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**Faculty Retirement Incentives
by Colleges and Universities**

By
John Pencavel
Stanford University

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Stanford Institute for Economic Policy Research
Stanford University
Stanford, CA 94305
(650) 725-1874

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John Pencavel

Department of Economics
Stanford University
California 94305-6072

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ABSTRACT

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The end of mandatory retirement of college and university faculty in 1994 and the increased employment of older faculty have caused these institutions to devise policies to induce their older faculty to relinquish their tenure status. What policies do colleges and universities use to affect the employment decisions of their tenured faculty? What is known about the effectiveness of these policies? This is the purpose of this paper.

Special attention is given to phased retirement programs and buyout programs. The incidence of these two programs is greater in institutions with a pension program that is of the Defined Contribution type. This is consistent with arguments suggesting that institutions with Defined Contribution pension programs are those in greater need to devise incentives for faculty to retire. Research universities are also more likely than other colleges and universities to have offered a buyout program and to have implemented a phased retirement program.

A case study is examined of the largest buyout program, the voluntary early retirement incentive programs (VERIPS) used by the University of California in the first half of the 1990s. These experiences testify that large reductions in faculty employment can be effected. However, the cost of these buyouts are very difficult to forecast even though there is little evidence of an adverse selection problem.

The costs imposed on colleges and universities by the end of mandatory retirement have been manageable and the programs to induce the retirement of older faculty have been sufficiently effective that these institutions have not been motivated to undertake more fundamental changes in the nature of tenured employment contracts in higher education. One reason for this is that the adjustments have been borne by those who are neither tenured nor on the tenure track. Increasingly, the teachers at American colleges and universities form two separate groups: the “insiders” consist of a relatively cosseted and privileged group who enjoy the entitlements of tenure and of being on the tenure track; the “outsiders” are part-time and full-time non-tenure track faculty who often have the appearance of contingent workers.

FACULTY RETIREMENT INCENTIVES BY COLLEGES AND UNIVERSITIES

John Pencavel*

I. Introduction

The ending of mandatory retirement has given tenured faculty a new job privilege.¹ Except for faculty dismissed for cause, a tenured faculty member's decision to leave a university or college is now entirely at the discretion of the faculty member. At one time, the implicit contract between a university and a professor involved tenure for a certain number of years followed by its termination at a specified age. The professor was protected from job dismissal for his views, but in return the institution was permitted unilaterally to sever its association with him at a particular age. With the end of mandatory retirement, this university-initiated severance has been ended.

Yet academic tenure was not intended to provide a guarantee of lifetime employment. In 1940, the American Association of University Professors provided a classic statement about academic freedom and tenure:²

'Institutions of higher education are conducted for the common good and not to further the interest of either the individual teacher or the institution as a whole. The common good depends upon the free search for truth and its free exposition. Academic freedom is essential to these purposes and applies

* I am most grateful to Ronald Ehrenberg for access to data collected from the *Survey of Changes in Faculty Retirement Policies* and to John W. Curtis, Director of Research at AAUP, for providing information on colleges and universities. This paper benefitted from comments from Morley Gunderson on a preliminary draft and from participants at the Three R's Conference. Niny Khor's research assistance was invaluable. [tiaacref.ppr]

¹ Mandatory retirement was rendered illegal by amendments to the Age Discrimination in Employment Act of 1986. Colleges and universities sought and won an exemption from this and were permitted to impose a retirement age of 70 years. This exemption came to an end in January 1994. Since this time, tenured faculty may or may not retire at any age.

² This can be found at <http://www.aaup.org/statements/Redbook/1940stat.htm>.

to both teaching and research.....Tenure is a means to certain ends; specifically: (1) freedom of teaching and research and of extramural activities, and (2) a sufficient degree of economic security to make the profession attractive to men and women of ability. Freedom and economic security, hence, tenure, are indispensable to the success of an institution in fulfilling its obligations to its students and to society.⁷

The argument here is that society's well-being is enhanced by protecting the employment of the scholar who expresses unpopular views. In addition, this statement perceives that guaranteed employment requires a pay policy and so it expresses the importance of adequate "economic security." The statement is silent about mandatory retirement.³

The end of mandatory retirement of college and university faculty in January 1994 has increased the employment of older faculty. In a comprehensive analysis of institutions whose faculty participate in TIAA-CREF, Ashenfelter and Card (2002) reported that, whereas the retirement rate of 70 year old faculty was about 75 percent prior to the lifting of mandatory retirement, this fell to below 30 percent in the two years from 1994 to 1996. These changes were similar across different types of colleges and universities and across disciplines. Similarly, Clark, Ghent, and Kreps (2001) report that, at the three North Carolina research universities, retirement rates of tenured faculty aged 69 years dropped from 61 percent in the years 1988-92 to 38 percent after the elimination of mandatory retirement while those aged 70 years fell from 77 percent to 13 percent.

With the end of mandatory retirement in academia and the rise in employment of older faculty, colleges and universities have resorted to other means to induce employment separations. The purpose of this paper is to review these other means and to consider how else universities may be

³ For a more recent assessment of the issues regarding tenure, see McPherson and Schapiro (1999).

expected to respond to the changes resulting from the end of mandatory retirement. Though the literature sometimes portrays universities' policies to induce employment separations as if they are distinctive to academia, in fact there are many examples from other types of labor markets of employers devising procedures that respond to constraints placed on their ability to terminate the employment of workers.

In labor markets in general, though employment-at-will was once the prevailing doctrine in this country governing employer behavior with respect to employment separations, it has now been eroded to such an extent that a large part of the personnel or human relations departments of many businesses are devoted to specifying and implementing policies to facilitate the dismissal and layoff of employees. Various pieces of statute (such as the 1935 National Labor Relations Act, Title VII of the 1964 Civil Rights Act, and the 1990 Americans with Disabilities Act) have placed constraints on the behavior of employers with respect to the separation of their employees. Furthermore, decisions in state courts have recognized exceptions to the employment-at-will rule.⁴ Most collective bargaining contracts in this country require managements to go through explicit procedures to end the employment of any worker covered by these contracts and sometimes there are mandatory severance payments that the employer must pay the terminated worker. What operates for unionized workers in this country obtains for a large number of workers - unionized or not - in many countries of the world. Seen in this light, the constraints implied by the end of mandatory retirement on universities provide just another example of a set of policies that restrict what employers may do to terminate the employment of employees.

What policies do colleges and universities now use to affect the employment decisions of their

⁴ For instance, see the discussion in Dertouzos and Karoly (1992).

tenured faculty? And what do we know about the relative effectiveness of these policies? This paper takes up these questions by exploiting two bodies of data. The first consists of the data collected from the *Survey of Changes in Faculty Retirement Policies* conducted by Ronald Ehrenberg and his colleagues at Cornell University.⁵ The survey was conducted in August and September 2000 and it collected information from 608 institutions. I augment this useful survey with information on these institutions kindly provided by the American Association of University Professors.

In addition, I draw upon the administrative data taken from the faculty payroll and benefits offices at the University of California (UC). In the early 1990s, the UC system engaged in the largest “buyouts” (voluntary severance payments) of any academic institution in history. Why were these buyout programs instituted, how did they operate, and what was their effect? What may be learned from these buyouts about the appeal of buyout programs as mechanisms to effect the employment of tenured faculty?

I shall argue in this paper that the employment problems presented to colleges and universities resemble those faced by employers in other labor markets and the phased retirement programs and buyouts that have become common in higher education have been used by other types of employers too. Buyouts seem to have special appeal to colleges and universities because they hold the prospect of effecting a cut in payrolls and of changing the demographic structure of the faculty quickly. However, forecasting the consequences of buyouts is difficult to determine with any confidence

⁵ This survey was a collaborative effort involving the American Association of University Professors, the TIAA-CREF Institute, the American Council of Education (ACE), the College and University Professional Association for Human Resources (CUPA-HR), the National Association of College and University Business Officers (NACUBO), and Cornell University. Of 1,382 institutions that were surveyed, 608 provided useful replies. The response rate was higher for Doctoral institutions especially those in the Public sector. See Ronald G. Ehrenberg (2003).

especially when faculty speculate that an “unsuccessful” buyout now may be followed by a more generous buyout in the future. In an environment of volatile expectations, buyouts may not yield the outcomes that university administrations seek.

