

New Trends in Pension Benefit and Retirement Provisions

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PRC WP 2000-1
February 2000

A Report to the Pension and Welfare Benefits Administration
Of the U.S. Department of Labor

Pension Research Council

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ABSTRACT

Private sector pension plans have undergone substantial change in form and structure in the United States over the last two decades. This paper explores and evaluates these changes using information on pension plan characteristics gathered by the U.S. Department of Labor (DOL) since 1980 in their periodic Employee Benefits Survey (EBS) of medium and large establishments. We also discuss how future data collection efforts could be improved to better measure key changes in the form and design of employer-sponsored pensions.

Key findings are as follows: Many aspects of defined benefit plans changed over time. For example, vesting rules were loosened; plans eased access to normal retirement; and pension benefit formulas moved toward final rather than career earnings, with increased weight on straight-time pay. In addition, these plans became more integrated with social security; at the same time, the form of social security integration changed substantially. The evidence also indicates that defined benefit plan replacement rates fell over time and benefit caps limit years of service counted in the retirement formula. In addition, disability benefit provisions grew more stringent; and participants were increasingly permitted to take a lump sum from their defined benefit plan.

Defined contribution plans also have evolved over time. Here, plan participants were granted greater access to diversified stock and bond funds, and fewer were permitted to invest in own-employer stock, common stock funds, and guaranteed insurance contracts. Participation and vesting rules appear most lenient for workers in 401(k) plans; generally employees must contribute a fraction of their pay to their plans rather than relying only on employer contributions; and employee access to pension fund assets prior to retirement is growing.

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The last twenty years brought a substantial transformation in the private pension environment in the United States. Employees grew increasingly interested in pension programs as a consequence of baby boomer aging, and workers demanded retirement savings accounts as the robust stock market of the 1980s and 1990s made equities an appealing investment. In addition, rising life expectancies and longer worklives enhanced the pension promise among groups that lacked pensions years ago, particularly women.¹ Employers, too, were willing and even eager to supply new forms of pensions, responding to the need to downsize their workforces, to changes in the industrial and occupational mix of employment, and to an interest in using pensions to induce particular worker behaviors.² A dynamic pension environment was also driven by regulatory developments including tax reform bills changing pension funding levels, contribution amounts, and benefit payouts (McGill et al., 1996). In sum, the last two decades proved conducive to pension growth and development along some dimensions, but also turned out to be a time of substantial challenge to both those wanting and offering pensions in America (Sass, 1997).

This report highlights and evaluates some of the most important changes observed in U.S. private sector pension plan retirement formulas and benefit provisions during the 1980s and 1990s. These trends in pension provisions and formulas over time are gleaned from a series of reports developed by the U.S. Bureau of Labor Statistics (BLS) summarizing information from its periodic Employee Benefits Survey (EBS) conducted over the last two decades. The BLS has only published individual-year summaries but not collected the available data into a systematic time series. Therefore we have gathered, organized, and interpreted information provided on pension plan characteristics in medium and large establishments through 1997, thereby updating our previous study (Mitchell, 1992) that explored changes in pension provisions through 1988. There are no more recent data publicly available for this purpose.

The plan of the paper is as follows. We begin with a discussion of retirement plan features, particularly focusing on benefit formulas. Next, we analyze trends in retirement provisions and benefit formulas found in defined benefit and defined contribution plans over time. We conclude with a summary of findings.

Overview of Pension Type and Pension Features³

In the U.S. corporate or private sector, company pensions were conventionally classified into two types: defined contribution (DC) and defined benefit (DB) plans.⁴ In a defined contribution pension, the covered employee often has a choice as to whether to participate in the plan, and if so, how much to contribute to his own retirement saving account. In addition, the plan sponsor often adds to the participating employee's account, by a match on employee contributions. Pension contributions funds are invested in the capital market, and generally a participant has choice over investment options into which his own (and sometimes his employer's) funds are deposited. Usually, the contributions and earnings on

the investments must be preserved for retirement, but sometimes an active worker may access his funds for hardship or some other purpose. On leaving the firm, the departing worker may receive his accrual in the form of a lump sum (though receipt of the lump sum may trigger a tax penalty unless he is at least age 59.5). Alternatively the departing worker may take his pension benefits in the form of a periodic amount or buy a life annuity. The value of the plan accrual at any given date depends on the amounts contributed and investment returns over the entire worklife.

By contrast, a worker with a DB plan receives a promise of an eventual pension benefit that is determined by a pre-specified formula. Here the replacement rate (specified as a percent of pre-retirement pay) is typically a function of the covered worker's age, pay, and/or service levels. In most cases the defined benefit is payable as a life annuity, though as we will show below, the benefit may be accessed as a lump sum in some cases.

Designers of both types of pension plans may select from a range of eligibility, contribution, vesting, benefit, withdrawal, and retirement provisions and formulas. In addition, plans can embody many different special provisions regarding post-retirement benefit increases and special payouts (e.g. disability or lump sum cashouts), along with other features. It is our goal in this investigation to determine how, if at all, pension plans of medium and large establishments in the private sector have changed over the last two decades, to determine whether any salient trends deserve attention.

Understanding how pension provisions and benefit entitlements have changed over the last two decades is important for several reasons. It is well known that many pension provisions powerfully affect the nature of the pension promise, and in turn they influence worker and firm behavior (c.f., Gustman and Mitchell 1992; Gustman et al., 1994 and 1995). For instance, a pension-covered employee allowed to take a loan or a lump-sum cashout from his plan after a short vesting period gains access to his pension saving early the worklife, a practice that some worry contributes to inadequate old-age protection. An employee prohibited from taking a loan or cashing out his pension when young lacks access to his accrued pension, so he may end up with a better-funded retirement period than his counterpart. (On the other hand, it is possible that inability to access the funds early in life will discourage participation). These and other structural features of pensions also influence worker turnover patterns. That is, vesting and benefit formulas can deter mobility for younger employees, and they can also induce workers to remain on the job longer if the plan offers substantial rewards for continued work (c.f., Fields and Mitchell 1984). Other times, as in the case of defined contribution pensions, retirement benefits may depend on amounts contributed and how the worker chose to invest his pension assets. It has been shown that investment decisions depend to a large degree on how successful employers are in communicating benefit plan attributes to employees (Mitchell and Schieber, 1998).

Before turning to a more detailed discussion of pension trends in the EBS, it is useful to briefly review key pension terminology and the importance of specific pension provisions.

Plan Participation and Vesting. Workers covered by a private pension are often not permitted to join their pension plan immediately; rather many plans limit participation to workers who remain at the firm more

than one year, and sometimes also limit coverage to those over the age of 21. The Employee Retirement Income Security Act [ERISA] of 1974, as amended, mandated that pension plan participation requirements could not be more stringent than this (plans may be more generous).

What is meant by '*plan participation*' matters, of course, since some pensions begin to count years of service for benefit purposes from the date that the worker becomes a plan participant. '*Vesting*' in a pension plan is important since it refers to the juncture at which the worker gains a legal claim to an eventual benefit from a pension plan in which he is a participant. Many establishments do not offer new workers an immediate claim on a retirement benefit; rather, workers will earn claim only when they meet employment criteria specified in the plan's vesting formula. One criterion often used is a minimum number of years of service; in 1974, ERISA spelled out several permitted vesting schedules including the most common "10-year cliff vesting rule", requiring workers to vest at 10 years of service. Subsequently vesting standards were eased under the Tax-Reform Act of 1986, with most plans now using a "5-year rule" for cliff vesting.

Retirement Eligibility Requirements. Most pension plans require that a covered employee must complete a requisite number of years of service and/or attain a specified age, in order to receive a pension annuity payment. Thus, for example, a worker may be eligible for early retirement at age 55 with 10 years of service, while normal retirement might be defined as leaving at age 65 with at least 10 years of service.

Such plan-based age and service requirements are common in DB plans and sometimes are found in DC pensions. When they exist, the rules establish conditions under which the worker can claim plan benefits. Eligibility requirements play a particularly crucial role in DB plans, since here age and service influence not only access to benefits, but also the level of benefits payable. For instance, an early retiree might receive a lower annual benefit amount than the one payable at the plan's normal retirement age. A higher benefit at the plan's normal retirement age recognizes the fact that at a later age, a worker has more years of service, possibly a higher pay level, and fewer years of life remaining over which to draw a benefit. In addition, defined benefit plans frequently structure their benefit formulas so as to subsidize early retirement (c.f., Fields and Mitchell 1984). Hence retirement requirements are important insofar as they establish when a worker may begin to receive subsidized early payouts.

For many years, corporate sponsors in the U.S. were permitted to use their pension formulas to induce older workers to leave their jobs, mainly by limiting pension accruals after a specific age (Luzadis and Mitchell 1998). But in an effort to reduce the extent of age discrimination, the Omnibus Reconciliation Act of 1986 required private-sector pensions to continue benefit accruals after normal retirement, a ruling that took effect for most private sector pensions in 1988. (Collectively bargained plans were permitted somewhat longer to come into compliance.) Hence retirement eligibility rules for private sector pension plans have become more liberal over time, somewhat increasing benefit incentives to remain employed at older ages.

Retirement Contribution and Benefit Provisions.

Defined Benefit Plans: Defined benefit plans use many different methods to compute participants' payouts at retirement. Some pension benefit formulas provide for flat monthly dollar benefit entitlements per year of service, while others base benefits on employee pay, age, and/or service at retirement. If pension benefits depend on earnings, the employer generally specifies what percentage of earnings will be paid per year of service. A related issue is that earnings-based plans differ in terms of which definition of earnings they consider relevant. For instance, straight-time pay alone may be considered, or a plan may add overtime, shift pay, and/or commissions into the formula. In addition, pay-based plans differ in terms of the period of time over which earnings are computed. In a career earnings plan, pay during the entire period of employment is considered; conversely, a terminal earnings plan focuses on compensation just prior to retirement. Even terminal earnings benefit formulas generally include more than the final year's pay in the formula; it is not uncommon to use the worker's highest or last 5 years as the basis for a final average pay figure.

In some cases pension formulas are *integrated* with social security rules following one of two general patterns.⁵ "Offset" formulas typically reduce a pension benefit payment by some fraction of the worker's primary social security amount, while an "excess" plan will apply lower pension benefit accruals to earnings below the social security taxable wage base (or some similar threshold) and higher benefit accumulations to earnings above this amount. Terminal earnings plans tend to use the offset approach when they are integrated, while career earnings plans tend to use the excess method. Integration is less common in plans using flat dollar amounts.

Defined benefit pension plans have various other special benefit rules, many of which affect retirement benefits under certain conditions. Benefit "reduction factors" are important in determining the rate at which annual benefit payments are reduced for workers retiring early. These reduction factors may actually encourage rather than discourage early retirement, which occurs when early-leavers receive a larger total value of benefits (in present value terms) than those working to the normal retirement age.

Another feature of interest to pension experts is worker access to pension accruals for special reasons, including for early receipt of vested benefits and for disability. When employees can cash out their vested accrued benefits, they may fail to save the accumulations for retirement (Fernandez, 1992). Disability pensions are another way in which workers can receive benefits prior to becoming qualified for a regular pension, and hence these too play a role in workers' economic security benefits.

Defined Contribution Plans: The institutional structure of defined contribution plans is as varied as among their defined benefit counterparts, but along different dimensions. Many different types of plans exist, categorized according to various classification schemes. In the past, the BLS distinguished between plans it called "retirement" plans, versus those called "capital accumulation" plans; the former generally prohibited withdrawal of pension accruals prior to retirement, and the latter afforded easier access to plan assets. But over time, it has become clear – and the BLS has recognized – that "most defined contribution plans can be used to provide retirement income or to accumulate financial assets" (U.S.

