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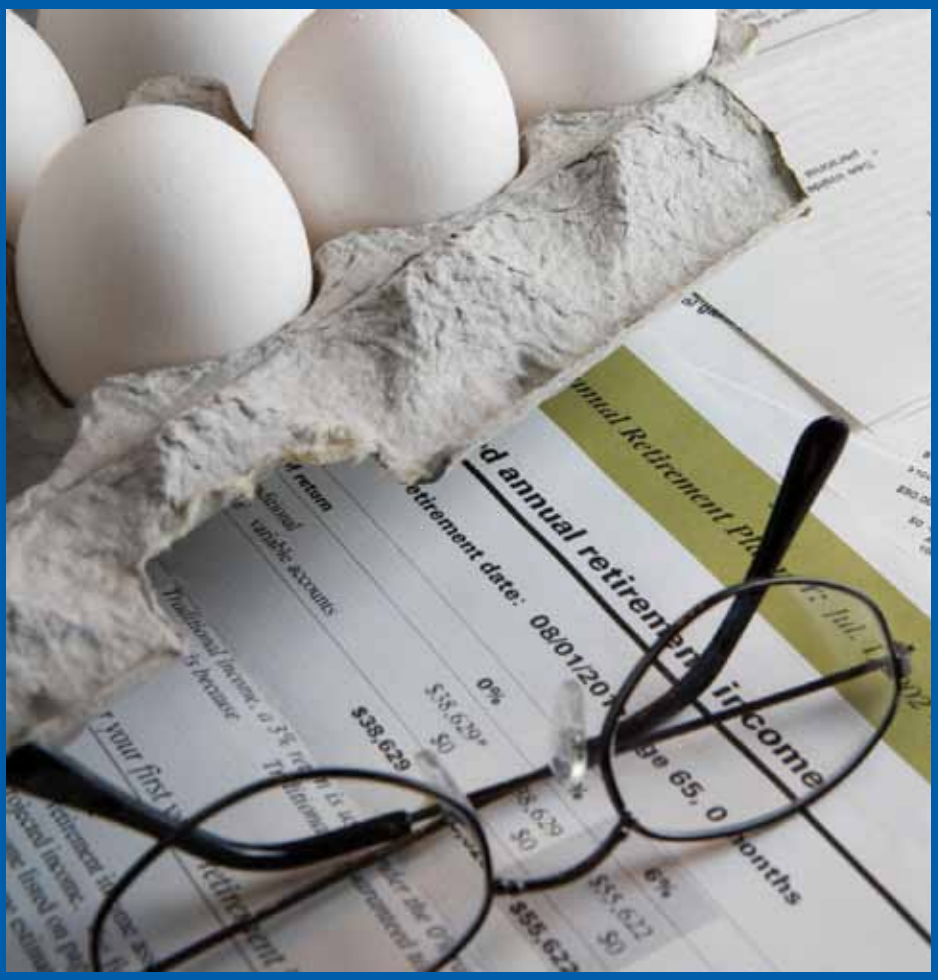

Population Aging and State Pensions in New England

By Richard Woodbury
NEPPC Visiting Scholar

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Table of Contents

Introduction 3

Population Aging in the New England States 5

Comparing Pension Plan Provisions in the New England States 6

Pensions, Demographics, and the Labor Market 13

Conclusions 22

Endnotes 23

References 24

Appendix: Benefit Eligibility by Retirement Age, State Pension Plans in New England 25

Acknowledgements

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Population Aging and State Pensions in New England

Introduction

Over the next 20 years, the Census Bureau projects that the U.S. population aged 65 and older will increase from 39 million to 71 million people, or by almost 80 percent, while the population under age 65 increases by just 12 percent. Among its many social and economic implications, population aging is placing financial pressure on the retirement programs that support older people in the United States, and indeed around the world. Many retirement plans are being reformed to address these financial pressures, and to reflect this changing age demographic. Also evolving are individual decisions about work and retirement in later life. These developments are interdependent. The age composition of the population, the design of financially sustainable retirement policies, and the evolution of labor market behavior at older ages are together in transition.

Unlike most private-sector employers, all the New England states continue to offer traditional defined-benefit pension plans to state government employees. Under defined-benefit plans, an employee's pension entitlement consists of a continuing salary-like payment stream through the post-retirement years. These benefits are paid for as long as the retiree lives, and, optionally, throughout the lifespan of his or her spouse or partner as well.[1]

Pension benefits are a significant part of the compensation package of most state employees. For long-service employees in particular, pension payments can be substantial, and the eligibility age for retirement young.

For example:

- A full-career employee hired at age 22 in Maine can retire at age 62 with a pension equal to 80 percent of her final salary (averaged over three years), adjusted for inflation every year, for as long as she lives. Life expectancy at age 62 is 19 more years for men and 22 more years for women. That means that a 40-year working career in state government in Maine buys, on average, a 20-year retirement at a benefit rate close to the worker's full pre-retirement salary.

- In Massachusetts, a worker hired in mid-career, at age 45, can still retire at age 65 with a pension that is 50 percent of his final average salary. If that employee was hired at age 33, his pension at age 65 would be 80 percent of his final average salary. Life expectancy at age 65 is 17 years for men and 20 years for women.

- In Vermont, which reformed its pension plan in 2008, a new worker hired at age 27 will be able to retire at age 57 with a pension equal to 50 percent of the final average salary. And in Vermont, that pension is in addition to Social Security, rather than in place of it. Life expectancy at age 57 is 23 years for men and 27 years for women.

Today's financial pressure on state pension programs comes from many factors, including demographic change, increasing life expectancy, historical underfunding, recent investment losses, and strained economic conditions. Together, these factors have directed heightened attention to both the design of state pension benefits and their ongoing cost. In fact, pension reform is a growing focus of state policy discussions. Those discussions have led to the recent enactment of reforms in Massachusetts, Rhode Island, and Vermont, and to the appointment of study commissions in Maine, Massachusetts, and Vermont.

The changing demographic environment is important to this discussion in two central

ways, both of which motivate the descriptive analyses in this study. The first is the impact of increasing life expectancy. If the eligibility age for retirement benefits stays the same as people live longer, then the duration of retirement supported by state pension funds continually lengthens. Life expectancy at traditional retirement ages has risen by about four years since 1970, and shows no sign of slowing down. Thus a state worker retiring at age 62 today could expect to receive a pension for an average of 21 years of retirement. That raises the public policy question: What duration of later life should pension systems be structured to support? Perhaps more fundamentally: Should pension systems have a "normal" retirement age at all?

Also central to the demographic context is the movement of the Baby Boom generation into the ages when people have traditionally retired. A critical macroeconomic question is how a proportionately smaller working-age population can support a proportionately larger population of retirees. Where will the work capacity come from to maintain the country's aggregate economic production, or standard of living? Can the United States, New England, Massachusetts, or Rhode Island continue to produce as much output (and thus earn as much income) if a large wave of Baby Boomer retirement shrinks the relative size of the labor force?

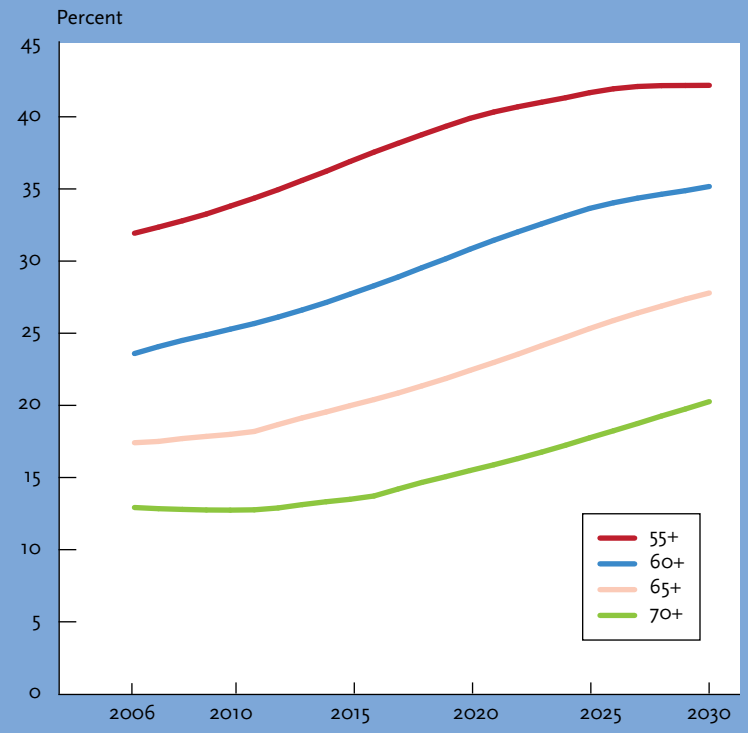
Proactive planning to address this latter question may present an economic opportunity for states that anticipate future labor force demographics. For those who are able, working longer seems a likely and economically beneficial corollary to demographic change. Because labor is the primary input to the economy's productive capacity and income creation, states that facilitate continued work at older ages are likely to transition well into the emerging demographic environment.

The implications for traditional pension plans are profound, because these plans typically contain strong financial incentives for employees to retire at or before the normal retirement ages indicated in the plans. The policy question is whether states want plans that induce retirement at specified ages, particularly young ages, or whether they want plans that are more age-neutral. Any pension plan can be redesigned to accommodate retirement at any age by eliminating the implicit financial penalty for working longer.

This study aims to analyze the features of state pension plans in the context of this changing demographic environment. The focus is on the age-related characteristics of the plans. First, what retirement ages are indicated in the pension plan formulas, and how do they relate to current life expectancy? Second, to what extent do the benefit formulas penalize or reward continued work once an employee becomes eligible to receive pension benefits? And finally, how can states reform their pension plans to make them more age-neutral, or more accommodating toward continued work at older ages?

The study compares the eligibility ages for benefits, the formulas used to determine benefits, the benefit adjustments made for those

Figure 1. Projected Percent of Adult Population at Older Ages
All New England States



Source: Author's calculations based on U.S. Census Bureau data.

retiring earlier or later, and other key policy characteristics of the New England state pension plans.

The study is organized into five sections. The first section describes the changing demographic environment in which pension plans operate. This section highlights the rapid growth of the older population in New England, resulting from both increasing life expectancy and the aging of the Baby Boom generation.

The second section describes and compares key features of the primary state pension plan in each New England state, focusing in particular on the age-specific characteristics of the plans. The third section analyzes the labor market implications of the plans' formulas, such as how they apply to workers choosing retirement at different ages.

The fourth section focuses on program reform, including recently enacted reforms in New England states and alternative approaches to reform. The fifth section provides a brief conclusion. Finally, an appendix provides a more detailed state-by-state mapping of benefit-accrual patterns in the plans, based on illustrative employees hired at different ages.

Population Aging in the New England States

The financial pressure on retirement programs is a product of both increasing individual life expectancy and the aging of the Baby Boom generation into program eligibility. Figures 1 and 2 summarize the projected growth in the older population in New England.

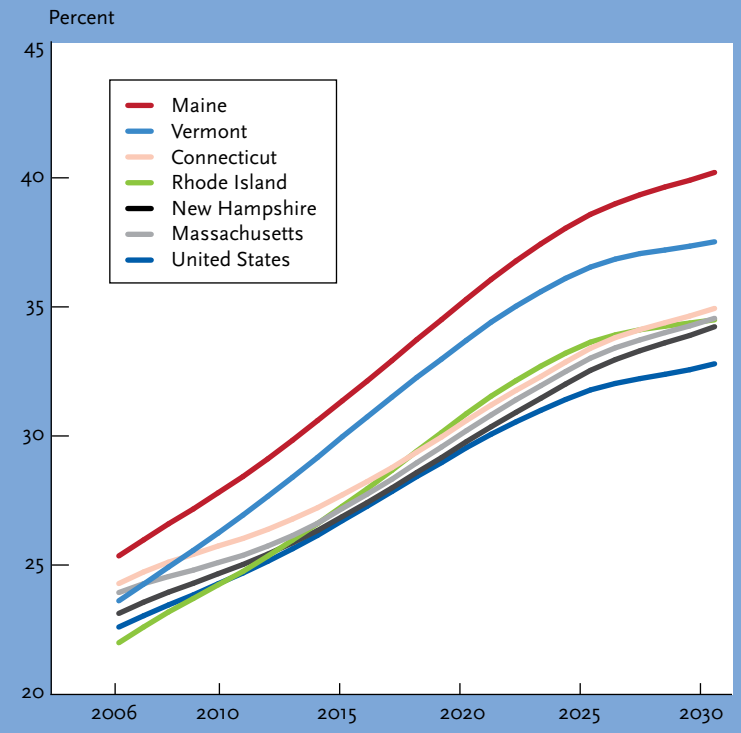
Figure 1 charts the percentage of the New England adult population at older ages, based on data from the U.S. Census Bureau.[2] Over the next 20 years, the percentage of the adult population over age 55 rises from 34 to 42 percent, the percentage over age 60 rises from 25 to 35 percent, the percentage over 65 rises from 18 to 28 percent, and the percentage over 70 rises from 13 to 20 percent. The changes are so dramatic over the next 20 years, in particular, because most members of the Baby Boom bulge are now in their 50s, and in the highest-earning segment of their careers. Twenty years from now, members of this population bulge will be primarily in their 70s.

