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STATEMENT OF*

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SUBCOMMITTEE ON LABOR-MANAGEMENT RELATIONS

For the record of its hearing of

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on

"Women's Pension Equity"

* The views expressed in this statement are those of the author and do not necessarily reflect the views of the Employee Benefit Research Institute, its Trustees, members, or other staff.

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## SUMMARY

Mr. Chairman, it is a pleasure for the Employee Benefeit Research Institute to submit this statement for the record. EBRI is a nonprofit, nonpartisan, public policy research organization which sponsors research and educational programs to provide a sound information basis for policy decisions. EBRI does not take positions on public policy issues or proposals.

The ultimate goal of pension plans is to produce benefits that help supplement the economic security provided by Social Security, individual savings, and other sources. As a matter of law, pension provisions must be the same for both sexes.

Historically, pension plan expansion has followed a consistent pattern. With the exception of the 1975-1977 period, when the Employee Retirement Income Security Act was being implemented the number of tax qualified plans has regularly grown at an annual rate of 10 percent or better (Table 1). This pattern of expanded plan availability has brought with it broader exposure to pensions. According to Census data 68.3 percent of civilian workers meeting participation standards were participating in a plan in 1979. The aging of the baby boom alone could account for another 10 percent increase in the pension participation rate over the remainder of this decade.

Benefit entitlement (vesting) is also growing dramatically: from 6.3 percent of all private sector workers in 1965, to 19.5 percent in 1974, and 27.1 percent in 1979. As many as 60 percent of regular nonagricultural workers who retire in the next five years will receive a pension based upon their vesting status in 1979. As the pension system matures it is becoming increasingly effective in providing retirement income for the elderly. This will be true for women as well as men.

WOMEN AND PENSIONS

The law explicitly prohibits discrimination against women in pension plans. Yet women have traditionally been less likely to receive pensions than men, creating concern about the equitable treatment of pensions on the basis of sex. As our full statement and the detailed analysis contained in it indicates, the changing work patterns of women are changing the pension receipt situation markedly.

Female labor force partiticpation (see Table 3) grew to 51 percent in 1979 from 30.1 percent in 1950. For women age twenty-five to thirty-four, participation grew to over 63 percent in 1979 from 34 percent in 1950. Over 60 percent of all women eighteen to forty-four were working by 1979; over 69 percent of those twenty to twenty-four.

Pensions are similar to Social Security in that meaningful benefits can only be earned with consistent and sustained periods of employment and participation. Among older women, especially those now retired, the prevalence of full-time employment outside the home for extended periods was relatively rare. For example, of women aged sixty-one or over in 1977 fewer than half had at least ten years of Social Security earnings credits during the prior forty years (see Table 4).

Labor force participation data indicates that women's work patterns are shifting significantly; the younger cohorts of women are more likely to work than their counterparts in older cohorts and within each age cohort women are more likely to have earnings on a regular basis as they age. As these consistent trends continue to evolve the changing role of women in the workforce is exposing them to the pension system to a much greater degree than earlier cohorts of women. The expansion of the pension system itself is going

to accentuate the effects of women's increased labor force attachment. Two income sources that are part of total employee benefits must also be considered: (1) life insurance and (2) lumpsum distributions.

A number of proposals are included in pending bills which are intended to enhance the potential of benefit receipt. The data exists in the public domain to test some of these proposals against that goal. Other data exists, but is not publicly available for analysis. Finally, the Census notes that an increasing number of workiong women make more than thier working spouse. Thus, many of these relationships may reverse in the years ahead.

Reducing Pension Participation Ages to 21

In May 1979 there were 11.1 million workers between twenty-one and twenty-four; 5.2 million worked for an employer who did not have a pension plan (see Table 8). Another 2.6 million, or 23.4 percent, were already participating in a plan but had not yet vested. Slightly more than 1.1 million, or 10.3 percent, had already vested in their current employer's plan. Only about 1.2 million workers twenty-one to twenty-four years old were working for an employer with a pension in which they were not yet participating and would become particpants if the age of participation were reduced to twenty-one. Reducing the ERISA participation standard to age twenty-one in 1979 would have increased the pension participation rate among women by only 1.4 percent and among men by .8 percent. Those who would vest under an age twenty-one standard would likely vest under current law. And, due to the aging of the baby boom, the number who would benefit from age twenty-one participation is getting even smaller. By comparision, newly qualified pension plans have given participation to more than twice as many people, both men and women, in each of the last four years. The basic question that policy makers

should consider is whether it is worth substantially increasing pension administration burdens in order to increase pension participation by .7 percent.

Changing Break-In Service Provisions

S.19 would eliminate the ERISA break in service rules for a worker on maternity and paternity leave for up to one year; S.888 would continue to provide service credits and pension accruals during the one year leave period. These provisions raise a question that can be looked at empirically: does maternity or paternity leave result in significant loss of service credits in private pensions under ERISA at the present time?

Our simulations indicated that as few as 5 percent of thirty-five to forty-five year old women in 1979 with more than five years of service may have lost service credits under the current break in service rules. Our simulations indicated that approximately 14 percent would have realized additional accruals under the S.888 provision as compared to current law. Our simulations also indicate that female labor force participation is stabilizing. Table 11 on page 38 indicates women are now workaing enough to vest.

Again, policy makers must weigh these benefits against additional administrative and funding costs.

Other Potential Policy Options

Reducing the participation standards or adjusting break-in service rules will not result in significantly greater pension benefits to most women. Further, virtually nothing can be done to affect the pensions of women on the threshold of retirement or already retired. What options, then, can be pursued to improve women's pension benefits in the near term and in the future?

- Better communication and utilization of joint and survivor options might help. Note, however, that the prevalence of life insurance coverage among pension participants may make this a smaller problem than it seems. This benefit also affects the relevance of pre-retirement death benefits which would increase plan costs by about 5.9% as proposed in the bills or 1% to 3% at age 45: if employers are required to pay death benefits they may reduce the life insurance they provide (See Appendix I).

- Faster vesting is frequently proposed, but would produce little additional retirement income. First, because in defined benefit plans the most meaningful accruals are at later ages when earnings are highest (see Table 12). Second, because most workers gaining entitlement would receive a very small cash payment that is normally spent, not "re-saved" for retirment. Our studies indicate that over 90 percent would receive less than a $2,000 lump sum distribution as a result of faster vesting (See Appendix II).

- Encouraging the creation of additional pension plans would result in the greatest amount of added pension receipt for all workers, including women. Careful assessment of policy changes on likely plan sponsorship decisions would help, along with attention to the relative level of ultimate retirement income security provided by different types of programs: defined benefit and defined contribution.

Filling Information Voids

Efficient and effective delivery of retirement benefits and appropriate policies would be enhanced by better analysis and agreement on the

facts. This requires information.

As evidenced by the recent Social Security reform process, agreement on the "facts" is an essential first step. In the area of pension reform such agreement would be more likely if data that exists were made available for public analysis. We provide two examples:

- ERISA requires extensive data to be filed with the government at a private sector cost of approximately $100 million per year. Since this is a tax deductible business expense it also reduces federal tax revenues by millions of dollars. Yet, this gold mine of data has not been edited, sampled, or released since 1977.
- The Department of Labor paid Arthur Young and Co. public funds to collect data on retirement income from over 600,000 retirees. It is the richest known source of information showing combined Social Security and pension income streams on the basis of actual program data, yet is it not available for analysis of the issues before you today. These data could provide a more comprehensive and accurate picture of pension recipients' income levels than any of the clearly flawed survey data on which we now must depend. While the DOL research staff and various analysts under contact have analyzed this information over the last two years these data are not available for public use. The DOL staff is concerned that since the data have been matched to the Social Security data that they cannot be made available to private analysts. The Congress could improve this situation by clarifying the restrictions in the Tax Act of 1976 limiting the use of these data for research purposes.

  Great care must also be taken in assessing the accuracy of the

information provided by special interests in advocating that particular policies be adopted. The debate over Social Security and federal employees represents a recent example of the creative use of statistics. The debate over pension policy sometimes suffers in the same way. For example, one Senator noted on March 24, 1983, regarding the issues before you today: "In fact, only 21 percent of women are covered by pension plans compared to 49 percent of men." Yet the May 1979 Current Population Survey conducted by the Bureau of the Census found that 52 percent of all working women were covered. And, among women between the ages of twenty-five and sixty-four in wage and salary positions who had been with their employer for one year or more, 61.8 percent were participationg in a pension plan in 1979 and more were covered. In other words, the "facts" provided to the Senator for his speech were off by 148 percent if he was talking about coverage and 81 percent if he was talking about participation.

This concern about availability and interpretation of data is central to EBRI's charter and goes beyond the deliberations on any bills now before the Congress. The problem that we are concerned about is that policy is frequently being deliberated without the benefit of the facts. We are convinced that without the facts policy deliberations can be misleading with the potential that ill-advised or ineffectual but expensive policies will be the result. The ultimate result will be that fewer people will receive meaningful benefits; when the objective being sought was greater benefit receipt. The ultimate cost may be taht fewer new pension plans are created because of the cost-benefit shift.

Such an ultimate result ends up hurting the intended beneficiaries and the entire nation by increasing the cost of our products and decreasing our

competitiveness. This costs Americans jobs, reducing tax revenues, and increases social program expenditures.

We thank you for the opportunity to submit this statement. We offer our further analytic services to you on this or related issues. We join you in your effort to bring the facts to bear and we share the common objective of meeting the economic needs of the nation's workers, retirees, and less fortunate in the most efficient, effective and equitable manner possible.

## INTRODUCTION

Mr. Chairman, it is a pleasure to submit this statement. I submit it in my capacity as Executive Director of the Employee Benefit Research Institute. EBRI is a nonprofit, nonpartisan, public policy research organization founded in 1978. EBRI sponsors research and educational programs in an effort to provide a sound information basis for policy decisions. EBRI as an institution does not take positions on public policy issues.

I am pleased to address the Committee concerning legislative proposals related to "Women's Pension Equity." The analysis focuses primarily on the pension provisions in these proposals. Before turning explicitly to the proposals, however, we provide some general background on pensions that help set the context for our later remarks.

## THE PROCESS OF ACQUIRING A PENSION

The ultimate goal of plans is to produce benefits that help supplement the income security provided by Social Security, individual savings, and other sources of economic security. The process for acquiring a pension benefit can usually be spelled out in relatively straightforward language in a plan description. The rules and regulations of the plan, which must meet federal standards, provide a road map for acquiring the sought after benefits. The process of acquiring a pension becomes complicated, however, when these standardized plan rules are applied across a diverse work force, a common characteristic shared by most employers.

In order to clarify this process we begin our analysis with the definition of four terms that are crucial to understanding the pension issues we take up here.

Coverage refers to workers whose employers sponsor a pension plan.

Participation refers to workers who have satisfied age and service requirements in at least one retirement plan. Although total participation sometimes refers to the sum of active members (participants currently employed with plan sponsors) and inactive members (beneficiaries and separated vested workers), in this discussion "participation" refers to active members only.

Vested Participation refers to active participants with nonforfeitable rights to employer financed pension benefits. Both partially vested and fully vested participants are included in this definition.

Recipient refers to individuals receiving a pension benefit.

Each of these four terms is important in understanding the process of pension accrual and why some individuals are more or less successful than others in acquiring a pension.

## The Availability of Pension Coverage

Employers' compensation costs include wages and expenses for employee retirement, health, life, disability benefits and various other benefits and perquisites. While most compensation devices provide immediate income or benefits, pensions offer potential deferred income. Pension entitlement results from a long-lasting employee-employer relationship. Workforce stability in specific employer groups is an important determinant of whether pensions are appropriate compensation vehicles and, thus, whether employers offer pension coverage. Three employer characteristics affecting this consideration are firm age, firm size, and industry classification. Further the unionization status of the employee's workforce also affects the employer's decision to offer a pension program.

Little empirical evidence is available on the relationship between firm age and pension plan establishment. However, in the present legal and economic environment, the new business failure rate suggests it is impractical for many young firms to offer pensions before they have become established. New firm pension provisions may also be impractical from an employee's perspective. Even young companies that eventually succeed, initially have limited administrative and financial resources. Pension coverage would probably require a trade-off in wages or other employee benefits, and it is not certain that young firms will stay in business long enough to satisfy pension commitments. Where future benefits are secure, workers and employers still may prefer immediate compensation. Many choose higher wages or health, life and disability insurance over pensions. Furthermore, if new employers provide pensions, each employee potentially represents a lifetime financial liability. Therefore sound business judgment may dictate restrictions on job development and hiring practices that could inhibit new job growth if a pension were offered before the firm was well established.

Firm size is also closely related to pension plan availability. During 1979 average private sector coverage was lowest, 26.1 percent, in firms with fewer than 25 workers. As the firm size increased, coverage rates rose steadily. In establishments with more than 1,000 employees, 91.9 percent of workers were covered. Overall public sector coverage rates are higher but the same pattern is reflected -- larger employers provide higher coverage. Pension protection is a desirable goal but it is not the primary employer goal. Young firms and small firms produce jobs and wages. Considering their financial constraints, it may not be realistic or wise to expect them to also provide pension coverage without added tax incentives and some relaxation of existing

regulations. 1/

Industry category also is important in explaining patterns of pension coverage. In part this results from the different industry turnover rates. Excessive labor mobility interferes with the more enduring employee-employer relationship necessary for pension entitlement. For example, the construction industry is sensitive to seasonal and economic change and is subject to extensive employment level fluctuations. Retail trade and services' turnover rates are also high because these industries are characterized by small firms and easy-entry, low skill jobs. High turnover industries generally offer low levels of pension protection. In construction, trade and services less than 58 percent of employees were covered during 1979. Turnover rates were significantly lower in the other industries and pension coverage was much higher, 72 percent or more.2/

Unionization of the workforce alters the process through which the compensation package develops. As employee bargaining agents, unions negotiate wage and employee benefit trade-offs. They generally advocate liberal pension policy. In May 1979, employer pension programs covered 88.2 percent of private sector, unionized nonagricultural wage and salary employees. Only 60.0 percent of their nonunion counterparts were covered. In the public sector, 96.8 percent of union members and 89.9 percent of nonunion members were covered. 3/

While it is employers who organize and sponsor pension plans they do

1/ Retirement Income Opportunities in an Aging America: Coverage and Benefit Entitlement (Washington, D.C.: The Employee Benefit Research Institute, 1981), p. 36.
2/ Ibid., p. 39.
3/ Ibid.

not operate in a vacuum. In fact, there is a long history of tax and regulatory legislation that define the pension environment. Historically, this environment has resulted in a fairly consistent pattern of pension plan expansion as shown in Table 1. With the exception of the 1975-1977 period, when the Employee Retirement Income Security Act (ERISA) was being implemented the number of tax qualified plans has regularly grown at an annual rate of 10 percent or better. This pattern of expanding coverage has brought with it broader exposure to pensions. An environment in which pension plans continue to be created will broaden that exposure even more.

Participation in Pension Plans

Under ERISA private employer pension plans must meet minimum participation standards. These standards generally require that pension credits must be granted on a nondiscriminatory basis to all employees age 25 or older with one or more years of service who work at least 1,000 hours per year. According to ERISA's legislative history, these standards were selected because: (1) newly hired workers have high job turnover rates; (2) young workers also change jobs frequently and many have little interest in pension plans; (3) part-time employment is motivated by factors other than pension considerations; (4) inclusion of highly mobile, young and part-time workers in employer pension plans could create substantial added administrative expenses, while providing employees with insignificant benefit accruals. The Congress also decided that employers could exclude from participation those workers who are within five years of normal retirement age when first employed.