DOL, 1989, p.107). In addition, many of these plans allow lump-sum cash-outs rather than a benefit annuity.

Another change seen recently is the development of several new DC plan types. Experts often distinguish among defined contribution plans according to the source of their finances, or to the way in which their assets are held. Examples include savings and thrift plans, profit-sharing programs, money purchase pension plans, employee stock ownership/stock bonus plans, and 401(k) plans. Savings and thrift plans are those where workers contribute a percentage of their pay and employers generally offer some amount of matching contribution (perhaps up to a maximum). The tax treatment of employee contributions depends on both individual plan structure and overall tax code limitations on the amount of compensation that can be tax deferred. Savings and thrift plans often permit workers to borrow from or make taxable withdrawals from their plans in special circumstances (e.g., educational or medical expenses). Profit sharing plans offering deferred income tend to link employer contribution levels to company profits, and then allocate the employer contribution levels to company profits, and then allocate to employer contribution based on workers' pay or other formulas. Early withdrawals or loans are rather less common here than in other plans. In a money purchase plan, employer contributions are fixed, usually as a fraction of earnings, whereas in stock ownership and stock bonus plans the employer contributions are usually in the form of company stock. And from the late 1980's on, 401(k) pensions have grown quite rapidly.

Changes in Pension Plans: 1980-1997

The Bureau of Labor Statistics presents tabulations of Employee Benefits Survey (EBS) data on pensions in two separate segments, one focusing on DB plan features, and the other on DC plan aspects. We follow that format here, with reference to the relevant tables we have collected for our purposes that appear at the end of this report.

There are some important caveats about the EBS data that must be noted before proceeding to the results. Over time, there have been some important changes in plan type, contribution and benefit features, and other aspects of the way retirement income is delivered by company pension plans. Some of these changes were driven by regulatory change, some by changing market conditions, and others by external developments – such as the massive increase in the U.S. stock market during the 1990s. In response, the BLS has sought to adapt the EBS by adding to the original DB focus evidence on new plan types over time. For instance, since the mid 1980s the reporting tracked profit sharing and savings/thrift plans, and more recently it has added information on 401(k) plans as well. In addition some series are no longer reported in the late 1980's, and new series were added for the first time during the early 1990's. Our effort in this analysis was to provide as much data as could be gleaned from the tabulations, but the inevitable changes in pension plan design render some of the tabulations time-inconsistent over time. Special note is made if this is a particular issue in any table.

Another caveat arises because the BLS has not used generated findings using identical table formats in all years. This makes some of the time series inconsistent and in a few cases, not available at all in some years. As a result, missing information in some data series can render interpretations difficult in some cases. One tabulation effort phased out, despite its clear interest to DB plan analysts, is the series indicating how benefit amounts compare to pre-retirement pay. Also in the EBS reports, definitions are sometimes inconsistent over time in terms of plan type, contribution and benefit features. Finally, there are important cases where tabulations cannot be compared because they use a different base over which the prevalence of a certain feature is computed. For instance, it is not possible to derive a time series on the percent of workers with multiple plans of particular types, since the base over which these numbers were calculated changed in the early 1990s. Greater consistency in table design would be invaluable to future researchers seeking to draw more conclusions from these interesting data in the future.

Defined Benefit Plans. Time series EBS data are available on three important characteristics of defined benefit pension plans: (1) participation, eligibility and vesting; (2) withdrawal and benefit formulas; and (3) special provisions. Trends in each are examined in turn.

Participation, Eligibility and Vesting. Defined benefit pension plans typically specify criteria that covered employees must meet before becoming full-fledged pension participants. Such requirements are justified by the need to reduce administrative costs that would otherwise be incurred for young workers. The effect of these participation requirements is thought to be a reduction in turnover by offering workers an incentive to remain with the company (Gustman and Mitchell, 1992). Under the Employee Retirement Income Security Act (ERISA) of 1974, full-time employees age 25 or older must be granted participant status after completing 1 year of service. Participation rules were subsequently amended by the 1984 Retirement Equity Act (REA), which for most plans lowered the participation requirement to age 21 as of mid-1986.

The EBS information on plan participation requirements (Table 1) indicates that there was a steady increase in the percent of full-time employees covered by DB plans having a minimum age and/or service requirement, over the period 1981-1997. Among DB plan participants in 1981, 59% had minimum age and/or service requirements; this fraction grew to 68% by 1997. About half of the plans require only 1 year service, with the other half covered by the "age 21/service 1" rule imposed by the REA. Virtually no plan has an "age only" criterion. The pattern is therefore consistent with the notion that the law change (REA) was successful in bringing about earlier participation for many workers, but the drop in the fraction of workers age 21-24 permitted to participate in their plans in their first year of service seems to have worked in the opposite direction.

Also appearing in Table 1 is information on a practice permitted by ERISA until 1988, namely the imposition of *participation limits* if a worker joined a firm within 5 years of the pension plan's normal retirement age. During the 1980s, this practice permitted firms to hire older workers without incurring

large pension obligations, and as of 1981-2, some 60% of covered workers were in plans of this type. But the 1986 Omnibus Reconciliation Act (OBRA) eliminated maximum age restrictions from 1988 onward, by which year the fraction dropped slightly, to 47%. The BLS did not tabulate comparable data thereafter, but the pension change brought about by OBRA likely increased employment costs for firms hiring older workers near the plan's retirement age.

Once a worker becomes a DB plan participant, he must typically satisfy a plan service requirement before gaining a legal vested right to his accrued benefit. Economists have argued that these vesting requirements serve to deter worker turnover, inasmuch as vesting guarantees and eventual retirement benefits would otherwise be lost if a worker changed employers (c.f., Gustman and Mitchell 1992; Gustman et al. 1994 and 1995). In 1974, the Employee Retirement Income Security Act (ERISA) specified a number of permissible vesting formulas including a "10-year cliff" rule requiring an employee to participate in the plan for a decade, before becoming 100% vested. Subsequently, the 1986 Tax Reform Act (TRA) required single-employer plans to convert to a 5-year schedule if using cliff vesting (or 7 years if graded vesting was in place); the 5-year approach was adopted by most plans by 1989.

Table 2 shows that the fraction of DB plan participants with cliff vesting hovered around 89% during the 1980s and began to rise in the 1990s, ending at around 96%. At the same time, the modal number of years until vesting fell between 1988 and 1989, consistent with the declining legal threshold. Graduated vesting schedules give an employee a right to a gradually increasing share of accrued benefits, eventually reaching 100% at a specified age and/or service point. Such schedules covered about 11% of all DB participants in 1980, rose to 17% in the late 1980s, but then fell back down to 3% by 1997. Overall, vesting requirements in DB plans have definitely eased, as compared to the early 1980s. *Contributions.* Turning to contributions, Table 3 shows that most private sector DB plan participants are rarely required to contribute to their pensions out of their own salary or earnings. This question has only been tracked since 1993, but the evidence shows that only 3-5% of DB participants are required to make employee contributions.⁶

Withdrawal and Benefit Formulas. We focus next on conditions under which participants can access the funds in their pension accounts. DB plans generally specify minimum age and/or service criteria that a worker must satisfy in order to retire and receive "early" benefits. The relevant trends are reported in Table 4, where we see that early retirement was and has remained the norm in the DB environment, with over 90% of covered employees having this since 1980. But the fact that early retirement is generally available obscures changes in requirements for collecting early benefits. For instance earlier retirement has grown more accessible over time: in 1982, 58% of all participants could leave at age 55 (in some cases, depending on service), and by 1993 this fraction stood at 66%. But the trends are not uniform: in the late 1980s there was a peak in the fraction of workers permitted to leave at age 55 with 10 years of service, and then this practice appeared to fall during the 1990s. Conversely, it became much easier to retire with only 5 years of service at age 55, with the fraction in this group rising from 3% to 20% between

1980 and 1997. It is interesting that relatively few participants are in plans where they must satisfy only an “age plus service” requirement (5% in 1980, 10% in 1985, and 8% in 1997).

Turning to “normal” retirement requirements, most DB plans require retirees to meet certain age requirements, or alternatively age plus service requirements to receive full, unreduced, benefits (Table 5). Only 11% of DB plan participants in 1980 could obtain normal retirement by virtue of service alone, and 30 years was the typical cutoff; by 1997, fewer than half this many (5%) of the participants could take normal benefits based on service alone. Just under half of all participants were subject to normal retirement eligibility rules that only depended on age in 1980, with that fraction remaining fairly stable over the entire period. Where age only serves as the criterion for normal retirement, age 65 has long been a common threshold. Turning to requirements involving both age plus service, it appears there has been a growing propensity of participants to have normal retirement available at age 62 with some combination of years of service. In 1981, 17% of the participants were able to retire at 62 with full benefits (4% at 62 with no service plus 13% with some service); by 1997 this fraction had risen to 21% (3% and 18% respectively). In other words there appears to be a continued trend toward permitting workers to retire before age 65 and receive full (unreduced) benefits. These patterns are in line with findings from other studies indicating that some DB plans have sought to encourage earlier retirement over time (Luzadis and Mitchell, 1991; Mitchell and Luzadis, 1988). Whether this pattern will persist into the tight labor markets projected for the next 20 years remains to be seen.

Benefit formulas are described in Table 6, where we see that the fraction of DB plan participants with benefit credits based on a flat dollar amount per year of service fell from 30% to 23% between 1980 and 1997. This decline may be due to the steady drop in the unionization rate of the U.S. workforce, since flat dollar benefits were traditionally associated with collective bargaining agreements. Indeed, by the 1990s most DB plans surveyed used workers’ earnings to determine benefit amounts. This fraction stood at around 2/3 of all participants in 1997, virtually the same as in 1980. It is also interesting that terminal rather than career earnings have long been in the majority for DB benefit formulas using pay to base benefits on, since using the former pay definition is believed to protect benefits from inflation. The fraction using terminal pay in benefit computations has moved little around the 55-58% level over the period, with 11%-15% of all DB participants having benefits computed using career earnings. On the other hand, using terminal earnings does link retirement benefits to individual performance at the end of the worklife, as compared to career average plans.

Besides knowing that earnings are included in the benefit formula, it is also necessary to define what definition of pay is used. Table 7 indicates that DB plans have increasingly tied benefits to straight-time or base pay alone, rising from 44% to 62% in just the eight years between 1988 and 1995 (data for 1997 are not tabulated). Similarly the DB plans have reduced their reliance on shift differentials, bonuses, and commissions in the formulas. These factors taken together signal a reduction in the incentive-based portion of pensions, as compared to earlier years. Some might see this as a cut in benefit value for older

workers, thought it also might make it easier for older workers to remain on the job without prejudicing their potential retirement DB benefit amounts, should they experience a productivity decline.

