	0.14	0.12	6.85	0.01	0.10	0.09	1.33	0.25
Midwest	0.09	0.13	0.15	0.70	0.03	0.09	1.60	0.21
South	0.11	0.24	1.63	0.20	0.24	0.38	0.03	0.87
West	0.05	0.13	3.81	0.05	0.03	0.05	0.01	0.91
Urbanicity								
Urban	0.10	0.20	1.23	0.29	0.10	0.22	0.88	0.35
Suburban	0.21	0.34	0.04	0.85	0.20	0.28	0.08	0.78
Rural	0.07	0.08	1.13	0.29	0.09	0.10	0.39	0.53
School Level								
Elementary School	0.22	0.39	0.68	0.41	0.20	0.31	0.01	0.93
Middle School	0.07	0.15	0.99	0.32	0.08	0.18	0.86	0.35
High School	0.08	0.07	5.67	0.02	0.10	0.11	1.28	0.26
Subject Area								
Elementary, all subjects	0.16	0.30	0.83	0.36	0.08	0.26	4.07	0.05
Special Education	0.05	0.06	0.12	0.73	0.02	0.06	0.49	0.48
Math	0.04	0.04	0.48	0.49	0.07	0.02	5.58	0.02
Science	0.02	0.03	0.03	0.87	0.03	0.10	1.91	0.17
History/Social Studies	0.02	0.03	0.09	0.76	0.02	0.05	0.48	0.49
English	0.03	0.05	0.01	0.93	0.04	0.05	0.22	0.64
Foreign Language	0.02	0.02	0.16	0.69	0.05	0.004	10.53	0.001
Physical Education	0.02	0.02	0.76	0.38	0.04	0.01	4.25	0.04
Arts	0.01	0.05	2.21	0.14	0.002	0.04	9.63	0.002
Vocational/Technical	0.03	0.01	5.11	0.02	0.04	0.01	12.37	>0.001
Other Subjects	0.004	0.01	0.77	0.38	0.003	0.01	0.25	0.62

Teacher Demographics

Male	0.09	0.16	0.23	0.63	0.08	0.11	0.01	0.93
Minority	0.08	0.09	1.17	0.28	0.09	0.20	0.81	0.37
Married	0.28	0.47	0.06	0.81	0.30	0.53	1.71	0.19

Teacher Satisfaction

"Very Satisfied"	0.18	0.39	3.84	0.05	0.19	0.34	0.50	0.48
"Teachers Get Recognition"	0.28	0.62	1.96	0.16	0.29	0.49	0.63	0.43
Not As Enthusiastic Would Leave for More Money	0.21	0.27	2.59	0.11	0.22	0.24	1.97	0.16
	0.13	0.11	6.40	0.01	0.11	0.08	2.28	0.13

**Teacher Characteristics
and Practices**

Advanced Degree 10+ Teacher Education Courses	0.20	0.37	0.79	0.37	0.25	0.27	1.91	0.17
Leadership Role(s)	0.13	0.14	3.79	0.05	0.09	0.10	0.61	0.43
National Board Certification	0.19	0.38	2.73	0.10	0.20	0.28	0.09	0.76
Collaborate Regularly	0.05	0.05	1.3	0.26	0.05	0.08	0.03	0.86
Use Student Data Frequently	0.24	0.46	2.18	0.14	0.27	0.46	0.18	0.68
33+ Hours Prof. Development	0.18	0.36	2.81	0.09	0.18	0.35	1.09	0.30
	0.17	0.26	0.06	0.81	0.22	0.24	1.72	0.19

Financial/Political Characteristics

Union Member	0.33	0.51	1.11	0.29	0.30	0.51	0.86	0.35
Participate in Social Security	0.28	0.65	2.82	0.09	0.33	0.48	0.08	0.78

* Weighted proportions of total sample

In the sample of all teachers eligible for retirement, we again see a statistically significant relationship between grade level and retirement behavior, with high school teachers more likely to take early retirement. In this sample we also see a continued pattern of vocational/technical teachers retiring at higher than expected rates, in early as well as regular retirement. This is the only subject with a statistically significant relationship with early retirement behavior, and it may

be the case that these positions are being eliminated due to changing curricula and these teachers do not have a choice but to retire. Region also has a statistically significant relationship with early retirement among all teachers eligible, with teachers in the northeast and west retiring at lower than expected rates. It is interesting to note that minority status, strongly related to regular retirement behavior, is not statistically significant in either early retirement sample.

While indicators of teacher satisfaction did not have a statistically significant relationship with regular retirement behavior, this is not the case with early retirement. Among all teachers eligible for early retirement, those that indicated they were very satisfied with their jobs were less likely to retire, which we would expect. (We would also expect to see this relationship in the regular retirement data, but the fact that we do not may indicate that regular retirement incentives are strong enough to “push” even highly satisfied teachers from the classroom while early retirement incentives are not.) Additionally, teachers that said they would leave teaching immediately for offered more money elsewhere were more likely to take early retirement, perhaps indicating that they did just that. If this means the smartest, hardest working, and/or most highly motivated teachers are taking early retirement, leaving behind teachers who are teaching only because of a lack of opportunity to do something else, early retirement incentives could be an obstacle to retaining high-quality teachers.

Finally, teachers with the highest number of teacher education courses retired at higher than expected rates. To the extent that these teachers are better qualified than their colleagues, schools may be losing their best teachers prematurely because they are more responsive to the incentives in their early retirement plans.

In the subsample of teachers in their first year of early retirement eligibility, only subject area was significant. Math, foreign language, physical education, and vocational/technical teachers were more likely to take early retirement than expected, and elementary and arts teachers were less likely to do so. If teachers in shortage areas (such as math) are more responsive to early retirement incentives, these incentives may be exacerbating the shortages. However, as with regular retirement incentives, restructuring early retirement plans may encourage these teachers to remain in the classroom longer.

Overall, SASS and TFS data shows that teachers are responsive to both regular and early retirement incentives. 76% of teachers in their first year of eligibility chose to retire, as 54% of teachers in their first year of early retirement eligibility. This indicates that, overall, teachers understand and value the incentives embedded in their retirement plans. When retirement rates are compared among different groups of teachers, some statistically significant relationships between teacher characteristics and retirement behavior also emerge. These differences may be useful in restructuring retirement plans to retain high-quality teachers in the areas where they are most needed.

Reasons for Retirement and Post-Retirement Employment

The second part of this study examines the reasons why teachers chose to retire, and whether and where they are working post-retirement. Understanding why teachers choose to retire can help determine whether existing incentives are encouraging retirement at the right time. For example, we may want teachers to retire if they have lost enthusiasm for teaching or are in failing health, but not if they are still effective teachers who happen to have reached a

set age or experience level. For this portion of the chapter, the sample of teachers is all those who report being retired from teaching on the TFS (n=625). Retirement age, reason for leaving teaching, and reemployment behavior are all examined to help us understand when and why teachers are retiring, and what they are doing next, which in turn can inform policy decisions about teacher retirement reform.

First I examine teacher retirement ages. This is the age that the teacher reports in TFS that she retired from teaching, rather than an age imputed using the teacher's current age and whether she is still teaching. The former is more precise because it only includes teachers who consider themselves retired rather than those who have temporarily separated from teaching and may plan to return. The mean retirement age in this sample was 58 ($SD=4.45$), with the youngest retiree at age 39 and the oldest at age 75. This is six years younger than the national average of age 64 (Social Security Administration, 2010b). We see two sharp peaks in the distribution of retirement ages, one at 55 and one at 62. 55 is the earliest age for full retirement benefits in many states (see Appendix A), and 62 is the age at which retirees are first eligible to collect Social Security benefits. While the analyses above attempted to determine which groups of teachers are more receptive to retirement incentives, a simple examination teacher retirement ages shows that overall, teachers do seem to be responsive to the incentives embedded in their retirement plans and/or Social Security.

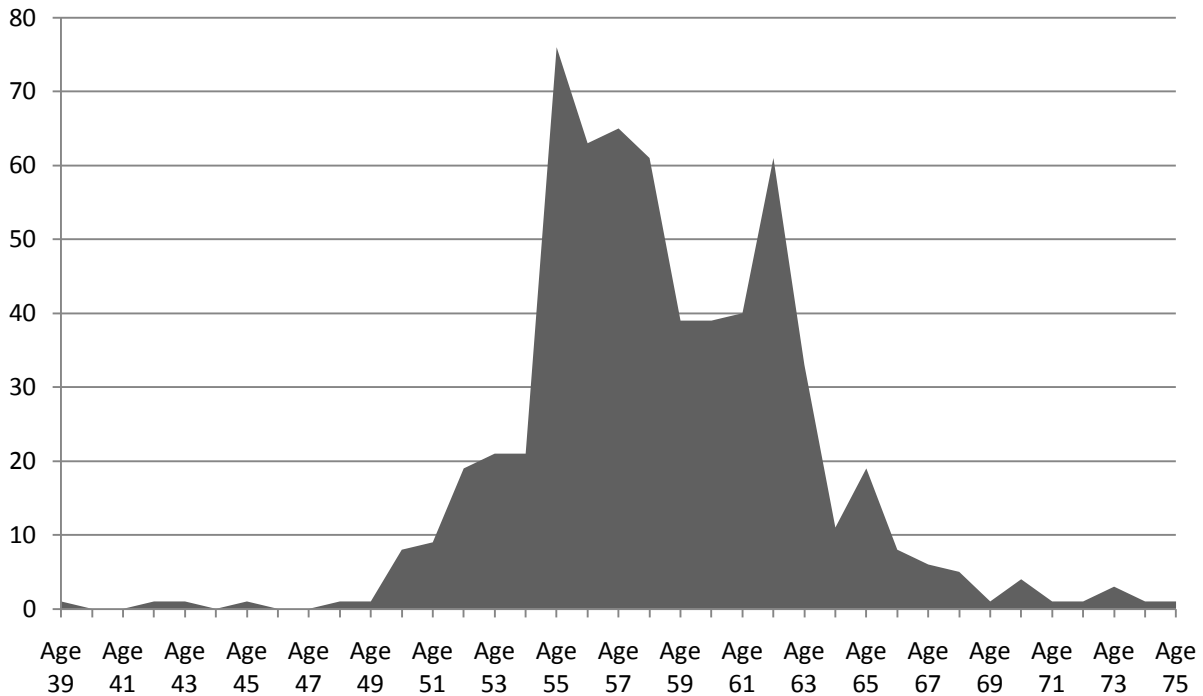


Figure 2: Retirement Age (Teacher Self-Report)

The fact that many teachers retire in response to incentives may lead us to wonder if we are losing good teachers when they reach an arbitrary age, and whether they would have been valuable assets to the profession had they stayed. While it is not possible to answer this question directly, examining why teachers say they left the profession can help illuminate the issue. I first look at the reasons teachers leave, as reported in TFS. Sixty-two percent of teachers report that they left teaching “to retire.” While the wording of this response could perhaps be clearer and more informative, we can at least observe that less than half of the teachers who retired did so for specific reasons such as health or dissatisfaction. Future surveys of retired teachers could better isolate the reasons behind the choice to retire by asking follow-up questions such as why a teacher chose to retire this year rather than last year or next year.

