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The Evolution of Public Sector Pension Plans in the United States

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The Evolution of Public Sector Pension Plans in the United States

Abstract

Municipal governments in the U.S. began offering retirement plans for their workers in the mid-19th century, and state governments followed in the early 20th century. As these plans matured, they confronted economic, social, and political challenges, including the creation of the Social Security system, which subsequently shaped their structure, governance, and generosity. After reviewing this history, we employ data from all 50 states to estimate a pension benefit equation for hypothetical workers and explain differences in the generosity of plans across states and types of workers covered. We show that population growth, plan funding, union representation, and participation in Social Security influenced the generosity of the plans.

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The Future of Public Employee Retirement Systems

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Part III

The Political Economy of Public Pensions

Chapter 14

The Evolution of Public Sector Pension Plans in the United States

Robert L. Clark, Lee A. Craig, and Neveen Ahmed

The first US states provided retirement plans for their civil service employees beginning over a century ago. The subsequent spread of retirement plans across the states continued for more than a half a century before all of the states had adopted such plans.¹ General old-age assistance plans predated employee retirement plans in many states,² and state and local governments typically developed pension plans for teachers, police officers, and firefighters before the states extended similar benefits to other civil service employees (Clark, Craig, and Wilson, 2003). The creation and management of public sector pension plans in the twentieth century was an evolutionary process, with many of the early plans for local employees and teachers eventually being merged into single, state-wide systems, and these were frequently merged with plans covering general state employees. Coverage has now been extended to virtually all public sector employees in the United States.

This chapter begins with a review of the evolution of retirement plans from the establishment of the first state-employee plan in 1911 through the coverage of practically all state employees. In addition, in the next section we explore the relationship between public sector pensions and Social Security. Following that, we report findings from a survey of state retirement plan administrators, which covers past and current characteristics of the state plans. These findings shed light on how the states adjusted their pension plans once their employees were allowed to be covered by Social Security. We then provide a detailed assessment of how plan characteristics have changed over the past 25 years and highlight the differences between plans in which workers are covered by Social Security and plans in which workers are not covered. Finally, we present regression analysis to explain how and why retirement plans differ across the states.

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The evolution of state employee pension plans

The first state retirement plan for (non-teacher) civil service employees was established in Massachusetts in 1911; however, few states rushed to follow that example. By 1916, only Illinois, New Jersey, and Pennsylvania had adopted plans (USBLS 1916), and by 1934, only nine states had retirement systems for general state employees (Social Security Board 1937). Recognition of the need to move elderly state employees out of public service employment, along with sincere concerns for their retirement income, became more acute with the onset of the Great Depression. The passage of the Social Security Act in 1935 contributed to discussions about the need for retirement plans for public employees and how public sector pensions would be structured and financed. Specifically, the initial exclusion of public employees from the Social Security system seems to have stimulated some states to take action and establish their own retirement plans.

Over the next two decades or so, almost every state passed legislation creating a retirement plan for general state employees. The US House of Representatives Committee on Education and Labor Pension Task Force (1978) reported that 45 percent of all large state and local pension systems were established (or had a major restructuring) between 1931 and 1950, and another 15 percent did so in both the 1950s and 1960s. By 1961, 45 states had established pension plans with only Idaho, Nebraska, North Dakota, Oklahoma, and South Dakota failing to develop a retirement plan (Mueller 1961),³ and these states subsequently developed plans for their employees. Thus, widespread pension coverage of public employees is a surprisingly recent development.⁴

As a result of a perceived anomaly of federal law, the history of state pension plans is inextricably linked to the history of the national Social Security system in the US. At the time the Social Security system was created, legal concerns led Congress to exclude state and local workers from the system. Specifically, the issue was whether the Constitution granted to Congress the power to tax the states (as well as local governments). Since the Social Security Act required employers (in this case, the states) to remit a share of the payroll tax, it was perceived as a tax on the states. The evolution of case law on the matter during and following the Great Depression subsequently rendered moot many such concerns about the exercise of federal power, and in the 1950s, federal legislation permitted state and municipal governments to voluntarily include their employees in the Social Security system. Because most states and many municipal governments already provided pension plans for their workers by that date, the decision by state and local governments to enter the Social Security system raised a series of questions for policymakers. One was: Did those public employees who were brought into the Social Security system on a voluntary basis pay for that privilege

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in the form of a reduction in the benefit formula associated with their employer provided pension? We address this question in the following text.

When Congress first passed legislation permitting states to enter into voluntary agreements with the Social Security Administration (SSA) in 1950, it allowed public employees *not* covered by an employer-provided retirement system to participate in Social Security (Mitchell et al. 2000).⁵ Additional amendments enacted in 1954 allowed state and local employees who were covered by an employer-provided retirement plan to obtain Social Security coverage at the election of the public employer and employees. Since coverage was voluntary under both of these provisions, public employers who had entered the Social Security system could, if they chose, also terminate this relationship. Thus, participation in the system was in principle something of a two-way street for the state and local governments. However, as part of the 1983 Social Security reforms, Congress repealed this option; thus states could no longer rescind their decisions to participate in Social Security. Once in the system, public employers were now required to remain in the system.⁶ Finally, in 1991, Social Security coverage was made mandatory for all state and local employees who are not covered by an employer-provided retirement plan (Social Security Administration 2007).

By 2007, all 50 states had signed agreements, the so-called Section 218 agreements, with SSA allowing some or all of the public employees in each state to be covered by Social Security. Even today, however, many state and local employees still remain outside of the Social Security system. Indeed, one estimate is that approximately 28 percent of all state and local public employees remain outside the system (Streckewald 2005). The majority of public employees who do not participate in Social Security are police officers, firefighters, and teachers. The members of these groups were typically among the first non-military public workers to receive pensions in the United States; thus, employees in these occupations typically were already covered by a retirement plan when Social Security was established (Clark, Craig, and Wilson, 2003).⁷

There currently are seven states whose general state employees are currently outside the Social Security system: Alaska, Colorado, Louisiana, Maine, Massachusetts, Nevada, and Ohio.⁸ In addition to general state employees, teachers and some local public employees are not covered in these states. Furthermore, some teachers and local employees in California, Connecticut, Illinois, Kentucky, Missouri, and Texas do not participate in Social Security (Munnell 2005).

The status of state-provided retirement plans following the states' voluntary entry into the Social Security system offers an interesting economic and public policy experiment. Employers and employees are often interested in allocating a portion of total compensation to retirement benefits. If the initial, that is the pre-Social Security, employer-provided

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retirement plan supplied the optimal level of benefits given the state's human resources objectives, employee preferences, and the cost of providing these benefits, then the introduction of Social Security would tend to encourage the states to reduce the generosity of their retirement benefits and reduce the employer contributions to their pension plans. If promised a Social Security benefit, and required to pay the payroll tax, workers would also tend to accept a reduction in employer-provided retirement benefits and employee contributions.

Mueller (1961) reported that when the various states began providing Social Security coverage to their employees, eight states made no reductions in the generosity of their own state retirement plan; 15 states modified their systems slightly, but in all cases, total retirement benefits, social security plus employer pension benefits, were greater than the retirement benefits earned prior to Social Security coverage; another eight states integrated their systems with Social Security and markedly reduced benefits payable under their state systems.⁹ Although Mueller's study provides a useful snapshot of the impact of Social Security on public sector plans circa 1960, because a number of states subsequently overhauled their public sector pension plans, we sought to learn more about how the plans responded to the introduction of Social Security by surveying state pension plan administrators. Specifically, we asked them what, if any, changes were made in their retirement plans when the state allowed participation in Social Security.