While population aging is occurring across the country and around the world, New England is older than the U.S. average, and aging more rapidly than the U.S. average. Figure 2 shows the projected percentage of the adult population over age 60 in each New England state.

By 2030, the percentage of the adult population over age 60 is projected to be 33 percent nationally, approaching 35 percent in Connecticut, Rhode Island, New Hampshire, and Massachusetts, 38 percent in Vermont, and more than 40 percent in Maine.

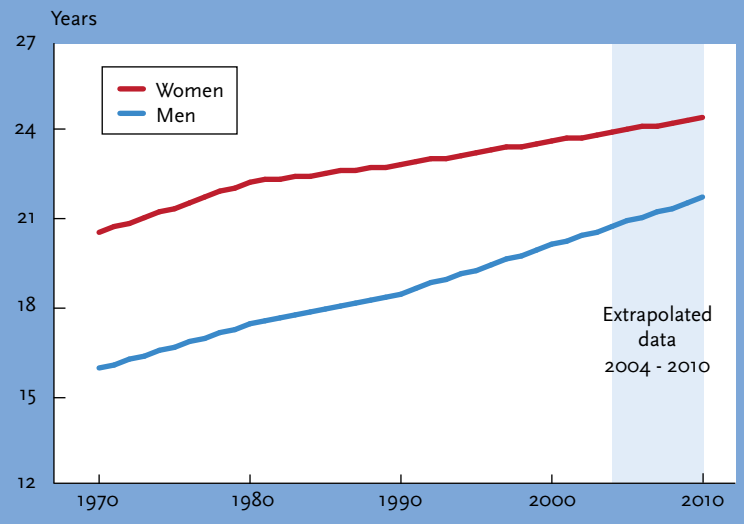
As noted, an important economic question that emerges from these trends is how a proportionately smaller working-age population can provide the continuing productive capacity to support a proportionately larger population of retirees. And as Figure 2 suggests, this challenge is particularly acute in New England, because its population is already comparatively older.

Figure 2. Projected Percent of Adult Population Over Age 60



Source: Author's calculations based on U.S. Census Bureau data.

Figure 3. Years of Remaining Life Expectancy at Age 60 in the United States



Source: National Center for Health Statistics (2007, Table 11), extrapolations by author.

Trends in life expectancy compound the demographic impact of the aging Baby Boom generation. Figure 3 shows trends in life expectancy at age 60. Cumulatively, the life expectancy of 60-year-old men rose from 16 years in 1970 to nearly 21 years in 2004. The life expectancy of 60-year-old women rose from 20.6 years in 1970 to 24 years in 2004. These trends equate to an increase in life expectancy at age 60 of 1 to 2 months every year, and that trend shows no sign of stabilizing or reversing.

Do these trends in life expectancy suggest that states should be providing pension benefits for an additional four or five years of later life, compared with what states did in 1970? Alternatively, should they expect people to work four or five years longer, and keep the duration of retirement unchanged? Perhaps more fundamentally, do states want pension plans that pre-judge work and retirement preferences, as compared with more age-neutral retirement systems? Policymakers need to revisit these questions in the current demographic environment.

Figure 4 shows life expectancy at other ages, or, framed differently, the average number of years that pension benefits will be paid. If pension benefits begin at age 55, for example, states will pay them for an average of 25 years for men and 28 years for women. If pension benefits begin at age 62, states can expect to pay them for 19 years for men and 22 years for women. If benefits begin at age 70, states will pay them for an average of 14 years for men and 16 years for women.

The magnitude of past and forthcoming demographic changes alters significantly the context in which state pension systems operate. Many people may continue to seek retirement at age 55, 60, 62, or 65, and with adequate pre-retirement planning, state pension systems can continue to allow that possibility. However, it seems counterproductive for them to encourage people to leave the labor force for the last 20 or more years of their lives.

Both the direct financial cost of such a policy and, more importantly, its broader macroeconomic impact could aggravate already challenging economic pressures. Continued work at older ages among those who are able and willing is likely a critical prerequisite to transitioning smoothly to an older population demographic. More age-neutral retirement systems can facilitate the transition.

Comparing Pension Plan Provisions in the New England States

This section describes and compares pension plans in the New England states as they apply to a newly hired general-purpose state employee. Not included in the analysis are the many grandfathered plans that apply to workers hired under different pension arrangements in the past. While this is a simplification of the full landscape of state pension plans, it allows more focused analysis on what states are offering to new employees now.

Also not included in the analysis are any specialized plans or provisions that apply only to particular job classifications. Some states, for example, have distinct pension arrangements for public safety workers, judges, direct care workers, or teachers. I focus on the plan that would apply to a general-purpose public employee hired by state government today. I will refer to this plan as the "basic" plan, as

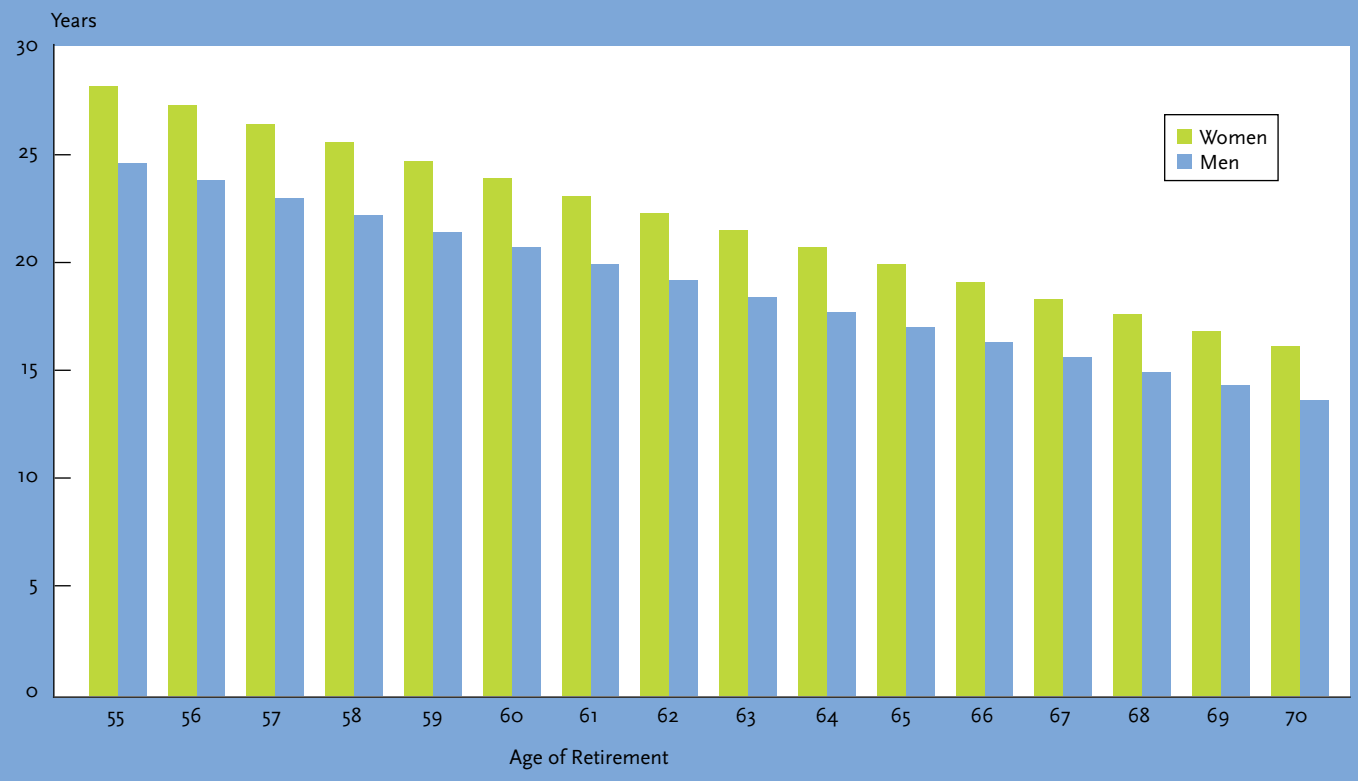
distinct from a grandfathered plan or a job-specific plan.[3]

Because all pension plans in New England states are traditional defined-benefit plans, their basic mechanics are similar. They define the employee's pension entitlement as a post-retirement stream of payments that is based on pre-retirement salary and service tenure. In Maine, for example, the basic formula provides a pension that is 2 percent of an employee's final average salary per year of service. An employee taking normal retirement after 30 years of service would therefore be eligible for a salary-like payment stream equal to 60 percent of their pre-retirement salary, in this case averaged over the highest three years of state employment.

The variability across plans reflects the specific parameters, definitions, limitations, and adjustments that feed into the basic benefit formula. In this paper, I focus on nine features of the plans:

- **Social Security opt-out.** Some state pension plans provide benefits in addition to Social Security, while some plans replace Social Security.
- **Vesting.** These provisions define when an employee has worked long enough to qualify for a pension benefit at retirement.
- **Full or baseline benefit formula.** This formula defines the "full" pension amount, before making adjustments for other factors.
- **Normal retirement.** These provisions define the age or service tenure required for an employee to receive the "full" pension amount.
- **Early retirement.** These provisions define the age or service tenure required for an employee to begin receiving any pension.

Figure 4. Expected Number of Years of Pension Benefits Based on Retirement Age (2004)



Source: National Center for Health Statistics (2007, tables 2 and 3), Life expectancy by age.

For workers choosing early retirement, the pension benefit is usually reduced from the "full" amount.

- **Age-related benefit adjustments.** These provisions define the amount by which benefits are reduced for those choosing early retirement, or increased (if applicable) for those deferring retirement.

- **Benefit limits.** Some plans may specify a maximum benefit, while others allow benefits to rise to any level.

- **Employee contribution.** While most plans are subsidized heavily by the employer, the required employee contribution varies.

- **Inflation adjustment.** Many plans provide at least partial cost-of-living adjustments to the benefit stream of retirees.

The plans have many other provisions that I do not present here. These additional features include the circumstances under which employees may buy supplementary service credits, the treatment of part-time work or overtime, the definition of the final salary base from which the pension is calculated, disability and survivorship provisions, and survivorship options and guarantees in different states. While these features can be important and warrant careful investigation in other studies, this study focuses on the age-related provisions of the plans, how the benefit formula incorporates those provisions, and their implications for labor market decision making.

Social Security Opt-Out

State governments have the option to not participate in the Social Security system. Employees in plans that are exempt from Social Security pay no Social Security taxes and accrue no Social Security benefits from their state employment.[4] Workers in plans that are offered in addition to Social Security accrue full post-retirement benefits from both systems. In Maine and Massachusetts, the state pension plan replaces Social Security. In Connecticut, New Hampshire, Rhode Island, and Vermont, the state pension provides a benefit on top of Social Security.

The implications of this distinction between "opt-in" and "opt-out" states are twofold. The first relates to the magnitude of post-retirement income. Plans that replace Social Security need higher benefit rates to provide the same post-retirement income security as plans that supplement Social Security. This may explain, at least in part, why the pension benefits in Maine and Massachusetts are generally higher than those in the other four New England states.

The second implication concerns the design features of the plans. A pension that supplements Social Security may be structured to build on the Social Security benefit base. For example, Social Security provides a higher income replacement rate for lower-income workers. Thus, in an integrated system, the state pension can be structured to provide proportionately higher benefits to higher-income workers, partially equalizing the combined income replacement rate of the two payments. The pension benefit formula in Connecticut reflects that intent by providing a higher pension benefit for earnings above a "breakpoint" level (see below).

