

HOW HAS THE SHIFT TO 401(K)S AFFECTED THE RETIREMENT AGE?

BY ALICIA H. MUNNELL, KEVIN E. CAHILL, AND NATALIA A. JIVAN*

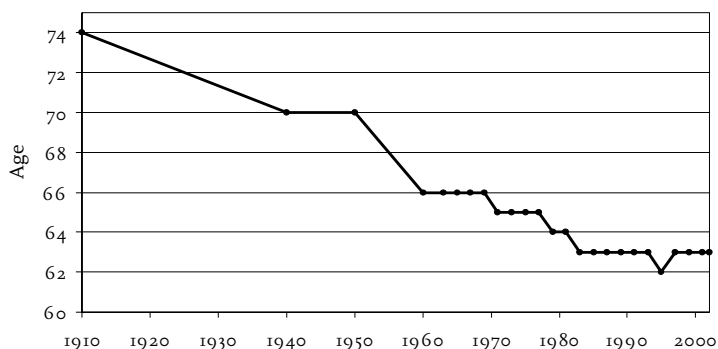
Introduction

The trend toward earlier and earlier retirement has slowed and, perhaps, even reversed. A host of explanations are possible: the elimination of mandatory retirement, the cessation of the expansion of Social Security, the reduction of retirement incentives within Social Security, and the changing nature of the private pension system. This *issue in brief* explores the latter issue — how the shift in coverage from defined benefit to defined contribution plans may have affected the timing of retirement.

The Facts

Until the mid-1980s, the age at which people retired had declined for decades. In the mid-1980s, the decline ceased. Between 1985 and 2002, the retirement age for men held steady (Figure 1).¹

Figure 1. Average Retirement Age of Men, 1910 - 2002



Source: Burtless and Quinn (2002); authors' calculations using Bureau of Labor Statistics (2003).

* Alicia H. Munnell is the director of the Center for Retirement Research at Boston College (CRR) and the Peter F. Drucker Professor of Management Sciences at Boston College's Carroll School of Management. Kevin E. Cahill is the associate director for research at the CRR, and Natalia A. Jivan is a graduate research assistant at the CRR.

¹ For older women, labor force participation rates were flat until the mid-1980s. The trend toward earlier retirement experienced by all older workers during this period was offset by the increased labor force participation of married women. Since the mid-1980s, the labor force participation rates of women have increased dramatically (Burtless and Quinn, 2002). Today, the average retirement age of women is about 61 years based on authors' calculations of data from the Bureau of Labor Statistics (2003).

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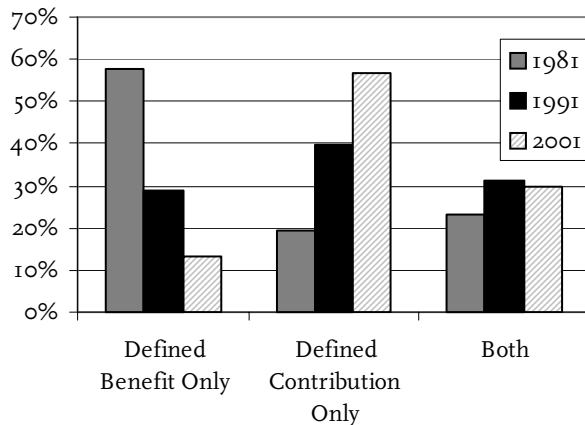
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At about the same time as the break in this trend, the nature of pension coverage began to shift dramatically, even though the percentage of the workforce covered by an employer-sponsored pension remained virtually unchanged.² Among those lucky enough to be covered by a pension, the portion with only a defined contribution plan increased from about 20 percent in 1981 to nearly 60 percent today (Figure 2).

Figure 2. Percent of Wage and Salary Workers with Pension Coverage by Type of Plan, 1981-2001



Source: U.S. Department of Labor (2002). Percentages for 2001 are based on authors' calculations from Survey of Consumer Finances (2003) data.

Defined benefit and defined contribution plans are structured quite differently. Under traditional defined benefit plans, workers accrue benefits over their work life and receive a life annuity at retirement, which guarantees them benefits for as long as they live. The benefit is typically calculated as a dollar amount per year of service, or as a percentage of final salary for each year of service. In the event the company cannot fulfill its pension promise, workers' benefits (up to a maximum of \$3,665 per month in 2003 for workers retiring at 65) are insured through the Pension Benefit Guaranty Corporation (PBGC).

