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Early Retirement Incentives and Employee Performance in a Restructuring Organization

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Abstract

As downsizing becomes more prevalent in organizations in the 1990s, understanding employee behavior in response to workforce reduction programs becomes critical. This study examined the effects of financial incentives and performance on retirement behavior, occurring under a voluntary early retirement incentive program at the University of California.

First, using retirement decision models, we examined the effects of financial incentives on the probability of retirement. The major component of the incentive package was five year's service credit. Results of regression analyses suggest that increasing service credit by one year is associated with an increase in retirement probability of about three percent.

Second, we studied the relationship between research performance and retirement probability. The evidence indicates no significant relationship between career publication activity and retirement probability. However, a significant and negative relationship was found between recent publication activity and retirement. This suggests that professors who recently slowed down on their research were more likely to retire. The negative relationship between research performance and retirement probability was in part affected by the University's promotion system, which rewards those who continues to publish their research.

1. INTRODUCTION

The frequency and intensity of organizational restructuring increased significantly in the 1990s due to rapid technological innovations, intensified global competition, and economic recession. In most restructuring endeavors, workforce reduction is an important component, especially since the latest recession, which began in 1990. The downsizing effort continues to spread and appears to be ongoing in many organizations(HR Focus, 1996).

To quickly reduce their workforce, many organizations rely on layoffs or employee buyout programs. Although layoffs are a direct and convenient way of reducing payroll, they cause serious morale problems and stress among the remaining employees(Brockner, Grover, O'Malley, Reed, and Glynn, 1993). Layoffs also may discourage employees from investing in developing themselves because of heightened job insecurity. In response to the problems associated with layoffs, an increasing number of employers are using limited-window pension incentives to encourage voluntary retirement.

A limited-window plan is an innovative early retirement plan through which organizations offer enriched pensions to workers above a certain cut-off if they retire by a defined deadline. The main objective of the retirement bonus plan is to encourage older, relatively expensive employees to retire during a limited time period. According to the annual survey on early retirement "Sweeteners" conducted by Charles D. Spencer & Associates, 12 to 14 percent of major American corporations have implemented limited-window programs every year since 1990(Employee Benefit Plan Review, 1994). As the need for cost-cutting and flexibility intensifies, restructuring organizations are increasingly relying on this special retirement program.

In contrast, research on the limited-window programs is sparse. Previous studies on downsizing programs have paid primary attention to job layoffs and their effects on laid off employees and survivors(DeVries and Balazs, 1996; Brockner, et al., 1993; Hitt and Keats, 1992; Leana and Ivancevich, 1987). Studies on pensions have focused mostly on the structure of pension benefits and pension effects on employees turnover(Ruhm, 1996; Gustman, Mitchell, and Steinmeier, 1994; Moffitt, 1987, 1984; Burtless, 1986; Fields and Mitchell, 1984a, 1984b; Burkhauser and Quinn, 1983a, 1983b).

Therefore, our understanding is limited regarding the factors that affect

employees' retirement decisions in a limited-window program. One of the most important issues in the special early retirement program is the strength of financial incentives in employees' retirement decisions. Of concern is how many employees would accept the financial incentives and leave the organization and how much of a bonus should be offered to retire a certain number of employees. The addressing of these and related issues would help restructuring organizations in designing and implementing a limited-window program.

Another critical issue in a limited-window program is the possibility of better performing employees retiring under the special program and moving to other organization. Since organizations have to carry out their business with fewer employees after workforce reductions, the relationship between employee performance and early retirement deserves close examination.

The present study aims to fill these gaps in the literature by modeling employee' retirement decisions based on the life cycle theory of work and the human capital theory. We used a sample of 349 faculty members who were eligible to retire under a limited-window program at University of California, Los Angeles(UCLA) in 1992.

Ⅱ. THEORY

Pension, Early Retirement Incentives, and Retirement

Since the consequences of a retirement decision influence an individual's utility for the rest of his or her life, life cycle theory provides a useful perspective for analyzing retirement(Quinn, Burkhauser, and Myers, 1990). Life cycle theory posits that a worker looks ahead over a planning horizon and chooses when to retire. When making this decision, the worker's objective is to maximize personal utility.