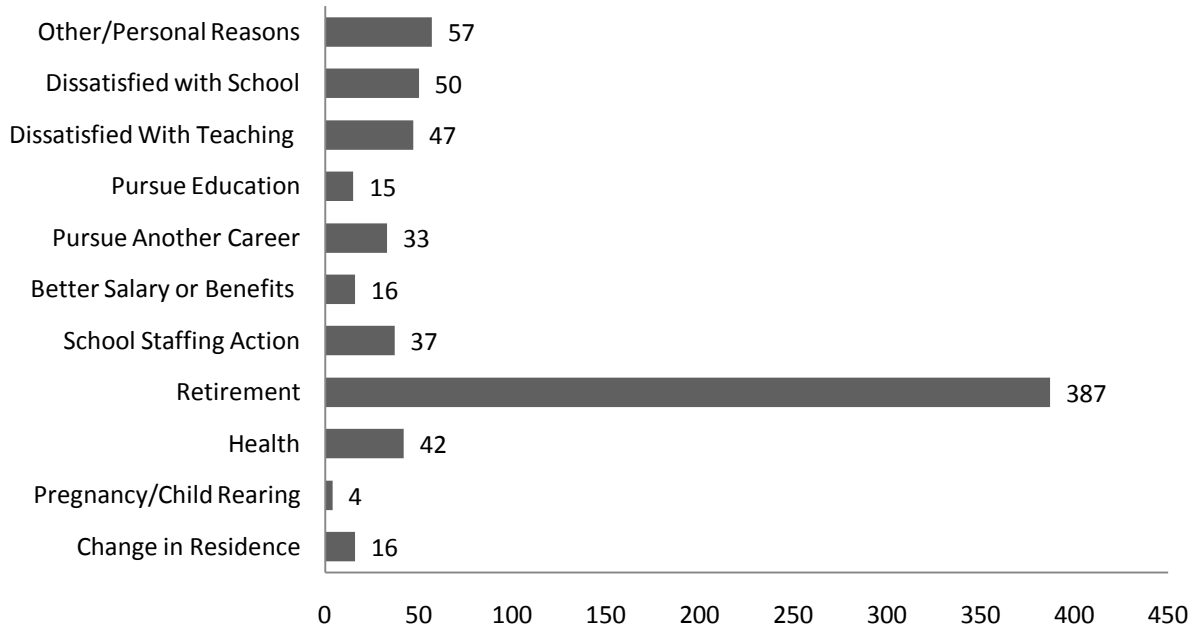


Figure 3: Reasons for Leaving Teaching (n=704)

Of the 625 teachers who reported being retired from the profession, 244 (39 percent) reported being reemployed. Not all respondents indicated their new position, but of the 111 that did, 71 reported that they still work in the education field. Outside the field of education, popular second careers included retail, real estate, and consulting. More precise data is available on the sector in which retired teachers are reemployed, since all reemployed teachers responded to this question. It is interesting to note that almost half of the reemployed teachers work for the federal, state, or local government, which would include all positions in public education.

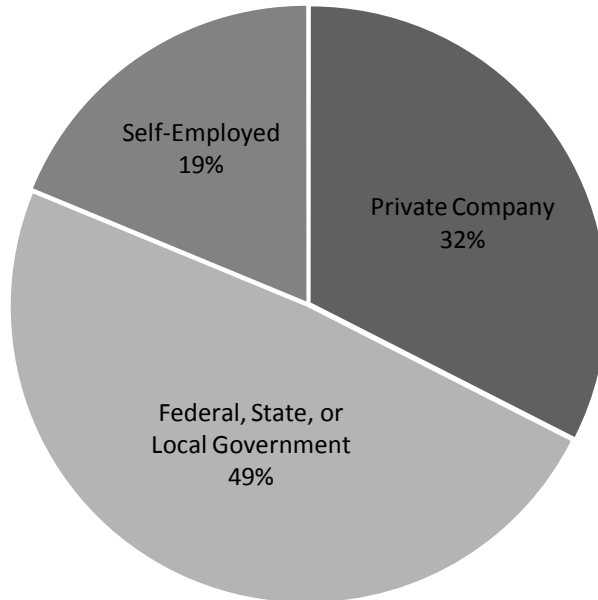


Figure 4: Teacher Reemployment Sector (n=240)

I next examine the number of hours reemployed teachers were working. If the majority of reemployed teachers are working part time, they may have left teaching in favor of a shorter workday, and could possibly be retained in teaching with a more flexible schedule. The National Commission on Teaching and America's Future advocates such plans as a way to retain valuable experience in schools while allowing senior teachers to work less than full time (Foster, 2010). If, on the other hand, most reemployed teachers are working full time, they might still be teaching if not for retirement incentives that encouraged them to leave when they did. In fact, Figure 9 shows that the largest group of reemployed teachers (39 percent) is still working full time, with another 29 percent working half time or more. These teachers may have retired in response to the incentives in their pension plans rather than because they no longer wish to work, and might be retained in teaching if retirement incentives were restructured.

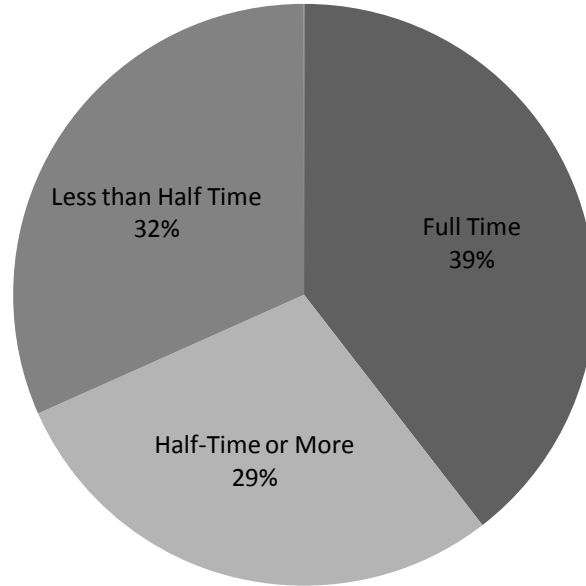


Figure 5: Teacher Reemployment Hours (n=243)

Finally, I look at how long reemployed teachers plan to stay in their new jobs. Almost half of the reemployed teachers (46 percent) reported that they intended to stay in their new job as long as they were able. An additional 27 percent were undecided, with no specific plans as to when to leave their new job. The remainder planned to stay at their new job until they were eligible for retirement benefits (either from teaching or the new job) or Social Security, or until they reached some other life milestone (such as a spouse's retirement or child's graduation). Again, this provides evidence that many reemployed teachers still intend to work for a long time and might have been assets to the profession were they retained in teaching.

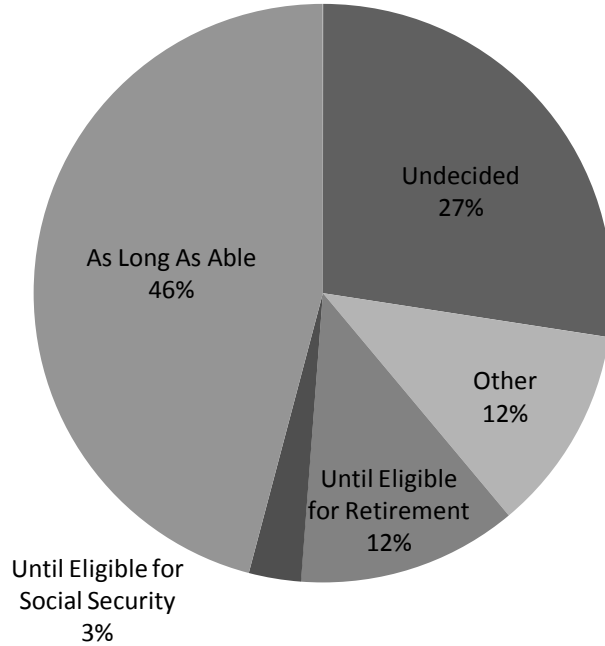


Figure 6: How Long Reemployed Teachers Plan to Stay in New Jobs (n=244)

Overall the information on teacher retirement and reemployment in SASS hints at some interesting possibilities but does not allow us to draw firm conclusions. We can observe that in this sample, teachers retire earlier than the overall population, and that more than one-third (39 percent) take full- or part-time jobs post retirement. We can also see that many of these are government jobs, possibly in education. This indicates that some teachers may be retiring when they are still interested in working, possibly even in education. If retirement incentives are motivating these teachers to leave when they could still be an asset to the profession, we should examine restructuring these incentives. We cannot be sure of the extent to which this is the case, however, without further research that specifically and directly investigates whether teachers would have remained in the profession if not for the incentives of their retirement plan, and whether these are teachers we would want to retain or those that are better off elsewhere.

Conclusion

This chapter examined 2003-2004 Schools and Staffing Survey and Teacher Follow-Up Survey data for patterns in teacher retirement behavior. The first part linked teacher data with information on state and city retirement plan eligibility to identify teachers who were eligible for retirement, then compared teachers who retired when eligible with those who did not across a variety of characteristics. The second part focused on the reasons teachers retired and their reemployment patterns. These analyses combine to provide preliminary insight into teacher response to existing retirement incentives.

I proposed in Chapter I that in order for retirement incentives to function as policy levers to attract and retain high-quality teachers that three conditions must be met: teachers must understand the incentives, teachers must value the incentives, and the incentives must be aligned with then desired retirement behavior. I now turn to the evidence this chapter provides on the extent to which these conditions are currently in place. First, teachers must understand their retirement incentives. SASS provides strong evidence that this is the case for teachers overall, with 76 percent of teachers in their first year of eligibility for regular retirement retiring and 54 percent of teacher in their first year of eligibility for early retirement doing so. We also see spikes in the distribution of retirement ages at age 55 (when teachers in many states are first eligible for retirement) and age 62 (when retirees are eligible for Social Security benefits). *When* teachers understand their retirement benefits is an important question that the SASS data cannot answer, but which will be addressed in the next chapter.

Whether teachers value retirement incentives cannot, in this dataset, be disentangled from whether they understand them, but clearly teachers must understand their benefits in order to value them. It is possible, however, that some teachers understand their benefits but do not

value them (or at least do not value them highly enough to change their behavior). Using this data we cannot separate these teachers from those who do not understand their retirement benefits, but the original data presented in the next chapter provides some insight into this issue as well.

The third condition, that pension incentives must be aligned with desired policy outcomes, requires us to assume what those outcomes would be. This is discussed in more detail in the final chapter, but for now let us suppose that the desired outcome is to retain teachers until they are no longer effective, then encourage them to retire. There is evidence that early retirement incentives may be aligned with this objective since teachers who are satisfied with their jobs are less likely to take early retirement and teachers who would rather be doing something else are more likely to do so. On the other hand, data on reemployment show that many teachers are taking full-time jobs after retiring from teaching, a possible indication that they still have the energy and motivation to be effective in the classroom. It could be the case that some of these teachers simply wanted a change of pace, but many are still employed in the field of education. Another policy objective could be to retain teachers in shortage areas such as math, science, and special education, and in urban and rural areas. The evidence in this chapter indicates that teachers in these areas are not being retained under the current retirement incentive system at a higher rate than teachers in non-shortage areas, with the exception of teachers in urban areas. In fact, math and science teachers were found to be more responsive to early and regular retirement incentives respectively. However, it is possible to restructure existing retirement incentives to target these (or any other) teachers, an idea which is addressed in the concluding chapter.

The data in the SASS and the TFS are far from perfect for exploring teacher retirement behavior in detail. However, they do provide a nationally representative sample of teachers and some basic information on which to build. Linking this data with retirement plan data from the National Education Association provides further information, allowing us to gain some preliminary insight into teacher retirement behavior that we can use to shape policy decisions. There is some evidence here that most teachers understand and value their retirement incentives (they retire when they are eligible for benefits), but it is possible that these incentives may not be aligned with desired teacher retirement behavior. The next chapter presents original data that is used to further explore these issues.

CHAPTER IV

EVIDENCE FROM AN ORIGINAL SURVEY AND EMBEDDED FOCUS GROUPS

This chapter investigates the retirement preferences of teachers and future teachers using an online survey and embedded focus groups. Three groups of interest are identified: future teachers (juniors, seniors, and graduate students in teacher education programs), alternatively certified teachers (both current participants and alumni of alternative certification programs), and traditionally certified urban public school teachers.

Teacher retirement preferences are an important- and thus far unexplored- issue. As proposed in the theoretical framework laid out in Chapter I, teachers must value the incentives provided by their pensions in order for these pensions to function as policy levers. If the next generation of teachers plans to be more mobile, for example, they might express a higher preference for the more portable defined contribution plans than older teachers do. If teachers in hard-to-staff fields prefer a certain type of plan, offering this type of pension might be a valuable tool to attract teachers to these positions. If most teachers prefer one type of plan, offering this plan might attract more teachers to the profession, allowing administrators to select the best teachers from a larger applicant pool and thus possibly increasing teacher quality overall. Whatever the pension preferences of pre-service teachers and other key teacher groups, this information will be useful to states in determining how to best use retirement benefits as a policy lever to attract and retain a high-quality teaching force.

Also critical are two related issues: what teachers know about their retirement plans, and why they prefer one plan over another. Understanding teacher knowledge about retirement plans

is important because teachers can only respond to the incentives offered by their pension plan if they are aware of them. *When* they are aware of them is also important, because this dictates at what point pensions can function as a policy lever. If teachers are unaware of the structure of the pension system when they enter the profession, for example, pensions cannot serve as a recruiting tool. Why teachers prefer one plan over another is also important to understand. Long-term career and family plans, attitudes about risk, and many other factors may influence an individual's preference for a DB or DC plan. By asking teachers to explain their preferences, we can gain valuable insight into how retirement plans might be reformed to best meet the needs of today's teachers.

Specifically, this chapter addresses these issues through the following research questions:

1. What type of retirement plan would potential teachers and other key teacher groups prefer? Are there differences in the preferences of those teaching or planning to teach in different subject areas or grade levels, or according to demographic characteristics?
2. What do teachers know about their retirement plan and teacher retirement plans in general, and when and how do they obtain this information?
3. Why do teachers prefer one plan over another? What features of each plan do they like and dislike, and why?

