

Issue Number 49

December 1996

A publication of External Affairs — Corporate Research

Pension and Health Benefits for Workers in Higher Education

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This issue of Research Dialogues examines the availability of, and participation in, pension and health benefit plans for full- and part-time workers in the United States. The focus is on higher education, but frequent comparisons are also made with other industries. The main analytical question is whether the high rate of pension participation among full-time workers in higher education is somehow unique among industries or can be explained by worker characteristics and employer factors typically associated with pension participation. The data set used for the tabular presentations and regression analysis is the April 1993 Current Population Survey.

Introduction

Participation in employer-sponsored pension and health benefit plans is widely recognized as an essential element in helping assure lifelong financial security for workers and their families. Therefore, much effort has been devoted over the years by the federal government, private benefit consultants and providers (including TIAA-CREF), and academic and other researchers to measure participation rates in pension and health benefit plans. Such measurements have been used as one of the main ways to evaluate how well private pensions and health benefit systems are functioning and to identify areas for improvement.

As part of the ongoing research, this study focuses on pension and health benefit plans in higher education, a community with which TIAA-CREF has been exclusively associated for over seventy-five years. Our data source is the April 1993 issue of the Current Population Survey (CPS), a monthly survey fielded by the federal government to measure labor market conditions for workers in all industries and sectors. Because the CPS queries workers in all industries, it enables us to compare pension availability, participation, vesting, and contribution rates for full- and part-time workers in higher education with rates for workers in all other industries.

By most measures (details are given below), the private benefit system (particularly for pensions) seems to be operating more effectively and completely in

higher education than in most other industries and sectors. One is tempted to jump to the conclusion that there must be something unique about the nexus of pensions and the higher education community.

Yet it is possible that worker characteristics and employer factors typically associated with high rates of pension participation are merely present to a greater degree in higher education than in other industries. Indeed, a simple empirical comparison of the relevant characteristics and factors across industries, based on the CPS data (see details below), leads to the more sobering thought that no special conditions hold in higher education. Therefore, in the last section of this article, we present a formal statistical model to measure how conventional characteristics and factors explain pension participation rates in general, as well as the extent to which there may be some uniqueness about higher education after all.

Past Research on Employee Benefits in Higher Education

There were six books in a series of large-scale studies by TIAA-CREF scholars on employee benefits in higher education published over the period 1940-1980, corresponding to the period of greatest growth in the extent and depth of benefit plan coverage. The first study in the series found that some 350 institutions of higher education had formal retirement plans in 1940, while there were only about 1,700 such plans in all business and industry.¹ The second in the series documented further

Table 1
Pension Availability for Full-Time Wage Workers
in Higher Education and Other Industries
by Sector

	Higher Education		All Other Industries	
	Number of Workers	Pension Is Available (Percent)	Number of Workers	Pension Is Available (Percent)
Private sector	634,292	92.2%	63,337,283	66.8%
Public sector	1,160,876	95.7%	13,325,455	93.9%
All sectors	1,795,168	94.5%	76,662,738	71.5%

Source: Based on the April 1993 Current Population Survey (CPS)

growth in retirement plan coverage in higher education over the war years through 1948. It reported that although 40 percent of U.S. colleges and universities did not have a retirement plan, the institutions without plans employed only about 15 percent of college teachers. Furthermore, the study found that life insurance coverage was provided to 44 percent of college teachers.² The third study, published in 1959, covered the accelerated pace of growth in all kinds of benefit protection through retirement, life, health, and short- and long-term disability insurance plans.³

Ten years later, the fourth book in the series again focused on the range of benefit plan coverage in four-year colleges and universities.⁴ It found that in 1969 retirement plan coverage was virtually complete, with over 99 percent of faculty and administrative personnel covered. Only a small gap in the retirement coverage of clerical/service employees remained; about 25 percent of institutions employing 5 percent of clerical/service employees did not have a plan for this group. Coverage by other types of benefit plans for the three categories of workers in colleges was nearly as impressive; coverage rates ranged from 80 to 95 percent of workers in colleges for life, health, and short-term disability insurance plans.

The fifth study focused on benefit plans in junior and community colleges, with most in the public sector.⁵ It found rates of coverage for retirement plans for two-year colleges in 1971 similar to those of four-year schools in 1969; two-year colleges had higher rates of coverage

for health and short- and long-term disability insurance plans and lower rates for life insurance plans.

The sixth study looked at higher-education employee benefits in both two-year and four-year schools in 1980.⁶ It found that most of the remaining gaps in coverage were closed; clerical/service employees were covered by retirement plans at nearly the same rate as other categories of employees, and coverage by the other types of benefit plans for the three categories of workers also improved to rates ranging from 86 to 100 percent.