Defined contribution plans — most notably 401(k)s — look very different. They are like savings accounts. The employer and employee both contribute to the account over the employee's work life. Employees control account assets, and can

allocate funds to match their tolerance for risk. Defined contribution assets are also portable, which means that mobile workers can take their pensions with them as they move from job to job. On the other hand, the worker bears the investment risk. So, if the stock market booms, they do great; if it slumps, they take the hit. Defined contribution plans generally do not pay annuities; rather, they offer participants a lump sum. The PBGC does not insure the benefit.

How Pensions Affect Retirement

What difference does it make whether people are covered by a defined benefit or a defined contribution plan, assuming that they have the same level of wealth under either plan? In either case, they are going to get benefits, and those benefits will enable them to retire earlier than they would have been able to without a pension.

The story is more complicated, however, because the two pensions have different financial incentives, different ways of paying benefits, and different types of risks. First, provisions in many traditional defined benefit plans offer a significant subsidy for early retirement, while 401(k) plans are neutral with respect to retirement age. The early retirement subsidy was developed to encourage workers, who might be tempted to stay on too long, to retire when their productivity declines. The subsidy arises because companies offer benefits at an early retirement age, such as 55, that are not adjusted sufficiently to reflect the fact that retirees will receive benefits for 10 years longer than if they retired at age 65.

For example, suppose a person will live for 20 years and is entitled to a pension of \$15,000 at age 65; lifetime benefits will equal \$300,000 (20 x \$15,000). To keep lifetime benefits constant, if that employee retired at 55 his annual benefit should be only \$10,000 per year (30 x \$10,000 = \$300,000). But traditional defined benefit plans typically provide far more because they use an actuarial reduction that is smaller than the full reduction. That is, they pay, say, \$12,000 at age 55, which means that the worker in this example who retires at 55 would receive substantially more in lifetime pension benefits than if he were to retire at 65.³

² Since the 1970s, about 50 percent of the private sector workforce has been covered by a pension at any point in time (Munnell, Sundén and Lidstone, 2002).

³ The exercise is actually somewhat more complicated because the employee adds to his pension if he continues to work. Assume that the firm imposes no reduction in monthly benefits for retiring before age 65. Then, while

working past the early retirement age, say 55, allows the person to earn additional benefits for additional years of service, it also reduces the total value of benefits earned up to age 55. (The monthly dollar amount of these benefits remains unchanged but they will be received for fewer years.) This decline in the value of retirement benefits from continued employment was even more severe before legislation prohibited the practice of ceasing benefit accruals after the normal retirement age. See Halperin and Schnall (2000).

The subsidy implicit in the less-than-actuarially fair reduction then gradually declines and disappears entirely at the normal retirement age.⁴

Defined contribution plans operate very differently. A worker's accumulated pension wealth changes each year by contributions to the account and the earnings on accumulated assets, but it is unaffected by the worker's retirement decision. Pension wealth continues to rise even if contributions are zero (assuming earnings on assets are positive). The only aspect of pension wealth accruals in a defined contribution or 401(k) plan that might affect retirement age is the constraint, imposed by the government, that funds cannot be withdrawn without a penalty until the worker reaches age 59½. Otherwise, 401(k) plans should not encourage retirement at any particular age.

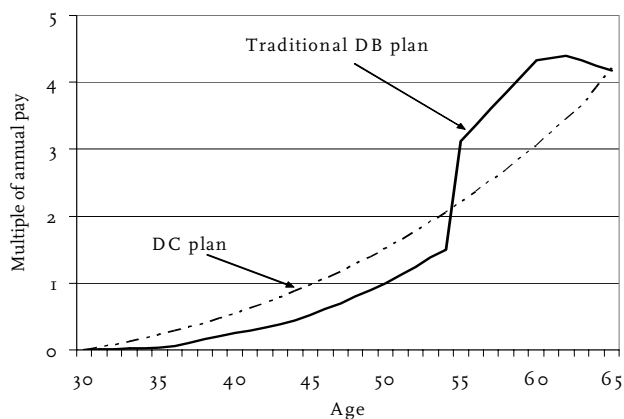
Figure 3 shows accrued pension benefits as a multiple of annual pay at different ages for a traditional defined benefit plan and a cost-equivalent defined contribution plan. In each case, workers retiring at 65 would accumulate benefits equal to four times their final salary. In the case of defined contribution plans, the more the person

works, the greater total retirement benefits are relative to earnings. Thus, the pension provides no incentive to retire at a particular age. In contrast, benefits relative to annual pay in a traditional defined benefit plan jump sharply at 55, the early retirement age, because of the lack of an actuarially fair adjustment. The disappearance of the subsidy provides a powerful incentive to retire prior to the normal retirement age in the plan.⁵

