

The Impact of Pension Plan Type on Expected Retirement Age

*A Study Using The
Retirement Confidence Survey of
College and University Faculty*

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1. Introduction

The *Retirement Confidence Survey of College and University Faculty* represents a distinctive opportunity to examine the relative use of defined contribution (DC) plans and defined benefit (DB) plans across institutions and individuals. The widespread replacement of DB plans by DC plans over the past few decades has transferred much of the retirement savings risk from the institution to the individual, particularly in the private sector.^{1,2} This change has likely influenced savings behavior, retirement planning, and confidence regarding “lifestyle maintenance” in retirement. While this particular survey examines the responses of college and university faculty, its findings can probably be extended to those working in the non-academic sector.

Both DB and DC plans are represented across academic institutions, with a substantial fraction of universities offering a choice between plans.³ Since faculty members with a choice between plans choose the plan that gives them the highest welfare, analyzing determinants of plan choice can improve policymakers’ understanding on how the transition from DB to DC pension plans has impacted workers. This paper finds evidence of a demand for defined benefit retirement assets, which is relevant to the policy debate regarding the future of Social Security.

The end of mandatory retirement in 1994 has increased attention to the age composition of faculty. The impact of pension plan type on retirement age is something that college and university administrators need to take into account when forecasting the age distribution of faculty at their institution. This paper attributes the effect of pension plan type on expected retirement age to the different retirement incentives inherent in DB and DC plans. This requires the assumption that the type of pension plan offered by an institution is not a primary determinant of a faculty-institution pairing. For the fraction of faculty members offered a choice between enrolling in either a DC or a DB plan, this assumption is no longer valid because these individuals incorporate their retirement expectations – namely their preference for work – when choosing between the two plan

¹ According to the 2004 National Compensation Survey of private industry employees, 21% of workers have access to a DB plan, while 53% have access to a DC plan (*National Compensation Survey 2004, Table 1*).

² In 2004, 11% of the Fortune 1000 companies sponsoring a DB plan froze or terminated their plan, which is up from 7% in 2003.

³ The Survey of Changes in Faculty Retirement Policies (Ehrenberg, 2003) reports that 41.2% of institutions offer only a DC plan, 15.3% offer only a DB plan, and nearly 36% offer a choice.

types. Hence the impact of pension plan type on expected retirement age will depend upon a combination of incentives and preferences for those faculty offered a choice between plans. By comparing the expected retirement ages of individuals with a choice between retirement plans to those without a choice, this paper attempts to quantify the effect of faculty preferences versus plan incentives on expected retirement age.

Holding other factors constant, this study finds that individuals in DC-only plans expect to retire nearly a year later on average relative to those in a plan with a DB component.⁴ Women expect to retire at a younger age than men, as do faculty with a bachelor or master's degree relative to those with doctorates or professional degrees. Those who are financially literate and those with manageable levels of debt also expect to retire earlier. As for institutional characteristics, faculty at institutions that offer retirees health insurance expect to retire earlier than those at institutions without this insurance. Faculty members at private institutions have a later expected retirement date, while the distinction between two- and four-year colleges, as well as the conferral of graduate degrees, do not appear to be relevant.

Those faculty who chose to enroll in a DB plan when presented with a choice between plans expect to retire earlier than those enrolled in a DB plan when not presented with a choice. The impact due to preferences is equal in magnitude to that due to plan incentives: a reduction in expected retirement age by 10 months. The impact of preferences appears to be asymmetric with respect to plan choice since the expected retirement age of those choosing a DC plan when both plans were offered does not differ from those enrolled in a DC plan without a choice between plans. Hence, the additional role of preferences is stronger among those choosing DB plans – those choosing a DB plan reveal a preference for additional leisure.

The next two sections of the paper discuss previous results in the literature on the impact of the end of mandatory retirement on college and university retirement policies, followed by previous research on pension plan choice. Section 4 describes the data used in the analysis, while Section 5 provides results and Section 6 concludes the analysis.