The first question is explored using an online survey of teacher retirement preferences, and provides the first evidence on what retirement plan teachers would prefer if they could choose from three major plan types. The second question is addressed using focus groups that ask teachers, among other questions, what they know about their retirement plan. DeArmond & Goldhaber (1999) find that teachers are fairly knowledgeable about their pension plans, in that a majority are correctly able to identify what plan they belong to out of three choices. However, this does not necessarily mean they understand how the plan works. Focus groups will provide insight into the extent teachers are able to explain their retirement plans and understand the

incentives contained in these plans. The third question is also primarily explored using focus groups. A qualitative approach allows us to better understand *why* teachers prefer one plan over another. This question is presented in the survey, but in a multiple choice format. Teachers may not give a lot of thought to the question, and follow-up questions are not possible.

Focus groups present the opportunity to delve more deeply into teachers' knowledge and attitudes about retirement plans, as one of the particular strengths of focus groups is their ability to help researchers learn how and *why* people behave in certain ways (Folch-Lyon & Trost, 1981). Originally (and currently) used in marketing and private industry, focus groups now form the basis of research in a variety of areas including education, sociology, and public health (Morgan, 1996). This study uses focus groups in a way that is quite similar to marketing, as participants will be asked to choose from a set of retirement plans and discuss the positive and negative aspects of each.

Data

Data for this study is collected from three populations of interest. The first is teacher education students, who comprise the majority of future teachers. Future teachers are an important demographic to study because although the current system of teacher pensions may not be serving the best interests of all teachers (career changers, those who move between states, etc.), it may be impractical to overhaul the system for those already in the profession. States are legally obligated to honor the terms of their current teachers' contracts, and even if this were not the case it would certainly be a bad public relations move and draw fire from teachers' unions to change the rules for those already in the system, especially those nearing retirement age. In an effort to move away from defined benefit plans, some states are now offering only defined

contribution or cash balance plans for new teachers and allowing those in the old (DC) system to opt in if they choose, while others are implementing hybrid plans with both DB and DC components (see Appendix A).

However, it is likely that the preferences of teachers entering the profession today might be different than those of previous generations due to changing employment and career patterns. According to a Pew Research Center study (2010), 66 percent of employed 18 to 29 year olds (Generation Y, or the “Millennial Generation”) say they are “very likely” or “somewhat likely” to switch careers, compared to 55 percent of Generation Xers and 31 percent of Baby Boomers. In another survey, Millennials ranked benefits, including retirement, as their second most important job consideration after salary (Yahoo! HotJobs& Robert Half International, 2007). Given this information, it makes sense that teachers of this generation might prefer defined contribution or cash balance plans. However, this data represents all Millennial workers. It is not clear if this pattern holds in the teaching profession, but this study can provide some preliminary insight into this issue.

The second population of interest is alternatively certified teachers. As discussed in Chapter II, alternatively certified teachers are a growing portion of the teacher labor market, and one that might be more mobile than other teachers, both geographically and across careers. The stated goal of some of these programs is to encourage talented individuals who might not otherwise consider teaching to spend a few years in the classroom before moving on to another career. Teachers who follow this model may have different retirement preferences than teachers who plan to stay in the classroom for many years, favoring plans that are more portable. Portability may also be a factor for alternatively certified teachers who plan to stay in the classroom longer but move to a different state. Some alternative certification programs assign

teachers to high-need areas all over the country, and teachers in these programs may wish to continue teaching beyond their commitment to the program but in a different state than their original assignment. These teachers may prefer plans that are portable across state lines.

The final population of interest is urban public school teachers. The retirement preferences of those already in the teaching profession will provide context for those of the other two groups. While retirement plans are unlikely to change for teachers already under contract in public schools, it will be interesting to see if their preferences differ from those of the two key groups outlined above. I choose to focus on urban public school teachers in particular because urban schools have traditionally been harder to staff and experience higher rates of teacher turnover (Oakes, 1990; Darling-Hammond & Greene, 1994; Ingersoll, 2001). Given these characteristics, it makes sense for these districts to understand teacher retirement preferences as a possible lever for teacher retention. It also makes sense that if these teachers do not plan to stay in their current state or profession for their entire career, they might have different pension preferences than teachers that do.

In order to recruit survey participants, professors of teacher education, principals of urban public schools, and administrators of alternative certification programs were contacted to ask for permission to survey their students or teachers. Participants were drawn from two public universities, two private universities, three urban public schools, and two alternative certification programs, all based in and around a mid-sized southern city. In order to increase survey response rates, surveys were administered in person whenever possible. When this was not possible, administrators provided their students or teachers with a link to the web-based survey which participants completed at their convenience. As expected, response rate varied widely according to data collection method. In the alternatively certified and future teacher groups, the

surveys were largely administered in person and the response rates were close to 90 percent. In the urban public school teacher group, where principals agreed to online rather than in-person survey administration, the response rate was around 20 percent. Table 6 shows the key characteristics of the teachers and future teachers who responded to the survey.

Table 6: Key Characteristics of Survey Participants

Variable	Future Teachers (n=175)	Alt Cert (n=104)	Traditional Public (n=56)
Mean Experience	0.00	1.83	8.46
Min. Experience	0.00	1.00	1.00
Max. Experience	0.00	12.00	36.00
Percent Elementary*	25.14%	17.31%	35.71%
Percent Middle School*	25.14%	55.77%	37.50%
Percent High School*	34.29%	43.27%	48.21%
Percent Male	36.00%	37.50%	40.00%
Percent Minority	12.18%	16.35%	5.56%
Response Rate	86.63%	93.69%	20.74%

*Totals may not equal 100% due to teachers teaching more than one grade level or future teachers being unsure of employment plans.

While there is clearly potential for non-response bias in this data due to the low response rate in the traditional public teacher group, it may also be the case that those teachers who are interested in retirement plans and willing to express their opinions on the subject are those who we should be most interested in. Teachers who choose not to complete a ten-minute survey may not be the most vocal supporters or opponents of proposed retirement reforms, and may instead be influenced by their more informed and involved colleagues. Nonetheless, the potential for non-response bias should be considered when reviewing the survey results, and future research

should focus on obtaining a higher response rate for current teachers, as well as obtaining a larger sample overall and examining the retirement preferences of teachers in other states.

Another important factor to consider when interpreting both the survey and focus group data is the economic climate in which it was collected. The survey was administered in the 2010-2011 school year and the focus groups were conducted in the spring of 2011, in the heart of a recession when state budget crises and failing pension systems dominated the news. This may have influenced participants' opinions of defined benefit pension plans. However, the stock market was also performing poorly, which caused losses in many defined contribution plans. Overall, the retirement picture was bleak, whether one was dependent on the government or on the stock market. Whether one of these issues dominated the perceptions of study participants is not clear, but it is important to keep the possibility in mind, especially if contradictory results emerge in future studies conducted in less troubled economic times.

Survey of Teacher Retirement Preferences

In order to determine what type of pension potential teachers would prefer, I utilize the Peabody Pension Preference Poll, a web-based survey created by James Guthrie, Michael Podgursky, and myself. The survey consists of two parts: an informational video and a short, targeted questionnaire. The video portion briefly and simply outlines the three main types of pension plans (defined benefit, defined contribution, and cash balance). It is important to note that the survey is not intended to measure respondents' knowledge of their state's current plan or of possible alternatives- this information is presented up front. Instead, I am attempting to

uncover what type of plan these potential teachers would choose if presented with a range of options.

After the video, survey respondents are taken to a brief questionnaire. The first question in the survey is:

Suppose that in your retirement plan you contribute 10 percent of your pay and your employer also contributes 10 percent. Suppose also that you have a choice among three different options for retirement benefits. Both your own and the district's contribution will remain at 10 percent regardless of the plan you select. Which would you choose?

After responding to this, respondents are probed about why they chose the plan they did. They are then directed to a series of background questions covering demographic characteristics, education, and plans for future employment. The full survey is available for review at <http://sitemason.vanderbilt.edu/site/hH2LxC>.

Embedded Focus Groups

In addition to the survey, embedded focus groups are conducted to investigate teacher retirement knowledge and preferences in more detail. Two sets of questions are used in these focus groups- one for current teachers and one for future teachers. These questions are organized into two sections. The first centers on participants' knowledge about their retirement plan (or teacher retirement in general, in the case of future teachers) and how and when they gained this knowledge. Participants are then shown a short informational video about teacher retirement plans (from the Peabody Pension Preference Poll), and answer questions about which type of plan they prefer and why (see Appendix B for a complete list of questions).

These questions were piloted in one-on-one interviews with public school teachers in the spring of 2010, after which two major changes were made. First, results of these pilot interviews suggested that teachers knew very little about the specific features of their retirement

plan, and were not aware of any alternatives to their own plan. Therefore, they were unable to comment on what type of plan they might prefer if given a choice. In order to facilitate discussion on this topic, I incorporate the informational video from the Peabody Pension Preference Poll into the focus group session. This video provides participants with some basic knowledge upon which to base their opinions and discussion of different types of retirement plans. Additionally, collecting data in focus groups rather than individual interviews stimulated discussion among participants, generating responses of greater depth and complexity than those obtained in one-on-one interviews. Participants had the opportunity to hear what others said, which may have aided them in expressing their own ideas on the issues presented, whether they agree or disagree with others in the group. It is also the case that this may have produced some bias, to the extent that the group was swayed by participants with stronger opinions. In the facilitation of these groups, care was taken to encourage equal participation among all participants, but the possibility of bias must still be considered.

After piloting focus groups of different sizes by conducting mock focus groups with volunteers (pilot groups of 3, 5, and 8 were conducted) groups of three to five were found to be the ideal size for encouraging discussion, as in smaller groups there were not enough differing opinions and ideas to sustain the conversation and in larger groups not all members fully participated. In order to maximize consistency among the groups, as well as to follow up on any interesting but unexpected topics of conversation, I conducted all pilot and final focus groups myself. The groups lasted between 45 and 70 minutes, with an average length just under an hour.

Two focus groups were conducted within each population of interest: future teachers, alternatively certified teachers, and traditionally certified urban public school teachers. These

focus groups are “embedded” in that they are drawn from the sample of teachers who were selected to participate in the survey. Before the survey was administered, teachers were asked if they would be willing to do a focus group instead. Those that volunteered provided their email addresses and were contacted to schedule a focus groups session. In all, 14 future teachers, 10 alternatively certified teachers, and 11 traditionally certified public school teachers volunteered to participate in focus groups. However, some of these volunteers either did not respond to the follow-up email, changed their mind, or did not show up to their scheduled focus group. Total volunteers, participants, and participation rate for each group appear in Table 7 below.

Focus groups participants were not given the survey with their peers, but completed it during the focus group session (so that the information on teacher retirement presented in the video portion of the survey would not influence their answers to questions about prior knowledge of retirement). All focus groups were audio recorded, transcribed, examined for major themes, and coded around these themes using NVivo software.

Table 7: Key Characteristics of Focus Group Participants

Variable	Future Teachers (n=8)	Alt Cert Teachers (n=7)	Traditional Public (n=8)
Mean Experience	0	3.14	10.25
Min. Experience	0	1	1
Max. Experience	0	7	34
Male Participants	4	3	2
Initial Volunteers	14	10	11
Participation Rate	57.14%	70.00%	72.73%

What Retirement Plan Do Teachers Prefer?

The first, and most basic, question addressed in this chapter is simply what retirement plan teachers prefer when given a choice among four alternatives: a defined benefit plan, a

defined contribution plan, a cash balance plan, or a mix of plans (respondents could choose which plans in which proportions they wanted to include in their mix). As Figure 11 shows, the most popular plan was the defined benefit plan, the plan currently offered to most teachers, and the one in which the current teachers surveyed participate. It is interesting to note, however, that a majority of teachers surveyed (71 percent) preferred some form of alternative to the defined benefit plan.