Survey of state plan administrators

Ideally, a history of the evolution of state retirement plans would include the date that each state first established a retirement plan for general state employees, teachers, and other public sector employees, along with the date these public employees were first covered by Social Security. In addition, we would like to know if the plans altered the generosity of the employer-provided benefits when participation in Social Security was first allowed. This information has proven very difficult to find, as plan documents (published or on-line) rarely give a detailed history of the development of these plans. Primary and secondary sources indicate that, initially, many state and local governments provided some type of income relief to the elderly persons, and often legislatures and other government bodies awarded lifetime pensions through legislative action targeted at specific retirees (Clark, Craig, and Wilson, 2003). We also know that, over time, there has been considerable consolidation of retirement plans in many states, as the plans for teachers and municipal employees have been merged into a single plan managed at the state level. Plan documents often

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refer to the dates that the most recent consolidation of plans occurred, rather than indicating the date that the first plan covering state employees was established.

To fill in some of the gaps concerning the development of public pensions, we partnered with the National Association of State Retirement Administrators (NASRA) to develop a survey sent to the administrator of each US state plan. Plan administrators were asked to report the following: the year their plan was established; whether state employees were covered by Social Security; and if they were covered by Social Security, then to list the first year the employees participated in the Social Security system. In addition, the administrators were asked to explain the nature of any adjustments in benefits or contributions when employees were first covered by Social Security.

Administrators representing 31 of 50 state retirement plans responded to the survey. The responses to several questions provided important information on the development of public employee pension plans. In response to the question: 'In what year was your retirement system established?' plan administrators illustrated the slow spread of state retirement plans across the country during the twentieth century. Comparing these responses with other primary and secondary sources, leads us to conclude that some of the responses (and/or other secondary sources) emphasize the date of the last merger or consolidation of retirement plans, rather than the date of establishment of the first pension plan for state employees. For example, in the survey the Florida state plan indicates that it began in 1970; however, other sources indicate that a retirement plan existed in that state as early as 1927. Nevertheless, the pattern of development of state retirement plans reported here is broadly consistent with the pattern of development of state plans described earlier, indicating a surge in plan establishment beginning in the 1930s, reaching a peak in the 1940s, and continuing through the 1950s and 1960s.

The state administrators were also asked: 'In what year did your state first enter into the Social Security system?' and whether benefits and contributions to the state plan were reduced when workers were included in Social Security. Combining the data on year of establishment with year of entry into Social Security and whether any adjustments were made, we divided the states into four groups:

1. Plans established prior to the state entering Social Security where no adjustments were made in benefits or contributions to the state retirement plan.
2. Plans established prior to the state entering Social Security where benefits and contributions were reduced after the entry into Social Security.

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3. Plans established after state employees were already covered by Social Security.
4. Plans in which state employees still remain outside the Social Security system.

In this sample of 31 states, 20 states had pension plans for their civil service employees prior to 1950. Of these, 18 entered the Social Security system, and of those that entered the system, 11 did not reduce benefits or contributions associated with the state retirement plan, while seven states reported that the plan structure was modified in conjunction with joining the system. In addition, there were 11 states that started their pension plans after their employees were included in Social Security, and nine of these entered the system at the time they created their plans. It would be logical to conclude that these states (and their employees) considered the cost and benefits of Social Security in developing their own pension plans. Finally, four states that responded to our survey remain outside of Social Security and could be considered as having evaluated the costs and benefits of Social Security and then decided to retain their own system without allowing their employees to participate in Social Security. Thus, at a first glance, we conclude that state plan administrators, legislatures, and public employees have considered the implications of being participants in Social Security and adjusted their own plans accordingly, and that their responses were quite diverse.

Evolution of plan characteristics covering state employees

The development of state employee pension plans after 1911 includes the establishment of pension plans for state workers by every state, and the structural modification of many of these plans as retirement systems for teachers and local employees were often merged into plans for general state employees. The extension of Social Security to public employees on a voluntary basis beginning in 1951 resulted in a wave of states deciding to allow their employees to be covered by Social Security. As noted earlier, many states altered their pension plans by reducing benefits and contributions to their own retirement plan or by integrating the state plan with Social Security. By the mid-1970s, these structural changes in the retirement systems of the various states appeared to have run their course. Yet, over the next 25 years, important plan characteristics continued to evolve, as public pensions generally became more generous in terms of benefits and allowed earlier retirement. This section describes the current status of state retirement plans and how they have evolved over the last two decades.

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Despite the 30-year trend among private sector employers away from DB plans and toward a greater emphasis on DC plans, DB plans remain the dominant type of retirement plan in the public sector. In 2007, the US General Accounting Office reported that with the exception of Alaska and Michigan, all states offered DB plans as their primary retirement plan for general state employees.¹⁰ In addition, two states, Indiana and Oregon, had adopted primary plans that included components of both DB and DC plans, and Nebraska had established a cash balance plan for its employees. In addition to their primary retirement plan, every state offered its employees the opportunity to participate in voluntary DC plans such as 403(b) or 457(b) plans. In contrast to the private sector, public employers often do not match employee contributions. Only 12 states match employee contributions to DC plans up to a specified limit (GAO 2007).¹¹

The contrast between public and private plans sheds light on the history of public plans in the past few decades. Clark and McDermed (1990) argue that much of the early movement away from DB plans in the private sector was caused by two factors: one was the cost of government regulations, and the other was the structural changes in the economy that resulted in shifts away from industries that had traditionally used DB plans as an important human resource policy. In particular, the decline in employment in integrated manufacturing processes that benefited from low turnover, and the rise of service industries that valued labor mobility, helped drive down the share of the private sector labor force covered by a DB plan. These trends simply did not have the same effect on public sector employers. Similarly, Munnell, Haverstick, and Soto (2007) attribute the staying power of DB plans in public sector to differences in the labor force and regulatory environment facing public employers. Furthermore, they argue that the workforce in the public sector is older, more risk averse, less mobile, and more unionized than the private sector labor force. In addition, state and local governments do not face the same pressures on administrative costs and other requirements associated with government regulation of pensions in the private sector.¹²

There exists no detailed history documenting the improvements in state retirement benefits since the mid-1970s; nevertheless, several secondary sources provide useful snapshots that reveal changes in those plans over the last three decades. One problem in comparing these and similar snapshots is that the data sources are different, and the number and type of plans also vary across the reports. For example, in 1978, the Pension Task Force *Report on Public Employee Retirement System* (US House of Representatives 1978) estimated that retirement plans within state-administered systems, in which workers were included in Social Security, yielded average replacement rates

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of 45 percent for workers with 30 years of service in plans that were not integrated with Social Security. Similar workers who were not covered by Social Security received replacement rates that were about 57 percent of final earnings. These estimates imply a generosity parameter (percent of average salary per year of service) of about 1.5 percent per year of service for workers covered by Social Security and 1.9 percent per year of service for those outside the Social Security system.

Between 1988 and 1998, the Bureau of Labor Statistics published four surveys of employee benefits provided by state and local governments. The BLS Bulletin No. 2309 (USBLS 1988) reports that in 1987 the replacement rate for retirees who had 30 years of service and average earnings of \$35,000 was 48.6 percent for retirees who were covered by Social Security and 61.6 percent for retirees from public employers who were not included in the Social Security system. USBLS Bulletin 2477 (USBLS 1996) reports that in the average replacement rates had risen to 51.0 for Social Security covered retirees and 62.6 for retirees without Social Security coverage. These values imply that the mean generosity parameter for public employees included in Social Security increased from 1.6 to 1.7 percent of final salary per year of service between 1988 and 1996. In contrast, the generosity parameter for public employees not in Social Security also rose slightly from 2.05 to 2.1 percent of salary per year of service.