Pensions have been thought to influence employees' retirement age because the timing of retirement significantly affects monthly retirement benefits and lifetime pension wealth(Kotilikoff and Wise, 1987b; Fields and Mitchell, 1984). In a defined benefit plan, a monthly pension benefit will rise as a worker's tenure with a firm increases. The longer the worker stays with the firm, the larger will be the pension. Deferring retirement results in a reduced time period in which the worker receives pension income. Thus,

pension wealth, the present discounted value of pension stream, increases up to a certain age and begins to decline subsequently. If an employee continues to work after the peak of his or her pension wealth, the worker will be paying an implicit tax by forgoing pension income. The utility of work, therefore, decreases as the worker ages. Compounding the pension loss effect is the increasing utility of leisure with age. The worker will eventually decide to retire when the utility of leisure starts to exceed the utility of working another year.

In addition to the embedded incentives, a number of pension plans provide early retirement incentives to encourage old, relatively expensive employees to retire earlier than the normal retirement age of 65. As discussed earlier, a limited-window program offers highly enhanced pension income only if a worker decides to retire within a defined time frame. Thus, if the worker passes up the offer and continues to work, he or she loses a considerable amount of pension income. For relatively young workers, for example, workers in their early 50s, the lost pension may be smaller than the added salary and pension wealth they would get from continued work. For older employees, however, the pension loss can be substantial relative to the future salary and pension wealth.

Research Performance and Retirement

Human Capital Theory: Human capital theory(Becker, 1993) has mostly been used to explain the quantity and the types of investment in training by employees and firms. It also provides a framework to understand the relationship between employee performance and early retirement. Becker's theory posits that an individual makes a human capital investment decision if the present value of rewards from the investment exceeds the cost of the investment. If an investment is made, the stock of human capital increases and so does the productivity of the individual. The initial investment, however, needs to be supplemented by a series of subsequent investments because the stock of human capital depreciates over time.

In a university setting, professors produce research work throughout their careers because of the rewards that flow from such research. Research work can be interpreted as investment in human capital(Weiss and Lillard, 1982) because it enables professors to obtain tenure, promotions, and influence.

Professors at the entry level(assistant professors) have an enormous incentive to produce research due to huge rewards, in the form of tenure and promotion, that flow from research. After a professor is tenured, he or she still has incentives to do research since further promotions and influence in the school are mainly dependent on continued research output. However, as the career horizon gets shorter due to such factors as older age and poor health, professors have less of an incentive to produce research because of the shrinking present value of the rewards from research. Thus, those who expect to retire within a few years will produce less research than those who plan to work longer. Other things being equal, professors who slow down on research are indicating a desire to retire early. Professors with continued research productivity are indicating an unlikeliness to retire early.

However, since productive professors have more job opportunities in the academic job market, they could be more likely to accept retirement incentives and then move to other institutions. Thus, in theory, the efffect of research performance on a retirement decision has the potential to be ambiguous.

Psychological Theories: Psychologists also offer explanations for the relationship between research performance and retirement. Summarizing psychologists' view, Lawrence and Blackburn(1985) note that researchers go through self-examination during transition periods in their late 50s and 60s. The self-examination often leads to a decline in research productivity as professors begin to realize that they may never become the great disciplinary scholar that was their ideal early in their careers. Decline in research reflects a lack of enthusiasm and motivation, and this could lead to early retirement.

Economic and psychological factors generate mixed predictions regarding the effect of research performance on early retirement. In the following section, we address this effect using faculty retirement data.

Ⅲ. METHODS

Defined Benefit Plan at the University of California

The University of California offers a defined benefit pension plan for faculty and staff. Employees can elect to receive retirement benefit at any time

after they become eligible, i.e. when they reach age 50 and have at least five years of service. The size of their retirement income depends on age at retirement, years of service, and salary. Specifically, the formula for retirement income is:

service credit * age factor * HAPC(Highest Average Plan Compensation).

Service credit is approximately the number of years an employee has worked for the University of California. Age factor is determined by a conversion table that matches an age factor to each age. The age factor increases as age increases. HAPC is the employee's average monthly salary calculated over the highest 36 consecutive months.

In 1992, the University of California implemented Voluntary Early Retirement Incentive Program(VERIP) in response to a serious budget shortfall. To be eligible for BERIP, the sum of a professor's age and service years must have totaled at least 78. Eligible professors who retired by January 1, 1993 received three bonuses: (1) additional five years' service credit; (2) additional seven percent increase in HAPC; and (3) a lump-sum cash payment in the amount of three months' salary for transition assistance.

