Lessons for Public Pensions from Utah's Move to Pension Choice

Robert L. Clark, Emma Hanson, and Olivia S. Mitchell

March 25, 2015

Paper Prepared for the NBER Conference on
Retirement and Health Benefits in the Public Sector

April 10-11, 2015

Cambridge, MA

The research described in this paper began with a conversation with Richard Ellis, State Treasurer of Utah, who provided introductions to the leaders of the Utah Retirement System (URS) and supported our examination of the impact of pension reform in Utah. The authors acknowledge the assistance of Daniel Anderson, Executive Director; Jeff Allen, Chief Information Officer; John Brinkerhoff, Chief Privacy Officer and Information Security Officer; Joe Kanis, Retirement Applications Manager; and others at URS. Research support was provided by the Pension Research Council/Boettner Center at The Wharton School of the University of Pennsylvania. This research is part of the NBER programs on Aging, Public Economics, and Labor Studies. Opinions and errors are solely those of the authors and not of the institutions with whom the authors are affiliated.

Lessons for Public Pensions from Utah's Move to Pension Choice

Abstract

This paper explores what happened when the state of Utah moved away from its traditional defined benefit pension. Instead, it offered new hires a choice between a conventional defined contribution plan, versus a hybrid plan option having both a guaranteed benefit component and a defined contribution plan shifting investment risk to employees. We show that some 60 percent of new hires failed to make any active choice and, as a result, they were automatically defaulted into the hybrid plan. Slightly more than half of those who made an active choice elected the hybrid plan. Interestingly, post-reform, employees who failed to actively elect a primary retirement plan were also far less likely to enroll in a supplemental retirement plan, compared to new hires who made an active plan choice. We also find that employees hired following the reforms were more likely to leave public employment, resulting in higher turnover rates than previously. This could reflect a reduction in the desirability of public employment under the new pension design. Our results imply that public pension reformers must consider employee responses, in addition to potential cost savings, when developing and enacting major pension plan changes.

Robert Clark *(corresponding author)*
Poole College of Management, Box 7229
North Carolina State University
Raleigh, NC 27696
(919) 515-4568
Robert_Clark@ncsu.edu

Emma Hanson
Doctoral Candidate in Economics, North Carolina State University
Policy Research Specialist, North Carolina Retirement Systems
325 North Salisbury St
Raleigh, NC 27603
919-807-3037
Emma_Hanson@ncsu.edu

Olivia S. Mitchell
The Wharton School, University of Pennsylvania and NBER
3620 Locust Walk, 3000 SH-DH
Philadelphia, PA 19104
215-898-0424
mitchelo@wharton.upenn.edu

Lessons for Public Pensions from Utah's Move to Pension Choice

Robert L. Clark, Emma Hanson, and Olivia S. Mitchell

The financial crisis of 2008-09 took a major toll on U.S. public pension plan investments, and the ensuing Great Recession deepened the challenges facing these plans. As a consequence, many public employers were forced to restructure their retirement schemes, and a recent survey found that since 2011, almost all states changed public pension benefit and contribution formulas to rein in costs (NASRA, 2014a). Moreover, several states have taken a further step, significantly modifying their plan designs so as to transfer risk away from plan sponsors and onto employees. In particular, several states have offered employees the option to choose which retirement plan they want, with options including defined benefit, defined contribution, or hybrid plans.

This paper explores the restructuring of Utah's statewide public employee pension system in 2011, in response to the financial challenges described above. Previously, the Utah Retirement System (URS) provided public employees with a traditional defined benefit (DB) plan. Before the 2008-09 financial downturn, Utah's pension system was one of the most well-funded statewide pension plans in the country, with an average funded ratio of 95 percent. With the downturn, however, investments losses led to in a substantial decline in URS's funded ratio which had dropped to 83 percent by 2010.[1] Consequently, the system's actuaries forecasted that large increases in annual required contributions would be needed to cover the losses. To avoid imposing

[1] URS's funded ratio as of January 1, 2013 was 77.1%. This includes the recognition of the final 20% of the 2008 investment loss.

additional financial strain on taxpayers, the Utah legislature responded by making major changes to pension offerings provided to new employees.[2] The legislator sponsoring the reform, Dan Liljenquist, explained that, "our goals with reform were two-fold: one, to make sure that we could meet every penny of the commitment that we had already made to current employees and retirees, and two, to reduce and eventually eliminate the pension-related bankruptcy risk to the state." (McGuinn 2015, P 9).[3]

Legislation authorizing the pension reform went into effect in 2011, officially closing the defined benefit (DB) plans to new employees and establishing the new two-option retirement plan that would replace it. The two new retirement plan options were expected to be less generous than the former DB plans and could, therefore, be anticipated to reduce the state's future pension liabilities. Post-reform, new hires could choose one of two new options: a defined contribution (DC) plan, or a hybrid pension plan that incorporated both DB and DC elements (about which we say more below). New hires who failed to make an active choice between plans were automatically enrolled in the hybrid plan.

Using administrative data provided by URS, we examine how new hires' plan choices differed according to individual and job characteristics. Additionally, we evaluate how the pension reform changed two employee behaviors: contributions to supplemental plans, and turnover patterns. Prior literature has not examined these behavioral responses to such public pension changes, focusing mainly on how funding responded to changes in contributions and benefits.[4] By contrast, our analysis provides evidence from Utah suggesting that it is important

[2] Due to legal constraints, benefits could not be reduced for existing employees.
[3] A simulation analysis by Evans and Phillips (2014) estimated that the pre-reform Utah retirement system had a 50 percent chance of exhausting its pension fund by 2028.
[4] Plan sponsors generally are aware of the balancing act between two competing goals of providing adequate retirement income to members and ensuring the long-term financial stability of the plan. In the 2013 Summary Report

not to neglect the effects of retirement plan restructuring on public employee behavior. Indeed, such outcomes could undermine state governments' ability to deliver services promised to their citizens.

We summarize our findings in Figure 1. First, most new hires failed to make an active choice between the available pension plan options, so defaults mattered. Second, one might have anticipated that the less generous retirement plan would have encouraged new hires to save more through supplemental plans, but this did not occur. Interestingly, those who did make an active plan choice for the primary account were also likely to participate in supplemental retirement plans. Third, post-reform, public employee turnover rates rose.

Figure 1 here

In what follows, we begin by reviewing key aspects of Utah's traditional DB plan and compare it to the two new plans adopted in 2011. Using administrative records provided by URS, we then estimate models of plan choice to evaluate who elected which plan and who defaulted. Inasmuch as both of the new plans are likely to pay less generous retirement benefits than the prior DB pension, we also inquire whether new hires saved more voluntarily, so as to bolster retirement incomes. We also compare turnover rates for both pre- and post-reform new hires, to assess the impact of retirement plan type on employee retention rates. In a final section, we draw lessons from the Utah reform relevant to other states and municipalities looking to restructure their pension offerings.

---

to Members, Daniel Andersen, the executive director of URS wrote: "while conditions for retirement benefits have changed over the past few years, our primary purpose was to provide retirement security and professional service to members and retirees." (see http://www.urs.org/mango/pdf/urs/SummaryReport/2013/summaryReport.pdf.)

Relevant Prior Studies

While we lack the space to review what has grown to be a very large literature on pensions, we call attention here to a few recent accounts on how public pensions have sought to deal with pressing fiscal challenges. Media reports by Walsh (2011), Lyman and Walsh (2014), and Greenhouse (2011), among others, have reported on how public pension benefit and contribution parameters were changed in the wake of the financial and economic crisis. In the academic literature, Chingos and West (2013), Lachance, Mitchell, and Smetters (2003), and Milevsky, Promislow, and David (2004) have examined specific state pension changes and their impacts.[5] More recently, Novy-Marx and Rauh (2015) have shown how linking public pension payouts to investment performance might help alleviate the critical funding shortfalls many states now face.

Particularly pertinent to the present paper is prior research on how pension reforms alter employee behavior. To date, however, most empirical studies have focused on private-sector firms and employees, as shown in two reviews by Gustman and Mitchell (1992), and Gustman, Mitchell, and Steinmeier (1994). Case studies of corporate plan conversions are discussed by Clark and Munzenmaier (2001). In point of fact, relatively few private sector firms give employees the opportunity to choose among alternative types of pension plans.[6] For this reason, prior studies have mainly focused on worker turnover patterns, generating two main findings. First, employees of firms offering pension plans tend to separate less frequently than employees at other firms (Allen, Clark, and McDermed, 1993). Whether this is causal or simply correlational has been difficult to confirm, due to a lack of identifying restrictions. Second, there appear to be no major differences in turnover rates between employees offered DB versus DC plans. This is contrary to what might

[5] For useful historical treatments of US public pensions, see Clark, Craig, and Anhmed (2009), and Clark, Craig, and Wilson (2003). Mitchell (2012) and Pew Center on the States (2010a,b) review the financial challenges confronting modern-day public plans.

[6] Some non-profit firms do, including the firm examined by Mitchell, Utkus, and Yang (2007).

be expected, since DB plans have traditionally been more "back-loaded," meaning that employees with long tenures typically receive more valuable retirement benefits than employees with shorter tenures. By contrast, hybrid and DC plans provide benefits in a more balanced manner, rewarding employees with both long and short employment tenures more equitably. Moreover, retirement wealth accumulated in DC plans is more portable than that accumulated in a traditional DB plan, meaning that DC plans provide much greater value than DB plans for short-term workers who may wish to move to a new employer prior to retirement.

In the public sector, it is somewhat more common that participants are allowed a choice between two or more pension plans, especially at public universities. NASRA (2010) showed that nearly half of state universities offered faculty choice between a DB and a DC plan. Clark and Hanson (2011) reported that five statewide retirement systems covering general public employees or teachers offered a DB/DC choice, two offered a choice between a DB and a hybrid, and one offered a choice between all three plans types. According to Munnell, Aubry, and Cafarelli (2014), states that started offering optional DC plans before the financial crisis did so because these gave workers the opportunity to manage their own money, particularly given the rising equity market. Post-financial crisis, Utah has been the only statewide system to launch a new reform providing choice between two plan types; nevertheless, five other states have joined Utah in offering a hybrid plan.