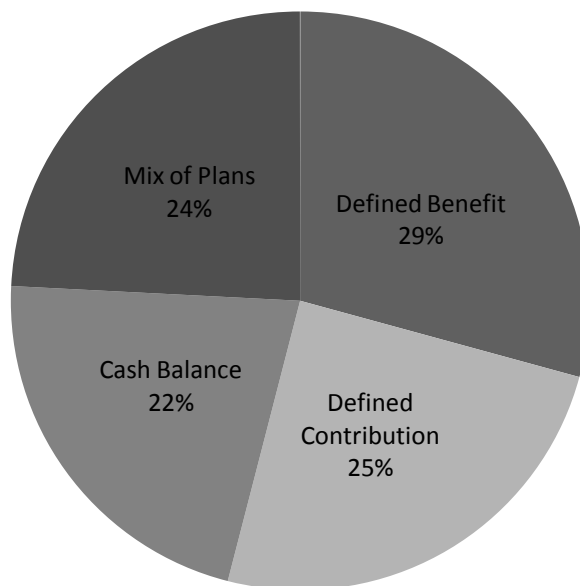


Figure 7: Retirement Plan Choice, All Teachers (n=336)

After documenting overall preference, the next step in the analysis was to examine the survey data for differences in plan choice according to type of teacher, subject area, grade level, and other key characteristics. Chi-square tests were used to identify statistically significant differences, the results of which appear in Table 8 below.

Table 8: Results of Chi-Square Tests, Teacher Plan Choice and Key Teacher Characteristics

Group	Defined Benefit (n=99)	Defined Contribution (n=83)	Cash Balance (n=73)	Mix of Plans (n=81)	X^2	p
Future Teachers	49	35	47	44	8.03	0.05
Alt. Cert. Teachers	26	39	18	21	13.17	0.004
Regular Public Teachers	23	9	8	16	7.54	0.06
Demographic Characteristics						
Minority Teachers	13	9	8	9	0.36	0.95
Male Teachers	33	37	26	22	5.6	0.13
Subject						
English Teachers	17	26	21	22	5.41	0.14
Math Teachers	21	33	19	16	10.67	0.01
Science Teachers	18	22	15	21	2.41	0.49
History/Soc. Stud. Teachers	17	20	13	18	1.73	0.63
Special Education Teachers	12	12	10	11	0.2	0.98
Other Subject Teachers	37	5	10	16	30.89	> 0.001
Grade Level						
Elementary Teachers	21	19	21	21	1.42	0.70
Middle School Teachers	36	35	25	27	1.65	0.65
High School Teachers	47	27	27	31	4.87	0.18
Importance of Retirement						
Priority Now	40	28	17	23	6.61	0.09
Priority Later	25	23	21	20	0.44	0.93
Not a Priority	2	8	5	9	6.54	0.09

Which group a teacher belonged to (future teacher, alternatively certified teacher, or traditionally certified urban public school teacher) did have a significant relationship with plan choice. Future teachers were more likely to choose a cash balance, while alternatively certified

teachers were more likely to choose a defined contribution plan. Traditionally certified urban public school teachers chose both defined benefit and a mix of plans at higher rates than expected, though this relationship fell just short of statistical significance ($p=0.056$), possibly due to the smaller sample size in this group.

The subject a teacher taught also had a statistically significant relationship with plan choice. Specifically, math teachers were more likely to choose a defined contribution plan, while teachers in the arts and physical education (grouped together) were more likely to choose a defined benefit plan. This makes sense if math teachers feel better able to understand investing and more comfortable making their own choices, a supposition that was supported in the focus groups. One future math teacher said he preferred a defined contribution plan because, “it's still in your hands, you still have the power to decide your own investments and make your own investments.” A traditionally certified math teacher said she liked the idea of putting her retirement in a defined contribution plan because “you can kind of play with and watch the market and decide what you want to do, where you want to put your money, and you know just kind of play with it.” On the other hand, in the same focus group an art teacher said, “I mean, I'm an art teacher. I don't worry about. I'm not like you are. I don't think about the percentages and where it goes and what happens to it.”

No statistically significant differences were found between male and female teachers, between minority and non-minority teachers (defined as a binary variable due to the low number of minority teachers in the sample), or between elementary, middle, and high school teachers. Teachers were also asked how important retirement is in making their career decisions (“Planning for retirement is very important to me and impacts the career decisions I make now,” “Planning for retirement is not a priority for me now, but it will be in the future,” or “Planning

for retirement is not an important factor for me in making career decisions”), with the idea that those who thought more about retirement might have different plan preferences, but no statistically significant relationship between the response to this question and plan choice was found.

What Do Teachers Know About Retirement, and When Do They Know It?

What teachers know about retirement and when they know it is key in determining how pensions can be used as a policy lever to attract and retain high-quality teachers. If teachers do not understand (and value) the pensions offered to them when they are entering the profession, then pensions cannot help attract teachers. Similarly, if they do not understand (and value) these incentives early in their careers, pensions cannot help retain them. Therefore, one major area of discussion in the focus groups was what teachers know about their retirement plans, and retirement in general.

Future Teachers

It is a logical expectation that future teachers know less about teacher retirement plans than those who are already teaching and contributing to one. As predicted, when future teachers were asked to explain what they knew about teacher retirement plans, they claimed to know very little. In fact, in both future teacher focus groups, the initial response to “tell me what you know about teacher retirement” was “nothing.” One teacher education student said:

I know there is some sort of pension that you can put into but I don’t know how it works, how much it is, how long you have to teach to get it, or if it even exists anymore with the new budget changes.

However, when probed, future teachers did know a bit about teacher retirement plans. One future history teacher was able to explain the basic structure of a defined contribution plan:

I know it builds up for the years you work at the job. I know it increases from there. And I think that if you were to work at a job for 40 years as opposed to 24 years you get more retirement funds.

When asked about retirement in general, five of the eight teacher education students interviewed mentioned defined contribution plans, with which they seemed more familiar. As one future teacher said, when asked what he knew about retirement:

I would say IRAs just because that's what I remember studying in (personal finance) class. Like it's out of your own money how much you put away, and your company can help you out with that but it depends on the company you work for, or I guess the school system you work for.

Future teachers also seemed unsure about their employer's role in retirement versus their own, or whether their employer would contribute at all. One teacher education student said, "I don't know if public schools match (contributions) but I know some companies do." Another said:

I know that there are companies that match contributions into retirement funds so that if you're drawing from your paycheck to put into a retirement fund your company matches that but I don't know if public schools do that.

Future teachers were also asked how they got their information on retirement, and most often mentioned family members. According to one future teacher:

My mom bothers me all the time about starting something where I'm saving already. She has been since I became of working age when I was 18 working at (company) but it's not something I think about very often so I'm not really aware of how it works at public schools.

Another future teacher agreed that her main source of retirement information was her parents:

My mom works in public schools and she just changed jobs so talking about the benefits of her elementary school job versus her community college job is something that had come up.

In both future teacher focus groups, participants repeatedly stated that they “should know more” about retirement. In the second group in particular, there was enthusiasm among all four participants about taking a class on the subject as part of their teacher training, an idea that they came up with unprompted. As one participant explained:

Literally the only reason that I think about retirement at all is because of this terrifying personal finance class I took where we had to use these complicated Excel spreadsheets to put in how much money we would have left to live off of to save at 22 versus 32 versus 42. And you know, those first ten years make a very big difference. And I was like, “I’ll start thinking about it when I’m in my mid to late thirties” and I mean it’s like 75 percent of your retirement savings potentially gone if you don’t make really smart decisions for the next 30 years at that point. So I guess if someone hadn’t sat me down and said to me the first the first 10 to 15 years make a really big difference, I would have been like, “I’m not making enough at this point for it to really matter” and just not have thought about it.

Another teacher in the group agreed that a class on retirement and other financial issues for future teachers would be a good idea, stating, “I would definitely benefit from a discussion on this now rather than later.” A third suggested a specific timeline for such a class:

Maybe right after student teaching where you are about to set off to go into interviews and things like that. Maybe like have another class that coincides with student teaching or something along those lines that goes over plans like this or goes over how to interview for specific jobs, what people are looking for, what you are supposed to say, different things like that. Almost a prep—like we’re sending you off into the world and this is what you’re going to have to confront and this is what you need to know about it.

Overall, as expected, the teacher education students that participated in these focus groups did not know much about teacher retirement plans. Their knowledge of retirement in general was focused on defined contribution plans, such as 401(k)s and IRAs, and they were able

to describe how these plans worked and knew that it was important to start saving for retirement early. Future teachers often indicated that their knowledge about retirement came from their parents, either by watching how their parents saved for retirement or by their parents discussing retirement with them directly. Three future teachers also mentioned taking a personal finance class in high school or college.

An interesting and unexpected finding is the enthusiasm these future teachers expressed for learning about retirement and the other “real world” aspects of teaching. In fact, the second group spent almost a third (16 minutes) of their focus group time discussing ideas for a class on the subject. This is encouraging in terms of using pensions as a policy lever to attract teachers to the profession. While they know very little about retirement, teacher education students understand its importance and are eager to learn about it, making pre-service an ideal time to inform them on the subject.

Additionally, the fact that these teacher education students were more familiar with defined contribution plans is good news for policymakers that are looking to move toward these types of plans for financial reasons. It seems likely that if incoming teachers were offered defined contribution plans, they would not be aware that this had not always been the norm in the teaching field. These future teachers were also unsure of their employer’s role in their retirement savings, and some did not know whether their employers would contribute to their retirement at all. If the next generation of teachers does not expect as much from their employers when it comes to retirement, they may be more willing to accept alternatives to current pension plans than veteran teachers would be.

Current Teachers

Not surprisingly, current teachers (traditionally and alternatively certified) were more knowledgeable about their retirement plans than were future teachers. This makes sense given that many of them reported one of their main sources of information about retirement to be their own paychecks. As one teacher said, “I found out about (the retirement plan) by looking at my pay stub and just, you know, asking questions.” This teacher even produced his pay stub from his desk and showed the retirement deductions to the group as he explained what he knew about the system.

Teachers also reported getting retirement information from the district, though the attention they paid to this information varied, most noticeably according to how close they were to retirement age. A veteran elementary school teacher explained:

There’s a yearly thing that (state)- it sounds very official- they do send us a thing for our retirement account. It’s like a mini-newsletter from them. So probably, once a year they send you one that’s official with your earnings per year. And like I said, it talks about this is what you can expect if you retire at age whatever. Full benefits at age this and so many years of service, but every once in a while they send you a little blurb in our mailboxes.

Other teachers in her focus group indicated that they remembered receiving this information but not paying attention to it. As a mid-career teacher stated:

You get the reports from it every year from the retirement system and they’ll tell you, you know, here are your earnings and if you retire this year you’ll get this much per month. I don’t pay too much attention to it.

The level of knowledge about their retirement plan was similar across regular and alternatively certified teachers, and also varied noticeably according to experience. Not surprisingly, teachers who had been in the classroom longer knew more about their retirement plans than early career teachers, especially those in their first year. The most experienced

teacher in the regular teacher focus groups, who had been in the classroom for 34 years, explained the plan in some detail:

The (State) Consolidated Retirement System is what it is called. Through the state we are offered a retirement and so much money out of our paycheck is taken each time. And you know really, as close as I am to it, I really haven't looked into it. You're just always paying into it and so, you know, there is that option and of course if you retire early you don't get your full retirement so I'm looking into that. And I believe as far as payments per month you get, like, an average of your top five earning years or something like that as a teacher. So I'm counting on that and I'm in a 403B also as far as through the school system goes.

On the other end of the experience spectrum, a first-year teacher in one of the regular certification groups said:

I don't have a clue. I'm really naïve to this. My head has been...I don't really care. Now that I think about it I know they mentioned something about retirement stuff at new teacher orientation and went on about that kind of thing but I checked that I was interested but nobody ever got back to me on doing it.

Early career alternatively certified teachers also mentioned learning about retirement at new teacher orientation. A first year teacher explained:

What I know is mostly from, and admittedly it is not much, but it is from pretty much professional development day which was last August for those in the first time teaching... And that's pretty much about it. I should pay closer attention.

A third-year alternatively certified teacher added:

You fill out all that paperwork and it explains all of it but eventually it's like piles and you just start signing things. So, I think we had sessions, especially about the private contribution type programs, but I think that's about it.

A mid-career alternatively certified teacher explained how the attention he paid to his retirement plan changed over time:

On your paycheck you see that such and such amount went to, whatever, the teacher retirement system type of thing, but I started paying more attention to it as I got older than when I was a first year teacher. Fresh out of college I was just like, "Hey I got a job! I'm employed! Great!" But now that I am a little bit older and actually thinking about retirement systems or retirement in general I started to pay more attention to it.

In addition to the defined contribution plan offered by the state, teachers in the district in which these focus groups were conducted are provided information by their schools on additional retirement savings through a 403(b) (defined contribution) plan. The majority of teachers in both the traditional and alternatively certified focus groups indicated that they participated in this plan, and discussed the 403(b) more than the defined benefit plan when asked what they knew about retirement. Though some were unclear on whether their employer matched their 403(b) contributions (they do not), teachers that participated in both plans seemed to understand more about their 403(b) than their defined benefit plan. As one alternatively certified teacher explained:

There is a part of the salary that is automatically taken out of your paycheck right up front- you never actually see it and it goes directly to the pension system. But then there is the opportunity as well for additional private-type investments, like a 403(b) type investment which would be your own personal money—not that the pension isn't, but it would be above and beyond what is required by the pension contribution.