Payroll Data

Payroll data for faculty members at UCLA are used in this study. The data set contains information such as faculty age, salary, gender, service years, rank and step, ethnicity, and department. The office of the President of the University of California provided the data.

Survey

Payroll data sets do not have information on such items as faculty health, marriage, or spousal employment. To gather information that was not available from the payroll data, a phone survey was conducted. A letter asking for cooperation was sent before the eligible professors were contacted. All 84 retirees were called, and 82 of them provided usable responses to the survey. Among the 391 professors who did not retire, 267 professors provided usable responses to the survey. In all, 349 professors responded to the survey, for a response rate of 71.4 percent.

The respondents are somewhat older than non-respondents. Since retirement rates among older professors are higher than the average, the effects

on retirement decision of retirement incentives could be overestimated.

Faculty Publication Data

Publication data for the UCLA faculty were gathered from faculty curriculum vitas, which were provided by the Academic Personnel Office. The advantages of using curriculum vitas are: (1) professors' lifetime publication records are available; and (2) information on papers as well as books is available.

Citation data also were gathered for these professors to measure the contribution and influence of their research. Social Science Citation Index, Arts and Humanities Citation Index, and Science Citation Index were used to get a count of citations for 1990 and 1991.

Model

The retirement decision model is:

$$\text{Acceptance}=\alpha_0+\alpha_1 \text{ Retirement Incentives}+\alpha_2 \text{ Research Performance}+$$
$$\alpha_3 \text{ Future Earnings}+\alpha_4 \text{ Health}+\alpha_5 \text{ Wealth}+\sum \alpha_i V_i+\sum \beta_i W_i$$

V_i is a vector of demographic variables: age, service years, spousal employment, number of dependents, race, gender, and marital status. W_i is a vector of academic variables: rank and step, employment status, department, and campus. Since a professor's decision is whether or not to accept VERIP incentives, a logit regression was used to estimate the model.

Measures

Early Retirement Bonus: A correct measure of the early retirement bonus is the difference between pension wealth if a professor retires now with incentives and pension wealth if the professor retires later without incentives. Because a pension is an asset composed of a stream of retirement income, individuals consider the difference in pension wealth when they make early retirement decisions. The greater the difference is, the more likely a professor is to retire. Since monthly pension income is determined by a professor's age, service years, and salary level at the year of retirement, these variables directly affect the difference in pension wealth. The difference variable is also affected by a professor's life expectancy and discount rates because these variables are used in the calculation of the present

value of a pension.

In this study, monthly retirement benefit was calculated using a formula which is a product of service credit, age factor, and highest average plan compensation. Then, a discount rate of 5 percent was used to calculate the present discounted value of the pension income. The 5 percent discount rate was used, in part, to reflect likely investment alternatives and, in part, to replicate other studies on retirement incentives.

Research Performance: Research performance was measured by the number of publications and the number of citations. Although these variables do not measure the teaching and service side of faculty quality, research is considered the most important aspect of faculty quality in a research institution such as the University of California. The publication measure includes books and published papers reported on faculty curriculum vitas. Papers included in the publication measures are those published in journals listed in the Social Science Citation Indexes, Arts and Humanities Citation Indexes, or Science Citation Indexes. Following methods widely used in the literature, we equated a book with three papers(Creswell, 1989; Braxton and Bayer, 1986). For co-authored publications, two different ways of weighting were used.

1) Each publication is assigned unit weight, irrespective of the number of contributors.

2) Each publication is assigned a weight equal to the reciprocal of the total number of contributors.

Then publication measures were calculated for two periods: 1) for the period from the year of Ph.D. to December 1991; and 2) for the period from January 1989 to December 1991. Then annual averages for both periods were used for analyses.

To measure influence of research work, the number of citations for 1990 and 1991 were also counted for each professor. Since the number of citations depends on both current and previous research work, it reflects the influence of lifetime research work.

Future Earnings: If a faculty member decides to retire under an early retirement incentive program, he or she forsakes an opportunity to receive earnings from work afterwards. Thus, the greater the present value of future earnings is, the lower will be the probability of accepting retirement

incentives. In the retirement decision model, future earnings are measured by the present value of gross earnings stream that a professor would receive if he or she continued working to some later retirement age. Gross earnings include base pay, overtime, pay from negotiated arrangements, pay for summer session and intersession, deferred compensation, and consulting fees.