Defined benefit plans generally allocate benefits according to some percentage per year of service or pay, and these fractional benefit rules are summarized in Tables 8 and 9. For career earnings plans, only about one-third of all participants in 1991 were covered by a plan with a flat percent per year of service, with the most common percentage being 1.25-1.75% of pay (the data were not tabulated for the more recent years; see Table 8). By contrast, some 60% of participants were in plans paying benefits where the fraction of pay varied by years of service, with the modal pattern being a fraction varying by earnings. For terminal earnings plans, Table 9 shows that most plans used five years' pay, with five consecutive years being the most common approach. Nevertheless, there was a small increase in the prevalence of plans using three instead of five years of pay, rising from 14% to 17% over the period 1983-1997. More confounding is the inverted U-shaped pattern in the fraction of pay used in benefit formulas: early in the 1980s, 47% of the participants had benefits that were a flat percentage per year of service (with the norm being in the range of 1.25-1.75%). Then the fraction of participants using a flat percentage per year of service in the benefit formula rose slightly, to 54% by the late 1980s, and subsequently it fell to 35% by the late 1990s. By contrast, over time, plans were more likely to employ benefit percentages that depended on other factors, with the fraction depending on earnings rising and on service falling. Finally, Table 10 provides tabulations on the prevalence of dollar amount formulas over time. Here it is clear that the plans using dollar amounts raised those dollar levels over time, with the modal factor now being over \$30 per year of service (these increases might not have been sufficient to keep up with inflation, however).

Benefits paid by DB plans depend not only on earnings or service-based formulas; in addition, retiree payments are frequently integrated with Social Security benefits. Table 11 shows that 45% of DB plan participants had their benefits integrated with Social Security in 1980, and though the integration fraction crept up to 63% by 1989, it fell back again by 1997 (to 49%). What is interesting is that this overall pattern hides major changes in the way integration has been handled over time. Specifically, between 1980 and 1997, the fraction of workers with benefits offset by Social Security payments fell from 30% to 13%; what grew instead was the prevalence of plans with excess formulas. In the latter case, a DB formula might provide 1% of pay up to the Social Security earnings threshold per year of service, for example, with some higher fraction (such as 1.5%) for pay above this level. So while there is no overall change in the degree of Social Security integration reported in the Employee Benefits Survey, the type of integration used has actually changed substantially.⁷ It is of interest to recognize that these changes in pension integration practices coincide with large Social Security payroll tax increases; though a casual relationship cannot be proven in the data, the correlation is striking.

For those who retire early, DB payments are often reduced to recognize that early retirees will receive these payouts over a longer period of time. Table 12 summarizes time trends in DB plan early retirement reduction factors, and the evidence indicates that that early retirement subsidies have been the

norm over the entire period. This may be concluded because in both 1982 and 1997, one-quarter of all DB participants were covered by early retirement reduction factors of 6% or smaller; a reduction of more than 6% is generally deemed as necessary to represent actuarial neutrality (McGill 1996).⁸ Reduction factors also apply to vested workers who leave their employers, where it also appears that vested terminated workers face benefit reductions of 6% or less (but only three years of data are provided making it difficult to confirm the trend). Among the 61% of employees whose early retirement reduction factors vary with either age or service, some subsidization of early retirement could be expected as well, but the BLS data do not permit the determination of the precise size of this group. The final panel of Table 12 shows that at least 90% of plans permit vested terminated workers to take their benefits prior to normal retirement, but only about half face the same reduction as applied to early retirees.

Benefit formulas are often quite complex to interpret, and for many years, the BLS provided a useful set of tabulations that could be used to compare retirement benefits for different hypothetical workers in the set of DB pensions under study. The technique adopted involved using plan information to compute “replacement rates”, defined here as the ratio of the DB retirement plan benefits to the worker’s final year of earnings. These computations were published only for the period 1984-1993, calculated at the normal retirement age using six standardized pay levels and three seniority profiles (see Table 13). Unfortunately the agency ceased publishing these computations after 1993.

In any event, DB plan replacement rates rise with service for a given pay level and generally rise for a given service/earnings combination; in EBS tabulations they follow this pattern both within a particular year and also over the time period 1984 –1991 (Table 13). This regularity is in sharp contrast to the marked fall in computed replacement rates reported in 1993. Unfortunately no comparable computations were published by the BLS thereafter; the continuation of this critical time series in future reports would be invaluable.

Comparing replacement patterns within service categories, the evidence suggests that DB plan benefit formulas were fairly redistributive. In particular, replacement rates were higher for the lower paid and fell as pay rose for a given level of service. For instance, in 1993, the latest year reported, the replacement rate for a 30-year worker earning \$15,000 was 27%, but 21% for a \$65,000/year earner. We note that the “illustrative” pay levels reflected in the Table are not comparable in real terms, since a constant nominal earnings assumption implies a falling real pay level over time. As a rough correction for inflation, one may compare replacement rates for a \$25,000 worker in 1984 with those of a \$30,000 level in 1989, and these with that of a \$35,000 worker in 1993. This simple comparison approximately controls for inflation over the relevant period. The results imply that pension replacement rates were fairly constant over the time period given; that is, holding constant real pay levels, benefit replacement rates for 10, 20, and 30 years of service changed relatively little over the years until 1991. Again, the exception occurs in the final year of data tabulated (1993) and no follow-up is possible due to the lack of reporting.

Special Provisions in DB Plans. In the private sector, few pensions are protected against inflation by formal indexation; as a rule, private pension benefits are usually delivered as fixed nominal annuities.

This is not a major concern for many older workers and retirees during low-inflation periods, but even a modest 3% inflation rate can cut the real value of the benefit in half in only 24 years. Despite this, Table 14 reveals that DB pension benefits are only rarely tied to an explicit cost of living index (COLA). In 1995, for instance, only 7% of EBS participants had a COLA, and only 3% had an automatic escalator. Quite frequently benefits are not increased at all post-retirement, as can be seen by the fact that only 4% of the participants had plans with discretionary benefit increases in 1995. This is quite extraordinary given the generally strong equity market performance experienced by most of these plans during the 1980s and 1990s; it might be attributed to the low inflation rates over the period.

In addition to these other benefit provisions, private pensions frequently impose a ceiling on benefit amounts payable to retirees. The prevalence of this phenomenon has been declining as is evident from Table 15. In 1984, for instance, 42% of the participants faced a benefit maximum; by 1997, only 33% were capped. In plans that did limit benefits, they tended to do so by capping the number of years of service that may be counted for benefit purposes. In 1997, for instance, 31% of the DB participants faced a maximum limit on service years. The modal choice for a maximum has generally been between 30 and 39 years of service since 1984.

In addition to early and normal retirement, most of DB plan participants – three-quarters, in 1997 – are also covered by plans that will pay disability benefits (Table 16). The prevalence of disability pensions seems to have changed over time, however; in 1988 coverage stood at 92%, but it was only 75% by 1997. It is not entirely clear why this sudden drop occurred, though one explanation might be the rising expense of private disability insurance over the period. In addition many DB plans tightened employee access to disability benefits by requiring that employees wait a longer time to qualify for long-term disability benefits: in 1997 only 46% of the workers were eligible for immediate disability benefits, down from a high of 70% in 1980. Other aspects of the disability insurance plans were also tightened up, with disabled employees becoming less likely to receive credit service until the establishment's retirement date, and less likely to receive unreduced normal benefits.

A final aspect of DB payout design is highlighted in Table 17, which describes the prevalence of employer willingness to permit retirees to take their benefits as a lump sum instead of a life annuity. Lump sums were unheard of in traditional DB plans; by 1991, only 14% of participants could take any lump sum while six years later, almost a quarter (23%) could do so. (Of those with access to a lump sum, the majority was generally permitted to take the entire amount in a lump sum.) This trend underscores other evidence indicating a decline in retirement income annuitization in the U.S. (Mitchell, Poterba, Warshawsky, Brown, 1999).

Defined Contribution Plans. In examining trends in DC pension plans, we draw on published BLS evidence on (1) coverage and vesting patterns, (2) contributions and withdrawals, and (3) special features of 401(k) plans. It should be noted that defined contribution plans experienced a rapid growth in popularity over the last two decades, with numerous changes in plan type, plan design, and plan features.

As a consequence, the BLS tabulations for DC plans also changed coverage and format over the years. In addition, the information on DC plans is generally of more recent vintage and less continuous over time, as compared to the more consistent information on DB plans.

The BLS has traditionally focused on a set of DC plans defined as “retirement and capital accumulation” plans. What is included in this set of plans has varied over time, depending on plan types identified in the process of data collection. Categories reported in the EBS tabulations include money purchase and profit sharing plans, saving and thrift plans, and cash and deferred salary reduction plans including 401(k)s. Perhaps because plan types rise and fall in popularity, the DC time series are incomplete and report some features only to 1991. In other cases, the relatively recent development of 401(k) plans means that tabulations on this particular plan type are less extensive than for some other plans.

Plan Types, Coverage, and Vesting. The BLS defines “retirement” plans as those where employer contributions are required to remain in the participant’s account until retirement, death, disability, termination, hardship, or attainment of age 59 ½; by contrast “capital accumulation” plans are those where a participant may withdraw the money under other circumstances. Coverage is defined as being employed in an establishment offering a pension plan; some workers may not be actual participants if for instance they had not yet vested or had elected not to contribute to the plan and there was no minimum employer contribution.

It is clear from Table 18 that there was a downward trend in retirement and capital accumulation plan coverage during the 1980s. For the surveyed medium and large establishments, the percentage of full-time employees lacking pension coverage rose from 8% to 21% over the period from 1985 to 1991. It is also interesting that the percent coverage held relatively steady after that date, through to 1997.

Establishing coverage trends for those workers with a plan is virtually impossible because the BLS changed the way it reported pension coverage data in 1993. Table 19 collects available data on the fraction of pension-covered workers with a plan of a given type between 1985 and 1991; data beyond that point are not available in a compatible form. This table confirms the substantial drop in the percentage of covered workers with a defined benefit or money purchase plan, falling from 89% in 1985, to 59% in 1991. Table 20 shows a rapid growth of savings/thrift plans, where full-time worker coverage rates jumped from only 18% in 1985 to 37% in 1995.

A slightly longer time series appears in Table 21, which shows that relatively few workers have profit-sharing plans; the fraction declined from a high of 22% in 1986 down to 13% in 1997. Stock and stock bonus plans are also rare, and there has been no sustained growth in profit sharing plans. Overall, the findings reinforce conclusions from other data sources indicating that the U.S. workforce has increased its participation in DC plans but reduced DB plan coverage over time (Piacentini and Cerino, 199; Turner and Beller, 1989).

Requirements for participation and vesting in DC plans appear in Tables 22 and 23.⁹ Comparing the three DC plan types for which data are available – savings/thrift plans, profit sharing, and 401(k) plans

– it is clear that participation requirements differ substantially. In the first two cases, the plans generally require minimum age and/or service for participation, with fewer than 20% of the workers permitted immediate participation irrespective of age (the data from 1995 and 1997 are not exactly comparable since age conditions were not taken into account in the tabulations). By contrast, some quarter of the 401(k) plan participants were allowed immediate participation. In all three instances, if a participation clause was in place, service of up to 1 year was the norm; relatively few plans also have an age requirement.

Vesting rules for all three DC plans are reported in Table 23, and show first a loosening in vesting rules, followed by a tightening thereafter. An inverted U-shaped pattern is evident for savings/thrift and profit sharing plans, with the fraction allowing immediate full vesting rising from the 20-percentile range to the high 30s and even 40% by 1991, then falling back to the 20s by 1997. The time series is shorter for 401(k) plans but indicates that more of the participants – 34% – could vest immediately on joining the plan. This contrasts with data presented earlier on DB plans, where virtually no employees had full and immediate vesting. Among those unable to vest in their DC plans immediately, participants appeared to be evenly split between cliff and graduated vesting. For instance in 401(k) plans, by the 1997 survey, cliff vesting (typically at 5 years) and graduated vesting (with two-thirds vesting at 5 years or later) were the norm for those without immediate full vesting. The trend to shorter cliff vesting is in part a result of the 1986 Tax Reform Act requiring most plans using cliff vesting to convert to a 5-year schedule as of 1989. *Contribution and Pre-retirement Access Patterns.* Published tabulations of EBS include data on employee and employer contributions, as well as conditions under which employees can access these contributions prior to retirement.