⁴ Roughly a third of plan participants in the TIAA-CREF survey participate in a combined DB/DC plan (Author's calculations)

2. End of Mandatory Retirement

Analyzing the relationship between plan type and the timing of retirement has become increasingly important to academic institutions because the end of mandatory retirement has left the timing of retirement up to the individual. The relationship is also important outside of academia since terminating employment has become more difficult due to anti-discrimination statutes and the influence of collective bargaining contracts (Pencavel, 2005). Due to the large number of new faculty hired in the 1960s and 1970s, as well as low separation rates and the end of mandatory retirement, the age distribution of faculty at colleges and universities has become skewed toward older ages (Clark, 2005). As pointed out by Clark, 31 percent of faculty members were 55 years old or older in 1998 as opposed to 25 percent in 1987. The end of mandatory retirement in 1994 changed the relationship between faculty members and academic institutions: previously, tenured faculty members enjoyed job security and academic freedom in exchange for the institution's right to end the employment relationship at age 70. Since the end of mandatory retirement, there has been a marked decrease in retirement rates among faculty at or approaching age 70. Ashenfelter and Card (2002) report a drop in retirement rates for faculty at age 70 from 75.6 percent between 1987 and 1993 to 29.1 percent between 1994 and 1996. Clark and Ghent (2004) also found a sharp decrease in retirement probabilities among faculty in the University of North Carolina system at age 70. It appears that mandatory retirement did constrain the retirement behavior of faculty members.

Because retirement opens new faculty positions, Clark calls for the "need for orderly retirement of older professors and the hiring of appropriate replacements" (2005). Opening up these positions allows college and university administrators to reallocate faculty across departments to respond to changes in student demand, bring new ideas into the department, and an opportunity to reduce labor costs by replacing faculty positions with non-tenured professorships or part-time positions. He notes that this assumes the costs of retaining older faculty – such as higher labor costs and limited promotional and hiring opportunities for younger faculty – outweigh the benefits of their teaching and researching abilities. Hence, the decision to encourage retirement of older faculty depends on the needs of the particular college or university (Clark, 2005).

With the end of mandatory retirement, colleges and universities have used other means to provide faculty with incentives to relinquish tenure. These include phased retirement programs in which faculty members resign their full-time positions – often relinquishing tenure – in exchange for the right to work half-time at half-salary for a given number of years (Allen, 2005). In general, phased retirement refers to any formal program that smoothes the transition from full-time employment to complete retirement from the academic institution. Ehrenberg (2003) reports that 27 percent of institutions responding to the *Survey of Changes in Faculty Retirement Policies* conducted in 2000 indicate the existence of a phased retirement program.⁵

While phased retirement is designed to ease faculty members into retirement, institutions have also used buyout programs to abruptly reduce the number of faculty, typically in response to budget shortfalls. Buyouts usually specify a time window during which these incentives are valid, as well as a restriction on age. They can take the form of lump-sum payments or an augmentation of pension benefits in the case that a DB pension is offered by the academic institution. Ehrenberg (2003) finds that 35 percent of colleges and universities offered buyouts since 1995.

Besides using explicit retirement incentives through buyouts or phased retirement programs, DC and DB pension plans create differing retirement incentives as a result of disparate benefit accruals. DC plans are basically age-neutral with respect to retirement. With one more year of service, the value of a DC plan increases due to three factors: 1) an additional year of contributions; 2) an additional year of market return on previous contributions; and, if an annuity is purchased, 3) larger annual payments due to a shorter remaining lifespan. In contrast to DC plans, benefits distributed through DB plans are formulaic: typically the plan multiplies years of service by an average of final years' salaries (FAS) and then multiplies this product by some factor, typically between 1 and 2 percent, to obtain the annual benefit for a single-life annuity.⁶ If one retires before the plan's normal retirement age, benefits are reduced to take into account the additional years

⁵ This survey was a joint effort by the American Association of University Professors, the TIAA-CREF Institute, the American Council of Education, the College and University Professional Association for Human Resources, the National Association of College and University Business Officers, and Cornell University.

⁶ Final Year Salary (FAS) typically is an average of the salaries over the final 3 to 5 years of service, but could be as simple as taking the final year salary.

in retirement. Assuming one has reached the normal retirement age, an increase in the yearly benefit amount from postponing retirement one year could come from two sources: 1) an increase in FAS by replacing a lower salary with a higher salary or 2) one more year of service in the benefit formula. For those retiring after the plan's normal retirement age, the annual benefit paid is *not* increased to actuarially adjust for the shorter expected lifespan due to retiring at an older age. Additionally, many DB plans have a maximum benefit amount or maximum replacement rate so an increase in years of service or FAS would not increase the annual benefit paid. Hence, DB wealth typically decreases with additional years of service beyond the plan's normal retirement age, which creates an incentive to separate from the institution at this age.