More recently, Brainard (2007, 2009) reports median retirement benefit multipliers of 1.85 percent per year of service for Social Security covered workers and 2.20 percent for employees who are not covered by Social Security. These values imply a further increase in replacement rates for the retiree with 30 years of service to 55.5 for those with Social Security coverage and 66 percent for those who were not covered by Social Security. These three data sources indicate that the generosity of public pension plans was increased between the mid-1970s and 2007. A worker with 30 years of service retiring in 2007 could expect a replacement rate approximately 10 percentage points higher than a similar worker retiring in 1977.

A more comprehensive assessment can be made by comparing the replacement rate provided to employees under the same state plan at different points in time. Since 1982, the Wisconsin Legislative Council has collected information on the benefit characteristics of 85 large public pension plans, including the plans that cover general state employees in all 50 states (Wisconsin Legislative Council various years). To examine the changes in benefit formulas and contributions over the past quarter century, we reviewed the information contained in the Comparative Study of Major Public Employee Pension Systems compiled by the Wisconsin Legislative Council (various years). These reports have been published biannually covering the years 1982 to 2006. We have also examined the

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latest information on the websites of the various state employee retirement plans to supplement the 2006 Wisconsin data.

Table 14-A1 presents information from state retirement plans in 1982 on the normal retirement age specified in the plan, the number of years used to determine the final salary average, and the retirement multipliers in the benefit formula. These values are then contrasted with the data for 2006 to show how state employee retirement plans have evolved over the past 25 years. In general, the states have substantially increased the generosity of their pension plans over the years. Thirty-three states modified the normal retirement ages specified in the plans that allowed workers to retire at earlier ages with fewer years of service; while six states increased their normal retirement ages (NRA) somewhat, including Minnesota, which linked the NRA for state retirement benefits to the NRA for Social Security. Fifteen states reduced the number of years in the averaging period, thus raising final pension benefits; while only Alaska increased the number of years in its averaging period. Finally, 30 states increased the multipliers and/or eliminated Social Security offsets, and four states reduced the multipliers used to calculate retirement benefits. As a result of these changes, holding other factors constant, the typical state employee will retire with a higher replacement ratio in 2006 than in 1982.

To evaluate the impact of these changes, we have calculated the replacement rates in each state for a hypothetical worker retiring at age 65 with 20 years of service. The mean replacement rate in 1982 for plans in the seven states outside the Social Security system was 44.4 percent. By 2006, the mean replacement rate for these same states had increased to 47.9 percent. The rates for 30-year employees were 65.5 percent in 1982 and 73.0 percent in 2006. In contrast, the median replacement rates for states whose employees with 20 years of service who were also covered by Social Security were lower: 32.1 percent in 1982 and 37.3 percent in 2006. The rates for 30-year employees were 48.2 percent in 1982 and 58.2 percent in 2006. Interestingly, the increase in the median replacement was greater during this period for states outside the Social Security system, even though the 1983 amendments to Social Security resulted in a reduction in Social Security benefits for future retirees.

Overall, 39 states increased the 30-year replacement rate for their workers; while in seven states, the 30-year replacement rates remained constant. Only one state, Florida, had a decline in its 30-year replacement rate. In these calculations, the increase in the median replacement rate for retirees from state governments results from two factors: one is an increase in the generosity factor in the benefit formulas, and the other is the reduction in the number of years used to determine final salary average. States also made their retirement plans more generous by allowing workers to retire at earlier ages. Figure 14-1 shows the distribution of income replacement

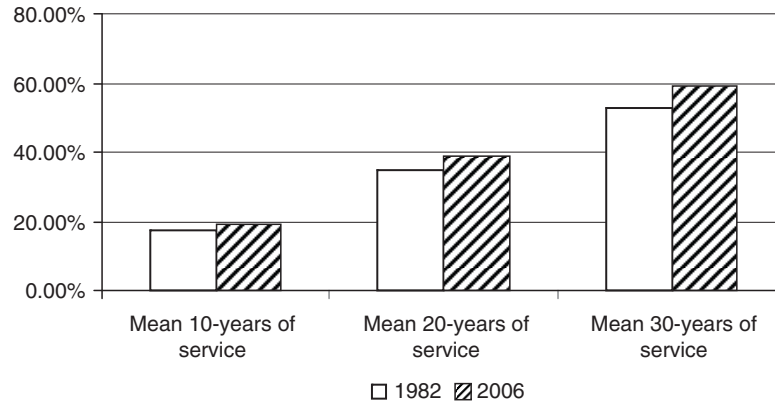
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Figure 14-1 Mean income replacement rates, state pension plans, by years of service, 1982 and 2006. *Note:* Figures are the mean annual replacement rates of state employee pensions for workers retiring in 1982 or 2006, with 10, 20, and 30 years of service. *Source:* Authors' calculations from state retirement plan websites and Wisconsin Legislative Council (1982 and 2006).

rates by years of service and year. The chart illustrates the increase in mean replacement rates as year of service increase and the across the board increase in benefits between 1984 and 2006.

In addition we have divided the replacement rate figures by Social Security coverage. Figure 14-2 illustrates the difference in replacement rates for state workers covered by Social Security and those not covered, in 1982. Similarly, Figure 14-3 illustrates the same differences for 2006. Taken together the figures show the extent to which replacement rates increase with job tenure and the absence of Social Security coverage, as well as the overall increase between 1982 and 2006. Furthermore, they show the increase in replacement rates between 1982 and 2006 for workers not covered by Social Security relative to those who were covered.

Other important characteristics of DB pension plans that influence the cost of the plan to the employer and the value to the employee include the vesting requirements and the contribution rates. Table 14-A2 reports these values for the state retirement plans in 1984 and 2006.¹³ In 1984, 25 states imposed a 10-year vesting standard; 19 states had 5-year vesting; five states imposed vesting standards of four or eight years; and Wisconsin had immediate vesting. Over the intervening two decades, vesting standards were reduced by 17 states. In 2006, only 10 states imposed 10-year vesting compared to 28 with 5-year vesting. Ten states had vesting requirements of fewer than five years, and two states still had 8-year

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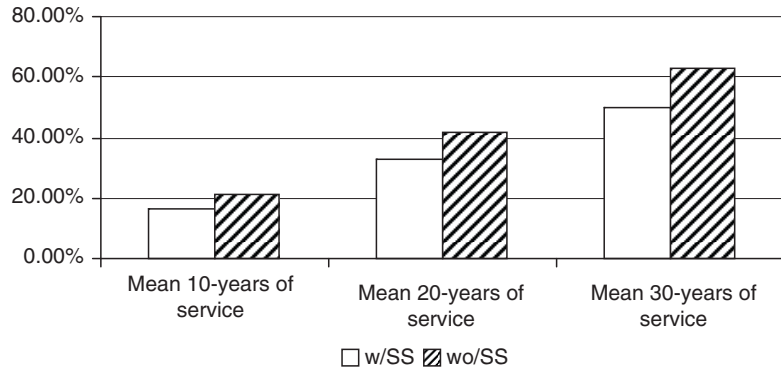


Figure 14-2 Mean income replacement rates of state pension plans, by social security coverage, 1982. *Note:* Figures are the mean annual replacement rates of state employee pensions for workers (with and without Social Security coverage) retiring in 1982 with 10, 20, and 30 years of service. *Source:* Authors' calculations from state retirement plan websites and Wisconsin Legislative Council (1982 and 2006).