Rules for employee contributions in savings/thrift and 401(k) plans are summarized in Table 24, with the vast majority of participants having plans that base employee contributions on workers' earnings – almost 90% in 1997 for both plan types. Most employees are now allowed to deposit their funds into the savings/thrift plans pre-tax, a substantial increase from 1985 (similar data for 401(k) plans are not available). Over the period, there was a gradual decline in the extent of earnings-based employee contributions, as much as a 10% fall in the former plan case. The maximum fraction of earnings that can be contributed by employees has also been curtailed over time, with fewer workers being allowed to deposit more than 15% of their pay during the 1985-1997 timespan.

Evidence on employer matching contributions for DC plans appears in Table 25 for the period 1985-1991; no more recent data have been supplied. Results show that almost virtually no covered employees had plans providing a specified dollar amount contribution (1% in 1991). More commonly, employers match what workers contribute, with the modal match being 6% of pay; most plans (86% in 1993) had contributions of 6% or less, and only a minority (15%) of covered employees had match rates of 7% or greater. In general, it appears that employer matching contributions averaged a much smaller fraction of earnings than did employee contributions, and the rate of employer match seems to be falling over time. Employer contribution patterns for profit sharing plans appear in Table 26, indicating that

around 60% of those with this plan type use fixed formulas – with most depending on profits, either as a fixed or variable fraction of profits. The remaining 40% use no fixed formula in determining contributions. When it comes to allocation of profits, there has been a decline over time in the practice of allocating profits according to earnings, with “other” formulas – most notably “equally to all” – rising in importance.

One area of interest has to do with trends in the ways that employees are allowed to access their accounts, either prior to or after leaving their jobs. The practice of allowing loans from employee accounts has varied tremendously in profit sharing plans (Table 26), with 25% of covered employees having this access in 1989, falling to 19% in 1989, and then rising to one-third who were permitted this access in 1997. A different pattern pertains to conditions under which employees are permitted to withdraw pension assets in the event of hardship or other circumstances in saving/thrift plans (e.g., at termination). Table 27 indicates a sharp cut in the fraction of people allowed to access funds in these plans: for instance throughout the 1980s, 70 to 80% of the participants could access employer contributions “early” (prior to retirement age), but by 1997 only 52% of the participants were able to do so. Despite this apparent increase in access restrictiveness, there was almost a doubling in the fraction of workers allowed to take the funds in the event of “hardship”.¹⁰ Access provisions for 401(k) plans are described in Table 28, where it appears that over half of all plan participants in 1997 could obtain funds from their plans via a loan, up from 43% in 1993. Furthermore, the modal participant could obtain a loan for any reason, not just for hardship, and those permitted freer access from 39% to 45%. Therefore the pattern of employee access to DC accounts is a mixed one across plan types, with access becoming easier in 401(k) plans, but more restrictive in other DC plans over time.

Pension Payout Trends. Distribution of pension assets at retirement may take various forms. Table 29 indicates that savings/thrift plans distribute their funds as cash in the vast majority of cases, and lump sum payouts are very prevalent – almost all participants have this access. Of more concern to those focused on the adequacy of retirement income is the fact that only about one-quarter of participants with these plans have access to an annuity, and this percentage has not grown steadily over time. Installment plans may afford some retirement income security, but here too the practice seems to be declining: only 41% in 1997 could take their funds in installments down from 59% in 1985. Unfortunately only a very short time series on payout options is available for 401(k) plans (Table 30), yet here a similar pattern prevailed. In 1993, some 34% of the participants could take their funds as a life annuity, and by 1997 this option was available to only 27%. Installment options were also falling in prevalence, from 49% to 41%. In general, then, workers retiring from a DC plan are less likely to have available to them the traditional annuity payout option that once was identified as a key element needed to protect retirees against longevity risk.¹¹

Investment Choices. One feature contributing to the widespread popularity of DC pension plans in the last 20 years is the fact that they typically offer employees some control over their pension investments. Table 31 illustrates trends in these choices and options for savings/thrift plans for the period 1989-1997, and Table 32 reports available information for 401(k) plans over the period 1993-1997.

One factor worth noting is that different provisions typically apply to employee versus employer contributions. For instance in 1997, rules governing the investment options for employee contributions were more flexible than for employer contributions. That is, in 87% of the cases employees could select their savings/thrift investment options in 1997, but this applied to only 65% of employer contributions. Eight years previously, an even smaller fraction of the employer share, 53%, could be allocated by the participant. This compares to a virtually identical range of investment flexibility and investment choices for 401(k) plans in 1997 (Table 31) in which 87% of the employees could elect among investment choices for their own contributions and 65% of employer contributions. It is also interesting that the modal number of investment choices available for both employee and employer contributions was 3 in 1989 for savings/thrift plans, and 4 in 1993 for 401(k) plans; by 1997 the modal number was at least 5 choices for both plan types.

The evidence also indicates that the range of investment choices has changed over time, at least for savings/thrift plans (comparable data are unavailable for 401(k) plans). For instance, Table 32 indicates that the fraction of covered employees permitted to invest their own contributions in common stock fell from 83% in 1989 to 69% in 1997, but this decline was partly offset by an increase in employee access to diversified stock and bond funds (from 26% to 54%). In 1989, 60% of the savings/thrift plan participants were permitted to invest their own contributions in company stock; by 1997, the fraction permitted to invest in company stock had fallen to 42%. The prevalence of workers allowed to deposit their own contributions in guaranteed insurance contracts fell from 64% to 20%, while those allowed to invest in bonds rose from 32% to 59% over the same period. Somewhat similar patterns appear to have applied to employer contributions in these plans, with employer stock and common stock funds declining in importance and diversified portfolios growing. Thus, while employees were offered more investment options in 1997 than they were earlier, the types of investments they could elect in their savings/thrift plans tended toward diversified stock and bond portfolios rather than the less diversified options available during the 1980s.

Finally there is modest evidence on the periodicity with which employees in savings/thrift plans are permitted to change their investment allocations in their DC plans. The available data collected in Table 31 cover only the time period from 1993 on, but they do suggest that employees are now more likely to be able to exert choice over their own contributions than previously. That is, in 1993 only 29% of the covered employees could change their investment options anytime, and five years later the fraction rose to 47%. (The fraction of workers allowed to alter the investments made with employer contributions is around one third.) Additionally, the number restricted to switching their own investment allocations four or fewer times per year fell from 56% to 24% in just five years' time (and a similar pattern applies to assets accumulated with employer contributions).

Conclusions

The EBS data tabulated here offers a uniquely valuable insight into changes in private sector pension plans over the last two decades. One overwhelming impression is that of the tremendous amount of change experienced in virtually all plan features and design elements examined. Not only have there been dramatic innovations in plan type, but there have also been important shifts in financing arrangements, benefit features, and the extent to which employees can flexibly allocate and access their retirement plan accounts. If these data series have a single clear message, it is that the U.S. pension plan environment has been a remarkably dynamic one in the last 20 years, with the only constant having been change.

We emphasize that a reader must bear in mind some caveats when reviewing our findings. One is that the EBS tabulations reported here cover only pension plans offered by medium and large establishments: hence the results cannot be generalized to the entire U.S. pension environment. A second is that the data have not been collected and presented in a constant set of formats and tabulations over time, so it is sometimes difficult to derive time series that are as useful as they might be. Nevertheless, we are confident that these trends in plan features are indicative of what has happened to pensions in medium and large establishments in the U.S., companies of the sort that traditionally were the most reliable providers of employer-sponsored retirement benefits in the country.

Some of the most striking changes we have identified occurred in the **defined benefit** pension environment. These include changes in participation and vesting rules; increased access to early retirement; declines in normal retirement ages; and the movement of pension benefit formulas toward final rather than career earnings. Benefit integration with social security also grew, but the type of integration changed substantially. Pension replacement rates appear to have fallen over time, benefit ceilings remain in place, and disability benefit provisions have become more stringent. Specific findings may be summarized as follows for the private DB plans in medium and large establishments:

- Participation rules have become more stringent over time.
- Vesting rules have eased over time.
- Virtually no participants are required to contribute to their own pensions out of salary.
- Normal retirement ages declined over time, with participants gaining access to unreduced benefits prior to age 65. Early retirement has long been permitted, typically at actuarially subsidized rates.
- DB benefit formulas have changed markedly over time. They are less likely to provide a flat-dollar amount per year of service, and they increasingly base benefits on pay. However straight-time earnings are more likely to be included (rather than incentive pay). Fewer workers have benefits offset by Social Security payments; more are covered by excess formulas that provide higher proportional benefits to those with higher earners. Some plans cap benefit payouts by limiting the number of years of service counted in the formula.

- DB formulas provide replacement rates that rise with years of service for a given pay level, but that fall at higher earnings level, given service. Time trends in replacement rates are difficult to track since the EBS tabulations were discontinued after replacement rates fell markedly in 1993.
- DB pension payments are generally not indexed to inflation.
- It is increasingly feasible for retirees to take their pension benefits in a lump sum, suggesting reduced protection against outliving one's assets.
- Disability benefit provisions became more stringent over time with fewer plans offering disability benefits, and tighter access among those with the benefit.

Specific findings may also be summarized for the **defined contribution** plans in medium and large establishments:

- Participation and vesting requirements differ across DC plan type, with lower participation requirements for 401(k) as compared to savings/thrift and profit sharing plans. Vesting rules are also less stringent for 401(k) plans than virtually any other plan type.
- Employee contributions are the norm for DC plans, with most participants required to take employee contributions as a function of earnings. Employers often match employee contributions with the modal match being 6% of pay, but the rate of employer match seems to be falling over time.
- Employees are increasingly permitted to use loans to access their DC accounts prior to retirement, some of which is for hardship withdrawals; 401(k) plans have the most liberal access under a wide range of circumstances (not just for hardship).
- At retirement, there has been a decline in the fraction of participants with access to a life annuity as a payout option, particularly from 401(k) pensions where only 27% have this option.
- DC plan participants generally have choice over investing both their own and their employer's contributions, with this access increasing over time. Participants have also gained access to diversified stock and bond funds, with fewer permitted to invest in own-employer stock, common stock funds and guaranteed insurance contracts.

Discussion and Outlook

The magnitudes of these changes in pensions over time should raise several questions about pension design and function in the United States. For some time now, it has been clear that small employers are quite likely to alter the scope and form of their pension offerings, having moved away from DB plans, toward DC plans, in the last several years. What is interesting in the present analysis is that this trend also applies to pensions offered by medium and large establishments, with pension plan design, features, and offerings changing rather remarkably over time. Evidently, company-sponsored pensions are clearly not static institutions fixed in stone, but instead respond frequently to their external environment, to internal corporate needs, and to labor market pressures.

Changes in the pension environment over time are in part responses to changing workforce demography, new employer personnel needs, and probably most important, employee interest in

investing in the U.S. stock market. But the pension environment also embodies some apparent contradictions, and these countervailing messages will no doubt require ongoing plan redesign efforts in the future. For example, many pension systems have low hurdles for employee vesting and participation, making it easier for mobile workers to gain benefit rights. On the other hand, giving young employees access to loans and lump sums can undercut the retirement saving objective critical to pensions. These practices may need revision in the near future.

It must also be recognized that policymakers have often provided mixed signals to the pension system over the years, sometimes encouraging plan development, while at other times placing limits on plan saving. There is much to be learned from available evidence on how regulation has affected plan design over time. This includes regulation of programs related to the pension system: for instance those charged with solving Social Security's insolvency problems should explore how pension plans have been integrated with Social Security and how these patterns have changed over time.