Due to the differences in retirement incentives across DB and DC plans, plan type may affect whether an institution offers explicit retirement incentives, such as phased retirement or pension buyouts. It is important to note that the provision of plan types is related to institutional characteristics: public colleges and universities typically offer DB plans, while private colleges and universities offer DC plans (see Table 1). As also seen in Table 1, public universities are much more likely to offer faculty a choice between plans as well as a combination DC-DB plan.⁷

Table 1		Pension Plan Type Offered			
Institution Type	Count	DB Only	DC Only	Combination	Choice of DB or DC plan
Total	607	15.3%	41.1%	7.6%	35.9%
Public	392	20.9%	12.7%	10.9%	55.2%
Private	215	5.1%	93.0%	1.4%	0.05%

Source: Ehrenberg (2003)

Pencavel (2005) examines the factors that increase the provision of phased retirement programs and buyouts by colleges and universities using data collected by the *Survey of Changes in Faculty Retirement Policies* in 2000. His analysis recognizes the relationship between plan type and institution characteristics. He finds that institutions with only a DC plan were 24 percent more likely to have phased retirement relative to those offering a pension plan with a DB component. Research universities were 10 percent

⁷ In this sample, combination plans are typically a mandatory DB plan with a supplemental DC component to which faculty can elect to contribute (Pencavel, 2005).

more likely to have phased retirement programs and public institutions 7 percent more likely to offer these programs relative to private institutions. Similarly, he finds that since 1994 institutions that offer a DC-only plan are 13 percent more likely to present a buyout offer to its faculty since.⁸ The finding that institutions with a DC-only plan are more likely to offer phased retirement plans is consistent with administrators implementing strategies to encourage faculty to relinquish tenure because a DC plan does not create these incentives.

Allen, Clark and Ghent (2004) conducted a study of retirement behavior on faculty in the University of North Carolina (UNC) system, which instituted a phased retirement program in 1996. This program allows tenured faculty meeting a specified age-service length requirement the option of teaching half-time at half-pay for a fixed number of years in exchange for relinquishing tenure.⁹ They find that this program increased the total number of faculty in or transitioning into retirement, and that those individuals with lower ability – measured in terms of pay increases – were more likely to enter phased retirement. They also find that full and phased retirement rates were higher for faculty enrolled in the state DB plan versus those enrolled in a DC plan offered by the university. This difference could be due to the economic incentives that favor retiring once the faculty are part of the state DB plan, or due to self-selection because faculty members in the UNC system have a choice between plans. Those faculty choosing DB plans have revealed a preference for greater leisure, hence, both selection and incentives likely play a role. Decomposing the effect of incentives and selection is important for administrators as they try to design programs to encourage retirement because the majority of academic institutions do not present their faculty with a choice between plans.

3. Choice between Defined Contribution and Defined Benefit Plans

As seen in Table 1 above, nearly thirty-six percent of universities offer faculty a choice between a DB and a DC plan. Clark and Pitts (1999) is one of the few studies on

⁸ From this same logistic regression, public institutions were 18 percent less likely to offer a buyout and doctoral granting institutions were 17 percent more likely.

⁹ The fixed number of years ranges from 2 to 5 depending on the college or university within the UNC system.

retirement plan choice among employees.¹⁰ They examine the choice between a DB and DC plan among faculty in the UNC system. Since 1971, faculty employed by colleges and universities in the UNC system have had a choice between enrolling in the State DB pension plan or enrolling in one of the DC plans offered by the university. The choice is irrevocable and must be made within 30 days of hiring. Using administrative records from 1989 to 1994, the plan choices of those faculty hired before 1989 and who remained employed through 1989, as well as the choice of recent hires – those hired from 1989 to 1994 – are analyzed. They find that the value of a DB plan relative to a DC plan increases with age of hire and actual length of service¹¹, but has decreased in relative value over time. They find a high demand for DC plans: 70 percent of those faculty members who were employed by UNC at some point between 1989 and 1994 choose to enroll in a DC plan. For those faculty hired between 1989 and 1994, nearly 85 percent choose to enroll in the DC plan, which demonstrates the increase in demand for DC plans over time. The analysis of choice in this paper will be similar to that of Clark and Pitt, but the main advantage of the *Retirement Confidence Survey of College and University Faculty* is that it is not limited to faculty at one particular institution.