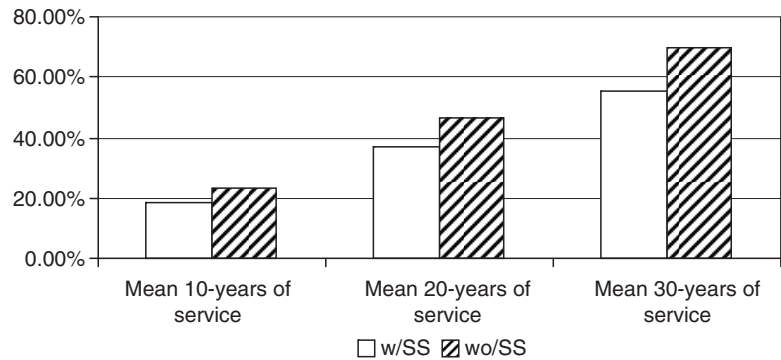


Figure 14-3 Mean income replacement rates of state pension plans, by social security coverage, 2006. *Note:* Figures are the mean annual replacement rates of state employee pensions for workers (with and without Social Security coverage) retiring in 2006 with 10, 20, and 30 years of service. *Source:* Authors' calculations from state retirement plan websites and Wisconsin Legislative Council (1982 and 2006).

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vesting. The decline in the vesting period also represents an increase in the generosity of these plans.

Table 14-A2 also presents the employee and employer contribution rates for 1984 and 2006 for each state retirement plan. Over the past two decades 20 states increased employee contribution rates while eight reduced them. Using a survey of plan administrators, Brainard (2007) reports that the median employee contribution rates remained stable between 2002 and 2006. The employee contribution rate for states with Social Security coverage was 5.0 percent, and the contribution rates for employees that were not part of Social Security was 8.0 percent.

Explaining the variation of retirement benefits across state pension plans

Economists agree that the decision by an employer to offer a pension plan depends on employee preferences for current compensation relative to deferred compensation; the cost of providing a dollar of future income compared to receiving a dollar today; and how the pension might influence worker turnover and retirement rates. In the private sector, some companies offer pension plans but many do not; some employers provide DB plans, but most now use DC plans, and some firms have generous plans while others provide relatively low retirement benefits. Competitive pressures help sort workers and firms into the most desirable matches. In the public sector, all states offer retirement plans to their employees, and virtually all states have established and continue to maintain DB plans. Thus, there is much more homogeneity across the retirement plans offered by state governments; however, these plans still vary substantially in their generosity.

In this section, we attempt to explain differences in the replacement rates that career state employees will achieve, depending on their state of employment, and how these differences have evolved over time. Our efforts are limited by the limited number of states, only 50 in total (as well as the multi-collinearity in many of the factors that likely impact the level of benefits that state political leaders wish to provide the employees of the state). We estimate a rather simple model of the determinants of the generosity of state retirement plans. Research on employee compensation suggests that any such model should consider including: measures of a state's population growth; the financial condition of the state's pension fund; an indicator of collective bargaining strength of public employees; and the plan's connection or lack of connection to Social Security (see Clark, Craig, and Wilson [2003]; Craig [1995]; Fishback and Kantor [1995], [2000]; Gruber and

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Krueger [1991]; Moore and Viscusi [1990]; and Munnell [2005]). Institutional factors also suggest that the overall level of coverage of a public sector plan might influence the generosity of benefits. Given the data limitations, the model we estimate is:

$$\begin{aligned} \text{Replacement Rate}_i = & \alpha + \beta_1 \text{PopulationGrowth}_i + \beta_2 \text{FundingRatio}_i \\ & + \beta_3 \text{Union}_i + \beta_4 \text{SocialSecurity}_i \\ & + \sum \beta_j \text{Plan}_{ij} + \varepsilon_i, \end{aligned} \quad (14.1)$$

where $\text{Replacement Rate}_i$ is the income replacement rate for a representative worker with 20 years of service in the i th state pension plan; $\text{PopulationGrowth}_i$ is the average annual compounded rate of population growth during the most recent 10-year period in the i th state; FundingRatio_i is the ratio of pension plan assets to annual benefit expenditures in the i th state pension plan; the variable Union_i is the share of the public sector employment covered by a collective bargaining agreement in the i th state; the term SocialSecurity_i is a dummy variable that takes on the value one if the workers in the i th state plan are covered by Social Security, zero otherwise; and the Plan_{ij} terms are dummy variables that take on the value one for, respectively, plans that cover only general state employees, plans that cover state employees and teachers, plans that cover state employees and local public employees, and plans that cover all three groups of employees; zero otherwise.¹⁴

We anticipate that the population growth and union variables will have positive coefficients in the estimated equation shown earlier. Population growth serves as a proxy for the overall economic climate of the state in question, and the union variable reflects the collective bargaining strength of the state's public sector workers. In addition, the signs on the pension funding ratio and the Social Security dummy variable should be negative. Pension plans with large liabilities relative to assets may have reached that level of funding due to relatively high replacement rates (Mitchell and Smith 1994). With respect to participation in Social Security, economic theory suggests that workers excluded from Social Security will tend to receive a compensating differential in the form of a higher replacement rate from their employer pension.

To estimate equation (14.1), we constructed a data set that includes the income replacement rate relative to the last year of earnings, which was calculated for a hypothetical worker in each state utilizing plan characteristics reported in the Wisconsin Legislative Council's *Comparative Study of Major Public Employee Retirement Systems*, published biannually from 1982 through 2006 (Wisconsin Legislative Council various years). In addition, to supplement the *Study*, we obtained information from the Web sites of each

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of the state plans. Key plan parameters used to calculate the replacement rates included the number of years used to calculate the final average salary, the generosity parameter, and the normal retirement age. The Social Security variable was also constructed from these sources.

In order to construct the replacement ratio for the hypothetical worker, we assumed that this worker had annual earnings of \$50,000 in the fifth year before retirement, and this salary was increased by 3 percent per year until retirement, assumed to occur at age 65. The annual benefit for this worker is calculated under three different assumptions related to years of services; these are 10, 20, and 30 years of services. Finally, the replacement ratio is calculated under the previous assumptions using the benefit formulas for each state retirement plan for those states with DB plans. Other types of plans are excluded.¹⁵

As for the other variables, the population growth variables were created from data supplied by the *Statistical Abstract of the United States* (US Department of Commerce various years). Data for the construction of the funding ratio are from the Census Bureau's *Census of Governments: Employee Retirement Systems of State and Local Governments* (US Department of Commerce 2004),¹⁶ and the unionization variable is from Hirsch and Macpherson (2007).¹⁷ Table 14-1 contains means and standard deviations of the independent variables.

Estimation results for three versions of equation (14.1) are shown in Table 14-2. The first column contains the estimated coefficients for 1982 and the second column contains the results for 2006. The third column reports the findings from a pooled regression that includes observations from both years and interaction dummy variables indicating 2006.

TABLE 14-1 Descriptive statistics, means, and standard deviations of independent variables

<i>Independent Variable</i>	<i>1982</i>	<i>2006</i>
Population growth (%)	1.28 (1.08)	0.97 (0.82)
Pension funding ratio	18.52 (7.57)	19.99 (4.97)
Percent of government labor force unionized	40.90 (16.39)	38.53 (16.91)
Covered by Social Security	0.7763 (0.4195)	0.7763 (0.4195)
Plan includes state workers only (State dummy)	0.1447 (0.3542)	0.1447 (0.3542)
Plan includes state workers and teachers (State and teacher dummy)	0.0395 (0.1960)	0.0395 (0.1960)
Plan includes state and local employees (State and local dummy)	0.1842 (0.3902)	0.1842 (0.3902)

Source: Authors' compilations of state retirement system data; see text.