The New Hampshire pension plan also reflects some limited integration with Social Security, by providing higher pension benefits to retirees before age 65, and then reducing them when the retiree reaches age 65. (New Hampshire implemented this provision when the normal Social Security retirement age was 65. The provision has not been modified to reflect the transition of the normal Social Security retirement age to 67.)

Vesting

Vesting rules define the length of time an employee needs to work before being eligible for pension benefits at retirement. State employees in Connecticut, Maine, and Vermont generally become vested in the state pension plan after five years of employment. Massachusetts, New Hampshire, and Rhode

Island generally require ten years. Exceptions to these vesting rules may involve credit for service years in related prior employment.

Full Baseline Benefit Formula

Defined-benefit plans generally have a baseline benefit formula that specifies the "full" benefit amount. Maine, Massachusetts, and Vermont have the simplest versions. Vermont offers a pension equal to 1.667 percent of final average salary per year of service. Maine offers a pension equal to 2 percent of salary per year of service. Massachusetts provides up to 2.5 percent per year of service.[5]

Rhode Island's formula is back-loaded to reward long-service employees. The baseline pension amount is 1.6 percent of salary for the first 10 years of service, rising to 1.8 percent of salary for the next 10 years of service, 2 percent for years 21–25, 2.25 percent for years 26–30, 2.5 percent for years 31–37, and 2.25 percent for year 38. No additional benefit is provided for service above 38 years.

As noted, the Connecticut and New Hampshire plans have formulas that reflect in part their integration with Social Security. New Hampshire provides 1.667 percent of salary per year of service for retirees receiving the full benefit before age 65, and then 1.515 percent of salary per year of service beginning at age 65.

Connecticut provides a pension benefit of 1.333 percent of salary per year of service for the portion of salary below a "breakpoint" level ($51,700 in 2009). For the portion of salary above the breakpoint level, Connecticut pays a pension of 1.833 percent per year of service. As noted, the higher pension amount for higher salaried workers offsets to some degree the lower income replacement rate for those employees under Social Security.

The Connecticut plan also integrates with Social Security in its treatment of employees with more than 35 years of service. The Social Security formula is based on the highest-earning 35 years of covered employment (adjusted for inflation). In other words, the 36th-highest earning year adds no incremental value to the Social Security benefit. The Connecticut system therefore also discontinues the 1.333 versus 1.833 percent tiered benefit-accrual rate after 35 years of service. Connecticut employees receive a flat 1.625 percent of final average salary per year of service above 35 years.

Table 1 summarizes the pension formulas for each New England state.

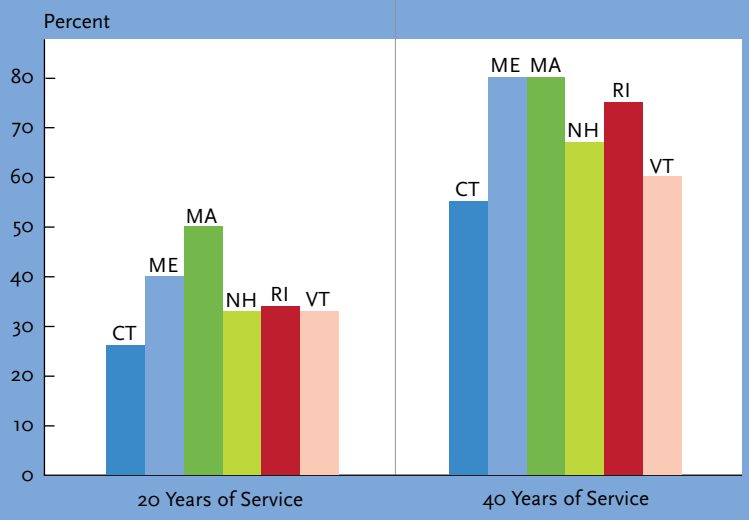
To illustrate the broad magnitude of these benefits, Figure 5 (next page) shows the percent of salary paid to employees earning the "full" pension, first with 20 years of service tenure, and second with 40 years of service tenure. The full pension for employees with 20 years of service ranges from 27 percent of salary in Connecticut[6] to 50 percent in Massachusetts. The full pension for employees with 40 years of service ranges from 55 percent in Connecticut to 80 percent in Massachusetts and Maine. As noted, the higher magnitudes in Massachusetts and Maine likely reflect the fact that these systems replace Social Security rather than supplement it.

In Figure 5, it is important to note that the eligibility age for the full pension varies

Table 1. Full Benefit Amount Per Year of Service, New England States

Connecticut	• 1.333 % of salary up to "breakpoint" level ($51,700 in 2009), • 1.833 % of salary above "breakpoint" level, • 1.625 % of salary for years of service above 35
Maine	• 2 % of salary
Massachusetts	• 2.5 % of salary (max 80 %)
New Hampshire	• 1.667 % of salary before age 65, • 1.515 % of salary at age 65 and older
Rhode Island	• 1.6 % of salary for years 1–10, • 1.8 % of salary for years 11–20, • 2.0 % of salary for years 21–25, • 2.25 % of salary for years 26–30, • 2.5 % of salary for years 31–37, • 2.25 % of salary for year 38, • zero for additional years (max 75 %)
Vermont	• 1.667 % of salary (max 60 %)

Figure 5. Full Pension Benefit as Percent of Final Average Salary



Source: Author's calculations based on descriptions of benefit plans in state publications.

Table 2. Normal Retirement in New England States: Eligibility for "Full" Pension Amount

Connecticut	Age 60 with 25+ years of service, age 62 with fewer than 25 years of service
Maine	Age 62
Massachusetts	Age 65
New Hampshire	Age 60
Rhode Island	Age 62 with 29+ years of service, age 65 with fewer than 29 years of service
Vermont	When sum of age and years of service is 87, or age 65

Table 3. Early Retirement in New England States: Eligibility for Reduced Pension Amount

Connecticut	Age 55 with 10 years of service
Maine	25 years of service
Massachusetts	20 years of service, or age 55 with 10 years of service
New Hampshire	Age 50 with 10 years of service; or any age with 20 years of service, and if sum of age and years of service is at least 70
Rhode Island	Age 55 with 20 years of service
Vermont	Age 55 with 5 years of service

across states. Figure 5 is therefore only partly indicative of the overall generosity of each program, or the benefit a retiree would receive at any particular age. A later section more extensively illustrates how eligibility age and service tenure fit together with the benefit formulas.

Normal Retirement

In this study, "normal retirement" means the point at which an employee becomes eligible for his or her "full" baseline benefit. Eligibility for the full pension may occur at a fixed age, a fixed number of years of service, or some combination of both. Normal retirement is at age 60 in New Hampshire, age 62 in Maine, and age 65 in Massachusetts. In Connecticut, normal retirement is at age 60 with 25 years of service, and otherwise at age 62.

In Rhode Island, normal retirement is at age 62 with 29 years of service, and otherwise at age 65. In Vermont, normal retirement is at age 65, or when the sum of age and service tenure reaches 87. If, for example, an employee starts working for the state at age 21, he or she would be eligible for normal retirement at age 54, after 33 years of service. Table 2 summarizes these qualifications for normal retirement.

Early Retirement

All the New England plans allow for early retirement—that is, the initiation of pension payments at a reduced level before employees are eligible for the "full" pension. New Hampshire has an early-retirement option at age 50; or before age 50, if the employee has 20 years of service, and if the sum of age and years of service is at least 70. Connecticut, Massachusetts, Rhode Island, and Vermont allow early retirement at age 55. Massachusetts also has an early-retirement option after 20 years of service, Maine after 25 years of service. Table 3 summarizes these eligibility requirements.

Age-Related Benefit Adjustments

All the plans reduce the benefit amount paid to employees choosing early retirement. However, the reduction varies dramatically across the plans. The plans take three approaches.

Connecticut, Maine, and Massachusetts reduce the pension by a fixed percentage per year before the normal retirement age. The reduction factors are 3 percent per year before normal retirement age in Connecticut, 4 percent in Massachusetts,[7] and 6 percent in Maine. Based on these adjustment factors, an employee retiring five years before normal retirement age would receive 85 percent of the full pension in Connecticut, 80 percent of the full pension in Massachusetts, and 70 percent of the full pension in Maine.

Rhode Island law requires the state to reduce benefits by an "actuarial early-retirement factor." That means the discounted value of the payment stream is calibrated to total the same amount regardless of when it begins. So if someone starts receiving a benefit one year early, the payment is reduced to roughly compensate for the additional year of payments, and to ensure a uniform long-term cost to the state. The reductions range from about 35 percent of the full pension for employees who retire 10 years early, to 58 percent of the full pension for those who retire 5 years early, to 89 percent of the full pension for those who retire 1 year early.

Finally, New Hampshire and Vermont reduce the pension amount only modestly for early retirement among long-service employees, but much more dramatically for shorter-service employees. The early-retirement factors range from 6.67 percent per year before the normal retirement age for employees with fewer than 20 years of service, to 1.5 percent per year before normal retirement age for employees with more than 35 years of service.

Table 4 shows the specific reduction factors used in each state. None of the state plans include a percentage increase in the benefit formula for employees who continue working after they become eligible for a "full" pension. These employees may continue to earn years-of-service credits, and the salary base from which their benefit is calculated may rise. But the benefit formula is the same as for "normal" retirement.

Figure 6 (next page) shows the adjustment in benefits for retirement before and after the normal retirement age in each state pension plan. (In studying Figure 6, remember that the normal retirement age differs across plans. So Figure 6 does not illustrate the differences in benefits paid by age. It focuses on the reduction factors applied each year before a plan's normal retirement age.)

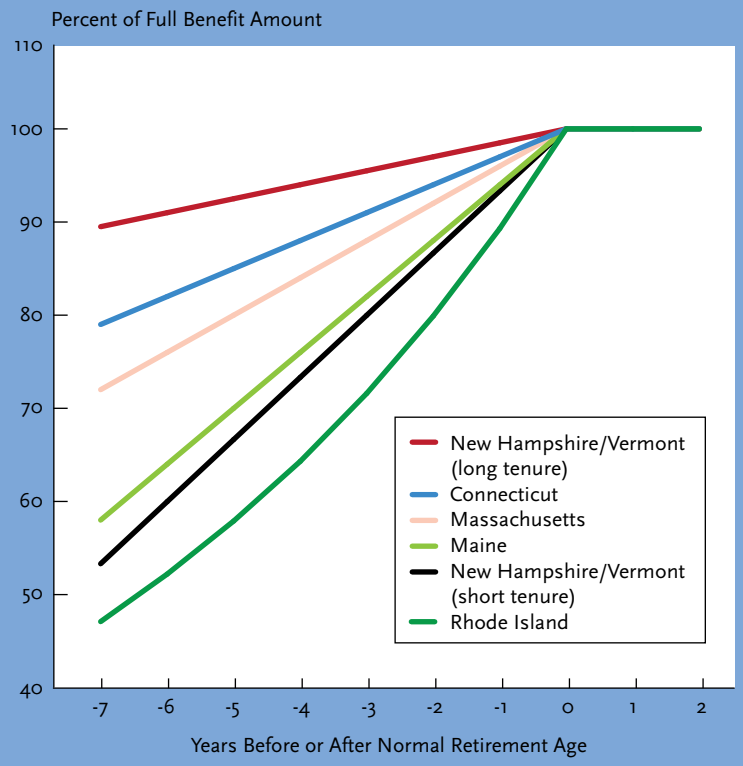
Table 4. Reduction in Baseline Benefit for Early Retirement, New England States

Connecticut	• If 25+ years of service, 3 % per year before age 60 • If <25 years of service, 3 % per year before age 62
Maine	6 % per year before age 62
Massachusetts	4 % per year before age 65 (see footnote 7)
New Hampshire	• If 35+ years of service, 1.5 % per year before age 60 • If 30–34 years of service, 3 % per year before age 60 • If 25–29 years of service, 4 % per year before age 60 • If 20–24 years of service, 5 % per year before age 60 • If <20 years of service, 6.67 % per year before age 60
Rhode Island	No reduction if age 62 with 29+ years of service, otherwise use "actuarial early-retirement factors": • age 64: 89.3% • age 59: 52.2% • age 63: 79.9% • age 58: 47.1% • age 62: 71.6% • age 57: 42.5% • age 61: 64.3% • age 56: 38.5% • age 60: 57.9% • age 55: 34.9%
Vermont	No reduction if age plus years of service is 87+, otherwise: • If 35+ years of service, 1.5 % per year before age 65 • If 30–34 years of service, 3 % per year before age 65 • If 25–29 years of service, 4 % per year before age 65 • If 20–24 years of service, 5 % per year before age 65 • If <20 years of service, 6.67 % per year before age 65

The next major section of the paper focuses on pensions and the labor market. A key issue is the implicit work and retirement incentives inherent in the provisions of state plans. In Figure 6, the slope of a benefit line as an employee approaches normal retirement age suggests some of those incentives. The flattest line is for long-service employees in New Hampshire and Vermont. For these employees, early retirement is a comparatively good deal, as benefits rise only modestly if they continue to work for additional years leading up to normal retirement age.