While the economic incentives of DB plans should increase the likelihood of retiring relative to those of DC plans, this has not been tested while controlling for whether the faculty member had a choice between plans. As mentioned, Allen, Clark, and Ghent (2004) examine retirement behavior of faculty members at UNC – faculty that have a choice between pension plan types. For faculty at UNC, preferences for leisure likely enter a faculty member’s decision about which plan to choose because the two plan types create different incentives for retirement. These data collected in the *Retirement Confidence Survey of College and University Faculty*, sponsored by TIAA-CREF, allow for an analysis of how plan incentives affect retirement expectations by looking at those faculty members who have a choice between plans. Additionally, by comparing the expected

¹⁰ Papke (2004) studies the plan selection of State of Michigan public employees, looking at which employees choose to switch from the existing DB plan to a DC plan.

¹¹ Because the value of a DB plan increases most in the final years before retirement, the value of DC plan relative to a DB plan is higher for those faculty who expect to leave the university before retirement. Clark and Pitts (1999) use actual service length, as measured in the administrative records, as a proxy for mobility expectation.

retirement age of faculty who have a choice between pension plans with those without such a choice, this paper examines how choosing a plan affects expected retirement age.

4. Retirement Confidence Survey Data and Methodology

The *Retirement Confidence Survey of College and University Faculty* collects information on retirement expectations and savings behavior of faculty in higher education. It consists of a representative sample of all college and university faculty and includes 1,307 responses, surveyed over the phone between March and May of 2005. Some information on institutional characteristics, as well as demographic information, was also collected. The purpose of this survey is to understand retirement expectations and savings of faculty in higher education better, as well as to compare the findings to those collected in the 2005 *Retirement Confidence Survey*, which polls American workers employed in all sectors and industries.

Preliminary results compiled by the TIAA-CREF Institute find that faculty are more likely to have started saving for retirement and more confident that they will have enough money in retirement relative to the general working population (see Table 2).

Table 2		
Comparing Faculty to All Working Americans		
	Faculty	All Workers
Confidence About Retirement Income Prospects		
Very Confident	35%	25%
Somewhat Confident	51%	40%
Not too Confident	11%	17%
Not at all Confident	3%	17%
Don't Know / Refused	< .5%	1%
Retirement Savings		
Have started saving for retirement	95%	69%
Currently Saving for Retirement (among those who have stated saving)	91%	91%
Tried to Calculate Amount Needed in Retirement	66%	42%

Source: Yakoboski (2005), Figures 1 and 2

Faculty are also more likely to have plan coverage relative to all working Americans: 59% of the working population report having an employer-sponsored pension plan compared with 85% of faculty respondents. While the findings in this analysis – the impact of plan

type on retirement – are relevant to academic institutions as well as to non-academic employers, one needs to keep the differences between these two groups in mind.

Table 3 below displays faculty responses to the question of what types of plans are offered by the institution, which was asked of those faculty who indicated that some type of employer-sponsored plan is offered (1148 out of 1307).

Table 3	All Faculty with an Employer-Sponsored Retirement Plan				
	Offers DB Plan to Faculty				
Offers DC Plan to Faculty		Don't Know	No	Yes	Total
	Don't Know	21	5	32	58
	No	1	12	126	139
	Yes	40	318	593	951
	Total	62	335	751	1148

For those faculty offered a pension plan, participation rate is roughly 88 percent. Table 4 gives the participation rates by the types of plans offered: DC-only, DB-only or both. If neither plan is offered – those faculty members responding “No” or “Don’t Know” to both plan types – computation of a participation rate is not applicable (NA).

Table 4	Participation Rate if Offered a Plan			
	Offers DB Plan to Faculty			
Offers DC Plan to Faculty		Don't Know	No	Yes
	Don't Know	NA	NA	81.3%
	No	NA	NA	84.9%
	Yes	77.5%	92.5%	88.0%

Because this analysis looks at the impact of plan type on retirement expectations, only the behavior of plan participants will be analyzed. Hence, faculty members who were not offered a plan, or were offered a plan but choose not to participate, will not be included in this analysis. The different combination of employer-sponsored pension plans offered to those faculty members who indicated they participate in a plan are presented in Table 5.