As a result of the growing availability of pension plans an increasing share of the work force is participating in at least one pension program other than Social Security. The May 1979 Current Population Survey (CPS) provides

TABLE 1

SUMMARY OF QUALIFICATIONS AND TERMINATIONS

| Period Ending | Number of Qualification Rulings to Date | Number of Terminations to Date | Net Number of Plans in effect | Increase in Net Number of Plans Over Previous Period | % Annual Growth |
|---|---|---|---|---|---|
| Dec. 31, 1982 | 884,936 | 144,963 | 765,881 | 70,200 | 10.1 |
| Dec. 31, 1981 | 816,924 | 133,644 | 695,681 | 68,095 | 10.9 |
| Dec. 31, 1980 | 741,387 | 120,202 | 627,586 | 56,063 | 9.8 |
| Dec. 31, 1979 | 672,045 | 106,923 | 571,523 | 46,036 | 8.8 |
| Dec. 31, 1978 | 615,168 | 96,084 | 525,487 | 50,398 | 10.6 |
| Dec. 31, 1977 | 549,484 | 80,796 | 475,089 | 19,601 | 4.3 |
| Dec. 31, 1976 | 514,068 | 64,981 | 455,488 | 10,075 | 2.3 |
| Dec. 31, 1975 | 485,944 | 40,351 | 445,413 | 21,931 | 5.2 |
| Dec. 31, 1974 | 455,905 | 32,243 | 423,482 | 54,601 | 14.8 |
| Dec. 31, 1973 | 396,520 | 27,639 | 368,881 | 55,475 | 17.7 |
| Dec. 31, 1972 | 336,915 | 23,509 | 313,406 | 45,815 | 17.1 |
| Dec. 31, 1971 | 287,580 | 19,989 | 267,591 | 37,329 | 16.2 |
| Dec. 31, 1970 | 246,916 | 16,654 | 230,262 | 30,268 | 15.1 |
| Dec. 31, 1969 | 214,342 | 14,348 | 199,994 | 26,346 | 15.2 |
| Dec. 31, 1968 | 186,267 | 12,619 | 173,648 | 22,339 | 14.8 |
| Dec. 31, 1967 | 162,485 | 11,176 | 151,309 | 19,214 | 14.5 |
| Dec. 31, 1966 | 141,964 | 9,869 | 132,095 | 16,973 | 14.7 |
| Dec. 31, 1965 | 123,781 | 8,659 | 115,122 | 12,496 | 12.2 |
| Dec. 31, 1964 | 110,249 | 7,623 | 102,626 | 10,667 | 11.6 |
| Dec. 31, 1963 | 98,541 | 6,582 | 91,959 | 10,250 | 12.5 |
| Dec. 31, 1962 | 87,397 | 5,688 | 81,709 | 9,359 | 12.0 |
| Dec. 31, 1961 | 77,179 | 4,829 | 72,350 | 8,652 | 13.5 |
| Dec. 31, 1960 | 67,792 | 4,094 | 63,698 | 9,399 | 17.3 |
| Dec. 31, 1959 | 57,835 | 3,536 | 54,299 | 6,792 | 14.2 |
| Dec. 31, 1958 | 50,569 | 3,062 | 47,507 | 6,551 | 15.9 |
| Dec. 31, 1957 | 43,615 | 2,659 | 40,956 | 6,074 | 17.4 |
| Dec. 31, 1956 | 37,190 | 2,308 | 34,882 | 4,944 | 16.5 |
| Dec. 31, 1955 | 31,943 | 2,005 | 29,938 | 1,769(1) | 6.3 |
| June 30, 1955 | 30,046 | 1,877(2) | 28,169(2) | 3,290(2) | 13.2 |
| June 30, 1954 | 26,464 | 1,585 | 24,879 | 4,204 | 20.3 |
| June 30, 1953 | 22,069 | 1,394 | 20,675 | 3,657 | 21.5 |
| June 30, 1952 | 18,289 | 1,271 | 17,018 | 2,347 | 16.0 |
| June 30, 1951 | 15,899 | 1,125 | 14,671 | 2,517(3) | 20.7 |
| June 30, 1950 | 13,899 | -- | -- | -- | -- |
| June 30, 1949 | 12,865 | 711 | 12,154 | 896 | 8.0 |
| June 30, 1948 | 11,742 | 484 | 11,258(4) | 1,888 | 20.1 |
| Aug. 31, 1946 | 9,370 | -- | 9,370(4) | 1,584 | 20.3 |
| Dec. 31, 1944 | 7,786 | -- | 7,786(4) | 5,839 | 300.0 |
| Sept. 1, 1942 | 1,947 | -- | 1,947(4) | 1,288 | 195.0 |
| Dec. 31, 1939 | 659 | -- | 659(4) | 549 | -- |

(1) Six month total
(2) See RR 101.-4
(3) Increase from June 30, 1949 (see RR 101.4)
(4) 28 month period, average 2,507 plans per year

*Does not include plans covering self-employed individuals (Keogh Act plans).

SOURCE: Charles D. Spencer Associates for 1930 to 1975, EBRI tabulations of IRS data for 1976 to 1982.

the most recent available statistics on recent pension participation levels. This survey, based on a sample of households representing the U.S. civilian work force, estimated that outside agriculture, 68.3 percent of all civilian wage or salary workers between the ages of twenty-five and sixty-four, working at least half time, who had been with their employer for a year or more, were participating in a pension plan. 4/

The growing prevalence of private pension plans has led to a marked increase in the number of pension participants from fewer than 10 million participants in 1950 to more than 35 million by 1979. In addition, and perhaps more important, over the years participation has grown more rapidly than private-sector employment. Private-sector employment grew 15.4 percent from 1950 to 1959, 27.0 percent from 1960 to 1969, and 26.8 percent from 1970 to 1979. Over the same three periods, pension participation increased by 85.7, 39.0, and 36.8 percent. Some analysts have suggested that the stabilization of the participation rate during the 1970s indicates that the private pension system has stagnated. According to previous research by the Employee Benefit Research Institute (EBRI) more reasonable explanations of stable pension participation rates during the 1970s are the rapid growth in employment as the post-World War II baby-boom generation entered the work force, the rapid rise in female labor force participation rates during the 1970s, and the implementation of ERISA. 5/

Private-sector employment grew as much between 1975 and 1979 as it had in the previous eleven years. Most of the new workers were young people who

4/ Social Security: Perspectives on Preserving the System (Washington, D.C.: The Employee Benefit Research Institute, 1982) pp. 48-49.
5/ See Retirement Income Opportunities in an Aging America, EBRI, Chapter 3.

were just embarking on a career. Nearly 58 percent of the spurt in private-sector employment during the late 1970s occurred in firms with fewer than 100 employees, and almost 55 percent of the growth occurred in trade and service firms. Pension coverage is known to be lowest in smaller firms and in the trade and service industries. 6/

The stabilizing pension participation rate was the result of the simple mathematical calculation of participation rates by which the numerator (pension participation) did not keep up with the denominator (workers) during a period in which the latter was growing at unprecedented rates. During the 1980s, private-sector employment is expected to grow at only one-half to one-third the rate during the latter half of the 1970s. The slowdown in the expansion of the work force means that continued pension expansion should result in higher pension participation rates during this decade. Also, because of the decline in birthrates toward the end of the 1950s, a smaller proportion of the work force will be under age twenty-five and excluded from pension participation on the basis of ERISA's standards.

The demographic characteristics of the workforce are now shifting into an alignment that should result in significant increases in pension participation rates. For example in 1980, one quarter of the total labor force was below the ERISA age 25 pension participation standard. By 1990 only about 19 percent will be below age 25. The aging of the baby boom alone could easily account for a 10 percent increase in the pension participation rate over the remainder of this decade. Although participation in a pension program is necessary to ultimately acquire a pension, participation alone is not sufficient to assure the receipt of benefits.

6/ Ibid., p. 49.

Vesting in a Pension Plan

ERISA not only established a set of minimum pension participation standards but also specified that employers must adopt a vesting schedule that satisfies one of three vesting standards. The first standard required full vesting of accrued benefits of covered, participating employees with ten years of service. The second standard requires 25 percent vesting after five years of service, an additional 5 percent for each of the next five years, and 10 percent for each of the ensuing five years. The final vesting standard requires 50 percent vesting when the employee's age plus years of service are equal to forty-five and an additional 10 percent for each additional year of service. Under this latter standard the benefits must always be 50 percent vested after ten years of service, regardless of the particpant's age, and must vest an additional 10 percent for each subsequent year of service.

The latter of the three standards requires this special provison because service years can be credited differently for participation and vesting purposes. While ERISA does not require that workers under age twenty-five be included as participants under a plan it does require that years of service beyond age twenty-two are to be counted for vesting purposes, regardless of a pension plan's actual particpation standard.

Vesting levels do not change quickly in response to plan creation or shifts in work force patterns because of the time involved in vesting. During 1960, for example, only 3.3 percent of private sector workers were vested; this rose only 3 percentage points through 1965. During the late 1960s privateplans began liberalizing retirement and vesting provisions. By 1970 more than three-fourths of pension plan participants were in plans with regular vesting schedules. Ninety percent were in plans with vesting, early retirement or

both. Between 1965 and 1974 private sector, paid worker vesting rates more than tripled, rising from only 6.3 percent of all private sector workers to 19.5 percent. As the mandated vesting standards in ERISA began to take effect vesting rose to 27.1 percent by 1979. 7/

While slightly more than one-quarter of the workforce being vested may seem low it is important to understand that this incorporates all private sector workers; those as young as age fourteen, those working on a sporadic and part-time basis as well as itinerant workers. If nonagricultural wage and salary workers between the ages of 55 and 59 who have been with their employer a year or more and work at least half time are considered then fully one half reported they had already vested in 1979. Another 10 percent knew they were participating in a pension but did not know whether they had vested yet. As many as 60 percent of regular, nonagricultural workers who will retire in the next five years then, can be expected to receive a pension based simply by their vesting status in 1979. 8/ In all likelihood, the further maturing of ERISA and pension expansion will improve this situation even further.

Receiving a Pension Benefit

One thing that we often overlook when considering the effectiveness of retirement programs is their relative state of maturity. A retirement program becomes mature when the relationship between the percentage of workers participating stabalizes over time relative to the percentage of the elderly receiving benefits.

For example, consider Social Security and the relative rates of worker

7/ Ibid., pp. 59-61.
8/ Ibid., p. 44.

participation and recipiency among the elderly. Table 2 shows that worker participation rate in 1940 was about twenty-five times the percentage of elderly receiving benefits in that year. As the program matured, this

TABLE 2

PERCENT OF WORKERS PARTICIPATING IN SOCIAL SECURITY AND PERCENT OF POPULATION OVER AGE 65 RECEIVING BENEFITS BY SELECTED YEARS

| Year | Workers Participation | Population over 65 Receiving Benefits |
|---|---|---|
| 1940 | 57.8% | 2.3% |
| 1950 | 64.5 | 17.0 |
| 1960 | 88.9 | 62.3 |
| 1970 | 89.5 | 85.5 |
| 1975 | 89.8 | 90.4 |
| 1980 | 91.0 | 89.8 |

SOURCE: Coverage data for 1940-1970, from U.S. Bureau of the Census, Historical Statistics of the United States (Washington, D.C., 1975), p. 348.; for 1975 from U.S. Bureau of the Census, Statistical Abstract of the United States 1981 (Washington, D.C., 1982), p. 326. Beneficiary data for 1940-1960, from U.S. Bureau of the Census, Historical Statistics of the United States (Washington, D.C., 1975), p. 357; for 1970, from Social Security Bulletin (March 1981), p. 73; for 1975-80 from Social Security Bulletin (March 1983), p. 105.

difference declined to less than four times in 1950 and then gradually moved toward and reached equality in the mid-1970s. It took Social Security about thirty-five years until beneficiaries made up a segment of the retired population that was comparable to the segment of the workforce that was contributing to the program.

There is not comparable time series data on pensions but there is pension plan data that indicates a similar maturation phenomenon. Among all

defined benefit plans with more than 100 particpants in 1977 that had been set up within the prior five years, 69 percent had more than ten active workers for each beneficiary and 56 percent had more than twenty active participants for each beneficiary. For plans that were five to ten years old in 1977, 59 percent had ten or more active participants for each beneficiary. 9/

Among older plans the situation was significantly different. Two out of three of those plans that were twenty-one to twenty-five years old in 1977 had fewer than 10 active workers for each beneficiary. For plans over twenty-five years old in 1977 nearly half, 49 percent, had fewer than five active participants for each beneficiary. The evidence clearly indicates that as the universe of pension plans ages, the relative number of recipients will increase.10/

The future potential of the pension system, then hinges on its current level of maturity. Among defined benefit plans, which cover two out of three private pension participants, 38 percent of the tax qualified plans in operation at the end of 1982 were less than five years old and 73 percent were less than ten years old. Among the universe of tax qualified defined contribution plans at the end of 1982, 39 perent had been qualified in the last five years and 56 percent had been qualified since 1972. The pension system in this country today is quite young but it is poised to make a major contribution to the retirement income security of the elderly in coming years.

If the maturing of the pension system is leading to higher recipiency rates then more of the young elderly, those recently reaching retirement age, should be receiving pensions than the old elderly. In fact during 1979,

9/ Social Security: Perspectives on Preserving the System, EBRI, p. 55.
10/ Ibid., p. 52, 56.

according to the March 1980 Current Population Survey, 37 percent of elderly families were receiving at least one pension where the family head was between the ages of sixty-five and sixty-nine. Among the elderly families where the head was over seventy years of age 30 percent were receiving a pension.

It should also be noted that most of this difference is attributable to higher private pension receipt among the young elderly. The older public plans have already reached maturity as reflected by the fact that 12.5 percent of the young elderly families received a public pension in 1979 compared with 11.2 percent of the old elderly. By comparison, 26.0 percent of the young elderly families received a private pension while 19.6 percent of the old elderly were receiving a private pension benefit.

Finally, defined-contribution plans which are most prevalent in the private sector may be contributing more to the elderly's retirement income security than the statistics suggest. Most defined-contribution plans are not themselves annuity programs; at withdrawal or retirement, vested participants are generally given a lump-sum distribution. In many instances the employer will arrange for conversion of the distribution into an annuity program, but the plan itself seldom pays pension benefits in the traditional sense. There is strong evidence that these plans do not report themselves as paying retirement benefits in many instances because they provide lump sum distributions. 11/

This lump-sum distribution phenomenon also results in undercounting the number of pension beneficiaries on population surveys. For example, the Census Bureau's annual March Income Supplement to their Current Population

11/ Social Security: Perspectives on Preserving the System, EBRI, p. 56.

Survey gathers information on the prevalence of the receipt of pensions and the annual levels of benefits. Interviewers' instructions and training specifically direct that only regular income is to be recorded in the interview; one-time income is to be ignored. Unless defined-contribution plan lump-sum distributions are converted to an annuity, they never show up on the survey as retirement program benefits.

While the evidence on the level of benefit receipt may be incomplete it conclusively shows that the pension system is becoming increasingly effective in providing for the elderly's retirement income security. The pension coverage and participation data suggest that this situation should continue to improve in the future. In the next section of our testimony we look at the potential implication of these improvements for women.

WOMEN AND THE U.S. PENSION SYSTEM

The antidiscrimination provisions in the U.S. tax code and the participation, vesting and other provisions in ERISA explicitly prohibit discrimination against women in the design and administration of pension plans. Yet it is clear that elderly men are much more likely to receive a pension than their female counterparts, and that they receive larger benefits, on average, then women. These differences in the pension experiences of men and women have created some concern about the equitable treatment of pensions on the basis of sex. Before turning to explicit proposals aimed at dealing with this concern we first provide an analytical explanation for the phenomenon itself.

The earlier analysis suggested that it was a combination of employer characteristics that determined the supply or availability of pensions. Because of the participation and vesting provisions in most plans the actual

accrual of any pension right takes some period of time. Even if all such standards were shortened to provide for immediate participation and vesting the accrual of significant retirement benefits would only occur in cases where there was a substantial period of participation in one or more plans. In defined benefit plans the largest accruals come toward the end of the career and in most instances it is the terminal plan that provides the most significant benefit level. Under defined contribution plans the individually assigned assets can be liquidated and reinvested in an individual retirement account making them more portable. This combined perception of a definable asset, along with relative portability may combine to account for typically shorter vesting in defined contribution plans.

For the highly mobile worker, the defined contribution plan may be preferred because of its portability characteristics. For the long-term stable employee, on the other hand, the primary concern is likely to be an adequate level of benefits to maintain preretirement earnings standards. This will more likely be assured through a defined benefit plan. Most defined contribution plans do not have automatic provisions to convert the accumulated assets to an annuity at retirement. The more typical cash-out provisions in these plans are often criticized because it is feared the accumulated funds are often not used for retirement income security purposes. There is virtually no extent data that allows analysts to evaluate the actual utilization of asset accumulation in defined contribution plans. The May 1983 Current Population Survey being conducted by the Census Bureau and jointly sponsored by EBRI and the Department of Health and Human Services will gather such information for the first time. The survey will elicit information on the prevalence and level of lump sum distributions from retirement plans and the disposal of these assets. It is

not clear a priori which type of plan would be more effective for women. Certainly one cannot look at the current population of retired women and draw any conclusions about the optimal pension strategies for women in their prime working ages today.

Pensions and the Changing Roles of Women

During 1940 when Social Security started paying benefits, 27.9 percent of women over the age of fifteen were in the labor force. By 1945 female labor force particpation had surged to 35.8 percent, at least in part, because of the contribution of women to the World War II production effort. 12/ Table 3 shows that between 1950 and 1979 female labor force participation increased by 17.1 percentage points. However, more than two-thirds of this increase occurred after 1965. Table 3 also indicates that female workers ages twenty-five to thirty-four experienced the largest labor force participation rates increase of all cohorts shown. Between 1970 and 1979 their participation rate increased from 45.0 to 63.8 percent. In 1979 this age class included the majority of baby boom women, the largest ten year age cohort of women in the population. The baby boomers' mothers would have been twenty-five to thirty-four some twenty to thirty years earlier and their labor force participation rate was around 35 percent. In other words, within one generation the labor force participation of women in the prime child bearing ages nearly doubled.

Labor force participation measures are point in time estimates of the number of people working or looking for work. An alternative way to look at differences in career patterns of older versus younger women is to compare actual work patterns of women of different ages across common periods in their

12/ U.S. Bureau of the Census, Historical Statistics of the United States (Washington, D.C.: U.S. Government Printing Office, 1975) p. 132.

TABLE 3

CIVILIAN FEMALE LABOR FORCE PARTICIPATION RATES
BY AGE FOR SELECTED YEARS
1950-1979

| Age | 1950 | 1955 | 1960 | 1965 | 1970 | 1975 | 1979 |
|---|---|---|---|---|---|---|---|
| 16-17 | 30.1 | 28.9 | 29.1 | 27.7 | 34.9 | 40.2 | 45.8 |
| 18-19 | 51.3 | 50.0 | 50.9 | 49.3 | 53.6 | 58.1 | 62.9 |
| 20-24 | 46.0 | 45.9 | 46.1 | 49.9 | 57.7 | 64.1 | 69.1 |
| 25-34 | 34.0 | 34.9 | 36.0 | 38.5 | 45.0 | 54.6 | 63.8 |
| 35-44 | 39.1 | 41.6 | 43.4 | 46.1 | 51.1 | 55.8 | 63.6 |
| 45-54 | 37.9 | 43.8 | 49.8 | 50.9 | 54.4 | 54.6 | 58.4 |
| 55-64 | 27.0 | 32.5 | 37.2 | 41.1 | 43.0 | 41.0 | 41.9 |
| 65+ | 9.7 | 10.6 | 10.8 | 10.0 | 9.7 | 8.3 | 8.3 |
| TOTAL | 33.9 | 35.7 | 37.7 | 39.3 | 43.3 | 46.3 | 51.0 |

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Handbook of Labor Statistics (Washington, D.C., 1980) Table 4.

life cycle. There is not a perfect data set available to develop such a comparison but there is a good one. This data set includes survey data from the Census Bureau's March 1978 and May 1979 Current Population Surveys that have been matched to Social Security administrative records. 13/ The Social Security record data provides covered earnings and quarters of coverage credited for each of the years 1937 through 1977. Each person's age in 1977 can be determined from the file. The file contains records on roughly 15,000 women between the ages of 15 and 99 in 1979. From the age in May of 1979 it is possible to determine when those over twenty-one reached that age, or any other age for that matter. From the Social Security record the covered earnings pattern in any specific attained year of age is thus determinable.

