RETIREE HEALTH PLANS IN THE PUBLIC SECTOR

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While no longer common in the private sector, most public sector employers offer retiree health insurance (RHI) as a retirement benefit to their employees. While these plans are thought to be an important tool for employers to attract, retain, motivate, and ultimately retire workers, they represent a large and growing cost. This paper reviews what is currently known about RHI in the public sector, while highlighting many important unanswered research questions. The analysis is informed by detailed data from states on their liabilities associated with RHI, which were produced in accordance with the 2004 Government Accounting Standards Board Rule 45 (GASB 45). We consider the extent of the unfunded liabilities states face and explore what factors may explain the variation in liabilities across states. The importance and sustainability of RHI plans in the public sector ultimately depends on how workers view and value this post-retirement benefit, yet little is known about how RHI directly impacts in the public sector labor market. We conclude with a discussion of the future of RHI plans in the public sector.

State and local governments have historically provided generous retirement benefits to career employees. Most full-time public sector employees are eligible for employer-provided health insurance in retirement, given that they have achieved some minimum years of service requirements. This benefit can represent a significant fraction of the total compensation that an employee receives. In general, retiree health insurance (RHI) plans in the public sector allow retired employees to remain in the same health plan as active workers. From the public employer's perspective, RHI is an important benefit that helps to attract, retain, motivate, and ultimately retire quality workers. However, the cost of these plans represents a large and increasing percentage of total compensation in many states and localities.

The future of public sector retiree health insurance will depend on the ability of governments to continue to provide this benefit in the face of rising costs and aging populations. At the same time, determining how public sector employees view and value this benefit is essential to understanding how public sector labor markets may respond to changes in retirement benefits. Despite its significance, much is still unknown about the responses to the economic incentives inherent in RHI plans in the public sector and the impact of providing RHI on the financial status of state and local governments.

This paper examines the landscape of public sector retiree health plans in the United States. Much of this discussion is based on the state-level actuarial reports produced in accordance with GASB 45. We begin by describing the cost and funding status of state RHI plans. The importance of the economic assumptions used in calculating the plans' liabilities and the implications of using prefunding versus pay-as-you-go systems are examined. The ways in which the plans offered by state governments differ are described and the factors that are associated with employers offering more generous plans are discussed. Drawing comparisons

with public sector pension plans, we ask why so few retiree health plans are prefunded when all defined benefit pension plans are backed by trust funds.

We then conduct an analysis of how workers value this benefit and its role in the public sector labor market. The paper concludes by considering the future of RHI provision in the public sector. We consider how public employers might respond if health insurance costs continue to rise faster than the general rate of inflation thus increasing the financial burden of this benefit. Similarly, since all public RHI plans are linked to Medicare, future legislation that reduces the generosity of Medicare or increases the age of eligibility for this national health plan would directly increase the cost of RHI provided by state and local governments. In addition to providing a review of the current state of research regarding public sector RHI, this paper highlights several important issues that require further study.

I. Reported Liabilities Associated with Retiree Health Plans in the Public Sector

While RHI coverage is declining in the private sector of the U.S. economy, all states and many local governments provide some type of health insurance for their retired employees.[1] There is no comprehensive history of the development of retiree health plans in the public sector; however, state and local governments began extending health insurance to their retirees in the 1960s and 1970s which coincides with the adoption of these plans by large, unionized firms in the private sector. Clark and Morrill (2010 forthcoming) describe the basic structure of retiree health plans for state employees and the cost to the retiree of continued participation in the plan (also see US GAO, 2007, 2009).

The Governmental Accounting Standards Board Statement No. 45 (GASB 45), which was approved in 2004, requires public employers to produce an actuarial statement assessing the

financial status of retiree health programs using generally accepted accounting standards as set forth by GASB. States must report the present discounted value of the future liability of health care promises to current workers as these benefits are accrued along with the present value of these promises to current retirees.[2] Prior to this rule the long term obligations of these promises were not widely recognized.

GASB 45 statements include the actuarial accrued liabilities (AAL), the assets contained in any dedicated trust fund, the unfunded actuarial accrued liabilities (UAAL), the annual required contributions (ARC), and the current method of financing for these retiree health insurance plans. The UAAL is the difference between AAL and any assets that the employer has set aside in an irrevocable trust. If the plan is completely pay-as-you-go, the UAAL is equal to the AAL. The ARC is the normal cost of the retiree health plan plus the amount needed to amortize the existing unfunded liability over a 30 year period. It is important to remember that public employers are not required, in any legal sense, to contribute the ARC. Instead, the ARC indicates the annual contribution by the employer that is needed to move the plan toward full funding. States can continue to use pay-as-you-go funding for these plans if they choose. ARCs and UAALs have been growing over time in most states and are now a major public policy issue for many states (e.g., see Legislative Analyst's Office, California 2006).

The actuarial calculations conducted in accordance with GASB 45 are based on the parameters of the RHI plan, the number of workers and retirees covered by the plan, and the economic and demographic assumptions used by the actuaries regarding medical cost growth, discount rates, enrollment rates, etc. Some states have established trust funds to facilitate the pre-funding of future payments, which will reduce the fraction of the accrued liability that is deemed unfunded. Over the past few years, a series of papers and reports have called attention

to the large and growing unfunded liabilities associated with public retiree health plans (Pew Center on the States, 2007, 2010; Zion and Varshney, 2007; Standard & Poor's, 2007; Goldman Sachs, 2007). Using data from state Comprehensive Annual Financial Reports (CAFR), these studies provided the public the first assessment of the hidden liabilities associated with retiree health plans provided by state and local governments. Estimates of the unfunded liabilities ranged from $500 billion to $1.5 trillion.

Clark and Morrill (2010 forthcoming) report figures taken directly from the actuarial statements prepared by the states in compliance with GASB 45. By examining the actuarial statements, one can note the assumptions imbedded in the projections, such as the discount rates and the assumed inflation rates used in calculating liabilities. The total unfunded liabilities for the states as reported in the GASB 45 actuarial statements is over $400 billion. Table 1 shows the estimated UAALs and the ARCs for state plans as reported by the Pew Center on the States (2010) and in Clark and Morrill (2010 forthcoming). These data reveal that the magnitude of the unfunded liabilities associated with these programs varies substantially across the states ranging from less than $50 million to over $60 billion.

[Table 1]

Differences between the values reported for the individual states in Pew (2010), which uses the CAFRs data, and in Clark and Morrill (2010 forthcoming), which uses the individual state actuarial reports, are possibly due to the authors using different years of data or to the inclusion in the former of the additional RHI plans besides those for general state employees. Note that the data in most studies of retiree health liabilities do not include the additional liabilities associated with retiree health plans at the local level and many state plans also do not cover public school teachers.[3] A major limitation in determining the total unfunded liability of

public sector RHI plans is the lack of a national data base that includes all state, local, and teacher plans.

II. Differences across States in Retiree Health Insurance Plans

To produce a report in accordance with the GASB 45 rule, public employers must calculate the present value of their promise to pay RHI to all current and future retirees. The present value of benefits based on current programs is determined by projecting the life expectancy of all workers, both retired and active, and the retirement behavior of active employees. These projections also incorporate the rising cost of health insurance provision. A discount rate is used to convert the stream of payments over the subsequent thirty years to a present value of the liabilities associated with the state retiree health plans. GASB 45 requires that the actuarial statements assume that the current provisions of the retiree health plan will remain in effect. The reports produced in compliance with GASB 45 include the actuarial calculations based on these and additional assumptions.