More generally, contrary to the predictions of observers writing about twenty years ago when the Age Discrimination Act was being discussed, the end of mandatory retirement has not brought about the attenuation of tenure in higher education. The system of tenure remains very much the same as it was and, for the most part, it has not been replaced with long-term employment contracts or other features that compromise guaranteed employment for the tenured faculty member. The reason for this may well be that colleges and universities have found that the measures at hand are adequate to deal with the conjunction of tenure and the aging of faculty. Among these measures has been the growth of part-time faculty and instructors without tenure-track status. (See Ehrenberg and Zhang (2005).) So while the system of tenure has remained broadly untouched by the end of mandatory retirement, it is now extended to a smaller share of the instructional employees of universities and colleges. The growth of contingent employment that has characterized many labor markets in recent decades has also been a feature of the labor markets of higher education.

II. Pension Plans and Retirement Patterns

College and university procedures relating to the employment of older tenured faculty are usually called retirement policies. However, of course, only an individual can determine whether he or she retires from market work; more precisely, the university designs incentives for such faculty to relinquish tenure. The individual may “retire” from the university, but not necessarily from labor market work. Indeed, it is not uncommon for faculty who have accepted a “retirement” incentive to return to work at the very same institution from which he has just “retired”. What has happened is

that the individual faculty member has relinquished tenure and his status has changed markedly upon his return to university employment. In what follows, although we shall refer to an individual retiring or leaving employment, in many instances what is involved is the surrender of tenure.

The monetary incentives to induce the renunciation of tenure and the separation of a tenured faculty member from the university are often linked to the pension program or are financed out of the pension fund and this is why the universities think of them as “retirement” incentives. However, there is nothing preventing the individual from engaging in market work after “retirement” from his tenured employment at a university. Indeed, in a survey of all older wage and salary workers, Brown (2000) found that nearly half of those who accepted temporary retirement incentives were employed for pay two years later.⁶ The corresponding percentage for university faculty may well be lower than this, but regardless the point remains that “retirement” incentives are more precisely separation incentives.

Many university policies designed to induce older faculty to relinquish tenure are linked to the characteristics of the pension plan so it is not surprising that the terms of the individual’s pension plan has a marked effect on whether the individual elects to retire.⁷ There are two broad classes of pension plan: a defined benefit (DB) plan and a defined contribution (DC) plan. A typical DB pension plan specifies the annual flow of pension benefit usually as depending on an individual’s pre-retirement salary and on other variables (often, years of service). It is the employee’s benefit that is defined.

⁶ The characteristics of these subsequent jobs were different however. The jobs involved less work and lower pay. More precisely, those who had accepted their separation offers and then returned to paid employment worked, on average, about eleven fewer hours per week and four fewer weeks per year compared with their pre-buyout work level. On average, their hourly pay was about 40 percent lower than their pre-buyout wage. These data are from the first two waves of the Health and Retirement Study in 1992 and 1994.

⁷ Lumsdaine and Mitchell (1999) provide an excellent review of research on retirement and pension plan types.

A typical DC pension plan specifies the payments made by the individual and employer into a fund which is invested in securities. The value of the accumulated assets is determined at the time the worker retires where it is usually converted into an annual flow of income (an annuity). With a DC plan, it is the employer's payments that are defined.

One theme running through this paper is the important consequences of choice of pension plan. Many features of an institution's retirement policies are associated with the institution's pension plan type. Although generalizations are sometimes difficult, in many cases for older faculty, a typical DC plan embodies greater incentives to remain at work than a DB plan. This is best understood by considering the comparative returns to one more year of work for a faculty member under a DC plan and then under a DB plan.

Under a DC plan, with each year of work, an employee adds another year of contributions to his pension wealth, he earns returns on his prior pension wealth, and his monthly annuity will be larger at an older age reflecting the shorter life expectancy remaining. Under a DB plan, one more year of work adds one more year of service to the formula defining pension income (unless the individual has already reached the maximum benefit). However, the addition to pension income from one more year of work under a DB plan is typically not as large as the consequences for the pension annuity under a DC plan of one more year of work. Indeed, the expected present value of pension benefits under a DB plan often falls with one more year of work for someone aged over 60 years.

For this reason, other things equal, a university that has elected to operate with a DC pension plan is likely to find it has a lower retirement rate of older faculty and, perhaps, a greater need to

devise explicit retirement incentives than a university that uses a DB pension plan.⁸ Indeed, we shall note below that colleges and universities with DC pension plans are more likely to operate a permanent phased retirement program and to have offered faculty buyouts than colleges and universities with DB pension plans.

The most common pension plan offered by educational institutions is an exclusive DC plan although it is not unusual for different varieties of DC plans to be available. In Ehrenberg's (2003) survey, some two-fifths of responding institutions reported offering their faculty one or several DC plans only. Fifteen percent offered a DB plan only.⁹

The incidence of DC pension plans is markedly different between private and public institutions. According to Table 1, virtually all private institutions offer a DC plan only. Most public institutions offer faculty a choice between a DC plan and a DB plan. This is generally effected by allowing faculty to enroll in pension programs available to all state employees and these are often DB

⁸ This conjecture finds support in Allen, Clark, and Ghent's (2003) analysis of retirement behavior of tenured faculty at the University of North Carolina's campuses. Since 1971, newly hired UNC faculty may select between a DC plan or a DB plan. The authors find those faculty in a DB plan are more likely to retire and to enter a phased retirement program than those in a DC plan. Though this is consistent with the reasoning in the text, one should also note that there is some simultaneity here: other things equal, those faculty with greater tastes for leisure are more likely to select a DB type of pension plan so the inherent work-leisure preferences of the faculty are revealed in both the choice of pension plan and the retirement behavior. That is, rather than the pension plan type inducing different retirement behavior, the choice of pension plan and retirement behavior are joint outcomes of faculty work-leisure preferences.

⁹ In these data, institutional contribution rates to DC programs were mostly between 5 and 12 percent with 10 percent being the most common value. About 15 percent of institutions with DC plans had rates of contribution that varied by age, years of service, or salary. The faculty member's contribution rate also varied across institutions with 16 percent of institutions requiring no contribution from the individual, 21 percent requiring 5 percent, and the remaining specifying rates from one to twenty percent (though the lone 20 percent was a distinct outlier).

type plans. In addition, these public colleges and universities offer their faculty a DC plan.¹⁰

Because of the sharp differences in the incidence of pension plan type between private and public institutions, in examining various features of institutions' retirement programs, it is important to differentiate between the effect of any pension plan type and the effect of the private-public distinction. In other words, when two variables are highly correlated (as is the case here involving pension plan type and the private-public character of the institution), it is important to identify whether, in analyzing various features of retirement programs, the principal variable is the pension plan type or the private-public nature of the school. We shall accomplish this through multivariate analysis that separates the correlations associated with pension plan type from the correlations associated with the private-public status of the institutions.

To be specific, suppose (as we shall do below) we analyze the incidence of phased retirement programs across institutions and we want to determine those features of these institutions that are associated with the incidence of phased retirement programs. Thus, let y be a variable that takes the value of unity for those institutions with a phased retirement program and of zero for those institutions without a phased retirement program. In the research reported below, we focus on three classes of variables to determine their association with the occurrence of phased retirement programs: the type of pension program, the type of institution (as measured by the Carnegie classification),¹¹ and

¹⁰ Table 1 reveals that almost eight percent of institutions (almost all public) offer a combined DC-DB plan. In these cases, it seems as if the basic pension is a DB plan which requires mandatory participation. Then individuals are given the opportunity to supplement this DB plan with a contribution to a DC plan.

¹¹ The Carnegie Classification of Institutions of Higher Education covers all U.S. colleges and universities that grant degrees and that are accredited by an agency recognized by the U.S. Secretary of Education. The classification is made at the level of a campus even if a college or university is part of a larger institution. In this paper the following categories are used: Doctoral/Research Universities

whether the institution is private or public. We may write this as

$$(1) \quad \text{prob}(y = 1) = F(\text{DC}, \text{DOCTORAL}, \text{PUBLIC}).$$

In other words, the presence or absence of a phased retirement program can be interpreted as the probability that an institution has a phased retirement program. DC takes the value of unity for those institutions that operate only a Defined Contribution type of pension plan and of zero for others. DOCTORAL takes the value of unity for those institutions classified as Doctoral granting institutions and of zero otherwise. PUBLIC takes the value of unity for Public colleges and universities and of zero for Private colleges and universities. F is the logistic distribution, a distribution that ensures the implied probabilities are neither greater than unity nor less than zero. This equation (and others that are modifications of this specification) may be fitted to the six hundred or so institutions that provided information to Ehrenberg (2003) and maximum likelihood estimates of the implied effects of these three classes of variables on the incidence of phased retirement programs may be derived.