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TABLE 14-2 Multivariate models of replacement ratios for state and local employees, with 20 years of service, 1982 and 2006

<i>Independent Variable</i>	<i>1982</i>	<i>2006</i>	<i>Pooled with 2006 interactions</i>
Intercept	39.28*** (4.41)	50.59*** (5.78)	44.14*** (3.60)
Population growth	2.48*** (0.85)	1.66 (1.18)	2.05** (0.88)
Pension funding ratio	-0.22** (0.11)	-0.15 (0.21)	-0.27** (0.12)
Percent of government labor force unionized	0.09* (0.05)	-0.11* (0.06)	0.05 (0.05)
Covered by Social Security	-8.33*** (2.42)	-10.40*** (2.68)	-9.65*** (0.02)
Plan includes state workers only (State dummy)	-1.69 (2.36)	4.53* (2.61)	-2.65 (2.48)
Plan includes state workers and teachers (State and teacher dummy)	-1.85 (3.62)	0.49 (3.94)	-2.38 (3.91)
Plan includes state and local employees (State and local dummy)	0.58 (2.11)	4.60* (2.38)	-0.25 (2.22)
Pop growth times 2006 dummy	-	—	-0.38 (1.41)
Funding ratio times 2006 dummy	-	-	0.32* (0.19)
% Govt LF union times 2006 dummy	-	-	-0.13** (0.06)
Social security coverage times 2006 dummy	-	-	0.49 (3.28)
State dummy times 2006 dummy	-	-	7.61** (3.40)
State and teacher dummy times 2006 dummy	-	-	2.93 (5.39)
State and local dummy times 2006 dummy	-	-	5.25* (3.06)
R ² (adj)	0.4105	0.2951	0.378
F	5.48***	3.75***	4.95***
N	46	47	92

Notes. Standard errors are in parentheses. *—The probability of obtaining the resulting test statistic this large when the null hypothesis of $\beta = 0$ is true, is less than .10; ** less than .05; and *** less than .01.

Source: Authors' analysis of state retirement system data; see text.

In general, in the 1982 regressions, the signs of the coefficients are consistent with our expectations, as discussed earlier. A growing economy, as measured by population growth puts upward pressure on the replacement rate provided by the state retirement plan. The estimated coefficient

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indicates that a 1 percentage point increase in the population growth rate per year is associated with a 2.5 percentage point increase in the replacement rate. While this might seem like a large impact, the reader should note that the mean annual population growth rate among the states is only 1.4 percent per year so an increase of 1 percentage point represents a substantial increase in the rate of growth of a state's population.

As noted earlier, lower funding ratios reflect the higher costs associated with more generous retirement plans. The estimated coefficient on the fund ratio in the 1982 regression indicates that a reduction in the ratio of pension fund assets to annual expenditures of one year of pension costs is associated with a 0.22 percentage point increase in the replacement rate. The share of the government labor force that is unionized is expected to lead to higher compensation and more generous retirement benefits. The estimated union effect has the expected positive sign in 1982 as a 1 percentage point increase led to a 0.09 percentage point increase in the replacement rate. In general, participation in Social Security is expected to be associated with less generous employer provided retirement plans. The Social Security coefficient in the 1982 regression has the expected negative impact on the replacement rates from a public sector retirement plan. Controlling for the other variables in the equation, inclusion in Social Security reduced the replacement rate from a state plan by 8.3 percentage points.

With one notable exception, the results for the 2006 regressions are qualitatively similar to those for 1982. The key difference is in the sign of the coefficient on the share of the government labor force unionized; a 1 percentage point increase in the unionized share of the government labor force led to a 0.11 percentage point *decrease* in the replacement rate. Interestingly, a regression of this union variable on either the population growth or the funding ratio variables yields a negative and statistically significant coefficient. Thus it appears that by 2006, having a large share of the state's public sector work force in a union was a proxy for slow population (and economic) growth and pension finance problems. In short, the union variable may have switched from being an indicator of bargaining strength and larger pension benefits to an indicator of overall economic weakness. In addition, in the 2006 model, two of the variables indicating the coverage of public sector workers have positive and statistically significant impacts on replacement rates. The estimated coefficients on these variables suggest that when state employees are in a separate plan, that is, a plan that does not include teachers or teachers *and* local government employees, they receive replacement rates that are 4.5 percentage points higher than comparable workers in combined state, teacher, and local plans.

The results in Table 14-2 suggest some quantitative difference between the factors that explain the replacement rates in 1982 and 2006. To further

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test the possibility that the influence of these variables changed over time, we pool the observations from 1982 and 2006 and then created a dichotomous variable that takes the value one for 2006, zero otherwise. The 2006 indicator variable is multiplied times each of the explanatory variables in the basic equation. The results for the pooled sample are shown in the final column of Table 14-2. The estimated coefficients on the explanatory variables themselves are similar to those shown in columns 1 and 2 of the table. The interaction terms indicate whether the effect of the variables is significantly different in 2006 compared to 1982. As expected given the result in columns 1 and 2, the analysis finds significant differences in the 2006 impact of the funding ratio and the share of public sector work force that is unionized. In addition, the inclusion of the interaction terms yield positive impacts on a number of the plan-type variables, suggesting that these particular plans experienced an increase in their replacement rates over time compared to plans covering state and local employees plus teachers—that is, the omitted dummy variable.

Finally, we are interested in exploring the change in the replacement rates between 1982 and 2006, as reflected in Figures 14-1 through 14-3. In Table 14-3, we employ the same variables from equation (14.1) to explain the *change* in replacement rates between the two years. The coefficient on the union variable is the only statistically significant non-dummy variable, and it suggests that, as we noted earlier, a heavily unionized public sector labor force has had a negative impact on the generosity of state pension

TABLE 14-3 Explanation of the percentage change in replacement ratios for state employees with 20 years of service, between 1982 and 2006

<i>Independent Variable</i>	
Intercept	10.00** (4.68)
Population growth	-0.08 (0.97)
Pension funding ratio	-0.10 (0.17)
Percent of government labor force (Unionized)	-0.17*** (0.05)
Covered by social security	-0.17 (2.17)
Plan includes state workers only	6.26*** (2.12)
Plan includes state employees and teachers	0.23 (3.20)
Plan includes state and local government employees	3.31* (1.94)
R ² (adj)	0.1850
F	2.46***
N	46

Notes: Standard errors are in parentheses. *—The probability of obtaining the resulting test statistic this large when the null hypothesis of $\beta = 0$ is true, is less than .10; ** less than .05; and *** less than .01.

Source: Authors' analysis of state retirement system data; see text.

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funds over the past 25 years. A greater unionized share of the state's public sector labor force has reduced the rate of improvement in public sector pension benefits, holding other variables constant.

Conclusion

This discussion provides a brief history of the development of state retirement plans since the first plan was established early in the twentieth century and analyzes their subsequent changes, particularly during recent decades. The adoption of retirement plans for general state employees moved rather slowly during the first third of the century but with the passage of Social Security in 1935 which excluded public sector employees, many states began to establish their own retirement plans. However, the final states plans were not established until the 1960s. The relationship of these state retirement plans with Social Security is a story unto itself, and we have attempted to provide the basic outline of the response of states to the changing rules associated with the inclusion of public employees into the Social Security system.