The following discussion focuses on the state-level actuarial reports. To explore the origins of the differences across states in liabilities, we combine the information gathered from the actuarial reports, as reported in Table 1 and in Clark and Morrill (2010 forthcoming), with some secondary sources to help better frame the relative liabilities. Table 2 reports the UAAL again for reference and then includes a measure of UAAL per capita for each of the states.[4] Comparing these two values clearly shows that even after adjusting for population size, there are substantial differences across the states in their retiree health liabilities. For example, states with the lowest UAAL per capita include North Dakota ($48), Indiana ($70), Arizona ($73), Iowa ($74), and South Dakota ($97). In comparison, states with the highest UAAL per capita are New

Jersey ($7,950), Hawaii ($7,635), Alaska ($4,689), Louisiana ($4,361), and West Virginia ($4,298). Thus, the UAAL per capita of the two highest states is 100 times the UAAL per capita of the three lowest states.

[Table 2]

Table 2 also presents several other important aspects of the retiree health plans of the various states that influence the accrued liabilities of the states. These factors are whether teachers are included in the same plan that covers general state employees, the percent of the premium paid by the employer, and the discount rate used to calculate the present value of future insurance costs. Because many states report the sensitivity of the liability levels to the assumptions used in the actuarial calculations, one can explore how significant these assumptions are to the unfunded liability levels of individual states.

i. Retiree Health Insurance Plan Coverage

An important component of RHI plans is the extent of coverage. Our discussion here focuses on plans that cover general state employees. In many states, these same plans also cover public school teachers. Column 3 of Table 2 indicates that 33 of these state plans include public school teachers while the others do not. Some large states like New York, New Jersey, North Carolina, and Louisiana include teachers while others such as California, Michigan, Texas, and Ohio do not. Broader coverage should be associated with larger liabilities, all else equal. The inclusion of teachers is one reason why some states have higher UAALs. For example, the New Jersey amount includes teachers and local employees in addition to state employees, while the California UAAL is based on a plan that does not cover these types of workers.

In addition to variation in the state policies regarding the inclusion of teachers and local workers in the state plan, as described further below state plans also differ in their years of

service requirements, eligibility ages, and integration with federal health insurance plans. For example, some public sector employers terminate the participation of retirees in the health plan at age 65 when individuals become eligible for Medicare. In addition, all plans require that the retiree enroll in Medicare as soon as they become eligible to do so (Clark and Morrill 2010 forthcoming; US GAO 2007, 2009).

Research Question 1. In evaluating the total RHI obligations of a state, should all local and teacher plans be included? In other words, are the states ultimately responsible for the RHI liabilities of teacher-only and other local government plans?

Research Question 2. Within states that have separate state, local, and/or teacher plans, how do teacher-only and local government RHI plans compare to the RHI plans offered to state employees in terms of generosity and funding levels?

ii. Generosity of RHI across the States

The generosity of RHI plans can differ along several dimensions. For example, some state plans require fewer years of service before an employee would be eligible for fully subsidized health insurance.[5] Plans also differ in the extent of subsidization (percent of the premium paid by the state), as well as other forms of cost sharing such as the deductible and co-payment requirements. At a minimum, though, all states allow retirees to buy into the state health insurance plan. While there is a tremendous amount of variation in the characteristics of any health plan offered by public employers, the percent of the premium that the state subsidizes is a key characteristic determining the generosity of the plans due to the nature of how the present value of benefits are calculated. The difference in the lifetime present value of health insurance coverage at retirement with the retiree paying no premium compared to the retiree paying the entire premium could be over $200,000 (Fidelity Investments, 2009).

GASB 45 identifies two types of subsidies, explicit and implicit. An explicit subsidy occurs when the state pays some (or all) of the premium for the health insurance. An implicit

subsidy occurs when the risk pool used to determine the monthly premium for health insurance for retirees includes both active and retired employees. Including active and retired employees in one risk pool means that the premium charged to retirees is lower than the premium that would be assessed if the plan included only retirees (while the cost to active workers is therefore higher than it would otherwise be). The difference in cost between the blend premium and the retiree-only premium is an implicit subsidy. Under GASB 45, this type of implicit subsidy must be reported as a liability of the retiree health plan. Thus, even those employers that require the retiree to pay 100 percent of the premium will have some liability associated with allowing retirees to purchase health insurance as part of their general health insurance plan.

In addition to higher per person costs, employers with more generous RHI benefits must assume a higher "take-up" rate when making calculations of future costs. More generous plans will be more attractive relative to those in the private health insurance market or insurance plans offered through a spouse's employer. Therefore, a generous health plan not only costs states more per retiree that claims the benefit, but the AAL will also reflect the higher number of retirees expected to utilize the plan. GAO (2007) divides the states into four categories: states that pay the entire insurance premium, states that pay 50 to 99 percent of the premium, states that pay 1 to 49 percent of the premium, and states that require the retiree to pay the entire premium. This assessment ignores the implicit subsidy associated with these plans. This measure of the generosity of each state plan is presented in Column 4 of Table 2.[6]

The impact of state paid premiums is clearly shown in Figure 1 which illustrates the mean UAAL per capita for states in the each of four generosity categories shown in Table 2. States that require retirees to pay the entire premium only have liabilities associated with the implicit subsidy. The mean UAAL per capita for these states is only $170 million. States that

pay a small proportion of the premium (1 to 49 percent) have a mean UAAL per capita that is very similar to those states requiring the retiree to pay the entire premium. In stark comparison, the mean UAAL per capita is $1,998 for those states paying 50 to 99 percent of the premium and $2,781 for the states that pay 100 percent of the premium. This figure illustrates the importance of this generosity parameter in determining the liabilities associated with state retiree health plans.

[Figure 1]

Research Question 3. Are there other dimensions of RHI plan generosity besides the subsidization of the premium that significantly influence the magnitudes of AALs? What aspects of the RHI plans themselves may be altered to make costs for public sector employers more manageable?

Research Question 4. Why have some states chosen to pay the entire RHI premium while other states simply allow retirees access to their health plans?

iii. Assumed Discount Rates

GASB 45 allows public employers to use a discount rate that is consistent with the return on the "investments that are expected to be used to finance the payment of benefits." For states that do not prefund their retiree health plans, the assumed discount rate should approximate the yield on the portfolio of the state's general assets from which funds are drawn to pay for the health benefits for retirees. However, if the state establishes an irrevocable trust to partially or wholly finance its RHI, a rate consistent with the return on these investments can be used in the actuarial reports. The GASB standards allow partially funded plans to adopt a blended rate between four and seven to nine percent to calculate their accrued liabilities. The final column of Table 2 indicates the discount rate used by each state in calculating their UAAL. In comparison to public pension plans, most states are currently using lower discount rates for determining the liabilities associated with their RHI plans, and this follows from the funding strategy chosen by

the state. The actuarial reports of seventeen states are based on a discount rate of 4.5 percent, another eleven states use 4.0 to 4.25 percent, and four states adopted discount rates of 3.0 to 3.85 percent.