At the other extreme, the steepest line is associated with the Rhode Island plan. For employees in that state, working another year can increase the benefit amount more substantially leading up to normal retirement age. The labor market incentives that occur between early-retirement eligibility and normal

Figure 6. Benefit Adjustments for Retiring Before/After "Normal" Age



Source: Author's calculations based on descriptions of benefit plans in state publications.

retirement age therefore vary tremendously from one plan to another.

Interesting in all of the plans is the discontinuity in the benefit structure at the normal retirement age. At that point, the benefit formula becomes fixed. There is no percentage increase in the benefit formula for employees who defer retirement after the normal age. Thus employees have much less incentive to continue working past the normal retirement age than in the years leading up to it.

This aspect of state pension plans differs markedly from the way Social Security adjusts benefits for later retirement. In Social Security, there is an 8 percent increase in the benefit formula for each year after the normal retirement age, up to age 70 (U.S. Social Security Administration 2008). As the next section shows, the difference in work and retirement incentives between no adjustment and an 8 percent adjustment is considerable.

Benefit Limits

Some plans specify a maximum benefit, or a maximum number of years of service that count toward the benefit. For example, the maximum benefit is 60 percent of salary in Vermont, 75 percent of salary in Rhode Island and 80 percent of salary in Massachusetts. Connecticut, Maine, and New Hampshire set no limit.

The most extreme retirement incentives are implicit in plans with maximum benefit provisions. In Connecticut, Maine, and New Hampshire, the years of service counted in the pension formula can increase indefinitely, even once an employee qualifies for a "full" pension. This provides some modest increment in future pension payments from working, even if an employee forgoes an immediate pension. Once an employee becomes eligible for the maximum pension in Vermont, Rhode Island, or Massachusetts, however, the payment rate is essentially capped. The financial incentives to retire are particularly strong in these circumstances.

Employee Contribution

As with Social Security, the cost of state pension benefits is generally shared between the employer and employee. The employee contribution rates are 2 percent of salary in Connecticut, 7 percent in New Hampshire, 5.1 percent in Vermont, 7.65 percent in Maine, and 8.75 percent in Rhode Island. In Massachusetts, the employee contribution is 9 percent of salary, plus an additional 2 percent on income above $30,000.

Inflation Adjustment

Once workers have retired and begun to receive pension payments, the plan may partially or fully adjust the amount to reflect increases in the cost of living. These inflation adjustments (also known as cost-of-living allowances, or COLAs) tend to be based on changes in the consumer price index (CPI).

The Maine plan indexes benefits to changes in the CPI up to a maximum of 4 percent annually. Rhode Island indexes benefits to CPI growth up to a maximum of 3 percent annually. Vermont indexes benefits

to half of the change in CPI, with a minimum of 1 percent and a maximum of 5 percent. Vermont's plan increases to full indexation beginning in 2014, but with the same minimum and maximum adjustments.

Massachusetts indexes only the first $12,000 of the pension, with a maximum adjustment of 3 percent (or $360) per year. Connecticut indexes its pensions by 60 percent of the first 6 percent in CPI growth, plus 75 percent of any CPI growth above 6 percent. Connecticut also has a minimum adjustment of 2.5 percent and a maximum of 6 percent. New Hampshire has no automatic cost-of-living adjustment, but the legislature makes regular ad hoc adjustments.

Pensions, Demographics, and the Labor Market

This section considers the labor market implications of the state pension plans. In particular, I describe how the formulas for calculating benefits may discourage work at older ages, particularly after workers become eligible for a "full" pension at the normal retirement age in each plan. Because eligibility for normal retirement generally occurs by age 60, 62, or 65, the pension systems often encourage people to be retired for 20 or more years. I focus on longer-service employees, because the retirement incentives are strongest for them.

The work and retirement incentives implicit in public and private retirement programs are the subject of an extensive literature in economics. A key finding from these studies is that retirement behavior closely tracks the financial incentives implicit in plan provisions. Studies of defined benefit plans in the private sector found this result when large U.S. firms commonly offered such plans (see reviews by Lumsdaine and Wise 1994; Woodbury 2001), as have more recent studies of the U.S. Social Security system (Butrica et al 2006, Goda et al 2009) and social security systems around the world (Gruber and Wise 2007).

Much of this literature analyzes the incremental value of pension benefits earned by an employee by continuing to work. Before an employee is eligible for retirement, the incremental value is nearly always positive. By working, the employee accrues additional years of service toward their future pension without foregoing any immediate pension payment now.

The mathematics changes once an employee becomes eligible for retirement. At this point, the employee needs to weigh two opposing influences:

What do I give up in immediate pension payments by continuing to work? Deferring a pension for a year means that the employee gives up a year of pension income that he or she is fully entitled to receive. If the immediate pension payment is large, then the retirement incentive is stronger. If the immediate pension payment is small, it will be less likely to induce retirement.

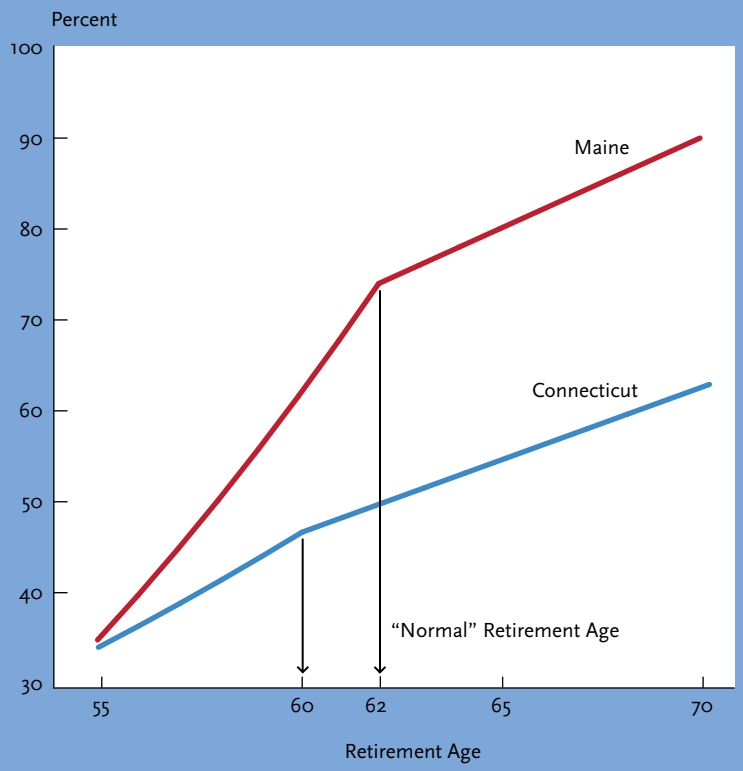
What do I gain in future pension benefits by continuing to work? Deferring a pension for a year usually increases the amount the employee receives in later years. But by how much? If working another year increases the future payment rate significantly, then the financial incentive is to work longer. If working another year does little to increase future pension payments, then retirement may be more attractive.

Because these factors work in opposite directions, determining the net financial incentive requires weighing them together. How much does the employee give up in immediate pension benefits, and how does this compare with the amount he or she gains in future pension benefits?

This study explores these opposing influences by calculating the percentage of final average salary that a series of hypothetical workers are entitled to receive at each prospective retirement age from 55 to 70. If the pension's income replacement rate rises rapidly by deferring retirement from one year to the next, then the stronger financial incentive is to keep working. If the pension's income replacement rate rises slowly by deferring retirement, and the immediate pension foregone is substantial, then the stronger financial incentive is to retire.

This section presents three illustrations of work and retirement incentives. See the appendix for a more complete mapping of benefit-accrual patterns for New England plans.

Figure 7. Pension as Percent of Final Average Salary
By Retirement Age for Employee Hired at Age 25
Maine, Connecticut



Source: Author's calculations.

Example 1: Worker Hired at Age 25 in Maine, Connecticut. The first example focuses on an employee hired at age 25, and compares the pension benefit this worker would be eligible to receive in Maine and Connecticut, based on when they retire.[8] A worker hired at age 25 is eligible to retire by age 55 in either state. Figure 7 shows the percentage of final average salary that this employee would receive by retiring at each age from 55 to 70. The figure highlights the substantial difference in the pension accrual pattern between Connecticut and Maine.

For the employee at age 55 with 30 years of service, Maine would calculate the pension amount by multiplying 2 percent of final average salary times the employee's 30 years of service (yielding 60 percent). The state would then reduce this "full" benefit amount by 6 percent for each of the 7 years before the normal retirement age of 62 (for a total reduction of 42 percent). The *net pension amount* for retiring at age 55 in Maine would be 35 percent of final average salary.

Connecticut would calculate the pension amount for an employee at age 55 by multiplying 1.333 percent of final average salary times the employee's 30 years of service (to yield 40 percent). The state would then reduce this "full" benefit by 3 percent for each of the 5 years before Connecticut's normal retirement age of 60 (for a total reduction of 15 percent). The *net pension amount* for retiring at age 55 in Connecticut would be 34 percent of final average salary—very close to the percentage in Maine, although calculated differently. (Remember as well that in Connecticut, the pension is in addition to Social Security, while in Maine it replaces Social Security.)

What financial considerations affect the employee's decision regarding whether to take this benefit at age 55 or defer retirement until age 56 or later? In both cases, deferring retirement involves forgoing an immediate pension payment equal to about 35 percent of salary. In both cases, however, deferring retirement also increases the future pension payment stream. Continued work will be more desirable if future payments rise significantly than if they rise by only a little. In this respect Connecticut and Maine are very different.

By working for another year in Maine, (1) the employee receives another year of service credit toward her later pension; (2) her next year's early-retirement reduction factor would be 36 percent rather than 42 percent; and (3) the final average salary on which her pension is based could rise. Combining those elements, she would be eligible for a pension the next year that is 40 percent of her salary, up from 35 percent this year. If she keeps working to age 60, her pension rate would increase to 62 percent of salary. And at Maine's "normal" retirement age of 62, the pension rate would rise to 74 percent of salary. Thus a Maine employee has a lot to gain by continuing to work from age 55 to the normal retirement age of 62.

If an employee continues to work in Connecticut, his future payment stream also grows, but more slowly. For this employee, the pension rate rises from 34 percent of final

average salary for retiring at age 55 to 36 percent of salary at age 56, 39 percent at age 57, and so forth, up to 47 percent of salary at Connecticut's normal retirement age of 60.

The difference between the states is considerable. By working from age 55 to the normal retirement age in Connecticut, this employee increases the pension amount from 34 to 47 percent of salary. By working from age 55 to the normal retirement age in Maine, the employee increases the pension amount from 35 to 74 percent of salary. The slower growth rate in Connecticut's pension benefit makes early retirement more attractive in Connecticut. Still, the income replacement rates at ages 55 to 60 are low enough that continued work rather than retirement is likely the norm in both states.

The financial incentive to retire becomes much more powerful at the normal retirement age under both plans. A distinct downward kink in the benefit-accrual lines in Figure 7—at age 60 in Connecticut and at age 62 in Maine—illustrates this.

In Maine, this worker can take normal retirement at age 62 with a pension equal to 74 percent of her final average salary, adjusted for inflation every year, for as long as she lives. If she continued working to age 63, her pension payment rate would increase, but much more slowly. At age 63, she would qualify for a pension equal to 76 percent of her salary. At this point, choosing to work involves forgoing a substantially larger immediate pension payment of 74 percent of salary to gain a much smaller increment in later payments. Thus the financial incentive to retire in Maine is substantially stronger at age 62 than it was before age 62.