Once established, public retirement plans have been merged with those for teachers and local employees in many states, and these consolidated plans are now the norm, although many states continue to offer retirement plans only for general state employees. The main story of the past three decades has been the increased generosity of state retirement plans. States have reduced the normal retirement age, increased the generosity parameters, and reduced the number of years in the averaging period. As a result, replacement rates have risen significantly. The history we provide may raise concerns for the sustainability of the current generosity of state retirement plans, especially in light of the emergence of very large unfunded liabilities associated with retiree health benefit plans that are provided by most states.

Finally, we have attempted to explain the variation in benefits across state retirement plans and how these differences have changed during the last 25 years. We draw the reader's attention to four key findings. First, our analysis indicates that a state's population and economic growth has led states to be more generous with their public sector pension plans. States that have seen their populations grow dramatically have tended to increase the replacement ratios that career workers can achieve. Second, we find that the funding status of state retirement plans has a negative impact on the generosity of the state's public sector pension plans. The logic of this finding is reasonably straightforward. Some states have well-funded plans in part because, relative to their less-well-funded peers, they pay smaller pensions. Third, the impact of public sector unionization on the generosity of the states' public sector pension plans has changed

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over time. In the early 1980s, unionization still had a positive impact on income replacement rates, presumably reflecting the greater bargaining power associated with a greater incidence of unionism in the public sector. Swings in unionization of only a few percentage points had relatively large implications for the differences in plan generosity. However, by 2006, the union effect had changed its sign. Today, the extent of unionization among public sector workers has a negative impact on the state’s replacement rate.

Finally, we find that participation in Social Security reduced the typical worker’s replacement rate from their state retirement plan by around 8 percentage points. Whether this is a large or small cost for participation in Social Security depends on any reduction in employee contributions to the state plan for those workers covered by Social Security and the overall benefits associated with Social Security coverage relative to the size of the payroll tax.

TABLE 14-A1 Benefit formulas and retirement ages for state employee pension plans, by state, 1982 and 2006

<i>State</i>	<i>NRA^f</i>	<i>Averaging Period^g</i>	<i>Benefit Formula^h</i>
Alabama ^b			
1982	60(10); 30 yrs	3	2.0125
2006	60(10); 25 yrs	3	2.0125
Alaska ^{b, e}			
1982	55(5); 30 yrs	3	2.0
2006	60(5); 30 yrs	5	2.0 1st 10 yrs; 2.25 2nd 10 yrs; 2.5 20 plus
Arizona ^c			
1982	65; 62 (10); 60 (25)	5	2.0
2006	65; 62 (10); R80	3	2.1 1st 20 yrs; 2.15 next 5; 2.2 next 5; 2.3 over 30
Arkansas ^b			
1982	65 (10); 55 (35)	5	1.625 with SS offset; limit 100% of FAS including SS
2006	65 (5); 28 yrs	3	2.0
California ^b			
1982	60 (5)	5	2.418 with SS offset
2006	55(5)	1	2.0 at 55; 2.5 at 63

(cont.)

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TABLE 14-A1 (Continued)

<i>State</i>	<i>NRA^f</i>	<i>Averaging Period^g</i>	<i>Benefit Formula^h</i>
Colorado ^{c,e}			
1982	60 (20); 55 (30); 65 (5)	3	2.5 1st 20 yrs; then 1.0; limit 70% FAS
2006	65 (5); 55 (30); R80	3	2.5; limit 100% FAS
Connecticut ^a			
1982	55 (25); 65 (10); 70 (5)	3	2.0; limit 75% FAS
2006	62 (10); 60 (25)	3	1.83 with SS offset
Delaware ^d			
1982	62 (10); 60(15); 30 yrs	5	1.6; limit 75% FAS including SS
2006	62 (5); 60 (15); 30 yrs	3	1.85
Florida ^c			
1982	62 (10); 30 yrs	5	1.68, limit 100% FAS
2006	62 (6); 30 yrs	5	1.68
Georgia ^a			
1982	65; 30 yrs	2	1.5
2006	60 (10); 30 yrs	2	2.0; limit 90% earnings
Hawaii ^c			
1982	55 (5)	5	2.0
2006	62 (5); 55 (30)	3	2.0
Idaho ^c			
1982	65 (5); 60 (30)	5	1.67
2006	65 (5); R90	3.5	2.0; limit 100% FAS
Illinois ^a			
1982	60 (8); 35 yrs	4	1.0 1st 10 yrs increasing to 1.5 after 30 yrs; limit 75% FAS
2006	60 (8); R85	4	1.67; limit 75% FAS
Indiana ^b			
1982	65 (10)	5	1.1 plus money purchase
2006	65 (10); 60 (15); R85	5	1.1 plus money purchase
Iowa ^c			
1982	65	5	1.67
2006	65; 62 (20); R88	5	2.0 1st 30 yrs; 1.0 extra yrs
Kansas ^c			
1982	65	5	1.25
2006	65; 62 (10); R85	3	1.75

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TABLE 14-A1 (Continued)

<i>State</i>	<i>NRA^f</i>	<i>Averaging Period^g</i>	<i>Benefit Formula^h</i>
Kentucky ^b			
1982	65 (4); 30 yrs	5	1.6
2006	65 (4); 27 yrs	5	1.97
Louisiana ^{a, e}			
1982	60 (10); 55 (25); 30 yrs	3	2.5; limit 100% FAS
2006	60 (10); 55 (25); 30 yrs	3	3.3; limit 100% FAS
Maine ^{c, e}			
1982	60	3	2.0
2006	60 (5)	3	2.0
Maryland ^c			
1982	62 (5); 30 yrs	3	0.8 to SS cap; 1.5 over cap
2006	60 (5); 30 yrs	3	1.8; limit 100% FAS
Massachusetts ^{a, e}			
1982	65 (10)	3	2.5; limit 85% FAS
2006	55 (10); 20 yrs	3	0.5 to 2.5, age related limit 80% FAS
Michigan ^a			
1982	60 (10); 55 (30)	5	1.5
2006	60 (10); 55 (30)	3	1.5
Minnesota ^a			
1982	65 (10); 62 (30)	5	1.0 1st 10 yrs; 1.5 extra yrs
2006	SS NRA	3	1.7
Mississippi ^c			
1982	65; 30 yrs	5	1.63 1st 20 yrs; 2.0 over 30
2006	60 (4); 25 yrs	4	2.0 1st 25 yrs; 2.5 extra yrs; limit 100% FAS
Missouri ^a			
1982	65 (4); 60 (15)	5	1.2
2006	65 (5); 60 (15); R80	3	1.7
Montana ^b			
1982	60 (5); 65; 35 yrs	3	1.67
2006	60 (5); 65; 30 yrs	3	1.785 1st 25 yrs; then 2.0
Nebraska ^a			
1982	65	money purchase plan	
2006	55	money purchase plan	

(cont.)