In this example, y stands for the incidence of phased retirement programs and, indeed, this will be one of the variables whose patterns will be investigated below. In addition, we shall examine the incidence of buyout programs and assess the separate effects of DC, DOCTORAL, and PUBLIC on buyout programs. For both the incidence of phased retirement programs and the incidence of buyouts, we shall find that there is a separate and distinct role for each class of variable. That is, the pension plan type is associated with (say) the incidence of phased retirement even holding constant

that provide a wide range of baccalaureate and doctoral programs; Master's Colleges and Universities, institutions that offer a wide range of baccalaureate programs and graduate education usually concludes with a master's degree; Baccalaureate Colleges, primarily undergraduate colleges with principal emphasis on baccalaureate programs; and Associate's Colleges that are mainly two year institutions and usually award no baccalaureate degrees, some with faculty ranks and some without faculty ranks.

the separate effect of being a Public or Private university.

We turn first to a consideration of existing retirement incentives available to colleges and universities with special attention later to phased retirement and buyout programs.

III. What Retirement Incentives Do Universities Use?

Temporary and Permanent Policies

It is useful to distinguish two types of retirement incentives. Some incentives are in place for a specific period of time in response to a particular and temporary set of circumstances. These aspire to effect a discrete change in the size and/or age composition of the faculty within a few months or years. On the other hand, some incentives are viewed as part of an institution's permanent personnel policies designed to address the enduring issues posed by the end of mandatory retirement. Because these policies are, in fact, never permanent and can be changed, the distinction between the two types of policies may blur. For example, the terms of the permanent policies may be changed at a time when the University is experiencing budgetary problems and, although the new "permanent" policies may be introduced without specifying that they will operate only for a certain time, in practice they may well be altered again when budgetary conditions change.

The temporary policies are sometimes described as "window" policies because they apply for a specified period of time. This is a suitable distinction provided it is understood that there are two different meanings to "time": calendar time and age. Usually, the window policies are responses to transitory budgetary problems and they offer severance opportunities for faculty who leave (or, sometimes, promise to leave) between one calendar date and another calendar date. However, they apply usually to faculty at specified ages and, in this sense, some have used the word "window" to describe policies that operate for faculty only within a designated age interval. Used in this sense,

permanent retirement policies are also “window” policies because they are often specified for faculty in particular age groups. That is, there may be permanent severance incentives for faculty who retire within the window of ages 60 to 65.

In general, a university provides inducements for an employee to quit by changing his returns to university employment compared with his returns to leaving this employment. The returns to university employment are affected by the age profile of earnings. Among workers in general, median real earnings tend to fall after a certain age.¹² The age at which this happens is later for well-educated workers than for poorly-educated workers, but it tends to be the case for all such workers.

Among university teachers and researchers, nominal earnings increases tend to be smaller for faculty aged in their sixties and a series of meager pay raises can serve as a clear signal for faculty to expect further modest increases. Although every organization must avoid the appearance of its pay policies being tied to age rather than to productivity, in practice the university’s salary policies are an adjunct to its retirement policies because for many disciplines an age-productivity association is strongly suggested with productivity falling with age after a certain point.¹³ Expressed differently, just as upward-sloping earnings-age profiles may discourage employee turnover at younger ages, so downward-sloping age-earnings profiles later in life embody incentives to leave employment.¹⁴

¹² I emphasize that the description of the age-earnings relationship here is in terms of real earnings (that is, earnings deflated by some relevant price index). Nominal earnings often continue to rise with age. However, even though basic nominal salaries may not fall with age, various supplements to salaries (such as paid summer months and opportunities within the University to augment one’s income) do tend to fall with age and this is why even total nominal compensation declines after a certain age.

¹³ See, for instance, Oster and Hamermesh (1998) and Stephan and Levin (1992).

¹⁴ For arguments regarding the incentive effects of the slope of age-earnings profiles, see Lazear (1981).

Explicit Retirement Incentives

In addition to the implicit incentives provided by their pay policies, universities may put in place explicit incentives for faculty to retire. These incentives take different forms, but some are characterized by various severance pay opportunities for quitting by a certain age. A typical severance incentive pays a retiring faculty member an amount that is proportional to his or her most recent salary and the factor of proportionality declines with age. Usually faculty are eligible only if they have recorded a certain number of years of service at the university.¹⁵ Another form of monetary incentive takes the form of some sort of pension credits.¹⁶

These are examples of monetary incentives accompanying a transition. There are also non-monetary inducements to enhance the returns to relinquishing tenure. For many academics, the social aspects of work - the daily contact with colleagues and students, the sense of being part of a shared enterprise - are closely intertwined with the “job” aspects. Hence the opportunity for an individual upon retirement to retain an office or lab space and remain a respected figure in the collective venture can be an important inducement to retire. Moreover, for many scholars, their work is an integral part of their identity and the opportunity to continue their work in a social setting can be a very important component of their well-being. They are often ready to waive tenure and the administrative chores of being a faculty member, but they do not want to forego the social aspects of employment and the

¹⁵ My own institution furnishes an example. Stanford University’s Faculty Retirement Incentive Program specifies faculty as eligible who have at least 15 years of service and aged between 60 and 69 years. Currently, if such faculty retire, each receives a severance payment equal to twice his annual salary if aged between 60 and 66 years at retirement or equal to his salary if aged between 67 and 69 years.

¹⁶ Examples of different types of early retirement incentives are provided in Chronister and Kepple (1987).

explicit connection to their scholarly work. For these people, the opportunity to retain an office or lab space or be eligible to apply for research grants makes the transition to retirement more attractive.

Ehrenberg's (2003) survey asked whether the institution offered various benefits to retired faculty and the summary of responses are given in Table 2. This table presents the responses for Doctoral/Research Universities separately from the other categories of colleges and universities because our multiple regression analysis indicated that the only consistent difference among institutions was that between Doctoral/Research Universities and all others and there was no persistent correlation between the incidence of these benefits and the Public-Private nature of the institution or the incidence of these benefits and the type of pension plan that operated. In every instance in Table 2, the incidence of benefits provided retirees is very much greater at Doctoral/Research Universities than at others. For example, three-quarters of Doctoral Universities report they grant retirees office space whereas only two-fifths of other colleges and universities claim to do so.¹⁷

Of special concern to retirees is health insurance and four-fifths of the institutions responding to Ehrenberg's (2003) survey reported that retirees were eligible for group medical insurance. Yet only three-fifths of these institutions actually contributed to the cost of this health insurance. Ehrenberg (2003) noted that "the failure of institutions to contribute to retiree health insurance may provide an incentive for their faculty members to delay their retirements and institutions would profit by seriously considering this issue" (p. 7).

¹⁷ Equation (1) in Section II above was fitted for each benefit provided to retirees. That is, for each of the eight benefits listed in Table 2, the left-hand side variable related to its presence or absence in an institution and the right-hand side variables indicated the pension plan type, the category of institution (using the Carnegie classification), and whether the institution was Public or Private. The only meaningful results concerned the distinction between Doctoral/Research universities and all other colleges and universities. This is why we neglect the other variables and focus in Table 2 on the difference between Doctoral universities and other institutions.

Most institutions allow some retired faculty to carry on teaching on a part-time arrangement. However, once a faculty member retires and loses tenure, colleges and universities are in a position to be quite selective in determining who is permitted to teach. Some faculty negotiate part-time teaching arrangements before (and sometimes as a condition of) retiring.

IV. Phased Retirement Programs

One type of permanent retirement policy concerns the modification of the terms of employment to permit phased retirement. With these programs, faculty do not move discontinuously from full-time employment to full-time retirement, but rather for a period of time they occupy an intermediate state in which their teaching and advising responsibilities are reduced over those responsibilities associated with full-time employment. According to the recent Cornell study, 27 percent of institutions responding to their survey reported the existence of such phased retirement programs. In those phased retirement programs, about one-third of institutions had procedures that did not require individuals to seek and obtain administrative approval to take advantage of them whereas, for the remaining two-thirds of institutions, individual faculty members needed some sort of administrative sanction to avail themselves of this benefit.

The typical phased retirement program specifies an age window (both minimum and maximum ages) for eligibility and a length of service requirement. Usually the faculty member participating in such phased program gives up tenure and commits to move into full-time retirement after a given number of years (usually three or five). Faculty in phased retirement are paid less than their full-time salary although non-salary fringe benefits are often comparable to full-time employment. For instance, institutions usually pay into the individual's health insurance program at the same rate as if the individual were a full-time faculty member. One survey of universities (Leslie and Janson (2005))

suggests that, by providing older faculty with more employment options, a phased retirement program boosts morale among long-serving employees.