In the last two decades, many researchers have studied the impact of public sector plan choices on aspects of employee behavior. For instance, Clark, Ghent, and McDermed (2006) studied public university faculty members' pension plan choices in North Carolina.[7] As expected,

[7] Also see Clark and Pitts' (1999) examination of faculty members' pension plan choice patterns at North Carolina State University.

they found that older individuals were more likely to select the DB option, whereas younger and, potentially, more mobile workers were more likely to select the DC plan. In their study of Oregon's Public Employees Retirement System, Chalmers, Johnston, and Reuter (2008) evaluated how different plan types influenced the retirement patterns of older individuals, concluding that a substantial minority of employees did not adequately understand the plans' complex incentives. Goldhaber and Grout (2013) studied the pension plan preferences of public school teachers in Washington State and the found that, with the exception of age, observable teacher and job characteristics were not significant predictors of the plan choice decision among new hires. Brown and Weisbenner (2014) examined DB versus DC plan choice for employees of the Illinois State University system, using an administrative data set linked to a participant survey on plan and worker attributes. They concluded that those preferring the DC plan were predominately men; they also tended to be less risk averse and more financially literate than employees electing other plan options. Thus, while prior studies have provided insight into the types of workers electing different types of retirement plans when given a choice, they are not informative with regard to how workers electing different retirement plan types respond along behavioral or other dimensions. Accordingly, in what follows, we will investigate the determinants of plan choice by public sector employees in Utah, along with associations between plan choice and measures of two important behavioral outcomes: post-reform contributions to supplemental plans, and post-reform employment turnover rates.

Public Retirement Plans in Utah

Utah's public employee pension plans date to the first half of the 20th century, beginning with retirement plans introduced for school teachers and firefighters. A statewide teachers'

retirement system was established in 1937, followed by the adoption of a plan for state officers and employees in 1947. After a series of modifications, pension plans were consolidated into the Utah Retirement Systems in 1963.[8] Today, URS provides retirement benefits for more than 450 public employers including the State of Utah, local governments, school districts, and some employees in higher educational institutions. (Faculty and other exempt higher education employees are not members of URS.) Most public employees in Utah are also covered by Social Security.[9]

In this section, we describe the various retirement plans offered to public employees in Utah. First, we discuss the pre-reform defined benefit plan that covered full time employees prior to 2011. Next, we review the post-reform hybrid and defined contribution plans offered to new hires following these reforms and compare the generosity of the pre and post-reform pension plans. Finally, we describe URS supplemental retirement savings plans available to employees both pre and post-reform.

The Traditional Defined Benefit Plan (Tier I) Employees hired prior to July 1, 2011 were automatically enrolled into URS Tier I System, a traditional DB plan. The Tier I Retirement System was composed of six different plans: a Public Employees' Contributory Retirement Plan, a Noncontributory Retirement System, a Public Safety Retirement System, a Firefighters' System, a Governors' and Legislators' Retirement Plan, and a Judges' Retirement System.[10]

[8] A brief history of the development of public sector retirement plans in Utah is available at https://www.urs.org/mango/pdf/urs/Miscellaneous/miniHistory.pdf

[9] A brief overview of the plans currently offered to Utah public employees appears in Appendix Table 1.

[10] The 2013 Actuarial Valuation Report for the Utah Retirement Systems is available at https://www.urs.org/mango/pdf/urs/Miscellaneous/ActuarialValuationReport2013.pdf

More than 85% of Tier I members belonged to the Public Employees' Noncontributory Retirement System,[11] where the employer covered the entire cost of the benefits. At retirement, a worker's benefit amount under this DB plan was derived by calculating two percent of his average monthly earnings from his three highest years of earnings, multiplied by his years of service. Thus, a 30-year career worker would have earned a lifetime income stream equal to 60 percent of his highest three years of earnings. Benefits after retirement were indexed by up to a 4% annual cost of living adjustment (NASRA 2014b). Retirement ages were defined by a combination of age and service: normal retirement benefits were payable at age 65 with 4 years of service, or 30 years of service at any age. Early retirees could begin benefits at age 60 with 20 years of service, age 62 with 10 years of service, or at any age with 25 years of service; the early retirement payments were reduced by seven percent per year under age 60, and three percent per year from 60 to 65. Retirees could choose from six annuity options as well as a partial lump-sum option.

The New Plan Options (Tier II). Employees hired after July 1, 2011, must choose between a DC plan and a hybrid plan; their election would need to be declared prior to the end of their first year of employment, and this choice is final and irrevocable. Employees failing to elect a plan prior to the end of their first year are automatically enrolled into the default, which is the hybrid plan.

URS communication materials provided to all new hires seek to present a balanced assessment of the two plan options, stating that "both plans have advantages and disadvantages. The plan that's better for you will depend on your situation." The web page then outlines various

[11] The basic structure of this retirement plan is described in Tier 1 Noncontributory, https://www.urs.org/mango/pdf/urs/RetirementSystems/noncontrib.pdf

aspects of each plan in detail and directs new employees to additional resources, including a "decision guide" and several online pension benefit estimate calculators.

An employee electing the DC plan receives an annual employer contribution of 10 percent of his annual earnings into the 401(k) account,[12] and these employer contributions vest after four years of eligible employment. Employees may also make additional contributions to their accounts on a voluntary basis. Distributions are allowed after retirement, termination of employment, or age 59 ½, and the funds may be withdrawn various ways, at the retiree's discretion. No cost of living adjustments are provided to DC participants.[13]

The hybrid plan differs from the old DB plan in several ways. First, the retirement benefit is determined by multiplying the employee's years of service by 1.5 percent, times the monthly average of his highest-five earnings years. Compared to the old DB plan, the longer earnings averaging period is likely to lower the benefit. Second, the hybrid plan also requires participants to work for 35 years to qualify for a normal retirement benefit at any age, five years longer than under the old DB plan; participants may also take an unreduced retirement benefit at age 65 with four years of service. Retirees can take a reduced benefit beginning at age 62 with 10 years of service, or age 60 with 20 years of service; early retirement reduces benefits by about seven percent per year between age 60-63, and approximately nine percent per year for age 64-65. Third, the hybrid plan permits up to a 2.5 percent cost of living benefit adjustment each year, depending on the change in the Consumer Price Index. Retirees have the option of receiving their maximum retirement benefits based on the formula, or they can select from several joint and survivorship

[12] Similar to other state plans, the URS Public Safety and Firefighters' plans are somewhat more generous, with a state contribution of 12 percent of salary, compared to general state employee plans.
[13] For an overview of cost of living increases in benefits in public pension plans, see NASRA (2014b).

options. Individuals may also make voluntary contributions into several retirement saving plans described below.

The hybrid also has another key feature differentiating it from the old model. Every year, the plan's Board of Trustees must set a certified contribution rate for the defined benefit portion of the hybrid plan based on the preceding year's actuarial valuation. As long as the employer certified rate remains below 10 percent of compensation, employees are not required to make any additional plan contributions. If the rate exceeds 10 percent, participants in the hybrid plan must contribute any amount in excess of 10 percent of pay. Conversely, if the employer's certified contribution rate to the DB component were to fall below 10 percent, the employer then must contribute the difference between 10 percent of compensation and the certified rate into the participant's 401(k) plan. For example, in 2014-15, the employer's certified contribution rate was 8.22 percent of payroll; therefore, the employer contributed 1.78 percent of payroll into employees' 401(k) accounts that year.[14] Pension and employer contributions to the 401(k) account are vested after four years of service.

Comparing the Tier I and Tier II Systems. Generally speaking, the new Tier II arrangement is anticipated to pay lower benefits, as compared to the old Tier I DB plan. We illustrate the expected difference in retirement benefits assuming the relevant benefit formulas and various age/service thresholds for an unreduced benefit. Depending on the plan type (DB versus hybrid) and years of service, the outcomes may be compared as follows:

[14] The total employer contribution rate for both the DC plan and the hybrid plan includes an amount for amortization of the unfunded actuarial accrued liability in the Tier 1 System. This amount differs by employer group. For the fiscal year ending June 30, 2015, the Tier II unfunded liability rates for the Tier II Public Employees System ranged from 6.61% to 9.37%.

Years of Service	Plan Type	
	Tier I DB	Tier II Hybrid
10	20% × average of highest 3 years earnings	15% × average of highest 5 years earnings
20	40% × average of highest 3 years earnings	30% × average of highest 5 years earnings
30	60% × average of highest 3 years earnings	45% × average of highest 5 years earnings

The hybrid plan also requires more years of service for normal retirement benefits at any age, 35 years compared to the 30 years for the Tier I benefit, and the early retirement reductions are larger in the hybrid plan. In addition, prior to 2011, state and education employees who were in the Tier I DB plan received a 1.5 percent employer contribution to the 401(k) plan. In other words, the generosity of the Tier II model is likely substantially below that of the old Tier I scheme.

It must be acknowledged that participants in the new Tier II DC and hybrid might conceivably generate higher retirement benefits, if their DC returns proved to be much in excess of what the old DB would have paid. [15] Nevertheless, this seems unlikely, and the new structure clearly shifts risk from the employer to the employees. Evidently, the DC plan participants bear all investment risk directly. The hybrid option also poses risk to participants for two reasons. First, if the cost of the DB portion of the plan exceeds 10 percent of payroll, workers must contribute more to cover the excess cost.[16] Second, employees also bear the potential cost of mismatched

[15] Assuming that DC plan investments earn 6.5 percent compounded steadily for 30 years and the balance is annuitized for 25 years, NASRA (2014c) suggests that the payouts could be higher from Utah's hybrid plan than the traditional DB. This computation did not consider investment risk, longevity risk, or the 1.5% employer 401(k) contribution provided to state and education employees before the reform.

[16] There is also an interesting generational cross-subsidy element in the new plan, in that workers but not retirees will be required to cover excess costs over 10 percent of pay. In the event that longevity rose or investment earnings fell more than expected, active employees would be required to subsidize retirees. Whether participants understand this generational redistribution feature is unclear.

assets and liabilities in the hybrid plan, while not having any control over that plan's asset mix. It is unclear whether this potential moral hazard on the part of the plan's investment managers is widely appreciated.[17]

Supplemental Plans. Public employees also have the option of contributing to several supplemental retirement saving plans. Currently URS offers a 401(k) plan, a 457 plan, and a traditional as well as a Roth IRA. All URS members are eligible to participate in the IRA. With the introduction of Tier II, all employers are required to participate in the 401(k) plan and many also participate in the 457 plan. State agencies offer no any employer match to employee contributions for general state employees.[18] These supplemental plans provide eight core investment options along with target date funds. In addition, a self-directed brokerage account for pre-tax contributions is available through a private money manager.[19] All employee contributions are immediately vested and thus may be cashed out when employment is terminated.