The Current Population Survey

This report on employee benefits in higher education uses the April 1993 Current Population Survey as its source of information. Every month, the Census Bureau conducts the CPS on a nationally representative sample of approximately 57,000 households to gather statistics on labor market conditions, such as unemployment, labor force participation, and wages. Frequently, special supplemental questionnaires are attached to the CPS to examine other significant topics. Every five years or so, the Department of Labor and other government agencies sponsor such a supplemental survey for a large subsample of households in the CPS to collect data on the pension and health plan coverage of workers; this employee benefits survey was last done in April 1993.⁷

Since the employee benefits survey included over 27,000 full- and part-time workers aged 15 years and older, as well as the industrial classification of the

workers' employers, it is possible and statistically legitimate to use the April 1993 CPS to examine employee benefits for workers in broad industry groupings. In particular, with almost 700 workers in the survey sample employed in higher education, one can confidently use the CPS to study in some detail the characteristics of workers in higher education receiving employee benefits and to contrast them with the characteristics of workers in other industries.

Most empirical studies of employee benefits rely either on surveys of workers or on surveys of employers (plan sponsors). For example, the six studies of employee benefits in higher education cited above used employer surveys as their sources of information.

The main advantage of an employer survey is that it provides highly detailed and accurate information about benefit plan provisions. But its information is usually limited to lists of plan provisions and lacks any interaction with data describing the characteristics of the plan sponsor's workforce.

By contrast, the main advantage to worker surveys is that they offer important and basic socioeconomic information about the worker and his or her household, such as education, marital status, household income, etc., that is not usually available from employer surveys. Furthermore, worker surveys typically enable researchers to study the impact of basic benefit plan provisions, such as eligibility and vesting requirements, on actual populations. Unfortunately, the valuable additional information found in worker surveys sometimes comes at the cost of a loss in accuracy regarding many of the features of employee benefit programs, owing to the respondents' incomplete understanding of these details. If, however, when using worker surveys, the researcher focuses on broad basic questions about employee benefits, it has been demonstrated that the losses in accuracy are small.⁸

Unless otherwise stated, the tables found in this report do not use or show the "raw" numbers of individuals responding to the employee benefit supplement of the April 1993 CPS. Rather,

Table 2
Pension Participation for Workers in Higher Education and Other Industries by Work Schedule and Sector

	Higher Education		All Other Industries	
	Number of Workers	Pension Participation (Percent)	Number of Workers	Pension Participation (Percent)
Full-time wage workers				
Private sector	634,292	69.8%	63,337,283	53.4%
Public sector	1,160,876	85.2%	13,325,455	86.3%
All sectors	1,795,168	79.8%	76,662,738	59.1%
Part-time wage workers				
Private sector	442,700	15.2%	20,104,412	14.7%
Public sector	674,528	17.3%	3,436,865	47.2%
All sectors	1,117,228	16.5%	23,541,277	19.5%
Self-employed workers				
(Private sector)	Not applicable		11,994,091	12.9%

Source: Based on the April 1993 CPS

Table 3
Reasons Given for Nonparticipation in Pension by Full-Time Wage Workers in Higher Education and Other Industries (Percent)

	Higher Education	All Other Industries
Participates	79.8%	59.1%
No one of my job type is allowed	4.0%	0.8%
Don't work enough hours, weeks, or months per year	1.3%	0.7%
Haven't worked for this employer long enough	2.7%	4.3%
Too young	0.3%	0.2%
Too old	0.0%	0.0%
I choose not to contribute	3.1%	3.9%
Plan not offered or reason other than any above	8.8%	31.1%

Source: Based on the April 1993 CPS

weights are applied to the basic data, and the statistics shown are estimates of the number of workers in the U.S. labor force to whom the answers found in the CPS apply.⁹ As mentioned above, the number of households and individuals participating in the CPS is large enough to ensure that these estimates are accurate, even when we examine smaller segments of the general population. It is nevertheless reassuring that the estimates based on the CPS do correlate closely with other sources of data; for example, the estimate of full-time workers in higher education shown in Table 1 matches closely with

statistics reported by the National Center for Education Statistics for 1993.¹⁰

Pensions in Higher Education and Other Industries

Availability Table 1 compares pension availability for full-time wage workers in higher education with its availability for workers in all other industries. According to the CPS, pensions are available to almost 95 percent of workers in higher education, compared with about 72 percent of workers in other industries. Focusing on the private sector for all other industries (similar to the category of “business

and industry” in the 1940 study cited above), only 67 percent of workers have pensions available at their place of employment, almost 25 percentage points less than in the private sector of higher education. (Within the public sector, pension availability is slightly greater in higher education than in the other parts of the public sector.) As used here, the definition of pension availability is essentially the same as is used to describe coverage in the six historical studies cited above. That is, a worker indicates affirmatively that a pension is available under his employer or union if there is any sort of employer-sponsored retirement plan for any category of worker, even if the respondent worker currently does not or cannot participate in the plan.¹¹

Participation Table 2 compares pension participation for workers in higher education and all other industries. Again, for full-time wage workers, the pension participation rate in higher education, at 80 percent, is significantly higher than the rate in all other industries, at just below 60 percent. Looking at the private sector, 70 percent of workers in higher education participate in a pension plan, compared with 53 percent in all other industries. There is no significant difference across industries in the public sector. For part-time workers, however, pension participation rates are slightly higher in all other industries than in higher education; the disparity is entirely attributable to the public sector.