The same is true in Connecticut. An employee who works from age 55 to 60—from early to normal retirement age—accrues a 13-percentage-point increase in the income replacement rate, from 34 to 47 percent of final average salary. Continuing to work after age 60, however, involves forgoing a larger immediate pension payment while gaining a smaller increment in future benefit payments. If the employee works from age 60 to 65, for example, he generates only an 8-percentage-point increase in later benefits (rather than 13 percentage points). And that employee must forgo five years of immediate 47 percent pension payments to accrue that more modest pension increase. This makes the retirement incentive stronger at age 60 than it was before age 60.

At age 62 in Connecticut, an employee can retire and receive both Social Security and pension benefits. For the employee hired at age 25, the pension amount at age 62 is 50 percent of salary. When combined with early-retirement benefits from Social Security, that amount likely replaces a substantial fraction of his pre-retirement salary.

The implicit financial incentives in the pension systems of both Connecticut and Maine encourage retirement among long-service employees at the normal retirement ages of 60 and 62, respectively. At these ages, the average person will live more than 20 years.

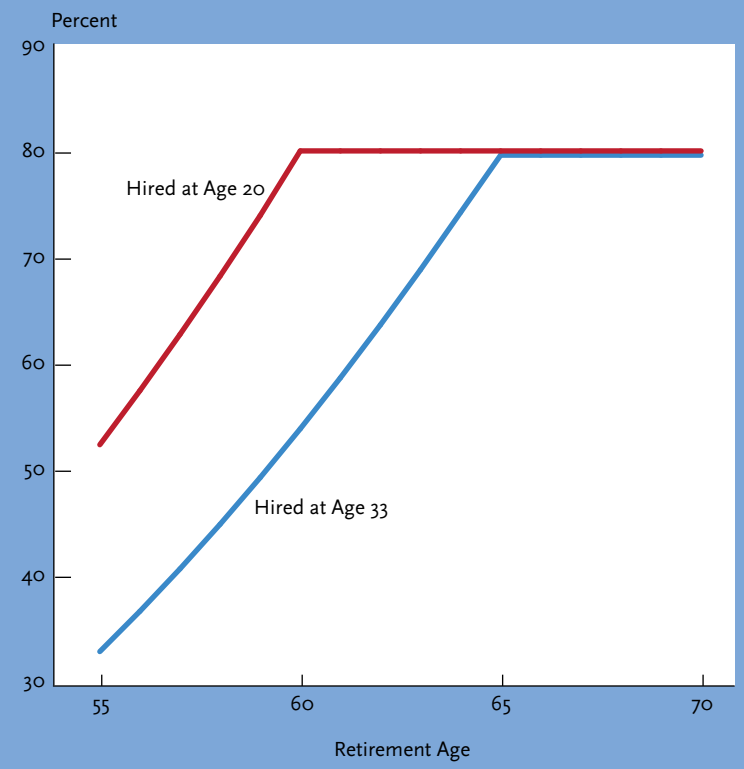
Example 2: Massachusetts Worker Hired at Age 33 or Age 20. The financial incentive to retire is strongest in states with a maximum pension benefit. Once a worker becomes eligible for the maximum benefit, continuing to work involves forgoing an immediate pension payment (at the maximum level) with *no further increase* in the benefit formula in later years.

The only possible increase in future benefits would come from an increase in the final average salary on which the pension is based. As an example of the labor market incentives in a state with a maximum pension, I turn to Massachusetts, where the maximum pension is 80 percent of final average salary. I consider two illustrative workers: one hired at age 33, and one at age 20. Figure 8 (next page) shows the percentage of final average salary that each employee would receive by retiring at each age from 55 to 70.

At age 55, Massachusetts workers are entitled to a pension equal to 1.5 percent of final average salary per year of service. This amounts to 33 percent of salary for the employee hired at age 33, and 53 percent of salary for the employee hired at age 20.

By forgoing the immediate pension at age 55 and continuing to work, the person hired

Figure 8. Pension as Percent of Final Average Salary
By Retirement Age for Employee Hired at Age 20, 33
Massachusetts



Source: Author's calculations.

at age 33 would be eligible for a higher future pension—from 33 percent of salary for retiring at age 55, to 37 percent for retiring at age 56, 41 percent at age 57, and so forth, up to the maximum 80 percent pension at age 65.

For the worker hired at age 20, continuing to work increases the future pension from 53 percent of salary for retiring at age 55, to 58 percent for retiring at age 56, to 63 percent for retiring at age 57, up to the maximum 80 percent pension at age 60.

However, as the figure shows, the increases end once the worker is eligible for the maximum benefit rate. The retirement incentive is strong at this point, because the worker forgoes an immediate pension payment of 80 percent of salary, with minimal (if any) gain in what he or she would receive by retiring later. The *incremental* compensation from working is as low as one-fifth of this worker's salary (i.e., the difference between the 80 percent pension rate and the 100 percent salary rate). Once the maximum benefit is accrued, the implicit tax on work is very high, so the retirement incentive is strong.

Workers hired in Massachusetts by age 33, and who work every year thereafter, accrue the maximum benefit by age 65 at the latest. And, as noted, the expected number of years of pension benefits provided to workers retiring at age 65 is 17 years for men and 20 years for women.

Example 3: Worker Hired at Age 30 in Rhode Island, Vermont. The third example focuses on identical workers hired at age 30 in Rhode Island and Vermont. Remember that both states offer these plans in addition to Social Security, rather than as replacements for it. The benefit formulas in these states lead to a benefit-accrual pattern that is more complicated than in the first two examples.

Figure 9 shows the percentage of final average salary that the employee would receive by retiring at each age from 55 to 70 in these plans.

Both plans allow for early retirement with a reduced pension beginning at age 55. The benefit calculation for a worker hired at age 30 is as follows. In Vermont, the benefit is calculated by multiplying 1.667 percent times 25 years of service (to yield 42 percent), and then applying a reduction factor of 4 percent for each year before age 65 (for a total reduction of 40 percent). *The net pension available to this Vermont employee at age 55 is 25 percent of final average salary.*

In Rhode Island, the full benefit provides 1.6 percent of salary for years 1–10, 1.8 percent of salary for years 11–20, and 2.0 percent of salary for years 21–25, for a total of 44 percent of final average salary after 25 years. This amount is reduced actuarially from age 65, however, allowing for just 35 percent of the full benefit at age 55. *So the net pension available to this Rhode Island employee at age 55 is just 15 percent of final average salary.*

What is most intriguing about the benefit-accrual patterns in Figure 9 is the jump in benefit amount that occurs around age 59 in Vermont, and at age 62 in Rhode Island. At these ages the worker becomes eligible for the "full" pension rather than a "reduced" early-retirement pension. And because this eligibility

for normal retirement occurs before age 65, the benefit rate jumps to the unreduced level. Why a jump rather than a gradual increase?

In the Rhode Island case, the employee hired at age 30 would not be eligible for the "full" pension at age 61. Instead, the "full" pension amount (58 percent of salary, based on 31 years of service) would be reduced actuarially (from age 65), leaving a net pension that is just 37 percent of salary. At age 62, however, because this employee has more than 29 years of service, he or she now qualifies for normal retirement with a "full," unreduced pension. So the pension payment rate jumps from 37 percent of salary for retirement at age 61 to 60 percent of salary for retirement at age 62. And in Rhode Island, the employee can begin reduced Social Security benefits at age 62 as well.

The pension benefit jumps up in Vermont for the same reasons. An employee hired at age 30 in Vermont is not eligible for "full" benefits at age 58. Thus the "full" pension amount (47 percent of salary for 28 years of service) is reduced by 4 percent for each of the 7 years before age 65, providing a net pension of just 34 percent of salary. By age 59, however, with 29 years of service, the employee qualifies for normal retirement under the "87 rule" (age plus service tenure of at least 87 years). So the pension payment rate jumps from 34 percent of salary for retirement at age 58 to 48 percent of salary for retirement at age 59.

This aspect of the retirement systems in Rhode Island and Vermont creates a strong implicit financial incentive to remain in the system in the years leading up to full normal retirement eligibility. At that point, the benefit formula no longer increases, and the financial incentive to retire is much stronger.

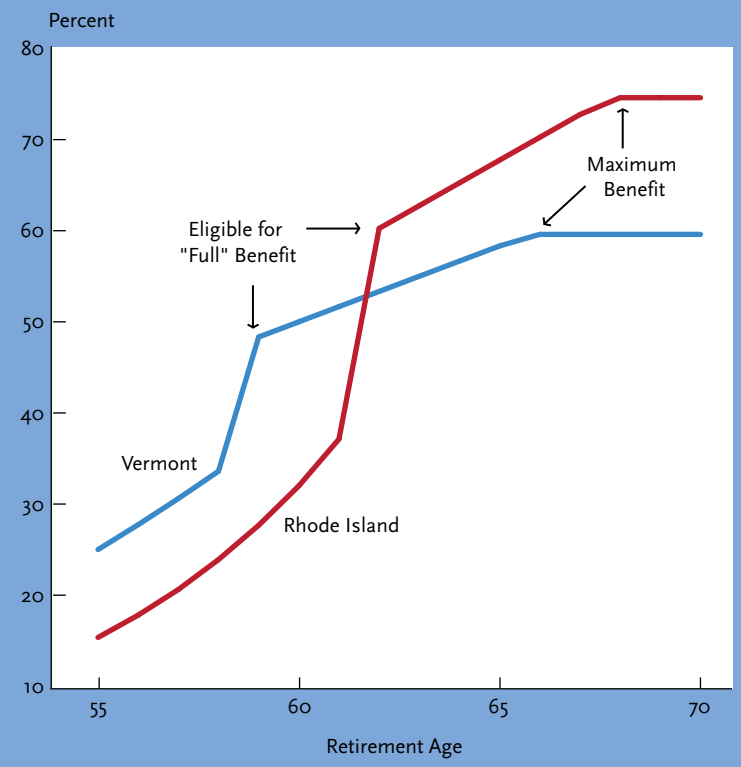
Both Rhode Island and Vermont also set a maximum pension amount. The employee hired at age 30 accrues the maximum pension at age 66 in Vermont and at age 68 in Rhode Island. In the more extreme case, for an employee hired at age 20, he or she accrues the maximum pension at age 56 in Vermont and at age 62 in Rhode Island.

Mapping Work and Retirement Incentives

I selected these illustrations to highlight the varying incentives in state pension plans in New England. The appendix provides a more complete mapping of benefits by retirement age. For each state, I calculate the pension benefits available to five illustrative employees hired at ages 20, 30, 40, 50, and 60. While the benefit-accrual patterns vary considerably across plans, and by the age and service tenure of the employee, this mapping reveals the following features:

- **Normal retirement.** Once an employee becomes eligible for the "full" pension benefit, she has much less to gain from continuing to work. By doing so at this age, she gives up a year of pension benefits that she would receive if she had retired. Thus the incremental financial reward for working usually declines substantially once an employee has accrued her full pension.

Figure 9. Pension as Percent of Final Average Salary
By Retirement Age for Employee Hired at Age 30
Rhode Island, Vermont



Source: Author's calculations.

- **Early retirement.** Continuing to work after becoming eligible for early retirement also means forgoing a year of pension benefits. In this case, however, later benefit amounts rise to compensate—*at least in part*—for the forgone benefits. The amount by which later benefits rise is the critical factor determining the labor market incentives during this period. This factor is reflected in the slope of the benefit growth lines:

  - Plans that reduce benefits significantly for early retirement, such as Rhode Island's plan, do not discourage continued work. In these plans, the benefit rate rises notably if employees continue to work.

  - Plans that reduce benefits minimally for early retirement, such as Connecticut's plan, or for long-service employees in New Hampshire's plan, make early retirement more attractive. The implicit labor market incentive in these plans is to retire young.

- **Later-than-normal retirement.** As noted, none of the state plans in New England include a percentage increase in the benefit formula for employees who continue working after they become eligible for a "full" pension. This reduces the financial reward from work, and is reflected in a marked drop in the accrual value of the pension once an employee becomes eligible for a full pension.

- **Maximum benefits.** The strongest retirement incentives are present in plans with a maximum benefit. Once an employee becomes eligible for the maximum pension, continuing to work for a year involves forgoing a year of pension payments with essentially no compensating increase in the later benefit amount.

Aspects of these labor market incentives are implicit in each state pension plan in New England. Figures A1 through A6 in the appendix provide a more complete mapping of the benefit characteristics of each plan.

Pension Reforms

This section introduces several approaches to pension reform that states might consider as a response to demographic trends. I also review policy reforms actually implemented in the last few years in Massachusetts, Rhode Island, and Vermont.