The accrual of any meaningful work related benefit requires a

13/ For a more detailed description of these data see Social Security: Perspectives on Preserving the System, EBRI, pp. 289-291.

consistent and sustained attachment to the workforce. Even under Social Security any worker less than fifty years of age today will be required to have at least forty quarters or ten years of earnings credits to be entitled to a retirement benefit. Under Social Security, earning one quarter of credit each year between ages twenty-two and sixty-two would qualify a person for a retirement benefit. Alternatively, ten years of steady covered employment would qualify a person for a retirement benefit. It should be kept in mind, however, that either of these career patterns would result in a small Social Security benefit, certainly less than half the benefit and maybe as little as one quarter of the benefit that could be earned in a full career.

Pensions are similar to Social Security in that meaningful benefits can only be earned with consistent and sustained periods of employment and participation in plans. Even with very short vesting schedules the benefits that can be accrued with an eratic or short tenure in a job would be quite small. To understand the pension status of currently retired workers and why younger women can expect to fare quite differently, it is important to look at women's lifetime work patterns and how they are changing.

Among older women, those now retired, the prevalence of full-time employment outside the home for extended periods was relatively rare. For example, if one considers women aged sixty-one or over in 1977, fewer than half had at least ten years of Social Security earnings credits between 1937 and 1977. Table 4 shows that one-third of those over eighty had no covered earnings at all beyond 1937. The table also shows that the younger elderly women were considerably more likely to have worked than the older elderly women. Putting aside for the moment consideration of survivor benefits, it should be clear that many older women do not qualify in their own behalf

because they never worked, or worked only a short period during their life.

If some of the more arcane arithmetic of defined benefit pension plans is worked through, it becomes clear that the value of benefit accruals is heavily weighted towards the end of the career. This characteristic should be to the advantage of women who take some time out of their work career to have and raise children and then return to full time work outside the home after their children are in school or have left home. Still for the pension to be meaningful, employment late in the career has to be regular and of some sustained duration for benefits to be meaningful. In this regard it is instructive to look at older women and to consider the intensity of their

TABLE 4

OLDER WOMEN IN 1977 AND YEARS OF SOCIAL SECURITY CREDITS EARNED BETWEEN 1937 and 1977

| Age in 1937 | Age in 1977 | Credits Earned | | | |
|---|---|---|---|---|---|
| | | None | 1-5 Years | 5-10 Years | More than 10 Years |
| 21-25 | 61-65 | 19.9 | 18.2 | 14.4 | 47.5 |
| 26-30 | 66-70 | 27.7 | 16.8 | 11.8 | 43.7 |
| 31-35 | 71-75 | 28.0 | 21.3 | 10.9 | 39.9 |
| 36-40 | 76-80 | 29.6 | 18.9 | 13.7 | 37.8 |
| 41 or over | 81 or over | 33.0 | 15.9 | 13.9 | 37.2 |

SOURCE: EBRI Tabulations of Social Security administrative data matched to March 1978 and May 1979 Current Population Surveys.

employment experience toward the end of their normal working ages. Table 5 shows the number of years older women in 1977 had worked when they were between the ages of fifty-one and sixty. Among those over eighty only about one in ten had worked all ten years and more than half had not worked at all. Even among the youngest group of women represented in the table, those between the ages of sixty-one and sixty-five more than one in three had not worked in the last full decade before age sixty and only slightly more than one quarter had worked in covered employment in every year.

TABLE 5

YEARS WORKED BETWEEN THE AGES OF 51 and 60 by
WOMEN AGE 61 AND OVER IN 1977

| Age in 1977 | Years Worked Between Ages 51 and 60 | | | | |
|---|---|---|---|---|---|
| | None | 1 to 3 | 4 to 6 | 7 to 9 | 10 |
| 61 - 65 | 35.5% | 11.8% | 11.2 | 14.7% | 26.8% |
| 66 - 70 | 42.9 | 11.3 | 8.2 | 11.2 | 26.6 |
| 71 - 75 | 38.5 | 14.8 | 9.3 | 15.1 | 22.3 |
| 76 - 80 | 41.9 | 12.6 | 12.1 | 13.3 | 20.2 |
| 81 or over | 51.2 | 11.4 | 14.5 | 12.7 | 9.4 |

SOURCE: EBRI tabulations of Social Security administrative data matched to March 1978 and May 1979 Current Population Surveys.

For the women over age seventy-six in 1977 half had not worked after the beginning of 1960 when the prevalence of pensions and beginning trends toward vesting and early retirement began to make them effective retirement vehicles. Even among those women between age sixty-one and seventy in 1977 only about one in four had worked after the passage of ERISA. In short, until very recently older women have not worked outside the home for sufficient periods during their normal working ages, nor consistently enough toward the

end of their working life to earn a pension. Even where today's elderly women had worked the majority had not done so since the passage of ERISA and many had last worked back in the 1950s or 60s when there were fewer pension plans.

It is impossible to exactly predict that younger women today will have radically different working patterns toward the end of their normal working lives than today's elderly women. However, the labor force participation data cited earlier suggests that women's work patterns are shifting significantly. This shift is also apparent in Table 6 where a lack of covered earnings for women of different ages are compared early in their normal career period. The

TABLE 6

PERCENT OF WOMEN BY AGE IN 1977 WITH NO SOCIAL SECURITY COVERED EARNINGS DURING YEAR IN WHICH THEY WERE SPECIFIED AGES

| Age in 1977 | Percent Without Covered Earnings at Age 21 | 24 | 27 | 30 |
|---|---|---|---|---|
| 31 to 35 | 46.1% | 47.5% | 53.3% | 50.6% |
| 36 to 40 | 48.3 | 53.0 | 53.5 | 52.8 |
| 41 to 45 | 55.0 | 61.0 | 63.3 | 61.0 |
| 46 to 50 | 63.1 | 61.9 | 65.1 | 63.2 |
| 51 to 55 | 79.4 | 71.8 | 68.9 | 65.9 |
| 56 to 60 | 93.7 | 87.8 | 79.7 | 75.1 |

SOURCE: EBRI Tabulations of Social Security Administrative data matched to March 1978 and May 1979 Current Population Surveys.

magnitudes of the differences across the oldest to youngest age group shows the extent of women's changing work patterns in only one generation. Among the women aged fifty-six to sixty in 1977, 93.7 percent had no covered earnings when they were twenty-one. By comparision, the cohort of women twenty-five years younger, had only 46.1 perent with no covered earnings. While the

differences at age thirty in their respective work careers is not so large it is still highly significant.

Where Table 6 reflects changing exposure of women by the world of work outside the home Table 7 reflects the changing intensity of that exposure. The latter table shows the percentage of women who had Social Security covered earnings in each year in specific ten year intervals during their lives. There are two clearly distinctive trends that are reflected in the data. First, at each age, the younger cohorts of women are more likely to work than their counterparts than the older cohorts had been. Second, within each age cohort, as women aged they were more likely to have earnings on a regular basis than when they were younger.

TABLE 7

PERCENT OF WOMEN WITH SOCIAL SECURITY COVERED EARNINGS DURING SELECTED PERIODS OF THEIR NORMAL WORKING LIVES

| Age in 1977 | Percent of Women Who Worked in Each Year Betweeen Ages 21 - 30 | 31 - 40 | 41 - 50 | 50 - 60 |
|---|---|---|---|---|
| 31 - 35 | 12.1% | NA | NA | NA |
| 36 - 40 | 10.1 | NA | NA | NA |
| 41 - 45 | 8.7 | 17.8% | NA | NA |
| 46 - 50 | 7.5 | 18.0 | NA | NA |
| 51 - 55 | 3.5 | 13.7 | 29.1% | NA |
| 56 - 60 | 0.9 | 9.2 | 26.3 | NA |
| 61 - 65 | NA | 8.4 | 23.7 | 26.8% |
| 66 - 70 | NA | 3.3 | 18.0 | 26.6 |
| 71 - 75 | NA | NA | 9.6 | 22.3 |
| 76 - 80 | NA | NA | 7.1 | 20.2 |

SOURCE: EBRI tabulation of Social Security administrative data matched to March 1978 and May 1979 Current Population Surveys.

NA - Not available

As these consistent trends continue to evolve, the changing role of women in the work force is going to expose them to the pension system to a much greater degree than earlier cohorts of women. The expansion of the pension system itself is going to accentuate the effects of women's increased labor force attachment.

## PROPOSALS TO MODIFY PRIVATE PENSION PROVISIONS

One issue that remains to be resolved is whether the pension system as it is currently configured can adequately meet the challenge of providing meaningful income security for women or if there are particular adjustments that need to be made to assure the equitable treatment of women. While it is clear that the pension situation is improving, proposals before this Committee suggest that at least some policymakers feel more needs to be done. This raises a set of questions about the potential effectiveness of these and similar proposals in actually enhancing the pension protections of women.

### Reducing Pension Participation Ages to 21

The proposals to reduce the ERISA participation standard of age twenty-five to twenty-one, in theory, will affect a significant segment of the workforce. In May 1979 there were 11.1 million workers between the ages of twenty-one and twenty-four in the United States. Of these 5.1 million, or 46.4 percent were working for an employer who did not have a pension plan as shown in Table 8. Another 2.6 million or 23.4 percent were already participating in a plan but had not yet vested. Slightly more than 1.1 million or 10.3 percent had already vested in their current employer's plan. That leaves about 2.2 million workers or 19.9 percent of the twenty-one to twenty-four year olds working for an employer with a pension in which they were not yet participating who could potentially benefit from the reduced participation provisions. Of

these 2.2 million slightly more than half, 54.5 percent were women. At the time these data were collected there were slightly more than 39 million women working in the United States according to the same survey. So we are talking about potentially increasing the participation rate among women by about 3 percent.

TABLE 8

PENSION STATUS OF WORKERS AGED 21 to 24 IN 1979 BY SEX

| | TOTAL | | MEN | | WOMEN | |
|---|---|---|---|---|---|---|
| | Number (millions) | Percent | Number (millions | Percent | Number (millions) | Percent |
| Total 1/ | 11.1 | 100.0 | 6.0 | 100.0 | 5.0 | 100.0 |
| Not Covered | 5.1 | 46.4 | 2.9 | 48.0 | 2.2 | 44.5 |
| Participants | | | | | | |
| Not Vested | 2.6 | 23.4 | 1.5 | 25.2 | 1.1 | 21.3 |
| Vested | 1.1 | 10.3 | 0.6 | 10.4 | 0.5 | 10.1 |
| Nonparticipants | 2.2 | 19.9 | 1.0 | 16.4 | 1.2 | 24.2 |

SOURCE: EBRI Tabulations of the May 1979 Current Population Survey.

1/ Totals may not sum exactly because of rounding error.

Note that the word "potentially" should be stressesd in this context. Of the 2.2 million covered nonparticipants identified in Table 8, 48.5 had been on their current job less than one year, and 13.6 percent worked less than 1,000 hours per year. Among the women between the ages of twenty-one and twenty-four, as seen in Table 9, a slightly smaller portion, 46.7 percent, had been in their job less than one year. A slightly larger portion of the women 14.6 percent worked less than 1,000 hours per year.

TABLE 9

WORKERS AGED 21 TO 24 IN 1979 NOT PARTICIPATING IN THEIR EMPLOYERS' PENSION PLANS BY TENURE, HOURS WORKED AND SEX

| | TOTAL | | MEN | | WOMEN | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| Total Non-participants | 2.2 | 100.0 | 1.0 | 100.0 | 1.2 | 100.0 |
| Less than one year on current job | 1.1 | 48.5 | 0.5 | 50.6 | 0.6 | 46.7 |
| Working less than 1000 hours per year | 0.3 | 12.6 | 0.1 | 12.4 | 0.2 | 14.6 |

SOURCE: EBRI Tabulations of the May 1979 Current Population Survey.

Table 10 shows that in 1979 there were slightly more than 1.1 million workers in the twenty-one to twenty-four age group who had been with their employer for a year or more. Of these about one-half million were men and 600,000 were women. Between 86 or 87 percent of both sexes were working more than 1,000 hours per year. Reducing the ERISA participation standard to age twenty-one would have increased the pension participation rate among women by 1.4 percent in 1979. It would have increased the rate among men by 0.8 percent.

The total number of new pension participants that would have resulted if the participation age had been reduced to age twenty-one in 1979 would have been less than 1 million. By comparision, there were 1.1 million participants in defined contribution plans newly qualified during 1979. There were another

TABLE 10

WORKERS AGED 21 TO 24 IN 1979 WITH THEIR EMPLOYERS LESS THAN ONE YEAR AND IN THEIR EMPLOYERS' PENSIONS PLANS BY HOURS WORKED AND SEX

| | TOTAL | | MEN | | WOMEN | |
|---|---|---|---|---|---|---|
| | Number (thousands) | Percent | Number (thousands) | Percent | Number (thousands) | Percent |
| Total | 1,136 | 100.0 | 491 | 100.0 | 645 | 100.0 |
| Hours Worked per Year Less Than 1000 | 158 | 13.9 | 65 | 13.3 | 92 | 14.3 |
| 1,000 or more | 978 | 86.1 | 425 | 86.7 | 553 | 85.7 |

SOURCE: EBRI Tabulations of the May 1979 Current Population Survey.

1.0 million participants in newly qualified defined benefit plans. Newly qualified plans during 1980 and 1981 had 3.6 times as many participants as those established in 1979. Newly qualified defined contribution plans in 1982 had 1.4 million participants, and their defined benefit counterparts qualified last year had 1.3 million participants. The newly qualified plans have affected more than twice as many people, both men and women in <u>each</u> of the last four years, as would be affected by reducing the pension participation standard to age twenty-one.

The mere fact that reducing pension participation standards to age twenty-one would raise overall pension participation rates by 1 percent does not mean that there will be a commensurate increase in the ultimate receipt of pension benefits or benefit levels, however. ERISA already provides that years of service beyond age twenty-two are to be counted for vesting purposes, regardless of a pension plan's actual participation standard. Among some defined benfit plan sponsors, once a worker reaches age twenty-five,

retroactive service credits are granted under the plan. They often are not granted prior to that time because funding of the credit can be delayed, but mostly because of the high turnover rates among younger workers.

Again turning to the analysis of the 1979 survey data the numbers are instructive. We had reached the point that 978,000 of the young workers would have become participants under the age twenty-one participation provision. If one-half of these workers ultimately vest under their current plan then about 489,000 would get benefits. If only one-quarter vest then about 245,000 would receive benefits. If one looks at the vesting rates among the thirty-one to thirty-five year old pension participants in 1979 between 30 and 40 percent were vested under their pension plan. This is probably an outside estimate of the percentage of the twenty-one to twenty-four year old nonparticipants that could be expected to vest in their 1979 employer's plan by 1989. But the ones who will vest under an age twenty-one participation standard will likely vest under current ERISA standards anyway. In other words, somewhere between one-quarter and one-half million, or 2 to 4 percent of the twenty-one to twenty-four year olds might get slightly higher benefits under the lower participation standards. This represents about 0.7 percent of all pension participants. The basic question that policymakers should consider is whether it is worth substantially increasing pension administration burdens for such a small benefit gain. Increasing the cost of doing business, as we all appreciate, makes U.S. employers less competitive with foreign competition in U.S. interests as well as the world markets.

Changing Break-In-Service Provisions

As a supplement to reducing the ERISA pension participation age standard it has also been proposed that the break-in service rules be

modified. Under ERISA a break in service occurs when a plan participant has no more than 500 hours of service during a plan year as defined for accruing a unit of benefit under the plan. This can be a calendar year, a plan year or twelve consecutive months. No benefit accrues during the period of the break in service.

Not only is the current accrual foregone during a break in service but in certain instances former accruals are lost as well. If the person has vested prior to the break then previously earned benefits are protected. If a person is in a plan with a graded vesting schedule benefits already vested are protected. On return to the employer after a break in service and after one year back under the plan, pre- and post-break service are combined to determine the position on the vesting schedule. This includes the year of service during the waiting period after return to the employer. For a worker who has not vested a break in service means complete forfeiture of accrued benefits unless the person returns to the employer before the duration of the break in service equals the duration of the pre-break service. If a worker returns to an employer prior to the break equalling pre-break service then after a minimum of one year, pre-plus post-break service will be considered under the plan. This includes the one year waiting period.

One set of proposals would change the treatment of maternity and paternity leave for purposes of determining a break in service. Up to 501 hours of service that would be creditable to the individual if such leave were not taken would be counted as hours of service for purposes of determining if a break in service has occurred. In other words, S.19 would permit up to one year of childbirth related leave with no break in service occurring if the employee returns to work. Other proposals, including the Economic Equity Act

would deem the employee on approved maternity or paternity leave to have performed twenty hours of service for the employer per week, for up to fifty-two weeks. The first would eliminate the break in service for a worker on maternity and paternity leave for up to one year, the later would continue to provide service credits and pension accruals during the one year leave period.