Insight into why participation rates are lower than availability rates is provided by Table 3, which reports the reasons survey respondents give for not participating in a pension plan. The reasons can be grouped into three categories: (1) not eligible (job type, inadequate worktime or seniority, too young); (2) individual choice (choose not to contribute); and (3) no plan offered (or other). For all other industries, the clearly dominant reason for nonparticipation is that no plan is offered, or some other unknown cause (31 percent versus 9 percent for higher education), while for higher education, lack of eligibility is a slightly more typical reason (summing up the relevant categories, 8.3 percent versus 6 percent for all other

Table 4
Pension Participation for Part-Time Wage Workers in
Higher Education and Other Industries
by Age and Education Level

	Higher Education		All Other Industries	
	Number of Workers	Pension Participation (Percent)	Number of Workers	Pension Participation (Percent)
Age				
15-34	818,602	2.7%	13,031,560	11.5%
35-44	102,770	36.8%	4,656,681	31.0%
45-54	108,025	66.1%	2,719,523	35.0%
55-64	57,874	55.4%	1,857,732	27.8%
65+	29,957	69.5%	1,275,781	13.1%
Education level				
High school or less	101,834	24.3%	12,952,408	13.8%
Some college	605,721	2.1%	6,796,053	19.3%
Bachelor's degree	216,238	22.6%	2,770,314	36.5%
Ph.D. or professional degree	193,435	50.5%	1,022,502	46.6%

Source: Based on the April 1993 CPS

Table 5
Vesting Status in Main Pension Plan of Wage Workers in
Higher Education and Other Industries
by Work Schedule and Sector
(Percent)

	Higher Education	All Other Industries
Full-time wage workers		
Private sector	61.4%	42.8%
Public sector	76.8%	75.8%
All sectors	71.4%	48.5%
Part-time wage workers		
Private sector	11.3%	10.8%
Public sector	14.0%	39.1%
All sectors	12.9%	14.9%

Source: Based on the April 1993 CPS

industries). It should be noted that we classify a worker as having a full-time work schedule if he states that he works at least thirty-two hours a week and at least forty weeks a year.

One simple (and rather obvious) reason why participation rates for part-time workers are somewhat lower in higher education than in all other industries is shown in Table 4. In higher education, the majority of part-time workers are young individuals with some college or a bachelor's degree. In other words, they tend to be undergraduate and graduate

students. About 73 percent of the part-time workers in higher education are under age 35 (with a pension participation rate of 3 percent), compared with 55 percent in all other industries (with a pension participation rate of 11 percent). According to the CPS (statistics shown in Table 10), more than 60 percent of part-time workers in higher education are students, compared with less than 20 percent in all other industries. Federal law doesn't require employers who offer pension plans to cover workers below age 21. It also doesn't require institu-

tions of higher education to provide pension coverage for full-time students employed by the institution, even if the students are older than 21. For part-time workers 45 years or older or those with a Ph.D. or professional degree, participation rates are again higher in higher education (ranging from 51 to 70 percent, depending on the group) than in all other industries (ranging from 13 to 47 percent).

Pension Plan Vesting A participant's benefits become vested at the time he or she gains the right to receive the benefits in the future even if employment has terminated. Federal law requires that, except for certain types of union plans and for public plans, a participant must be fully vested in the plan within five years or partially vested by the third year and fully vested by the seventh year. Individual employers can, of course, be more generous than federal law requirements.

Table 5 reports on the vesting status of wage workers in their employer's main pension plan. (Some large employers offer two or more pension plans to their employees, typically a defined benefit or money purchase plan as the main plan and a salary-reduction plan as a supplementary plan.) Over 70 percent of full-time workers in higher education are vested in a main pension plan, compared with less than 50 percent in all other industries. Across all industries, public sector workers have higher vesting rates than workers in the private sector, presumably because job turnover rates are lower in the public sector; according to the CPS (statistics not shown in table), workers in the public sector have a mean tenure with their employer of 11 1/2 years, compared with 8 1/2 years, in the private sector.¹² The higher vesting rates in higher education may reflect the continuing tradition among many plan sponsors, particularly in the private sector, that pension benefits are immediately and fully vested upon the beginning of participation in the plan.

Contribution Rates Beyond the basics of pension plan availability, participation, and vesting, the ultimate worth of a plan

Table 6
Employee Contribution and Employer Match Rates among
Full-Time Workers in Higher Education and Other Industries
That Use a Salary Reduction Plan as Their Main Plan
(Percent)

<u>Employee Contribution Rate</u>	<u>Higher Education</u>	<u>Other Industries</u>
No contribution	1.5%	0.9%
1% - 4%	14.9%	20.8%
5%	20.4%	14.9%
6% - 9%	20.8%	20.7%
10%	6.4%	11.7%
11% - 14%	4.4%	3.3%
15%	1.5%	3.3%
16% +	7.9%	3.0%
Don't know	21.7%	21.0%
Refused	1.0%	2.1%