The second factor that may influence retirement is the nature of the benefit payment. Traditional defined benefit plans offer an annuity — that is, a stream of payments — while defined contribution plans typically pay a lump sum. Individuals may perceive an expected flow of income for life differently than a lump sum of equal value, contrary to traditional economic theory. For example, individuals may be reluctant to spend their 401(k) balances in the hope of leaving a sizable bequest. Or they may spend down their wealth too slowly in order to insure that they do not exhaust their assets before they die. For these reasons, when pension payments are in the form of a lump sum rather than an annuity, individuals may desire a higher level of wealth in retirement to maintain an equivalent level of consumption. Therefore, we might expect to see an increase in the retirement age due to increases in lump-sum distributions associated with defined contribution plans.

Finally, individuals may react differently to levels of retirement wealth depending on their sense of the reliability of the amount. For example, it is possible for 401(k) balances to change dramatically in a short period of time, which can make it difficult for individuals to reliably predict how much income they can expect to receive from the account. In addition, upon receiving a lump sum at retirement, individuals must decide how to invest the money and then estimate the interest they will receive on their investments. The presence of this investment uncertainty may cause some individuals to err on the side of caution and stay in the workforce longer than if they had a more predictable income stream from a defined benefit plan.⁶

Figure 3. Accrued Pension Benefits in a Traditional Defined Benefit Plan and Defined Contribution Plan as a Multiple of Annual Pay



Source: Clark and Schieber (2002) and authors' calculations.

⁴ Working beyond the normal retirement age often results in negative pension accruals. The law requires that the wage increases of those who work beyond the normal retirement age be reflected in higher retirement benefits. But it does not prevent firms from capping the years of service used to calculate benefits; nor does it require firms to provide actuarial adjustments for the fact that participants will receive benefits for fewer years (McGill et al., 1996).

⁵ Considerable research exists on retirement incentives in defined benefit plans. An early study by Kotlikoff and Wise (1989) documented the incentives in a single plan for a Fortune 500 company and in a nationally representative cross section of plans. Stock and Wise (1990); Lumsdaine, Stock, and Wise (1992); and Samwick (1998) have done similar studies.

Researchers have taken different approaches to characterizing the incentives in the plans. Stock and Wise (1990) developed an "option value" measure to reflect the utility gains or losses from postponing retirement, while Coile and Gruber (2000) introduced a somewhat simpler concept of "peak difference" of pension wealth accruals.

⁶ It is important to note that, while accrued benefits under defined benefit plans are more certain than accrued benefits under defined contribution plans, defined benefit pensions are not free of risk. The PBGC guarantee on accrued benefits is capped and future accruals could be affected by plan changes. Of course, defined contribution plans carry similar risks with respect to future accruals.

In short, three aspects of defined contribution plans would be expected to lead to later retirement — the absence of explicit early retirement incentives, the payment of a lump sum rather than an annuity, and the investment and interest rate risk associated with these plans. What does the evidence say?

Evidence from Survey Data

We looked at the Health and Retirement Study (HRS) to get an answer. This study began in 1992 by interviewing people aged 51-61 and their spouses (regardless of age). The survey was re-administered in 1994, 1996, 1998, and 2000. The first wave (1992) involved about 12,600 individuals from about 7,600 families.

The question is whether people's retirement age varied by the type of pension they had. To isolate the pension effect, it was necessary to control for many other factors that could also influence retirement, such as wages, health, education, etc. The final equation is as follows:

Retirement age = f (pension type, wealth, age, gender, education, health status, marital status, wage, job type, self-employment status, health insurance status, and home ownership)

Our theory says that people with pension wealth of any sort should retire earlier than those without. And, if our theory about people with defined benefit plans is right, the early retirement incentives, payment in the form of annuity, and reliability of accrued benefits all contribute above and beyond to encourage early retirement. In addition to the pension variables, being female, married, or in poor health, owning one's home, having retiree health insurance provided by one's employer, and having a physically-demanding job should all lead to earlier retirement. In contrast, having more education and being self employed would be expected to delay retirement. The impact of higher wages is theoretically ambiguous. On the one hand, higher wages allow workers to achieve their retirement savings goal in fewer years and retire earlier, on the other hand, the higher level of compensation for each year worked may encourage workers to stay in the labor force longer.