Multivariate Determinants of Public Plan Choice

New hires in the Tier II system must choose between enrolling in the hybrid plan or in the DC plan within one year after their initial employment. As noted above, employees who fail to make an active choice of primary plan option are automatically enrolled into the default hybrid plan.

---

[17] For arguments against holding stock in DB plans, see for instance Bader and Gold (2007) and Black (1989).

[18] Participants in the Tier 1 Public Employees Noncontributory Retirement System still receive an additional employer contribution of 1.5% of their compensation in the 401(k) plan. All other employers also have the option of contributing to URS 401(k) and/or 457 Plans on behalf of their employees.

[19] A description of these plans and their investment options can be found at https://www.urs.org/mango/pdf/urs/InvestmentOptions/2015/investmentOptions.pdf, https://www.urs.org/mango/pdf/urs/Savings/401kSummary.pdf, https://www.urs.org/mango/pdf/urs/Savings/457Summary.pdf

To examine who defaulted, and who chose which plan conditional on making an active choice, we examine URS administrative records on all individuals who first entered employment with a URS-covered employer between January 1, 2006 and September 30, 2013. These records include information on employee age, sex, employment dates, and retirement plan choice, along with annual earnings, employee contributions to voluntary URS-administered retirement savings plans, service credit, and job classification for the period from January 1, 2006 to October 31, 2014. Because plan choice decisions in the Tier II system do not become final and irrevocable until the end of the first year of employment, we restrict our attention to employees who did not separate from service in their first year on the job. The resulting sample includes a "pre-reform" group of 39,154 employees hired before July 1, 2011, and a "post-reform" group of 16,263 individuals hired on or after July 1, 2011.[20] Members of the Governors' and Legislators' Retirement Plan, and the Judges' Retirement System, are excluded from our analysis.

Table 1 reports the plan choices of individuals hired post-reform. Almost 60 percent of Utah's new hires failed to make an active choice between the two plan options and were therefore defaulted into the hybrid plan, consistent with findings from other states that have offered workers a choice of primary retirement plans.[21] One explanation for why so many people may have defaulted is suggested by the literature on behavioral inertia (Madrian and Shea 2001; Choi et al. 2004; Yang 2005). Another explanation might be that employees actually preferred the hybrid plan over the DC option. This suggests that workers actually preferred the hybrid plan, and simply avoided the transaction cost of making an active choice producing the same outcome as doing nothing. In Washington State, where public sector workers were given a choice between a

[20] Appendix Table 2 provides details on the data construction and how specific variables are defined.
[21] In states that offer their workers choice of DB or DC plans, Olleman (2009) reports that 39 percent of Colorado new hires are defaulted into the DB plan, 55 percent in Florida, 82 percent of Ohio PERS and 72 percent of Ohio teachers.

traditional DB versus a hybrid plan, Olleman (2009) found that close to 70 percent of employees rejected the hybrid plan default, actively opting for the traditional DB plan. As the traditional DB plan was no longer an option in Utah, it seems likely that some URS participants defaulted to the hybrid plan because they favored it, while others' choice was likely to have been due to inertia.

Table 1 here

Of the approximately 40 percent of URS new hires who actively elected a retirement plan, slightly over half selected the hybrid plan, and slightly fewer (48 percent) chose the DC. We also see that over time, the proportion of individuals actively selecting the hybrid plan increased, and the ratio of people defaulting shrank somewhat. This contrasts with the case of Illinois, where Brown and Weisbenner (2014) reported that the proportion of individuals selecting the default grew over time.

To elucidate some of the demographic and other factors associated with workers' tendency to make an active choice of retirement plan options rather default into a plan, Table 2 presents some descriptive statistics for new hires between January 1, 2006 and September 30, 2013. The table first reports characteristics of all sample individuals, and then it highlights a number of subgroups including pre-reform workers, post-reform workers, workers who made an active choice, workers who made a passive choice, and all workers who chose each plan option. For each of these subgroups, we report classifications by employer type and pension system. The largest group, making up almost half of the full sample, is public school employees. Higher education staffers comprise 11% of the sample; university faculty are not included in this system. Local governmental employees account for almost a quarter of the sample, and state employees constitute 18% of the sample. The majority of the sample is covered by the Public Employees' Retirement System, and an additional 7% are members of the more generous Public Safety and

Firefighters' System. Most new hires are women (62%), and the average salary earned in the second calendar year of employment (the "plan choice year") was around $32,000 in 2014 dollars. The average entry age across all workers in our sample is 33.3, although individuals hired after the reform were slightly younger than those hired before the reform.

Table 2 here

Termination rates during the second year of employment were around 13%. In the sample, the termination rates appear to be the same for the pre-reform and post-reform groups; however, the post-reform group includes almost a full year of new hires still in their second year on the job when the sample was drawn. Accordingly the termination rate for the post-reform group may be understated: if we remove these recent hires from the sample, we find that the post-reform termination rate is about 17%. Almost 35% of pre-reform new hires made voluntary contributions to one of the supplemental retirement plans offered by URS during the plan choice year, but only 18% of the post-reform sample contributed to these plans.

Table 3 categorizes workers by individual and job characteristics, and it also shows the percentage of new hires in each subgroup who elected each plan option. A higher proportion of men made an active choice. Women were more likely to opt for the DC plan, among those making an active plan choice. Employees with higher initial salaries also were more likely to make an active choice; moreover, more highly-compensated employees who made an active choice tended to favor the DC plan. Employees working at educational institutions were more likely to default into the hybrid, and general government employees were more likely to make an active choice. Educational employees who made an active choice were more likely to choose the DC plan, while general government employees who made an active choice were more likely to choose the hybrid plan. In summary, defaulters differed from the active choosers in a number of ways. On average,

defaulters were two years younger, made $6,000 less per year, were much less likely to be employed in state government, and were more likely to be in public education.

Table 3 here

We explore these patterns further using multivariate regression analysis, with results appearing in Table 4. Six linear probability models are presented,[22] with two specifications for each of three dependent variables: (i) enrolled in hybrid plan whether by default or active choice, (ii) made an active choice, and (iii) chose the DC given that an active choice was made. The first specification for each dependent variable includes a vector of individual and job characteristics, while the second specification also controls on two actions taken after the plan choice: whether the new hire terminated employment, and whether the new hire contributed to a supplemental retirement savings plan.

Table 4 here

The first column presents results for models of whether new hires enrolled in the hybrid plan, either by default or by active choice. In a sense, this analysis assumes that defaulters elected inaction, knowing they would end up in their desired plan. State government employees (the reference category in the equation) were 5-8 percentage points less likely to participate in the hybrid than were local government, public education, or higher education employees. Members of the Public Safety & Firefighters' system were more likely to enroll in the hybrid, as were men and the lower-paid.

Column 3 of Table 4 reports on which newly hired employees made an active election of their retirement plan; the model posits that defaulters differ from participants who made an active choice. Results indicate that new hires age 45+ over were more likely, and those younger than 25

[22] Appendix Table 3 presents similar results from a series of Probit models. The marginal effects in the two procedures are similar in sign and magnitude.

less likely, to make an active choice compared to those age 25-29. Men tended not to make an active selection, while state government employees were significantly more active compared to those in higher education, local government, or public education. Interestingly, in each succeeding year, new hires were increasingly likely to make an active election, perhaps reflecting growing knowledge about the two plans and their differences.

In Column 5 of Table 4, we describe which persons making an active selection chose the DC plan. Among these employees, older persons were more likely to select the hybrid plan, perhaps because they expected to be less likely to change jobs in the future. Conditional on making an active choice, men chose the hybrid plan more often, while the higher paid elected the DC plan. Higher education staffers were 9 percentage points less likely to elect the hybrid plan, perhaps indicating their greater anticipated career mobility. Over time, a larger percentage of new hires who made an active choice selected the hybrid plan.

Two additional variables are included in Columns 2, 4, and 6 of Table 4, in an effort to control for factors indicative of additional difficult-to-observe information about new hires. That is, we determined whether each participant subsequently contributed to a URS supplemental retirement plan, and whether each terminated his employment in the second year on the job. Interestingly, participants who did save in the supplemental plans were also more likely to have made an active pension choice in their first year. In other words, these individuals appear to have been more attentive than average to retirement plan features. By contrast, workers leaving employment in their second year were less likely to have made an active plan choice, and when they did, they chose the DC plan more often. In other words, the defaulters are also more likely to anticipate that they will leave public employment.

Did the Reform Boost Supplemental Retirement Saving?

If new hires understand that the post-reform retirement plans are likely to be less generous than the old DB plan, they may make an effort to save more in the supplemental retirement plans to accumulate sufficient retirement resources.[23] To test for this, we have calculated participation patterns in supplemental retirement plan for pre- and post-reform new hires. These are based on employee contributions to URS supplemental plans and do not include employer contributions to the 401(k) plan associated with the hybrid or DC plan.

Figure 2 and Table 5 reveal the time path of supplemental plan participation over the period. Of note is the long-term decline in supplemental plan participation throughout the period, most likely attributable to the recession and collapse of the equity markets. Prior to the reform, the proportion of new hires enrolling in supplemental plans fell from over 40 percent (2006-08) to only about 25 percent for those hired from 2009-11. Post-reform, the proportion of new hires contributing to a supplemental plan continued to fall, to below 20 percent. Figure 2 also shows that employees who defaulted into the hybrid plan post-reform were far less likely to contribute to supplemental accounts, compared to new hires making an active plan choice. Participation rates for those making an active election were actually higher than pre-reform (33 verses about 25 percent) while those who defaulted into the hybrid plan were much less likely to save additional amounts (7 percent). Finally, those who elected the hybrid plan were somewhat more likely to enroll in one of the supplemental saving plans, compared to those choosing the DC.

Figure 2 and Table 5 here

[23] Indeed the NASRA (2014c) report states that "public employees will need to take advantage of supplemental savings vehicles to maintain similar salary replacement rates in retirement, pre and post reform" (p.14).

A multivariate linear probability analysis of the time pattern in Table 6 shows that some, but not all, new hires with the less generous Tier II pensions responded by increasing their retirement saving.[24] As one might expect, new hires with higher annual salary were more likely to be contributing to the supplemental plan, as were older employees.[25] However, age is not significant for state employees. But our key finding is that participants making an active election of primary plan were about 22 percentage points more likely to participate in a supplemental plan, holding other factors constant (Column 1). Since we only have data on contributions to URS Savings Plans, and some individuals could be participating in other plans offered by their employer,[26] we also break out state employees only for whom we observe all participation in employer-provided supplemental retirement plans. Results in Column 2 show even greater differences: those actively choosing their primary plan were 40 percentage points more likely to make supplementary contributions, versus those defaulted into the hybrid plan.