Health: Poor health increases the probability that an individual will accept retirement incentives because poor health increases the utility of leisure as one's life expectancy is reduced. In addition, poor health decreases the utility of work since working becomes more burdensome. Poor health, however, could lead people not to retire if they lose health care benefits with retirement. Since University of California professors keep health benefits even after retirement, professors with poor health would be more likely to accept early retirement incentives than those with better health. In this study, health is measured by professors' self-assessment of health.

Wealth: If leisure is a normal good, the demand for leisure increases as an individual becomes wealthier. Since the utility of income from additional work becomes smaller for a wealthier individual, work hours will be shorter for this individual, other things being equal. Additionally, a wealthier individual is more able to afford leisure, which, in turn, will increase demand for leisure. The wealth effect thus will lead to early retirement. In the retirement decision model, wealth is imputed by using the 1989 Panel Study of Income Dynamics(PSID) data. Wealth in the PSID data includes net value of house, other real estate, vehicles, farm or business, stocks, cash, cash accounts, and other assets less remaining mortgage principal and other debts.

Age and Service Years: Older professors would retire earlier than younger professors because the utility of leisure increases as they age. Age is also associated with decreased level of stamina and motivation for work (Chronister and Kepple, 1987). Service years may be positively associated with accepting retirement incentives since those with more service years would want to explore interests and opportunities other than their career job. However, longer service years could indicate greater satisfaction with job and the University. Therefore, the effect of service years on retirement probability is theoretically ambiguous.

Spousal Employment and Children: Spousal employment was included because individuals are found to coordinate retirement with spouses. Those with a working spouse would be less likely to accept retirement incentives than those without a working spouse. Studies also find that retirement decisions are affected by the responsibility of supporting dependents. In the retirement models, the number of dependents is included to control the effects of dependents on retirement decisions. In the survey, professors were asked for the number of dependents who relies on them for half or more of their financial support.

Table 1 presents a brief explanation of the variables used in this study.

〈Table 1〉 Definition of Variables

Dependent Variable	=0 if professor accepted retirement incentive =1 if professor did not accept retirement incentive
Retirement Incentives	=difference in present value of pension
Wealth	=F(age, gender, race, education, wages and salaries)
Future Earnings	=F(gross earnings, year to retirement, discount rate)
Age	=current age at time of incentive offer
Gender	=1 if male =0 if female
Service	=years of service at the University of California at time of incentive offer
Active	=1 if active on duty =0 if on leave, separated, or inactive
Rank	=1 if full professor =0 if associate professor
Health	=1 if perceived health is excellent or good compared to others of same age =0 if perceived health is fair or poor compared to others of same age
Marriage	=1 if currently married =0 if otherwise
Spousal Employment	=1 if spouse is employed outside the home =0 if otherwise
Dependents	Number of dependents
Publications per year:	
Career Total Avg	Papers and books published during entire career(annual average)

(continued)

⟨Table 1⟩ Definition of Variables
(continued)

Career paper Avg	Paper published during entire career(annual average)
Recent Total Avg	Papers and books published in 1989-91(annual average)
Recent Paper Avg	Papers published in 1989-91(annual average)
Citations(1990)	Number of citations received in 1990
Citations(1991)	Number of citations received in 1991
Race 1	=1 if white(not including Hispanic) =0 if otherwise
Race 2	=1 if Hispanic =0 if otherwise
Race 3	=1 if black =0 if otherwise
Race 4	=1 if Asian =0 if otherwise
Race 5	=1 if Native American =0 if otherwise
Dept 1	=1 if biological sciences, or agriculture =0 if otherwise
Dept 2	=1 if mathematics, or computer and information sciences =0 if otherwise
Dept 3	=1 if physcial sciences =0 if otherwise
Dept 4	=1 if engineering =0 if otherwise
Dept 5	=1 if psychology, social sciences, or area studies =0 if otherwise
Dept 6	=1 if fine and applied arts, foreign languaes, letters, or theology =0 if otherwise
Dept 7	=1 if management, education, architecture, law, criminology, social welfare, communications, library science, or home economics =0 if otherwise
Dept 8	=1 if medicine =0 if otherwise
Dept 9	=1 if veterinary medicine, dentistry, nursing, pharmacy, public health, optometry, other health sciences =0 if otherwise