Raising Statutory Retirement Ages

One category of reform entails moving back the eligibility ages for early and/or normal retirement to reflect rising life expectancy. For example, Social Security is phasing in an increase in that program's normal retirement age from 65 to 67. While already later than the normal retirement ages in the New England pension plans, some analysts recommend further increases in Social Security retirement ages to address the system's continuing fiscal imbalances.

The question of whether to raise retirement ages in state pension plans, or how much to raise them is one of policy judgment and budget prioritization. However, demographic, health, and economic trends should be considered in evaluating prospective reforms. Figure 4, for example, highlighted the number of years that plans would expect to pay pension benefits, based on retirement at each age from 55 to 70. If the policy objective is to provide pension payments for the last 10, 15, or 20 years of an employee's expected life, analysts can figure out which normal retirement age would elicit that outcome.

Cutler et al. (2007) have developed more formalized models of "optimal retirement age" and how it relates to health. As part of their research, they analyze trends in age-specific mortality risk, life expectancy, self-reported health, functional impairment, and general measures of disability. They conclude that people aged 62 in the 1960s and 1970s have broadly similar health to people aged 70 or older today.

More innovative approaches to reform suggest automatically indexing eligibility ages for retirement benefits to measures of health

or life expectancy. Goda and Shoven (forthcoming) have explored several versions of this approach, including indexing retirement ages to employees' (1) remaining life expectancy, (2) mortality risk, (3) percentage of life expectancy at birth completed, or (4) percentage of life expectancy at age 20 completed. These authors calculate, for example, that the retirement age of 65 in 1965 would have risen to about 72 in 2004 if a plan had relied on mortality risk as the method of indexation.[9]

Age Neutrality

Other approaches to reform can make retirement policies more age-neutral in their labor market impact, eliminating the financial incentive for employees to retire at any predefined age.

The shift to age-neutral retirement policies has already occurred in the private sector, where savings-based retirement systems (most notably 401[k] plans) have largely replaced traditional defined-benefit pension plans. The new approach to pre-financing retirement in the private sector, through accounts owned by each employee has no predefined normal retirement age, and provides no implicit incentive for employees to choose retirement at any particular time.

While transferring primary responsibility for retirement planning from firms to workers, the new approach is also implicitly indexed to demographic changes. As people live longer, they can save more or work longer to support their increased longevity, but the basic provisions of the retirement plans are financially sustainable, regardless of the life expectancy and demographic composition of the population.

Traditional defined-benefit pension plans can become age-neutral by making actuarially fair adjustments in the benefit amount for retirement at different ages. Under that approach, the discounted value of the payment stream is calibrated to be the same amount regardless of when it begins. So if an employee starts claiming a benefit a year earlier, for example, the payment rate is reduced by an amount that compensates for the additional year the employee would receive the payments. Similarly, if an employee delays retirement and takes the pension later, the payment rises to reflect its shorter duration. Such actuarially adjusted systems eliminate any strong financial incentive to retire at a specific age.

Today the state pension systems in New England are not actuarially fair. None of the plans include a percentage increase in the benefit formula for employees who continue working after they become eligible for a "full" pension. And only Rhode Island decreases the benefits for early retirement at a high enough rate to be actuarially equivalent. By comparison, Social Security increases the benefit rate by 8 percent each year that a beneficiary delays retirement after the normal retirement age, up to age 70 (U.S. Social Security Administration 2008).

Pension Reform in Vermont

The current pension plan for newly hired Vermont state employees was enacted as Act 116 in spring 2008, and applies fully to employees hired on or after July 1, 2008. (A Commission on the Design and Funding of Retirement and Retiree Health Benefit Plans for State Employees and Teachers has recently recommended additional reforms.) Among other provisions, the 2008 reforms made the following age-related changes in the pension benefit structure (Vermont State Retirement System 2008). The reforms:

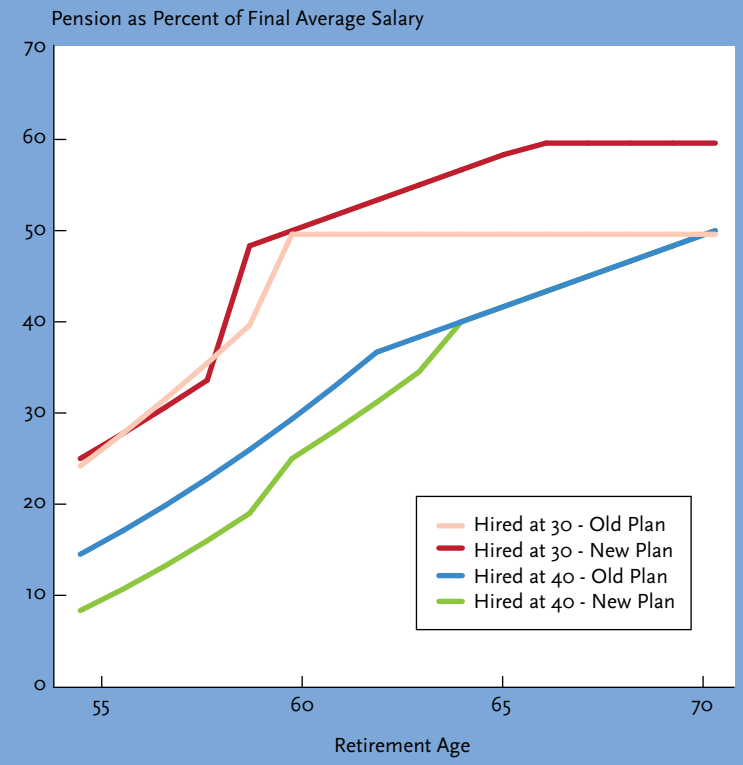
- Changed the normal retirement age from age 62 or 30 years of service to age 65, or when the sum of age and years of service reaches 87 or more.

- Increased the maximum pension benefit from 50 to 60 percent of final average salary.

- Changed the benefit reduction schedule for those choosing early retirement from a flat 6 percent per year before normal retirement (then age 62) to a tiered reduction formula that rewards longer service tenure.

(As noted, the new system provides for an early-retirement reduction of 6 2/3 percent per

Figure 10. Effect of 2008 Reform on Benefit Structure in Vermont



Source: Author's calculations.

year [before age 65] for employees with fewer than 20 years of service, 5 percent per year for employees with 20–24 years of service, 4 percent per year for employees with 25–29 years of service, 3 percent per year of employees with 30–34 years of service, and 1½ percent per year for employees with 35 or more years of service.)

Figure 10 shows the benefit payment rate by retirement age under the old and reformed plans, based on two illustrative employees hired at ages 30 and 40.

The reforms have a mixed effect on the plan's labor market incentives. Employees hired before age 27 or after age 37 become eligibility for normal retirement up to 3 years later than they did before the reform. In these circumstances, the retirement incentive is shifted to older ages. For employees hired between ages 27 and 37, however, eligibility for normal retirement is younger than it was before the reform. For example, an employee hired at age 31 in the old plan could retire with a full pension at age 61, after 30 years of service. After the reform, applying the rule of 87, that employee can retire with a full pension at age 59, or two years earlier than before.

The increase in the maximum benefit amount raises marginally the financial incentive to continue working beyond 30 years. Under the old plan, no more than 30 years of work counted toward a "full" pension. Under the new plan, an employee reaches the maximum benefit after 36 years of service tenure. Figure 10 illustrates this most clearly for the employee hired at age 30, who formerly reached the maximum benefit at age 60, and now sees the benefit continue to rise until age 66.

For those hired later in their careers, imposing the early-retirement reductions from age 65 rather than age 62 also raises the financial incentive to work longer. Figure 10 illustrates this for the employee hired at age 40. The slope of the benefit-accrual line is steeper, reflecting larger increases in the pension payment rate from continuing to work at these ages.

Pension Reform in Rhode Island

Rhode Island has enacted two pension policy reforms in recent years. The first reform applied to employees who became vested in the state plan on or after July 1, 2005. That reform eliminated full benefit eligibility at 28 years of service, or at age 60 with 10 years of service, and replaced it with full benefit eligibility at age 59 with 29 years of service, or at age 65 with 10 years of service. The reform also stretched out the period over which employees accumulate the maximum pension entitlement from 35 years to 38 years. It also lowered the maximum benefit amount from 80 to 75 percent of final average salary.

In 2009, the system was reformed again, raising eligibility for full benefits to age 62 with 29 years of service (rather than age 59). Figure 11 illustrates the impact of the reforms on an employee hired at age 25.

The primary labor market impact of the two reforms is to reduce employees' incentive to retire before age 62. In the pre-2005 plan, an employee could retire with a full, unreduced pension at any age after 28 years of service. For an employee hired at age 25,

eligibility for the full, unreduced pension occurred at age 53, and that employee reached the maximum 80 percent pension at age 60. The 2005 reforms reduced dramatically the pension available before age 59, creating a stronger financial incentive for employees to continue working to age 59.

In the pre-2009 plan, benefit levels jump up for retirement at age 59, making retirement much more attractive at age 59 than in the years leading up to it. The 2009 reforms moved this jump in the pension benefit to age 62.

While the reforms change labor market incentives substantially before age 62, the incentives are largely unchanged after age 62. For most long-service employees, the retirement incentive remains strong at age 62, particularly when they achieve the maximum Rhode Island pension of 75 percent.

Pension Reform in Massachusetts

The Massachusetts pension reforms enacted in 2009 did little to change the basic economic structure of the benefit formula, or the age-related patterns of benefit accrual. Instead, the Massachusetts reforms were designed to limit some of the special provisions that could enhance pension eligibility and benefits—considered by many to be abuses or loopholes in the system.

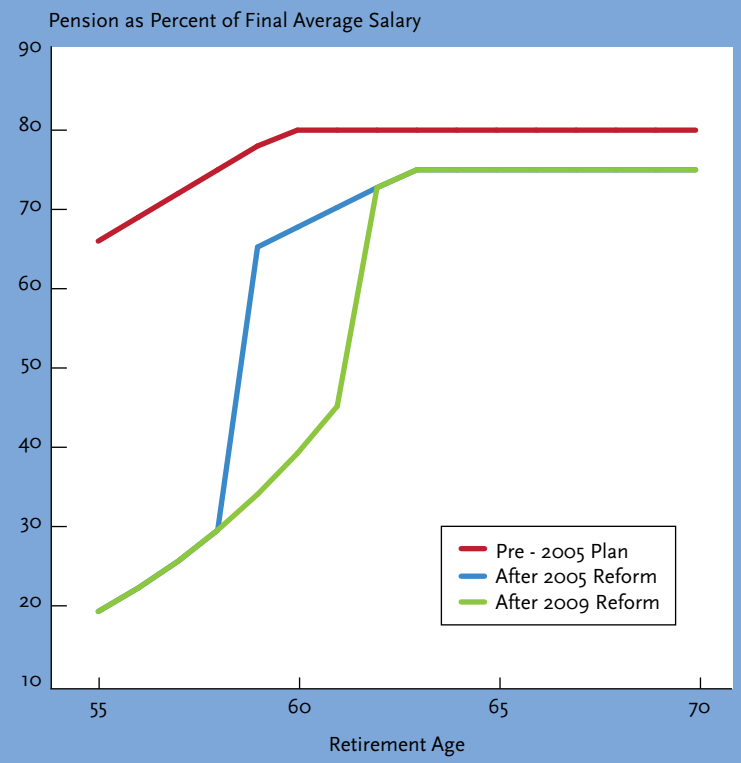
The reform package prevents workers from getting credit for a full year of service for as little as one day of work in a given year. The package also limits certain special early-retirement arrangements, limits the compensation base to wages and salary (excluding housing, travel, and car allowances), and eliminates the ability of people holding unpaid positions to receive credit for years of service. Perhaps most relevant to labor market incentives, the reform restricts retirees' ability to work for the government as independent contractors while earning a pension, paralleling limits in retirees' ability to return to regular employment while receiving a pension. The 2009 reforms leave the basic age characteristics and benefit formula unchanged.

Separate from the enacted reforms, a *Special Commission to Study the Massachusetts Contributory Retirement System* released its final report in October 2009. While the commission did not recommend specific reforms, it did consider one approach to encouraging later retirement. Their description of this potential reform clearly identifies the early-retirement incentives in the current system (Special Commission to Study the Massachusetts Contributory Retirement Systems 2009, pp. 6–7):

- 3. Encourage later retirement and lower system cost by reducing the age factors by 0.125 percent rather than the current 0.10 percent. Sample factors for group 1 employees would be 2.5 percent at age 65 (unchanged), 1.875 percent at age 60, and 1.25 percent at age 55. Similar changes would apply to the age factors for group 2 and group 4 employees.