Table 3 indicates the states that have existing funds and the funding ratio for these plans. Based on their actuarial statements all other states do not have any assets set aside for the payment of RHI. Thus, most of these plans are funded on a pay-as-you-go basis using current revenues to pay current premiums for health insurance for retired workers. This is a substantially different funding strategy compared to that used by the states to fund their pension plans.

[Table 3]

Many of the state actuarial statements show the impact of assuming a higher discount rate. This sensitivity analysis is most often included in the reports of states considering the establishment of a trust fund or where there are specific proposals concerning prefunding. The reduction in UAAL and ARC associated with using a higher rate is discussed in the reports as being an advantage of establishing a trust for these plans and a beginning to funding future health care costs. These alternative calculations are shown in Table 4 for all of the states that reported the sensitivity of the UAAL to changes in the discount rate. Typically, the statements report the UAAL using a discount rate of four to five percent which is consistent with the current pay-as-you-go status of these plans. The consultants often illustrate the impact of a movement toward full funding by incorporating a discount rate of approximately 8 percent into the calculations.

[Table 4]

Since most public employers do not have dedicated trust funds for these health plans, they tend to use discount rates of between 3.5 and 5.0 percent. Thus, in general, estimated liabilities for RHI are likely to be more realistic than the comparable estimates for public pension

plans. However, a reading of the actuarial statements prepared in response to GASB 45 shows that many of the statements indicate that if the government were to begin funding their plan they could use a higher discount rate and reduce their reported liabilities and annual required contribution.[7] The impression is clearly given that if only the state were to move toward funding, their health liabilities would be dramatically reduced.

In the pension literature, there is currently a debate on the appropriateness of using these higher discount rates (see papers in Anderson and Mitchell, 2009, Novy-Marx and Rauh at this conference, and Munnell, et al., 2010). This debate is primarily between the actuaries who use GASB guidelines and economists who favor using real market interest rates.[8] Financial economists argue that a more realistic approach to determining the present value of pension liabilities would be to use the rate of return to bonds, a rate closer to four percent. The basic argument is that the liabilities associated with retirement benefits should be considered a form of public debt and are similar to a bond. Thus, their value (in this case the present value of future health care costs) should be determined using the interest rates on bonds offered by the government, i.e., the current yield on state bonds. Following this line of reasoning, the appropriate discount rate would be in the range of four percent whether or not the state chose to prefund their RHI. Similar arguments could be made concerning the discount rates used to value RHI. Although a major difference between RHI and pension plans is the limited use of trust funds to support RHI plans.

Research Question 5. What is the appropriate discount rate to use in evaluating retiree health insurance plans? Should the type of funding matter in the evaluation of liabilities?

iv. Assumed Trends in Medical Inflation

In the actuarial statements, the health care cost trend rate is typically defined as the rate of change in per capita health claims costs over time as a result of factors such as medical

inflation, utilization of health care services, plan design, and technological developments. The rate of assumed increase in the per capita cost of medical care is another determinant of the projected future cost of providing RHI. Over the past few years, the total cost for employer-provided health care has been increasing at annual rates in excess of 10 percent. Virtually all of the actuarial reports for state RHI plans assume that the medical cost rate will decline from its current level of 10 to 14 percent per year to a rate of around five percent. Of course, lower assumed rates of inflation result in lower liabilities and annual required contributions thus making the state's financial position look rosier.

As with the sensitivity of estimates to discount rates, some of the actuarial statements illustrate the impact of variations in the rate of increase in per capita medical costs. These figures are presented in Table 5. For example, Hawaii reports a UAAL of 9.7 billion dollars using an assumption that the current rate of medical cost inflation falls from the current 11 percent to only 5 percent in 2113. Then, the report states that an increase of one percentage point in the health care inflation rate would raise the UAAL to $11.6 billion, an increase of almost 20 percent. The other states that report the results of such an exercise have similar patterns. Therefore, we must conclude that if the rate of inflation for health care were to continue at its current rate, all projections of state UAALs and ARCs would be significantly higher. Since all the reports have adopted similar assumptions on medical care inflation, this assumption should not affect the relative values of UAAL across the states. However, the UAALs calculated based on lower health care inflation rates will underestimate the size of the true liabilities if health care costs continue to rise at their current rates.

[Table 5]

Research Question 6. What is a reasonable assumption concerning the rate of medical price increase that should be assumed in the actuarial reports? Should actuaries be required to show sensitivity to medical price inflation in these reports?

v. Multivariate Regression Analysis

Economic theory and political economy suggest that the total cost of RHI plans and their generosity will be influenced by state-level environmental factors such as the population size, the size of the state budget, the absolute and relative size of the public sector in a state, the level of unionization, the commitments to other employee benefits, and the earnings of state employees. In addition, reported liabilities will be directly affected by the plan characteristics and methodological assumptions, whether the teachers are included in the plans, and the proportion of the premium paid by the state. Results of a multivariate regression model of UAAL per capita are presented in Table 6.

[Table 6]

Larger states will have greater accrued liabilities simply due to having more employees and retiree, so the dependent variable considered here is the UAAL per capita, that is, UAAL divided by the state population.[9] However, larger states may also benefit from economies of scale in the provision of health insurance, so we include an estimate of the state budget in 2005 from the state and local government sourcebook.[10] The budget is a measure of the overall size of the state government and it is anticipated that this would be positively correlated with RHI liabilities, but would not necessarily influence the cost per capita of these programs. We find no relationship between UAAL per capita and log state budget in the regression, indicating that larger states face greater RHI liabilities for their retiree health plans but population adjusted liabilities are unaffected by the size of the state and its budget. Note that instead considering

population rather than state budget yields a similar conclusion, and that population size and state budget are too collinear to include both in the regression model.

The share of workers in the public sector might also affect plan costs as states with more public sector employees will have higher labor costs compared to similar states with fewer government workers. In addition, the voting power of this larger government workforce may result in the state providing more generous benefits. A higher degree of unionization among public sector employees could also result in more generous employee benefits. Our empirical results are consistent with both of these predictions showing positive and significant coefficients on share of labor force in the public sector and public sector unionization.[11]

The regression also includes a measure of the average salary of state employees.[12] Also included in the model is a measure of the funding status of the pension plan for state employees in order to determine whether states that prudently fund their pension plans also have taken steps to have low unfunded liabilities associated with their retiree health plans. Neither of these variables is found to be significantly related to UAAL per capita.

Next, we consider how plan characteristics and calculation assumptions predict relative UAAL per capita. The discount rate has the expected negative impact on the measure of liability. The coefficient implies that an increase of one percentage point in the discount rate used to estimate accrued liabilities is associated with a 21 percent lower UAAL per capita. In addition to the mechanical effect of the discount rate discussed above, this coefficient may also reflect the increased incentive of states with high levels of unfunded liabilities to report the lower liability levels associated with using higher discount rates. The indicator variable for whether the state includes teachers in the calculation of the liability has the anticipated positive sign but is not statistically significant.