Table 5	Plan Participants Only				
	Offers DB Plan to Faculty				
Offers DC Plan to Faculty		Don't Know	No	Yes	Totals
	Don't Know	0	0	26	26
	No	0	0	107	107
	Yes	31	294	552	877
	Totals	31	294	685	1010

While the number of faculty who reported not knowing whether a certain type of plan is offered is reduced in Table 5 relative to Table 3, 57 plan participants did not indicate whether both types of plans were offered. This paper attempted to use institutional characteristics to determine whether the faculty member was offered one or both plans, but the final analysis eliminates those faculty respondents who cannot fully describe the options presented to them.¹²

To analyze the effect of plan type on expected retirement age as well as the determinants of plan choice, faculty are categorized by the menu of pension plans offered by the institution: 1) “No Choice” – faculty at institutions that only offer a DC, a DB, or a combined plan; and, 2) “Choice” – faculty at institutions in which a choice between a DB and a DC plan is offered. The categorization refers to whether the institution only offers one type of plan to faculty, or whether it offers a choice between a DB and a DC plan. Faculty are categorized as having “No choice” if they indicate that only one plan is offered by the institution or if they indicate that two types of plans are offered and that they participate in both plans.¹³ Those faculty members indicating that they are offered both plans, but only participate in one, are classified as faculty with “Choice”. Table 6 shows the size of the two groups, as well as how the two groups differ in terms of observable characteristics.

¹² Final sample size: 953

¹³ Those satisfying the second condition are considered in a “combined” plan. Since DB plans have started to be phased out of some academic institutions, particularly private institutions, it is possible that these faculty started in a DB plan and switched to a DC plan. However, this paper will designate them as “No Choice” since 93% of these faculty work in public institutions.

Table 6 Individual Characteristics	No Choice: n=718		Choice: n= 235	
	Mean	St. Dev.	Mean	St. Dev.
Expected Retirement Age	65.4	4.2	65.4	4.2
Years Until Expected Retirement	11.0	8.5	12.0	8.6
DC Plan	40.9%	0.490	66.8%	0.472
DB Plan	14.9%	0.356	33.2%	0.472
Combined Plan	44.2%	0.497	-	-
Instructor/Lecturer	13.6%	0.344	11.1%	0.314
Tenured Professor	76.7%	0.424	74.5%	0.437
Masters Degree or Less	26.2%	0.440	28.5%	0.452
Professional Degree	14.2%	0.350	12.8%	0.334
PHD	59.6%	0.491	58.7%	0.493
Age	54.8	8.7	53.7	8.6
Female	29.2%	0.455	29.8%	0.458
Couple	84.9%	0.358	83.3%	0.374
Soc. Sec. Coverage	84.4%	0.363	84.1%	0.366
No Debt Problems	73.6%	0.441	70.1%	0.459
Calculated Income needed in Retirement	72.5%	0.455	70.9%	0.455
HH Income:				
Less than \$50K	5.1%	0.220	5.6%	0.231
\$50K < \$75K	20.7%	0.405	24.3%	0.430
\$75K < \$100K	28.5%	0.452	23.8%	0.427
\$100K < \$150K	33.4%	0.471	34.1%	0.475
Over \$150K	12.6%	0.332	12.2%	0.327

After the categorization, 235 faculty respondents are assigned to the “Choice” group while 718 are assigned to the “No Choice”. The only way the two groups significantly differ in terms of observable individual characteristics is by the types of plan in which they participate: a larger fraction of faculty in the “Choice” group participate in a DC plan relative to a DB plan.¹⁴ Because the two groups are very similar, the assumption made by this paper that the menu of plan offerings by the institution is not a primary determinant of job choice seems reasonable.

¹⁴ Notice that there are no faculty members in the “Choice” group that participate in a *combined* plan due to the definition of how the two groups are constructed.

As for institutional characteristics (Table 7), a larger fraction of the “Choice” group are employed by public institutions, which is not surprising since nearly all institutions offering a choice are public (Erhenberg 2003).