Allen, Clark, and Ghent (2004) provide an excellent case study of the phased retirement program introduced at the 15 campuses of the University of North Carolina system in 1997-98.¹⁸ To be eligible for the UNC phased retirement program, faculty must be tenured and aged at least 50 years with 20 years of service or at least 60 years with 5 years of service. Most campuses selected a period of three years for the intermediate state of semi-employment (phased retirement). At UNC, those occupying the state of phased retirement are not eligible for most fringe benefits. By comparing the characteristics of the faculty who opted for phased retirement in 1997-98 with the characteristics of those who in 1995-96 elected to remain fully employed and those who in 1995-96 chose to retire full-time (i.e., at a time when part-time employment was not an option), Allen, Clark, and Ghent (2003) argue that the people choosing phased retirement in 1997-98 appear more similar to those who remained at work in 1995-96 than those who retired completely in 1995-96. The suggestion is that, in the absence of the phased retirement option, most of those faculty who chose phased retirement would have remained full-time faculty members. This is a key issue in assessing the value of phased retirement programs: in the absence of such programs, what fraction of the phased retirees would be working full-time and what fraction would be retired completely? Those who criticize phased

¹⁸ My own institution provides another example. The School of Humanities and Sciences at Stanford University operates a "Retire Then Phase-In" program in which a faculty member officially retires and then is called back at no more than 50 percent for up to three years as an emeritus professor. In another option, a faculty member reduces his appointment to half-time for up to three years and then officially retires. The second option is less popular as the individual remains a faculty member and is liable for administrative duties. During the three year part-time appointment, salary increases are locked in at three percent per year. For other programs, see the contributions in this volume of Steven Allen and of John Palmer, Michael Flusche, and Myra Johnson.

retirement programs often presume to know what the alternative activity would have been.

Data from Ehrenberg's (2003) study were analyzed to determine the institutional variables associated with the incidence of phased retirement programs. As described in Section II above, three categories of variables were examined for their association with the occurrence of phased retirement programs: the type of pension program, the type of institution (as measured by the Carnegie classification), and whether the institution was private or public. We may write this as

$$\text{prob}(\text{PHASEDRET} = 1) = F(\text{DC}, \text{DOCTORAL}, \text{PUBLIC})$$

where PHASEDRET takes the value of unity for an institution with a phased retirement program and of zero otherwise. DC takes the value of unity for those institutions that operate only a Defined Contribution type of pension plan and of zero for others. DOCTORAL takes the value of unity for those institutions classified as Doctoral granting institutions and of zero otherwise. PUBLIC takes the value of unity for Public colleges and universities and of zero for Private colleges and universities. F is the logistic distribution and the equation is fitted to data on 607 institutions.

Maximum likelihood estimates of the implied effects of these three classes of variables on the incidence of phased retirement programs are contained in column (1) of Table 3.¹⁹ These results are to be interpreted as follows: holding each of these groups of variables constant, phased retirement programs are more likely in institutions

- with defined contribution (DC) pension plans. Holding constant the Private-Public distinction and the Carnegie classification, an institution with a pure DC plan is 24 percent more likely

¹⁹ These estimates are those implied by changing the value of the right-hand side dichotomous variable from zero to unity and evaluating the implied change in the probability of phased retirement (where the point of evaluation is at the sample mean values of the right-hand side variables). The numbers in square brackets in Table 3 are the p-values of the null hypothesis that the associated logit coefficients are different from zero on a two-tailed normal distribution test.

to operate a phased retirement program than an institution that has some sort of defined benefit program. As argued in section II above, this reflects the programmatic features of a DC program that offer fewer incentives to retire compared with a DB program so that institutions with DC plans are induced to resort to other schemes (such as phased retirement program) to encourage retirement. In addition, because DB retirement benefits are often linked to an individual's salary immediately prior to retirement, faculty on DB plans do not want to conclude their employment earning less than full pay as is implied by the typical phased retirement program.

- that are classified by the Carnegie system as Doctorate-granting institutions. These Research universities have an 10 % greater probability of offering a phased retirement program than other types of colleges and universities.
- that are Public institutions. Holding other variables constant, Public institutions have a seven percent higher probability of offering phased retirement programs than Private institutions.²⁰

The specification in column (1) of Table 3 treats all institutions other than Doctoral institutions as the same with respect to the incidence of phased retirement programs. The specification in column (2) allows for different effects across the other types of Carnegie-classified institutions with separate categories for Master's Degree institutions, for Baccalaureate institutions,

²⁰ The null hypothesis that the incidence of phased retirement programs association is uncorrelated with whether the institution is Private or Public can be rejected at only the 20 percent level. After examining the data he collected, Ehrenberg (2003, p. 2) reported that "...programs to encourage phased retirement are more likely to be present at private institutions" and this is true on the basis of simple cross tabulations of the data. However, upon controlling for the incidence of DC plans (which are much more prevalent at Private institutions), the link between phased retirement programs and Private institutions is closer to being the opposite of what he reported; that is, though strong inferences are inappropriate, it appears as if, holding constant pension plan type, Public institutions are more likely to offer phased retirement programs.

and for all two year colleges. It does appear as if phased retirement systems are least common in two year colleges.²¹

In addition to the equations whose results are reported in columns (1) and (2) of Table 3, other equations were estimated to describe the incidence of phased retirement programs. For instance, we examined whether the Private-Public distinction described above varied with the Carnegie classification so that, for instance, Public Doctoral schools were different from other types of Public institutions. In fact, no further meaningful statistical differences were obtained.

V. Buyout Programs

Sometimes educational institutions determine that an abrupt reduction in the level or composition of faculty employment is called for. In these circumstances, a common technique is a buyout program that offers certain faculty for a specified period of time greater returns to relinquishing tenured employment. These are sometimes called “retirement windows” although this language may be misleading. “Retirement” connotes leaving all paid employment whereas these buyouts are opportunities for eligible faculty to give up tenured employment and the individual faculty member does not necessarily retire from market work. In addition, the word “window” has a double meaning: it refers to a specified period of calendar time during which this separation opportunity is in effect; and it refers also to an age window of eligible faculty.

These buyouts are often prompted by an unexpected change in the institution’s financial situation such as, in the case of a Public university, a large cut in the state’s support for higher education. Of course, Private institutions are subject to the vagaries of their financial environment

²¹ However, on a joint test and at the five percent significance level, the specification whose estimates are reported in column (2) would not be judged as providing a superior fit to that in column (1).

too. These financial motivations for buyouts are sometimes complemented by the need that some universities feel to change the demographic composition of its faculty.

These reasons for a university or college instituting a buyout program are no different from those that impel any business to institute such a policy. In other words, many firms and businesses experience fluctuating fortunes and, at times, they face the need to make sharp reductions in their labor costs. For conventional businesses, these labor cost reductions are often effected by a combination of layoffs and nominal pay cuts, options that are usually denied to colleges and universities in dealing with their tenured faculty. Nevertheless, outside of higher education, some conventional for-profit firms have chosen to use buyout programs in preference to layoffs and wage cuts. These firms view themselves as engaged in a long-term (though usually implicit) contract with their employees and the effectiveness with which their employees work depends crucially on how management deals with its labor force. In these circumstances, offering severance incentives (buyouts) to employees is more likely to maintain worker morale and preserve incentives to workers to acquire firm-specific skills.

Evidence that buyouts are not restricted to college and university faculty is provided by the surveys of individuals from the Health and Retirement Study, a nationally representative longitudinal survey of individuals aged 51-61 years in 1992. In these data, Charles Brown (2000) found that, in the first half of the 1990s, an estimated 8.8% of workers had been offered at least one buyout opportunity. Among those workers who had left their employers in a two year period, one-tenth had quit upon accepting a buyout. This indicates that separations prompted by buyouts represent a non-trivial component of all such turnover. The individuals offered such buyouts were a select group of the work force: they were much better educated than the typical worker and tended to be professional

or managerial workers who had worked for a long time for a large (often unionized) firm; those who received buyout offers earned about forty percent more than those who did not.

With respect to educational institutions in particular, Ehrenberg (2003) reported that some 35 percent of colleges and universities had offered buyouts since 1995. Some of these buyouts were part of a permanent program to induce separations while, in other cases, they were temporary programs presenting faculty with more attractive separation opportunities for a particular period of time. Ehrenberg (2003) reported the interesting finding that there was a tendency for some institutions to have offered more than one temporary buyout plan and he conjectured that, “once a window plan is adopted and then expires, faculty believe that future window plans will be adopted and threaten to delay their retirements until a subsequent plan is adopted. This puts pressure on institutions to adopt a subsequent plan if they want to encourage their older faculty to retire” (p. 4). The role of expectations in influencing the operation and effectiveness of these buyout programs will be returned to below in the discussion of the programs at the University of California.