Going forward, it should be clear that collecting and reporting on the information contained in the Employee Benefit Survey is a substantial enterprise, and a uniquely valuable one. The EBS is the only employer-based national survey collecting and publishing provisions of company-provided benefits and pensions in particular. There is simply no other data source in the U.S. that contains such a wealth of information needed for research and policy purposes.

To build on these strengths, the BLS could do more to make the data maximally useful to researchers and policymakers. First, a "core" set of tabulations should be carried out annually going forward, and replicated for each past year of the survey as well. Advice on which series to include in this core could come from policymakers, researchers, and practitioners accustomed to dealing with plan design and innovations in the plan arena.¹² Second, definitions should not be changed over time for key plan characteristics, unless series overlaps are provided. Third, the BLS should be more consistent over time in its reporting of data, with regard to the groups over which percentage figures are calculated, to avoid misinterpretation of results. Fourth, each table should include the same "base population" over time, so that the fractions of workers covered in one year can be properly compared with the same base in some other year. This was not always the case in tabulations undertaken to date. Finally, the BLS should make it possible for researchers to access the benefits data collected over time. This would permit a method of checking for changes, and would also permit researchers to devise additional tabulations and exploratory studies.¹³

Other improvements should also be implemented to make the EBS more useful. Future generations of the survey will of course need to adopt new questions and eliminate some old topics that are no longer relevant. But in the process of making these updates, it would be helpful to have outside research input into the survey format and tabular structure. Tabulations could be designed with users in mind, so they can answer parallel questions across plan types. For instance, future reports could investigate the extent to which 401(k) participants can switch investment options, a tabulation currently provided only for savings/thrift plan participants. Another example, noted above, is that certain series

were dropped despite the fact that they remained of substantial interest; the most notable is the replacement rate series for DB plans. Without a coherent series, the data are of less use than they could be.

Looking ahead, future Employee Benefits Surveys should be structured so that benefit plans could be linked within establishments. For instance, it would be useful to know more about the joint incidence and features of health, disability, and pension offerings within a particular workplace. This would permit analysis of potential substitution across benefit offerings, and interactions between the plans. In addition, it would be useful to link benefit offerings and plan design with information on benefit costs.¹⁴ Finally, researchers and policymakers would be able to do much better work if the underlying micro-level data were made available for direct analysis, under restricted data access conditions. Pension research in the 21st century would be immeasurably benefited by such improvements to an already-valuable and rich set of information.

Data Appendix: The Employee Benefits Survey

Those seeking a greater understanding of trends in pension formulas and provisions must understand how the BLS develops its Employee Benefits Survey data, tabulations of which we rely on for the present report.

The Employee Benefits Survey (EBS) includes information on a wide range of employee benefits provided by U.S. employers, from health to insurance to pension plans. In the early days, these data were collected annually and only for medium and large establishments. More recently, the BLS has used an alternating year format to track benefits in medium and large establishments (small establishments as well as public sector employers are surveyed in other years). The BLS does not currently make available to researchers the underlying establishment-level reports, but instead publishes periodically a set of tabulations that is more or less consistent through time.¹⁵

In this paper therefore we collect and examine BLS tabulations on the pension plans offered by medium and large private employers, focusing on the incidence and characteristics of pension plans for full-time employees described in a series of publications appearing between 1980 and 1995.¹⁶ In addition we were provided prepublication copies of the 1997 report by the BLS to round out the series.¹⁷

Readers should be aware of several caveats regarding the findings. First, the BLS focuses only on full-time employees. Hence these findings do not apply to part-time or seasonal workers. Second, the definition of medium and large establishments changed in 1988. Until that year, the BLS used a sampling frame that included only establishments employing at least 50, 100, or 250 workers, depending on the industry in question. Thus in the mining, construction, retail trade, and some manufacturing and transportation sectors, the survey approached establishments employing only 250 workers or more. In accounting, auditing, and bookkeeping, the minimum establishment size was 50 employees. But in 1988 and thereafter, the BLS elected to focus on all establishments employing at least 100 workers. As a result, by virtue of this change in scope, in 1988 the survey sample size increased from about 1,300 to about 2,100 reporting entities (U.S. DOL, 1989). In addition, the BLS extended its industrial coverage in this year. Industries analyzed prior to the change included mining; construction; manufacturing; transportation; communications; electric, gas, and sanitary services; wholesale and retail trade; finance, insurance, and real estate; and selected services. Beginning in 1988, coverage for the service sector became more extensive; in particular, health and educational services had previously been underrepresented and were thereafter included in the sample.

As a result of the sampling change in EBS scope and coverage, the pension data are not strictly comparable before and after that year. Specifically in 1988 and thereafter, the BLS tabulations include more small establishments and offer slightly broader industrial coverage. To explore series overlap, the BLS prepared some tabulations in 1988 both ways, showing how the design changes might have altered reported pension statistics. The BLS did not, however, indicate whether differences in reported tabulations due to coverage format changes are statistically significant. Where available, we provide both tabulations (for the "old" and the "new" scope) in the tables. It appears that along many of the important pension dimensions of interest here, the "old" and "new" scopes appear similar. Some differences do emerge: because the larger sample in 1988 and thereafter included smaller establishments, benefit coverage as well as benefit generosity was somewhat lower. Hence with the new format, pension coverage in 1998 appeared to have fallen, requirements for normal retirement appeared to have suddenly become more stringent, and plans appeared to have dropped post-retirement benefit increases among defined benefit plan participants. In the defined contribution area, more changes were evident because such plans were more prevalent among smaller firms. For this reason, the reader should be alert to the fact some of the differences in levels observed between 1985 and 1998 are due to the change in the sampling frame.

Table 1.**Age and Length of Service Requirements for Pension Participation: Defined Benefit Pension Plans, 1981-97**

Type of requirements	Percentage of full-time participants												
	1981	1982	1983	1984	1985	1986	1988†	1988	1989	1991	1993	1995	1997
No minimum age and/or service requirements	41	39	37	37	40	40	37	33	35	29	34	31	31
With minimum age and/or service requirements	59	61	63	63	59	59	63	66	66	71	66	69	68
Service only	20	23	20	22	23	21	27	28	26	26	26	27	28
<=1 year	NA	NA	18	20	21	17	23	24	22	26	26	25	27
Age only	4	4	3	3	3	3	3	3	4	4	4	3	1
Age and service	35	34	39	39	32	35	33	34	34	39	37	36	36
Age 25 and 1 year*	NA	NA	35	34	NA	NA	NA	NA	NA	NA	NA	NA	NA
Age 21 and 1 year*	NA	NA	NA	NA	13	18	31	33	31	36	30	34	34
With maximum age limitation**	58	61	55	61	61	58	47	47	NA	NA	NA	NA	NA

See Notes to Tables; also

* The Employee Retirement Income Security Act (ERISA) of 1974 required that pension plans allow full-time employees age 25+ with at least 1 year of service to participate. The Retirement Equity Act of 1984 required that nearly all plans allow participation to full-time employees age 21+ with at least 1 year of service by June 1986. The 1986 data surveyed plans prior to the law change.

** ERISA permitted plans to impose a maximum age for participation within 5 years of the plan's normal retirement date. The Omnibus Reconciliation Act of 1986 eliminated such maximums for plan years beginning in January 1988, with slightly later dates for collectively bargained plans.

Data exclude supplemental pension plans.

Table 2**Vesting Schedules: Defined Benefit Pension Plans, 1980-97**

Vesting formula	Percentage of full-time participants												
	1980	1981	1982	1983	1984	1985	1986	1988	1989	1991	1993	1995	1997
Cliff Vesting: *	89	91	90	89	89	88	89	82	89	92	96	96	96
Full vesting after:													
10 years at any age	70	67	66	65	66	69	69	62	29	16	12	6	6
10 years after given age	19	21	22	22	19	17	18	15	9	---	---	NA	---
5 years at any age	NA	NA	NA	NA	NA	NA	NA	45	44	69	79	87	85
Graduated													
Vesting: **	11	13	12	13	14	13	13	17	11	8	4	3	3
Full vesting after:													
<10 years of service	NA	NA	NA	NA	NA	NA	6	9	9	5	NA	NA	3
15 years of service	5	4	4	4	4	3	3	5	2	NA	NA	NA	---

See Notes to Tables; also:

*A cliff vesting schedule requires an employee to satisfy specific service conditions in order to become 100% vested. ERISA defined 10 years as the maximum requirement for this form of vesting. The Tax Reform Act of 1986 required single-employer plans to convert to a 5-year schedule if using cliff vesting.

This provision was to be adopted by most plans during 1989, with slightly later dates for collectively bargained plans.

** Graduated vesting schedules give an employee rights to a gradually increasing share of accrued pension benefits, eventually reaching 100% at specified age and/or service points.

Data exclude supplemental pension plans.

Table 3

Defined Benefit Plans: Employee Contribution Requirements 1993-1997

	Percentage of full-time participants		
	1993	1995	1997
% with employee contribution required	3	3	5
% pre-tax contribution allowed	1	1	NA

See Notes to Tables; also

Data exclude supplemental pension plans.

Table 4**Minimum Age and Service Requirements for Early Retirement: Defined Benefit Pension Plans, 1980-97**

Type of requirement	Percentage of full-time participants												
	1980	1981	1982	1983	1984	1985	1986	1988	1989	1991	1993	1995	1997
Plans permitting early retirement *	98	98	97	97	97	97	98	98	97	98	95	96	95
Service requirements alone	10	5	5	6	5	4	5	7	6	7	5	NA	8
30 years required	9	5	5	6	5	4	5	6	5	6	4	NA	8
Age requirements alone	9	10	9	10	10	9	10	10	6	6	2	NA	3
Age 55	8	9	9	10	9	9	10	10	6	5	2	NA	3
Age and service requirements:													
Age 55 and 5 years	3	4	4	3	4	3	3	4	9	17	20	NA	20
Age 55 and 10 years	NA	36	35	35	39	43	41	44	43	32	32	NA	30
Age 55 and 15 years	NA	11	10	9	7	8	7	10	8	10	12	NA	9
Age 60 and 10 years	NA	4	4	5	5	4	4	5	4	4	3	1	2
Age 62 and 10 years	NA	---	---	---	---	---	---	---	2	2	2	--	1
Age plus service sum	5	9	10	9	10	10	9	4	4	6	3	4	8
Sum equals 80 or less	NA	NA	NA	6	6	5	5	2	1	2	2	3	6
Sum equals 85 or more	3	6	5	5	5	4	4	1	---	1	---	---	1
Plans not permitting early retirement	2	2	3	3	3	3	2	2	3	2	5	4	5

See Notes to Tables; also

* Early retirement is defined as the point when a worker can retire and immediately receive accrued benefits based on service and earnings; benefits are reduced for years prior to the normal age.

Data exclude supplemental pension plans.