The states are sorted into the four categories by the proportion of the insurance premium paid by the state. Figure 1 demonstrated that those states that pay 50 to 99 percent and those that pay 100 percent of the premium have much higher retiree health liabilities relative to states that pay less than 50 percent of the premium. In Table 6, we see that states that pay 100 percent of the premium have a 274 percent higher UAAL per capita than those states that require the retiree to pay 100 percent of the premium. Similarly, states that pay 50 to 99 percent of the premium have around 242 percent higher UAAL per capita.

Although the regression results are consistent with predictions and clearly indicate a large and important role for the health plan generosity in determining the burden of retiree health insurance liabilities, many important questions remain. The considerable variation in plan liabilities across states cannot be explained solely by differences in population, public sector labor force characteristics, or assumptions made in calculating the future liabilities. The choices that state governments make regarding the characteristics of their RHI plan are a key component to understanding why liabilities and costs differ so dramatically across states.

Research Question 7. Many states are facing substantial unfunded liabilities associated with retiree health plans, while other states appear to have smaller, more manageable UAALs. Why are there such striking differences in the size of unfunded liabilities? Why do the characteristics of the RHI plans differ so much across the states, especially in comparison to other forms of compensation such as pensions and salary?

III. Is RHI a Liability or a Promise?

Given the high levels of liabilities some states face, it is natural to consider whether states must truly fulfill the promise of future health insurance for retirees, or whether they may reduce benefits at some future time. The US GAO (2008) reports that all states have legal protections for their retirement plans that limit the ability of a legislature to substantially alter the generosity of the pension plan for state employees. The majority of states have constitutional provisions

that describe how their retirement plans are to be "funded, protected, managed, or governed" (US GAO 2008, p. 60). However, RHI plans are not accorded similar status. Reductions in or the elimination of retiree health benefits may be constrained by collective bargaining contracts but in general, legislatures have more flexibility to reduce and modify retiree health benefit plans for public sector employees. For example, the Ohio 2007 Comprehensive Annual Financial Report asserts that "unlike pensions, the health care benefits OPERS (Ohio Public Employee Retirement System) provides (with the exception of Medicare B reimbursement) are not a guaranteed benefit….OPERS continues to make changes to the plan design of the health care benefits…" (Ohio 2007, p. 32).

Many states have been amending their health plans for active workers and retirees in response to rising health care costs. Changes include higher premiums, higher deductibles, higher co-payments, and more years of service to qualify for retiree health plans. The ability to modify retiree health plans provides states with some options to moderate their projected costs and thus reduce the UAAL and ARC presented in these actuarial statements.

Research Question 8. If RHI can be made less generous for current and/or future retirees, what weight should be placed on these liabilities in planning for the future?

IV. Retiree Health Insurance and Pensions

Economists have devoted substantial resources in trying to explain the variation in pension plans across private sector employers. Other studies have examined how changes in the economic and regulatory environment have altered the structure of these retirement plans, and how pension plan characteristics affect work and saving behavior.[13] In contrast, very little attention has been paid to similar issues concerning RHI plans. Perhaps the lack of research on RHI is due to the rapid decline in the incidence of these plans in the private sector since the

establishment of new reporting standards for employers by the Financial Accounting Standards Board in 1989 (FASB 1989).[14] However, RHI plans cover virtually all full-time public sector employees and represent a significant component of labor cost to state and local governments. The dearth of research on the effects of RHI may be due to the lack of recognition of the importance of retiree health plans and the true liabilities associated with retiree health plans in the public sector. Until recently, there was very little data on the cost and characteristics of these plans.

Since both RHI and pensions are deferred compensation and provide benefits in retirement, we might consider both of these plans human resource tools that have the same objectives: attracting, retaining, and retiring quality workers. We know of no study that has considered the joint use of RHI and pension plans to achieve the same HR objectives. As a first attempt to assess the relationship of RHI and pension, we divide states into four groups based on the percent of the premium paid as reported in Table 2. To approximate pension plan generosity, we use the replacement rate for a state employee who retirees at age 60 with 30 years of service in each state. These replacement rates are based on the benefit formula that was in effect in each state in 2006.[15] The population-weighted mean pension replacement rate for each group is presented in Figure 2. We see that pension generosity, as approximated by replacement rates, and RHI generosity, as approximated by percent of the premium paid, are positively related. The mean pension replacement rate in the most generous RHI group (63%) is a statistically significant 11 percentage points higher than the mean in the least generous RHI group (52%). The fact that states with more generous pensions also have more generous RHI plans implies that states are not shifting their benefits from one type of delayed compensation to another. It also

means that separately investigating the impact of RHI from pensions will be challenging, since the generosity of these plans positively covary.

[Figure 2]

Understanding the relationship between RHI and pension plans is of practical importance for a public sector employer's fiscal planning. For example, a more generous RHI plan should make workers on the margin more responsive to the retirement incentives imbedded in pension plans. On the other hand, if employees do not have access to affordable health care in retirement, they may choose to postpone retirement until eligible for Medicare. When public sector employers make choices regarding the structure and generosity of one type of post-retirement benefit, it is essential for them to consider potential repercussions on the effectiveness and take-up rate of other post-retirement benefits offered by the employer.

Research Question 9. How are RHI plan and pension plan designs related in practice? Do states with more generous pension plans also offer more generous retiree health plans?

Research Question 10. If the value or generosity of RHI plans were decreased due to program changes (such as an increase in the percent of the premium the retiree must pay), how might that affect retirement ages and other employee post-retirement benefits?

V. Value to Employees

In order to better model the public sector labor market, economists need to develop a more detailed understanding of the role of RHI plans as a component of total compensation and how it affects job tenure and retirement decisions. The value of RHI depends on factors such as the employee's years of service, the employee's age of retirement, and the generosity of the plan. Having employer-provided RHI also reduces the need for income compared to workers who expect to purchase health insurance in retirement. The reduction in funds needed to purchase

health insurance in retirement might affect lifetime saving, in particular, participation in and contributions to supplemental retirement plans offered by the employer.

However, benefits are not free to workers; instead they are purchased by the employees because they accept lower wages as a quid pro quo for the employer providing the benefits. Benefits are compensation in-kind and are hard to trade for other forms of consumption. In other words, it is impossible to accept health insurance, sell it to others, and then use these monies to purchase food and clothing. In addition, the concept of vesting for RHI benefits is less clear and the legal guarantee of future benefits is less secure compared to pension plans. Thus, it may be that the firm offers more benefits than the worker desires. In this case, the reduction in wages associated with the benefit might lower the total value of employment for some workers. Benefits like pensions and retiree health plans typically have the greatest value to workers who stay for many years and provide much less value to those that remain with the employer for only a few years. Because worker preferences differ, employers can develop and offer compensation packages that appeal to the types of employees they seek to hire. Thus, retirement benefits may help recruit workers, reduce quit rates, and ultimately assist public sector employers in achieving an orderly retirement of its workers.