We estimated an equation for the sample of HRS respondents who were working at the time of the wave one interview (see Appendix for details). The results show that, for a worker with no pension coverage, the expected retirement age was 65.1 years. For typical workers with defined benefit pension coverage, the expected retirement age was 63.9 — about one year and two months earlier. As shown in Table 1, two separate aspects of defined benefit coverage are responsible for this significant reduction in the retirement age: (1) the general characteristics associated with such plans (i.e., early retirement incentives, lifelong benefits, and reduced investment risk); and (2) the amount of defined benefit wealth. First, the characteristics of defined benefit plans move up an individual's expected retirement date by seven-tenths of a year (or about eight months).⁷ Second, the amount of individuals' defined benefit plan wealth has a separate influence on retirement decisions. For an individual with the average level of defined benefit wealth, the expected retirement date is an additional five-tenths of a year earlier (or six months).⁸ For individuals with more defined benefit wealth, the expected retirement date would be even earlier; for those with less than average wealth, the date would be later.

Table 1. Expected Retirement Ages, by Pension Coverage Characteristics

	No pension coverage	DB pension coverage	DC pension coverage
Base retirement age	65.1	65.1	65.1
Pension plan characteristics		-0.7	0.2
Pension wealth effect		-0.5	-0.1
Expected retirement age	65.1	63.9	65.2

Source: Authors' calculations. See Appendix for details on methodology.

⁷ This finding inherently assumes that specific types of individuals do not self select into different kinds of pension plans. If they did, the coefficient on plan type might be picking up differences in the types of individuals, rather than differences in plan characteristics. Friedberg and Webb (2000) conclude that this self selection issue does not appear to be a problem.

⁸ The average level of defined benefit pension wealth for HRS respondents with coverage was about \$159,000 in 1992.

Not surprisingly, the situation for individuals with defined contribution pension coverage is quite different. Overall, their expected retirement age was essentially no different from individuals without any pension coverage. Though the level of pension wealth was responsible for a slight drop in the expected retirement age, this effect was more than offset by the general characteristics of defined contribution plans. Our findings imply that those in their 50s and 60s who are covered by a defined benefit plan will retire about one year earlier than those covered by a defined contribution plan.⁹

Conclusion

The trend towards earlier and earlier retirement came to a halt in the mid-1980s, and may have even reversed in recent years. There have been many explanations for this, including the strong economy of the past two decades, changes in Social Security benefit calculation rules that make work more attractive, and the elimination of mandatory retirement. Private pensions have also been a key part of the story, as firms have recently moved away from defined benefit plans and towards defined contribution plans.

We estimate that individuals with defined contribution plans retire about one year later than otherwise similar individuals with defined benefit plans. As firms continue to move away from traditional defined benefit pension plans in the future, we should expect to see increases in the average retirement age of older Americans, all else equal.

⁹ These results are somewhat less dramatic than those of another study that approached the question by looking at the probability of being in the labor force each year. Friedberg and Webb (2000) concluded that financial incentives in defined benefit plans caused older employees to retire almost two years earlier than people in defined contribution plans.

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Appendix: Regression Results

The sample of HRS respondents used in the analysis consists of all individuals working at the time of the wave one interview. The dependent variable is an individual's expected retirement age as reported at the time of the wave one survey.¹⁰ (In a limited number of cases involving missing data, expected retirement age was taken from data in later waves.) Coefficient estimates and t-statistics for independent variables are presented in Table A.1. We use the model described here to illustrate a key point regarding the impact of pension plan type on the retirement age. A more complicated model might yield a better measure of the impact of pension plan type, but we believe the point will remain unchanged.¹¹

The base retirement age for an individual aged 55 that emerges from this equation is 65.1 years:

$$\text{base retirement age} = \text{constant} + (b_{\text{age}} * 55) = 50.8 + (.26 * 55) = 65.1.$$

The result is consistent with the expected retirement age for working individuals aged 50 and over (Moore, 2003). Not surprisingly, the value is higher than the expected retirement age for the population generally.¹²