A fundamental question raised by these break-in service provisions is whether these measures will significantly increase the retirement income security of women in the work force. Put somewhat differently, does maternity leave result in significant loss of service credits in private pensions under ERISA at the present time? This latter question is one that can be addressed empirically using the Social Security data matched with the Current Population Survey data utilized in the earlier analysis of women's working patterns.

The survey data gathered in early 1979 provides information on work behavior during 1978 and tenure with the current employer. The historical Social Security data allow one to trace the earnings patterns of workers over the periods of specified tenures. Comparing tenures with previous work patterns gives an indication of the extent to which breaks in service may be occurring under current law. For this analysis we focused on women aged thirty-five to forty-five in 1979 who were working in May 1979 and indicated that they had been with their employers for five or more years. For women who had been with their employer prior to age twenty-two, only years after their twenty-second birthdays were considered. Furthermore, only women who had been with their employer for five or more years were included in the analysis.

This particular age group of women was chosen because they were toward the end of their childbearing years and their recorded tenure would have fallen

totally within their fertile years. There were approximately 7.6 million working women between these ages in 1979. Women who had been with their employer for five years or more were selected because each women had been with their employers long enough that any breaks in service could have had a direct effect on their vesting status. There were roughly 2.4 million women in this tenure class in 1979, representing nearly one-third of all working women in the age class chosen for this analysis.

Table 11 shows the distribution of these women by tenure and work pattern. Over 80 percent of the women had worked in every year over their tenure in their current job, ranging from slightly more than ninety percent of those in jobs five to nine years to three-fourths of those in their jobs 15 years or more. Another 6 to 15 percent had worked in every year but one. For

TABLE 11

TENURE AND WORK PATTERNS OF WOMEN AGED 39 TO 44 DURING 1979

| Work Patterns | Tenure with Current Employer 5-8 Years | 10-14 Years | 15 or More years |
|---|---|---|---|
| Worked Every Year | 90.3% | 82.8% | 74.3% |
| Missed 1 Year | 6.1 | 9.0 | 15.3 |
| Missed 2 Years | 1.8 | 4.4 | 0.0 |
| Missed 3 Years | 0.6 | 2.7 | 2.0 |
| Missed 4 Years | 1.2 | -- | 6.6 |
| Missed 5 Years | 0.0 | 1.1 | 1.9 |

SOURCE: EBRI tabulations of Social Security Administration data matched to March 1978 and May 1979 Current Population Surveys.

most of these women, their work pattern in their current job is remarkably stable. Women with stable work patterns will gain little, if anything, from these provisions.

In order to assess the magnitude of the potential gains under either of these bills we simulated the current ERISA breaks-in-service provisions over the current job of thirty-five to forty-four year-old women with five or more years of tenure reported on the 1979 Current Poplation Survey and matched with Social Security historical earnings data. We checked the frequency with which consecutive years with no earnings (i.e., a break in service) exceeded prior years on the current job in accordance with the tenure estimate provided by the woman in the 1979 Survey. Surprisingly, in the approximately 4,300 records representing 2.4 million workers, we did not find a single instance where the consecutive years with no earnings in the record exceeded the prior years of service within the stated tenure time frame. One reason is that relatively low levels of earnings result in quarters of Social Security credit. For example, in 1977, $1,000 of covered earnings could result in four quarters of credit being earned.

In order to make our simulation somewhat more realistic we treated any year in which less than four full quarters of Social Security credits were earned as a break-in-service year. In this simulation we only came up with 5 percent of the thirty-five to forty-five year old women with more than five years tenure who would have lost service credits under the current break-in-service rules. We are convinced that a somewhat larger portion of these women would have suffered credit losses due to breaks in service than our simulation results would suggest. However, the very consistent year-to-year work patterns of women in these age ranges who have sufficient tenure to make

vesting a high probability suggests this group of women will benefit little from the break-in-service provisions that do not continue service accruals.

A subsequent simulation that we ran computed periods of nonwork over the specified tenure for the sample of women we were analyzing. Here we found that 14 percent had years in which they had no earnings during their tenure on their current job. This means that the continuation of service credits would affect significant numbers of workers, although less than one in five. There is an equity question that may be raised by requiring service and accrual credits for periods not worked during maternity and paternity leave. While the process of birthing and parenting children is certainly meritorious, there are other meritorious activities that people undertake that also result in breaks-in-work tenure. It is one thing to say an employer should not disregard already earned credits because of a service break, it is another to say that in certain instances those breaks in service should be credited as though a service has been rendered to the employer.

Other Potential Policy Options

If reducing the participation standards or adjusting the break-in-service provisions will not result in significantly greater pension benefits to most women then what options can be pursued? In the process of seeking out potential measures, policy makers should understand that various groups of women will be affected differently. The early part of this analysis showed that the work patterns of older women were significantly different than today's younger working age women. Because older women have already reached or are nearing retirement, virtually nothing can be done to affect early career accruals for these women.

Certainly better communication and utilization of joint and survivor

options can improve the retirement income security of older women. While the information on current utilization rates of joint and survivor options is scanty the general impression is that many widows are being left in old age without benefits. The prevalence of life insurance coverage among pension participants as part of a diversified benefits package may make the low rates of joint and survivor selection a smaller problem than it seems on its surface. Increasing the tax deductibility limits on employer provided life insurance might go further in providing retirement income security for surviving widows than any of the joint and survivor proposals. Table 12 shows the relatively small benefits that would be payable under a more "liberal" spousal death benefit provision than is currently provided by ERISA (from

TABLE 12

DISTRIBUTION OF VESTED PARTICIPATNS SEPARATING WITH LESS THAN 10 YEWAERS OF SERVICE UNDER 3 YEAR FULL VESTING BY BENEFIT LEVEL

| | Percentage of Participants Accumulating Vested Benefits Under a Unit Benefit Formula of: | | |
|---|---|---|---|
| Value of BVested Benefits | $5/month/ year of service | $10/month/ year of service | $20/month/ year of service |
| Under $1,000 | 86% | 62% | 26% |
| $1,000 to $2,000 | 12% | 23% | 37% |
| $2,000 to $3,000 | 2% | 9% | 24% |
| $3,000 to $4,000 | 0% | 3% | 9% |
| $4,000 to $5,000 | 0% | 2% | 6% |
| Over $5,000 | 0% | 1% | 8% |
| Total | 100% | 100% | 100% |

SOURCE: ICF estimates for a model defined benefit plan with 11 or more participants using a 6% interest rate and benefit accrual rates of $5, $10, and $20 per month per year of service. Also assumes immediate participation.

Appendix II). Table 13 shows the relatively higher death benefits that would be provided by life insurance (from Appendix II).

TABLE 13

POTENTIAL INCREASE IN ANNUAL CONTRIBUTIONS UNDER ALTERNATIVE VESTING FOR A DEFINED CONTRIBUTION PLAN

| | Annual Percentage Increasse for Shift from: | |
|---|---|---|
| New Vesting Schedule | 10 Year Vesting | 5 Year vesting |
| 5 Year Full | 5.3% | N.A. |
| 3 Year Full | 7.5$ | 2.1% |
| 1 Year Full | 11.4% | 5.8 |
| Full and Immediate | 11.9% | 6.3% |

SOURCE: ICF estimates for a model defined contribution plan with a contribtion rate of five percent on wages below the Social Security wage base and average annual earnings of $13,560. Also assumes a plan rate of return of either percent and an annual salary rate increase of seven percent.

For younger women who are increasingly working outside the home the situation is significantly different than for their mother's generation. The extent to which women take on stable, enduring work patterns the current system will work for women similarly to men. For women with an extended pattern of erratic and part-time employment the likelihood of accruing a meaningful pension will be slight in any event. This same work pattern will also result in low Social Security primary entitlement. However, the Social Security actuaries predict that by 2010 when the baby boom generation begins to retire that only 10 percent of retired worker beneficiaries will have spouses receiving a spouse benefit rather than their own entitlement. The increases in women working outside the home will comparably increase their pension claims.

Some analysts looking at current pension recipiency levels among older women are looking for adjustment to pension policy that will make pensions more effective retirement income security for women in general. One option that is often proposed is to reduce the vesting standards under ERISA. One reason this option often seems attractive is that many people confuse the stability of the benefit formula in the common defined benefit plan with the actual pattern of benefit accrual or value of benefits under these plans.

To show the difference we simulated a hypothetical plan that provided 1.5 percent of final-three-year-average salary for each year of credited service payable at age sixty-two for a set of hypothetical workers with different earnings and career patterns. We assumed 5 percent inflation and tested a range of real wage growth patterns. We assumed that retirement benefits were not indexed, an assumption that had no practical effect on the accrual patterns. Finally, we assumed a 7 percent discount rate for purposes of calculating the present value of benefits at various ages.

The results of our simulations are shown in Table 14. Two things are apparent from the table. First, the largest accruals of retirement income security occurs in the last five to ten years of the career regardless of the entry age. Second, accruals are larger during the early years under the plan the older the worker is at employment. Moving to three or five year vesting for young workers covered by defined benefit plans will provide minimal accruals. In fact, if the participation standards were reduced to age twenty-two, the vesting standards were reduced to five years and the cash out option adjusted to include all benefits valued at less than $3,500, the overwhelming majority of workers who would become eligible for added benefits

TABLE 14

PATTERNS OF BENEFIT ACCRUALS UNDER A HYPOTHETICAL DEFINED BENEFIT PENSION FOR VARIOUS WORKERS WITH SPECIFIED AGES AT EMPLOYMENT AND RETIREMENT AT AGE 62

| Age at Employment | Percent of Ultimate Benefit Value Accrued at the End of 5 Years | 10 Years | 15 Years | 20 Years | 25 Years | 30 Years | 35 Years |
|---|---|---|---|---|---|---|---|
| 22 1/ | 0.1-0.2% | 0.4-0.6% | 1.4-1.6% | 4.0% | 9.5% | 21.3% | 46.6% |
| 32 | 0.4-0.7 | 2.0-2.7 | 6.6-7.6 | 18.6-18.9 | 44.4 | 100.0 | - |
| 42 | 2.3-3.8 | 10.6-14.2 | 35.8-40.0 | 100.0 | - | - | - |
| 53 | 22.1-26.6 | 100.0 | - | - | - | - | - |

SOURCE: Computed by the author; see text for assumptions.

1/ Assumes service credits from age twenty-two.

under these policy changes would end up receiving a cash distribution. If these cash distributions are rolled into IRAs then some small but marginal enhancement of retirement income security would result from such a combination of policy changes. There is not yet evidence to suggest that such rollovers occur regularly, however. Our own experience with the EBRI plan is that most workers who leave and receive cash distributions do not roll them into alternative retirement security vehicles. The May 1983 Current Population Survey data gathered by Census through the support of EBRI and the Department of Health and Human Services will ascertain the extent that such cash distributions occur and the use to which such monies are put when received.

Some analysts argue that defined contribution plans offer a much smoother path of benefit accruals over the career than those shown in Table 12, and thus are preferable. They argue that a combined policy of converting defined benefit plans to defined contribution plans and shorter vesting will

result in more equitable distribution of pension contributions and more efficient operation of the pension system in providing retirement income security. These arguments are based on certain preconceived notions and assumptions about personal behavior that are not founded on fact.

For a specific individual embarking on a career, if the lifetime work and earnings pattern is known or assumed, and inflation and market rates of return are known or assumed then a defined contribution plan can be designed that would provide an identical accumulation by the date of retirement as any specific defined benefit plan. Few of us know all of the twists and turns our careers will take, however, as we embark upon them. For the sake of discussion, however, let us assume that we design our two plans to provide overwhelming majority of workers who would become eligible for added benefits under these polic changes would end up receiving a cash distribution. If these cash distributions are rolled into IRAs then some small but marginal enhancement of retirement income security would result from such a combination of policy changes. equal benefits at the end of a full career of forty years. Then we can trace how workers with alternative career patterns fare under the two plans.

The worker who enters these plans at an early age and leaves after ten years will be far better off under the defined contribution plan in most instances. The value of accumulated contributions could easily be five times the value of accumulated benefits. Upon withdrawal from the plan the contributions can usually be cashed out whereas the benefit will not be payable until retirement in most instances. If the contribution accumulation is rolled into an IRA then the young workers have made significant progress toward their retirement income security. If they buy a car, take a vacation or pay off

their bills then the story is somewhat different.

Another worker who enters our plans in mid-age will fare somewhat differently. If they only stay ten years then their experience will be similar to the young worker but the difference in the value of the two accumulations will be much smaller at withdrawal. The defined contribution accumulation will only be about 1.5 to 2.0 times the value of the defined benefit accumulation at withdrawal. For the mid-age entrant staying to retirment the value of the defined benefit accumulation can be as much as 26 percent greater than under the defined contribution plan.

Even the worker who enters at an early age and stays through the whole career may fare somewhat differently under the two plans although the plans are designed to provide identical benefits. Under the defined benefit plan,which will link benefits to final salary in most instances, the benefit is not tied to the lifetime investment experience of the retirement portfolios. Under the defined contribution plan the positive aspects of unexpectedly high rates of return accrue to the individual -- but so do the adverse effects of market losses. It is conceivable that two workers with almost identical work careers and contributions to a retirement stock portfolio could end up with extremely different retirement accruals merely because they reached retirement age a couple of years apart. The worker retiring and annuitizing his or her accumulation at a market peak could easily have an annuity 50 percent greater than a fellow worker retiring two years later at the bottom of a market trough. Under the defined benefit plan the worker is insulated from market variations in the value of asssets in the pension trust fund.

For many workers one plan may be preferred to the other because they anticipate their career will dovetail most neatly with a particular type of

plan. Certainly all women will not prefer one type of plan over the other. The prevailing characteristics of their work patterns, however, suggest that many women should be particularly interested in pension programs that target accruals toward the latter part of the working career. Defined benefit plans do this to a greater extent than their defined contribution counterparts.

FORMULATING PENSION POLICY WITH INFORMATION VOIDS

One of the most important elements in the deliberations of the National Commission on Social Security Reform was the availability and use of good information. Because of information the Commissioners could all agree on the nature of the current situation. Chairman Greenspan repeatedly came back to the point in the early deliberations that until the Commissioners could agree on the facts of the present dilemma that it would be impossible to discuss reasonable policy options. And before the Commission began their serious and difficult deliberations on the policy options they did agree on the facts.

One of the single most frustrating elements of the pension policy process is dealing with the insufficient information on which to analyze current policies or alternative options. To a certain extent a great deal more information exists than is brought to bear on analysis of the relevant policy issues. We can cite two specific examples where information is being or has been collected but has not been available or is not available in a meaningful form for policy analysis.

First, ERISA requires extensive disclosure of information by private pensions. It also requires detailed statements on the levels of liabilities and the funding status of these plans. Finally, the reports require detailed disclosures of the types of assets held in pension portfolios. Our estimates

are that it may cost private sector employers as much as $100 million per year to file these reports. If these reports were sampled on a statistical basis, edited and made available to the public the evolution of the U.S. pension system could be traced over time. Long-term trends as well as the effects of cylical variations and structural changes in the economy on plan participation and funding levels could be monitored. The implications of financial market variations, inflation and other economic variations on the financial health of plans could be understood.

Yet these data are not made available in a readily usable fashion. A couple of years ago IRS developed a sampling and editing system to provide annual files of these data on a timely basis. They developed a public use file of the 1977 plan year reports which we have used extensively for analytic purposes. No subsequent annual files are yet available to the public nor does IRS have any funding to implement the ongoing statistical program they developed.

Second, Arthur Young and Company, under contract to the Department of Labor, collected program data from a sample of roughly 400 private pension plans during 1978 with approximately 600,000 beneficiaries. The data from the pension beneficiaries was matched to Social Security administration record data. While no research reports have been released by DOL utilizing these data they would show average pension benefits in 1978 based on actual program data in comparison to actual Social Secureity benefits on the record. Similar data are available on survey data sets but it is well known that underreporting is a serious problem in these data.

These matched data are the richest known source of program information showing combined Social Security and pension income streams. These data could

provide a more comprehensive and accurate picture of pension recipients' income levels than any of the clearly flawed survey data on which we now must depend. While the DOL research staff and various analysts under contact have analyzed this information over the last two years these data are not available for public use. The DOL staff is concerned that since the data have been matched to the Social Security data that they cannot be made available to private analysts. It makes no difference that the Social Security data is basically of identical nature to that matched to the 1978 Current Population Survey which is publicly available and was the basis for much of our analysis in this testimony. In effect, although information that could effectively improve our understanding of private pension policy has been collected at public expense it is not and will not be generally available to the pension policy analysis community. The Congress could improve this situation by clarifying the restrictions in the Tax Act of 1976 limiting the use of these data for research purposes.

As a result of the informational gliches in the pension area on policy deliberations often are colored by misstated or misleading information. For example, Senator Mark O. Hatifeld in his remarks introducing S.918 on March 24, 1983 stated: "In fact, only 21 percent of women workers are covered by pension plans compared to 49 percent of men." 14/ The May 1979 Current Population Survey conducted by the Census Bureau found that 15.0 million women were participating in a pension plan at that time out of 39.2 million working women. Stated alternatively, 38 percent of working women were participating in

14/ Bureau of National Affairs, BNA Pension Reporter, Vo. 607 (April 4, 1983) p. 607.

a plan in 1979. Another 5.6 million or 14 percent of working women were covered by a plan but not yet participants. Among women between the ages of twenty-five and sixty-four in wage or salary positions who had been with their employer for one year or more, 61.8 percent were participating in a pension plan in 1979. In other words, Senator Hatfield's estimate of the portion of working women covered by a pension was off by 81 percent if he was talking about participation or 148 percent if he was talking about coverage. Looking at that segment of the female workforce for whom pension accruals might actually be meaningful the picture is even better yet. As the Senate concerns itself with pension policy issues it may want to address the extremely serious problem of informational voids that now exist in this critical area.