<u>Employee-Reported Employer Match Rate</u>	<u>Higher Education</u>	<u>Other Industries</u>
Employer does not contribute	19.2%	17.1%
1% - 10%	7.3%	6.9%
11% - 25%	0.7%	5.1%
26% - 49%	1.6%	3.7%
50%	2.3%	13.2%
51% - 99%	0.0%	2.8%
100%	20.5%	13.9%
101% - 150%	6.4%	0.4%
151% +	6.4%	1.0%
Contributes something, but don't know how much	13.0%	10.0%
Contribution rate varies	5.8%	8.6%
Don't know	16.8%	17.3%

Source: Based on the April 1993 CPS

Table 7
Availability of Employer-Sponsored Health Plans for Full-Time
Wage Workers in Higher Education and Other Industries
(Percent)

	<u>Higher Education</u>	<u>All Other Industries</u>
Private sector	96.5%	83.0%
Public sector	98.9%	97.3%
All sectors	98.1%	85.5%

Source: Based on the April 1993 CPS

efits across types and earning levels of workers. Indeed, this question, posed within the setting of individual workplaces, is the subject of the complex and arcane set of federal pension rules known as nondiscrimination requirements, which apply to pension plans in the private sector. Therefore, it would be helpful to know more about the level of benefits actually received by different types of workers in various industries.

As explained above, an employee survey is not the ideal instrument to use to study these questions, as workers typically do not have the detailed knowledge of plan provisions needed for a valid analysis. Furthermore, considering the myriad of actual plan provisions and the complexity of their interactions with actual labor market conditions and behaviors, a researcher would need a data set with tens of thousands of observations over a period of several years to address the subject adequately. It is possible, however, to gain *some* insight into the nature of retirement benefits provided by focusing on relatively simple plans and on those workers who are more likely to understand their plan provisions. Table 6 therefore shows the employee contribution rates and the employer match rates for the pensions of full-time workers who view a salary-reduction defined contribution plan (401(k), 403(b), or 457) as their main pension plan.

As shown in Table 6, workers in higher education make somewhat larger employee contributions, as a percent of salary, than those in all other industries. For example, 8 percent of full-time workers in higher education contribute 16 percent or more of salary to their pension plan, compared with only 3 percent of workers in all other industries making large contributions. Furthermore, the employer match rate is higher for workers in higher education. For example, 6 percent of workers in higher education received a match of 150 percent, compared with only 1 percent of workers in all other industries. For those survey respondents who gave a numerical response (statistics not shown in table), the mean match rate is 103 percent in higher education, compared with 64 percent in all other industries.

to a worker in achieving retirement security largely depends on the level and nature of benefits earned and provided over the lifetime of the worker. The magnitude of benefits is also important to the

question raised by some pension-rights advocates and public policymakers within the Treasury Department and the Internal Revenue Service about the fairness of the distribution of retirement ben-

Table 8
Participation in Employer-Sponsored Health Plans for
Full-Time Wage Workers in Higher Education and Other Industries
(Percent)

	<u>Higher Education</u>	<u>All Other Industries</u>
Private sector	78.2%	70.4%
Public sector	88.3%	88.0%
All sectors	84.7%	73.5%

Source: Based on the April 1993 CPS

Table 9
Expected Health Benefit Coverage in Retirement for Full-Time
Wage Workers in Higher Education and Other Industries
(Percent)

	<u>Higher Education</u>	<u>All Other Industries</u>
Private sector	40.9%	30.9%
Public sector	50.6%	51.3%
All sectors	47.3%	35.6%

Source: Based on the April 1993 CPS

Note: Question was posed only to those workers age 45 and older.

tries. Based on the information found in the CPS, it can therefore be surmised that workers in higher education generally have higher retirement contribution rates than workers in other industries.¹³

Health Benefits in Higher Education and Other Industries

Availability and Participation during Working Years The CPS also inquired about the availability of employer-sponsored health plans. Table 7 (see page 5) compares availability rates for full-time workers in higher education and all other industries. Again, regardless of sector, institutions of higher education have more availability of health benefit plans (indeed, almost universal at 98 percent) than companies and organizations in all other industries (about 86 percent).

Actual participation rates in these plans are shown in Table 8. Because of eligibility considerations, individual choice (often motivated by the availability of a working spouse's health plan), and other nonspecified reasons, worker participation rates in the employer's health plans uniformly fall below availability rates. Nevertheless, across all sectors, at almost

85 percent, a greater percentage of workers in higher education participate in their employers' health plans than workers in other industries (74 percent). One notes, however, that for health benefit plans in the private sector, the extent of superiority of participation rates in higher education (78 percent), compared with those in all other industries (70 percent), is less than the comparable superiority of its workers' pension plan participation (70 percent versus 53 percent—see Table 2).