Some buyouts take the form of lump-sum cash payments and others represent an addition to the individual’s retirement contributions especially when the pension plan is of the DB type.²² However, it is not the case that, overall, buyouts were more common in institutions that operated a DB pension plan. This conclusion was arrived at from multivariate analysis of the data from the Cornell study which were investigated to identify the institutional variables associated with the incidence of buyouts. As described earlier, three classes of variables were examined for their

²² The enhancement of retirement benefits is effected by furnishing the individual with the benefits from more years of service or by granting the individual a terminal leave (during which retirement benefits accumulate) prior to retirement. Augmenting an individual’s DC retirement benefits is less advantageous because additional employer contributions to a DC plan are regarded as cash payments that are subject to federal income tax in the year the payments are made.

association with the incidence of buyouts: the type of pension program, the type of institution (as indicated by the Carnegie classification), and whether the institution was private or public. In particular, the following equation was specified:

$$\text{prob}(\text{BUYOUT} = 1) = F(\text{DC}, \text{DOCTORAL}, \text{PUBLIC})$$

where BUYOUT takes the value of unity for an institution that had reported any buyout since 1995 and of zero otherwise. DC takes the value of unity for those institutions that operate only a Defined Contribution pension plan, DOCTORAL takes the value of unity for Doctoral granting institutions, and PUBLIC takes the value of unity for Public colleges and universities. F denotes the logistic distribution and the equation is fitted to data on the 595 institutions providing information on buyouts. Maximum likelihood estimates of the implied effects of these three classes of variables on the probability of buyouts are contained in column (3) of Table 3.²³

These results have the following interpretation: holding each of these groups of variables constant, buyouts are more likely in institutions

- that are Private. Public institutions were 18 percent less likely than Private institutions to have offered a buyout program over the previous five years.
- that are classified as Doctoral. Such research universities are about 17 percent more likely to have offered a buyout program than other types of colleges and universities.
- with a pension program that is exclusively of the Defined Contribution type. Institutions offering just a Defined Contribution plan are 13 percent more likely to have offered a buyout

²³ As for Table 2, these estimates are those implied by changing the value of the right-hand side dichotomous variable from zero to unity and evaluating the implied change in the probability of phased retirement (where the point of evaluation is at the sample mean values of the right-hand side variables). The numbers in square brackets in Table 3 are the p-values of the null hypothesis that the associated logit coefficients are different from zero on a two-tailed normal distribution test.

program during the five years prior to the survey than institutions with at least some type of Defined Benefit plan.

As was the case with respect to the incidence of phased retirement programs, institutions operating DC plans appear to be those that find the need to introduce incentives to faculty to retire.

The estimates in column (4) of Table 3 go beyond the simple distinction between Doctoral and non-Doctoral institutions and they allow for differences among Master's Degree institutions, Baccalaureate institutions, and all two year colleges. In fact, as far as the incidence of buyout programs is concerned, the other three types of institutions are similar and, according to conventional statistical tests, the specification that allows for these finer differences does not provide a superior description of the data.

VI. A Case Study of Buyouts: the University of California, 1990-94

The Appeal and Drawbacks of a Buyout Program

A buyout program has clear intrinsic appeal. The basic notion is to provide monetary and non-monetary incentives to induce faculty to renounce tenure and quit employment with the institution. Often, pension fund reserves are drawn upon to effect the severance payments. In this way, a discrete change is effected in both the level and the composition of the institution's employment. If people are sensitive to the incentives offered (that is, if only small monetary incentives are required to induce the required change in employment), then the budget savings can be considerable. Also, because the buyouts are usually offered over a short interval of calendar time, the employment effects (and, therefore, the budget savings) are realized quickly.

There are two principal concerns with buyouts. First, there is the issue of the computation of payroll savings and pension expenditures. Although buyout programs will reduce payrolls and may

do so swiftly, they raise disbursements from pension funds both now and in the future. The appropriate intertemporal calculations need to be made to ensure that, on balance, this is a prudent use of reserves. These calculations involve an assessment of whether pension reserves are adequate or projected to be adequate. Colleges and universities need to be able to forecast accurately the size of the reduction in payrolls accompanying any buyout program. What is known about the ability of colleges and universities to forecast the number of quits in response to the incentives offered?

Second, even if the number of tenured faculty accepting the buyouts are predicted accurately, what about the composition of retirements? Is there an adverse selection problem meaning that the most productive senior faculty accept the severance incentives and the least productive remain in employment? The concern here is that the more productive faculty are likely to have the more attractive alternative employment opportunities and, therefore, are more inclined to accept the severance incentives, quit the organization, and move to another college or university.²⁴ This will be less of a concern if faculty view their principal option as one of retiring from all paid work rather than becoming re-employed somewhere else.²⁵

The appeal of buyouts as a means to effect employment reductions may be severely compromised by these two defects. These shortcomings probably explain why most employers in the

²⁴ Canadian friends report a story that illustrates the adverse selection problem. A well-known Canadian university is said to have offered its faculty a uniform buyout package. All eligible members of the Computer Science Department left and no-one left from the Classics and Philosophy Departments. I have not been able to find confirmation of this story.

²⁵ Indeed, if faculty view the choice presented to them as that between continuing employment at the institution or retiring from paid work (not of obtaining work at another institution), then the question becomes that of whether more productive faculty value their leisure time in retirement more or less highly than less productive faculty. If the more productive faculty have a lower value of their leisure time upon retirement, then the adverse selection problem does not operate: the less productive faculty are more inclined to accept the severance incentives and quit paid work.

economy do not use such severance incentives to effect employment reductions: most firms implement employment reductions by layoffs or dismissals, that is, by the employer initiating the separation. Most employers do not choose to present their employees with a menu of severance payments and then leave the decision to their employees of whether to accept these payments and to quit. Because tenure prevents colleges and universities from laying off significant numbers of senior faculty (except when the institution is in dire circumstances), employer-initiated separations are not an option for institutions of higher education. However, these two possible defects with buyouts remain for universities: the number of separations may be “too” high or “too” low and the mix of separations (the adverse selection problem) may have undesirable consequences for the institution.

The University of California’s VERIPs

What is known about the importance of these two concerns? To address this issue, consider the following case study that involves the largest number of faculty accepting buyouts in any group of institutions of higher education: the early retirement programs used by the University of California for tenured faculty in the first half of the 1990s.²⁶ These buyout programs were induced by a state budget crisis that brought about sharp reductions in the state’s appropriations for higher education. Though the UC system responded in different ways to this reduction in support, its most important response (measured by the cost reductions that were effected) was to provide incentives to tenured faculty to relinquish their tenure. In the first half of the 1990s, almost 2,000 tenured faculty (over 20 percent of all faculty in 1990) accepted the monetary inducements and left their positions.

The essential idea behind the scheme was as follows. While the University’s operating budget

²⁶ The discussion that follows draws heavily on Pencavel (1997, 2001). Valuable perspectives on the verips are provided by Kim (2003) and Switkes (2001).

was in a desperate position, its pension reserves (the UC Retirement Plan) were very well funded. By statute, income could not be reallocated from the pension fund to the current operating budget so, instead, people were induced to switch from current payrolls to receiving pension income. In this way, because dollars could not be transferred from one account to another, people were induced to switch from receiving income from one source to another source.

Because the severance payments were funded out of pension reserves, the buyouts were portrayed as early retirement programs. Indeed, the common name for them was verips: voluntary early retirement incentive programs. Anecdotal evidence suggests that, indeed, some of those who accepted the buyouts did cease paid employment. However, we also know that some faculty accepted the severance incentives and did not cease work. Indeed, many returned to teach in their original departments although they were no longer tenured and their status was quite different.

The first verip (named Plus 5) was extended in academic year 1990-91 and offered additional pension benefits to those who quit employment by 1 July 1991: call this verip1. The second verip (named Take 5) was offered in 1992-93 and the resignation date was 1 January 1993: call this verip2. The third verip (named VERIP3) was introduced in 1993-94 and the separation date was 1 July 1994: call this verip3. Data from the payroll and benefits offices of the UC system were used to analyze the acceptance rate: the probability of an individual accepting the severance incentives offered to him or her.²⁷ Because administrative data are used in this analysis, information about each faculty member's health status or income from other sources (such as the spouse's income), variables relevant to the

²⁷ The acceptance rate is also called the take-up rate or quit rate or severance rate. Eligibility criteria were eased with each subsequent verip and depended on the sum of a faculty member's age and years of service. In verip1, this sum had to be 80 or more; in verip2, the sum had to be 78 or more; and in verip3 the sum had to be 73 or more.

severance decision, is not available. This would be a serious shortcoming if we sought a full account of severance decisions. In fact, our research goal is the narrower one listed above, that is, to evaluate the university's ability to forecast the consequences of its buyout program and, for this objective, the information on employees we have is precisely what any university administration would have.