Table 7 Institutional Characteristics	No Choice: n=718		Choice: n= 235	
	Mean	St. Dev.	Mean	St. Dev.
Retiree Health Insurance	54.2%	0.499	58.9%	0.493
Public	85.6%	0.351	97.4%	0.158
Graduate Degrees	75.9%	0.428	74.9%	0.435
Four Year	77.4%	0.418	73.2%	0.444
Region				
Northeast	18.5%	0.389	16.6%	0.373
Midwest	35.7%	0.479	18.7%	0.391
South	25.3%	0.435	40.9%	0.493
West	20.5%	0.404	23.8%	0.427

The two groups also differ in terms of geography: a larger fraction of the “No Choice” group are in institutions located in the Midwest, while a larger fraction of the “Choice” group are employed by institutions in the South.

This paper first examines determinants of plan selection for the “Choice” group. Similar to Clark and Pitts (1999), faculty members are assumed to choose the plan –DB or DC – that will give them the highest expected value. Second, this paper attempts to quantify the effect of plan incentives on expected retirement age of faculty using the “No Choice” group. Third, by comparing the expected retirement age of those faculty with a choice between plans to those without a choice, this paper attempts to differentiate the impact of choosing a plan on expected retirement age from the the effect due to plan incentives. The effect of plan type on retirement behavior is predominately the result of incentives for the “No Choice” group since faculty are assumed to choose an employer based on reputation and total compensation, not on the type of plan offered.¹⁵ Hence, the distribution of faculty preferences regarding career length is assumed to be the same across plan types, and thus any differences in expected retirement age uncovered between the plan types is attributable to the plans’ incentives. However, the impact for those in the “Choice” group is due to a combination of incentives and preferences since they were able to choose

¹⁵ For this group, plan type is treated as exogenous.

the pension plan that gave them the highest expected value, which takes into account their preferences regarding career length.

4.0 Results

4.1 Determinants of Choosing a DC plan

Faculty members, typically at public institutions, are one of the few groups of workers offered a choice between enrolling in the State DB plan or the DC plan sponsored by the university system. As noted earlier, Clark and Pitts (1999) analyze the determinants of plan choice for faculty in the UNC system, one of the public university systems that present faculty with a choice between plans. Because faculty are a group of workers who have been offered a choice for decades – the choice at UNC dates back to 1971 – determining how this choice is made could provide insight into how all workers value DB plans relative to DC plans. Examining this relative value has important policy consequences because DC plans transfer investment risk from the employer to the employee.

Table 7 lists how different individual characteristics affect the likelihood of enrolling in a DC plan when presented with a choice. Of the 235 faculty members in this group, a total of 176 were used in the final analysis due to missing values. Using a probit model, the probability of choosing a DC plan is analyzed as a function of gender, financial literacy, Social Security coverage, and age.^{16,17}

¹⁶ A probit model is estimated using maximum likelihood assuming that the error term – unobservable characteristics – is distributed standard normal.

¹⁷ This specification is preferable to ones including controls education, position, and institutional characteristics.

Table 8	Factors that Influence the Choice of a DC Plan	
	Group: "Choice"	Impact on the likelihood of choosing a DC plan, holding other characteristics constant
Age Category (relative to those age 60 or over)		
Under 45		8% more likely
45 to 49		17% more likely
50 to 54		15% more likely
55 to 59		14% more likely
Financial Literacy		
Tried to Calculate income needed in retirement		16% more likely
Covered by Social Security		
		15% more likely
Demographics		
Women		11% less likely
Married or Living with a Partner		6% less likely

Similar to the findings of Clark and Pitts (1999), younger cohorts are more likely to choose a DC plan. This could be due to a change in mobility expectations of younger workers relative to older workers, or it could be due to the widespread popularity of DC plans in the non-academic sector spilling over to the academic sector¹⁸. Interestingly, the youngest faculty members, those under 45, are more similar to members age 60 and over. This could be a reaction to the lower stock market returns in the first few years of the 21st century, which made the investment risk in DC plans transparent to workers.

As expected, those who are more financially aware – as measured by the attempt to calculate the amount of income needed in retirement – are more likely to enroll in a DC plan. Additionally, individuals seem to be diversifying their retirement assets: those faculty with Social Security coverage are 15 percent more likely to enroll in a DC plan.¹⁹ Women, who are thought to be more risk averse on average, are less likely to enroll in a DC plan. Couples are slightly less likely to enroll in a DC plan relative to a DB plan, but the result is not statistically significant.

¹⁸ Unfortunately, information on the number of years at the university was not collected in the survey making direct analysis of mobility risk infeasible.