Expected Coverage during Retirement Finally, the CPS asked workers age 45 and older whether they could expect to have coverage under an employer-sponsored health plan available to them at retirement. (The question was to be answered in the affirmative regardless of whether the worker knew if the employer was making any contributions to pay for plan coverage.) Table 9 compares the answers to this question from full-time workers in the public and private sectors of higher education with those from workers in other industries. About 47 percent of the workers in higher education expect retiree health insurance coverage, compared with 36 percent of workers

in other industries. Expected coverage is highest in the public sector for all industries, at just over half of all workers.¹⁴

Conventional Characteristics and Factors Associated with Pension Participation

As the data presented above amply demonstrate, workers in higher education have historically had and continue to have more pension and other benefit plan availability and more extensive participation than workers in other industries. The next research question, therefore, becomes why. Are workers in higher education, because of their background and socioeconomic characteristics, per se, more likely to demand employee benefits as part of their compensation package? Alternatively or additionally, are institutions of higher education more likely to offer employee benefits? And is that because of conventional economic factors generally associated with employer provision of benefit plans, such as size and sector, which are in turn associated with variations in administrative and regulatory costs per participant? Or does the phenomenon reflect something unique about institutions of higher education and their framework for conducting business that makes them more likely to offer employee benefits to their workers independently of conventional worker characteristics and employer factors associated with benefit provision?

These questions are more formally investigated by regression analysis, using the CPS data base, in the following section. But before we analyze whether there is any special relationship between higher education and employee benefits, it is helpful (1) to review briefly the academic literature about the general relationship between employee benefit (specifically pension) participation and various worker characteristics and employer factors, and (2) to present a short statistical summary, based on the CPS, of some of those characteristics and factors, comparing workers in higher education and all other industries.

Literature Review Using data from earlier employee benefit supplements to the CPS, researchers have discovered several

Table 10
Worker Characteristics in Higher Education
and Other Industries

(Percent of workers by work schedule and industry, unless otherwise indicated)

	Full-Time Workers		Part-Time Workers	
	Higher Education	All Other Industries	Higher Education	All Other Industries
Men	47.6%	56.3%	42.4%	38.2%
Women	52.4%	43.7%	57.6%	61.8%
Union membership	18.2%	18.6%	5.7%	8.1%
Students	3.0%	1.2%	60.1%	18.8%
Age				
15-34	24.8%	40.8%	73.3%	55.4%
35-44	32.5%	29.5%	9.2%	19.8%
45-54	28.1%	19.5%	9.7%	11.6%
55-64	13.0%	9.1%	5.2%	7.9%
65 +	1.6%	1.1%	2.7%	5.4%
Education level				
High school or less	16.7%	45.7%	9.1%	55.0%
Some college	18.6%	28.4%	54.2%	28.9%
Bachelor's degree	19.9%	17.8%	19.4%	11.8%
Ph.D. or professional degree	44.8%	8.1%	17.3%	4.3%
Annual income (1992)				
Less than \$10,000	7.2%	14.0%	57.5%	55.8%
\$10,000 - \$20,000	19.6%	24.8%	23.1%	24.0%
\$20,001 - \$30,000	26.2%	23.4%	7.6%	10.7%
\$30,001 - \$50,000	29.1%	26.1%	7.2%	7.1%
More than \$50,000	17.8%	11.6%	4.6%	2.4%
Median 1992 income ¹	\$31,105	\$25,043	\$7,965	\$9,245
Median 1992 earnings	\$28,765	\$23,194	\$3,794	\$6,320

Source: Based on the April 1993 CPS

¹Income is top-coded in the CPS at \$100,000.

ticipate in a pension plan. Compared with part-time workers in all other industries, workers in higher education are more likely to be men, students (as mentioned earlier), younger, better educated, and with lower wage earnings and lower annual incomes. But they are less likely to be union members. Except for the level of formal education, these characteristics cause part-time workers in higher education to be less likely to participate in a pension plan.

Employer Factors in Higher Education and Other Industries Table 11 shows employer factors for workers in higher education and other industries. Workers (both full-time and part-time) in higher education are more likely to be employed in the public sector and by large organizations (more than 250 employees) than workers in all other industries. These factors also make workers in higher education more likely to participate in a pension plan. By contrast, more than 30 percent of full-time workers and 50 percent of part-time workers in other industries work for very small employers (fewer than 50 employees), where pension plan availability and participation are generally low.

Is Pension Participation Unique among Workers in Higher Education?

The above statistics give the impression that perhaps the main factors determining why full-time workers in higher education are more likely to participate in a pension plan are their own characteristics (leading to higher demand) and the factors characterizing their employers (leading to lower costs in supply). (The statistics on worker characteristics and employer factors for part-time workers in higher education seem to be more neutral.) Is there any information suggesting that pension participation among workers in higher education is special? We attempt to answer this question through regression analysis. In particular, with pension participation as the dependent variable and measures of the conventional worker characteristics and employer factors as the independent variables, does an independent variable identifying the worker's employer as an institution of higher education make pension participa-

well-specified relationships between worker characteristics and pension participation in the private sector.¹⁵ (Pension participation in the public sector is apparently not formally studied because it is widespread.) Workers in smaller firms (usually defined as firms with fewer than 100 employees) are significantly less likely to be covered by a pension than workers in large companies or organizations. Among those who are more likely to have a pension are union members, workers with higher wage rates or more formal education, married workers, women, professionals, clerical workers, and those in manufacturing industries, as well as those who are older, or with longer job tenure.