UC's pension program at the time of the three verips was a DB plan that offered cost-of-living adjusted annual payments proportional to a faculty member's highest UC salary over a three year consecutive period. The factor of proportionality rose with age at retirement and years of service. The severance incentives changed the formula for computing pension benefits by operating separately on the age and years of service factors. Suppose, for each eligible faculty member i , we define S_i to be the ratio of i 's verip monetary bonus to i 's pension income in the absence of the verip. S_i is an indicator of the magnitude of the severance incentive. S_i varied across individuals and, indeed, for the same individual, S_i varied across verips because the terms of the verips were not the same. In verip1 and verip2, the mean and median values of S_i were about 19 percent, but in verip3 the mean and median values of S_i were 46 percent. Indeed, in verip3, at some age and seniority levels, the value of S_i could reach as high as 90 percent.²⁸

The Consequences of the VERIPs

In the UC verips, is there a relationship between the magnitude of the severance incentive and the probability of its acceptance? Suppose, for each individual faculty member eligible for a severance payment, we form the ratio of pension income offered by the verip to the individual's income from

²⁸ This particular value of S_i would be presented to a faculty member who was aged 57 years and had 20 years of service and who was at any UC campus except Berkeley. In verip3, the terms of the severance incentives differed somewhat between Berkeley and other UC campuses.

work at UC. This is the replacement ratio.²⁹ For each verip, organize faculty by their ages. For all faculty of the same age in a given verip, average their replacement ratios and compute the fraction of faculty who accept the verip bonus.³⁰ Figure 1 presents these observations in a scatter diagram: the horizontal axis measures the average replacement rate for faculty of a given age in a given verip; the vertical axis measures the fraction of age-specific faculty eligible for the verip who accepted it.

The positive slope to the relationship in Figure 1 is unmistakable: as pension benefits increase relative to salary, so a larger fraction of faculty of a given age accept the severance incentive.³¹ The convex shape to the relationship suggests that increases in the replacement ratio have a larger effect on acceptances at higher replacement rates. Figure 1 strongly suggests that faculty are responsive to monetary incentives. Approximately, at a replacement ratio of 0.75, a one percent increase in the replacement ratio is associated with a 3.7 percent increase in the acceptance rate.

Forecasting the Response to Severance Incentives

However, this finding does not address the issue of whether the overall severance or

²⁹ So if S_i is the ratio of i 's verip monetary bonus to i 's pension income in the absence of the verip, if p_{oi} is i 's pension income in the absence of the verip, and if y_i is i 's UC salary, then the replacement ratio is $p_{oi} (1 + S_i) / y_i$, the fraction of i 's salary that the verip's pension income will replace.

³⁰ There are nineteen age categories: the youngest are aged 52 years or less and the oldest are aged 70 years or more; in between, there are seventeen more ages from 53 through to 69. With nineteen age categories per verip and three verips, there are 57 observations in all on the replacement rate and the verip acceptance rate. Figure 1 is a scatter diagram of these 57 observations.

³¹ The replacement ratio so measured is one year's pensions and one year's salary, but of course what matters to each individual are pension benefits and income in future years too. We lack information on future income so an explicit calculation of future income cannot be undertaken. However, a key variable in calculating that future income will be each faculty member's age with younger faculty computing their income and their pension over more years. Tacitly, Figure 1 recognizes this by computing the replacement ratio separately for faculty at each age. In other words, each observation in Figure 1 corresponds to faculty of a given age in a given verip.

acceptance rate can be predicted with some confidence. Because the observations in Figure 1 describe average behavior (averaged in each age group), individual variations in replacement rates and in acceptances are concealed. Each observation in Figure 1 does not represent the same number of individual faculty: more faculty were eligible at older ages where replacement ratios were higher than at younger ages where replacement ratios were lower. It is at the individual level that the cost of the program needs to be assessed. If the acceptance rate can be forecast with accuracy, the cost of the program can be calculated with some reliability. To determine a program's cost, what needs to be predicted is not so much the aggregate severance rate, but the response of individual severances to different alternative monetary incentives.

These buyout programs at UC provide a rare opportunity to address this issue because there were three such programs and we may ask whether the behavior displayed in one verip may be used usefully to predict severance behavior in later verips. One might think that the prospect for reliable prediction in this setting is auspicious: in each instance, one is forecasting from behavior revealed by one group of faculty members to subsequent behavior by the faculty at the same university - in some instances, the very same people - no more than eighteen months later.

To assess this, I used the individual observations in verip1 to estimate relationships between, on the one hand, the buyout acceptance decision and, on the other hand, a large number of characteristics of the faculty members including the size of each individual's severance incentive, income, base pension, age, UC campus, and academic department. These estimated relationships were then used to forecast severance probabilities for each eligible individual in verip2. These predicted probabilities are aggregated for all faculty of a given age. The implied severance rates by age are then compared with actual severance rates by age. Similarly, using the data on eligible

individuals in verip2, equations relating their severance decision to sets of independent variables were fitted. I then asked how well verip3's severance probabilities could be forecast using the verip2 behavior thus embodied in these fitted equations.

In each instance, the forecasts were not at all encouraging. Severance rates by age in verip2 were substantially below those predicted on the basis of behavior revealed in verip1. Similarly, severance rates by age in verip3 were noticeably lower than those forecast by the severance equation fitted to faculty eligible for verip2 and, *a fortiori*, were considerably lower than those forecast by the severance equation fitted to faculty eligible for verip1.³² To provide a particular example, at the aggregate level, compared with actual acceptance rates, verip3's acceptance rates were about 21 percent lower when using verip1's estimated equation to predict verip3's acceptances and were about 49 percent lower when using verip2's estimated equation to predict verip3's acceptances. On the basis of this evidence, our ability to forecast severances is defective.

Why are such forecasts flawed? There are two explanations. The first concerns divergent expectations. Verip1 was unprecedented at UC and faculty tended to believe this was a singular, not to be repeated, event. Then verip2 demonstrated that it could be repeated and, indeed, because UC's

³² A crude suggestion of this is indicated in Figure 1 by the fact that, at a given replacement ratio, the square entries (corresponding to verip1) tend to be higher on the vertical axis than the circles (corresponding to verip2) and to the crosses (corresponding to verip3), especially at high values of the replacement ratio. This is "crude" for two reasons. First, each "observation" in Figure 1 corresponds to different numbers of underlying individuals. Thus, at a replacement ratio of 0.45, the observed acceptance rates in verip1 (the square) and in verip3 (the cross) are close. However, only 3.7 % of verip1's eligible individual faculty members and only 5.6 % of verip3's eligible individuals are observed at this point. Many more individual faculty are observed at higher values of replacement ratios where the vertical difference between the observations is greater. A second reason why this inference is "crude" is that other variables affecting the severance decision are not being held constant in Figure 1. This is important because these other variables (such as age and campus) are correlated with the replacement rate measured on the horizontal axis.

budget woes continued, faculty conjectured that another buyout program was probable. When buyouts operate in a context of volatile expectations and when these expectations vary across individuals in a manner that is essentially not identified, it is not surprising that behavior in one buyout may not describe well behavior in the next buyout.

A second reason thwarting accurate forecasts is the changing composition of the eligible faculty across the buyout programs. The problem is that, when faced with the same monetary incentives to quit, individuals differ in their responses and the reasons for these differences contain an element that is intrinsically unobserved. That is, a key variable affecting the severance decision - each individual's "taste" for remaining a tenured faculty member - varies across individuals and makes the eligible population of faculty heterogeneous. When the population of faculty eligible for the severance payments changes from one buyout program to another, the pattern of these different and unobserved propensities to accept the buyout changes in unknown ways and this obstructs prediction.

In what sense was the population eligible for the buyouts different across the verips? First, eligibility conditions were less strict from one verip to the next. In addition, verip2's eligible faculty consisted in part of those who had been offered incentives to quit in verip1 but had rejected them. So, holding constant the monetary inducements to quit, the distribution of verip2's eligible faculty consisted of more people with a high "taste" to remain a UC faculty member than those in verip1. Those with a high propensity to quit had already accepted verip1's severance incentives and relinquished their tenure. So, from verip1 to verip2, the distribution among the eligible faculty of unobserved propensities to accept the severance incentives changed.³³ A similar argument can be

³³ Indeed, we may compare the behavior in verip2 of those faculty who had rejected verip1's severance incentives (call these the "repeaters") with the behavior in verip2 of those faculty newly eligible for a buyout. Almost two-thirds of verip2's eligible faculty were repeaters. Other things

offered with respect to the eligible faculty in verip3.

The Adverse Selection Problem

Were the more valuable members of UC's faculty particularly inclined to accept the buyouts? If so, the "quality" of UC's faculty changed with the loss of the more productive faculty and the retention of the less productive faculty. There are two pieces of information relevant to this.