CONCLUSION

This concern about the availability and interpretation of pension data is central to EBRI's charter and goes beyond the deliberations on any bills now before the Senate. The problem that we are concerned about is that policy is being deliberated without the benefit of the facts. We are convinced that without the facts, policy deliberations will be misleading with the potential that ill-advised or ineffectual but expensive policies will be the ultimate result. This result ends up harming the intended beneficiaries and the entire nation by increasing the cost of our products and decreasing competitiveness of U.S. companies, ultimately costing Americans jobs, reducing tax revenues, and increasing social program expenditures.

EBRI

September 2, 1983

Memorandum for Sponsors

From: Dallas L. Salisbury

Re: Proposal to Reduce Age for Pre-retirement Spousal Death Benefits from Age 55 to Age 45

The Senate Finance Committee asked EBRI if it could provide data on the costs and benefits of this proposal. By letter of June 30 sponsor firms were asked for assistance.

The analysis delivered to EBRI by sponsors made five points:

1. On a plan by plan basis the increased cost would be "modest."
2. For the aggregate of plans the total cost would be significant. The resulting aggregate reduction in federal revenues would also be large if this were additional expense.
3. The change would lead to very little additional benefit delivery.
4. Employers might choose to meet this cost through a reduction of other death benefits in which case neither aggregate costs nor federal revenues would be affected.
5. Group life insurance at 2 times salary would provide higher life annuities and would begin at death rather than normal retirement age.

(1-2.) COST

| | Additional Plan Contribution | Aggregate of Plans (1977) (billions) | First Year Revenue Loss (billions) |
|---|---|---|---|
| ESTIMATE I = | 1% to 3% | $.29 to $ .89 | $.1 to $.3 |
| ESTIMATE II = | 3% to 4% | $.89 to $1.18 | $.3 to $.4 |
| ESTIMATE III = | 3% | $.89 | $.3 |

(3.) BENEFITS

I. Replacement Rate Analysis

This analysis was conducted by Meidinger for EBRI (Table I). It indicates very low benefit values for the current age 55 requirement, and very significant reductions for age 45.

II. Lump Sum Value as Percentage of Employee's Pay Rate Analysis

This analysis (Table II) was conducted by Tillinghast for EBRI. It presents benefit values at ages 45 to 65 in 5 year increments for three different benefit formulas. It is consistent with Table I results indicating very low (2% to 13%) benefit values at age 45.

III. Illustrated Annual Accrued and Spouse's Benefits

Analysis was provided by TPF&C and William M. Mercer, Incorporated.

The Mercer analysis (Table III) presents information for individuals with final average salaries of $10,000, $25,000 and $50,000. The TPF&C analysis presents information (Tables IV, V and VI) for low, average and high wage earners. This analysis indicated a consistent pattern of very significant reductions for age 45 benefits at all earnings levels. The numbers in the analysis show a consistent pattern, but differ due to assumption differences.

IV. Group Life Insurance as a Death Benefit

One issue in the policy debate over spousal death benefits is what group life insurance can provide. TPF&C provided a useful illustration (Table VII) of what annuity values would be produced at 2 times salary. This benefit, as you know, will not be influenced directly by age at hire or years of service.

Table I

BENEFIT IMPACT OF EXTENDING COVERAGE UNDER THE ERISA PRE-RETIREMENT SPOUSE'S DEATH BENEFIT FROM AGE 55 TO AGE 45

| | | | |
|---|---|---|---|
| 1. Age at hire | 25 | 35 | 40 |
| 2. Replacement ratios at normal retirement date: | | | |
| a) regular retirement benefit | 36% | 27% | 23% |
| b) Death benefit if death occurs at age 55 | 7.5% | 5.0% | 3.8% |
| c) Death benefit if death occurs at age 45 | 3.1% | 1.5% | .8% |

Notes

1. Benefit formula is 1% multiplied by service multiplied by highest 5 year average earnings.

2. Inflation and salary increase assumption: 5%/year.

Table II

LUMP SUM VALUE OF DEATH BENEFIT
EXPRESSED AS A PERCENTAGE OF EMPLOYEE'S PAY RATE

| Age | Final Pay | Career Pay | Unchanging Dollars times Service |
|---|---|---|---|
| Employee hired at age 25: | | | |
| 45 | 13% | 12% | 9% |
| 50 | 24 | 19 | 13 |
| 55 | 43 | 31 | 17 |
| 60 | 65 | 47 | 23 |
| 65 | 102 | 74 | 30 |
| Employee hired at age 30: | | | |
| 45 | 10% | 10% | 7% |
| 50 | 19 | 17 | 10 |
| 55 | 36 | 29 | 14 |
| 60 | 65 | 47 | 19 |
| 65 | 102 | 74 | 26 |
| Employee hired at age 35: | | | |
| 45 | 6% | 7% | 5% |
| 50 | 14 | 15 | 8 |
| 55 | 29 | 26 | 11 |
| 60 | 54 | 44 | 16 |
| 65 | 102 | 74 | 23 |
| Employee hired at age 40: | | | |
| 45 | 3% | 4% | 2% |
| 50 | 10 | 11 | 5 |
| 55 | 21 | 22 | 9 |
| 60 | 44 | 40 | 13 |
| 65 | 85 | 69 | 19 |

Notes:

1. Final Pay Plan = 30% final 5 earns for 30 years service.
2. Career Pay Plan = 40% career average earns for 30 years service.
3. Unchanging Dollars Times Service Plan = $10 per month per year of service.
4. Death benefit = 50% of accrued benefit, reduced by factor of .9 for assumed joint and survivor election, payable for life of spouse commencing when employee would have reached age 65.
5. Underlying annual rate of inflation = 5%.

Table III

ANNUAL SPOUSE'S BENEFIT PAYABLE AT AGE 65
ASSUMING VARIOUS AGES AT DEATH AND SALARY LEVELS

A. Final Average Salary $10,000

| Age at Death | Age at Hire | | |
|---|---|---|---|
| | 25 | 35 | 40 |
| 45 | $ 900 | $ 450 | $ 225 |
| 55 | 1,350 | 900 | 675 |
| 65 | 1,800 | 1,350 | 1,125 |

B. Final Average Salary $25,000

| Age at Death | Age at Hire | | |
|---|---|---|---|
| | 25 | 35 | 40 |
| 45 | $2,250 | $1,125 | $ 563 |
| 55 | 3,375 | 2,250 | 1,688 |
| 65 | 4,500 | 3,375 | 2,813 |

C. Final Average Salary $50,000

| Age at Death | Age at Hire | | |
|---|---|---|---|
| | 25 | 35 | 40 |
| 45 | $4,500 | $2,250 | $1,125 |
| 55 | 6,750 | 4,500 | 3,375 |
| 65 | 9,000 | 6,750 | 5,625 |

## ILLUSTRATED ANNUAL ACCRUED AND SPOUSE'S BENEFITS

## LOW WAGE EARNER

| | @45 | @55 | @65 |
|---|---|---|---|
| 1. Employee's Earnings | $15,000 | $27,577 | $ 54,248 |
| 2. If hired at age 40 (5 years of past service) | | | |
| (a) Employee's Accrued Benefit* | 706 | 2,962 | 11,498 |
| (b) Spouse's Benefit if Death Occurs at Indicated Age** | 129 | 543 | 4,984 |
| (c) Present Value of Employee's Benefit | 1,023 | 9,778 | 93,557 |
| (d) Present Value of Spouse's Benefit (to spouse) | 653 | 6,051 | 48,962 |
| 3. If hired at age 40 (10 years of past service) | | | |
| (a) Employee's Accrued Benefit* | 1,412 | 3,950 | 13,799 |
| (b) Spouse's Benefit if Death Occurs at Indicated Age** | 259 | 724 | 5,982 |
| (c) Present Value of Employee's Benefit | 2,046 | 13,040 | 112,279 |
| (d) Present Value of Spouse's Benefit (to spouse) | 1,311 | 8,069 | 58,767 |
| 4. If hired at age 25 (20 years of past service) | | | |
| (a) Employee's Accrued Benefit* | 2,446 | 5,351 | 16,178 |
| (b) Spouse's Benefit if Death Occurs at Indicated Age** | 449 | 981 | 7,013 |
| (c) Present Value of Employee's Benefit | 3,544 | 17,665 | 131,637 |
| (d) Present Value of Spouse's Benefit (to spouse) | 2,316 | 10,933 | 68,897 |

* Payable from age 65, i.e. not reduced for early commencement.

** Payable from later of date when employee would have been age 55 or date of employee's death.

Table V

## ILLUSTRATED ANNUAL ACCRUED AND SPOUSE'S BENEFITS

## AVERAGE WAGE EARNER

| | @45 | @55 | @65 |
|---|---|---|---|
| 1. Employee's Earnings | $30,000 | $55,154 | $108,496 |
| 2. If hired at age 40 (5 years of past service) | | | |
| (a) Employee's Accrued Benefit* | 1,674 | 7,853 | 28,113 |
| (b) Spouse's Benefit if Death Occurs at Indicated Age** | 307 | 1,440 | 12,187 |
| (c) Present Value of Employee's Benefit | 2,426 | 25,925 | 228,749 |
| (d) Present Value of Spouse's Benefit (to spouse) | 1,554 | 16,050 | 119,722 |
| 3. If hired at age 40 (10 years of past service) | | | |
| (a) Employee's Accrued Benefit* | 3,348 | 10,470 | 33,735 |
| (b) Spouse's Benefit if Death Occurs at Indicated Age** | 614 | 1,920 | 14,624 |
| (c) Present Value of Employee's Benefit | 4,851 | 34,565 | 274,494 |
| (d) Present Value of Spouse's Benefit (to spouse) | 3,109 | 21,397 | 143,666 |
| 4. If hired at age 25 (20 years of past service) | | | |
| (a) Employee's Accrued Benefit* | 5,680 | 13,594 | 38,495 |
| (b) Spouse's Benefit if Death Occurs at Indicated Age** | 1,042 | 2,493 | 16,687 |
| (c) Present Value of Employee's Benefit | 8,231 | 44,878 | 313,225 |
| (d) Present Value of Spouse's Benefit (to spouse) | 5,275 | 27,782 | 163,931 |

* Payable from age 65, i.e. not reduced for early commencement.
** Payable from later of date when employee would have been age 55 or date of employee's death.

July, 1983

Table VI

## ILLUSTRATED ANNUAL ACCRUED AND SPOUSE'S BENEFITS

### HIGH WAGE EARNER

| | @45 | @55 | @65 |
|---|---|---|---|
| 1. Employee's Earnings | $60,000 | $110,308 | $216,992 |
| 2. If hired at age 40 (5 years of past service) | | | |
| (a) Employee's Accrued Benefit* | 3,856 | 19,833 | 67,443 |
| (b) Spouse's Benefit if Death Occurs at Indicated Age** | 707 | 3,637 | 29,237 |
| (c) Present Value of Employee's Benefit | 5,588 | 65,475 | 548,769 |
| (d) Present Value of Spouse's Benefit (to spouse) | 3,581 | 40,532 | 287,216 |
| 3. If hired at age 40 (10 years of past service) | | | |
| (a) Employee's Accrued Benefit* | 7,712 | 26,444 | 80,932 |
| (b) Spouse's Benefit if Death Occurs at Indicated Age** | 1,414 | 4,850 | 35,084 |
| (c) Present Value of Employee's Benefit | 11,175 | 87,300 | 658,526 |
| (d) Present Value of Spouse's Benefit (to spouse) | 7,161 | 54,049 | 344,660 |
| 4. If hired at age 25 (20 years of past service) | | | |
| (a) Employee's Accrued Benefit* | 12,884 | 33,379 | 90,451 |
| (b) Spouse's Benefit if Death Occurs at Indicated Age** | 6,363 | 6,122 | 39,211 |
| (c) Present Value of Employee's Benefit | 18,670 | 110,194 | 735,980 |
| (d) Present Value of Spouse's Benefit (to spouse) | 11,963 | 68,223 | 385,201 |

* Payable from age 65, i.e. not reduced for early commencement.
** Payable from later of date when employee would have been age 55 or date of employee's death.

July, 1983

Table VII

## ILLUSTRATED ANNUITIES THAT COULD BE PROVIDED BY GROUP LIFE INSURANCE*

| | @45 | @55 | @65 |
|---|---|---|---|
| **LOW WAGE EARNER** | | | |
| 1. Employee's Pay | $ 15,000 | $ 27,577 | $ 54,248 |
| 2. Group Life Insurance Proceeds | 30,000 | 55,154 | 108,496 |
| 3. Annual Benefit Provided by (2) to spouse | 2,500/yr. | 4,950/yr. | 11,050/yr. |
| **AVERAGE WAGE EARNER** | | | |
| 1. Employee's Pay | 30,000 | 55,154 | 108,496 |
| 2. Group Life Insurance Proceeds | 60,000 | 110,308 | 216,992 |
| 3. Annual Benefit Provided by (2) to spouse | 5,000/yr. | 9,900/yr. | 22,100/yr. |
| **HIGH WAGE EARNER** | | | |
| 1. Employee's Pay | 60,000 | 110,308 | 216,992 |
| 2. Group Life Insurance Proceeds | 120,000 | 220,616 | 433,984 |
| 3. Annual Benefit Provided by (2) to spouse | 10,000/yr. | 19,800/yr. | 44,200/yr. |

* Male employee's death occurs at indicated age and beneficiary of group life insurance, his spouse, who is three years younger, buys an annuity for her life at group rates.

July, 1983

# ANALYSIS OF ALTERNATIVE VESTING REQUIREMENTS FOR PRIVATE PENSIONS

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## FOREWORD

The Employee Benefit Research Institute (EBRI) is developing a series of reports designed to provide a basis for research and decisions involving retirement income policy. The series has been designed to provide private and public sector decision makers with the analytical tools they need to address individual issues and to develop a more complete information base for future research and decisions.

As part of its ongoing work, the Institute is examining the potential effects that changing opportunities for receiving retirement benefits may have on retirement income adequacy. This paper contributes to that effort by evaluating the benefits and costs of a number of proposals for alternative vesting schedules.

Proposals for shortening private pension plan vesting periods have recently received considerable public attention. This has created an interest in quantitative analyses of the costs and benefits associated with these alternative vesting proposals. This analysis considers the degree to which shorter vesting may lead to higher retirement income benefits.

The Institute hopes that the results of this analysis of alternative vesting schedules will be a useful contribution to the discussion of vesting, even though broader study of benefit receipt issues is not completed. Your comments on this analysis would be much appreciated. Your views will directly aid our efforts to encourage the development of better information on employee benefit policies.

Dallas L. Salisbury
Executive Director

# ANALYSIS OF ALTERNATIVE VESTING REQUIREMENTS

## A. PURPOSE

This paper presents an analysis of the potential effects of alternative vesting requirements on private pension plans. It is part of a broader research project initiated by EBRI on coverage and participation in retirement income programs. This report serves as a companion paper to the EBRI Retirement Program Coverage Study Paper.

The Retirement Program Coverage Study Paper makes several relevant points to the analysis presented here:

- The goal of all retirement programs is to provide income to individuals during retirement. Changes in participation and vesting are important only as they affect workers' opportunities to accumulate benefits for retirement. Rather than viewed as an objective in itself, shorter vesting should be evaluated in relation to its ability to affect the likelihood of benefit receipt at retirement.

- Pension plans are designed primarily to provide work and wage related retirement income benefits. To the extent that policy makers seek to improve retirement incomes for individuals with relatively infrequent work attachment or low wages, other types of retirement income programs may achieve this objective more effectively and efficiently.

- All aspects of retirement program design, not just vesting provisions, must be examined in identifying ways to improve retirement incomes. Benefit accrual rates, plan integration provisions, retirement eligibility provisions, contributory requirements, and portability arrangements will also have a substantial impact

on retirement income levels. These factors should be weighed along with alternative plan formation, participation and vesting policies in assessing the overall impact on retirement incomes.

Thus, although the primary purpose of this paper is to examine only one aspect of retirement program characteristics -- alternative vesting requirements -- the results presented here should be considered in light of the broader points described above.

B. SUMMARY

Prior to the passage of the Employee Retirement Income Security Act of 1974 (ERISA), the federal government exercised only indirect influence over the participation and vesting provisions of private pension plans. Private pension plans include both defined benefit plans and defined contribution plans sponsored by employers and unions. The number of workers with vested benefits increased rapidly prior to ERISA, reflecting the general maturation of pension plans, the increasing prevalence of vesting provisions and the gradual liberalization of these provisions.

During the last ten years, policy makers have placed increasing emphasis on shorter vesting requirements as one approach assumed to improve the level and distribution of pension benefits. Examples of this trend include the minimum vesting standards of ERISA, changes in IRS Revenue Procedures, and the preliminary recommendations of the President's Commission on Pension Policy (PCPP) that support shorter vesting periods.