One of the traditionally certified teachers was a career changer, who was familiar with defined contribution plans from his previous job and stated:

I know that for a lot of companies there's a retirement (plan), the 401(k), that I had through my other job and the 403B is just the educational version of that. It's something-investments- that you can pay in and ultimately have sent back when you retire.

Teachers who participated in these plans seemed excited about them, and eager to discuss their investment strategies. As one veteran teacher told her colleagues:

What I do is I max mine out. The government tells you, legally per year, you are allowed to invest so much through a 403B. So what we've been doing, my husband and I, is maxing it out. You take that and then after you've worked 20 years for a school system you can add 2,000 dollars to your max amount and if you are over a certain age, 50, you can max them out a couple more years which I do.

A common theme when discussing their defined contribution plans was choice, with several teachers expressing that they liked being able to invest in a way that suited their needs and “move money around.” Those who did not participate in the 403(b) plan, however, saw this type of choice as a negative thing, with one teacher explaining that she did not want to make her own investment choices because “you know you’re the person that messed up, and you have eat Spaghetti-Os versus steak because you didn’t know the information.”

It is no surprise to learn that teachers who are in the classroom and contributing to retirement know more about it than teacher education students. However, two interesting findings did emerge regarding the retirement knowledge of current teachers. First, teachers were generally more knowledgeable about the 403(b) plan offered by the district than they were about their main defined benefit retirement plan. There could be several reasons for this. First, since the 403(b) is managed by a private company, this company may have made more of an effort to inform teachers about the plan. One teacher even mentioned a representative from this company coming to his house to go over the details of the plan with him. Second, since teachers have to actively opt into this plan (rather than the defined benefit plan which is automatic), they may pay more attention to what it is they are choosing. They also have choices of different types of investments within the 403(b) plan, which may encourage them to learn even more about how the plan works in order to determine the best choice for their individual situation. Finally, because teachers have investment choices if they participate in the 403(b), they may be more likely to discuss these choices with other teachers and learn from each other. In these focus groups it was certainly the case that teachers compared notes on their investments, and they may do so in the teacher’s lounge as well.

The second interesting finding is that while pre-service teachers seemed quite eager to learn about retirement, early career teachers were noticeably less so. They mentioned having “other things to worry about” and taking teaching “one day at a time.” Some, particularly in the alternatively certified groups, also indicated that they didn’t plan to stay in teaching very long and therefore weren’t particularly concerned about the retirement system. This is important because it suggests that early career teachers may be too busy with the immediate concerns of their classrooms to be interested in learning about retirement. Therefore, if policymakers want to inform young teachers about their retirement incentives, pre-service may be the best time to do so.

What Factors Influence Teacher Retirement Plan Choice?

Before the second part of the focus groups, teachers were shown the video about different retirement plans and completed the survey. They were then asked to discuss which plan they preferred and why. Their responses mainly centered around three considerations. The first was mobility, the extent to which they planned to teach a full career in one state. The second was career plans, whether they intended to teach for their full career at all. The third, and perhaps most interesting, was issues of risk, control, and trust. This encompasses the extent to which teachers had faith in the retirement system in general, whether they felt more comfortable managing their own money or having the system do it for them, and how they felt about the risks inherent in the stock market.

Mobility

In five of the six focus groups, teachers identified mobility as an important issue. Because defined benefit retirement plans penalize mobility across states, teachers who expected to move to different states over the course of their teaching careers, or those who were not sure of their plans, did not prefer this plan type. This was an especially prevalent concern among future teachers and alternatively certified teachers. One future teacher even identified the ability to move around as one of the factors that drew him to the profession:

I think that's one of the things that attracts me to education is that I'm getting an education degree and I can use that in any state, I mean I might have to take another couple Praxis tests, but generally I can live and teach wherever I want to be because there are teachers everywhere.

Another future teacher agreed:

I think mobility is key. Especially since right now looking forward I don't know what's next. You know what I mean? I can't see into the future and know that I'm going to be moved to, I don't know, moved to somewhere—Kansas—and stay in Kansas for 30 years teaching, which would make the (defined benefit plan) beneficial to me. So I feel like having that mobility and the ability to move around and maybe change states would be ideal.

A third future teacher simply expressed, “Something important for me would be being able to kind of move states because I don't know where I'm going to end up.” Another was critical of the current defined benefit retirement system for penalizing mobility:

I find it strange that there's not a framework for a retirement plan that goes across state borders, just because these days people move around so much more than they did in the 70's and 80's. We're much less hometown focused and more a global community.

The alternatively certified teacher groups agreed about the importance of retirement plan portability, with some of the teachers in these groups already having experienced lost pension benefits as a result of moving states. As one alternatively certified teacher explained:

I did teach for five years (in another state) and so I basically lost all of that money. I did also have private investments, and that can be rolled over, but the pension is basically lost in the massive retirement system for all time.

Another alternatively certified teacher described a similar situation:

Having taught in two states prior to this and left and not having been vested in either of them it's almost like starting over again for me so that is a very unattractive feature- the lack of portability of pension plans from one state to another.

Even among alternatively certified teachers who had not taught in more than one state, the idea of portability was important. One teacher said she did not choose a defined benefit plan because "the fact that it is not capable of being portable across all states is enough for me to not really consider it." Another teacher in her group agreed:

I don't particularly see myself staying in any state period. I mean, I've lived in eight states, my dad was in the army, it's kind of, you know, three or four years and then I'm ready for something new. So something that is state based doesn't really appeal to me that much.

Among traditionally certified current teachers, portability was less of a concern, and in one group did not come up at all. It is interesting that both focus groups of traditionally certified current teachers contained young teachers as well as veterans, but the young teachers in these groups did not mention portability to the same extent as their alternatively certified or pre-service peers, if at all. Some of the veteran teachers, however, did talk about their experiences moving states. One teacher explained how she wished she had understood more about how moving states affected her retirement:

I taught my first nine years in (another state). I knew nothing about retirement. We moved here. So when I went to sign all the papers and get out of (other state), the lady asked me what you want to do with your retirement money. I said, "I don't know. It's nine years worth. What would you do?" And she was a young woman. She said most people take the money and run. So that's what I did. I pulled my money out. Lo and behold, what I didn't know is that I was already vested, I could have turned it over into the (this state) Retirement System, and added nine years, see. So even though I've taught

for 34 years, I, you know, that would have been good enough for me to retire now with full benefits but now I'm nine years behind in (this state).

The fact that mobility was more important to future teachers and alternatively certified teachers than to traditionally certified current teachers may help explain why more teachers in the latter group preferred defined benefit pensions. It is interesting to note, however, that the most popular choice of plan among the future teachers surveyed was a defined benefit plan, a finding at odds with the importance the future teacher focus groups placed on mobility. One reason for this may be that, knowing very little about teacher retirement, many future teachers may not have thought about mobility unless someone else brought them up. While portability is mentioned in the informational video preceding the survey, it is just one of many features discussed. In the focus groups, it may be the case that once one future teacher mentioned wanting to be able to move between states without penalty, others who may not have considered this originally agreed.

Career Plans

A second major theme in the discussions of why teachers prefer one retirement plan over another is their career plans, specifically how long they plan to remain in teaching. As expected, teacher education students were not completely sure of their career plans.

Nonetheless, many expressed the desire to pursue career options outside of teaching at some point in the future. As one teacher education student stated:

I plan to change careers at least a few times in my lifetime. I would still work in education but not be in the classroom the whole time so and that's one thing to consider for retirement I think, how often you change careers because I think that definitely affects your retirement. If you stay in the same career the whole time your retirement is going to be higher, all other things being equal, as opposed to changing careers.

Another student agreed, and pointed out that the retirement plans currently offered to teachers might not be keeping up with the employment patterns of his generation:

It kind of seems like (the defined benefit plan) is maybe a little antiquated because people change careers a lot these days and maybe we need to change retirement plans or change retirement trends as well.

Three of the eight future teachers interviewed indicated that they valued the security of defined benefit plans, but were not sure these plans were the best choice if they did not plan to spend a whole career in the classroom. These future teachers said they preferred cash balance plans or a mix of defined benefit and defined contribution plans because they wanted “the best of both worlds.” As one future teacher who chose a cash balance plan explained:

I do like (the defined benefit plan) that you can never outlive your annuity. But I can also see on the flip side that can be kind of restrictive to be getting the same amount every year. You know, it is the same kind of thing for me, like, I don't know for sure that I'm going to be teaching for forty-three years. So a plan that relies on me to be teaching for forty-three years to be worth anything doesn't do a lot for me. I also don't really like that you have to retire at a certain time or you start losing theoretical money. I want to be able to retire whenever I want to retire. I don't want to have to say, be older, and say, “Well, I really want to stay and I think I can do great things for these kids but I'm losing all this money”.

Some future teachers did plan to spend their whole careers teaching, and therefore were not concerned about being able to transfer retirement funds. As a future English teacher explained:

What is comes down to for me is I really want to teach. That's what I want to do. And if I spend the rest of my life in the classroom and never do anything else as a job then that's okay with me at this point. So, I came into this with my eyes wide open. I knew that teachers don't get paid anything close to what they are actually worth. And I knew that they don't get retirement plans that are close to how much work they do.

It is interesting to note that if this teacher does spend her whole career in teaching, she may be eligible for quite a generous pension. The fact that she does not realize this means that pension incentives are not influencing her behavior, and clearly cannot do so unless she understands what these incentives are.

In the alternatively certified teacher focus groups, many teachers expressed clear plans to leave teaching at various times in the future. This is not surprising given that the stated goal of some alternative certification programs is to recruit teachers to spend only a few years in the classroom before they move on to other careers. As one first-year alternatively certified teacher explained:

I'm not currently planning on being a teacher longer than a year or two after this. I would like to stay in education but I'm not sure what I'll do exactly.

Another alternatively certified teacher expressed more definite plans:

I'm thinking about going to school possibly to study something different. I would like to own my own business actually. One of the things that this year did for me was realizing that, you know, at least personally where I'm working in (district), it would be difficult to raise a family with my salary if not impossible. It's not the quality of life I would like to have and yeah, I'm honestly thinking about the amount of money I would be able to make with this career as opposed to something else I could do.

Some alternatively certified teachers did plan to stay in the classroom, and others had already stayed in teaching longer than they initially expected. As an alternatively certified middle school teacher explained:

I didn't think I would retire as a teacher. It wasn't really an issue because I didn't think I'd be in that profession to ever retire as a teacher anyway so I wasn't concerned about it. It was a short-term thing for me or so I thought.

That teacher had been teaching for 8 years, and expressed a desire to move on to another career at some point, but had no immediate plans to do so.

None of the current teachers expressed plans to leave teaching for any reason other than retirement, though when they planned to retire varied, with some planning to do so as possible and others to stay in the classroom longer. One teacher who was approaching retirement but continued working for financial reasons explained:

I wanted to retire at age 50 and then my husband and I...I'm now 56...and my next goal was 55 but I have my youngest with one more year of college so we were like, okay we'll keep working. But then my husband looked at me just a couple of weeks ago and said to me, "You know, I think you should work until age 60 because of your healthcare, through (district)." Because before that you'd have the opportunity to do (private) insurance but that is very expensive but if you can hang in there until you're 60, (district) has to provide you with health insurance. I don't know all the details but it is there, so I don't have to buy my own insurance. I don't want to work until 60, though. I'm feeling a little burnout honestly.

Some teachers planned to stay in teaching longer, in some cases for as long as they were able. As one teacher put it:

I want to (retire) around 78. I don't ever want to not work. I want to be able to work until they kick me out. Yeah, until they kick me out.

Whether they planned to spend a whole career in teaching or not was a major factor determining teachers' preferred retirement plans. As expected, alternatively certified teachers, who generally did not plan to spend an entire career in the classroom, preferred defined contribution plans while traditionally certified teachers, who did plan to teach until retirement, preferred defined benefit plans. It is once again noteworthy that the preferences future teachers expressed in the focus groups did not reflect the preferences of future teachers in the survey. While the majority of future teachers surveyed preferred defined benefit plans, many future teachers in the focus groups said they did not plan to spend their whole career in teaching and therefore preferred defined contribution or cash balance plans.