¹⁹ While the majority of workers are covered by Social Security, 11% of faculty report not being covered, all of whom are employed at public institutions.

While much of the decision is due to unobservable differences across individuals, some patterns are worth noting. Risk aversion appears to play a role, both along gender differences and across cohorts possibly due to poor stock market performance in recent years. Those who are more financially literate are more likely to choose a DC plan, which suggests that workers enrolled in a DC plan without a choice between plans may benefit from financial education. Finally, workers prefer that a portion of their retirement assets to be in the form of a defined benefit because workers who respond that they lack Social Security coverage are more likely to enroll in a DB plan. This finding is relevant to policy discussions on the future of Social Security and the role of private accounts.

5.2 Impact of Plan Type on Expected Retirement Age

For those faculty members not presented with a choice between plans, the expected years until retirement are related to individual and institutional characteristics, as well as plan type. Table 9 shows how expected retirement varies by plan type.

Table 9	Group: "No Choice"		Expected Retirement Age		
	Average	St. Dev.	Median	Minimum	Maximum
DC Only	66.5	3.7	66	55	80
DB Only	64.9	4.9	65	55	80
Combination	64.5	4.2	65	53	80
Total	65.4	4.2	65	53	80

The aforementioned difference between a DC-only plan and a plan with a DB component – DB-only or a combined plan – shows up when taking the average expected retirement age by plan type. Of the 718 faculty members in the “No Choice” group, 57 failed to report a useable expected retirement.²⁰ Non-respondents are older, 59 compared to 54, and are less financially literate on average.

To analyze the impact of plan type on expected retirement, this paper uses multivariate regression analysis with expected retirement age as the dependent variable and plan type, individual characteristics, and institutional characteristics as independent

²⁰ Of the 57, 50 are due to refusals or don't knows, while 7 are due to an expected retirement age below current age, which does not make sense since the sample consists of faculty members who are not yet retired.

variables. Table 10 below lists the influence of each individual characteristic on expected retirement age.²¹

Table 10	Influence of Individual Factors on Expected Retirement Age	
	Group: "No Choice"	Affect of individual characteristics on Expected Retirement Age, holding other characteristics fixed
Enrolled in DC Plan		Increase by nearly 10 months
Financial Situation		
No Debt Problems		Decrease by over 13 months
Low Income: Household Income below \$75,000 (relative to Medium Income*)		Increase by nearly 11 months
High Income: Household Income above \$150,000 (relative to Medium Income*)		Increase by over 5 months
Financial Literacy		
Tried to Calculate income needed in retirement		Decrease by nearly 12 months
Education		
Masters or Bachelors Degree (relative to PHD)		Decrease by 18 months
Position		
Instructor or Lecturer (relative to Tenured Professor)		Decrease by 6 month
Assistant Professor (relative to Tenured Professor)		Increase by nearly 10 months
Demographics		
Female		Decrease by nearly 15 months
Married or Living with Partner		Increase by nearly 4 months

* Medium Income: Household income between \$75,000 and \$150,000 a year.

Faculty in a DC plan expect to retire almost a year later than those faculty enrolled in a DB plan or combined plan. Household income appears to have a “U-shape” relationship with expected retirement: households making less than \$75k a year are more likely to postpone retirement as well as households with income over \$150k relative to households making between \$75k and \$150k a year. Those with no debt problems expect to retire over a year earlier than those that indicate their debt is a minor or major financial problem. Using “attempt to calculate the amount of income required to live comfortably in retirement” as a proxy for financial literacy, those who attempted to make this calculation appear to be

²¹ Sample size is reduced to 708 due to a few missing values on the independent variables included in the analysis.

more financially “savvy”: they expect to retire nearly a year earlier than those who have not made such a calculation. An alternative interpretation of this result is that faculty who want to retire earlier might be more likely to make such a calculation. Women and faculty members without a PhD expect to retire earlier, which could be due to a weaker attachment to the labor market.