Table 6 here

How the Reform Affected Turnover Patterns

One concern sometimes expressed by employers who alter their retirement plans is whether such changes will influence turnover rates.[27] Because our dataset includes terminations reported prior to November 1, 2014, and there is a 30-60 day lag in employer reporting, we restrict our

[24] Appendix Table 3 presents similar results from a series of Probit models. The marginal effects in the two procedures are similar in sign and magnitude.

[25] Beshears, Choi, Laibson, and Madrian (2009) have showed that the low paid were more susceptible to the influence of defaults due to barriers to active decision-making.

[26] Public universities, community colleges, and many school districts offer their own 457 and 403(b) plans and some local governments offer 457 plans.

[27] In fact, this research project began with a conversation with Richard Ellis, Treasurer of the State of Utah in which he indicated his concern that turnover rates had risen since the implementation of the pension reforms.

sample for this analysis to individuals hired prior to September 30, 2012. Additionally, we remove 43 individuals who terminated employment due to death or disability.

Figure 3 reports the proportion of pre- and post-reform new hires who remained employed for at least two years. Since our sample includes only individuals who remained employed for at least one year, this proportion represents the second-year retention rate conditional on remaining employed at least one year. Our pre-reform series begins with new hires during the final six months of fiscal year 2006, extends through the recession years, and ends with fiscal year 2011. The post-reform data includes employees hired during fiscal year 2012 and the first three months of fiscal year 2013.

Figure 3 here

Our tabulations in Table 7 indicate that more than 87% of those hired prior to the reform were still employed two years later, while fewer than 83% of those hired after the reform remained as of the two-year mark. It is also interesting that new hires not making an active choice of a pension plan post-reform had considerably higher turnover rates, as compared to new hires who elected either the DC or the hybrid plan. People who chose the DC plan had slightly higher turnover rates, compared to those in the hybrid plan.

Table 7 here

In Table 8, we report estimated coefficients of the probability of an employee remaining on the job after one year of employment. Three groups are of interest: post-reform hires, the full sample, and the sample of DB and hybrid participants alone.[28] Once again, it is clear that people who defaulted into the hybrid plan behave differently, compared to those making an active choice. Employees who actively elected the hybrid plan were eight percentage points more likely to remain

[28] Appendix Table 5 presents similar results from a series of Probit models. The marginal effects in the two procedures are similar in sign and magnitude.

on the job compared to the defaulters, and new hires electing the DC plan were two percentage points more likely to remain on the job versus the defaulters. Moreover, turnover post-reform was about four percentage points higher than in pre-reform years, and the results are largely similar for the samples with or without DC participants. Older employees were less likely to leave public employment, as were men and those with higher annual salaries.

Table 8 here

Conclusion and Discussion

State and local governmental pension managers across the United States confront important financial challenges due to low pension funding ratios and rapidly rising contributions required to maintain these plans. In response to this financial challenge, many public sector employers have modified their retirement plans to reduce both their current annual pension costs and future pension liabilities. A few states have implemented more systematic changes, freezing their traditional DB plans and instead, offering employees a choice of alternatives that shift investment risk away from employers and onto employees. Utah is a prime example of a state that has fundamentally altered its retirement plan for newly hired workers, by replacing its traditional DB plan with the choice of a hybrid plan or a DC. Our analysis contributes to the relatively limited literature by examining the impact of public retirement plan reform on Utah's public sector workforce.

Similar to other studies, we find that a majority (about 60 percent) of the URS new hires defaulted into the hybrid plan. Among those who did make an active choice, slightly more than half selected the hybrid plan, and the remainder chose the DC plan. Our analysis goes further in evaluating the impact of public pension reform by examining employee behavior post-reform. Since the new plan options are anticipated to yield less generous benefits than the old DB plan, we

evaluate whether new hires saved more, compared to pre-reform employees, and whether the new plan led to higher turnover rates. Our analysis of participation in supplemental saving plans spans the Great Recession, so it is difficult to draw unambiguous conclusions. Nevertheless, we find that, post-reform, fewer new hires enrolled in supplemental retirement plans compared to pre-reform, so they did not respond to lower expected retirement incomes by increasing their retirement saving. Interestingly, however, new hires who did make an active plan choice were also more likely to enroll in the supplemental plan than pre-reform new hires: 33 percent of individuals making an active choice enrolled in a supplemental plan during the post-reform period, compared to around 25 percent in the three years before the reform was enacted. By contrast, those defaulting into the hybrid plan had lower enrollment rates in supplemental plans. In other words, this analysis suggests that people who are defaulters in one dimension – failing to make a choice of their primary plan – also fail to make an active choice in other areas, like enrolling in a supplemental plan.

We also evaluated whether the less generous retirement system is associated with higher termination rates among new hires, and here we found that 4 percent more new hires left public employment in Utah post-reform, compared to beforehand. We must caveat this conclusion by noting that post-reform turnover could also reflect a recovering labor market compared to the years prior to the plan change. In other words, if job opportunities improved post reform, newly-hired public employees may have had other employment options to consider.

It is also likely that many workers' failure to make active retirement plan choices could spur plan administrators to provide financial education programs and opportunities to learn about the retirement benefits offered. This could enhance their old age provision, and might also reduce turnover among new hires. As yet we cannot determine how these reforms may influence public employees' retirement patterns, nor do we estimate cost savings to the state or taxpayers associated

with the reform in this paper. But we do believe that defaults in pension reforms shape public workers' employment, saving, and turnover behaviors. Consequently, public sector pension managers and policymakers may wish to consider these effects when evaluating future pension reforms.

References

Allen, Steven, Robert Clark, and Ann McDermed. (1993). "Pensions, Bonding, and Lifetime Jobs," *Journal of Human Resources* 28(3): 463-81.

Bader, Lawrence N. and Jeremy Gold. (2007). "The Case against Stock in Public Pension Funds." *Financial Analysts Journal*. 63(1): 55–62.

Beshears, John, James J. Choi, David Laibson, and Brigitte C. Madrian. (2009). "The Importance of Default Options for Retirement Saving Outcomes: Evidence from the United States." In *Social Security Policy in a Changing Environmen*t. Editors: Jeffrey Brown, Jeffrey Liebman and David Wise. Chicago: University of Chicago Press: 167-195.

Black, Fischer. (1989). "Should You Use Stocks to Hedge Your Pension Liability?" *Financial Analysts Journal*. 45(1): 10–12.

Brown, Jeffrey and Scott Weisbenner. (2014). "Why do Individuals Choose Defined Contribution Plans? Evidence from Participants in a Large Public Plan," *Journal of Public Economics*, 16: 35-46.

Chalmers, John, Woodrow T. Johnson, and Jonathan Reuter. (2008). "The Effect of Pension Design on Employer Costs and Employee Retirement Choices: Evidence from Oregon." *Review of Economics & Statistics*. 90(2): 253-266.

Chingos, M. M. and M.R. West. (2013). *When Teachers Choose Pension Plans: The Florida Story*. The Thomas Fordham Institute. http://edex.s3-us-west-2.amazonaws.com/publication/pdfs/20130219-When-Teachers-Choose-Pension-Plans-FINAL_6_0.pdf

Choi, James J., David Laibson, Brigitte C. Madrian, and Andrew Metrick. (2004) "For Better or for Worse: Default Effects and 401 (k) Savings Behavior." In *Perspectives on the Economics of Aging*. Editor: David Wise.Chicago: University of Chicago Press: 81-126.

Clark, Robert, Lee Craig, and Neveen Ahmed. (2009). "The Evolution of Public Sector Pension Plans in the United States," in Gary Anderson and Olivia Mitchell (eds.), *The Future of Public Retirement Systems*. Oxford: Oxford University Press: 239-270.

Clark, Robert L., Lee A. Craig, and Jack W. Wilson. (2003). *A History of Public Sector Pensions in the United States*. Philadelphia: University of Pennsylvania Press.

Clark, Robert and Emma Hanson. (2011). "Distribution Options in State Pension Plans." North Carolina State University Working Paper.

Clark, Robert, Linda Ghent, and Ann McDermed. (2006). "Pension Plan Choice among University Faculty." *Southern Economic Journal*. 72(3): 560-577.

Clark, Robert and Fred Munzenmaier. (2001) "Impact of Replacing a Defined Benefit Pension

with a Defined Contribution Plan or a Cash Balance Plan," *North American Actuarial Journal*. 5(1): 32-56.

Clark, Robert and Melinda Pitts. (1999). "Faculty Choice of a Pension Plan: Defined Benefit vs. Defined Contribution," *Industrial Relations*, 38(1): 18-45.

Evans, Richard and Kerk Phillips. (2014). "Simulating State Pension Reform: The Utah Retirement System." BYU Macroeconomics and Computational Laboratory Working Paper #2012-01, accessed March 15, 2015. https://economics.byu.edu/Documents/Macro%20Lab/Working%20Paper%20Series/BYUMCL2012-01.pdf

Glaeser, Edward L. and Giacomo Ponzetto. (2014). "Shrouded Costs of Government: The Political Economy of State and Local Public Pensions." *Journal of Public Economics* 116: 89–105.

Goldhaber, Dan, and Cyrus Grout. (2013). "Which Plan to Choose? The Determinants of Pension System Choice for Public School Teachers." *Journal of Pension Economics and Finance* 12(1): 1-25.

Greenhouse, Steven. (2011). "States Lean on Public Workers for Bigger Pension Contributions." *New York Times*, June 15. http://www.nytimes.com/2011/06/16/business/16pension.html

Gustman, Alan and Olivia S. Mitchell. (1992). "Pensions and the US Labor Market." In *Pensions and the Economy*, eds Z. Bodie & A. Munnell. Philadelphia, PA: Univ. of Pennsylvania Press: 39-87.

Gustman, Alan S., Olivia S. Mitchell, and Thomas Steinmeier. (1994). "The Role of Pensions in the Labor Market." *Industrial and Labor Relations Review* 47(3): 417-438.

Lachance, Marie-Eve, Olivia S. Mitchell, and Kent Smetters. (2003). "Guaranteeing Defined Contribution Pensions: The Option to Buy Back a Defined Benefit Promise." *Journal of Risk and Insurance*. 70(1): 1-16.