This paper presents a quantitative analysis of the benefits and costs of alternative shorter vesting requirements based upon service. It does not address alternative vesting proposals based upon age, such as full and immediate vesting at age 45. The results of this analysis suggest that:

1. Although the number of vested workers will generally increase, the value of benefits for the additional workers vested may be relatively modest. This analysis of a range of vesting alternatives indicates that shorter vesting will increase the proportion of separating workers who can expect to receive some benefit. However, based on an analysis of defined benefit plans with

11 or more participants, we estimate that most participants who separate before 10 years of service could expect to accumulate potentially modest benefits. The actual impact depends upon the relative generosity of plan benefit formulas. As shown below, the value of vested benefits accumulated by the affected participants under a model plan would fall below $2,000.1/

DISTRIBUTION OF VESTED PARTICIPANTS SEPARATING WITH LESS THAN 10 YEARS OF SERVICE UNDER A 3 YEAR VESTING RULE

| Value of Vested Benefits | Percent of Participants Accumulating Vested Benefits |
|---|---|
| Under $1,000 | 62% |
| $1,000-$2,000 | 23% |
| $2,000-$3,000 | 9% |
| $3,000-$4,000 | 3% |
| $4,000-$5,000 | 2% |
| Over $5,000 | 1% |
| Total | 100% |

SOURCE: Table 3.

2. Alternative vesting proposals should be examined in relation to other policy changes and not solely on their own merits. Shorter vesting may not necessarily improve retirement incomes if workers prefer to cash out their vested benefits and if they are permitted to do so prior to retirement. Similarly if plan sponsors defer benefit improve-

1/ See Appendix A for a description of the model plan used in the analysis. These results are directly related to the relative generosity of plan benefits.

ments or institute more restrictive provisions in other plan characteristics, retirement benefits may decline. Thus, policy makers should consider:

- whether shorter vesting, tax incentives for new plan formation or employee contributions or a combination of policies would best achieve the objective of ensuring adequate retirement incomes.

- whether shorter vesting under existing plans is well-suited for part-time, temporary or non-workers; or whether other programs could more effectively and efficiently achieve the retirement income objectives for these individuals.

- whether the costs of shorter vesting or other policies might discourage new plan formation, benefit liberalization or better funding, potentially offsetting the advantages of shorter vesting.

The importance of alternative vesting provisions could vary substantially depending on the answers to these questions.

3. If no other plan changes occur, shorter vesting alternatives could raise annual contributions in many defined benefit plans by approximately 2.4 to 4.4 percent. However, for plans characterized by younger, short service workers with higher turnover patterns, the costs could increase by as much as 6.7 to 12.1 percent. As shown below, the additional costs of shorter vesting can vary substantially under the model plan used in this analysis. These estimates are quite sensitive to plan characteristics such as the size and age of the plan and to workforce characteristics such as the relative age and turnover of workers. They are also directly related to the level of benefits under the pension plan.

   The potential cost increase for a change from 10 year to full and immediate vesting could be as high as 10 to 12 percent for many defined contribution plans and those defined benefit plans

POTENTIAL INCREASE IN ANNUAL
CONTRIBUTIONS UNDER SHORTER VESTING

| Change from 10 Year Vesting to: | Average | Range for Low-High Turnover Rates |
|---|---|---|
| 5 Year Full | 2.4% | 1.7-3.5% |
| 3 Year Full | 3.3% | 2.3-4.8% |
| 1 Year Full | 4.1% | 2.8-6.0% |
| Full and Immediate | 4.4% | 3.0-6.5% |

SOURCE: Table 5.

with fewer than 10 participants. However, many of these plans already have vesting prior to ten years of service, thus reducing the potential impact of new requirements. Cost increases of this magnitude may lead plan sponsors to defer wage or pension benefit increases or to establish more restrictive provisions for other plan characteristics. Some prospective plan sponsors may postpone the establishment of new plans.

Finally, the administrative expenses associated with shorter vesting may represent a very large fraction of the accrued benefit for these shorter service workers. In this event, shorter vesting may substitute administrative costs for retirement income unless less expensive administrative and funding arrangements can be developed. Also, the higher investment liquidity required to implement greater portability may adversely affect the rates of return or the adequacy of plan assets in some plans.

The following sections review the background on alternative vesting proposals and our analysis of their potential effects.

## C. BACKGROUND

Federal policy influences the vesting practices of private pension plans. Under ERISA, minimum vesting standards directly control the type of vesting provisions used by plan sponsors. In addition, the conditional nature of federal tax deferral for plan contributions and investment income provides an indirect

opportunity for regulators to influence plan vesting provisions. This section reviews the evolution of federal regulation affecting vesting and identifies a range of potential changes in federal policy.

1. Prior to ERISA

Prior to the enactment of the Employee Retirement Income Security Act of 1974 (ERISA), the principal federal legislation affecting private pension plans was the Internal Revenue Code. Although the Welfare and Pension Plan Disclosure Act of 1958 (WPPDA) required periodic financial reports from certain plan sponsors, it did not establish standards for pension plans' operating practices. The primary guideline for plan operations was the Revenue Act of 1942, which was limited in scope by the relatively narrow regulatory objectives of the Code. These were:

- to encourage broader participation in pension plans by preventing discrimination in favor of shareholders, officers, and highly compensated individuals with respect to coverage, benefits and financing of private plans, and;

- to protect federal revenues against excessive and unjustified use of the tax deductions allowed for pension plans.

Except as required to prevent discrimination, there were no regulations relating specifically to vesting for ongoing plans or generally to the enforcement of individual benefit rights.

Despite the absence of comprehensive regulatory standards, the number of vested workers increased rapidly prior to ERISA. As shown in Table 1, growth in the number of vested participants far outstripped the growth in active participation. This reflects three major factors: the general growth and maturation of all pension plans, the increase in the proportion of plans with vesting provisions, and the liberalization of vesting provisions.

Although the general trend reflected a shift toward more liberal vesting among all plans, there were differences among individual industries and types of plans. These differences were partly a function of the prevalence of vesting provisions in pension plans. For example, prior to ERISA, plans in the manufacturing and communications industry were more likely to

TABLE 1

ESTIMATED TRENDS IN VESTED PARTICIPANTS, 1965-1975

| Year | Number of Active Participants (millions) Active | Vested[a/] | Vested Participants as a Percentage of Actives |
|---|---|---|---|
| 1965 | 26.2 | 3.2 | 12% |
| 1970 | 31.8 | 7.9 | 25% |
| 1975 | 43.4 | 19.3 | 44% |

a/ Includes both partially and fully vested participants.

Source: ICF Incorporated, Analysis of Coverage, Participation, and Vesting in Private Pension Plans (June, 1977), sponsored by Pension and Welfare Benefit Program, Department of Labor.

have vesting provisions than plans in mining and finance. In addition, vesting provisions were generally more common among single employer plans than among multiemployer plans. In 1969, approximately 87 percent of single employer plan participants were in plans with vesting provisions compared with 51 percent in multiemployer plans.[1/] However, part of this difference may have been attributable to the generally more liberal participation requirements of multiemployer plans prior to ERISA.

2. ERISA

Passage of ERISA marked a major change in the scope and emphasis of legislation regulating private pension plans. ERISA was designed as a comprehensive regulation of the private pension system with an emphasis on preserving the security of participants' benefit claims. In pursuit of this objective, ERISA established minimum standards for participation and vesting. Specifically, ERISA established three standards that

1/ Harry Davis and Arnold Strasser, "Private Pension Plans, 1960-1969--An Overview", Monthly Labor Review, July, 1970.

effectively required plans either to vest participants fully after ten years of service or to vest participants partially prior to ten years of service with full vesting occurring after not more than 15 years.

Most defined benefit plans adopted new vesting rules to meet ERISA standards. For these plans, complying with the ERISA standards tended to raise plan costs. The actual cost impact varied considerably, depending upon such factors as the age and service distribution of the plan's workforce, the plan's turnover rates and the stringency of its pre-ERISA vesting policy. Due to the general pattern of vesting provisions prior to ERISA, multiemployer plans may have been more directly affected by these new vesting provisions than single employer plans.

Alternatively, because defined contribution plans often provided partial vesting in less than ten years, ERISA vesting rules may have had a less direct effect on these plans. In the case of profit sharing plans, where total annual contributions are fixed, ERISA's vesting rules tended to distribute contributions among participants in a different manner. In the case of money purchase plans, where total annual contributions vary with the level of forfeitures, ERISA's vesting rules tended to increase costs because of lower forfeitures.

3. After ERISA

In recent years, IRS efforts to ensure non-discrimination have encouraged even shorter vesting periods than ERISA requires among some types of plans. IRS Revenue Procedures sometimes require new plans seeking tax qualification to adopt even shorter vesting than required by ERISA in order to obtain advance determination letters. For example, new plans are sometimes required to adopt 4/40 vesting. Under 4/40 vesting all participants must be at least 40 percent vested after four years of service and 100 percent vested after 11 years of service. Because the IRS position on vesting may effectively override ERISA vesting standards for some new plans, particularly small plans, changes to IRS Revenue Procedures have generated extensive public discussion regarding the suitability of shorter vesting.

4. Possible Future Alternatives

In 1980, a number of shorter vesting alternatives were suggested by the IRS for consideration. For example, in April of 1980, the IRS proposed new shorter vesting safe harbor

provisions. The proposals offered two safe harbor options: (1) adoption of full vesting after three years or (2) a graduated vesting schedule that achieves 100 percent vesting after ten years of service, providing that the sum of the annual vesting percentages after ten years equals or exceeds 700 (700 percent vesting). Although these proposals were withdrawn they may be indicative of future policies under consideration by the IRS.

In addition, the President's Commission on Pension Policy (PCPP) is currently studying the impact of a change in the current ERISA vesting standards which would explicitly require all plans to vest more rapidly. Although detailed vesting options were not presented, Appendix A of the second Interim Report provided a range of vesting options that the PCPP was studying for a minimum universal pension system. The alternatives included full vesting after 10 years, 5 years, 3 years, 1 year, and immediate full vesting. It is clear that a wide range of vesting policies will receive full consideration in the near future.

## D. RATIONALE FOR SHORTER VESTING

Private pension plans are a major source of income for retirees. In combination with Social Security and personal savings, pension plans are designed to provide retirement income based upon work and wage related benefit formulas. Nevertheless, some portion of the elderly have relatively low retirement income. For example, Bureau of the Census data indicate that, in 1978, approximately 14 percent of the elderly had incomes below the official poverty line.[1/] Although the proportion declines if in-kind benefits are considered, the issue of adequacy is still a major concern to many policy makers. In addition, even though many low income retirees may only work infrequently prior to retirement, it is possible that shorter vesting may address at least part of the problem.

Shorter vesting is viewed as one of several alternatives for increasing the number of people receiving retirement benefits from private pension plans. By reducing the length of time necessary to become vested, shorter vesting increases the

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1/ Money Income and Poverty Status of Families and Persons in the United States: 1978, Current Population Survey Series P-60, No. 120, (November 1979).

proportion of all participants who can expect to receive a plan benefit, especially among more mobile, shorter service workers. It may also increase the number of years of vested service for all workers, which may lead to higher work and wage related retirement benefits. To the extent that the costs of benefits for the additional vested participants are not offset by reductions in overall pension benefits, retirement incomes would tend to rise.

A secondary objective of shorter vesting is to prevent an inequitable distribution of retirement plan benefits. Particularly in small plans, shorter vesting may offset the potentially discriminatory effects created by variations in turnover rates among different groups of workers. As a result, shorter vesting schedules may be a useful way for the IRS to reduce enforcement expenses.

## E. ANALYSIS OF POTENTIAL BENEFITS

### 1. Approach

As stated above, shorter vesting rules may improve workers' opportunities for earning a retirement benefit and may also improve the level of retirement benefits. To evaluate the impact of accelerated vesting, we used a benefit simulation model. For each vesting alternative, the model estimated the increase in the number of workers who are likely to separate with a vested benefit and the present values of individual benefits for this group of separated vested participants.

These analyses were conducted for prototypes of defined benefit and defined contribution plans with 11 or more participants, as well as for a separate group of defined benefit plans with ten or fewer participants. Data for these analyses came from two major sources: (1) a large, representative sample of defined benefit and defined contribution plans with 100 or more participants; and (2) data on a large number of plans with fewer than 100 participants. The data on small plans were obtained from benefit consulting firms in different parts of the country and were selected so as to be representative of the firms' clients. Consequently, although small plan data analyzed here are probably representative of all small plans, they may not meet strict statistical sampling tests.

These analyses assumed that the defined benefit plans had unit benefit formulas. A review of a large number of representative plans indicates that the typical defined benefit plan with 11 or more participants in 1980 had an accrual rate which was equivalent to a unit benefit accrual rate of approximately $10 per month per year of service. This approximation is based upon converting many different types of benefit formulas into a unit benefit accrual rate for purposes of comparison.[1/] Individual plans have benefit accrual rates that vary widely around this approximation to the average.

For defined contribution plans, we estimated that the average firm contributed approximately seven percent of annual wages. This estimate was based upon an analysis of the percentage of annual earnings contributed to a representative sample of 300 profit sharing plans in 1975.[2/] Because total annual contributions in profit sharing plans are typically a fixed proportion of profits, shorter vesting would have no direct effect on annual costs in profit sharing plans. Rather, contributions would be redistributed among plan participants. As a result, we estimated the increase in contributions required to maintain the annual level of individual worker accumulations. This reflects the pattern of adjustments that would occur under a money purchase defined contribution plan that was modified to reflect shorter vesting.

Finally, this analysis showed that the 7 percent contribution rate was lower for earnings below the Social Security wage base. Consequently, for the analysis here, we assumed a contribution rate of 5 percent on earnings below the Social Security wage base and 10 percent above it.

2. Results

Although the proportion of workers with a vested benefit will rise under shorter vesting rules, the level of these

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1/ The average value of approximately $10 per month per year of service includes benefit formulas integrated with Social Security. As a result benefits (and costs) for low wage workers tend to be overstated.

2/ ICF Incorporated, A Private Pension Forecasting Model, (October, 1979), sponsored by the Pension and Welfare Benefit Program, Department of Labor.

benefits will vary with the generosity of the plan. Table 2 illustrates the potential value of benefits that separated vested participants with less than ten years of service would accumulate from a defined benefit plan with the model plan's benefit level ($10 per month per year of service).[1/] More generous plans would accumulate proportionally higher vested benefits. As shown in the table, if a plan with this benefit level were to adopt full and immediate vesting, those with less than ten years of service and under 40 years of age would have accumulated a vested benefit valued at less than $1,700 upon separation. Those under the age of 55 with less than ten years of service would have accumulated a benefit of less than $4,300 upon separation.

Because the individuals most affected by a change in vesting provisions may be younger workers with shorter service, the average value of vested benefits added by shorter vesting may be lower than some would expect. Based upon the benefits estimated in Table 2 and the representative workforce distributions described in Appendix A, the estimates in Table 3 reflect the potential distribution of the value of vested benefits under a three year vesting standard. As shown, approximately 85 percent of all workers with less than ten years of service separating with a vested benefit could expect to accumulate a benefit valued at less than $2,000. These estimates are based upon a model defined benefit plan with a $10 unit benefit accrual rate. Approximately 94 percent of separated vested workers would have accumulated a vested benefit below $3,000. Under a benefit formula twice as generous as this, approximately 77 percent of separated vested workers would have accumulated a benefit valued at less than $3,000.

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1/ These estimates are based upon a model defined benefit plan with 11 or more participants and a moderate turnover assumption. See Appendix A for a description of the turnover assumptions, which are based upon a worker's age and years of service. For example, the moderate rates used here assume a turnover rate of approximately 25 percent per year for workers with less than one year of service, and approximately four percent per year for workers with five or more years of service.

TABLE 2

ESTIMATED PRESENT VALUE OF BENEFITS FOR PARTICIPANTS
SEPARATING UNDER FULL AND IMMEDIATE VESTING

| Age at Separation | Average Years of Credited Service at Separation | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.5 | 1.5 | 2.5 | 3.5 | 4.5 | 5.5 | 6.5 | 7.5 | 8.5 | 9.5 |
| 22 | $ 37 | $ 110 | $ 184 | $ 258 | $ 331 | $ 405 | $ 478 | $ 552 | $ 625 | $ 699 |
| 27 | $ 49 | $ 148 | $ 247 | $ 346 | $ 445 | $ 543 | $ 642 | $ 741 | $ 840 | $ 938 |
| 32 | $ 66 | $ 199 | $ 332 | $ 465 | $ 597 | $ 730 | $ 863 | $ 995 | $1,128 | $1,261 |
| 37 | $ 89 | $ 268 | $ 446 | $ 625 | $ 803 | $ 982 | $1,161 | $1,339 | $1,518 | $1,696 |
| 42 | $120 | $ 361 | $ 602 | $ 843 | $1,083 | $1,324 | $1,565 | $1,806 | $2,047 | $2,287 |
| 47 | $163 | $ 490 | $ 817 | $1,144 | $1,471 | $1,798 | $2,125 | $2,452 | $2,778 | $3,105 |
| 52 | $224 | $ 671 | $1,119 | $1,566 | $2,013 | $2,461 | $2,908 | $3,356 | $3,803 | $4,251 |
| 57 | $311 | $ 934 | $1,557 | $2,180 | $2,803 | $3,425 | $4,048 | $4,671 | $5,294 | $5,917 |
| 62 | $443 | $1,329 | $2,214 | $3,100 | $3,986 | $4,871 | $5,756 | $6,642 | $7,527 | $8,414 |

SOURCE: ICF estimates for a defined benefit plan using a 6% interest rate, 1971 GAM mortality, and a flat dollar unit benefit formula with an accrual rate of $10 per month per year of service (the assumed accrual rate for defined benefit plans in 1980). For plans with an accrual rate of $5, amounts are one half the value shown. For plans with twice the accrual rate ($20) the lump sum benefits would be twice the amounts shown here. See Appendix A for a description of the methodology.