Given the eligibility requirements for these RHI plans and the value of being able to remain in the state health plan, we should expect public sector employees to be more likely to remain with the employer in order to meet the needed years of service. This effect should be especially strong as the worker approaches the qualifying number of years of service. Once sufficient tenure has been achieved, workers should be more likely to retire. In conjunction with pension plans, the economic incentives imbedded in retiree health plans help to explain lower turnover rates, longer job tenures, and earlier retirements among public sector workers. We

know of no studies that tried to estimate the influence of retiree health plans in the public sector on job tenure and retirement decisions. Empirically it is difficult to isolate the effects of RHI separately from those of pensions and other employee benefits. With large datasets one could potentially identify employees' retirement behavior relative to discrete jumps in the value of plans that do not exactly coincide with other retirement incentives. In addition, given the variation in RHI plan characteristics, such as generosity and eligibility, state-level variation could be fruitfully exploited.

There are numerous studies by economists estimating the impact of employer pensions on job tenure and the timing of retirement but only a few have examined the role of RHI on retirement decision (for example, Rogowski and Karoly, 2000; Blau and Gilleskie, 2001; Robinson 2009, Strumpf, 2009). Economists have examined the role of health insurance for active workers on job mobility (for example, Gruber and Madrian, 1997, 2004) but these studies typically do not extend the analysis to potential coverage in retirement. Most of these studies have focused on the general labor force or specific plans of private sector employers.

It is interesting to note that relatively few states have adopted automatic enrollment for supplemental retirement savings accounts and many public employers do not offer to match employee contributions. In contrast, most private sector employers, who do not offer retiree health plans, do offer employer matches and increasingly employers are adopting automatic enrollment in these plans. RHI plans are a valuable benefit and may represent significant cost savings in retirement. As such, workers in the public sector may not require the same level of retirement savings relative to their private sector counterparts. Public sector workers may already be 'saving' for retirement in the sense that they are forgoing higher salary now for a

future stream of payments in the form of more generous employer-provided benefits in retirement.

A better understanding of the value of retiree health insurance would help public employers develop a more comprehensive approach to their retirement policies. For example, should a governmental employer that provides a 100 percent health insurance subsidy to retirees offer a less generous pension plan or avoid offering supplemental retirement savings plans that include automatic enrollment or an employer match?

Research Question 11. Do employees recognize, understand, and value their retiree health insurance benefit? How valuable are RHI plans to different types of workers such as primary versus secondary earners, early versus mid-career workers, or high versus low wage workers?

Research Question 12. How does RHI affect turnover rates in the public sector? Does the provision of RHI encourage earlier retirement for public sector workers? Do public sector workers covered by more generous plans respond more strongly to the incentives imbedded in the plans?

Research Question 13. Do workers covered by RHI save less than comparable workers whose employers do not offer such a plan? Are workers covered by retiree health plans less likely to enroll in supplemental retirement plans and if the participation do their contribute less to these plans? Are public sector employees covered by RHI more likely to opt out of automatic enrollment in supplemental pension plans?

VI. Future of Public Sector Retiree Health Insurance

Analysis of the actuarial statements for RHI plans offered by states indicates that some states face substantial future liabilities associated with these programs, that relatively few states have enacted legislation establishing trust funds to help finance these future costs of retiree health plans, and that even fewer are making use of laws that allow funding. These substantial liabilities pose a serious financial problem for many states. These unfunded liabilities will confront policy makers with difficult choices in the future. In 2006, the annual cost to state and local governments for retiree health plans averaged about two percent of employee salaries. If

public sector employers continue to pay for these benefits on a pay-as-you-go basis, the cost of RHI is projected to rise to five percent of payroll in 2050 (GAO, 2008). As annual costs rises, the ability to finance RHI programs may cause other priorities to be unmet and the overhang of billion dollar retiree health insurance liabilities may influence future bond ratings.[16]

In the near future, states with high unfunded liabilities will need to either increase revenues to meet these costs or they must reduce the benefits they provide to retired workers. There are many options that public employers can adopt to accomplish either of these challenges. Increasing revenues can be achieved by raising any of a variety of taxes or through the sale of public assets. If such financing is used in conjunction with an irrevocable trust, new funds deposited into such a trust can yield returns on investments that can reduce the need for future tax increases.[17] New revenues to support RHI can also be generated by reducing other government expenditures and transferring these unused funds into the trust for retiree health insurance.

Alternatively, states and other public employers can attempt to reduce expenditures on retiree health plans by reducing their generosity or shifting the cost from the employer to workers and retirees through higher premiums, co-payments, and deductibles. Employers can also increase the years of service required for eligibility in these programs, thus reducing the number of eligible participants. States and local governments might also consider the total elimination of retiree health plans, as was seen in the private sector. Another option for states might be to shift from defined benefit type plans to retirement saving account plans where workers can contribution to a fund that could be used for health care expenses in retirement. However, recall that some state governments may face constitutional and statutory restrictions on

eliminating these plans altogether, which may further complicate the strategy of reducing liabilities by restricting the benefits provided. [18]

Finally, states may adopt various methods to address the actual cost of health benefits. Such techniques include more effective delivery of health care to retirees, proper and efficient coordination with Medicare and the use of health improvement programs such as wellness programs to reduce the utilization of medical care by their retirees. In response to GASB 45 and the financial pressures associated with health insurance promises, states are considering many of these options. Thus, policy changes within states may limit the actual future cost of retiree health plans in the public sector. Along the same lines, national health care reform could directly affect state RHI plans through reductions in the cost (or cost growth) of health care. Expansions of Medicare coverage and/or generosity should also impact public sector RHI plans by shifting some costs from states to the federal government. On the other hand, a policy change such as an increase in the age of eligibility for Medicare to match the new Social Security normal retirement ages could negatively affect state and local governments who would then need to cover retirees under their RHI plans for longer time periods.

Research Question 14. How will any national health care reforms, such as the 2010 legislation, affect public sector RHI?

Research Question 15. Will rising RHI plan costs hinder governments' abilities to provide goods and services to their citizens at some point in the future?

VII. Conclusions

Throughout this analysis of RHI in the public sector, we have posed a series of important economic and policy questions. Unfortunately, the data necessary to answer these questions is not readily available. Relatively few nationally representative data sets contain sufficient number of state and local employees to address these questions and surveys often lack important

details of these plans, such as the cost to the retiree of remaining in the plan and the eligibility conditions of continued enrollment in the health insurance plan. One method of assessing the importance of RHI might be to obtain data from individual state systems and compare turnover rates and retirement ages under a system where the employer pays the entire insurance premium to retirees to a system that only provides access to the health plan.

As employers of a relatively large number of workers, state and local governments must develop optimal human resource management policies that enable them to hire, retain, motivate, and ultimately retire high quality workers. Public sector employers need to maintain a workforce that can produce and deliver the goods and services demanded by their citizens at a cost that taxpayers are willing to pay. Historically, this has been achieved by public employers offering more generous retirement benefits than comparable private sector workers receive. Virtually all full-time state and local employees are covered by both a pension plan and a retiree health plan while coverage rates are much lower in the private economy. Economists have devoted considerable resources toward trying to understand the role of employer pensions with most of these studies focusing on private sector plans. In contrast, economic analysis of retiree health plans is virtually nonexistent. New empirical and theoretical research is needed to assist public managers in developing optimal retirement policies and reforming current systems.