Lusardi, Annamaria and Olivia S. Mitchell. (2014). "The Economic Importance of Financial Literacy: Theory and Evidence." *Journal of Economic Literature*. 52(1): 5-44.

Lyman, Richard and Mary Williams Walsh, (2014). "Public Pension Tabs Multiply as States Defer Costs and Hard Choices." *New York Times* Feb. 24.

Madrian, Brigitte C., and Dennis F. Shea. (2001) "The Power of Suggestion: Inertia in 401 (k) Participation and Savings Behavior." *The Quarterly Journal of Economics*. 116(4), 1149-1187.

McGuinn, Patrick.(nd). "Pension Politics: Public Employee Retirement System Reform in Four States." The Brookings Institution. http://www.scribd.com/doc/209405194/Pension-Politics-Public-Employee-Retirement-System-Reform-in-Four-States#scribd (Accessed March 11, 2015).

Milevsky, Moshe, A. Promislow and S. David. (2004). "Florida's Pension Election: From DB to DC and Back," *The Journal of Risk and Insurance* 71(3): 381-404.

Mitchell, Olivia S. (2012). "Public Pension Pressures." In *When States Go Broke: The Origins, Context, and Solutions for the American States in Fiscal Crisis*. Ed. Peter Conti-Brown. Cambridge, UK: Cambridge University Press: 57-76.

Mitchell, Olivia S., Steve Utkus, and Tongxuan (Stella) Yang. (2007). "Turning Workers into Savers? Incentives, Liquidity, and Choice in 401(k) Plan Design." *National Tax Journal*. 60: 469-89.

Munell, Alicia H., Jean-Pierre Aubry, and Mark Cafarelli. (2014). "Defined Contribution Plans in the Public Sector: An Update." 37. Working Paper, Center for Retirement Research at Boston College.

National Association of State Retirement Administrators (NASRA 2010). "Retirement Plan Options for State University Faculty and Staff." http://www.nasra.org/files/Compiled%20Resources/HigherEdPlanOptions.pdf

National Association of State Retirement Administrators (NASRA, 2014a). "Effects of Pension Plan Changes on Retirement Security." http://www.nasra.org/files/JointPublications/Effects%20of%20Pension%20Plans%20on%20Retirement%20Income.pdf

National Association of State Retirement Administrators (NASRA, 2014b). "Cost-of-Living Adjustments." Issue Brief. http://www.nasra.org/files/Issue%20Briefs/NASRACOLA%20Brief.pdf

National Association of State Retirement Administrators (NASRA, 2014c). "Shared Risk in Public Retirement Plans." Issue Brief. http://www.nasra.org/files/Issue%20Briefs/NASRASharedRiskBrief.pdf

Novy-Marx, Robert and Joshua D. Rauh. (2015). "Linking Benefits to Investment Performance in US Public Pension Systems." *Journal of Public Economics*. 116: 47-62.

Olleman, Mark. (2009). "Public Plan DB/DC Choices." *PERiScope*, Chicago: Milliman.

Pew Center on the States. (2010a). *Roads to Reform: Changes to Public Sector Retirement Benefits Across States*. Washington, D.C.: Pew Center.

Pew Center on the States. (2010b). *The Trillion Dollar Gap*. Washington, D.C.: Pew Center.

Walsh, Mary Williams. (2011). "Two Rulings Find Cuts in Public Pensions Permissible." *New York Times*, June 30.

Yang, Tongxuan. (2005) "Understanding the Defined Benefit versus Defined Contribution Choice." Pension Research Council Working Paper, Wharton School, #2005-4.

Table 1. Plan Choice by Newly-Hired Utah Public Employees

	Plan Choice				
Entry Date	*Chose DC*	*Chose Hybrid*	*Defaulted into Hybrid*	*Defaulted into DB*	N
Fiscal Year Ending					
June 30, 2006	.	.	.	100.0	2,709
2007	.	.	.	100.0	8,546
2008	.	.	.	100.0	8,927
2009	.	.	.	100.0	6,898
2010	.	.	.	100.0	5,326
2011	.	.	.	100.0	5,814
2012	20.4	19.0	60.6	.	6,333
2013	19.4	23.5	57.1	.	6,698
2014	21.1	24.9	54.0	.	3,064
Pre-Reform	.	.	.	100.0	38,220
Post-Reform	20.1	22.0	57.9	.	16,095
All	6.0	6.5	17.2	70.4	54,315

Note: The table indicates the percentage of new hires who choose or were defaulted into each plan. Employees who first entered employment with a Utah Retirement Systems-covered employer between January 1, 2006 and September 30, 2013 and did not terminate employment during the first 12 months are included. The pre-reform group includes individuals hired before July 1, 2011 who were automatically enrolled in a traditional defined benefit (DB) plan. The post-reform group includes individuals hired on or after July 1, 2011 who were given the choice between a defined contribution (DC) plan and a hybrid plan. Plan choice elections become final at the end of the first year of employment. Individuals in the post-reform group who did not make an active election during the first year were defaulted into the hybrid plan. The fiscal year ending June 30, 2006 includes only individuals hired during the six-month period beginning January 1, 2006. The fiscal year ending June 30, 2014 includes only individuals hired during the three-month period ending September 30, 2013.

Table 2. Descriptive Statistics for Analysis Sample

Variable	Full Sample (1)	All Pre-Reform (2)	All Post-Reform (3)	Made Active Choice (4)	Chose DC (5)	Chose Hybrid (6)	Defaulted into Hybrid (7)	All Hybrid (8)
Employer								
Higher Education	11.0%	11.0%	10.9%	9.2%	10.9%	7.5%	12.1%	10.9%
Local Government	24.5%	26.0%	20.8%	23.4%	20.0%	26.5%	19.0%	21.0%
Public Education	47.0%	45.1%	51.5%	44.2%	46.1%	42.5%	56.7%	52.8%
State Government	17.5%	17.8%	16.8%	23.3%	23.0%	23.5%	12.2%	15.3%
System								
Public Employees	93.5%	92.9%	94.8%	93.6%	95.7%	91.7%	95.7%	94.5%
Public Safety & Firefighters	6.5%	7.1%	5.2%	6.4%	4.3%	8.3%	4.3%	5.4%
Demographics								
Entry age	33.3	33.4	33.1	34.3	33.3	35.2	32.3	33.1
Salary in plan choice year	$32,334	$32,595	$31,712	$35,735	$36,708	$34,843	$28,789	$30,456
Male	38.3%	38.6%	37.4%	40.2%	36.4%	43.8%	35.4%	37.7%
Actions after choice								
Terminated in second year[^]	13.1%	13.0%	13.3%	9.3%	12.2%	6.8%	16.3%	13.6%
Contributed to SRP in plan choice year[#]	29.7%	34.5%	18.2%	33.9%	32.3%	35.5%	6.8%	14.7%
Entry Year								
2006	4.99%	7.09%	.	.	.	.	.	.
2007	15.73%	22.36%	.	.	.	.	.	.
2008	16.44%	23.36%	.	.	.	.	.	.
2009	12.70%	18.05%	.	.	.	.	.	.
2010	9.81%	13.94%	.	.	.	.	.	.
2011	10.70%	15.21%	.	.	.	.	.	.
2012	11.66%	.	39.35%	36.82%	39.89%	34.01%	41.19%	39.21%
2013	12.33%	.	41.62%	42.39%	40.17%	44.44%	41.05%	41.98%
2014	5.64%	.	19.04%	20.79%	19.94%	21.55%	17.77%	18.81%
Plan Choice Year								
2007	15.2%	21.6%	.	.	.	.	.	.
2008	16.2%	23.0%	.	.	.	.	.	.
2009	15.7%	22.3%	.	.	.	.	.	.
2010	9.4%	13.3%	.	.	.	.	.	.
2011	10.0%	14.3%	.	.	.	.	.	.
2012	11.3%	5.5%	25.3%	21.8%	24.0%	19.8%	27.8%	25.6%
2013	12.4%	.	41.6%	41.4%	41.6%	41.2%	41.7%	41.6%
2014	9.8%	.	33.2%	36.8%	34.5%	39.0%	30.6%	32.9%
N	54,315	38,220	16,095	6,773	3,233	3,540	9,321	12,861

Note: This table includes employees who first entered employment with a URS covered employer between January 1, 2006 and September 30, 2013 and did not terminate employment during the first 12 months. Individuals with missing information are excluded.

[^]Only reflects termination dates reported before November 1, 2014, and therefore understates the percentage of post-reform new hires who have terminated and therefore understates the percentage of post-reform new hires

[#]SRP=Supplemental Retirement Plan (e.g. 401(k), 457)

Table 3. Plan Choice by Group

Variable	Chose DC (1)	Chose Hybrid (2)	Defaulted into Hybrid (3)
Employer			
Higher Education	20.2	15.3	64.6
Local Government	19.3	28.0	52.7
Public Education	18.0	18.2	63.9
State Government	27.4	30.7	41.9
System			
Public Employees	20.3	21.3	58.4
Public Safety & Firefighters	16.5	35.3	48.2
Entry age			
Under 25	18.4	15.2	66.4
25 - 29	21.9	21.6	56.5
30 - 34	21.1	24.7	54.2
35 - 39	20.6	22.8	56.6
40 - 44	18.2	24.7	57.1
45 and Above	20.0	28.6	51.4
Sex			
Female	20.4	19.8	59.8
Male	19.5	25.7	54.7
Salary in plan choice year			
Under $10,000	9.0	8.0	82.9
$10,000 - $19,999	13.1	12.3	74.6
$20,000 - $29,999	21.4	15.3	63.3
$30,000- $39,999	24.3	22.8	52.9
$40,000 - $49,999.	27.1	26.0	47.0
$50,000 and Above	29.3	35.6	35.1
Employment status year after plan choice year^			
Terminated	18.3	11.1	70.6
Active	20.4	23.7	56.0
SRP participation in plan choice year#			
Not Contributing	16.7	17.4	66.0
Contributing	35.5	42.8	21.7
Observations	3,233	3,540	9,321

Note: The table provides the percentage of new hires with a given characteristic who made plan choices given in the column headings. It includes employees who first entered employment with a URS-covered employer between January 1, 2006 and September 30, 2013 and did not terminate employment during the first 12 months. Individuals with missing information are excluded.

^Reflects termination dates reported before November 1, 2014, and therefore understates the percentage of post-reform new hires who have terminated.