TABLE 3

DISTRIBUTION OF VESTED PARTICIPANTS SEPARATING WITH LESS THAN 10 YEARS OF SERVICE UNDER 3 YEAR FULL VESTING BY BENEFIT LEVEL

| Value of Vested Benefits | Percentage of Participants Accumulating Vested Benefits Under a Unit Benefit Formula of: $5/month/ year of service | $10/month/ year of service | $20/month/ year of service |
|---|---|---|---|
| Under $1,000 | 86% | 62% | 26% |
| $1,000 to $2,000 | 12% | 23% | 37% |
| $2,000 to $3,000 | 2% | 9% | 14% |
| $3,000 to $4,000 | 0% | 3% | 9% |
| $4,000 to $5,000 | 0% | 2% | 6% |
| Over $5,000 | 0% | 1% | 8% |
| Total | 100% | 100% | 100% |

SOURCE: ICF estimates for a model defined benefit plan with 11 or more participants using a 6% interest rate and benefit accrual rates of $5, $10, and $20 per month per year of service. Also assumes immediate participation. See Appendix A for a description of the methodology.

In defined contribution plans, the value of vested benefits accumulated by young, short service workers under shorter vesting may be larger than in equivalent defined benefit plans. This occurs because defined contribution plan participants accrue relatively larger benefits in the earlier years of service than under defined benefit plans. Consequently, for defined contribution plans with a contribution rate of five percent on earnings below the Social Security wage base, a representative worker may accumulate a vested benefit of $1,750

after approximately two and one-half years of service -- regardless of the age of the worker.1/

Private plans frequently pay off accrued vested benefits that are relatively small. For example, defined benefit plans are permitted to cash out benefits valued at less than $1,750 without employees' permission. This option was provided in ERISA because the administrative costs of holding small benefits in the plan may exceed the value to both participants and sponsors. These amounts, coupled with the youth of the separating workers, suggest that the benefits derived from the alternative vesting rules may be cashed out and consumed, rather than saved. To the extent this occurs, participants' retirement incomes would not be increased.

Although Individual Retirement Accounts (IRAs) provide a form of portability, a mandatory arrangement for accumulating the vested benefits and lump sum distributions of mobile workers may tend to improve income available at retirement. For example, a portability scheme that requires individuals to transfer vested benefits or assets from the plan of a previous employer to the plan of a subsequent employer or to a central fund may improve the level of retirement income benefits. All of the individual's combined vested benefits or assets could then be administered through one account, thus avoiding the potential inefficiency of managing several different small accounts.

However, there are potentially significant practical barriers to the implementation of portability arrangements on an equitable basis. Differences in plan design may make it difficult to establish mutually acceptable portability arrangements among different employers. In addition, the potential requirements for greater liquidity in plan assets to support portability may tend to reduce the long term rates of

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1/ This plan is not necessarily equivalent to the $10 unit accrual rate defined benefit plan. These estimates assume an interest rate of eight percent, salary increase assumption of seven percent per year, current annual earnings of $13,560, and a plan with a contribution rate of five percent on earnings below the Social Security wage base. Also assumes immediate participation. See Appendix A for a description of the methodology.

return to the fund. Even if plans are well-funded, the periodic distribution of a large number of lump sum benefits may be limited by available assets. As a result, portability arrangements are currently not very common, and may be quite difficult to operate in practice.

## F. ANALYSIS OF POTENTIAL COSTS

Alternative vesting could increase the number of individuals who receive benefits from a pension plan. In the absence of an offsetting decline in benefit levels, this expansion in the number of beneficiaries will raise overall plan costs. However, the magnitude of the cost impact will vary by plan type and characteristics of the workforce. Costs will be particularly sensitive to the following factors:

- personnel group: plans covering hourly employees are likely to have higher turnover than those covering salaried employees. Plans in lower skill industries such as the trade industry may also expect higher additional costs than those in higher skill industries such as manufacturing due to differences in turnover.

- age and service of workers: plans covering younger workforces typically experience higher turnover and, therefore, may tend to experience higher costs under shorter vesting. Plans covering shorter service work groups would also tend to be more vulnerable because of the proportionately larger number of workers affected.

- current vesting practices: the more restrictive the current vesting schedule, the greater the potential cost impact of shorter vesting. For example, many defined benefit pension plans have ten year vesting and would be affected more than those plans which have five year vesting.

- plan size: there are fixed costs associated with administering pension programs. These costs tend to be a much larger portion of the annual contribution of a small plan than of a large plan.

- eligibility provisions: the more restrictive the plan's current participation rules, the less the impact on costs of shorter vesting. Although service for purposes of vesting is credited from

date of hire or age 22, service for benefit accruals may be credited only from date of plan membership. As a result, even if vesting occurs more rapidly, the value of accrued benefits may not change.

- level of funding: the greater the degree of funding at the time vesting changes, the greater the percentage increase in annual contributions. Because the required annual contribution of a fully funded plan is lower than that of an equivalent unfunded plan, the additional cost of shorter vesting will be a higher proportion of annual contributions in the more well-funded plan. Nevertheless, the absolute cost effects are the same under both cases.

1. Defined Benefit Plans

The average increase in required annual contributions to shift from ten year vesting to full and immediate vesting for the model defined benefit plan used here is approximately 4.4 percent. These results are shown in Table 4. To shift to five

TABLE 4

POTENTIAL INCREASE IN ANNUAL CONTRIBUTIONS
UNDER ALTERNATIVE VESTING REQUIREMENTS

| Change From 10 Year Full Vesting To: | Annual Percentage Change | Approximate Increase in Aggregate Annual Contributions (in $ billions) |
|---|---|---|
| 4/40 Vesting | 1.9% | $0.5-0.6 |
| 5 Year Full | 2.4% | $0.6-0.7 |
| 3 Year Full | 3.3% | $0.8-1.0 |
| 1 Year Full | 4.1% | $1.1-1.3 |
| Full and Immediate | 4.4% | $1.2-1.4 |

SOURCE: ICF estimates for a model defined benfit plan with more than 11 participants using the entry age normal actuarial cost method, an intermediate turnover assumption and a 6% interest rate. Plan assets are assumed to be equal to the benefit liabilities of retired and separated vested participants. See Appendix A for a description of the methodology.

year vesting, the average increase would be approximately 2.4 percent; but, it could be substantially higher in individual cases. In the aggregate, the annual cost for all defined benefit plans to shift from ten year cliff vesting to five year vesting could range from approximately $600 to $700 million, under the assumptions of this analysis.[1/] Alternative assumptions will provide different estimates. In addition, the assumption that plan assets are equal to retired and separated vested benefit liabilities will tend to understate slightly all of the cost estimates shown here.

Defined benefit plans covering workforces in higher turnover industries may experience greater than average cost increases. As Table 5 shows, the cost impact in higher turnover industries may be double that in lower turnover industries. Thus, an important question concerns the ability of employers in higher turnover industries to afford the costs of shorter vesting. This also emphasizes the sensitivity of the cost estimates to the underlying assumptions. Extreme caution should be used in applying these results to individual plans.

Shorter vesting may itself have an effect on turnover and thus on the resulting costs. For example, if one assumes that a shift to five year vesting from ten year vesting would reduce the turnover rate in the fourth year of service by 20 percent (for example, from ten percent to eight percent), the cost of five year vesting would increase from 2.4 percent to 2.6 percent.

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1/ Aggregate contributions to defined benefit plans in 1975 were estimated to be approximately $20.7 billion. If defined benefit plans increased their benefits at an annual rate of 7.7 percent, contributions in 1980 would be approximately $30 billion, the baseline level for these estimates. Because some defined benefit plans may already have less than ten year vesting, the increase in contributions could vary over the range shown. These estimates are derived from a Department of Labor report entitled, A Private Pension Forecasting Model (October, 1979).

TABLE 5

POTENTIAL INCREASE IN ANNUAL CONTRIBUTIONS
UNDER ALTERNATIVE VESTING REQUIREMENTS
AND TURNOVER ASSUMPTIONS
(Annual Percent Increase)

| Change from 10 Year Full Vesting to: | Turnover Assumption | | |
|---|---|---|---|
| | Lower | Intermediate | Higher |
| 4/40 Vesting | 1.3% | 1.9% | 2.8% |
| 5 Year Full | 1.7% | 2.4% | 3.5% |
| 3 Year Full | 2.3% | 3.3% | 4.8% |
| 1 Year Full | 2.8% | 4.1% | 6.0% |
| Full and Immediate | 3.0% | 4.4% | 6.5% |

SOURCE: ICF estimates for a model defined benefit plan using the entry age normal actuarial cost method, and a 6 percent interest rate. See Appendix A for methodology.

The estimates in Table 6 show that the costs of alternative vesting policies are also sensitive to workforce age and service. In this analysis, the younger workforce reflects the quartile of workers in the sample with the youngest average age (average age of 35 years) and the older workforce represents the quartile of plans with the oldest average age (average age of 47 years). The mid-range group includes all plans in the middle quartiles and has an average age of 41. Although the difference in average age assumed for the older and younger age workforces is only 12 years, the increase in costs is approximately twice as high for the younger workforce.

We also examined the quartile of plans in the data base with the lowest level of average service (five years of service), and the quartile with the highest level of average service (14 years of service). As shown in Table 6, the cost of shorter vesting in shorter service plans is approximately twice as high as the cost in longer service plans. In general, plans with average service as short as five years can be considered either newer plans or older plans in very high turnover industries. These results imply that shorter vesting would be more burdensome for such plans.

TABLE 6

POTENTIAL INCREASE IN ANNUAL CONTRIBUTIONS
UNDER ALTERNATIVE VESTING AND
AGE AND SERVICE PATTERNS
(Annual Percent Increase)

| Workforce Assumption | Change from 10 Year Full Vesting To: 5 Year Full | 3 Year Full | 1 Year Full |
|---|---|---|---|
| Younger Age (age 35) | 3.6% | 4.8% | 5.8% |
| Mid-Range Age (age 41) | 2.7% | 3.6% | 4.5% |
| Older Age (age 47) | 1.7% | 2.4% | 3.0% |
| Shorter Service (5 years) | 4.0% | 5.5% | 6.8% |
| Medium Service (10 years) | 2.7% | 3.6% | 4.5% |
| Longer Service (14 years) | 1.6% | 2.2% | 2.7% |

SOURCE: ICF estimates for model defined benefit plans using the entry age normal actuarial cost method, an intermediate turnover assumptions and a 6 percent interest rate. See Appendix A for methodology.

Because some plans may simultaneously possess all of the higher cost characteristics--shorter service, younger workers, higher turnover--we examined the potential cost increases under these assumptions. For this case, the cost increase for the model defined benefit plan shifting from 10 to 5 year vesting would be approximately 6.7 percent. This compares with an estimated increase of 2.4 percent for intermediate age, service and turnover assumptions. In addition, a shift from 10 year to full and immediate vesting for a plan with these characteristics would increase contributions by 12.1 percent, compared with 4.4 percent under intermediate assumptions. Thus, some employers may be heavily affected by the higher costs of shorter vesting.

These results suggest that, because small firm workforces tend to be younger, with shorter service and higher turnover, small defined benefit plans may also tend to be more heavily affected by shorter vesting than larger plans. An analysis of a typical small plan (ten or fewer participants) from the sample of small plans used here indicates that the cost of

adopting shorter vesting can be 40 to 50 percent higher for small plans than for larger plans. The annual contribution increase required to fund a shift from ten year vesting to three year vesting for a small plan could be approximately 4.7 percent, compared with 3.3 percent for larger plans. However, because the IRS requires many new small defined benefit plans to use shorter vesting, a large proportion of small plans may already have been required to assume the additional costs of shorter vesting.

2. Defined Contribution Plans

The cost of shorter vesting may also be significant for defined contribution plans. Shorter vesting would tend to redistribute the benefits available to participants of profit sharing plans and increase the annual contribution rates for money purchase plans. If we assume that shorter vesting is reflected in higher contributions rather than redistributed benefits, the potential increase can be substantial.

As shown in Table 7, the annual increase in contributions that would be required by a shift from ten year vesting to five year vesting in a model defined contribution plan is approximately twice as large as this same shift in a model defined benefit plan. A shift from ten year to one year vesting produces an even greater difference, almost three times higher for defined contribution plans than for defined benefit plans.

However, because most defined contribution plans have some vesting prior to ten years of service, these estimates may tend to overstate the actual impact on a typical plan. As a result, some caution should be used in interpreting the overall impact on defined contribution plans.

3. Administrative Costs

In addition to increasing benefit expenses in both defined benefit and defined contribution plans, alternative vesting rules could impose additional administrative costs. Benefit administration costs could increase because of the need to estimate the value of accrued benefits for additional workers, and to distribute funds or purchase annuities for the

TABLE 7

POTENTIAL INCREASE IN ANNUAL CONTRIBUTIONS
UNDER ALTERNATIVE VESTING FOR
A DEFINED CONTRIBUTION PLAN

| New Vesting Schedule | Annual Percentage Increase for Shift from: 10 Year Vesting | 5 Year Vesting |
|---|---|---|
| 5 Year Full | 5.3% | N.A. |
| 3 Year Full | 7.5% | 2.1% |
| 1 Year Full | 11.4% | 5.8% |
| Full and Immediate | 11.9% | 6.3% |

SOURCE: ICF estimates for a model defined contribution plan with a contribution rate of five percent on wages below the Social Security wage base and average annual earnings of $13,560. Also assumes a plan rate of return of eight percent and an annual salary rate increase of seven percent. See Appendix A for a description of the methodology.

additional vested workers who terminate.[1/] Plans may also incur higher costs due to the potentially lower rates of return that arise from maintaining more liquid investments.

Because the costs of administering pension benefits do not vary with the size of the benefit, relatively low benefits would be proportionately more expensive for the sponsor to hold, creating an incentive for plans to make lump sum benefit distributions. In addition, the additional administrative costs would tend to have a relatively larger impact on small plans than on large plans.

G. OTHER POTENTIAL EFFECTS

The potential impact of shorter vesting on plan participants depends upon a number of factors, including whether the cost increases are ultimately borne by:

1/ The estimated charge for calculating the value of a participant's benefit in a defined benefit plan varies widely. It may be as low as $5 or as high as $100 per person, based upon reports by several benefit consulting groups.

- the plan sponsor through a reduction in profits;
- the consumer through an increase in prices induced by higher labor costs; or
- the employees through offsetting reductions in the growth of wages, pensions or other employee benefits.

Recent empirical studies of the impact of increases in the Social Security payroll tax indicate that these costs are most likely to be borne by the workers in the form of lower wages and employee benefits. Furthermore, these studies suggest that the adjustment is made in a relatively short period of time, over approximately 12 to 18 months.[1/] If the costs of shorter vesting are shifted to workers in this way, one might expect wages to decline by the amounts estimated above. Because the costs may be significantly higher among the lower wage groups of workers, this burden may fall disproportionately on those least able to afford it.

However, it is possible that increases in private pension costs from shorter vesting may not be distributed in the same manner as Social Security tax increases. It is possible that the higher costs of shorter vesting may lead to:

1/ Major studies of the incidence of increases in the Social Security payroll tax are: George Perry, "Changing Labor Markets and Inflation", Brookings Papers on Economic Activity, 1970:3, pp. 411-448; Robert Gordon, "Inflation in Recession and Recovery", Brookings Papers on Economic Activity, 1971:1, pp. 105-166; John A. Brittain, "The Incidence of Social Security Payroll Taxes", American Economic Review 61 (March 1971): 110-25; Martin Feldstein, "The Incidence of the Social Security Payroll Tax: Comment," American Economic Review, 62 (September 1972): 735-38; Wayne Vroman, "Employer Payroll Taxes and Money Wage Behavior", Applied Economics, 1974, pp. 189-204; John Hagens and John Hambor, "The Macroeconomic Effects of a Payroll Tax Rollback", Social Security Administration, Office of Research and Statistics, August 1979; Daniel Hamermesh, "New Estimates of the Incidence of the Payroll Tax," Southern Economic Journal (1979); and Janice Halpern and Alicia H. Munnell, "The Inflationary Impact of Increases in the Social Security Payroll Tax", New England Economic Review (March/April, 1980).

- a shift in retirement benefits from longer service to shorter service workers -- the higher costs of benefit increases for shorter service workers may tend to be offset by lower benefits for longer service workers. Most likely this would occur through fewer increases in plan benefit accrual rates, which might affect the adequacy of retirement benefits for all workers.

- more restrictive participation rules and other plan provisions -- assuming no other policy changes, some plan sponsors may decide to establish three year participation requirements with full and immediate vesting as one way of reducing the potential costs of some shorter vesting requirements. Alternatively, plans may require worker contributions under shorter vesting.

- a slower rate of new plan formation -- because the costs of shorter vesting appear to fall more heavily on new, small employers, potential plan sponsors may defer the establishment of new plans until the costs can be more readily absorbed. It is also possible, but more difficult to assess, that shorter vesting may have an adverse effect on employers' motivations to establish a plan that, in effect, provides a generous severance allowance to short service workers who terminate.

These potential effects raise important questions about the role of collective bargaining in determining the appropriate mix of pension plan provisions. In addition, they raise important questions about the business purpose of pension plans. To the extent that shorter vesting coupled with these other effects change the function of pension plans in the design of worker compensation plans, employers may consider alternative forms of compensation to achieve the original purpose.

In summary, it is difficult to predict how the costs of shorter vesting are likely to be distributed. However, it is possible that, despite the relatively modest increase in aggregate costs, the impact on some groups of workers and firms may be significant. It is also possible that the impact may be greatest on those employers and workers least able to afford it.