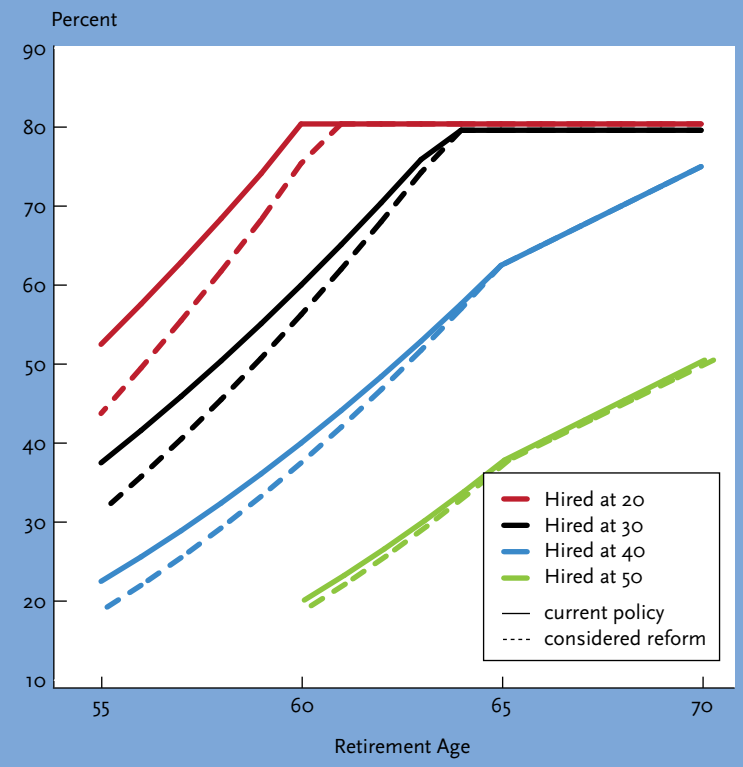
- Rationale: The factors used to determine a member's retirement allowance depend on the member's age at retirement. The

Figure 11. Effect of 2005/2009 Reforms on Benefits in Rhode Island for Employee Hired at Age 25



Source: Author's calculations.

Figure 12. Pension as Percent of Final Average Salary
by Retirement Age, Current Policy Compared to Reform Considered by Massachusetts Commission (2009)



Source: Author's calculations.

reduction in the factors takes into account the fact that when a member retires at a younger age, the retirement benefit will be paid for a longer period of time. The current factors provide a subsidy to those members retiring at younger ages. In other words, the lifetime value of the benefit is greater at younger ages than at older ages. This proposal would reduce, but not eliminate entirely, the subsidy for early retirement.

Figure 12 shows the benefits that employees hired at ages 20, 30, 40, and 50 would accrue under the current plan, and under this reform option described by the Commission. The reform would reduce the benefits of employees retiring before age 65, raising the financial incentive to continue working in the years leading up to age 65.

Conclusions

The U.S. population is aging rapidly. That trend is even more dramatic in New England. That means the landscape in which retirement policies operate is already different from that in past decades, and will continue to evolve. Across the country and around the world, both public and private retirement systems are also in transition, responding to the growing financial pressures of changing demographics.

Also evolving are individual decisions about work and retirement in later life. As the population ages, a critical macroeconomic question is how a proportionately smaller working-age population can provide the continuing productive capacity to support a proportionately larger population of retirees. For those who are able, working longer seems a likely and economically beneficial corollary to demographic change.

The traditional pension plans in effect for most state employees in New England are structured in ways that influence labor market behavior and often discourage continued work at older ages. Many plans consider retirement at age 60 or 62 "normal" for long-service employees, even though life expectancy at age 62 is more than 20 years.

This study has described the age-related features of state pension plans and their implicit relationship to labor market behavior, and shown how labor market incentives vary based on the plans' specific provisions. Many people may continue to seek retirement at age 55, 60, 62, or 65, and with adequate pre-retirement planning these systems may continue to allow that possibility. However, pension systems that *encourage* people to exit the labor force for the last 20 or more years of life seem counterproductive. The study has therefore also explored ways to make pension plans more age-neutral in their treatment of work and retirement decision making at older ages.

Endnotes

[1] Those choosing a joint life annuity have their payments reduced by an amount reflecting the probability of a longer time horizon over which the payments will be paid.

[2] The adult population is defined as people aged 18 and older.

[3] In Connecticut, I focus on the "tier IIA" plan, which covers most state employees hired on or after July 1, 1997, excluding certain teachers, people who hold hazardous duty positions, and judges. In Maine, I focus on the plan covering most state employees who became vested in the plan on or after July 1, 1993, excluding various more-specific job categories. In Massachusetts, I focus on the "group one" plan, which covers general employees but excludes direct-care workers, state police, and public safety officers. In New Hampshire, I focus on the primary plan for state employees and teachers, which excludes firefighters and police officers. In Rhode Island, I focus on the newly reformed "schedule B" plan, which applies fully to state employees hired on or after October 1, 2009. In Vermont, I focus on the newly reformed "group F" plan, which applies to most state employees hired on or after July 1, 2008, excluding judges, state law enforcement officers, and employees grandfathered under earlier plans.

[4] Indeed, any Social Security benefits that state employees in non-participating states may be eligible to receive from other employment, or from a spouse's employment, may be reduced as a result of their state pension. These reductions are known as the Government Pension Offset (GPO) and Windfall Elimination Provisions (WEP) of the Social Security system.

[5] The salary base from which the pension is determined varies across states. However, a typical plan might use the average salary of the highest three years of state employment, or the three highest consecutive years of employment. Limitations related to overtime pay or rapidly increasing salary rates may also apply.

[6] The Figure 5 calculations for Connecticut are based on an employee with a salary below the threshold level of $51,700 in 2009.

[7] Massachusetts describes its formula differently, but it is mathematically equivalent to the approach used in Connecticut and Maine. Massachusetts describes its plan as having a benefit formula that steps up with retirement age. Specifically, employees receive 1.5 percent of salary per year of service if they retire at age 55, 1.6 percent of salary at age 56, 1.7 percent at 57, and so on, up to 2.5 percent of salary at age 65.

[8] The calculations for Connecticut are based on a worker whose final salary is below the "breakpoint" salary of $51,700 (in 2009). The pension amount (as a percent of final average salary) would be somewhat higher for workers with higher salaries, but the "shape" of the benefit accrual by age would be similar.

[9] While not considered seriously by the Maine legislature, LD1603 in 2007 contained statutory language that would have indexed the state pension system to remaining life expectancy.

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Appendix

Benefit Eligibility by Retirement Age, State Pension Plans in New England

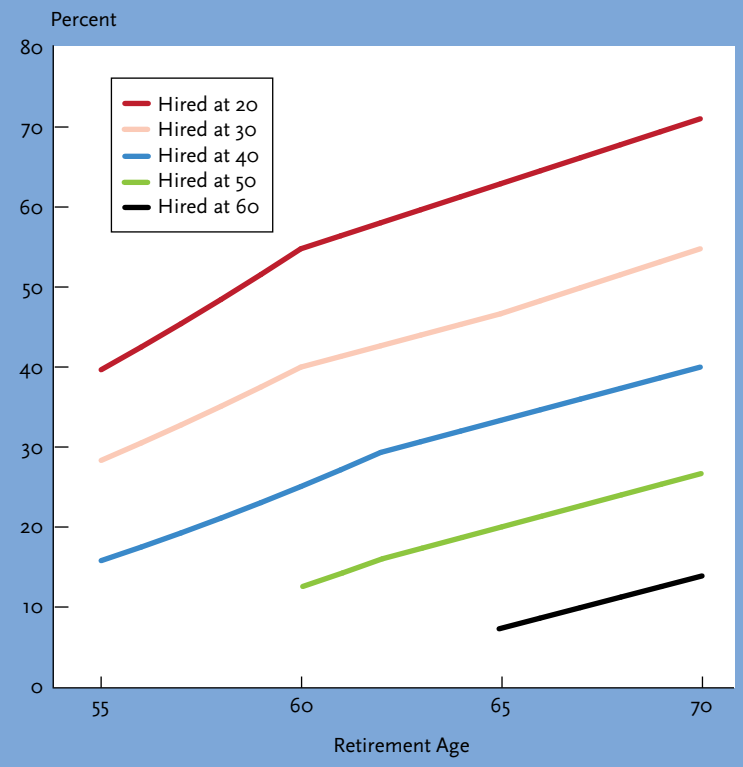
Benefit Structure in Connecticut

In Connecticut, the "full" pension benefit is 1.333 percent of salary, up to a "breakpoint" level ($51,700 in 2009), plus 1.833 percent of salary above the breakpoint salary, for each year of service. For any employee who works more than 35 years, the additional benefit is 1.625 percent of salary for each year above 35 years.

Full benefit eligibility is at age 60 with 25 years of service, or at age 62 with fewer than 25 years of service. Eligibility for early retirement begins at age 55 with 10 years of service. The benefit formula is reduced by 3 percent for each year of retirement before the normal retirement age. It does not provide a percentage increase in the payment rate for employees who continue working after full benefit eligibility, except to account for more years of service and any increase in final average salary. There is no maximum benefit.

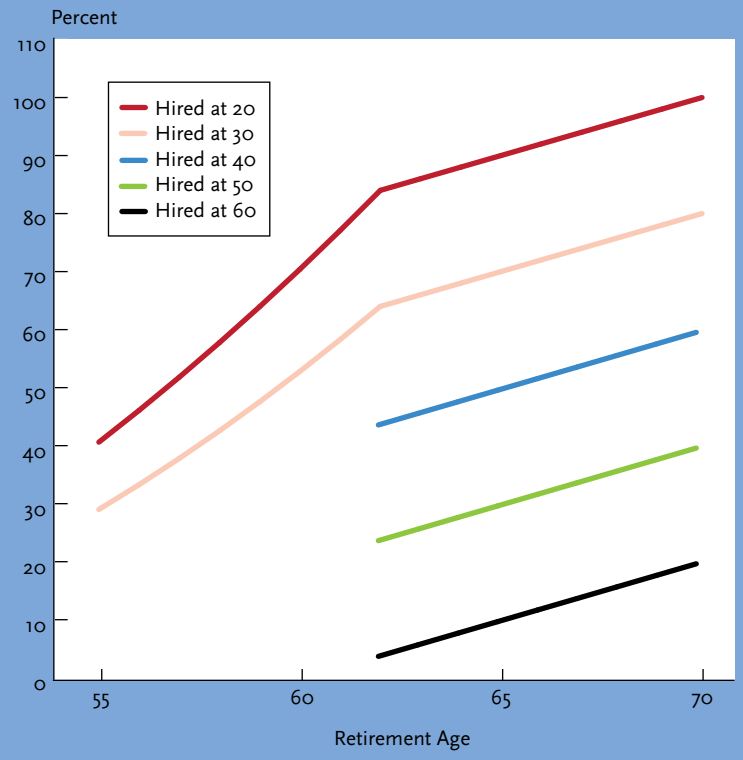
Figure A1 summarizes the growth patterns in benefit rates for retirement between ages 55 and 70 in Connecticut, based on an employee with a salary below the breakpoint.

Appendix Figure 1. Pension as Percent of Final Average Salary in Connecticut
For Employee Earning Less Than $51,700, the "Breakpoint" Salary



Source: Author's calculations.

Appendix Figure 2. Pension as Percent of Final Average Salary in Maine



Source: Author's calculations.

Benefit Structure in Maine

In Maine, the "full" pension benefit is 2 percent of final average salary per year of service. Full benefit eligibility is at age 62. Eligibility for early retirement begins at 25 years of service. The benefit formula is reduced by 6 percent for each year before age 62. It does not provide a percentage increase in the payment rate for employees who continue working after age 62, except to account for more years of service and any increase in final average salary. There is no maximum benefit.

Figure A2 summarizes growth patterns in benefit rates for retirement between ages 55 and 70 in Maine.