Characteristics of Workers in Higher Education and Other Industries Table 10, again based on the CPS, shows most of the worker characteristics identified with pension participation in the literature cited above. As in preceding tables, workers in higher education and other industries are shown separately. Compared with full-time workers in all other industries, workers in higher education are more likely to be women, students, older, better educated, and with higher wage earnings and higher annual income. They are about as likely to be union members. Except for student status, these characteristics cause workers in higher education to be more likely to par-

Table 11
Employer Factors in Higher Education and Other Industries
(Percent of workers by work schedule, industry, and sector)

	Full-Time Workers				Part-Time Workers			
	Higher Education		All Other Industries		Higher Education		All Other Industries	
Private sector	35.3%		82.6%		39.6%		85.4%	
Public sector	64.7%		17.4%		60.4%		14.6%	
	Private Sector	Public Sector	Private Sector	Public Sector	Private Sector	Public Sector	Private Sector	Public Sector
Size of employer								
Don't know	7%	1%	2%	1%	14%	7%	5%	4%
1-49 workers	7%	2%	31%	9%	3%	3%	50%	15%
50-99 workers	2%	2%	9%	6%	5%	1%	6%	7%
100-249 workers	9%	5%	6%	4%	20%	6%	4%	6%
250+ workers	75%	90%	52%	80%	58%	83%	36%	67%

Source: Based on the April 1993 CPS

tion for the worker more likely? If so, by how much?

The regression equations are estimated on the unweighted CPS sample containing all workers in the private sector who are not students or employed in agriculture and who answered the relevant questions completely. Separate equations are estimated for full- and part-time workers. The particular regression formulation we use is a probit regression, which is a non-linear statistical technique that yields unbiased coefficients when the dependent variable (here, pension participation) takes on values of 1 and 0. The probit technique is commonly used in the academic literature on this subject and in other social science investigations.

The results of the regression analysis for full-time workers in the private sector are presented in Table 12. Because many of the independent variables in the regression are categorical (that is, one of two or more discrete possibilities), a base case is implicit in the regression. In particular, the results are to be interpreted relative to an unmarried female mechanical worker, aged 35 through 44, at a large company in the manufacturing industry, not a union member, with an educational level of high school or less.

The model seems to be well specified. The participation rate predicted by the model, when all independent variables are

set at their median values, is 55 percent, compared with an actual participation rate of 56 percent for the sample of workers used in the estimation. (Recall that in the population statistics reported in Table 2, the participation rate for the private sector was 53 percent.) Furthermore, the results for individual variables are consistent with those of the literature cited in the previous section. For example, the probability of a full-time worker's participating in a pension plan increases with (the log of) earnings, and with the length of job tenure. Union membership is a particularly important (and statistically significant) positive factor in pension participation; working at a small company or being under age 21 are important (and statistically significant) negative factors. Also, the coefficients on the industry variables show that working in construction, transportation, retail trade, or services significantly lowers the likelihood of participating in a pension.

The coefficient on the higher education variable is positive and statistically significant at the 90 percent level. Hence, we have found that *working full-time in higher education, per se, leads to a greater likelihood of participating in a pension plan.*

But what is the extent of the uniqueness of the nexus between pensions and higher education, that is, what is its *eco-*

*nomi*c significance? To measure this effect, we calculate the difference between the participation rate predicted by the model evaluated for the median worker in the labor force if he or she were to be employed by a company that acted as if it were an institution of higher education and the participation rate predicted by the model evaluated for the median worker whose work is divided among various industries in the proportions actually observed for the total full-time private labor force. As shown at the bottom of Table 12, the difference is 64 percent less 55 percent, that is, 9 percent! Thus, we have found that *working full-time in higher education, per se, leads to an increase in the pension participation rate of 9 percentage points.* Because the actual difference between participation rates in the private sectors of higher education and all other private industries is 17 percent (see Table 2), we see that most of the difference is not due to worker characteristics and employer factors, but to something unique about pensions and higher education.

The regression results for part-time workers are shown in Table 13. The model seriously underestimates the participation rate, and relatively few of the variables are statistically significant. Except for services, none of the coefficients for the industry variables are statistically significant. Neither is the coefficient on the higher education vari-

Table 12
Probit Regression Analysis of Pension Participation among
Full-Time Workers in the Private Sector