Risk, Control, and Trust

A final key issue that came up in the focus groups was that of risk, control, and trust. It is expected that teachers who are more risk averse would prefer defined benefit plans as the risk in the plans is borne by the employer, while teachers who are more comfortable with risk may choose defined contribution plans where they bear the risk themselves. An unexpected issue that arose in these focus groups, however, was how risk was defined. Especially among future teachers and alternatively certified teachers, many focus group participants expressed distrust of “the system” which led them to prefer defined contribution plans where they felt more in control of their own retirement savings. As one future teacher explained:

You have to worry about state funding and I don't, I mean, I know there's some guarantees about this stuff, but I have real worries that social systems like this are going to fall through in our lifetime. Certainly by retirement age, without knowing very much about it, it just seems that this is not sustainable in this model and that it might get fixed but there will have to be some horrible thing happen before, and that could end up with teachers losing pensions and with state employees losing pensions, and that would be horrifying to happen when we're thirty-eight or something and have been teaching for however long, however many years.

Another future teacher expressed similar concerns:

The thing that makes me nervous is that schools are failing right now and being closed, and so if I have a plan that is entirely reliant on the school managing my retirement funds what happens if the school closes or the district becomes bankrupt or something like that? I think that part of the reason that that's something that I think about more than I maybe would have if I decided to teach five years ago is just because of how crazy things have become in the past couple of years. So I think, part of the reason the 401K is attractive to me is that it's my money and I can take it and you know, hand it to a financial consultant who is going to move it around if it needs to be moved around. I kind of tend to trust the stock market a little so being able to put it in the stock market would be a good thing for me.

Alternatively certified teachers echoed this theme, comparing defined benefit retirement systems to Social Security, which they did not expect to be around when they retired. As one teacher stated:

I feel like the people in our generation have been trained not to expect for (Social Security) to be there. But, you know, they are starting to follow the reserve and all this stuff to fund it currently and I think that would be my biggest worry with the pension system; that it is going to kind of have the same types of problems so it's hard for a teacher to really rely on that being there.

Another agreed, saying that this was the main reason for his choice of a defined contribution plan:

I would go for the defined contribution. Because although in the defined benefit supposedly the risk is on the employer, I think in the long run it might also be on the employee given the potential collapse of the market, you know or whatever, inflation of the dollar over the next twenty years, who knows. I think I would prefer the defined contribution just so I can have more control over my financial destiny I suppose.

He elaborated on this point later in the discussion, comparing defined benefit and defined contribution plans:

It seems like historically (defined benefit) has been a pretty good deal. Teachers that are retiring now are pretty happy with it. On the other hand I wonder if teachers of my generation...it's tough to say what the political and economic climate will be like in thirty years. There's already talks around the country that I've heard of, you know, of having—of multiple governments—having to start cutting pensions in order to balance the budget and that's not specifically us. We're really in debt as a country and I don't think it is the same in 2011 as it was in 1960 where you got a reasonable guarantee that the money you put it would get back to you in forty years and it would be more or less the same value.

Even when they did not express outright distrust of the pension system, many future teachers and alternatively certified teachers said they would prefer to be in charge of their own retirement investments. As one future teacher said, in explaining why he selected a defined contribution plan:

The biggest thing is the fact that I can be in control of my own investments. That's what I like because I would feel more secure that I would know what's going on. Even though the risk is on me I would still feel more secure that I can move around and adopt other careers and still have a say in what my retirement is going to be.

He went on to explain that, “I would feel better if I lost because of my investments than if I had no control over the school losing funding. It's like you feel like you're helpless.” Another future teacher said she chose the defined contribution plan for the same reason:

I guess what I don't like about the pension plan is it doesn't seem like you have any control over the money until you retire and so you can't say, “I'm comfortable with a little more risk” and you put it in this kind of account with a possibility of a higher payout at more risk or, “I'm not as comfortable with risk” and put it in the safest thing you have... I am uncomfortable with the idea that another entity is saying, “Oh yeah, we're just going to hold on to this for you for the next fifty years or so and then we'll cut you a check.” I like to be able to feel like I have a little more control over my assets than that.

Another future teacher also expressed a desire for more control than offered by the defined benefit plan:

(Defined benefit) just seemed like too much state control over my retirement and I just don't like the idea of letting go and saying, “Here, use your formula and pay me my pension after thirty years.”

Many alternatively certified teachers also said they would like to control their own retirement investments and chose defined contribution plans for this reason. As one teacher explained:

I would probably still stick with the defined contribution just because I would have the control over how it was invested as opposed to just turning it over to someone else and hoping that their judgment or their intentions are the same as mine.

While the majority of future teachers and alternatively certified teachers expressed a desire to control their own investments, not all of them shared this view. An alternatively certified teacher that preferred a defined benefit plan supplemented with a smaller defined contribution plan explained:

I like it in the sense that there is relatively little risk because it is a defined benefit plan. The main part of the retirement, the mandated part, is defined benefit so it easy to know how much you are going to get and you know it is going to last forever. You're never

going to run out of money so to speak as opposed to some other type of plan where defined contribution or some hybrid where how much money you get in a particular year depends on all kinds of market factors and you, there is a potential you can outlive your retirement. So the safety of it is nice. On the flipside, however, I don't know if the return, I guess it is a tradeoff or whatever for the safety, the less risky means the return wouldn't be as high as if I were to seek out my own sort of kind of financial planner to invest for me.

Another alternatively certified teacher selected a defined contribution plan because of the portability, but also liked features of the defined contribution plan:

I think really the most appealing thing about that is that, assuming the way it is supposed to and everything goes the way it should, I don't ever have to worry about outliving my investment because I'm going to get that monthly or periodic check until the day that I die. There's no risk of outliving my money.

Among traditionally certified current teachers, security was a key issue when choosing a retirement plan. Most of these teachers said they were happy with the defined benefit plan they participated in because it provided this security. As one teacher explained:

I like the defined benefit because if all else fails, if the market falls apart, of course that might affect that, but I still feel like it is always there as like a safety net.

Another teacher said that she liked her current defined contribution plan because:

It's there. It's like, it's almost a part of the benefit of being a teacher is that you know that something is set aside for you when you retire and you don't have to think about it. It's there for you. You have retirement, you know? It's not like you are like, "Okay, I don't have a paycheck anymore. What am I going to do now?"

Once again, it is interesting to note that the mistrust of "the system" and the desire to manage their own retirement funds expressed by most of the future teachers was at odds with the survey data indicating most future teachers preferred defined benefit plans. Given the fact that most of these future teachers knew little or nothing about teacher retirement plans before they watched a brief video on the subject, it seems likely that their preferences may still have been

forming as they discussed various options during the focus groups. One future teacher even said that he would like to “change (his) answer” as a result of points that were discussed. This points to the importance of educating future teachers more thoroughly on retirement options if we want to get a clear sense of their preferences and opinions, and future research may focus on finding ways to do this, possibly including conducting focus groups with more future teachers.

Conclusion

This chapter explored teacher retirement preferences, the reasons for these preferences, and teacher knowledge about retirement plans using an original survey and embedded focus groups. These issues are critical in terms of using pensions as policy levers to recruit and retain high-quality teachers because they directly address whether teachers understand and value their pension incentives. Several key findings emerged. First, there is an overall interest among the teachers sampled in alternatives to defined benefit pension plans. While defined benefit was the most popular plan choice across the different groups of teachers sampled, 71 percent preferred some type of alternative. Additionally, alternatively certified teachers and math teachers preferred defined contribution plans over the other choices. Future teachers also expressed interest in alternatives, though defined benefit plans were the most popular choice among this group. Evidence from the focus groups suggests that future teachers know little to nothing about retirement plans, however, and their preferences may take longer to think through than the survey format allowed. Aligning the type(s) of pensions offered with teacher preferences may cause teachers to place a higher value on their pensions, increasing their effectiveness as a policy lever.

In order to value their pensions, however, teachers must understand them, and not all of them do. As expected, the focus groups revealed that current teachers knew more about retirement than future teachers, with teachers nearing retirement being the most knowledgeable. However, much of the knowledge in both groups was about defined contribution plans. Future teachers described 401(k)s and IRAs when asked what they knew about retirement, and current teachers who contributed to an optional 403(b) discussed this with more frequency and at greater length than their defined benefit plan. This may be good news for policymakers looking to move toward these types of plans for teachers. Future teachers generally equated “retirement plans” with defined contribution plans, and this was what they assumed their employers would provide. While current teachers valued the security provided by their defined benefit plans, many of them also participated in an optional defined contribution plan about which they generally seemed enthusiastic. Another key point is that although they knew very little about teacher retirement, the future teacher focus groups were eager to learn, especially compared to early-career teachers who indicated that they were busy with more immediate classroom concerns. This suggests that the best time to provide teachers with information about retirement may be during pre-service training rather than when they are starting in the classroom.

In examining why teachers preferred one plan over another, three central issues emerged: mobility, career plans, and attitudes about risk, trust, and control. As expected, teachers who had been or planned to be mobile across states (particularly the alternatively certified teachers) preferred defined contribution plans because of their portability. Similar preferences were evident for those who did not plan to spend a whole career in teaching. The third issue was a bit more complicated, as it encompassed preferences and attitudes that were not directly related to career plans. Teachers who preferred to make their own investment decisions

preferred defined contribution plans, which allowed them to do so. Many younger teachers indicated that they did not trust state systems to manage their money and did not expect defined benefit pension systems to survive until they were of retirement age, and therefore preferred alternatives, including cash balance and defined contribution plans. Again, the future teacher groups seemed to be forming and refining their opinions throughout the discussion, which may explain why the opinions of focus group participants differed from overall survey trends in this group.

Together, the survey and focus groups provided valuable insight into what teachers know about their retirement plans and what they value in these plans, the first two components in using pension plans as policy lever to recruit and retain high-quality teachers. In the next chapter I further discuss the implications of these findings and those in the previous chapter and propose ways in which states could align their retirement systems with desired teacher employment behavior.

CHAPTER V

PUTTING THE PIECES TOGETHER: PENSION PLANS AS POLICY LEVERS

The preceding chapters presented evidence from the Schools and Staffing Survey, Teacher Follow-Up Survey, and original survey and focus group data on the extent to which teachers understand and value the incentives embedded in their pension plans. Teachers understanding and valuing these incentives are the first two steps necessary in using retirement plans as a policy lever to attract and retain high-quality teachers. However, the final, and as yet unaddressed, piece of the puzzle is aligning these incentives with desired teacher behavior. If teachers understand and value their pension incentives (the extent to which this is the case will be revisited later in this chapter) and act in accordance with these incentives, it is critical for policymakers to examine whether the outcome is a positive one. Otherwise, large amounts of money are being spent on policies that have at best neutral and possibly quite negative consequences for overall teacher quality.

It is outside the scope of this analysis to argue what retirement behavior policymakers *should* be trying to elicit from teachers. In fact, this may differ from state to state and/or over time. Rather, I present a series of possible policy objectives and examine what retirement plans and incentives could be utilized to achieve them. Table 9 shows examples of possible policy objectives, the plans that may help meet them, and the incentives in these plans that are aligned with the desired behavior.

Table 9: Policy Objectives and Retirement Plan Incentives

POLICY OBJECTIVE	RETIREMENT PLAN	INCENTIVES
Retain teachers at the state level	Defined Benefit	Moving states results in a loss of pension wealth
Retain teachers for a set length of time	Defined Benefit	Accrual patterns "pull" teachers to stay until set retirement age, then "push" them out
Retain teachers longer	Defined Benefit with increased age/service requirements	Shift accrual patterns to "push" teachers out later
	Defined Contribution or Cash Balance	Working longer results in more money spread over a shorter retirement
Encourage burned-out teachers to leave	Early Retirement Incentives	Partial retirement benefits earlier encourages some teachers to leave
	Defined Contribution or Cash Balance	Less incentive to stay until a certain age, teachers might retire even earlier
Recruit better teachers	Defined Contribution or Cash Balance	Remove disincentives (vesting, backloading) to increase the overall teaching pool
Recruit and retain teachers in shortage areas	Plan(s) preferred by teachers in these fields	Provide strongest incentives to teachers who are most needed
Retain better teachers longer	Defined Contribution or Cash Balance coupled with Incentive Pay	Better teachers make more money, state and teacher both contribute more toward retirement

First let us assume that the policy objective is to retain teachers at the state level, that is, for teachers who begin teaching in a given state to remain teaching in that state until retirement. The current defined benefit system, which is generally not portable across states, contains incentives aligned with this objective. As Costrell & Podgursky (2010) show, a teacher who works in two different states will have a much smaller pension under this plan than a teacher who works for the same amount of time in one state. In one example illustrated by Costrell and Podgursky (2010), a teacher moving states can lose as much as 65 percent of her pension wealth compared to if she had taught a full career in a single state. This presents a strong incentive for teachers to spend a whole career in one state.