Ⅳ. RESULTS

Descriptive statistics and t-tests

〈Table 2〉 Descriptive Statistics

Variables	Mean	Std Dev
Retirement Incentives($1,000)	15.3484	171.1721
Wealth($1,000s)	771.2972	175.8626
Future Earnings($1,000)	590.3286	405.1348
Publications per year.		
Career Total Avg	2.1677	1.3406
Career Paper Avg	1.9416	1.3284
Recent Total Avg	1.9742	1.7084
Recent paper Avg	1.8413	1.6267
Citations(1990)	22.9530	32.1471
Citations(1991)	22.5711	32.2841
Health	0.8807	0.2560
Age	61.8345	5.3625
Gender	0.8834	0.2284
Service	25.1550	6.2700
Active	0.8043	0.3028
Rank	0.8903	0.2691
Marriage	0.8243	0.3149
Spousal Employment	0.5480	0.4670
Number of Dependents	1.1880	0.8850
Race 1	0.8913	0.2444
Race 2	0.0237	0.1347
Race 3	0.0249	0.1435
Race 4	0.0602	0.2327
Dept 1	0.1747	0.3475
Dept 2	0.0973	0.2384
Dept 3	0.1093	0.3303
Dept 4	0.1170	0.3028
Dept 5	0.1097	0.2747
Dept 6	0.2625	0.3235
Dept 7	0.1294	0.2410

N=349.

Descriptive statistics are presented in Table 2. The average age and service years are 61.8 and 25.1. Of the sample, 95 percent are males and 90 percent are whites(not including Hispanics). Of the 82 retirees in the sample, 56 professors(68.3 percent) are recalled and working part-time at the University. Eight professors(9.8 percent) are working at other universities or research institutions and 14 professors(17.1 percent) are working somewhere else(e.g., consulting, business). Only 4 professors(4.9 percent) completely retired. That most retirees are working at least part-time is consistent with the findings of other studies that retirees go through partial employment before retiring completely.

The average total publication per year is 2.03 for retirees and 2.21 for stayers for their entire career. The difference is not statistically significant. In addition, there is no significant difference in the average paper publication per year between retirees and stayers. Similar results were found when the publications were adjusted by the number of authors.

There is, however, a significant difference in the number of publications between retirees and stayers during the period from 1989 to 1991. During this period, the average total publications per year is 1.76 for retirees and 2.04 for stayers. The average paper publication is 1.56 for retirees and 1.93 for stayers. Differences are significant at the 5 percent level. The differences were slightly bigger when publications were adjusted by the number of authors.

Finally, there is no significant difference between retirees and stayers in the number of citations they get. The average number of citations in 1990 and 1991 are: 22.8 and 21.5 for retirees; and 23.0 and 22.9 for stayers. These results suggest that retirees and stayers have a similar number of citations and career publications. However, retirees are found to have slowed down on their research and published less than stayers during the years close to retirement.

Results of Logit Regressions

〈Table 3〉 Estimates of Logit Regression

Variables	Coefficients	Std Error
Intercept	2.7520	1.6589
Retirement Incentives	0.0266***	0.0075
Wealth	0.0020*	0.0011
Future Earnings	−0.0044**	0.0020
Age	0.0293**	0.0145
Gender	−0.2446	0.1843
Service	0.0109	0.0076
Active	−0.3698	0.2163
Rank	0.1215	0.0952
Health	−0.3212**	0.1427
Career Total Avg Publication	−0.2956	0.1834
Marriage	0.3287	0.2245
Spousal Employment	−0.2547	0.2549
Number of Dependents	−0.0962**	0.0474
Race 1	0.1254	0.2028
Race 2	0.2546	0.1865
Race 4	−0.0964	0.1014
Dept 1	0.2961	0.2146
Dept 2	0.3281	0.1924
Dept 3	−0.2516*	0.1311
Dept 4	0.2486	0.2126
Dept 5	0.3764	0.3142
Dept 7	0.2058	0.1543
Log Likelihood=−149.5214		

N=349.
* =significant at .10 level.
** =significant at .05 level.
*** =significant at .01 level.

The results of a logit regression is presented in Table 3. The difference in retirement incentives are positively associated with the probability of accepting retirement incentives. As the life cycle model predicted, the pen-

alty of reduced pension wealth due to postponed retirement has a powerful impact on professors' retirement behavior. The coefficient of retirement incentives is significant at the 1 percent level.