First, consider the relation between severance rates and salaries. Faculty salaries vary for many reasons including age, length of service, academic discipline, and campus. However, holding these factors constant, there ought to be a residual association between an individual's salary and his or her worth to the institution. So one may ask whether, holding other factors constant that are correlated with salary, were those people who enjoyed higher salaries (and, under these circumstances, appear more valuable to the institution) more inclined to quit UC. The unambiguous answer is "no". On the contrary, other things equal (including the severance incentive), those individuals with higher salaries were less inclined to accept the buyout program,³⁴ a finding that is commonly found in studies of the relationship between pay and quit rates.³⁵

Second, Kim (2003) collected information on the research publications and citation rates of

equal, the repeaters had a 6.5 percent lower probability of accepting verip2's severance incentives than the non-repeaters. This lower acceptance rate of verip2's repeaters supports the notion that the distribution of severance probabilities in verip2 differed from that in verip1 and, more specifically, that verip2's eligible faculty consisted of those with a greater propensity to retain their tenure at UC.

³⁴ Reasoning along these lines is contained also in Allen, Clark, and Ghent's (2004) investigation of retirement behavior at the University of North Carolina's campuses. They find that, other things equal, the probability of faculty moving to phased or total retirement is lower among more productive faculty where an individual's productivity is measured by the magnitude of his pay increases over the previous three years. In their sample of faculty who participate in TIAA-CREF, Ashenfelter and Card (2002) report that, at any age, faculty with higher salaries are less likely to retire.

³⁵ For instance, see Farber (1999).

faculty eligible for the verips. He documented that, measured over the years immediately before the verips, those faculty with lower research output were more inclined to accept the severance incentives than other faculty. In addition, using the ratio of each individual's research output in the three years prior to each verip to the individual's research output over the previous fifteen years, Kim found that those faculty whose research output had slowed down in recent years were more likely to choose the buyout opportunities than faculty whose research output had remained the same.

These two pieces of evidence do not support the notion of an adverse selection problem. It does not appear to have been the case that the more productive and valuable faculty were more inclined to accept the severance incentives.

Conclusion on the VERIPs

The experience of the verips certainly confirms that large reductions in tenured faculty employment can be effected by offering individuals inducements. Although individual faculty display considerable heterogeneity in their behavior, on average, faculty are responsive to severance incentives. The reductions in employment by age achieved at UC are pictured in Figure 2 that shows the sharp reductions at older ages: declines were 25 percent among those aged 56-60 years, 55 percent of those aged 61-65 years, and 71 percent of those aged 66 or more years. Also the fear that the more valuable members of the faculty would be more apt to quit seems unfounded. Given the reductions in employment that were effected without the loss of some of the more productive faculty, UC administrators appear to believe the verips were a success. However, I know of no careful cost-benefit analysis to support this conclusion. Administrators appear to have arrived at this judgment by noting (1) the sharp reduction in payrolls, (2) the ability of the pension fund to absorb the number of faculty accepting the severance incentives, and (3) the absence of an adverse selection problem.

In other words, even though severances were very difficult to forecast and the inability to forecast accurately helps to explain why there were three buyout programs rather than simply one, the verips were a very important component of the solution to UC's budgetary problems. However, the UC system must have been a less effective teaching and research institution during and after these years and I am not aware of a study that has tried to assess these scholarly losses.

There does seem to be a problem in making accurate predictions of the severance rate and, therefore, of the program's cost. Different forecasting schemes were analyzed and they were wanting in providing reliable predictions. Unfortunately UC did not form or make public estimates of the severance rate they anticipated with each verip so it is impossible to compare their projections with outcomes. I did unearth one UC document calculating the cost implications of verip2 and it describes a "worse case scenario" as one with a faculty severance rate of 20 percent. In fact, the actual severance rate in verip2 was 18 percent, substantially lower than the central tendency of their "scenarios" of 25 percent. The suggestion here is that UC had problems in forming accurate forecasts. Indeed, this is compatible with the fact that another verip, verip3, was devised shortly after verip2 was offered.

VII. Conclusion

The labor markets of higher education are sometimes characterized as being unlike all others. In particular, the conjunction of tenure and the absence of mandatory retirement are often seen as posing distinctive problems to institutions of higher education. I have tried here to emphasize the similarity of the problems facing higher education and those facing many other employers, that of devising incentives to induce employees to quit. Policies such as buyouts and phased retirement programs that have been used in higher education to address their employment problems are found

in other parts of the economy.

What may be surprising is the extent to which the end of mandatory retirement has seen so little reconsideration of tenured employment contracts in academia. If one goes back to the literature of fifteen to twenty years ago when the consequences of the end of mandatory retirement in higher education were being discussed, many observers predicted that, without mandatory retirement, universities would start to challenge tenure and to devise new contracts designed to circumvent the problems of inducing senior faculty to quit. For example, some proposed supplanting tenure with fixed term contracts of ten or fifteen years while others devised schemes to allow nominal salaries to fall with seniority to attenuate the rewards to continued university employment.³⁶ Though there have been challenges to tenure, for the most part they have been atypical.

I interpret this to mean that, for the most part, the costs imposed on universities by the end of mandatory retirement have been manageable and the programs to induce the retirement of older faculty have been sufficiently effective that colleges and universities have not been motivated to undertake more fundamental changes in the nature of tenured employment contracts in higher education.

One reason why tenure has remained virtually intact is that the adjustments have been borne by those who are neither tenured nor on the tenure track. The ratio of non-tenure track (often part-time) faculty to tenure-track faculty has increased and the salaries of full-time non-tenure track faculty have declined relative to those of full-time tenured and tenure-track faculty (Ehrenberg and Zhang

³⁶ For a discussion of some of these ideas, see Oi (1979) and Weiler (1987). Thus, one suggestion was to divide a faculty member's salary into two components, one of which could not fall in nominal terms while the other would be adjusted to reflect the individual's contributions to various aspects of the university's activities. A frequent proposal is to replace tenure with long-term but fixed employment contracts.

(2005)). Increasingly, the teachers at American colleges and universities are separated into two groups: the “insiders” consist of a relatively cosseted and privileged group who enjoy the entitlements of tenure and of being on the tenure track; the “outsiders” are part-time and full-time non-tenure track faculty who often have the appearance of contingent workers. The end of mandatory retirement imposed on colleges and universities additional costs of employing tenured and tenure-track faculty and so the drop in their relative use and the increase in the relative employment of those off the tenure track should not be surprising. By combining phased retirement and buyout programs with greater use of instructors off the tenure track, colleges and universities appear to have avoided the drastic re-thinking of tenure arrangements that observers forecast twenty years ago.

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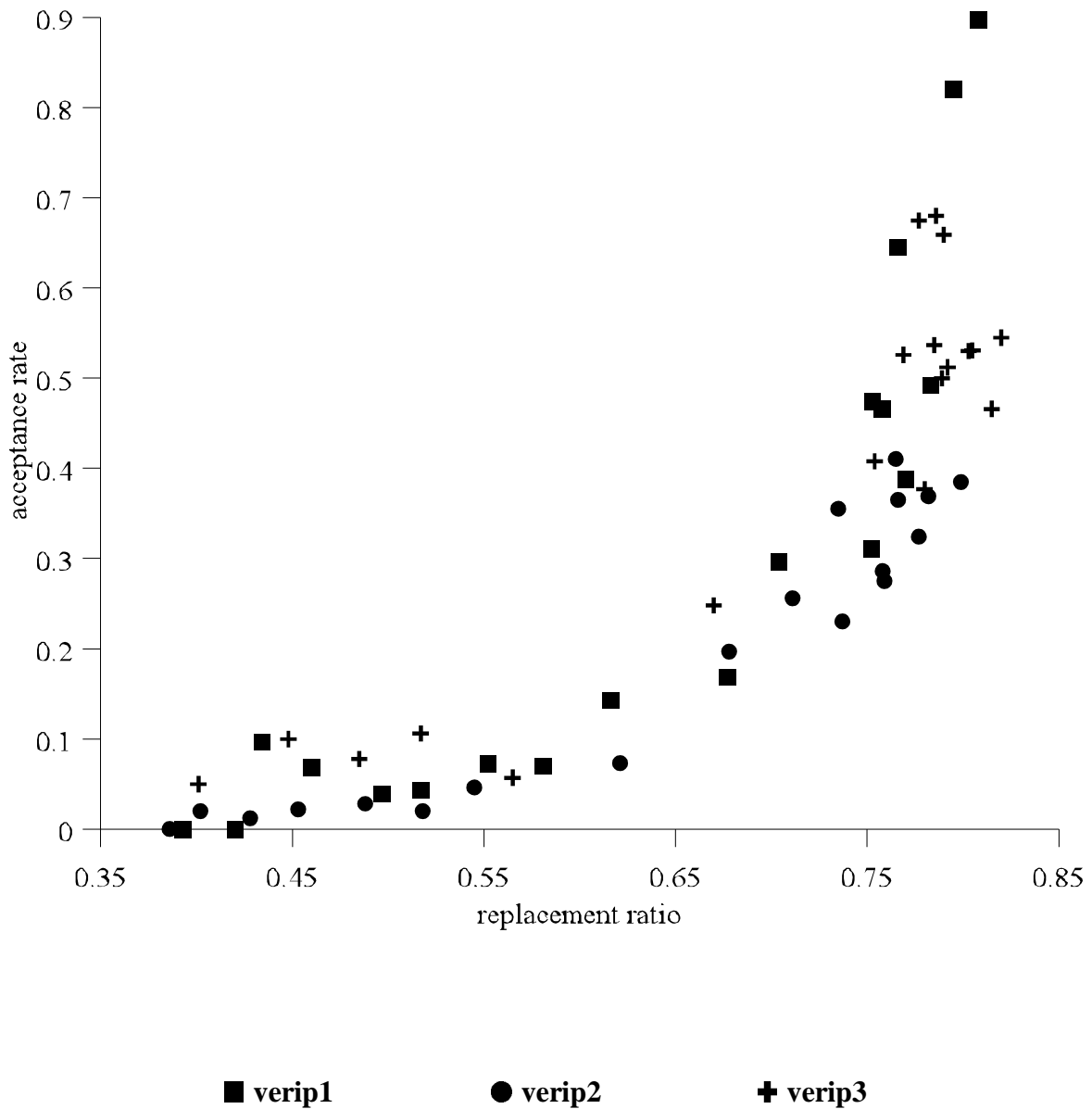
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Figure 1