Traditionally, one of the purposes of pensions has been to reduce the cost of employee turnover (Blake, 2006). The current defined benefit plans contain incentives to reduce turnover at the state level, but this may not actually reduce costs if most of the costs of teacher mobility are incurred at the district level. If this is the case, incentives could theoretically be restructured to deter mobility across districts, though this may not be practical from an administrative standpoint. If retaining teachers at the state level is not a key outcome for state policymakers, however, they may want to consider the extent to which the current, non-portable system of defined benefit teacher pensions may be deterring teachers from entering or continuing the profession if they plan to be mobile.

If the policy objective is to control the age at which most teachers retire, the current defined benefit systems also present well-aligned incentives. Costrell and Podgursky (2007, 2008) document how the backloading in these plans “pull” teachers to stay in the classroom until they are eligible for full retirement benefits, while the defined benefit “pushes” them to leave at

this age because the added return from working an additional year is not enough to offset the loss of the pension for that year. In the post-mandatory retirement era, this may be a way to encourage employees to leave when they are no longer able to perform their jobs as well as when they were younger due to declining energy and health.

However, it may be the case that the age at which most retirement systems “push” teachers out of the classroom is too young. With many states offering full retirement to teachers in their early fifties while life expectancy continues to rise, a teacher might be eligible to collect a pension for longer than she taught. Therefore, a policy objective might be to retain teachers in the classroom for longer than the current system does. There are two ways pension incentives might be realigned to reach this goal. First, the age and/or years of service at which a teacher is eligible for retirement benefits could simply be increased within the current defined benefit framework. The Social Security Administration has instituted such a change, incrementally raising the minimum age for full benefits from 65 for those born before 1937 to 67 for those born after 1960 (Social Security Administration, 2010). An alternative to this would be switching to a defined contribution or cash balance plans, which do not contain the incentive to retire at a certain age so as not to lose pension wealth. In these plans, pension wealth accrues smoothly, and the longer a teacher works, the more money she will have to spread over a shorter retirement. It is up to the individual teacher to decide when she has enough money to retire based on her financial situation, life expectancy, and other considerations. By removing the incentive to retire at a certain time, teachers may choose to remain in the classroom longer, or may need to do so in order to save enough for retirement.

On the other hand, an important policy objective might be to encourage teachers who are burned out or simply ill-suited to the profession to leave the classroom. Since tenure laws in many states make it all but impossible to fire experienced teachers (Coleman et al., 2005), pension incentives may serve as a valuable tool to encourage such teachers to leave the profession. Early retirement incentives in defined benefit plans seem to be well aligned with this objective. Some states (not all states offer early retirement) offer a smaller but still substantial “push” at earlier ages and/or experience levels to encourage teachers to retire. Nevada and Florida offer (reduced) early retirement benefits after only one year of service, which encourage teachers who want to leave the classroom to do so at whatever point they choose. However, it is not clear that these plans necessarily target the right teachers. They may encourage burned-out teachers to leave, or they may reward the most capable teachers for seeking positions elsewhere. SASS and TFS present mixed evidence on this issue, and further examination of which teachers take early retirement and why would be instructive in informing policy decisions.

Going a step beyond early retirement incentives, which might encourage burned-out teachers to leave but still requires set age and service requirements (in most states) would be switching to defined contribution or cash balance plans, which, due to a lack of backloading, do not contain the “pull” to keep teachers working for any specific length of time. Since these plans are portable and could be rolled over when a former teacher enters a new career, there is no disincentive for them to leave teaching. This may be especially useful in encouraging the exit of mid-career teachers who would rather be doing something else but are not yet approaching early retirement age.

Next, let us assume that the policy objective is to recruit high-quality teachers. This may be problematic because research has shown a weak relationship between observable

characteristics and credentials and teacher quality (Clotfelter et al., 2007; Glazerman et al., 2006; Goldhaber & Brewer, 1997, 2000), making it difficult to identify high-quality teachers on the front end. Therefore the role of pensions in recruiting high-quality teachers might be to remove the disincentives to teaching for a few years with the goal of increasing the overall teacher applicant pool. Switching to defined contributions or cash balance plans would align incentives with this goal. If, as in these plans, vesting requirements were shorter or were eliminated altogether, and if pension wealth accrual were smooth rather than heavily backloaded, talented and motivated individuals who were considering teaching would have no disincentives embedded in the pension system discouraging them from trying it out for a few years. This may increase the overall applicant pool for teaching positions, allowing administrators to choose teachers that were a better fit for their schools. Finally, with no financial disincentive to leave the classroom, those teachers who tried teaching and were less successful (or simply ready to move on) might exit the profession, making room for other, better teachers. While the role of pensions in recruiting higher quality teachers is perhaps the least easily tied to pension incentives, removing disincentives to free entry into, and exit from, the profession may be useful in achieving this goal.

While recruiting higher-quality teachers overall may be stretching the limits of teacher pensions as policy levers, they may be more effective in recruiting teachers in shortage areas. If these shortages exist because teachers in these fields (such as math and science) have attractive options for other careers, removing the disincentives to teaching a few years as outlined above might encourage them to spend some time in the classroom before pursuing those options. Another way pension incentives could be aligned with recruiting teachers in shortage areas is to

offer the pension plans that these teachers prefer. Though more research on this topic is needed, evidence presented in the previous chapter indicates that math teachers prefer defined contribution plans. If there is a shortage of math teachers, it makes sense to do everything possible to attract math teachers over other teachers. Adopting the retirement plans preferred by teachers in shortage areas, or giving teachers in shortage areas a choice of plans, might remove obstacles to their recruitment.

Finally, let us assume that the policy objective is to retain better teachers longer than worse teachers. Currently, retirement systems are not aligned with this objective. Because teachers are generally on a single-salary schedule and retirement benefits are based on final average salary, better teachers are not rewarded with better retirement benefits. Combining a defined contribution or cash balance plan with an incentive pay system could create incentives for better teachers to stay longer. Simply adding incentive pay (in the simplest terms, paying better teachers more) would not encourage better teachers to retire later. In fact, it might do the opposite. If these teachers are making enough money to invest outside of their pensions, the “pull” of the defined benefit plan might not be strong enough to keep them in the classroom until retirement age. At the very least, the defined benefit “push” would still be in place, because every year a teacher works is a year she is not collecting her pension. By combining incentive pay with defined benefit or cash balance plans, however, the incentives are aligned for high-quality teachers to stay in the classroom as long as they are still able to maintain that level of quality. As a teacher’s salary increases, so would the amount of money she and her employer contribute toward retirement, since both contributions are a percentage of overall salary. A good

teacher would have incentive to stay in the classroom as long as both her salary and retirement benefits were growing, since she would not lose any of these benefits by continuing to work.

Overall, when considering all the possible policy objectives states might wish to pursue through teacher pension reform, the majority are best aligned with defined contribution or cash balance plans rather than the current defined benefit system in place in most states. The current system encourages teacher retention at the state level, to which there may be no clear benefit, and encourages teachers to retire at a certain age, which may be too young (or too old, if a teacher is burned out and no longer effective). The smooth accrual patterns of defined contribution and cash balance plans, on the other hand, allow teachers to select the appropriate age for retirement based on their own professional and financial situation. There is no incentive in these plans to leave teaching for those who wish to stay past “regular” retirement age, and no incentive for burned-out teachers to “hang in there” until a set retirement date. Additionally, the portability of these plans removes the disincentive for teachers who do not intend to teach for their entire career or who want the option to be geographically mobile to enter the profession. This may increase the overall pool of teacher candidates, allowing districts and principals the opportunity to select the best teachers for their open positions.

A switch to defined contribution or cash balance plans would not (unless coupled with performance pay) automatically retain high-quality teachers at a higher rate, but it would remove the artificial “pull” and “push” of defined benefit plans that many teachers clearly respond to. If better teachers enjoy teaching and receive positive feedback for a job well done, they may choose to stay in the classroom longer once the financial incentive for them to retire at a certain time is removed. Conversely, if low-quality teachers would really prefer to pursue another

career, they may leave teaching earlier if they are not “pulled” by defined benefit plans to remain in the classroom until a set retirement age.

While aligning retirement incentives with desired teacher behavior is the last piece of the theoretical framework discussed here, it is actually the first piece that policymakers should consider. If incentives are not aligned, making sure teachers understand them is at best a waste of time and possibly counterproductive if the incentives are structured counter to desired outcomes (encouraging teachers to retire too early, for example). Once the proper incentives are in place, however, providing information to teachers is crucial. Evidence from the 2003-2004 SASS and TFS presented in Chapter III indicates that most teachers understand the incentives embedded in their retirement plans to retire at a certain age and experience level by the time they reach that point, with 76% percent of the teachers in their first year of eligibility for regular retirement taking this option. Among those who retired, the primary reason they gave for doing so was simply “to retire” as opposed to moving, health, family, or other issues, and 39 percent of these teachers were reemployed immediately after retirement from teaching. The reemployment data is interesting because it indicates that these teachers did not retire from teaching because they no longer wanted to work, but rather in response to some other incentive. This is especially true given that the majority of these teachers are employed more than half-time, and many indicated that they had taken jobs in the education field. Additionally, the total percentage of reemployed teachers may be higher since the Teacher Follow-Up Survey only captured those who took a new job within their first year out of the classroom.

However, evidence from the focus groups, presented in Chapter IV, indicates that younger teachers do not understand their retirement plans or the incentives embedded therein.

When pre-service teachers were asked about teacher retirement, they said they knew little or nothing about it, and when asked about retirement plans in general they described defined contribution plans. Early career teachers knew that they were contributing to retirement by looking at their pay stubs to find out where their money was going, but did not think about it much beyond that. Some early career teachers did not even know they were contributing to retirement at all, assuming that since they hadn't signed up for anything they did not have a retirement plan.

This is important to the extent that pensions are expected to influence the behavior of early career teachers and/or attract qualified individuals to the teaching profession. While offering one type of retirement plan or another is unlikely to draw individuals into teaching that would not otherwise consider it as a career, those who do enter teaching should be educated as to how their career choices will affect their retirement benefits. For example, most state systems currently penalize mobility across state lines, especially if a teacher is not in one state long enough to become vested. This resulted in a loss of pension wealth for several teachers in the focus groups, particularly alternatively certified teachers but traditionally certified teachers as well. If these teachers had understood this feature of their retirement plan, they might have made different choices. As it happened, however, their pension plans did not achieve the objective of retaining them in the state because they did not understand this incentive.

Once the importance of teachers understanding their retirement plans is established, a key question becomes how to best provide them with this information. Focus groups indicated that pre-service teachers were very interested in learning about the retirement benefits they would be offered, along with the other "real-world" aspects of teaching such as salary. It was also clear that teachers in their first few years were too busy managing their classrooms day-to-day to be

interested in discussing retirement (or anything else not of immediate practical concern).

Therefore, a logical plan might be to integrate information about retirement into teacher training programs, both traditional and alternative. In one focus group, pre-service teachers suggested that this be part of a class or workshop that coincides with student teaching, when teacher education students were beginning to think about applying for jobs.

Another way to disseminate retirement information would be through state teacher retirement websites. All 50 states and the District of Columbia have such sites, but the extent to which they are accessible and informative varies widely. If states made sure these sites were easy for teachers to find (by linking to district pages, for example) and that the information they provided was clear and easy to understand, teachers might become better informed on their retirement plans and incentives. If retirement incentives are properly aligned with desired teacher behavior, making sure teachers understand them is important for both states and for teachers. If teachers do not understand their plans, they cannot respond to incentives in the way states intend. They also may lose pension wealth unnecessarily, which should provide teachers unions with motivation to make sure their teachers understand their retirement plans as well.

Finally, in considering pensions as a lever to recruit and retain high-quality teachers, policymakers must understand what teachers value in their retirement plans. It is unlikely that pension incentives will ever be strong enough to totally override other considerations in teachers' retirement behavior, but knowing what teachers value, and how this differs across different groups of teachers, can certainly make retirement incentives more effective.

Focus groups uncovered three key issues that teachers considered in assigning value to their retirement plans: flexibility to change careers, geographic mobility, and risk. How they defined these things and the extent to which they were important varied across (and somewhat within) groups. Future teachers generally saw themselves as geographically mobile and possibly changing careers, and therefore were interested in retirement plans that did not penalize these choices. They also expressed doubt that defined benefit plans would still be around when they reached retirement age, and indicated that they would prefer to make their own investment decisions than have their retirement assets managed by the state.