Variable	Coefficient	Mean	Median ¹
Higher education	0.245***	0.010	
Worker characteristics			
Log of earnings	0.553*	9.991	10.073
Tenure with employer	0.056*	7.705	5.000
Union membership	0.409*	0.130	
Male	-0.171*	0.567	
Married	0.083*	0.643	
Some college	0.130*	0.281	
Bachelor's degree	0.138*	0.171	
Professional degree or Ph.D.	0.183*	0.064	
Age			
15-20	-0.407*	0.019	
21-34	-0.027*	0.376	
45-54	0.061	0.166	
55-64	-0.160*	0.075	
65+	-0.257**	0.011	
Occupation			
Professional	0.070***	0.261	
Sales and support	0.175*	0.165	
Service	0.255*	0.092	
Employer factors			
Size			
1-49 workers	-1.060*	0.312	
50-99 workers	-0.512*	0.085	
100-249 workers	-0.351*	0.062	
Industry			
Mining	0.154	0.012	
Construction	-0.215*	0.050	
Transportation	-0.218*	0.083	
Wholesale trade	0.045	0.056	
Retail trade	-0.376*	0.160	
Finance	0.050	0.089	
Services	-0.250*	0.281	
Intercept	-5.267*	1.000	
Number of observations:	12,687		
Log likelihood at maximum:	-5,932		
Actual participation rate:	56.3%		
Predicted participation rate (based on medians)			
Higher education = 0:	54.9%		
Higher education = 1:	64.3%		
Net effect of higher education	9.4%		

Source: Based on the April 1993 CPS

¹Median is reported only when it differs from the mean.

* Significant at the 1% level.

** Significant at the 5% level.

*** Significant at the 10% level.

able. Therefore, based on the evidence presented here, there is no reason to believe that working part-time in higher education, per se, has a negative influence on the pension participation rate.

Conclusion

In this article we have used data from the 1993 Current Population Survey to describe quantitatively the demographic characteristics of workers in higher education. We believe this is the first attempt to use worker-based survey data to assess the demographic composition of the higher education workforce in detail. Also, we believe this to be the first attempt to associate the demographic features of members of the higher education workforce with their pension coverage and rate of participation at colleges and universities.

The main findings of our analysis, based on the cross-tabulations of the 1993 CPS, are that full-time workers in higher education are older, more educated, and have higher incomes than other members of the full-time, nonagricultural workforce. Additionally, both pension coverage and participation are significantly higher for full-time workers in higher education, especially in comparison with other industries in the private sector. We find that individuals working part-time in higher education tend to be younger and better educated than other part-time workers. But they also have lower incomes — a finding that is certainly related to the fact that part-time workers in higher education are more than three times as likely to be students. The high number of students among part-timers in higher education also contributes to the finding that pension participation rates among part-time workers in higher education are substantially lower than those measured in other industries.

In the last part of our analysis, we use the descriptive data we have collected to estimate a simple reduced-form probit model of pension participation in the private sector. Consistent with earlier work by other researchers, we find that higher earnings, greater education, more years of service, and union membership all tend

Table 13
Probit Regression Analysis of Pension Participation among
Part-Time Workers in the Private Sector

Variable	Coefficient	Mean	Median ¹
Higher education	-0.196	0.010	
Worker characteristics			
Log of earnings	0.469*	8.960	9.082
Tenure with employer	0.062*	4.530	2.000
Union membership	0.518*	0.057	
Male	-0.176**	0.346	
Married	0.162**	0.605	
Some college	0.053	0.268	
Bachelor's degree	0.152	0.135	
Professional degree or Ph.D.	0.246	0.045	
Age			
15-20	-1.002*	0.049	
21-34	-0.078	0.371	
45-54	-0.004	0.123	
55-64	-0.172	0.090	
65+	-0.695*	0.069	
Occupation			
Professional	0.099	0.171	
Sales and support	0.195**	0.167	
Service	-0.210**	0.248	
Employer factors			
Size			
1-49 workers	-0.996*	0.524	
50-99 workers	-0.524*	0.069	
100-249 workers	-0.222	0.043	
Industry			
Mining	0.463	0.005	
Construction	0.208	0.064	
Transportation	0.157	0.054	
Wholesale trade	-0.080	0.034	
Retail trade	-0.098	0.278	
Finance	-0.179	0.063	
Services	-0.247**	0.405	
Intercept	-4.987*	1.000	
Number of observations:	2,966		
Log likelihood at maximum:	-997		
Actual participation rate:	20.6%		
Predicted participation rate (based on medians)			
Higher education = 0:	9.3%		
Higher education = 1:	6.5%		
Net effect of higher education:	-2.9%		

Source: Based on the April 1993 CPS

¹Median is reported only when it differs from the mean.

* Significant at the 1% level.

** Significant at the 5% level.

*** Significant at the 10% level.

to increase the likelihood that a given worker is participating in a pension at his or her place of work.

Finally, our analysis shows that while the demographic characteristics of the full-time, higher-education workforce do account for marginally higher rates of pension participation at colleges and universities, there is still some unexplained characteristic of higher education that makes pension participation among full-time workers at colleges and universities exceptionally high.¹⁶ In contrast, we find that the significantly lower pension participation of part-time workers in higher education is well explained by the demographic characteristics of that group.