It is also important for policy makers, managers, and researchers to consider the joint effects of pension and retiree health plans. From an administrative standpoint, these two important and costly benefits are often overseen by separate governmental units when a coordinated policy is needed. Changes in pension policies that affect turnover rates and retirement decisions will also affect the utilization of retiree health insurance. Under pressure from rising costs, public managers and policy makers must be aware of labor market responses to

modifications in retirement plans. Additional research is needed to help governmental leaders make the most appropriate choices in designing and modifying their RHI plans going forward.

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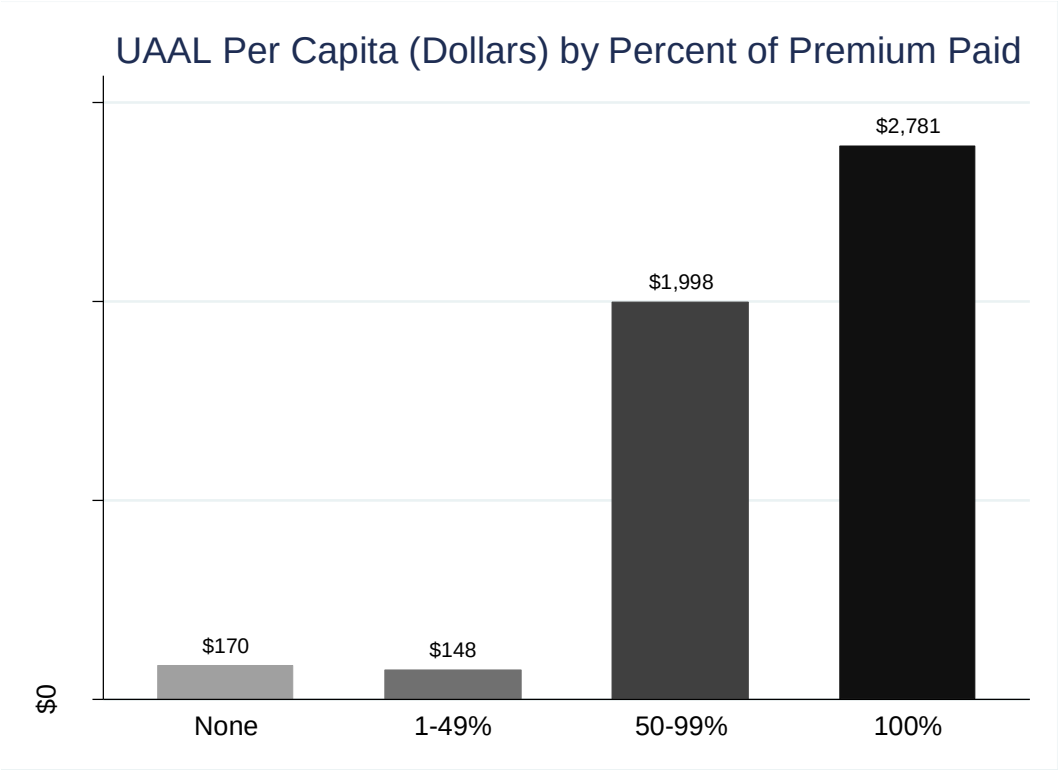
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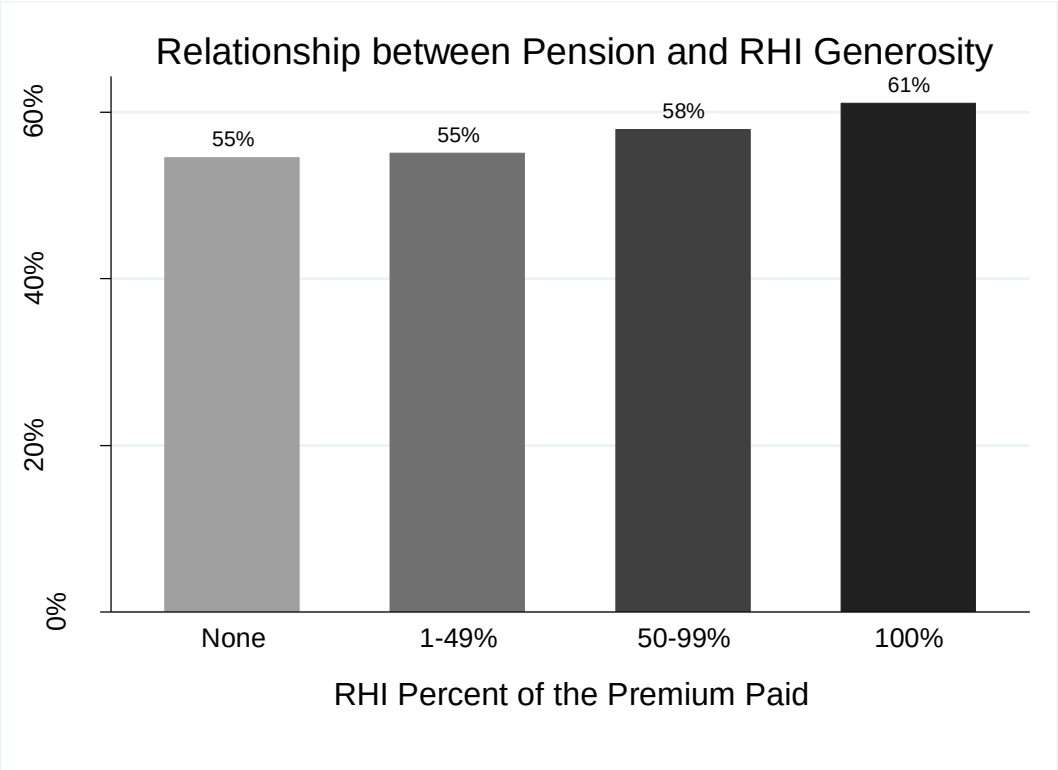
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Figure 1: Average UAAL per Capita (measured in dollars) by the Percent of Premium Paid by the State.



Sources: UAAL calculations from data gathered from state actuarial reports. The population figures are from 2005 Census population estimates. The percent of the premium paid is from the 2007 GAO report with the exception of Washington and West Virginia, which we modified to be 50-99.

Figure 2: The Relationship between Pension Replacement Rates and RHI Percent of the Premium Paid



Sources: The percent of the premium paid is from the 2007 GAO report with the exception of Washington and West Virginia, which we modified to be 50-99. Replacement rates are calculated using the pension benefit formula for a person retiring at age 60 with 30 years of service.