〈Table 4〉 Estimates of Alternate Logit Regressions for Various Research Measures

Variables	Coefficients	Std Error
Publications:		
Career Paper Avg	−0.2743	0.1728
Recent Total Avg	−0.3146**	0.1592
Recent Paper Avg	−0.3573**	0.1684
Citations:		
Citations(1990)	−0.0293	0.0198
Citations(1991)	−0.0247	0.0205

N=349.

* =significant at .10 level.
** =significant at .05 level.
*** =significant at .01 level.

The coefficient of research performance, measured by average career publication, is negative, but not significant. Alternate measures of research performance were used for regression analyses and the results are presented in Table 4. The results indicate that recent publication measures, both the total and paper publication measures, are negatively associated with accepting retirement incentives. The coefficients are significant at the 5 percent level. This indicates that professors whose recent average publications are lower are more likely to retire. Similar results are found when the measures are adjusted for the number of authors. Citation measures for 1990 and 1991 are not found to be significant. Since the number of citations are dependent on career publications and there are no significant differences in career publications between those who retired and those who stayed, the relationship between citations and retirement probability is

not significant.

The results presented in Table 3 and 4 suggest that professors' career publication measures are not significantly associated with accepting retirement incentives. However, professors who slowed down on research in the years close to the VERIP are more likely to accept retirement incentives.

As expected, professors with poor health were significantly more likely to retire in the limited-window program. Because the University provides health benefits for retirees, those with poor health didn't have to worry about health care after retirement.

The wealth of professors is also positively associated with accepting retirement incentives. Since demand for leisure increases as the wealth of a professor rises, the wealth variable is found to increase retirement probability.

Future earnings reduce retirement probability at the 5 percent significance level. The effects of future earnings, reported in this study, however, could have been underestimated because only earnings from employment at the University of California is used. That some professors have income from sources other than employment with the University suggests that the present value of actual future earnings could be greater than the present value of gross earnings through the University of California.

Age is positively associated with accepting retirement incentives. Although the age effect differs across individuals, age tends to be a proxy for a variety of factors that might increase the propensity to retire, such as declining stamina and motivation. Additionally, older individuals could regard retirement incentives as particularly attractive, given the few years of retirement remaining.

The number of dependents is negatively associated with accepting retirement incentives. Financial burden due to dependents discourages professors from retiring early.

Among the variables in the logit regression, seven variables attained significance at the 10 percent or lower level. When dummy variables are excluded, six variables are found to be significant and three of them are economic variables: retirement incentives, wealth, and future earnings. This indicates that individuals make a careful financial consideration with regard to retirement dicisions.

V. DISCUSSION AND CONCLUSION

Retirement Incentives

When a restructuring organization implements an early retirement incentive program, one of the concerns is how sensitive employees would be toward the incentives. To examine this issue within the University of California, the marginal effects of VERIP incentives are evaluated at the median of each variable.

The results demonstrate that the marginal effects of difference in pension values are substantial. A $10,000 increase(in 1992 dollars) in the difference in present values would increase the probability of accepting the VERIP by 1.58 percentage point.

Using these results, we calculated how an extra year of service credit would affect retirement probability. Since the additional service credit increases the difference variable by $23,625, retirement probability would increase by:

3.73 percentage points=($23,625 / $10,000) * 1.58 percentage point.

This means that the overall retirement rate would have increased from 17.7 percent to 21.4 percent if the service credit was increased by one year.

The marginal effects found in this study are consistent with those found in other studies. Using Burkhauser's OLS estimates on pension acceptance, a $10,000 increase(in 1992 dollars) in the difference variable would result in a 9 percentage point increase in the probability of acceptance(Burkhauser, 1979). More recently, the results of Hogarth(1988) indicate that a $10,000 increase(in 1992 dollars) in the difference variable would result in a 4.6 percentage point increase in the probability of acceptance.

While these changes in probability are larger than those in the present study, they need to be deflated because Burkhause(1979) used a sample of automobile workers and Hogarth(1988) used a sample of New York state government employees. That is, a $10,000 increase in pension wealth would persuade more auto workers and state government employees to accept retirement incentives than Unversity of California professors. Additionally, unlike tenured professors, the auto workers and state government employees made retirement decisions amid several rounds of layoffs and possible layoffs in the future. Faced with layoffs, workers are more likely to accept

retirement incentives(Hogarth, 1988)

Performance of Retirees and Stayers

In an early retirement incentive program, another important concern is the performance of employees who accept incentives. More specifically, a concern at the University of California was whether young and able faculty members would disproportionately accept the retirement incentives. In this study, the issue was examined using research performance.