Table 5
Minimum Age and Service Requirements for Normal Retirement: Defined Benefit Pension Plans, 1980-97*

Type of requirement	Percentage of full-time participants													
	1980	1981	1982	1983	1984	1985	1986	1988†	1988	1989	1991	1993	1995	1997
Service requirements alone	11	14	13	17	17	14	13	9	7	8	8	5	6	5
30 years required	11	14	13	16	16	14	13	9	7	7	7	4	5	4
Age requirements alone	45	46	43	38	40	37	40	35	42	43	39	33	48	41
Age 60	2	2	2	4	3	4	4	4	3	4	2	3	1	3
Age 62	4	4	4	2	4	4	4	4	6	6	6	3	3	3
Age 65	39	39	36	31	33	29	32	27	33	33	30	26	36	29
Age & service reqs.	37	33	36	36	34	39	36	41	39	37	46	55	48	46
Age 55 and 20 years	NA	2	2	2	2	1	2	1	1	1	1	---	---	---
Age 55 and 30 years	NA	2	2	2	2	2	1	1	1	1	1	3	3	---
Age 60 and 1-5 years	NA	---	---	---	2	---	3	2	2	2	---	3	1	1
Age 60 and 10 years	NA	2	2	2	2	4	3	3	2	2	2	1	3	2
Age 60 and 15-20 years	NA	**1	**2	**3	2	1	1	3	3	1	1	---	---	1
Age 60 and 30 years	NA	2	2	4	3	3	3	2	1	3	2	4	2	2
Age 62 and 1-5 years	NA	1	1	1	1	1	1	4	---	2	2	5	4	3
Age 62 and 10 years	NA	8	9	6	7	11	7	13	11	10	7	7	9	11
Age 62 and 15-20 years	NA	**2	**2	**2	2	4	4	2	2	2	4	3	7	3
Age 62 and 30 years	NA	2	2	3	1	2	1	3	2	2	---	1	2	1
Age 65 and 5 years	2	1	1	1	1	1	2	1	1	2	10	15	9	15
Age 65 and 10 years	NA	3	5	5	3	2	2	2	5	2	4	2	2	3
Age plus service sum	6	7	8	9	9	10	11	15	12	12	6	8	9	8
Equals 80	1	---	1	1	1	1	1	1	1	1	1	1	1	1
Equals 85	3	3	3	4	4	4	5	6	5	6	3	NA	NA	NA
Equals 90 +	1	1	2	2	2	3	4	5	4	4	---	2	1	---

See Notes to Tables; also

*At normal retirement a participant can retire and receive unreduced benefits immediately.

**Data available for 15 years' service only instead of 15-20.

Data exclude supplemental pension plans.

Table 6
Benefit Formulas in Defined Benefit Pension Plans, 1980-97

Formula based on	Percentage of full-time participants													
	1980	1981	1982	1983	1984	1985	1986	1988†	1988	1989	1991	1993	1995	1997
Dollar amount*	30	32	30	28	28	29	26	27	26	22	23	22	23	23
No alternative**	27	29	28	27	27	28	25	26	25	19	21	21	23	23
Earnings	68	66	67	70	68	70	72	71	72	75	70	72	69	67
Terminal earnings	53	50	52	54	54	57	57	54	55	64	56	61	58	56
No alternative**	21	26	27	24	24	27	29	26	30	35	38	40	40	37
Career earnings	15	16	15	16	14	13	15	17	17	11	14	11	11	11
No alternative**	8	10	9	10	8	7	8	10	11	6	10	8	6	8
Cash account or money purchase	---	---	---	1	2	---	---	1	1	2	3	3	3	6
Percent of contributions	---	2	2	1	2	1	---	---	1	1	4	2	2	3

See Notes to Tables; also

*Dollar amount refers to a flat monthly amount per year of service.

**Alternative formulas are generally designed to provide a minimum benefit for employees with short service or low earnings.

Data exclude supplemental pension plans.

Table 7**Definition of Earnings Used in Earnings-Based Benefit Formulas:****Defined Benefit Pension Plans, 1988-97**

Type of formula	Percentage of full-time participants					
	1988	1989	1991	1993	1995	1997
Basic or straight-time earnings only	44	53	56	67	62	NA
Plus overtime	43	37	35	32	32	NA
Shift differentials	35	30	19	23	24	NA
Bonuses	32	29	30	NA	NA	NA
Commissions	32	28	20	19	18	NA

See Notes to Tables; also

Data exclude supplemental pension plans.

Table 8**Career Earnings Benefit Formulas by Type: Defined Benefit Pension Plans, 1983-91**

Type of formula	Percentage of full-time participants									
	1983	1984	1985	1986	1988	1989	1991	1993	1995	1997
Flat percent per year of service	37	36	31	40	35	40	36	NA	NA	NA
Less than 1.25 percent	7	5	6	5	3	8	6	NA	NA	NA
1.25-1.74	26	27	18	29	24	23	21	NA	NA	NA
1.75-2.00	1	3	1	---	2	2	1	NA	NA	NA
2.00 or more	2	1	6	4	5	8	7	NA	NA	NA
Percent per year of service	63	64	68	60	63	59	60	NA	NA	NA
By earnings	60	62	63	56	57	43	51	NA	NA	NA
By service	3	2	4	4	5	4	4	NA	NA	NA
Other	---	---	1	---	1	12	9	NA	NA	NA

See Notes to Tables; also

Data exclude supplemental pension plans.

Table 9**Terminal Earnings Benefit Formulas by Type: Defined Benefit Pension Plans, 1983-97**

Type of formula	Percentage of full-time participants									
	1983	1984	1985	1986	1988	1989	1991	1993	1995	1997
Definition of terminal earnings:										
Five years	83	86	84	84	82	81	82	83	78	78
Last 5	5	2	5	4	4	3	6	3	3	1
High 5	8	9	11	10	12	12	10	16	11	13
High consecutive 5	70	75	70	69	67	65	67	65	64	65
Three years	14	11	12	13	13	16	15	14	17	17
Last 3	---	1	1	1	1	1	2	1	---	1
High 3	2	1	3	1	1	3	1	3	5	5
High consecutive 3	12	9	7	11	11	12	11	9	12	12
Other	3	3	4	3	5	3	3	2	3	3
Fraction of pay used in benefit formulas:										
Flat percent per year of service	47	49	50	57	54	54	42	48	37	35
Less than 1.25 percent	8	5	6	7	6	12	9	9	12	11
1.25-1.74	23	26	29	32	34	25	24	30	18	14
1.75-2.00	4	5	5	5	4	5	3	4	3	9
2.00 or more	11	14	9	13	10	12	5	5	4	5
Other percent per year of service	53	51	50	43	46	46	57	51	62	65
By earnings	23	24	25	20	23	24	36	36	41	39
By service	24	22	18	16	16	16	9	7	8	11
Other	6	5	7	7	7	6	13	8	13	16

See Notes to Tables; also

Data exclude supplemental pension plans.

Table 10**Dollar Amount Benefit Formulas by Type: Defined Benefit Pension Plans, 1983-97**

Amount per year of service	Percentage of full-time participants									
	1983	1984	1985	1986	1988	1989	1991	1993	1995	1997
Flat monthly amount	71	75	66	59	73	81	95	97	94	97
<\$5.00	3	---	3	4	---	2	1	2	4	8
\$5.00-9.99	16	19	10	10	8	7	5	6	2	4
\$10.00-14.99	16	18	16	10	16	12	8	6	4	3
\$15.00-19.99	27	30	28	21	20	18	26	12	9	10
\$20.00-24.99	4	4	4	10	19	23	23	29	15	12
\$25.00-29.99	1	2	2	3	5	16	17	18	9	11
\$30.00 +	3	2	2	2	5	3	15	25	51	50
Amount varies	29	25	34	40	27	19	5	3	6	3
With service	3	5	8	6	8	4	3	1	6	3
With earnings	28	20	26	34	19	15	2	2	---	---

See Notes to Tables; also

Data exclude supplemental pension plans.

Table 11**Integration of Benefit Payments With Social Security: Defined Benefit Pension Plans, 1980-97**

Type of formula	Percentage of full-time participants												
	1980	1981	1982	1983	1984	1985	1986	1988	1989	1991	1993	1995	1997
Without integrated formula	55	57	55	45	44	39	38	38	37	46	52	49	51
With integrated formula	45	43	45	55	56	61	62	62	63	54	48	51	49
Benefit offset by SS payment*	30	33	35	35	36	40	43	39	41	19	17	14	13
Excess formula**	16	10	10	20	20	27	24	26	24	36	31	37	36

See Notes to Tables; also

*Pension benefit calculated is reduced by a portion of primary social security payment.

**Pension formula applies lower benefit ratio to earnings subject to social security taxes below a specified dollar threshold.

Data exclude supplemental pension plans.

Table 12

Reduction Factors for Early Retirement and Early Receipt of Deferred Vested Benefits: Defined Benefit Pension Plans, 1982-97

Type of formula	Percentage of full-time participants										
	1982	1983	1984	1985	1986	1988	1989	1991	1993	1995	1997
(1) Early retirement reduction factor where applied:											
Uniform percentage* per year	46	45	41	49	46	50	49	47	36	40	43
Less than 3.0 percent	2	1	1	2	2	3	3	3	2	4	3
3.0	7	7	7	10	10	8	8	6	4	3	6
3.1 to 4.9	9	8	10	12	9	9	10	10	10	7	6
5.0 to 5.9	7	9	6	7	9	10	12	8	8	7	9
6.0	16	16	15	14	13	14	11	15	11	14	17
6.1 and over	5	3	2	3	3	6	4	4	2	5	4
Percent varies with:											
Age	30	35	56	49	51	49	49	49	54	57	57
Service	3	3	3	2	2	2	1	3	10	3	4
(2) Deferred vested reduction factor where applied:											
Uniform percentage* per year	NA	NA	NA	NA	NA	34	34	34	NA	NA	NA
Less than 3.0 percent	NA	NA	NA	NA	NA	1	1	1	NA	NA	NA
3.0	NA	NA	NA	NA	NA	4	5	5	NA	NA	NA
3.1 to 4.9	NA	NA	NA	NA	NA	4	7	6	NA	NA	NA
5.0 to 5.9	NA	NA	NA	NA	NA	6	9	4	NA	NA	NA
6.0	NA	NA	NA	NA	NA	12	8	13	NA	NA	NA
6.1 and over	NA	NA	NA	NA	NA	5	4	5	NA	NA	NA
Percent varies with:											
Age	NA	NA	NA	NA	NA	65	65	65	NA	NA	NA
Service	NA	NA	NA	NA	NA	1	1	1	NA	NA	NA
(3) Def. vested available prior to normal age								NA	98	93	90
Reduction same as early								49	46	60	52

See Notes to Tables; also *Uniform percentage early retirement factors may approximate actuarial reductions. Data exclude supplemental pension plans.

Table 13**Average Pension Replacement Rates for Specified Illustrative Workers: Defined Benefit Pension Plans, 1984-93**

Illustrative worker with	Retirement annuity as percent of final earnings*						
	1984	1985	1986	1988	1989	1991	1993
10 years of service and final annual earnings of:							
\$15,000	11.0	10.9	11.1	11.9	12.1	14.2	8.1
20,000	9.9	9.8	10.0	10.5	10.9	NA	NA
25,000	9.7	9.5	9.7	10.0	10.4	12.0	6.9
30,000	9.7	9.5	9.7	9.8	9.9	NA	NA
35,000	9.7	9.6	9.7	9.8	9.8	11.2	6.6
45,000	---	---	---	---	---	10.8	6.4
55,000	---	---	---	---	---	10.8	6.3
65,000	---	---	---	---	---	10.8	6.3
20 years of service and final annual earnings of:							
\$15,000	21.0	21.2	21.6	23.1	23.4	27.4	17.0
20,000	18.8	19.1	19.5	20.4	21.1	NA	NA
25,000	18.4	18.6	18.9	19.3	20.0	22.9	15.0
30,000	18.5	18.6	18.9	19.0	19.8	NA	NA
35,000	18.6	18.7	19.1	19.1	19.9	21.4	14.1
45,000	---	---	---	---	---	20.9	13.5
55,000	---	---	---	---	---	20.8	13.3
65,000	---	---	---	---	---	20.1	13.3
30 years of service and final annual earnings of:							
\$15,000	30.8	31.4	31.5	33.5	34.6	39.3	27.0
20,000	27.4	28.3	28.5	29.6	31.3	NA	NA
25,000	26.6	27.6	27.6	28.0	29.7	32.5	23.6
30,000	26.5	27.3	27.4	27.3	29.4	NA	NA
35,000	26.5	27.3	27.4	27.3	29.5	30.8	22.2
45,000	---	---	---	---	---	30.2	21.5
55,000	---	---	---	---	---	29.0	21.0
65,000	---	---	---	---	---	29.1	21.0

See Notes to Tables; also *The maximum private pension was calculated using the earnings and service shown, not reduced for early retirement or joint-and-survivor annuities. Replacement rates refer to the ratio of the retirement pension to the final year's earnings. Data exclude supplemental pension plans. Later years information not published.