Benefit Structure in Massachusetts

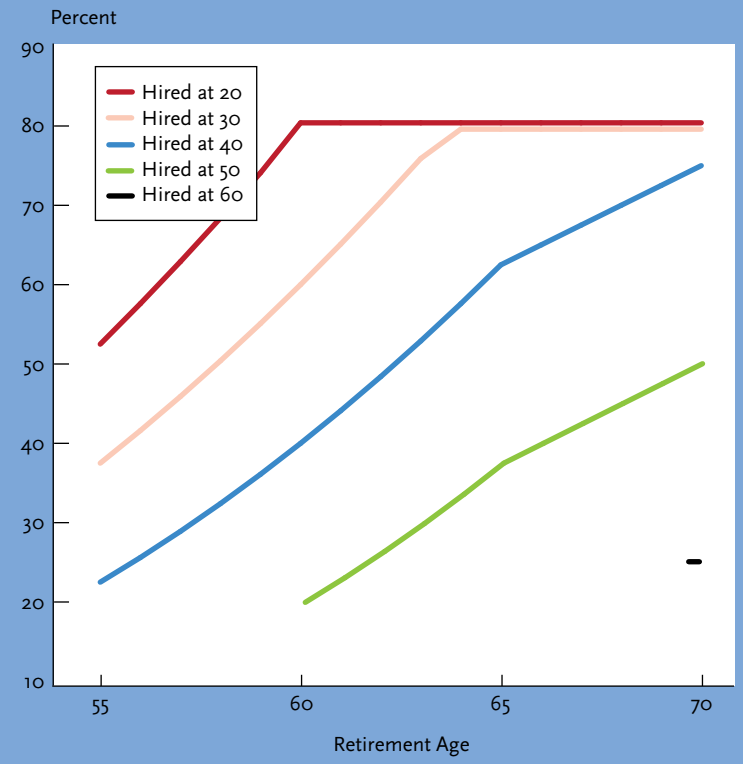
In Massachusetts, the "full" pension benefit is 2.5 percent of final average salary per year of service. Full benefit eligibility is at age 65. Eligibility for early retirement begins at 20 years of service, or at age 55 with 10 years of service.

Massachusetts employees receive 1.5 percent of salary per year of service if they retire at age 55, 1.6 percent of salary for retiring at age 56, 1.7 percent for retiring at 57, and so on, up to 2.5 percent of salary for retiring at age 65 or older. These factors are mathematically equivalent to a flat-rate benefit of 2.5 percent of salary per year of service, with a 4-percentage-point reduction in benefit for each year before age 65.

The benefit formula does not provide a percentage increase in the payment rate for employees who continue working after age 65, except to account for more years of service and any increase in final average salary. The maximum benefit is 80 percent of salary.

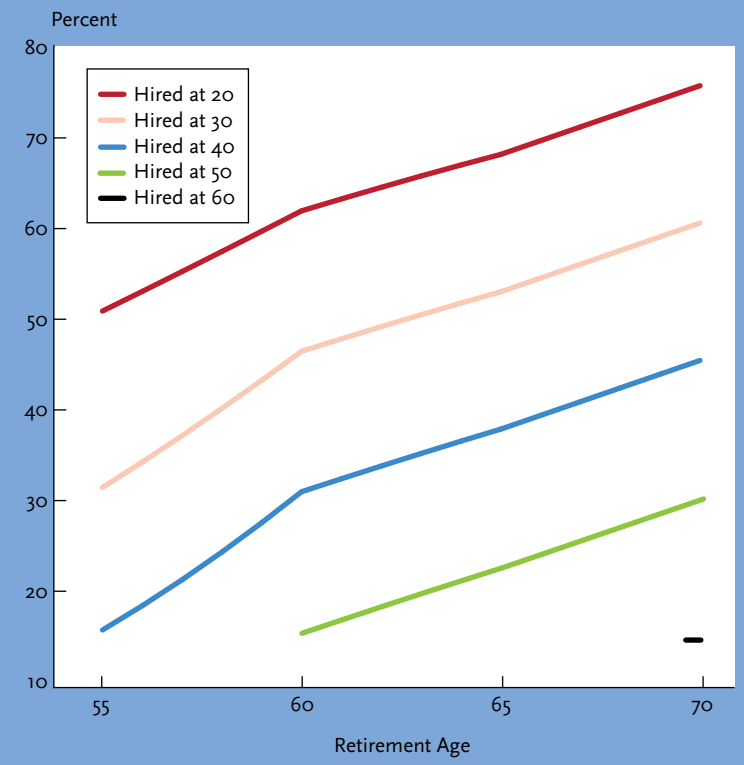
Figure A3 summarizes the growth patterns in benefit rates for retirement between ages 55 and 70 in Massachusetts.

Appendix Figure 3. Pension as Percent of Final Average Salary in Massachusetts



Source: Author's calculations.

Appendix Figure 4. Pension as Percent of Final Average Salary in New Hampshire



Source: Author's calculations.

Benefit Structure in New Hampshire

In New Hampshire, the "full" pension benefit is 1 2/3 percent of final average salary per year of service before age 65, dropping to 1.51515 percent at age 65 and older. Employees become eligible for full benefits at age 60. Eligibility for early retirement begins at age 50 with 10 years of service; or at any age with 20 years of service, and when the sum of age plus years of service is at least 70.

For employees choosing early retirement with fewer than 20 years of service, the benefit is reduced by 6 2/3 percent per year before age 60. For those with 20–24 years of service, the benefit is reduced by 5 percent per year before age 60. For those with 25–29 years of service, the benefit is reduced by 4 percent per year before age 60. For those with 30–34 years of service, the benefit is reduced by 3 percent per year before age 60. For those with 35 or more years of service, the benefit is reduced by 1½ percent per year before age 60.

The benefit formula does not provide a percentage increase in the payment rate for employees who continue working after age 60, except to account for more years of service and any increase in final average salary. There is no maximum benefit.

Figure A4 summarizes the growth patterns in benefit rates for retirement between ages 55 and 70 in New Hampshire.[1]

Benefit Structure in Rhode Island

Under the newly reformed Rhode Island plan, the "full" pension benefit is 1.6 percent of final average salary for service years 1–10, 1.8 percent of final salary for service years 11–20, 2 percent of final salary for service years 21–25, 2.25 percent of final salary for service years 26–30, 2.5 percent of final salary for service years 31–37, 2.25 percent of salary for service year 38, and zero for service beyond 38 years.

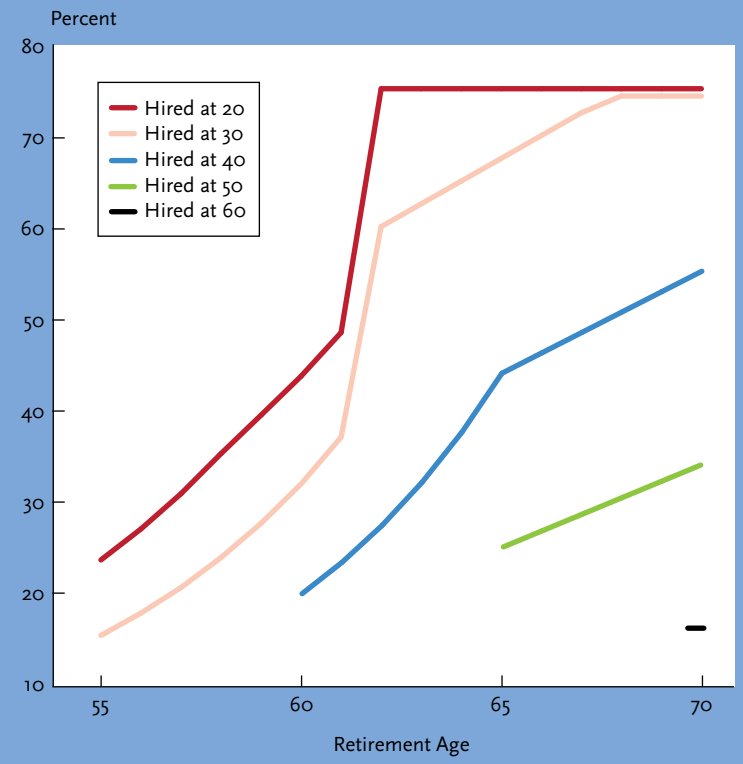
Employees are eligible for full benefits at age 62 with 29 years of service, or at age 65 with 10 years of service. Eligibility for early retirement begins at age 55 with 20 years of service.

Rhode Island uses actuarial early-retirement factors of 89.3 percent for retirement at age 64, 79.9 percent at age 63, 71.6 percent at age 62, 64.3 percent at age 61, 57.9 percent at age 60, 52.2 percent at age 59, 47.1 percent at age 58, 42.5 percent at age 57, 38.5 percent at age 56, and 34.9 percent at age 55.

The benefit formula does not provide a percentage increase in the payment rate for employees who continue working after full benefit eligibility, except to account for more years of service and any increase in final average salary. The maximum benefit is 75 percent of final average salary.

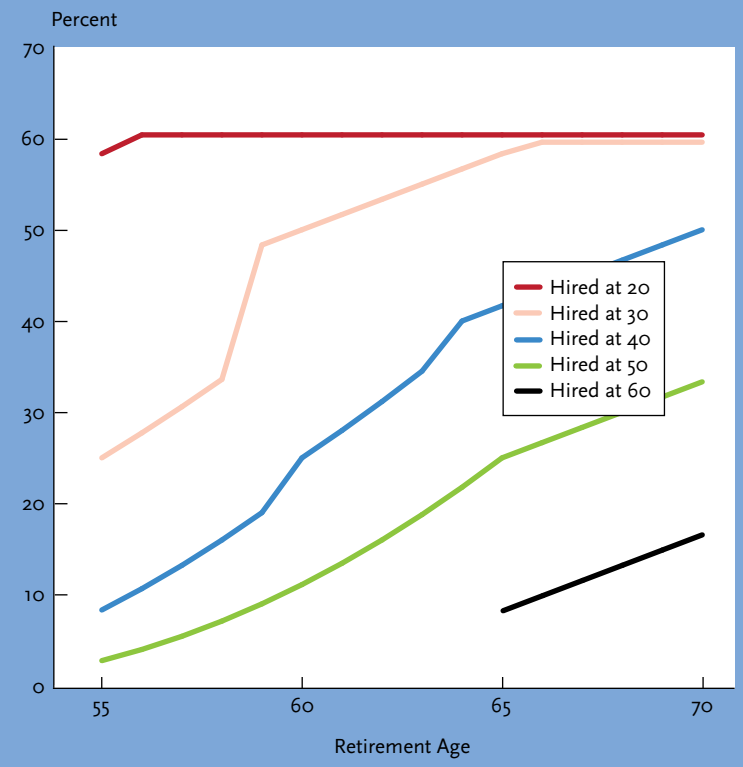
Figure A5 summarizes the growth patterns in benefit rates for retirement between ages 55 and 70 in Rhode Island.

Appendix Figure 5. Pension as Percent of Final Average Salary in Rhode Island



Source: Author's calculations.

Appendix Figure 6. Pension as Percent of Final Average Salary in Vermont



Source: Author's calculations.

Benefit Structure in Vermont

Under the newly reformed Vermont plan, the "full" pension benefit is 1 2/3 percent of final average salary per year of service. Employees are eligible for full benefits at age 65, or when the sum of age and years of service reaches 87. Eligibility for early retirement begins at age 55.

For employees choosing early retirement with fewer than 20 years of service, the benefit is reduced by 6 2/3 percent per year of early retirement. For those with 20–24 years of service, the benefit is reduced by 5 percent per year of early retirement. For employees with 25–29 years of service, the benefit is reduced by 4 percent per year of early retirement. For those with 30–34 years of service, the benefit is reduced by 3 percent per year of early retirement. For those with 35 or more years of service, the benefit is reduced by 1½ percent per year of early retirement.

The benefit formula does not provide a percentage increase in the payment rate for employees who continue working after full benefit eligibility, except to account for more years of service and any increase in final average salary. The maximum benefit is 60 percent of salary. Figure A6 summarizes the growth patterns in benefit rates for retirement between ages 55 and 70 in Vermont.

Endnote

[1] The pension values in Figure A4 integrate the 1.5151 and 1.6667 percent benefit rates, assuming average life expectancy at each retirement age, and the associated number of years the retiree would be paid at each rate.

New England Public Policy Center
Federal Reserve Bank of Boston
600 Atlantic Avenue
Boston, MA 02210

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New England Public Policy Center
Federal Reserve Bank of Boston
Phone: (617) 973-4257
E-mail: neppc@bos.frb.org
Web: http://www.bos.frb.org/economic/neppc/index.htm