Public policy for pensions gives certain special considerations to certain sectors and employee groups, such as exemption from the nondiscrimination requirements for public and union plans and from corporate taxation for multiemployer plans. These exemptions apparently are granted on the presumption that conditions and performance, measured, perhaps, by availability, participation, vesting, and contribution rates in these areas of the private pension system, are superior and do not warrant the burden of extensive and costly sets of laws and corrective regulations. By contrast, areas where performance is poor, such as among small employers in the private sector, have been subject to the full force of regulations. We have seen that there is indeed good empirical evidence that union membership and working in the public sector are positively associated with high pension participation rates. The sense of this argument, combined with the statistical evidence shown in this report, should logically also lead to a similar gentler legal and regulatory regime as applied to pension plans in higher education. □

(This report was prepared for Research Dialogues by Mark J. Warshawsky, Manager of Pension and Economic Research, and John Ameriks, Research Associate, TIAA-CREF.)

Endnotes

- ¹ Rainard B. Robbins, *College Plans for Retirement Income* (New York: Columbia University Press, 1940).
- ² William C. Greenough, *College Retirement and Insurance Plans* (New York: Columbia University Press, 1948).
- ³ William C. Greenough and Francis P. King, *Retirement and Insurance Plans in American Colleges* (New York: Columbia University Press, 1959).
- ⁴ William C. Greenough and Francis P. King, *Benefit Plans in American Colleges* (New York: Columbia University Press, 1969).
- ⁵ Francis P. King, *Benefit Plans in Junior Colleges* (Washington, D.C.: American Association of Junior Colleges, 1970).
- ⁶ Francis P. King and Thomas J. Cook, *Benefit Plans in Higher Education* (New York: Columbia University Press, 1980). This study also examined the specific provisions and costs of the benefit plans.
- ⁷ A full presentation of the results of the supplemental benefits survey can be found in U.S. Department of Labor, Social Security Administration, U.S. Small Business Administration, and Pension Benefit Guaranty Corporation, *Pension and Health Benefits of American Workers: New Findings from the April 1993 Current Population Survey* (May 1994).
- ⁸ Professor Olivia Mitchell used the 1983 Survey of Consumer Finances, which reports pension information gathered from both workers and administrative records, to show that information provided by workers about basic plan provisions, such as the eligibility for, and the age of, normal retirement, is usually accurate. Other information, such as plan type and eligibility for early retirement, is less well understood; good information appears more prevalent among unionized workers, workers in large firms, the better-educated, higher-income workers, and those with greater seniority. See Olivia Mitchell, "Worker Knowledge of Pension Provisions," *Journal of Labor Economics* 6, no. 1 (1988): 21-39. When we looked at the CPS for information about plan type for full-time workers in the private sector of higher education, we found that a somewhat larger percentage of these workers indicated that they participated in a defined benefit plan than is indicated by other sources of information.
- ⁹ Agricultural workers, however, are excluded from the reported statistics and analyses.
- ¹⁰ A total of 1,783,510 full-time employees in higher education is reported by U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), *Fall Staff in Postsecondary Institutions, 1993* (Washington, D.C.: U.S. Government Printing Office, 1996), NCES 96-323, Table B-1a. The 1993 CPS data cited in this issue of *Research Dialogues* reports 1,795,168 total full-time employees in higher education (see Table 1).
- ¹¹ The difference between near-universal pension coverage for higher education reported in the 1980 study cited above and the availability rate of 95 percent reported here is presumably owing to the use here of a worker survey and hence to a slight loss of accuracy.
- ¹² Interestingly, the spread in mean years of job tenure between workers in the public sector and private industry also applies to workers in public and private institutions of higher education.
- ¹³ This somewhat tentative conclusion should be further qualified by the observation that a significant, albeit declining, percentage of employees in the private and public sectors are covered by defined benefit plans that can provide a relatively high level of benefits for those who have longer years of service.
- ¹⁴ A full exposition of the nature and cost of retiree health benefits provided by employers in the late 1980s and early 1990s, particularly in the private for-profit sector, can be found in Mark J. Warshawsky, *The Uncertain Promise of Retiree Health Benefits: An Evaluation of Corporate Obligations* (Washington, D.C.: American Enterprise Institute Press, 1992). Recently, following the establishment of stricter financial accounting requirements for these benefits, many private employers have reduced or eliminated retiree health benefit programs.
- ¹⁵ Robert L. Clark and Ann A. McDermed, *The Choice of Pension Plans in a Changing Regulatory Environment* (Washington, D.C.: American Enterprise Institute Press, 1990). Also, David E. Bloom and Richard B. Freeman, "The Fall in Private Pension Coverage in the U.S.," *American Economic Review* 82, no. 2 (May 1992): 539-45; William E. Even and David A. MacPherson, "Why Did Male Pension Coverage Decline in the 1980s?" *Industrial and Labor Relations Review* 47, no. 3 (April 1994): 439-53.
- ¹⁶ Among the possible candidates for the unexplained characteristic in higher education is the existence of a pension funding institution with a longstanding and exclusive tie to the higher education community, namely, TIAA-CREF. In contrast to the sometimes difficult and usually costly process that most private sector companies must undertake when setting up a pension plan, TIAA-CREF provides considerable initial and continuing assistance to institutions of higher education for their pension plans.