Table 14
Prevalence of Postretirement Benefit Increases:
Defined Benefit Pension Plans, 1983-97

	Percentage of full-time participants									
	1983	1984	1985	1986	1988	1989	1991	1993	1995	1997
With postretirement increase available	51	47	41	35	27	24	NA	10	7	NA
Automatic COLA increase	NA	NA	NA	NA	NA	NA	NA	4	3	NA
Discretionary increase granted, last 5 years	NA	NA	NA	NA	NA	NA	NA	6	4	NA

See Notes to Tables; also

Data exclude supplemental pension plans.

Table 15
Maximum Benefit Provisions: Defined Benefit Pension Plans, 1984-97

Type of formula	Percentage of full-time participants								
	1984	1985	1986	1988	1989	1991	1993	1995	1997
Not subject to maximum	58	60	59	60	59	61	63	65	67
Subject to maximum*	42	40	41	40	41	39	37	35	33
Limit on service years	34	34	36	37	37	37	37	33	31
Less than 20	2	2	2	1	1	1	5**	5**	6**
20-29	5	3	6	6	5	5			6
30-39	32	24	22	23	24	25	25	29	19
40 or more	4	5	7	9	9	8	7	5	6
Other limit	11	8	7	6	6	4	1	1	2

See Notes to Tables; also

*Sums of individual items do not equal totals because more than one maximum may apply.

**Sum of <20 and 20-29 years.

Data exclude supplemental pension plans.

Table 16
Disability Retirement Provisions: Defined Benefit Pension Plans, 1980-97

Plan characteristics	Percentage of full-time participants												
	1980	1981	1982	1983	1984	1985	1986	1988	1989	1991	1993	1995	1997
Disability retirement available	87	88	89	91	90	85	89	92	81	79	69	73	75
Minimum requirements for disability retirement where available:													
No age or service	16	15	16	14	17	16	13	13	12	20	11	11	NA
Service only	61	57	56	57	52	54	50	57	56	54	36	28	NA
Age only	1	1	---	---	---	---	---	1	---	---	1	---	NA
Qualifies for LTD*	11	18	20	21	22	20	25	31	31	18	16	17	NA
Benefit provisions for disability retirement where available:													
Immediate	70	67	66	66	62	60	55	52	57	63	41	45	46
Unreduced normal	55	51	51	50	48	47	41	39	42	46	32	29	30
Other	15	16	15	16	14	13	14	13	15	17	10	16	16
Deferred	30	33	34	34	38	40	45	48	43	37	28	28	25
Service credit to retirement	24	27	30	29	31	32	37	39	37	28	24	24	21
Other	6	6	4	5	7	8	8	9	6	9	4	4	4

See Notes to Tables; also

*Long term disability insurance.

Data exclude supplemental pension plans.

Table 17

Defined Benefit Plans: Lump Sum Available at Retirement, 1991-97

	Percentage of full time participants			
	1991	1993	1995	1997
% with Lump Sum	14	10	15	23
Full Amount	9	9	15	22
Amount Limited	5	3	5	1

See Notes to Tables; also

Data exclude supplemental pension plans.

Table 18**Participation in Retirement and Capital Accumulation Plans, 1985-97**

Plan participation	Percentage of full-time employees								
	1985	1986	1988†	1988	1989	1991	1993	1995	1997
Covered by a plan	92	91	88	82	83	79	78	80	79
Retirement only*	71	67	69	68	69	69	NA	NA	NA
Capital accumulation only**	1	1	2	2	1	1	NA	NA	NA
Both	20	22	17	12	12	9	NA	NA	NA
Not covered by a plan	8	9	12	18	17	21	22	20	21

See Notes to Tables; also

Data exclude supplemental pension plans.

*Includes defined benefit and defined contribution plans such as money purchase pensions, profit sharing, and savings and thrift plans when employer contributions must remain in the participant's account until retirement, death, disability, separation from service, age 59 1/2, or hardship.

**Includes plan in which employer contributions may be withdrawn from participant's account prior to retirement, death, disability, separation from service, age 59 1/2, or hardship.

Table 19. Combinations of Retirement and Capital Accumulation Plans, 1985-91

Combinations covering participants	Percent of full-time participants				
	1985	1986	1988	1989	1991
Defined benefit plan with:	89	85	76	76	59
No other plan	45	35	45	42	35
Profit sharing*	5	13	9	7	5
Savings/thrift	15	15	21	24	15
Stock plan	23	22	1	2	1
Money purchase	---	---	1	1	1
Profit sharing plan with:	9	11	12	10	16
No other plan	7	8	10	8	8
Savings/thrift	1	1	1	1	5
Stock plan	1	1	1	1	---
Money purchase plan with:	---	---	5	5	7
No other plan	---	---	5	4	5
Savings/thrift	---	---	1	1	3
Savings/thrift plan with:	1	3	5	8	29
No other plan	1	2	5	8	15
Stock plan with:	---	1	1	1	2
No other plan	---	1	1	1	NA

See Notes to Tables; also

*Includes profit sharing and saving/stock combination plans; excludes pure cash profit sharing plans.

Data exclude supplemental pension plans. Later data not available.

Table 20
Participation In Cash or Deferred Plans Including Salary Reduction Plans, 1985-95

Type of plan	Percentage of full-time employees							
	1985	1986	1988†	1988	1989	1991	1993	1995
Cash or deferred plan*	26	33	42	36	41	44	36	45
Salary reduction plan	26	31	40	34	38	40	35	44
Salary and thrift	18	21	27	22	28	28	29	37
Profit sharing	4	6	9	7	4	4	4	5
Money purchase	1	1	---	---	1	1	NA	NA
Other	3	3	5	6	5	4	3	2

See Notes to Tables; also

*Cash or deferred plans are included only if they allow income to be deferred; data include employee contributions to various retirement plans but exclude cases where employee contributions may be required to a defined benefit pension plan.

Data exclude supplemental pension plans.

Later data not available.

Table 21**Participation in Defined Contribution Plans, 1985-97**

Type of plan	Percentage of full-time employees									
	1985	1986	1988†	1988	1989	1991	1993	1995	1997	
Savings and thrift	27	28	32	25	30	29	29	41	39	
Profit sharing	18	22	21	18	16	16	13	13	13	
Stock ownership	24	30	2	2	3	3	3	5	4	
Stock bonus	1	---	---	---	---	---	---	2	NA	
Money purchase	4	2	3	6	5	7	8	7	8	

See Notes to Tables; also

Data exclude supplemental pension plans.

Table 22

Age and Length of Service Requirements for Participation, Savings and Thrift, Deferred Profit Sharing Plans and 401(k) Plans, 1985-97

Type of requirement	Percentage of full-time participants							
	1985	1986	1988	1989	1991	1993	1995**	1997**
Savings and Thrift Plans								
No minimum age & service requirements	14	10	14	15	18	17	33	25
With minimum age and/or service requirements*	86	90	86	85	82	81	67	75
Service only	70	73	64	62	57	55	NA	NA
< 1 year	16	15	11	12	13	14	11	22
1 year	48	50	43	45	39	38	55	52
2+ years	6	7	10	5	4	2	2	2
Age requirements								
Age 20 or less and 1 year service	4	6	6	5	4	8	NA	NA
Age 21 and 1 year service	2	2	2	1	2	5	NA	NA
Age 21 and 1 year service	11	10	16	19	21	18	NA	NA
Age 21 and 1 year service	6	8	13	15	18	14	NA	NA
Deferred Profit Sharing Plans								
No minimum age & service requirements	NA	14	9	6	5	16	24	31
With minimum age and/or service requirements*	NA	86	91	94	95	82	76	69
Service only	NA	69	66	65	60	55	76	NA
< 1 year	NA	11	15	4	6	14	9	13
1 year	NA	49	44	54	52	37	59	54
2+ years	NA	9	6	6	2	3	8	1
Age requirements								
Age 20 or less and 1 year service	NA	3	4	4	6	11	NA	NA
Age 21 and 1 year service	NA	2	1	1	5	6	NA	NA
Age 21 and 1 year service	NA	12	21	25	29	16	NA	NA
Age 21 and 1 year service	NA	7	19	23	---	12	NA	NA
401(k) Plans								
No minimum age/service requirements						1993	1995	1997
With minimum age/seniority						17	27	27
Service only						81	67	69
< 1 year						53	NA	NA
1 year						14	11	13
2+ years						35	52	54
						3	4	1

See Notes to Tables; also

*The Retirement Equity Act of 1984 required that nearly all plans allow participation to full-time employees who have reached age 21 and have completed 1 year of service. Plans may impose a service requirement of up to 3 years if vesting is then immediate on participation. The compliance date for most plans was June 1986, but collectively bargained plus had slightly longer to comply.

**Figures reported for service-only category in these years (age may also be required but separate tabulations NA) Data exclude supplemental pension plans.

Table 23**Vesting Schedules: Savings and Thrift, Deferred Profit Sharing, and 401(k) Plans, 1985-97**

Type of plan	Percentage of full-time participants							
	1985	1986	1988†	1989	1991	1993	1995	1997
Savings and Thrift Plans								
Immediate full vesting	25	26	27	30	31	34	33	29
Cliff vesting* with full vesting after								
1-2 years	12	20	20	24	31	29	25	30
3-4	3	5	3	2	2	2	1	3
5+	2	7	7	11	9	9	5	6
Graduated vesting** with full vesting after								
<4 years	7	8	10	12	19	18	18	21
5	28	25	32	30	35	33	24	33
6-9	4	2	4	4	3	5	3	10
10+	16	15	21	19	21	18	12	15
Other	4	4	3	5	10	10	8	9
	4	4	4	2	---	---	---	---
Deferred Profit Sharing Plan								
Immediate full vesting	35	29	21	16	---	---	---	---
Cliff vesting* with full vesting after								
1-2 years	NA	29	22	37	40	18	37	29
3-4	NA	2	2	12	18	21	22	30
5+	NA	2	---	---	---	---	2	3
Graduated vesting** with full vesting after								
<4 years	NA	1	---	4	1	6	2	6
5	NA	1	2	8	16	15	17	21
6-9	NA	66	73	50	41	55	34	33
10+	NA	---	1	2	2	2	1	10
Other	NA	3	7	6	4	16	4	15
	NA	14	29	28	37	37	28	9
	NA	49	35	15	---	1	1	---
	NA	4	2	1	---	---	---	---

(continued)

Table 23 (continued)
401(k) Plans

	1993	1995	1997
Immediate full vesting	34	39	34
Cliff vesting* with full vesting after	26	24	27
1-2 years	2	1	3
3-4	8	5	5
5+	16	18	19
Graduated vesting** with full vesting after	37	27	32
<4 years	4	3	11
5	18	13	13
6-9	14	10	9
10+	---	---	---
Other	---	---	---

See Notes to Tables; also

*A cliff vesting schedule requires an employee to satisfy specific service conditions in order to become 100% vested. ERISA defined 10 years as the maximum requirement for this form of vesting. The Tax Reform Act of 1986 required single-employer plans to convert to a 5-year schedule if using cliff vesting; this provision was to be adopted by most plans during 1989, with slightly later dates for collectively bargained plans.