All independent variables in the model are defined as of 1992. Pension status (having a defined benefit or defined contribution plan) is based on any job in a respondent's work history. Workers who have both types of pension plans from different employers are classified as having both a defined benefit and defined contribution plan.¹³ Defined benefit, defined contribution, and Social Security wealth are based on self-reported estimates from the public-release version of the HRS, and are measured at the household level. Total wealth is equal to the value of assets in stocks, bonds, checking accounts, certificates of deposit, and any other account, minus household debt. All wealth

variables are measured in \$100,000 increments. Wages are measured in 1992 dollars, with "low" being \$7 or less and "high" being \$20 or more. All other variables are dichotomous indicators, with the exception of age, which is entered continuously. Retiree health insurance is equal to one if a respondent has health insurance in retirement offered through his or her employer.

Table A.1. Coefficients from Equation Explaining Expected Retirement Age

Variable	Coefficient	t-statistic
Pension coverage		
Defined benefit	-0.70	-5.79
Defined contribution	0.22	1.88
Pension wealth		
Defined benefit	-0.29	-7.08
Defined contribution	-0.10	-1.10
Social Security	-0.14	-1.40
Total Wealth	-0.06	-3.00
Wages: low	0.36	2.58
high	-0.30	-1.95
Retiree health insurance	-0.49	-4.50
Age	0.26	20.35
Female	-0.55	-5.03
Fair or poor health	-0.65	-4.32
College education	0.94	6.61
Married	0.13	0.94
Self employed	1.46	7.31
Physically-demanding job	-0.35	-3.27
Home ownership	-1.12	-6.91
Constant	50.79	67.79
R-squared	0.167	
Sample size	6,430	

¹⁰ Analysis based on subsequent waves of the HRS reveals that respondents form reasonable expectations about their retirement date. Based on data in waves 1-4, about one third of respondents retired within one year of their expected retirement date, one third retired earlier than expected, and one third retired later than expected (Panis, et al., 2002).

¹¹ Alternative specifications can address the fact that all independent variables are based on a snapshot at a specific point in time (1992) by allowing factors, such as changes in health status, to influence expected retirement as individuals age. Also, older individuals in our sample have a more limited set of options for expected retirement ages than younger individuals. We enter a continuous age variable as an attempt to control for this sample selection effect. The influence of time-varying components and selection can be incorporated into the model by explaining work status in each year and by expanding the sample to include respondents who are not working in wave one. Within such a framework, the model could then be refined further to control for individual heterogeneity and self selection regarding thinking about retirement (see Benitez-Silva and Dwyer, 2003). Also, although our specification addresses the

issue of spousal influences by including household-level pension and financial variables, the model could be enhanced by estimating a system of equations in which spouses jointly determine the retirement decision (see Coile, 2003). Again, while these approaches might enhance the model, we believe the issue at hand is not subtle. While the magnitude of the coefficients may have changed somewhat, the influence of pension type on the retirement age was remarkably robust across various model specifications.

¹² Across all age groups, the expected retirement age for those who have not yet retired is 62.8 years for men and 63.2 years for women (Moore, 2003).

¹³ A small fraction (less than two percent) of respondents in our sample indicated having a pension plan with both defined benefit and defined contribution characteristics. Data on defined contribution assets in these "combined" plans were often not available, so we group together defined benefit and "combined" pension plans. This approach is similar to Gustman and Steinmeier (1999).

CENTER FOR RETIREMENT RESEARCH

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About the Center

The Center for Retirement Research at Boston College, part of a consortium that includes a parallel center at the University of Michigan, was established in 1998 through a 5-year grant from the Social Security Administration. The goals of the Center are to promote research on retirement issues, to transmit new findings to the policy community and the public, to help train new scholars, and to broaden access to valuable data sources. Through these initiatives, the Center hopes to forge a strong link between the academic and policy communities around an issue of critical importance to the nation's future.

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Massachusetts Institute of Technology
Syracuse University
The Brookings Institution
Urban Institute

Contact Information

Center for Retirement Research
Boston College
Fulton Hall 550
Chestnut Hill, MA 02467-3808
Phone: (617) 552-1762
Fax: (617) 552-1750
E-mail: crr@bc.edu
Website: <http://www.bc.edu/crr>

All of our publications are available on our website:

www.bc.edu/crr

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