Table 1. State Liabilities for Retiree Health Insurance, Summary Information

State	Source: Clark and Morrill (2010); Individual State Actuarial Reports			Source: Pew (2010); Comprehensive Annual Financial Reports (CAFR)		
	UAAL (millions $)	ARC (millions $)	Date of Report	UAAL (millions $)	ARC (millions $)	Date of Report
Alabama	3,104	1,173	2006	15,549	1,314	2007 or 2008
Alaska	3,139	N/A	2007	4,032	558	2007 or 2008
Arizona	438	104	2007	808	146	2007 or 2008
Arkansas	1,224	167	2008	1,822	170	2007 or 2008
California	47,878	3,593	2007	62,463	5,179	2007 or 2008
Colorado	1,033	71	2006	1,127	82	2007 or 2008
Connecticut	21,681	1,597	2006	26,018	1,719	2007 or 2008
Delaware	3,100	286	2005	5,410	465	2007 or 2008
Florida	3,082	201	2008	3,082	201	2007 or 2008
Georgia	15,035	1,262	2007	18,322	1,583	2007 or 2008
Hawaii	9,679	705	2007	10,791	822	2007 or 2008
Idaho	362	34	2007	489	45	2007 or 2008
Illinois	24,210	1,743	2008	39,947	1,192	2007 or 2008
Indiana	442	46	2008	442	46	2007 or 2008
Iowa	220	23	2006	404	43	2007 or 2008
Kansas	293	34	2008	317	16	2007 or 2008
Kentucky	4,833	397	2007	11,660	1,051	2007 or 2008
Louisiana	19,609	2069	2007	12,543	1168	2007 or 2008
Maine	4,756	356	2007	4,348	164	2007 or 2008
Maryland	14,543	1,114	2007	14,723	1,086	2007 or 2008
Massachusetts	13,287	1,062	2006	15,032	839	2007 or 2008
Michigan	13,925	3,364	2007	39,879	3,946	2007 or 2008
Minnesota	565	56	2006	1,011	110	2007 or 2008
Mississippi	570	43	2008	570	44	2007 or 2008
Missouri	2,186	159	2006	2,852	262	2007 or 2008
Montana	449	58	2008	632	59	2007 or 2008
Nebraska	N/A	N/A		N/A	N/A	2007 or 2008
Nevada	2,295	273	2007	2,211	287	2007 or 2008
New Hampshire	2,859	235	2007	3,054	269	2007 or 2008
New Jersey	68,834	5,840	2007	68,900	5,022	2007 or 2008
New Mexico	4,110	383	2007	2,946	267	2007 or 2008
New York	49,663	3,810	2006	56,286	4,133	2007 or 2008
North Carolina	23,786	2,390	2005	28,742	2,459	2007 or 2008
North Dakota	31	4	2007	81	6	2007 or 2008
Ohio	18,723	2,046	2007	27,026	2,717	2007 or 2008
Oklahoma	814	87	2007	360	48	2007 or 2008
Oregon	264	34	2007	610	67	2007 or 2008
Pennsylvania	8,659	720	2008	9,957	824	2007 or 2008
Rhode Island	480	41	2005	788	46	2007 or 2008
South Carolina	10,048	777	2006	8,638	762	2007 or 2008
South Dakota	76	9	2008	76	9	2007 or 2008
Tennessee	2,146	187	2007	1,747	168	2007 or 2008
Texas	17,675	1,482	2007	28,612	2,237	2007 or 2008
Utah	569	54	2007	673	54	2006
Vermont	1,419	113	2006	1,615	108	2007 or 2008
Virginia	1,616	123		2,621	541	2007 or 2008
Washington	7,495	634	2007	7,902	683	2007 or 2008
West Virginia	7,761	824	2007	6,108	175	2007 or 2008
Wisconsin	1,473	162	2008	1,700	205	2006
Wyoming	72	6	2005	174	19	2007 or 2008

Table 2. Information Acquired from State Actuarial Reports

State	UAAL (millions of dollars) (1)	UAAL Per Capita (dollars) (2)	Teachers Included in Plan (3)	% Premium Paid By Employer (4)	Discount Rate Used in Report (5)
Alabama	3,104	683		50-99	5.0
Alaska	3,139	4,689		100	8.25
Arizona	438	73	X	1-49	8.0
Arkansas	1,224	441		50-99	5.25
California	47,878	1,330		100	4.5
Colorado	1,033	221	X	50-99	8.5
Connecticut	21,681	6,218		50-99	4.5
Delaware	3,100	3,688	X	50-99	8.0
Florida	3,082	173	X	1-49	4.0
Georgia	15,035	1,650	X	50-99	6.0
Hawaii	9,679	7,635	X	100	5.0
Idaho	362	253	X	0	5.0
Illinois	24,210	1,903	X	100	4.5
Indiana	442	70		0	4.5
Iowa	220	74	X	0	4.5
Kansas	293	106	X	0	3.85
Kentucky	4,833	1,158		100	4.5
Louisiana	19,609	4,361	X	50-99	4.0
Maine	4,756	3,624	X	100	4.5
Maryland	14,543	2,609	X	50-99	4.25
Massachusetts	13,287	2,066		50-99	4.5
Michigan	13,925	1,377		50-99	4.0
Minnesota	565	110		0	4.25
Mississippi	570	196	X	0	4.5
Missouri	2,186	377	X	50-99	4.5
Montana	449	479		0	4.25
Nebraska	0	0		0	N/A
Nevada	2,295	952	X	50-99	4.0
New Hampshire	2,859	2,193	X	100	4.5
New Jersey	68,834	7,950	X	100	4.5
New Mexico	4,110	2,144	X	100	5.0
New York	49,663	2,578	X	50-99	4.155
North Carolina	23,786	2,740	X	100	4.25
North Dakota	31	48		1-49	5.0
Ohio	18,723	1,633		100	6.5
Oklahoma	814	230	X	1-49	3.5
Oregon	264	72	X	0	4.5
Pennsylvania	8,659	700		100	8.5
Rhode Island	480	449	X	100	8.25
South Carolina	10,048	2,361	X	50-99	4.5
South Dakota	76	97	X	0	3.0
Tennessee	2,146	358		50-99	4.5
Texas	17,675	773		100	6.0
Utah	569	227	X	50-99	8.0
Vermont	1,419	2,289	X	50-99	3.75
Virginia	1,616	213	X	1-49	7.5
Washington	7,495	1,195	X	50-99^	4.5
West Virginia	7,761	4,298	X	50-99^	4.5
Wisconsin	1,473	265	X	0	4.0
Wyoming	72	142	X	0	4.0

Sources: Authors' calculations from data gathered from state actuarial reports. Population figures are from 2005 Census population estimates and percent premium paid is from the 2007 GAO report. The discount rate is for the state plan covering general state employees.

^ The percent premium paid for Washington and West Virginia was modified to be 50-99.

Table 3. Assets and Funding Ratios of State Retiree Health Plans

State	Actuarial Accrued Liabilities	Plan Assets	Unfunded Liabilities	Funding Ratio (percent)
Arizona	1,605,000,000	1,167,000,000	438,000,000	72.7
Alaska	6,300,795,000	3,161.956,000	3,138,839,000	50.2
Oregon	522,900,000	258,600,000	264,300,000	49.5
Ohio	30,748,000,000	12,025,000,000	18,723,000,000	39.1
Colorado	1,247,950,000	214,816,000	1,033,134,000	17.2
Kentucky	5,706,198,036	872,708,414	4,833,489,622	15.3
Virginia	1,813,158,000	197,514,000	1,616,000,000	10.9
New Mexico	4,264,180,967	154,538,668	4,109,642,299	6.6
North Carolina	23,925,138,742	139,174,878	23,785,963,864	0.6
Delaware	3,132,000,000	26,000,000	3,106,000,000	0.01

Source: Actuarial reports of various states and author calculations.