Part of the same analysis as above, Table 11 lists the influence of two institutional characteristics on expected retirement age. Those faculty employed at a private academic institution expect to postpone retirement an average of 11 months. Making a distinction between two- and four-year institutions, or between those that offer and those that do not offer graduate degrees does not appear to be meaningful and so these variables were not included in the final analysis. Those institutions that offer health insurance to retirees have faculty who expect to retire roughly 5 months earlier on average.²²

Table 11	Influence of Institutional Factors on Expected Retirement Age	
	Group: "No Choice"	Approximate Change in Expected Retirement Age
Private Institution		Increase by nearly 11 months
Institution Offers Retiree Health Insurance		Decrease by nearly 5 months

Overall, financial literacy, earnings, and pension plan incentives are related to expected retirement age. For those institutions with a DC plan, financial education is a mechanism by which institutions could indirectly influence the retirement age of faculty: financial preparedness appears to lower expected retirement age. Employers could then target wage increases to retain those faculty with the highest productivity.

5.3 Comparing the impact of incentives to that of preferences

By pooling the “Choice” and “No Choice” groups, we can analyze the impact of plan type while controlling for whether the faculty member was offered a choice between plans. In their analysis of the take-up of phased retirement at UNC, Allen, Clark, and McDermed (2004) find that faculty members who choose a DB pension plan were more

²² This association is analyzed in Beaulieu and Madrian (1994).

likely to choose phased retirement, which could reflect the incentives inherent in the DB plan or reflect a greater preference for leisure.

To analyze whether choosing a plan has an additional impact, the multivariate regression used in Section 5.2 is used – except for a change in how plan type enters the model. To look at the effect of choosing to enroll in a DC plan, a binary variable that equals 1 for those enrolled in a DC plan and a binary variable that equals 1 for who choose to enroll in a DC plan are included in the regression. Since the impact of preferences could be different depending on which type of plan is chosen, the analysis is repeated with the inclusion of a DB binary variable and a binary variable for choosing a DB plan.

This paper finds that the influence of DC plan participation on expected retirement age does not differ for those faculty members who choose to enroll in a DC plan when both plans were offered: participation in a DC plan increases expected retirement age by 10 months (Table 12).

Table 12	Influence of Choice on Expected Retirement Age	
	Both Groups	Approximate Change in Expected Retirement Age
Enrolled in DC-only Plan		Increase by over 10 months
Additional Impact of Choosing a DC plan		No Impact

However, those choosing a DB plan when both plans were offered have a lower expected retirement age relative to those participating in a DB plan when no choice between plans was offered. DB participants expect to retire 10 month earlier than those in a DC plan, and DB “choosers” expect to retire an additional 10 months earlier (Table 13).

Table 13	Influence of Choice on Expected Retirement Age	
	Both Groups	Approximate Change in Expected Retirement Age
Enrolled in a DB Plan		Decrease by over 10 months
Additional Impact of Choosing a DB plan		Decrease by over 10 months

Hence, the influence of preferences is asymmetric: for those participating in a DC plan, the impact of plan type on expected retirement age is primarily due to plan incentives, while the impact of participating in a plan with a DB component depends on whether the individual chose the plan instead of a DC plan.

6. Conclusions

This paper shows that the age-neutrality feature of DC plans with respect to pension accrual results in longer expected employment of DC participants relative to DB participants. Academic institutions that only offer a DC plan will be more likely to use phased retirement and buyout programs to encourage faculty to relinquish tenure, a process which is already underway at many such institutions (Pencavel, 2005). Women and less educated faculty expect to retire earlier, controlling for age and household income. Faculty at private institutions expect to retire roughly a year after their colleagues at public institutions. The provision of retiree health insurance shortens the expected time until retirement, which is perhaps due to Medicare eligibility not beginning until age 65.

In terms of policy implications, financial literacy appears to play an important role by both lowering expected retirement age and increasing the value of a DC plan relative to a DB plan. This suggests that helping faculty members use a DC plan could offset the postponement of retirement due to the plan's age-neutrality. Additionally, those faculty who choose to enroll in a DB when presented with a choice between a DC and DB plan have an even earlier expected retirement date than those enrolled in DB plan without a choice. This could be due to a greater preference for leisure for those faculty members choosing a DB plan. This result should be taken into account when generalizing results on faculty members who have a choice between plans. Individuals who choose to enroll in DC plans do not have different retirement age expectations from those faculty enrolled in a DC plan without a choice.

In summary, when crafting human resource policies employers need to be aware of the retirement incentives inherent in the pension plans they offer as well as the incentives provided by other programs, such as retiree health insurance. As for policymakers, financial education will play a crucial role in preparing individuals for the investment responsibility inherent in the increasingly popular DC plan.

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