**Graduated vesting schedules give an employee rights to a gradually increasing share of accrued pension benefits, eventually reaching 100% at specified age and/or service points.

Data exclude supplemental pension plans.

Table 24**Employee Contributions in Savings and Thrift and 401(k) Plans, 1985-97**

Type of plan	Percentage of participants							
	1985	1986	1988	1989	1991	1993	1995	1997
Savings and Thrift Plans								
Basis of maximum contribution, if allowed/required:								
Specified dollar amount	2	2	2	1	1	2	1	1
Fraction of earnings	97	98	95	97	93	91	83	89
<=5%	---	1	1	2	5	5	2	2
6-9	5	10	8	9	7	10	5	4
10	17	13	13	12	12	19	10	7
11-14	21	20	19	20	11	15	13	15
15	8	9	14	17	20	19	21	33
16	32	29	24	21	22	16	18	17
17-19	8	8	9	9	10	4	7	8
20+	6	7	6	7	5	2	6	3
Other	1	---	3	2	5	7	16	10
Tax status of contribution, if allowed/required:								
Pretax contribution allowed	65	75	85	92	98	NA	NA	NA
401(k) Plans								
Basis of maximum contribution, if allowed/required:								
Specified dollar amount	NA	NA	NA	NA	NA	2	1	1
Fraction of earnings	NA	NA	NA	NA	NA	91	83	87
<=5%	NA	NA	NA	NA	NA	5	4	4
6-9	NA	NA	NA	NA	NA	8	10	5
10	NA	NA	NA	NA	NA	19	12	11
11-14	NA	NA	NA	NA	NA	15	13	11
15	NA	NA	NA	NA	NA	19	20	31
16	NA	NA	NA	NA	NA	16	12	11
17-19	NA	NA	NA	NA	NA	4	7	7
20+	NA	NA	NA	NA	NA	2	5	3
Other	NA	NA	NA	NA	NA	7	16	12
Tax status of contribution, if allowed/required:								
Pretax contribution allowed	NA	NA	NA	NA	NA	NA	NA	NA

See Notes to Tables; also

Data exclude supplemental pension plans.

Table 25
Employer Contributions in Savings and Thrift Plans, 1985-97

Employer matching* contributions	Percentage of full-time participants							
	1985	1986	1988	1989	1991	1993	1995	1997
Specified dollar amount:	9	7	5	4	1	NA	NA	NA
Fraction of salary up to:								
<=5%	12	28	35	36	39	40	NA	NA
6%	52	54	47	47	43	46	NA	NA
>=7%	14	11	11	12	14	15	NA	NA

See Notes to Tables; also

*Employees may contribute a percentage of salary up to a maximum; ceilings on employer matching contributions are generally lower.

Data exclude supplemental pension plans.

Table 26
Provisions of Deferred Profit Sharing Plans, 1986-97

Type of formula	Percentage of full-time participants						
	1986	1988	1989	1991	1993	1995	1997
Employer contributions:							
Based on specified formula	59	55	60	52	40	62	62
Fixed % of profits	NA	16	10	10	9	24	17
Other formulas	NA	39	50	42	31	38	45
No formula	41	45	40	48	60	38	38
Allocation of profits to employees:							
Equally to all	1	1	1	2	7	6	18
Based on earnings alone	61	74	64	52	52	56	49
Based on earnings and service	10	12	9	13	11	7	8
Other	8	13	26	33	30	31	24
Loans from employee's accounts:							
Permitted	25	32	19	27	23	33	32

See Notes to Tables; also

Data exclude supplemental pension plans.

Table 27
Provisions for Withdrawal of Employer Contributions Prior to Retirement,
Disability or Termination of Employment: Savings and Thrift Plans, 1985-97

Type of formula	Percentage of full-time participants								
	1985	1986	1988†	1988	1989	1991	1993	1995	1997
No withdrawals permitted	20	18	29	28	29	50	51	43	48
Withdrawals permitted	80	82	71	72	71	50	47	43	52
For any reason	61	56	42	41	37	24	29	16	18
No penalty	30	19	15	14	17	16	NA	NA	NA
Some penalty	30	37	26	25	18	8	NA	NA	NA
For hardship reason*	19	26	29	30	34	26	18	28	35
No penalty	14	21	21	22	27	17	NA	NA	NA
Some penalty	3	5	6	7	7	9	NA	NA	NA

See Notes to Tables; also

*Commonly expressed hardship reasons include purchase or repair of primary residence, death or illness in the family, education of an immediate family member, or student uninsured loss.

Data exclude supplemental pension plans.

Table 28

Loan Provisions of 401(k) Plans: 1993-97

	Percentage of full-time participants		
	1993	1995	1997
Loans Permitted	43	49	51
Hardship only	3	4	6
Any reason	39	44	45
Not permitted	56	46	40
Not determinable	1	15	9

See Notes to Tables; also

*Many plants offer more than one form of cash distribution so sums of individual items exceed total.

Data exclude supplemental pension plans.

Table 29**Method of Distribution of Account at Retirement: Savings and Thrift Plans, 1985-97**

Type of distribution	Percent of full-time participants							
	1985	1986	1988	1989	1991	1993	1995	1997
Cash distribution*	99	99	97	97	99	NA	NA	NA
Lifetime annuity	29	25	25	28	30	30	17	25
Installments	59	52	49	52	52	48	30	41
Lump sum	99	98	95	96	99	98	85	91

See Notes to Tables; also

*Many plans offer more than one form of cash distribution so sums of individual items may exceed total.

Data exclude supplemental pension plans.

Table 30**Method of Distribution of Account at Retirement: 401(k) Plans: 1993-97**

Type of distribution	Percentage of full-time participants		
	1993	1995	1997
Cash distribution			
Lifetime Annuity	34	21	27
Installments	49	34	41
Lump Sum	98	92	91

See Notes to Tables; also

Data exclude supplemental pension plans.

*Many plans offer more than one form of cash distribution so sums of individual items exceed total.

Table 31**401(k) Plans: Investment Choices: 1993-97**

Investment Choices	Percentage of full-time participants					
	1993		1995		1997	
	Ee	Er	Ee	Er	Ee	Er
Employee permitted to						
choose 401 (k) investments:	86	58	83	64	86	65
1-2 choices	11	8	4	3	3	2
3 choices	23	13	15	11	11	8
4 choices	28	16	26	16	21	14
≥ 5 choices	25	22	37	35	31	24

See Notes to Tables; also

Er: Employer, Ee: Employee

Data exclude supplemental pension plans.

Table 32

Saving and Thrift Plans: Investment Choices, Investment Types, and Frequency of Investment Changes: 1989-97

Investment Choices	Percentage of full-time participants										
	1989		1991		1993		1995		1997		
	Ee	Er	Ee	Er	Ee	Er	Ee	Er	Ee	Er	
Employee permitted to choose											
saving & thrift plan investments:	90	53	91	62	86	58	74	58	87	65	
1-2 choices	25	22	15	16	12	7	3	3	2	2	
3 choices	36	40	32	33	21	13	13	10	11	3	
4 choices	23	20	29	25	30	17	21	13	21	14	
≥5 choices	15	16	20	22	24	21	28	26	47	34	
Types of investment choices:											
Company stock	60	50	50	36	43	49	40	27	42	25	
Common stock	79	83	87	90	68	49	59	48	69	50	
LT interest-bearing sec.	32	37	44	46	42	28	48	36	59	43	
Diversified stock/bond	26	31	26	27	42	33	41	31	54	40	
Guaranteed Investment	64	59	71	70	43	30	25	20	20	15	
Money market	35	41	38	43	26	20	30	25	35	28	
CD	3	4	2	2	1	1	4	2	3	2	
Frequency of investment changes:											
Total with choice allowed	NA	NA	NA	NA	NA	NA	74	58	87	65	
- Anytime	NA	NA	NA	NA	NA	29	32	38	32	47	
- Specified No.	NA	NA	NA	NA	NA	65	63	31	21	32	
1/yr	NA	NA	NA	NA	NA	5	4	3	2	1	
2-4/yr	NA	NA	NA	NA	NA	51	49	20	15	22	
≥5/yr	NA	NA	NA	NA	NA	9	10	8	4	4	

See Notes to Tables; also

Data exclude supplemental pension plans.

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Endnotes:

¹ For a discussion of the role of pensions in women's retirement income see Levine, Mitchell and Phillips (2000).

² For a discussion of these and other effects see the studies reviewed in Gustman et al (1994, 1995), Ippolito (1986), and Mitchell (forthcoming).

³ This discussion builds on Mitchell (1992).

⁴ Cash balance plans are sometimes seen as a third type of plan, in that they seem to combine elements of both DB and DC pensions. However they are, strictly speaking, defined benefit plans because the plan sponsor guarantees the promised rate of return on participant assets (Rappaport et al., 1998). In any event, thus far the BLS has not generated special tabulations for cash balance or hybrid plans.

⁵ For a more complete discussion of integration with Social Security see McGill et al (1996).

⁶ This pattern is markedly different from the public sector environment where most employees contribute from their own pay; see Mitchell, McCarthy, Wisniewski, and Zorn (forthcoming).

⁷ Changes in pension integration practices over this period are probably also due to the Tax Reform Act of 1986 that limited the permissible difference between contributions paid and benefits received by low-paid versus highly-paid employees (see McGill et al., 1996).

⁸ Early retirement may also be subsidized in other plans using factors that vary with age and service, but this cannot be determined from available tabulations.

⁹ Age requirements for vesting in pension plans ceased being reported after 1995 due to law changes prohibiting firms from using age as a vesting criterion.

¹⁰ Exactly what constitutes a hardship according to plan sponsors is somewhat imprecise; the BLS indicates that possible reasons include purchase or repair of primary residence, illness or death in the family, education of an immediate family member, or sudden uninsured loss. More precision about the definition of hardship would be useful in future surveys, particularly since it appears that the ability to withdraw such funds without penalty is increasing.

¹¹ In most cases, the retiree could likely roll a DC lump sum into an Individual Retirement Account and then purchase an individual life annuity. In so doing, however, the retiree would lose access to the group risk pool and would be forced to pay for adverse selection costs as well as possibly higher loadings in the individual retail market (Mitchell, Poterba, Warshawsky, and Brown, 1999).

¹² For example the 1997 data have nothing on cash-balance or hybrid plans, despite their evident interest in public debate over the last few years.

¹³ This could probably be accomplished under restricted conditions such as those developed for restricted data users of the Health and Retirement Study (HRS); for details see <http://www.umich.edu/~hrswww>.

¹⁴ A more complete discussion of this approach is provided in Gustman and Mitchell (1991).

¹⁵ In the past the underlying microdata were available for researcher use but the raw data have not been released to researchers for the past several years because the agency has confidentiality concerns.

¹⁶ See BLS (various years).

¹⁷ The BLS also collects data on only three major occupation groups: professional and administrative, technical and clerical, and production and service. Not included in any surveys are data for executive management workers and part-time, seasonal, temporary, and traveling employees. Hence the figures reported below cover only these key occupational categories.