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TABLE 14-A1 (Continued)

<i>State</i>	<i>NRA^f</i>	<i>Averaging Period^g</i>	<i>Benefit Formula^h</i>
Nevada ^{c,e}			
1982	60 (10); 55 (30)	3	2.5; limit 75% FAS
2006	65 (5); 60 (10); 30 yrs	3	2.6; limit 75% FAS
New Hampshire ^c			
1982	60	3	1.67 with SS offset
2006	60	3	1.67 to 65; 1.515 after 65
New Jersey ^b			
1982	60; 55 (25); 35 yrs	3	1.67
2006	60	3	1.82
New Mexico ^b			
1982	60 (20); 65 (5); 30 yrs	3	3.0; limit 80% FAS
2006	60 (20); 65 (5); 25 yrs	3	3.0; limit 80% FAS
New York ^b			
1982	62 (20)	3	2.0 SS offset; max 30 yrs
2006	62 (5); 55 (30)	3	1.67 1st 20 yrs; 2.0 20-29; 3.5 yrs over 30
North Carolina ^d			
1982	65; 30 yrs	4	1.57
2006	65 (5); 60 (25); 30 yrs	4	1.82
North Dakota ^b			
1982	65	5	1.04
2006	65; R85	3	2.0
Ohio ^{b, e}			
1982	65 (5); 30 yrs	3	2.0; limit 90% FAS
2006	60 (5); 30 yrs	3	2.2 1st 30 yrs; 2.5 extra yrs; limit 100% FAS
Oklahoma ^b			
1982	62; 58 (30)	5	2.0
2006	62 (6); R90	3	2.0
Oregon ^c			
1982	58; 55 (30)	3	1.67
2006	65; 58 (30)	3	1.5 plus money purchase
Pennsylvania ^a			
1982	60 (3); 35 yrs	3	2.0
2006	60 (3); 25 yrs	3	2.5; limit 100% high salary

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TABLE 14-A1 (Continued)

<i>State</i>	<i>NRA^f</i>	<i>Averaging Period^g</i>	<i>Benefit Formula^h</i>
Rhode Island ^d			
1982	55 (30); 60 (10); 25 yrs	3	1.7 1 st 10 yrs; rising to 2.4; limit 80% FAS
2006	60 (10); 25 yrs	3	1.7 1 st 10 yrs; 1.9 2 nd 10 yrs; 3.0 21–34; 2.0 over 35 yrs; limit 80% FAS
South Carolina ^c			
1982	65; 30 yrs	3	1.25 less than \$4,800; 1.65
2006	65; 28 yrs	3	1.82
South Dakota ^c			
1982	65 (5)	3	2.0 with SS offset
2006	60 (3); R85	3	1.625 yrs prior to 7/1/02 1.55 yrs after 7/1/02
Tennessee ^c			
1982	60; 30 yrs	5	1.5 below SS cap; 1.75 over SS; limit 75% FAS
2006	60 (5); 30 yrs	5	1.5 below SS cap; 1.75 over SS; limit 94.5% FAS
Texas ^a			
1982	60 (10); 55 (30)	3	1.5 1 st 10 yrs; then 2.0; limit 80% FAS
2006	60 (5); R80	3	2.3; limit 100% FAS
Utah ^c			
1982	65 (4); 30 yrs	5	2.0; limit 100% FAS
2006	65 (4); 30 yrs	3	2.0
Vermont ^a			
1982	65; 62 (20)	5	1.67; max 30 years
2006	62; 30 yrs	3	1.67; limit 50% FAS
Virginia ^c			
1982	65; 60 (30)	3	1.67 with SS offset
2006	65 (5); 50 (30)	3	1.7; limit 100% FAS
Washington ^b			
1982	65 (5)	5	2.0
2006	65 (5)	5	2.0

(cont.)

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TABLE 14-A1 (Continued)

<i>State</i>	<i>NRA^f</i>	<i>Averaging Period^g</i>	<i>Benefit Formula^h</i>
West Virginia ^b			
1982	60 (5)	3	2.0
2006	60 (5); R80	3	2.0
Wisconsin ^c			
1982	65	3	1.3; limit 85% FAS
2006	65; 57 (30)	3	1.6; limit 70% FAS
Wyoming ^c			
1982	60 (4)	3	2.0
2006	60; R85	3	2.125 1st 15 yrs; 2.5 after

^a Retirement plan covers only state employees.

^b Retirement plans covers state and local employees.

^c Retirement plan covers state and local employees and teachers.

^d State plan covers state employees and teachers.

^e State employees are not covered by Social Security.

^f NRA indicates the normal retirement age for the plan. States often have several criteria that employees can satisfy and thus qualify for unreduced pension benefits. The numbers presented in the table indicate the age and service needed to qualify for an unreduced pension benefit. For example, an entry of 60 (10) indicates that a worker reaching age 60 with 10 years of service has reached the normal retirement age. Some states allow workers to qualify for unreduced benefits with a minimum number of years of service. These requirements are shown by an entry like 30 years. Finally some states allow workers to reach the normal retirement age with a combination of age and years of service equal to some number such as 80. An entry of R80 indicates the NRA is reached when the worker's age plus years of service equal 80.

^g Entries in this column indicate the number of years used to determine a worker's final average salary (FAS). In some states, the formula is based on the highest consecutive years of earnings while other states include the highest years of earnings but these years must be in the last 5 or 10 years of employment.

^h The states with DB plans calculate retirement benefits by multiplying a generosity parameter times the FAS times the number of years of service. Values in this column indicate the generosity parameter in percent. Some states have formulas that are integrated with Social Security and other states place a limit or cap on benefits, typically specified as a percent of the final average salary.

Source: Authors' analysis of state retirement system data; see text.

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TABLE 14-A2 Plan contributions and vesting requirements

<i>State</i>	<i>Employee Contribution Rate</i>	<i>Employer Contribution Rate</i>	<i>Vesting Requirement</i>
Alabama ^b			
1984	5.0	7.59	10
2006	5.0	7.78	10
Alaska ^{b, e}			
1984	4.25	13.62	5
2006	6.75	16.77	5
Arizona ^c			
1984	7.0	7.0	5
2006	9.1	9.1	Immediate
Arkansas ^b			
1984	Noncontributory	10-12	10
2006	5.0	12.54	5
California ^b			
1984	5.0-9.0	16.0-21.0	5
2006	6.0	10.356	5
Colorado ^{c, e}			
1984	8.0	10.2-12.5	5
2006	8.0	10.15	5
Connecticut ^a			
1984	Noncontributory	7.0	10
2006	2.0		5
Delaware ^d			
1984	3.0-5.0	14.4	10
2006	3.0 above \$6,000	6.1	5
Florida ^c			
1984	Noncontributory	10.93	10
2006	Noncontributory	6.72	5
Georgia ^a			
1984	3.0-5.0	7.75	10
2006	1.25	10.41	10
Hawaii ^c			
1984	7.8	23.47	5
2006	6.0	13.75	5
Idaho ^c			
1984	5.3	8.82	5
2006	6.23	10.39	5
Illinois ^a			
1984	4.0	13.29	8
2006	4.0	\$210.5 million	8
Indiana ^b			
1984	3.0	7.5	10
2006	3.0	4.7	10

(cont.)

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TABLE 14-A2 (Continued)

<i>State</i>	<i>Employee Contribution Rate</i>	<i>Employer Contribution Rate</i>	<i>Vesting Requirement</i>
Iowa ^c			
1984	3.75	5.75	4
2006	3.7	5.75	4
Kansas ^c			
1984	4.0	4.8	10
2006	4.0	5.27	10
Kentucky ^b			
1984	4.0	6.25–7.25	5
2006	5.0	5.89	5
Louisiana ^{a, e}			
1984	7.0	9.2	10
2006	7.689	19.1	10
Maine ^{c, e}			
1984	6.5	15.47–15.9	10
2006	7.65	15.09	5
Maryland ^c			
1984	5.0 over SS	4.6–6.25	5
2006	2.0	9.18	5
Massachusetts ^{a, e}			
1984	7.0	Pay-as-you-go	10
2006	8.3	2.9	10
Michigan ^a			
1984	Noncontributory	8.85	10
2006	Noncontributory	13.6	10
Minnesota ^a			
1984	3.73	3.9	10
2006	4.0	4.0	3
Mississippi ^c			
1984	6.0	8.75	10
2006	7.25	10.75	4
Missouri ^a			
1984	Noncontributory	12	10
2006	Noncontributory	12.59	5
Montana ^b			
1984	6.0	6.417	5
2006	6.9	6.9	5
Nebraska ^a			
1984	3.6–4.8	156% of employee rate	5
2006	4.8	156% of employee rate	3
Nevada ^{c, e}			
1984	Noncontributory	15	10
2006	10.5	10.5	5