In the years close to retirement, retirees have significantly fewer publications than stayers. Logit results also indicate that those with fewer publications from 1989 to 1991 were more likely to accept incentives. These are consistent with a study by Monahan and Greene(1987), who found that professors who rated themselves low on research in the year just before retirement were significantly more likely to accept early retirement incentives.

As discussed earlier, economists and psychologists provide explanations regarding why some professors slow down on research and retire early. First, the human capital theory has significant implications for managers in restructuring organizations who want to retire older employees who put out less effort. It is not easy to monitor employees' effort level, but according to the economic theory, older employees who are ready to retire would be expending less effort and would be more likely to accept early retirement incentives. Thus, downsizing programs such as the VERIP could be very effective in getting rid of older employees who had become unproductive.

Psychological explanations also important for managers because employees with diminished motivation are thought to be more likely to accept early retirement incentives. Although this theory was developed for university professors, it can be applied to employees in a variety of business organizations. Such employees also go through self-examination late in their career and, as their motivation diminishes, would be adjusting down their effort level.

The negative relationship between recent performance and retirement probability was affected in part by the University's effort to encourage unproductive professors to retire. It is known that universities, in one way or another, encourage unproductive professors to retire(Creswel, 1989). The results of the present study indicate that early retirement incentives,

coupled with managerial interventions, could increase the effectiveness of downsizing programs by inducing unproductive employees to retire.

Another factor that could have contributed to the negative relationship between recent performance and retirement is the retiree recall program offered by the University of California. As professors get old, some of them become unable to keep up with research, teaching, and service duties, but still want to keep their positions with a reduced work load. Retirement incentives and recall arrangements could be very attractive for these professors who tend to be unproductive.

In contrast to early retirement incentive programs, downsizing through layoffs seems to have different outcomes. Using a sample of 145 production workers, Mone(1994) finds that self-efficacy is positively related to intent to leave. Self-efficacy is a measure of one's perception of one's skills to complete each particular duty required to complete a task. Intent to leave is a best predictor of employee turnover in past turnover research(Mobley, 1988). Mone(1994) thus suggests that employees of higher quality are more likely to leave when an organization downsizes through layoffs. Since layoffs are involuntary and relatively unpredictable, employees who have capabilities and confidence to successfully pursue job opportunities elsewhere seem to be more likely to leave.

Layoffs are also found to cause serious morale problems and stress among the remaining employees(Brockner, et al., 1993). Because layoffs are a traumatic experience, the remaining employees are found to have decreased morale and increased stress.

At present, research on relationship between employee quality and turnover is sparse. Results of a few studies on this relationship suggest that employees with low quality are more likely to retire in a voluntary workforce reduction program, while those with high quality are more likely to leave in a involuntary workforce reduction program.

Conclusion

This study examined two important issues of employee retirement behavior under a voluntary early retirement incentive program at the University of California. The first question raised in this study was the strength of retirement incentives in employees' retirement decisions. The results

suggest that increasing service credit by 1 year is associated with approximately a 3 percent increase in retirement probability. Comparing this with the results of other studies reveals that the effects of retirement incentives differ across age, occupations, and organizations. Retirement incentives have greater effects on older workers than younger counterparts. Additionally, retirement incentives have bigger effects on production workers than white collar employees.

From a managerial point of view, understanding and utilizing the economic nature of early retirement incentives is important because individuals are found to make careful financial considerations. By providing "extra" retirement incentives, managers can induce a substantial number of employees to choose retirement.

Second, we studied the relationship between employee performance and retirement probability. The evidence indicates that professors who slowed down on their research in the years close to the early retirement program were more likely to retire. For psychological and economic reasons discussed earlier, emloyees who are less motivated and putting out less effort seem to be more likely to retire early.

Another reason for the negative relationship between recent performance and retirement is the human resource strategy taken by the University. The organization had a strategic goal of keeping productive faculty menders while pursuing workforce reduction. The University put subtle pressure on unproductive professors to accept retirement incentives and discouraged productive ones from retiring. In addition, the University offered retiree recall arrangements, which encouraged professors whose ability and enthusiasm decreased to retire early and get part-time positions.

Finally, the results of this study and other studies indicate that laying off employees may encourage high quality employees to leave the organization while voluntary early retirement incentive programs would encourage low quality employees to leave.

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