#SRP=Supplemental Retirement Plan (e.g. 401(k), 457)

Table 4. Multivariate (OLS) Estimates of Plan Choice

	Dependent Variable					
	Hybrid (by default or choice)		Any Active Choice		Choose DC (given active choice)	
Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
Entry Age: Under 25	0.017*	0.016*	-0.056***	-0.051***	0.032*	0.029
	(0.009)	(0.009)	(0.011)	(0.010)	(0.018)	(0.018)
Entry Age: 25 – 29 (reference)						
Entry Age: 30 - 34	0.014	0.016	0.010	0.005	-0.043**	-0.043**
	(0.011)	(0.011)	(0.013)	(0.012)	(0.020)	(0.019)
Entry Age: 35 - 39	0.016	0.017	0.004	0.001	-0.043**	-0.041*
	(0.012)	(0.012)	(0.014)	(0.013)	(0.022)	(0.022)
Entry Age: 40 - 44	0.035***	0.042***	0.012	-0.007	-0.100***	-0.094***
	(0.012)	(0.012)	(0.015)	(0.015)	(0.024)	(0.024)
Entry Age: 45 and Above	0.015	0.023**	0.071***	0.048***	-0.111***	-0.108***
	(0.010)	(0.010)	(0.012)	(0.012)	(0.018)	(0.018)
Male	0.044***	0.042***	-0.032***	-0.029***	-0.070***	-0.070***
	(0.007)	(0.007)	(0.008)	(0.008)	(0.014)	(0.014)
Salary in plan choice year (in $10,000)	-0.046***	-0.042***	0.065***	0.054***	0.030***	0.032***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Employer: State Government (reference)						
Employer: Higher Education	0.045***	-0.004	-0.165***	-0.055***	0.096***	0.089***
	(0.013)	(0.013)	(0.015)	(0.014)	(0.024)	(0.024)
Employer: Local Government	0.071***	0.060***	-0.105***	-0.085***	-0.046***	-0.043**
	(0.011)	(0.011)	(0.013)	(0.012)	(0.018)	(0.018)
Employer: Public Education	0.068***	0.018*	-0.154***	-0.045***	0.007	0.010
	(0.010)	(0.010)	(0.011)	(0.011)	(0.016)	(0.017)
System: Public Employees (reference)						
System: Public Safety & Firefighters	0.049***	0.054***	0.036*	0.018	-0.116***	-0.105***
	(0.014)	(0.014)	(0.019)	(0.018)	(0.026)	(0.026)
Plan Choice Year: 2012 (reference)						
Plan Choice Year: 2013	-0.001	-0.002	0.034***	0.035***	-0.044***	-0.047***
	(0.008)	(0.008)	(0.009)	(0.009)	(0.016)	(0.016)
Plan Choice Year: 2014	-0.004	0.000	0.071***	0.053***	-0.075***	-0.065***
	(0.008)	(0.008)	(0.010)	(0.010)	(0.016)	(0.016)
Terminated in year after plan choice		-0.006		-0.075***		0.141***
		(0.009)		(0.010)		(0.021)
Contributed to SRP in plan choice year		-0.175***		0.389***		-0.012
		(0.010)		(0.009)		(0.014)
Constant	0.859***	0.909***	0.305***	0.219***	0.486***	0.463***
	(0.015)	(0.015)	(0.018)	(0.017)	(0.027)	(0.028)
N	16,095	16,095	16,095	16,095	6,773	6,773
R-squared	0.036	0.060	0.077	0.161	0.035	0.042
Mean	0.799	0.799	0.421	0.421	0.477	0.477

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5. Supplemental Retirement Plan Participation in Calendar Year after Year of Hire

	All		Hired Post-Reform		Made Active Choice		
Entry Date	All Pre-Reform	All Post-Reform	Made Active Choice	Defaulted into Hybrid	Chose Hybrid	Chose DC	Observations
Fiscal Year Ending							
June 30, 2006	46.8	.	.	.	.	.	2,709
2007	44.0	.	.	.	.	.	8,546
2008	39.7	.	.	.	.	.	8,927
2009	25.7	.	.	.	.	.	6,898
2010	24.1	.	.	.	.	.	5,326
2011	26.7	.	.	.	.	.	5,814
2012	.	17.8	34.0	7.3	33.6	34.4	6,333
2013	.	19.7	36.3	7.2	38.3	33.8	6,698
2014	.	15.9	29.0	4.8	32.6	24.8	3,064
All	34.5	18.2	33.9	6.8	35.5	32.3	54,315

Note: The table shows the percentage of employees in each group who contributed to one of the Utah Retirement Systems (URS) supplemental retirement savings plans in the calendar year following the year of hire. For example, an individual who was first hired February 1, 2012 is counted as a supplemental plan participant if he or she contributed during calendar year 2013. Employees who first entered employment with a URS covered employer between January 1, 2006 and September 30, 2013 and did not terminate employment during the first 12 months are included. The pre-reform group includes individuals hired before July 1, 2011 who were automatically enrolled in a traditional defined benefit plan. The post-reform group includes individuals hired on or after July 1, 2011 who were given the choice between a defined contribution (DC) plan and a hybrid plan. Plan choice elections become final at the end of the first year of employment. Individuals in the post-reform group who did not make an active election during the first year were defaulted into the hybrid plan. The fiscal year ending June 30, 2006 only includes individuals hired during the six-month period beginning January 1, 2006. The fiscal year ending June 30, 2014 only includes individuals hired during the three-month period ending September 30, 2013.

Table 6. Multivariate (OLS) Estimates of Participation in Supplemental Retirement Plans (SRPs)

	Dependent Variable: Contributed to SRP during plan choice year	
	All Post-Reform	Only State Government
Independent Variable	(1)	(2)
Plan Choice: Defaulted into Hybrid (reference)		
Plan Choice: Chose DC	0.216***	0.457***
	(0.008)	(0.021)
Plan Choice: Chose Hybrid	0.232***	0.419***
	(0.008)	(0.020)
Entry Age: Under 25	0.004	-0.038
	(0.007)	(0.023)
Entry Age: 25 – 29 (reference)		
Entry Age: 30 - 34	0.009	-0.031
	(0.010)	(0.025)
Entry Age: 35 - 39	0.003	-0.036
	(0.010)	(0.030)
Entry Age: 40 - 44	0.036***	0.041
	(0.011)	(0.035)
Entry Age: 45 and Above	0.033***	0.038
	(0.009)	(0.027)
Male	-0.004	-0.036**
	(0.006)	(0.017)
Salary in plan choice year (in $10,000)	0.010***	0.017***
	(0.002)	(0.005)
Employer: State Government (reference)		
Employer: Higher Education	-0.242***	
	(0.011)	
Employer: Local Government	-0.036***	
	(0.012)	
Employer: Public Education	-0.252***	
	(0.009)	
System: Public Employees (reference)		
System: Public Safety & Firefighters	0.022	0.013
	(0.017)	(0.029)
Plan Choice Year: 2012 (reference)		
Plan Choice Year: 2013	-0.009	0.078***
	(0.007)	(0.022)
Plan Choice Year: 2014	0.011	0.188***
	(0.007)	(0.023)
Constant	0.207***	-0.008
	(0.014)	(0.029)
N	16,095	2,711
R-squared	0.213	0.250
Mean	0.182	0.388

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7. Second Year Retention Rates

Entry Date	All		Hired Post-Reform		Made Active Choice		N
	All Pre-Reform	All Post-Reform	Made Active Choice	Defaulted into Hybrid	Chose Hybrid	Chose DC	
Fiscal Year Ending June 30, 2006	86.9	.	.	.	.	.	2,708
2007	87.0	.	.	.	.	.	8,537
2008	87.9	.	.	.	.	.	8,913
2009	86.7	.	.	.	.	.	6,890
2010	86.2	.	.	.	.	.	5,323
2011	87.1	.	.	.	.	.	5,807
2012	.	83.5	88.3	80.3	91.1	85.7	6,333
2013	.	81.4	85.8	78.6	90.7	80.8	3,388
All	87.1	82.8	87.5	79.7	91.0	84.1	47,899

Note: The table shows the percentage of employees in each group who remained employed by Utah Retirement System covered employer for at least two years. Employees who first entered employment with a Utah Retirement System covered employer between January 1, 2006 and September 30, 2012 and did not terminate employment during the first 12 months are included. Therefore, this table reflects retention rates during the second year of employment, given that an individual remained employed through the first year. For example, an individual hired February 1, 2012 is not included in the table unless he or she remained employed through February 1, 2013, and is not counted as remaining for at least two years if he or she terminated employment prior to February 1, 2014. Individuals who terminated employment due to death or disability are not included (n=43).

The pre-reform group includes individuals hired before July 1, 2011 who were automatically enrolled in a traditional defined benefit plan. The post-reform group includes individuals hired on or after July 1, 2011 who were given the choice between a defined contribution (DC) plan and a hybrid plan. Plan choice elections become final at the end of the first year of employment. Individuals in the post-reform group who did not make an active election during the first year were defaulted into the hybrid plan. The fiscal year ending June 30, 2006 only includes individuals hired during the six-month period beginning January 1, 2006. The fiscal year ending June 30, 2013 only includes individuals hired during the three-month period ending September 30, 2012.