Alternatively certified teachers expressed even stronger preferences for mobility and career change, with some of them already having experienced a loss of pension wealth due to moving states. They too preferred plans that would allow them maximum flexibility, both in terms of location and career choice. Like future teachers, they expressed doubt in the long-term sustainability of defined benefit plans and wondered if the benefits they promised would still exist when they reached retirement age.

Traditionally certified public school teachers were generally satisfied with the current system, though the younger teachers in this group were often unclear on what their retirement benefits were. Some of these teachers discussed suffering a loss of pension wealth due to interstate mobility, but most in this group did not see mobility as a key concern. They were also not generally considering changing careers, so did not particularly value pensions that were portable from one career to another. The primary concern among this group was security, which they felt was provided by their defined benefit plans. Many teachers also liked that they “didn’t have to think about it,” and did not want a plan that required them to make their own retirement decisions.

Clear differences also existed among math teachers compared to teachers in other subjects. Survey results show that math teachers overwhelmingly prefer defined contribution plans, and evidence from the focus groups indicates this is because they are comfortable with numbers and prefer to manage their own investments. Preferences of teachers in other subject areas were not particularly different from the overall teacher pool in this study, but may become clearer in larger samples.

Considering what teachers value in retirement plans overall is important for policymakers that want teachers to respond to the incentives in these plans. Considering what teachers in specific groups value is also helpful in designing incentives that appeal to these groups. For example, survey results in this study indicate that states interested in recruiting math teachers should offer defined contribution plans. Since retirement preferences vary both across and within groups, states may also consider offering teachers a choice of retirement plan, provided the incentives in all the plans offered are aligned with desired teacher retirement behavior. A few states have implemented choice in teacher retirement plans, and examining what plans teachers are choosing and how this is related to their retirement behavior and other characteristics is an interesting direction for future research.

Reforming teacher retirement plans is of course not the only- or even the most effective- way to recruit and retain high-quality teachers. However, current retirement costs represent a major expenditure in state education budgets that may not be achieving anything from a policy perspective, and may even be contributing to teacher shortages (Hansen, 2008). When considering how teacher retirement can serve as a policy, states should consider three key points:

teachers must understand their retirement incentives, they must value them, and these incentives must be aligned with the desired retirement behavior. This dissertation presented preliminary evidence on the first two points and considered how incentives in various retirement plans are aligned with policy objectives. However, research into teacher retirement is an emerging field. As more data is collected and as more states consider and adopt alternatives to the current teacher retirement system, additional research into teacher retirement preferences and behavior should be conducted, providing states with insight into how to best design retirement plans for the teachers of the 21st century.

Conclusion

In the first chapter of this dissertation, I proposed that in order for teacher pensions to be used as a policy lever to attract and retain high-quality teachers, three conditions must be met. First, teachers must understand their pension incentives. Second, they must value them enough to act upon them. Finally, these incentives must be aligned with desired teacher retirement behavior.

Evidence from the Schools and Staffing Survey and Teacher Follow-Up Survey presented in Chapter III indicates that the first two conditions are being met, at least by the time teachers reach regular retirement age, with 76% of teachers in their first year of retirement eligibility choosing to retire. SASS data also indicates that the majority of teachers who leave the profession do so “to retire” and not due to family or health issues, staffing actions, or other reasons, and that more than a third of these teachers are reemployed immediately after retiring

from teaching. This is further evidence that teachers who still want (or need) to work are leaving the classroom due to retirement incentives.

However, SASS data does not allow us to examine when teachers become aware of their retirement incentives and what their retirement preferences might be. In Chapter IV, original data from a survey and embedded focus groups is used to explore these issues. Not surprisingly, focus group data indicates that young teachers (especially future teachers) know very little about their retirement plan, while older teachers are more knowledgeable. An interesting finding in this area is that future teachers seem to be quite interested in learning about teacher retirement, indicating that pre-service training might be an ideal time to provide teachers with this information. In terms of retirement preferences, defined benefit plans were the most popular option overall, but the majority of teachers preferred one of the alternatives: defined contribution, cash balance, or a mix of plans. Differences in preference existed among teacher groups, with alternatively certified teachers and math teachers preferring defined contribution plans and future teachers preferring cash balance plans. This provides preliminary evidence that the next generation of teachers may be interested in alternatives to traditional teacher pension plans when given the option.

The final chapter of this dissertation focused on the extent to which teacher retirement plans are aligned with desired teacher retirement behavior. While the definition of “desired” may vary by state and over time, it is likely that current defined benefit plans are not well-aligned with most plausible policy objectives. As discussed earlier in this chapter, defined contribution or cash balance plans may be better suited to produce desired teacher retirement behavior. This is good news, given the interest of future teachers in these types of plans.

This dissertation presents an initial exploration of how teacher retirement plans serve as a policy lever to attract and retain high-quality teachers. Due to limitations in the data, the findings should be viewed as preliminary, and the issues presented here researched further. In particular, an important next step would be to expand the survey and focus group sample to the national level, possibly adding additional teacher groups of interest, such as charter school teachers. If the results of a larger, nationally representative sample also indicate that alternatively certified teachers and future teachers prefer alternative pension plans, this is valuable information for policymakers and teachers' unions alike. It may be the case that alternative pension plans that will be less of a drain on state budgets can also serve to recruit and retain the next generation of high-quality teachers, a situation in which everyone wins.

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APPENDICES

APPENDIX A- KEY FEATURES OF STATE RETIREMENT PLANS

Information in this table was compiled from state websites and teacher retirement handbooks. Because different rules apply to teachers who entered the retirement systems at different times, it is important to note that the figures below refer to current hires as of April 2010.

State	Plan Type	Years to Vest	Teacher Contribution	Employer Contribution	Replacement Factor	Eligible for Full Retirement
AL	DB	10	5%	8.17%*	2.0125	25 yrs or age 60 + 10 yrs
AK	DB or DC (District choice)	8, 5 (stepped)	8.65% (DB) 8% (DC)	22% (DB) 5% (DC)	2 (first 20 years), 2.5 (21+)	20 yrs
AZ	DB	5	9.6%	9.60%	2.1-2.3 (by yrs of svc)	Age 65 or 62 w/10 yrs or Rule of 80
AR	DB	5	6%	14%	2.15	Age 60 or 28 years
CA	DB	5	8%	4.50%	1.15-2.4 (by age)	Age 55 or 50 w/30 years
CO	Choice of DB or DC	5	8%	13.85% (DB) 10.15% (DC)	2.5	Age 65 or 50 w/30 years
CT	DB	10	7.25%	15.28%*	2	35 years or age 60 w/20 years
DE	DB	5	3%	7.44%	1.85	Age 62 w/5 yrs, 60 w/15 years, or 30 yrs
DC	DB	5	8%	N/A*	1.5-2 (by yrs of svc up to 10)	30 yrs or age 60 w/20 years
FL	DB	6	N/A	9.85%	1.6-1.68 (by age and svc)	Age 62 30 yrs
GA	DB	10	5.25%	9.74%	2	30 yrs or age 60 w/10 years
HI	DB	5	6%	15%	2	Age 55 w/30 yrs, age 62 w/5 yrs
ID	DB	5	6.23%	10.39%	2	Age 65 or Rule of 90
IL	DB	5	9.40%	7.64%*	2.2	Age 62 or Rule of 90
IN	DB (Plus mandatory 3% DC)	10	5%	13.22%*	1.1	Age 65 w/10 yrs or rule of 85
IA	DB	4	4.50%	6.95%	N/A	Age 65 or Rule of 88
KS	DB	5	6%	5.75%*	1.75	Age 65 or Rule of 90
KY	DB	5	9.86%	13.11%	2.5	27 yrs or age 60
LA	DB	5	8%	15.50%	2.5	20 yrs at age 65 or 30 yrs
ME	DB	5	7.65%	17.78%	2	Age 62 or 25 yrs
MD	DB	5	5%	11.17%*	1.8	Age 62 or 30 yrs
MA	DB	5	11%	N/A*	Up to 2.5,	30 yrs

					depending on age	
MI	DB	10	6.40%	7.6%*	1.5	30 yrs or age 60
MN	DB	3	9%	9.50%	1.2-1.9 (by yrs of svc)	Age 65 or 62 w/30 yrs or Rule of 90
MS	DB	8	7.25%	11.3%*	2 (up to 25 yrs), 2.5 (26+)	Age 60 or 25 yrs
MO	DB	5	13.50%	13.50%	2.5 (up to 30 yrs), 2.55 (30+)	Age 60 or 30 yrs or Rule of 80
MT	DB	5	7.15%	7.58%*	1.6667	Age 60 or 25 yrs
NE	DB	5	8.28%	8.29%	2	65 or Rule of 85
NV	DB	5	N/A	21.50%	2.67	Age 65 or 30 yrs
NH	DB	10	6.57%	2.81%	N/A	Age 60
NJ	DB	10	5.50%	1%*	N/A	Age 62
NM	DB	5	7.90%	13.90%	2.35	Age 65 or 25 yrs or Rule of 75
NY	DB	10	3.50%	8.62%	1.67 (first 25 yrs), 2(26+)	Age 55 w/10 years
NC	DB	5	6%	8.14%	1.82	Age 65 or 30 yrs
ND	DB	5	7.75%	8.75%	2	Rule of 90
OH	Choice of DB, DC, or Hybrid		10%	14% (DB) 10.5% (DC)	2.2 (DB), 1(Hybrid)	Age 65 or 30 yrs (DB) 50 (DC)
OK	DB	5	7%	9%	2	Rule of 90
OR	Hybrid	5	6%	16.97%*	1.5	Age 65 or 30 yrs
PA	DB	5	6.25%	8%	2	Age 60 or 35 yrs
RI	DB	10	9.50%	14.84%*	1.6-2.5, based on yrs of svc	Age 65 or 29 yrs
SC	Choice of DB or DC	5	6.50%	9.25%	1.82	28 yrs
SD	DB	3	6%	6%	1.55	Age 65
TN	DB	5	5%	6.13%*	1.5 (up to 50k), 2.5(over 50k)	Age 60 or 30 yrs
TX	DB	5	6.40%	6.40%	2.3	Age 65 or Rule of 80
UT	DB		N/A		2	Age 65 or 30 yrs
VT	DB	5	3.54%	4.81%*	1.67	Age 62 or 30 yrs
VA	DB	5	5%	6.62%*	1.7	Age 65 or 30 yrs
WA	Choice of DB or Hybrid	5	3.36% (DB), 5-15% (Hybrid)	1.37%*	2 (DB), 1 (Hybrid)	Age 65
WV	DB and/or DC	12	6% (DB) 4.5% (DC)	25.6% (DB) 6% (DC)	2	Age 60 or 35 yrs
WI	DB	5	6.20%	4.80%	1.6	Age 65 or 30 yrs
WY	DB	4	5.57%	5.68%	2.125 (first 15 yrs), 2.25 (16+)	Age 60 or Rule of 85

* Imputed from Hansen (2008) for states that did not have current employer contribution information available on their website or in their retirement handbook.

APPENDIX B- QUESTIONS FOR FOCUS GROUPS

FOR CURRENT TEACHERS AND ADMINISTRATORS

Knowledge/Opinions on Current Plan

Tell me about your retirement plan.

How did you find out about your retirement plan?

Do you feel well-informed about your retirement plan?

Who would you go to if you had questions about your retirement plan?

What do you like about your retirement plan? What do you dislike?

What would you change if you could?

Do you feel your retirement plan is fair? Why or why not?

Is retirement something you thought about when choosing a career?

At what age do you think you will retire? Will you teach until then?

****Show video about retirement plans****

Opinions on Retirement Plan Alternatives

After watching the video, would you prefer a different retirement plan than the one you have now?

Why or why not?

What do you like about defined benefit plans? What do you dislike?

What do you like about defined contribution plans? What do you dislike?

Would you prefer a mix of both plans? Why or why not?

Do you think the other teachers at your school would agree with your preferences?

Should individual teachers have a choice of retirement plans? Why or why not?

FOR FUTURE TEACHERS

Knowledge/Opinions on Current Plan

What do you know about teacher retirement plans?

How did you obtain that information?

Is retirement something you think about when choosing a career?

At what age do you think you will retire? Will you teach until then?

****Show video about retirement plans****

Opinions on Retirement Plan Alternatives

After watching the video, which retirement plan would you prefer?

What do you like about defined benefit plans? What do you dislike?

What do you like about defined contribution plans? What do you dislike?

Would you prefer a mix of both plans? Why or why not?

Do you think other teachers or future teachers you know would agree with your preferences?

Should individual teachers have a choice of retirement plans? Why or why not?