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TABLE 14-A2 (Continued)

<i>State</i>	<i>Employee Contribution Rate</i>	<i>Employer Contribution Rate</i>	<i>Vesting Requirement</i>
New Hampshire ^c			
1984	4.6–9.2	n/a	10
2006	6.3	6.7	10
New Jersey ^b			
1984	4.96–8.73	n/a	10
2006	5.0	\$7.97 million	10
New Mexico ^b			
1984	7.85	7.0–7.85	5
2006	7.42	16.59	5
New York ^b			
1984	3.0	9.2	10
2006	3.0	8.0	5
North Carolina ^d			
1984	6.0	10.03	5
2006	6.0	2.66	5
North Dakota ^b			
1984	4.0	5.12	10
2006	4.0	4.12	3
Ohio ^{b,e}			
1984	8.5	13.71–13.95	5
2006	9.0	13.54	5
Oklahoma ^b			
1984	4.0	14.0	10
2006	3.0–3.5	11.5	8
Oregon ^c			
1984	6.0	11.01–11.67	5
2006	8.0	8.04	5
Pennsylvania ^a			
1984	6.25	15.77	10
2006	6.25	3.52	5
Rhode Island ^d			
1984	6.0–7.0	10.4–6.6	10
2006	8.75	14.84	10
South Carolina ^c			
1984	4.0–6.0	7.0	5
2006	6.25	7.55	5
South Dakota ^c			
1984	5.0	5.0	5
2006	6.0	6.0	3

(cont.)

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TABLE 14-A2 (Continued)

<i>State</i>	<i>Employee Contribution Rate</i>	<i>Employer Contribution Rate</i>	<i>Vesting Requirement</i>
Tennessee ^c			
1984	5.0	11.07–15.01	10
2006	Noncontributory	7.3	5
Texas ^a			
1984	6.0	8.0	10
2006	6.0	6.45	5
Utah ^c			
1984	8.95	8.95	n/a
2006	Noncontributory	11.59–14.52	4
Vermont ^a			
1984	5.0	10.26	10
2006	3.35	6.26	5
Virginia ^c			
1984	5.0	6.15–8.86	5
2006	5.0	6.62	5
Washington ^b			
1984	6.0	n/a	5
2006	6.0	2.25	5
West Virginia ^b			
1984	4.5	9.5–10.5	5
2006	4.5	10.5	5
Wisconsin ^c			
1984	5.0	6.5	Immediate
2006	5.0	4.5	Immediate
Wyoming ^c			
1984	5.57	5.68	4
2006	5.57	5.58	4

^a Retirement plan covers only state employees.

^b Retirement plans covers state and local employees.

^c Retirement plan covers state and local employees and teachers.

^d State plan covers state employees and teachers.

^e State employees are not covered by Social Security.

Source: Authors' analysis of state retirement system data; see text.

Notes

- ¹ The member handbook for the New Mexico public employees' retirement association (PERA 2008: 5) states: 'New Mexico enacted legislation creating a public employees retirement system in 1947. New Mexico was the last state in the continental United States to establish a retirement system for its public employees.' However, this information conflicts with other secondary sources and with data

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collected by the authors in their survey of current state plan administrators; see below.

- ² ‘State welfare pensions for the elderly were practically nonexistent before 1930s’ (Social Security Administration 2008). However, the Great Depression created a well-recognized crisis in old-age welfare, and by 1935, 30 states had adopted some form of old-age assistance program. Although these programs were authorized by the state legislatures, they were typically managed by the counties, and the establishment of a plan was often a county-level option (USBLS 1931, 1932).
- ³ By 1961, the state employees in each of these states participated in Social Security (Mueller 1961).
- ⁴ This statement must be qualified by the fact that as early as 1930, 21 states offered some type of pension benefit to their teachers, who made up the single largest group of state workers. Although teachers’ salaries were typically paid by local school boards with some combination of state and local monies, the pensions were administered by the states (Clark, Craig, and Wilson, 2003).
- ⁵ The authority allowing voluntary participation in Social Security by public employees is contained in section 218 of the Social Security Act. As a result, these state agreements are referred to as section 218 agreements. Each state’s Social Security Administrator is responsible for managing these agreements.
- ⁶ Interestingly, legislation enacted in 1986 requires that all state and local employees hired after March 31, 1986 must be covered by Medicare; to date, no such mandatory coverage is required for Social Security.
- ⁷ Almost three quarters of the public employees who remain outside the Social Security system reside in just seven states: California, Ohio, Texas, Massachusetts, Illinois, Colorado, and Louisiana.
- ⁸ State employees in Alaska were once included in Social Security; however, in 1980, Alaska withdrew its employees from the system.
- ⁹ The Pension Task Force on public pension systems reported that some plans were terminated and restructured when public employees were first covered by Social Security (US House of Representatives 1978).
- ¹⁰ In 1999, the GAO (1999) reported that 21 of the 48 states with DB plans had considered terminating their DB plan and replacing it with a DC plan. However, eight years later, the GAO (2007) still found only two states with DC plans.
- ¹¹ A 2006 survey by the National Association of Government Defined Contribution Administrators found that on average only 21.6 percent of eligible state employees made voluntary contributions into in these plans (GAO 2007). Likely causes of this low level of participation are the absence of matching employer contributions and the more generous benefits provided by primary pension plans in the public sector.
- ¹² Also see Munnell and Soto (2007).
- ¹³ The data in Table 14-4 are for 1984 because the 1982 report did not include detailed information on contributions.
- ¹⁴ Of the 46 state plans included in the 1982 regression, 11 plans cover only state employees, three plans cover state employees and teachers, 14 plans cover state and local employees, and 19 plans cover state and local employees and teachers.

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In the regressions below, the dummy that represents plans for all three groups of workers is the omitted variable.

- ¹⁵ For various reasons, not every state-run plan in the United States is included in either the Wisconsin study or our data set. For example, the Wisconsin study includes plans that cover workers other than state employees. Some states maintain separate plans for teachers or local government workers, and there are dozens of state-run plans that represent small, well-defined groups, such as state judges or legislators, that are excluded (see Mitchell et al. [2000]: Table 14-2 for a complete tabulation of systems.) In addition, in 1982 the following plans were omitted: Indiana Public Employees' Retirement Fund (PERF) and Teachers' Retirement Fund (TRF) had a hybrid, 1.1 percent contribution rate combined with a 'money purchase' annuity component; Nebraska School Employees Retirement System (SERS) had a money purchase plan; and Oregon Public Employees Retirement System (PERS) has 1.5 percent plus a money purchase plan. Also, Tennessee Consolidated Retirement System (TCRS) had an 'integrated table' plan, and Tennessee had some information missing; thus so we used the 1984 formula. For 2006, the deleted plans include: Indiana PERF and TRF has hybrid, 'money purchase' option; Nebraska SERS has a money purchase plan; and Oregon PERS has 1.5 percent plus a money purchase plan. For Arkansas, we used 2 percent; and for Massachusetts, we used 2.5 percent instead of 0.1–2.5 percent age-related state formula.
- ¹⁶ This is not an indicator of the actuarial soundness of the state plans. However, as Husted and Mitchell (2000: 6) note, when it comes to the financial state of these systems, 'the status of public plans is not always transparent or comparable across systems.'
- ¹⁷ Data are available from the authors on request.

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