Table 8. Multivariate (OLS) Estimates of Retention in Second Year

	Dependent Variable: Remain in second year		
Independent Variable	Post-Reform (1)	All (2)	All DB and Hybrid (3)
Plan Choice: Defaulted into Hybrid (reference)			
Plan Choice: Chose DC	0.023**		
	(0.010)		
Plan Choice: Chose Hybrid	0.081***		
	(0.009)		
Post-Reform		-0.037***	-0.038***
		(0.004)	(0.005)
Entry Age: Under 25	-0.035***	-0.031***	-0.030***
	(0.011)	(0.005)	(0.005)
Entry Age: 25 – 29 (reference)			
Entry Age: 30 - 34	-0.004	0.018***	0.019***
	(0.013)	(0.005)	(0.005)
Entry Age: 35 - 39	0.025*	0.041***	0.042***
	(0.013)	(0.006)	(0.006)
Entry Age: 40 - 44	0.039***	0.058***	0.059***
	(0.014)	(0.006)	(0.006)
Entry Age: 45 and Above	0.042***	0.053***	0.055***
	(0.012)	(0.005)	(0.005)
Male	0.016*	0.017***	0.017***
	(0.008)	(0.004)	(0.004)
Salary in plan choice year (in $10,000)	0.032***	0.021***	0.021***
	(0.003)	(0.001)	(0.001)
Employer: State Government (reference)			
Employer: Higher Education	0.001	-0.037***	-0.041***
	(0.017)	(0.007)	(0.007)
Employer: Local Government	0.061***	0.024***	0.022***
	(0.013)	(0.005)	(0.005)
Employer: Public Education	0.051***	0.025***	0.022***
	(0.012)	(0.005)	(0.005)
System: Public Employees (reference)			
System: Public Safety & Firefighters	0.109***	0.087***	0.085***
	(0.012)	(0.005)	(0.005)
Plan Choice Year: 2012 (reference)			
Plan Choice Year: 2013	-0.027***		
	(0.008)		
Plan Choice Year: 2014	-0.186***		
	(0.072)		
Constant	0.672***	0.762***	0.765***
	(0.019)	(0.007)	(0.007)
N	9,721	47,899	45,952
R-squared	0.045	0.031	0.032
Mean	0.828	0.862	0.863

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 1. Changes Wrought by Utah's Public Pension Reform

Choice of Default Plan	⇒ 60 percent of new hires failed to make an active choice of their retirement plan ⇒ Young employees, who may be better served by the DC plan, were more likely to default into the hybrid plan.
Supplemental Retirement Savings	⇒ Despite lower expected benefits from pension, fewer new employees contributed to a supplemental saving plan ⇒ Defaulters were much less likely to contribute to a saving plan; participation rate was 30 percentage points lower
Turnover Rates	⇒ Employees covered by less generous retirement benefits more likely to leave public employment.

Source: See text.

Figure 2. Patterns of Supplemental Retirement Plan Participation

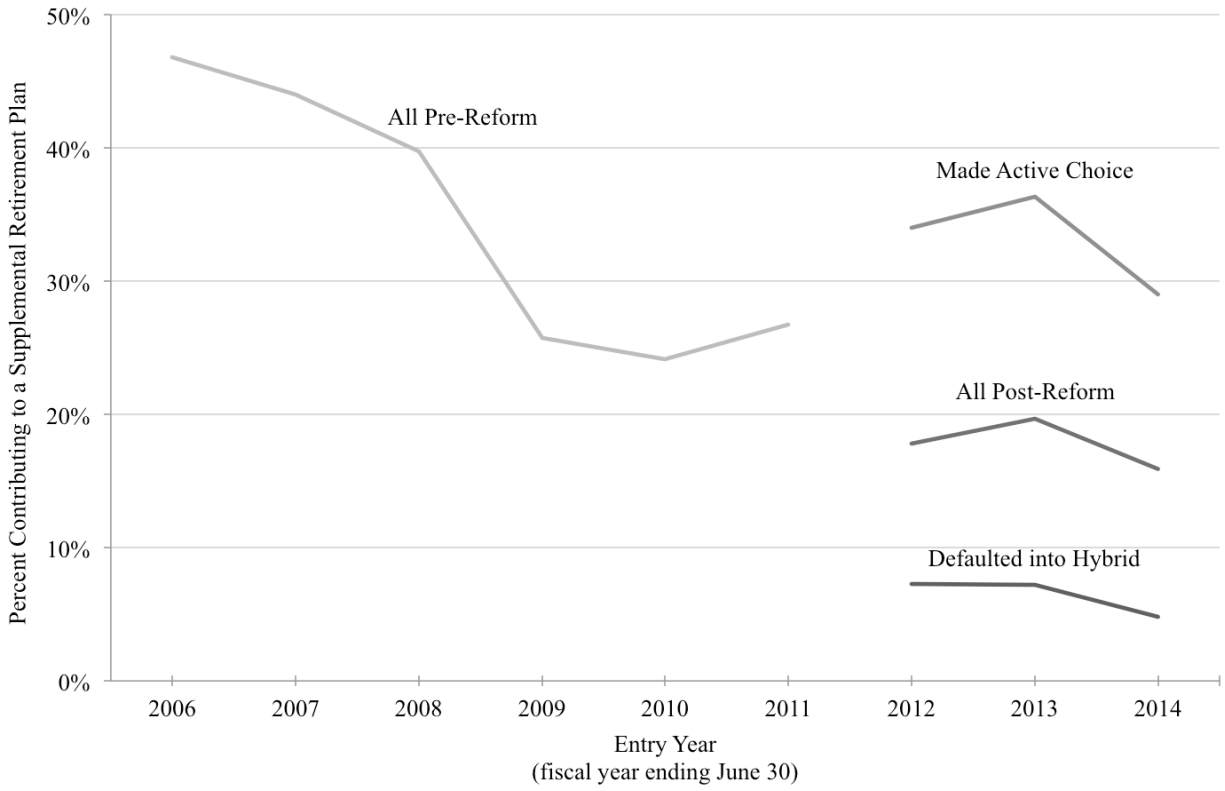
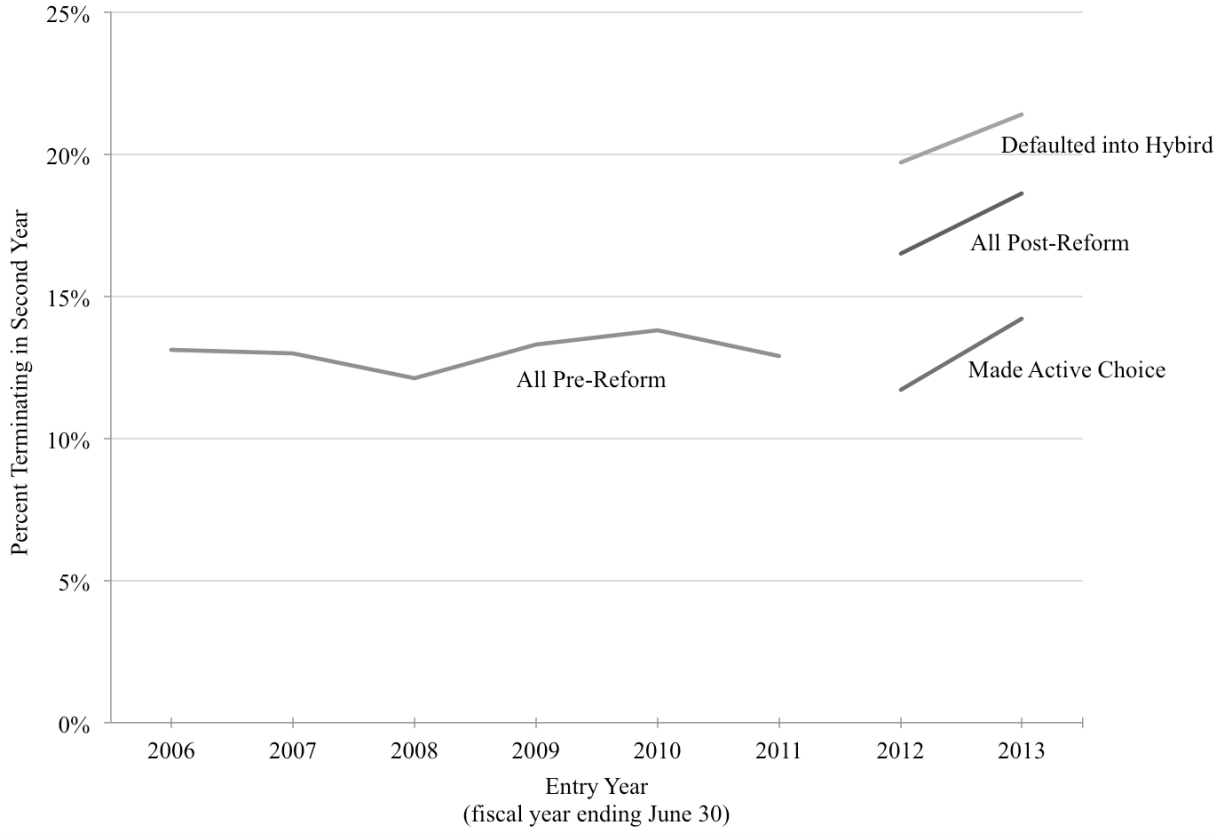


Figure 3. Second-Year Termination Rates



Appendix Table 1. Summary of Benefits by System

	Tier I			Tier II			
Description	A person entering full-time employments with a participating employer before July 1, 2011 is a member of the Tier I system. The Contributory System was closed to new employees of the State and its Education institutions on July 1, 1986; a few Local Governmental employers continue to enroll new employees in this system.			A person entering full-time employment with a participating employer on or after July 1, 2011 who does not have service credit in a Tier I system must make an election to participate in either the Hybrid System or the Defined Contribution (DC) Plan, within one year of his/her employment date. The election made is irrevocable. If no election is made, the employee automatically becomes a member of the Hybrid System.			
Retirement System	**Public Employees Contributory**	**Public Employees Noncontributory**	**Public Safety/ Firefighters**	**Public Employees (Hybrid)**	**Public Employees (DC)**	**Public Safety/ Firefighters (Hybrid)**	**Public Safety/ Firefighters (DC)**
Qualifications (years/age)	30 yrs any age 20 yrs age 60[1] 10 yrs age 62[1] 4 yrs age 65	30 yrs any age 25 yrs any age[1] 20 yrs age 60[1] 10 yrs age 62[1] 4 yrs age 65	20 yrs any age 10 yrs age 60 4 yrs age 65	35 yrs any age 20 yrs age 60[1] 10 yrs age 62[1] 4 yrs age 65	Members will have access to the full value of their vested account balance when they leave employment.	25 yrs any age 20 yrs age 60[1] 10 yrs age 62[1] 4 yrs age 65	Members will have access to the full value of their vested account balance when they leave employment.
Formula	1.25 per yr to 6/30/1975 2 per yr 7/1/1975 to present	2 per yr all years	2.5 per yr up to 20 yrs 2 per yr over 20 yrs	1.5 per year of service credit. 401(k) contribution (Equal to 10 minus the Hybrid DB Plan Rate)	Employer contributes 10 to member 401(k) plan. Benefit is not based on a fixed formula.	1.5 per year of service credit. 401(k) contribution (Equal to 12 minus the Hybrid DB Plan Rate)	Employer contributes 12 to member 401(k) plan. Benefit is not based on a fixed formula.
Final Average Salary	Highest 5 yrs	Highest 3 yrs	Highest 3 yrs	Highest 5 yrs	Not applicable	Highest 5 yrs	Not applicable
Cost-of-Living (max)	4[2]	4[2]	Public Safety: 2.5[2] Firefighters: 4[2]	2.5[2]	None	2.5[2]	None

1 Early retirement benefit calculated with actuarial reduction.

2 Eligible after one year; percentage increase based on original benefit and change in CPI. Effective July 1, 2008, Tier I Public safety employers have the option to raise COLA from 2.5 to 4.