Table 4. UAAL by Discount Rate

	Discount Rate (Percent)	UAAL (in millions of dollars)
California	**4.5**	**47,878**
	6.125	38,242
	7.75	31,282
Connecticut	**4.5**	**21,681**
	4.7	20,877
	6.08	16,362
	8.5	11,369
Florida	**4.0**	**3,082**
	7.75	1,918
Georgia	4.5	19,559
	6.0	**15,035**
Hawaii	**5.0**	**9,678**
	8.0	6,270
Idaho	**5.0**	**362**
	7.25	251
Indiana	**4.5**	**442**
	7.5	283
Maine	**4.5**	**4,756**
	7.5	3,234
Maryland	**4.25**	**14,543**
	7.75	9,002
Massachusetts	**4.5**	**13,287**
	8.25	7,562
Michigan	**4.0**	**13,000**
	8.0	8,000
Missouri	**4.5**	**2,185**
	8.5	1,225
Mississippi	**4.5**	**570**
	8.0	430
New Hampshire	**4.5**	**2,859**
	8.5	1,550
New Jersey	**4.5**	**68,834**
	8.25	37,307
North Dakota	**5.0**	**31**
	8.0	24
Oklahoma	**3.5**	**815**
	7.5	586
Oregon	**4.5**	**309**
	7.5	238
Rhode Island	5.0	696
	7.0	550
	8.25	**480**
South Carolina	**4.5**	**10,048**
	6.0	7,599
	7.25	6,446
Utah	6.0	670
	8.0	**569**
Vermont	**3.75**	**1,419**
	8.0	402
Wyoming	**4.0**	**72**
	8.5	41

Source: Actuarial reports of various states. Values in bold are the values used in the report.

Table 5. Sensitivity of UAAL to Inflation Rate

	UAAL (in millions of dollars)		
	-1 Percent	**Baseline Inflation Rate**	**+1 Percent**
Florida	2,659	3,082	3,613
Hawaii	8,187	9,679	11,597
Idaho	302	362	432
Maryland	13,128	14,543	16,226
Massachusetts	11,282	13,287	15,884
North Dakota	28	31	34
Oklahoma	745	814	895

Source: Actuarial reports of various states

Table 6: Factors Associated with High Levels of Unfunded Actuarially Accrued Liabilities Per Capita

Dependent variable: Log UAAL Per Capita, Mean $1,622

	Log UAAL Per Capita
Log State Budget	0.043 [0.149]
Share of Labor Force in State and Local Gov.	10.497 [3.560]**
Share of Pub Employees in Collective Bargaining Unit	1.761 [1.021]+
Pension Funding Ratio	-0.005 [0.008]
Avg. Monthly Salary Full-Time State Employees (thousands)	0.060 [0.307]
Discount Rate (%)	-0.210 [0.083]*
Teachers Included Dummy	0.382 [0.242]
Pay 1-49% Premium	0.263 [0.445]
Pay 50-99% Premium	2.419 [0.311]**
Pay 100% Premium	2.741 [0.364]**
Constant	2.866 [1.778]
Observations	49
R-squared	0.790

Notes: ** indicates significance at the 1% level, * at the 5% level, and + at the 10% level.

ENDNOTES

[1] See, for example, Fronstin (2005, 2010) and Buchmueller, Johnson, and Lo Sasso (2006). Clark, Ghent, and Headen (1994) provide an early assessment of the key determinants of the decline in the incidence of RHI in the private sector.

[2] Details of the approved accounting standards for retiree health insurance plans are contained in GASB (2004 a, b).

[3] An exception is Clark (2010) which surveys the retiree health plans for teachers in each of the states.

[4] UAAL per capita is defined as the UAAL divided by the state population. Population figures are from 2005 Census population estimates available at: http://www.census.gov/popest/states/tables/NST-EST2007-01.xls, [accessed February 27, 2009].

[5] Many states have a graded level of premium subsidies with more years of service being associated with a greater percentage of the premium being paid by the state. For example, in California, employees with under 10 years of service pay the entire RHI premium. For retirees with 10 years of service, the state pays 50 percent of the RHI premium. The state-paid portion of the premium increases by 5 percent for each additional year of service up to 20 years of service. The state pays 100 percent of the premium for retirees with 20 or more years of service.

[6] Note that the percent premium paid for Washington and West Virginia was modified from the original GAO (2007) classification to be 50-99 upon a close reading of the actuarial report. See Clark and Morrill (2010 forthcoming) for further discussion.

[7] Of course a lower UAAL also implies a lower ARC. Deputy Comptroller of New York State, Thomas Sanzillo (2007) testified before the New York State Assembly that the liability of the state (including SUNY) associated with its retiree health plans was approximately $47 billion and that the annual required contribution was $3.7 billion if the state continued with no pre-funding. However, he then reported that if the state committed to fully fund its retiree health obligations, the ARC would be only $2.4 billion based on using a discount rate of 8.0 percent. This latter value represented $1.1 billion to support current benefits payable and $1.3 billion in contributions to a fund to support future benefits.

[8] GASB (2010) has established a study commission to consider amending its standards concerning the appropriate discount rate to use for public pensions.

[9] Population figures are from 2005 Census population estimates available at: http://www.census.gov/popest/states/tables/NST-EST2007-01.xls, [accessed February 27, 2009].

[10] The state budget is calculated by taking the state share of state and local expenditure from http://sourcebook.governing.com/subtopicresults.jsp?ind=696 and multiplying that by the total state and local expenditure in 2005 from http://sourcebook.governing.com/subtopicresults.jsp?ind=695, [accessed February 27, 2009].

[11] The share of workers in the public sector is provided by Hirsch and Macpherson (2003). Our measure of unionization is also derived from Hirsch and Macpherson (2003).

[12] This variable is calculated by dividing the state's 2007 March payroll number by the total number of state employees, both from the Census of State Governments, http://www.census.gov/govs/state/ [accessed January 22, 2009].

[13] Clark and McDermed (1990), Gustmann and Steinmeier (1992), and Ippolito (1995) examine the determinants of the shift from defined benefit plans to defined contribution plans while Munnell et al (2007) discuss why defined benefit plans continue to be the norm in the public sector. In a series of

papers, Laibson and Madrian and their colleagues have examined the impact of defaults and the framing of choices of saving behavior (see their paper at this conference and references therein).

[14] Fronstin (2005, 2010) and Buchmueller, et al. (2006) report trends in coverage of retiree health insurance plans.

[15] For more details on the calculation of the pension replacement ratio, see Clark, Craig, and Sabelhaus (2011 forthcoming).

[16] Moody's Investors Service (2005) states on page 1, "Moody's does not anticipate that the liability disclosures will cause immediate rating adjustments of a broad scale" and that "Moody's therefore will exclude OPEB liabilities from calculations of state or local debt burdens, but include them as a factor in the overall credit assessment of an issuer. This practice is consistent with Moody's approach to municipal pension liabilities."

[17] Standard & Poor's (2007) discusses the possibilities of a different prefunding strategy, the use of OPEB obligation bonds.

[18] After the Financial Accounting Standard Boards required private employers to report retiree health insurance liabilities in the same manner as GASB 45, there was been a sharp decline in the proportion of employers offering retiree health plans. The Kaiser Family Foundation (2006) reports that in 1988 before the adoption of the FASB standards, 66 percent of employers with 20 or more employees offered retiree health plans. After the standards were issued the proportion of private employers offering such plans dropped to 46 percent in 1991 and further to 36 percent in 1993.