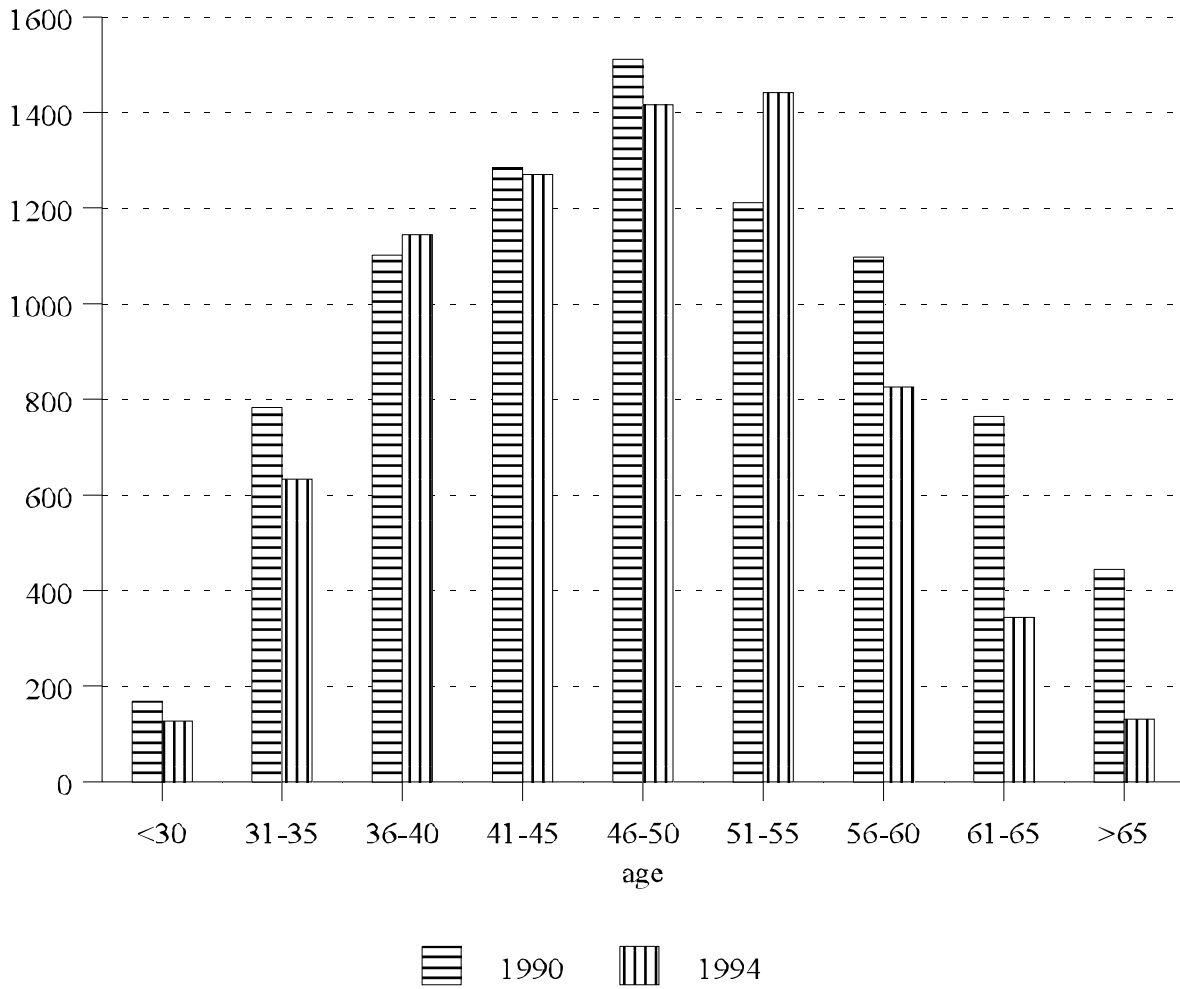
The Relationship between Each Verip's Replacement Ratio and the Acceptance Rate by Age



Each observation in this figure shows the replacement ratio and verip acceptance rate for a given verip at each age of the faculty. There are nineteen ages for each verip: age 52 years or less, age 70 years or more, and each single years of age from 53 years to 69 years.

Figure 2

Tenured Faculty Employment by Age at the University of California Before and After the Buyouts



Employment of faculty enjoying tenure protection fell from 8,368 in 1990 to 7,333 in 1994, a twelve percent reduction.

Table 1

Type of Pension and Private-Public Status: Percentage of All Institutions

	Public	Private	Total
Defined Contribution (DC)	8.1	33.1	41.2
Defined Benefit (DB)	13.8	1.5	15.3
Combined DC-DB	7.1	0.5	7.6
Both DC and DB Offered	35.7	0.2	35.9
Total	64.7	35.3	100.0

Source of data: Survey of Changes in Faculty Retirement Policies, Ehrenberg (2003).

Table 2

The Percentage of Institutions Offering Various Benefits to Retired Faculty

Benefit Provided to Retired Faculty	Doctoral/Research Universities	All Other Colleges & Universities	All Colleges & Universities
office space	75.6	40.4	47.6
secretarial assistance	54.5	29.3	34.4
access to institution's computer system	88.6	61.2	66.8
telephone	65.9	36.2	42.3
travel funds	22.8	8.0	11.0
parking	86.2	62.8	67.6
lab space	42.1	13.0	21.9
apply for research grants	81.1	42.9	54.5

Source of data: Survey of Changes in Faculty Retirement Policies, Ehrenberg (2003). The question on lab space is, "Are retired professors who are scientists assigned lab space using the same criteria that are used for tenured faculty members?" The question on research grants is "Are retired faculty eligible to continue to apply for research grants through the university?" In these two cases, the numerical entries in the table represent the answers "yes" as a percentage of answers "yes" plus "no" (eliminating "not applicable").

Table 3

Maximum Likelihood Estimates of Institutional Variables Associated with the Incidence of Phased Retirement Programs and the Incidence of Faculty Buyouts

	Phased Retirement Programs		Buyouts	
	(1)	(2)	(3)	(4)
right-hand side variables				
Defined Contribution = 1	0.239 [0.000]	0.236 [0.000]	0.126 [0.030]	0.130 [0.002]
Doctoral = 1	0.099 [0.020]		0.173 [0.000]	
Public = 1	0.073 [0.199]	0.087 [0.146]	-0.183 [0.030]	-0.200 [0.002]
Masters = 1		-0.056 [0.245]		-0.164 [0.002]
Baccalaureate = 1		-0.100 [0.066]		-0.210 [0.001]
2 year institutions = 1		-0.149 [0.008]		-0.158 [0.005]
-2 x (maximized log likelihood)	673.7	670.6	697.8	696.8

p values corresponding to two-tailed tests that the estimated logistic coefficients are not different from zero are reported in square brackets.

Source of data: Survey of Changes in Faculty Retirement Policies, Ehrenberg (2003).