Adapted from Employer's Guide to the Utah Retirement Systems https://www.urs.org/mango/pdf/urs/Miscellaneous/employerGuide.pdf

Appendix Table 2. Data Construction and Variable Description

	All Pre-reform	Post-reform					All
		All Post-Reform	Hybrid default	Hybrid elect	DC	Pending	
(1) Individuals in original file	53,725	29,358	13,249	3,959	3,772	8,378	83,083
(2) With some non-missing annual data	48,439	28,324	12,929	3,948	3,616	7,831	76,763
(3) Entered URS between January 1, 2006 and September 30, 2013	48,389	20,107	12,652	3,840	3,603	12	68,496
(4) No service in Judicial or Legislative	48,353	20,106	12,652	3,840	3,602	12	68,459
(5) No previous employment with URS	47,924	20,072	12,633	3,837	3,591	11	67,996
(6) Did not terminate during the first 12 months of employment (the "plan choice year")	39,154	16,263	9,448	3,553	3,262	0	55,417
(7) Annualized salary available in year of plan choice or year following plan choice.	38,321	16,095	9,321	3,540	3,234	0	54,321
(8) Age and gender available	38,220	16,095	9,321	3,540	3,234		54,315
(9) Entered URS between January 1, 2006 and September 30, 2012	38,220	9,721	5,893	1,881	1,947	0	47,942
(10) Remove terminations due to death or disability	38,136	9,720	5,893	1,881	1,947	0	47,899

We use the dataset in row 8 for all analysis except the analysis of retention rates (Tables 7 and 8) for which we use the data set in row 10.

Variable Definitions

Entry Year: The fiscal year ending June 30 during which the individual was first hired into a eligible position by a Utah Retirement System covered employer

Plan Choice Year: The first calendar year after the entry year in which the individual earned at least .0417 years of service credit. For individuals hired after July 1, 2011, this is the calendar year that includes the date when their plan choice became final, or the year immediately following that year, if they first hired near the end of the year.

Entry age: Approximate age of employee when they first became a member of one of the plans administered by the Utah Retirement System.

Salary in plan choice year: Employee earning in the plan choice year in 2014 dollars. If less than one year of service was reported, earnings are annualized by dividing total salary by total reported service.

Employer: The classification of the employer where the individual worked most during the calendar year in which plan choice became final. State Government includes quasi-state agencies and independent agencies.

System: The pension system in which the individual earned the most service credit during the calendar year in which plan choice became final.

Terminated in second year: Indicator for an individual separating from employment within the first 24 months, based on terminations reported before November 1, 2014.

Contributed to SRP in plan choice year: Indicator for an individual making a contribution of any amount to at least one of the four Supplemental Retirement Plans (SRPs) offered by URS.

Appendix Table 3. Probit Estimates of Plan Choice: Marginal Effects

	Dependent Variable					
	Hybrid (by default or choice)		Any Active Choice		Choose DC (given active choice)	
Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
Entry Age: Under 25	0.020**	0.019**	-0.055***	-0.050***	0.032*	0.028
	(0.009)	(0.009)	(0.011)	(0.010)	(0.018)	(0.018)
Entry Age: 25 – 29 (reference)						
Entry Age: 30 – 34	0.016	0.017*	0.009	0.004	-0.043**	-0.043**
	(0.010)	(0.010)	(0.013)	(0.012)	(0.020)	(0.019)
Entry Age: 35 – 39	0.019*	0.020*	0.004	0.001	-0.043*	-0.041*
	(0.011)	(0.011)	(0.014)	(0.013)	(0.022)	(0.022)
Entry Age: 40 – 44	0.038***	0.045***	0.013	-0.004	-0.099***	-0.093***
	(0.012)	(0.012)	(0.015)	(0.015)	(0.024)	(0.024)
Entry Age: 45 and Above	0.019*	0.027***	0.075***	0.053***	-0.110***	-0.106***
	(0.010)	(0.010)	(0.012)	(0.012)	(0.018)	(0.018)
Male	0.044***	0.042***	-0.034***	-0.030***	-0.070***	-0.069***
	(0.007)	(0.007)	(0.008)	(0.008)	(0.014)	(0.013)
Salary in plan choice year (in $10,000)	-0.042***	-0.038***	0.069***	0.057***	0.030***	0.032***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)
Employer: State Government (reference)						
Employer: Higher Education	0.041***	-0.011	-0.163***	-0.058***	0.095***	0.088***
	(0.013)	(0.013)	(0.015)	(0.015)	(0.024)	(0.024)
Employer: Local Government	0.067***	0.050***	-0.105***	-0.092***	-0.046***	-0.043**
	(0.011)	(0.010)	(0.013)	(0.012)	(0.018)	(0.018)
Employer: Public Education	0.068***	0.015	-0.153***	-0.050***	0.007	0.009
	(0.010)	(0.009)	(0.011)	(0.011)	(0.016)	(0.017)
System: Public Employees (reference)						
System: Public Safety & Firefighters	0.041***	0.045***	0.033*	0.015	-0.117***	-0.105***
	(0.014)	(0.013)	(0.018)	(0.017)	(0.026)	(0.026)
Plan Choice Year: 2012 (reference)						
Plan Choice Year: 2013	-0.002	-0.002	0.034***	0.035***	-0.044***	-0.047***
	(0.008)	(0.008)	(0.009)	(0.009)	(0.016)	(0.016)
Plan Choice Year: 2014	-0.005	-0.001	0.071***	0.053***	-0.075***	-0.065***
	(0.008)	(0.008)	(0.010)	(0.010)	(0.016)	(0.016)
Terminated in year after plan choice		-0.003		-0.076***		0.140***
		(0.009)		(0.011)		(0.021)
Contributed to SRP in plan choice year		-0.173***		0.395***		-0.011
		(0.010)		(0.010)		(0.014)
N	16,095	16,095	16,095	16,095	6,773	6,773
Log likelihood	-7802.185	-7622.292	-10301.082	-9575.818	-4566.354	-4543.456
Pseudo R-squared	0.034	0.056	0.060	0.126	0.026	0.031
Mean	0.799	0.799	0.421	0.421	0.477	0.477

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 4. Probit Estimates of Supplemental Retirement Plan (SRP) Participation: Marginal Effects

	Dependent Variable:	
	All Post-Reform	Only State Government
Independent Variable	(1)	(2)
Plan Choice: Defaulted into Hybrid (reference)		
Plan Choice: Chose DC	0.217***	0.459***
	(0.008)	(0.021)
Plan Choice: Chose Hybrid	0.225***	0.421***
	(0.008)	(0.020)
Entry Age: Under 25	0.001	-0.043*
	(0.008)	(0.025)
Entry Age: 25 – 29 (reference)		
Entry Age: 30 - 34	0.006	-0.027
	(0.008)	(0.025)
Entry Age: 35 - 39	-0.001	-0.032
	(0.009)	(0.029)
Entry Age: 40 - 44	0.033***	0.043
	(0.011)	(0.034)
Entry Age: 45 and Above	0.028***	0.037
	(0.008)	(0.026)
Male	-0.004	-0.038**
	(0.006)	(0.017)
Salary in plan choice year (in $10,000)	0.009***	0.016***
	(0.002)	(0.005)
Employer: State Government (reference)		
Employer: Higher Education	-0.224***	
	(0.011)	
Employer: Local Government	-0.014	
	(0.011)	
Employer: Public Education	-0.233***	
	(0.009)	
System: Public Employees (reference)		
System: Public Safety & Firefighters	0.016	0.016
	(0.011)	(0.030)
Plan Choice Year: 2012 (reference)		
Plan Choice Year: 2013	-0.007	0.080***
	(0.007)	(0.022)
Plan Choice Year: 2014	0.009	0.186***
	(0.007)	(0.023)
N	16,095	2,711
Log likelihood	-5844.107	-1433.822
Pseudo R-squared	0.235	0.208
Mean	0.182	0.388

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 5. Probit Estimates of Retention in Second Year: Marginal Effects

	Dependent Variable: Remain in second year		
Independent Variable	Post-Reform (1)	All (3)	All DB and Hybrid (2)
Plan Choice: Defaulted into Hybrid			
Plan Choice: Chose DC	0.021**		
	(0.010)		
Plan Choice: Chose Hybrid	0.084***		
	(0.009)		
Post-Reform		-0.035***	
		(0.004)	
Entry Age: Under 25	-0.029***	-0.027***	-0.026***
	(0.011)	(0.005)	(0.005)
Entry Age: 25 – 29 (reference)			
Entry Age: 30 - 34	-0.004	0.019***	0.021***
	(0.013)	(0.005)	(0.006)
Entry Age: 35 - 39	0.026*	0.043***	0.044***
	(0.014)	(0.006)	(0.006)
Entry Age: 40 - 44	0.042***	0.059***	0.060***
	(0.014)	(0.006)	(0.006)
Entry Age: 45 and Above	0.045***	0.054***	0.055***
	(0.012)	(0.005)	(0.005)
Male	0.017**	0.017***	0.018***
	(0.008)	(0.003)	(0.003)
Salary in plan choice year (in $10,000)	0.037***	0.025***	0.024***
	(0.003)	(0.001)	(0.001)
Employer: State Government (reference)			
Employer: Higher Education	0.008	-0.030***	-0.033***
	(0.017)	(0.007)	(0.007)
Employer: Local Government	0.069***	0.027***	0.025***
	(0.014)	(0.005)	(0.005)
Employer: Public Education	0.057***	0.029***	0.027***
	(0.013)	(0.005)	(0.005)
System: Public Employees (reference)			
System: Public Safety & Firefighters	0.128***	0.093***	0.092***
	(0.013)	(0.005)	(0.005)
Plan Choice Year: 2012 (reference)			
Plan Choice Year: 2013	-0.027***		
	(0.008)		
Plan Choice Year: 2014	-0.169***		
	(0.064)		
Observations	9,721	47,899	45,952
Log likelihood	-4220.202	-18429.189	-17598.614
Pseudo R-squared	0.055	0.042	0.043
Mean	0.828	0.862	0.863

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1