## H. POLICY IMPLICATIONS

These findings raise several important questions about the role of shorter vesting in retirement income policy. Because there are other ways of achieving the objectives identified for shorter vesting, it will be important for decision makers to evaluate the full range of alternatives for improving retirement incomes. Within such a framework, several key questions for policy makers arise:

- Does shorter vesting achieve the objective of ensuring an adequate retirement income better than other policy alternatives? Although shorter vesting can have a significant effect on increasing the proportion of workers with a vested benefit, the levels of these benefits may be relatively low. Policy makers will have to determine whether shorter vesting improves the adequacy of retirement income more effectively than simply increasing existing benefit levels, providing incentives for new plan formation or other measures. In part, this will depend on whether mobile workers with short service would actually accumulate the apparently modest vested benefits that would result from shorter vesting. As a result, consideration of shorter vesting policies in isolation from related policies such as incentives for new plan formation or portability may not lead to the most effective choice.

- Do the added costs of shorter vesting or other policies discourage new plan formation and the retirement benefits associated with them? If ERISA had an impact on the numbers and types of pension plans established, then the adoption of shorter vesting policies could also have an adverse impact on new plan formation. Even if the overall costs are relatively modest, the higher costs of shorter vesting may fall more heavily on those employers least able to afford them. Shorter vesting requirements may also lead plans to make their participation standards more restrictive. If pension plan offerings and participation rates decline under a policy of shorter vesting, policy makers will have to determine whether the potential increase in

benefits from shorter vesting outweighs the potential decline in benefits from lower rates of plan participation.

- Could other pension mechanisms more efficiently administer the new benefits generated by shorter vesting? Because of the potentially higher administrative costs associated with shorter vesting, it is possible that more efficient administrative vehicles could improve the overall level of benefits to retirees. For example, if a practical system of portability could be established, this may reduce some of the loss from administrative costs that accompany shorter vesting. However, even with such arrangements, shorter vesting may not significantly affect the adequacy of retirement income. This could occur if workers generally become vested under plans in subsequent jobs or if workers do not transfer their vested accounts.

Because the scope of the analysis was limited to consideration of the potential impact of alternative vesting schedules, it does not fully address tradeoffs among related policy options. However the other reports in this series will provide a more comprehensive examination of retirement income receipt and its relationship to retirement income adequacy. Specifically, options for improving retirement income receipt will be explored in the Study of Retirement Program Coverage forthcoming from the Employee Benefit Research Institute (EBRI). Results of the coverage study will provide a useful basis for a subsequent Study of Retirement Income Adequacy, also forthcoming from EBRI.

# APPENDIX A

## METHODOLOGY AND KEY ASSUMPTIONS

This Appendix is divided into six sections. Sections I, II and III describe the methodology used to estimate the effects of shorter vesting on the benefits that plan participants will receive and on the costs of pension plans. The model plans used in these analyses are described in Section IV. Section V describes how we estimated the average benefit accrual rate in defined benefit plans and the average contribution formula in defined contribution plans. Finally, Section VI presents the turnover assumptions used in the analysis.

### I. Estimation of Participants and Benefits

The number of participants who would receive benefits upon separation prior to retirement from defined benefit plans was estimated using a benefit simulation model. This model performs three functions:

- First, given an age and service distribution of plan participants and a select and ultimate turnover table, it estimates the number of persons in each age-and-service cell that are expected to separate in any year.

- Second, given a benefit formula and a mortality and interest assumption, the model estimates the present value of the benefits for an individual in any age-and-service cell. In this analysis, the benefit values were estimated for quinquennial age groups, not for individual ages. For example, the benefits for 20 to 24 year olds were approximated by calculating the benefit for a 22 year old. Similarly, the benefits for 25 to 29 year olds were approximated from the benefit amount for a 27 year old.

- Third, the model identifies those separating participants estimated in step one who would not have received benefits under prior vesting standards and categorizes them by the value of their vested benefits. For example, in going from 10 year full vesting to three year full vesting, it divides the number of persons who separate with three to ten years of service into those whose vested benefit is less than $1,000, $1,000-$2,000, and greater than $2,000.

In this analysis, we used the model in calculating the values shown in Tables 2 and 3. These tables were calculated using the assumptions described in the text, along with the model defined benefit plan and the intermediate turnover assumption described in Section VI.

## II. Estimation of Costs in Defined Benefit Plans

The cost of shorter vesting in defined benefit plans was estimated using the PENMOD II Model, an actuarial model developed by ICF. This model uses the typical inputs to an actuarial model, such as mortality and turnover assumptions, an initial age and service distribution of plan participants, plan benefit formulas, other actuarial assumptions, and plan provisions such as participation and vesting rules, to calculate the required annual contribution to a pension plan. PENMOD II differs from some actuarial models in that it uses select and ultimate turnover assumptions to calculate plan costs.

The PENMOD II model estimated the increase in annual plan contributions caused by shorter vesting by first calculating the annual contribution under one vesting schedule. Then, the model was run again under a different vesting schedule and a new required annual contribution was calculated. In this second run, only the vesting schedule was changed. This allows one to isolate the effect of this change on annual plan contributions.

In the analyses presented in Tables 4, 5 and 6, the PENMOD II model was used to calculate the increased cost of faster vesting for a number of different population groups and under a number of alternative turnover assumptions. These populations and the select and ultimate turnover assumptions are described below. Other key assumptions used in these analyses were:

- actuarial interest rate -- an assumption of six percent was used;

- actuarial cost method -- the individual entry age normal cost method was used for all the estimates;

- plan funding level -- it was assumed that the assets of the plans being analyzed were equal to the present value of benefit liabilities of retired and separated vested participants;[1/]

- mortality -- the 1971-GaM mortality table was used;

- participation -- immediate participation for all workers was assumed; and

- benefit formula -- we estimated that the plans analyzed had unit benefit accrual rates of $10 per month per year of service. The basis for this assumption is described in Section V below.

## III. Estimation of Costs in Defined Contribution Plans

We estimated the costs of faster vesting in defined contribution plans using a simple defined contribution cost model. This model estimates the costs of a defined contribution plan under the assumption that shorter vesting affects employer contributions, rather than the distribution of benefits. This assumption reflects the manner in which money purchase plans might adjust to shorter vesting. Profit sharing plans would tend to adjust in a different way.

To estimate the increased cost of vesting, we first calculated the required annual plan contribution under one vesting schedule. Then, we calculated the required annual contribution under an alternative vesting schedule. The estimated increased cost of vesting was then equal to the difference in the two costs. The model calculates the cost of vesting under any vesting schedule in the following way:

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1/ This assumption was used to reduce the complexity of the analysis. Because many plans are more well-funded than this assumption would imply, it tends to understate the potential costs of shorter vesting in all of the estimates presented here.

- First, it estimates the required contribution for a plan assuming no turnover or mortality. This is done with an age and service distribution of plan participants, the earnings of each participant, and an employer contribution formula. In these analyses, we did not use the earnings for each participant, but instead used an average earnings amount for participants in each age-and-service cell. The average earnings and plan contribution rates are described in Section V.

- Second, it estimates the number of plan participants separating from the plan in a year using the number of participants in each age and service group and a select and ultimate turnover assumption. The turnover assumptions used in these analyses are described in Section VI.

- Third, the model calculates the value of plan forfeitures by estimating the value of the accounts for each non-vested separating participant identified in the second step. These forfeitures were calculated using the following three assumptions: (1) that plan contributions were made at the end of the year; (2) that there was an eight percent rate of return on plan assets; and (3) that worker earnings increased at an annual rate of seven percent.

- Finally, the model calculates the annual cost of the plan by subtracting the value of forfeitures estimated in the third step from the estimate of required annual contributions assuming no turnover or mortality calculated in the first step.

## IV. The Model Populations

These analyses were conducted for model prototypes of defined benefit and defined contribution plans with 11 or more participants, as well as a separate group of defined benefit plans with ten or fewer participants. Data for these analyses came from two major sources: (1) a large, representative sample of defined benefit and defined contribution plans with 100 or more participants; and (2) data on a large number of plans with fewer than 100 participants, obtained from actuarial and benefit consulting firms. The data on small plans were obtained from benefit consulting firms in different parts of the country and were selected so as to be representative of the

firms' clients. Consequently, although small plan data analyzed here are probably representative of all small plans, they may not meet strict statistical sampling tests.

Using data from the sources described above, we estimated model plan populations by pooling the age and service distributions from all the plans in a relevant group that provided age and service distributions. For example, the model defined benefit plan with 11 to 99 participants was estimated by pooling the age and service distributions of over 100 defined benefit plans with 11 to 99 participants. Other plan distributions were estimated in the same way.

In other parts of this analysis, these model plan distributions were further disaggregated. For example, in Table 6, an analysis of the costs of faster vesting were presented for the youngest quartile of plans. These quartiles were estimated by calculating the average age of each plan and then dividing the distribution into four quartiles. The quartile of plans with the youngest ages were then pooled to make the "younger workforce" model plan. The young and old service quartiles were estimated in the same way.

## V. Benefit and Contribution Formulas

These analyses assumed that the defined benefit plans had unit benefit formulas. A review of a large number of representative plans, the Banker's Trust sample of plans, and the Wyatt Top 50 survey indicated that the typical defined benefit plan with 11 or more participants in 1980 had an accrual rate which was equivalent to a unit benefit accrual rate of approximately $10 per month per year of service. This approximation is based upon converting many different types of benefit formulas into a flat dollar accrual rate for purposes of comparison. The average value of approximately $10 includes benefits integrated with Social Security, potentially overstating the benefits and costs for lower wage workers. Individual plans have benefit accrual rates that vary widely around this average. Consequently, the estimates in Table 3 above also show the effects for plans with accrual rates of $5 and $20.

For defined contribution plans, we estimated that a typical plan contributed approximately seven percent of average annual workers' earnings. This estimate was based upon an analysis of the percentage of earnings contributed to a representative

sample of 300 profit sharing plans in 1975.[1/] Because many defined contribution plans have formulas that are integrated, we assumed that contributions were 5 perent on earnings below the Social Security wage base and 10 percent above it.

We estimated the average annual earnings from Bureau of Labor Statistics' estimates of average weekly earnings for production and non-supervisory workers for January 1980. These estimates were adjusted for wage increases since January and for the fact that pension plan participants have higher wages than non-participants. From these adjustments, we obtained $13,560 as the estimated average annual covered earnings in defined contribution plans.

## VI. Turnover Assumptions

Because of the importance of turnover rates in this analysis, we estimated the costs of vesting under alternative turnover assumptions. In addition, because vesting costs will vary significantly with the average service level of separating participants, we used select and ultimate turnover assumptions. These assumptions were used in both the benefit simulation model and the PENMOD II actuarial cost model.

The three sets of turnover assumptions used in these analyses are shown in Tables A-1, A-2, and A-3.

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1/ ICF Incorporated, A Private Pension Forecasting Model, (October, 1979), sponsored by the Pension and Welfare Benefit Program, Department of Labor.

TABLE A-1

PROBABILITY OF TURNOVER GIVEN CURRENT AGE AND YEARS OF SERVICE: LOWER TURNOVER ASSUMPTION

| Age | Years of Service | | | | | |
|---|---|---|---|---|---|---|
| | < 1 | 1 | 2 | 3 | 4 | 5 or More |
| 20 | .22 | | | | | |
| 21 | .22 | .12 | | | | |
| 22 | .22 | .12 | .10 | | | |
| 23 | .22 | .12 | .10 | .08 | | |
| 24 | .22 | .12 | .10 | .08 | .07 | |
| 25 | .22 | .11 | .10 | .08 | .06 | .045 |
| 26 | .21 | .11 | .10 | .08 | .06 | .045 |
| 27 | .21 | .11 | .09 | .08 | .06 | .045 |
| 28 | .21 | .10 | .09 | .08 | .06 | .045 |
| 29 | .21 | .10 | .09 | .07 | .06 | .045 |
| 30 | .21 | .10 | .09 | .07 | .06 | .045 |
| 31 | .21 | .10 | .09 | .07 | .05 | .0375 |
| 32 | .21 | .10 | .09 | .07 | .05 | .0375 |
| 33 | .21 | .10 | .08 | .07 | .05 | .0375 |
| 34 | .20 | .09 | .08 | .06 | .05 | .0375 |
| 35 | .19 | .09 | .08 | .06 | .05 | .0375 |
| 36 | .19 | .09 | .08 | .06 | .04 | .03 |
| 37 | .18 | .09 | .08 | .06 | .04 | .03 |
| 38 | .18 | .09 | .08 | .05 | .04 | .03 |
| 39 | .18 | .09 | .07 | .05 | .04 | .03 |
| 40 | .18 | .09 | .07 | .05 | .04 | .03 |
| 41 | .18 | .09 | .07 | .05 | .04 | .03 |
| 42 | .18 | .09 | .07 | .05 | .03 | .0225 |
| 43 | .18 | .08 | .07 | .05 | .03 | .0225 |
| 44 | .18 | .08 | .07 | .05 | .03 | .0225 |
| 45 | .17 | .08 | .07 | .04 | .03 | .0225 |
| 46 | .17 | .07 | .06 | .04 | .03 | .0225 |
| 47 | .17 | .07 | .06 | .04 | .03 | .0225 |
| 48 | .16 | .07 | .06 | .04 | .03 | .0225 |
| 49 | .16 | .07 | .06 | .04 | .03 | .0225 |
| 50 | .15 | .07 | .06 | .04 | .03 | .0225 |
| 51 | .14 | .07 | .05 | .04 | .03 | .0225 |
| 52 | .14 | .07 | .05 | .04 | .03 | .0225 |
| 53 | .14 | .07 | .05 | .04 | .03 | .0225 |
| 54 | .14 | .06 | .04 | .03 | .02 | .015 |
| 55 | .14 | .06 | .04 | .03 | .02 | .015 |
| 56 | .14 | .06 | .04 | .03 | .02 | .015 |
| 57 | .14 | .06 | .04 | .03 | .02 | .015 |
| 58 | .14 | .06 | .04 | .03 | .02 | .015 |
| 59 | .14 | .06 | .04 | .03 | .02 | .015 |
| 60 | 0 | 0 | 0 | 0 | 0 | 0 |
| 61 | 0 | 0 | 0 | 0 | 0 | 0 |
| 62 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 | 0 | 0 | 0 | 0 | 0 | 0 |

TABLE A-2

PROBABILITY OF TURNOVER GIVEN CURRENT AGE AND YEARS OF SERVICE: INTERMEDIATE TURNOVER ASSUMPTION

| Age | Years of Service | | | | | |
|---|---|---|---|---|---|---|
| | <1 | 1 | 2 | 3 | 4 | 5 or More |
| 20 | .31 | | | | | |
| 21 | .31 | .17 | | | | |
| 22 | .31 | .17 | .14 | | | |
| 23 | .31 | .17 | .14 | .11 | | |
| 24 | .30 | .16 | .14 | .11 | .09 | |
| 25 | .30 | .16 | .13 | .11 | .09 | .072 |
| 26 | .30 | .15 | .13 | .11 | .08 | .064 |
| 27 | .29 | .15 | .13 | .11 | .08 | .064 |
| 28 | .29 | .14 | .13 | .10 | .08 | .064 |
| 29 | .29 | .14 | .13 | .10 | .08 | .064 |
| 30 | .29 | .14 | .13 | .10 | .08 | .064 |
| 31 | .29 | .14 | .12 | .10 | .07 | .056 |
| 32 | .29 | .14 | .12 | .09 | .07 | .056 |
| 33 | .28 | .13 | .12 | .09 | .07 | .056 |
| 34 | .28 | .13 | .11 | .09 | .07 | .056 |
| 35 | .27 | .13 | .11 | .08 | .06 | .048 |
| 36 | .26 | .12 | .11 | .08 | .06 | .048 |
| 37 | .25 | .12 | .10 | .08 | .06 | .048 |
| 38 | .25 | .12 | .10 | .08 | .06 | .048 |
| 39 | .25 | .12 | .10 | .07 | .05 | .04 |
| 40 | .25 | .12 | .10 | .07 | .05 | .04 |
| 41 | .25 | .12 | .10 | .07 | .05 | .04 |
| 42 | .25 | .12 | .10 | .07 | .05 | .04 |
| 43 | .25 | .11 | .10 | .07 | .05 | .04 |
| 44 | .25 | .11 | .09 | .06 | .04 | .032 |
| 45 | .24 | .11 | .09 | .06 | .04 | .032 |
| 46 | .23 | .10 | .09 | .06 | .04 | .032 |
| 47 | .23 | .10 | .08 | .06 | .04 | .032 |
| 48 | .22 | .10 | .08 | .06 | .04 | .032 |
| 49 | .21 | .10 | .08 | .06 | .04 | .032 |
| 50 | .21 | .10 | .08 | .05 | .04 | .032 |
| 51 | .20 | .10 | .07 | .05 | .04 | .032 |
| 52 | .19 | .09 | .07 | .05 | .04 | .032 |
| 53 | .19 | .08 | .06 | .04 | .03 | .024 |
| 54 | .18 | .08 | .06 | .04 | .03 | .024 |
| 55 | .18 | .07 | .06 | .04 | .02 | .016 |
| 56 | .17 | .07 | .05 | .03 | .02 | .016 |
| 57 | .17 | .07 | .05 | .03 | .02 | .016 |
| 58 | .17 | .07 | .05 | .03 | .02 | .016 |
| 59 | .17 | .07 | .05 | .03 | .02 | .016 |
| 60 | 0 | 0 | 0 | 0 | 0 | 0 |
| 61 | 0 | 0 | 0 | 0 | 0 | 0 |
| 62 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 | 0 | 0 | 0 | 0 | 0 | 0 |