The Role of Pensions in Retirement Income: Trends and Questions

*by Virginia P. Reno**

Pensions are an important and increasingly common supplement to Social Security benefits for persons aged 65 or older—particularly for those in the the middle and upper income quintiles. By 1990, pension income was reported by 44 percent of all elderly units—57 percent of the couples and 34 percent of unmarried persons.

This article discusses the role of pensions in the income of the elderly; private pension coverage, vesting, and types of plans among active workers; how the shift toward defined contribution plans poses new problems in assessing the role of private pensions in providing retirement income security; and expected pension receipt rates for the future elderly.

Pension receipt among the elderly is expected to continue to grow over the next 20-30 years because of past growth in coverage and vesting. Microsimulation models are a relatively new tool for forecasting the future distribution of pension income. The models offer a framework for considering the research questions that, if answered, would help improve our understanding of the impact of the pension system on future income security.

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Pensions from public or private plans are an important and increasingly common supplement to Social Security benefits for the elderly. By 1990, pension income was reported by 44 percent of all elderly units—57 percent of couples and 34 percent of unmarried persons.

Social Security is the most evenly distributed source of income of the elderly, and it is the major share of income of those in the lowest three income quintiles and is the largest single source of income for all but those persons in the highest income quintile. Among the elderly, receipt of pensions, asset income, and earnings rises with income. The vast majority of pension, asset, and earnings income is received by those in the middle and upper income quintiles. Among the middle and upper income elderly, pensions are more evenly distributed than are earnings or asset income, according to data from the Current Population Survey (CPS).

Among active workers, the proportion covered by a private pension plan grew rapidly in the 1940's and 1950's and more slowly in the 1960's and 1970's. The coverage rate declined slightly between 1979 and 1988. The decline in private plan coverage affected men more than women, thereby narrowing the gender gap in the private pension coverage rate. Among full-time workers, the decline was greater for young men (under age 35) and among both men and women with less than a high school education.

Participation in defined contribution plans is growing, both as a source of primary pension coverage and as supplemental coverage to a primary defined benefit or defined contribution plan. The expansion in private plan coverage has been in multiple plan coverage—that is, workers with any private pension coverage are increasingly likely to be included in more than one plan. Often the supplements are 401(k) plans, which are more often offered to and used by higher-earning workers. The shift toward defined contribution private plans, and the lump-sum distributions they typically

pay, pose problems in assessing the total role of private pensions in the retirement income system.

Pension receipt among the elderly is expected to continue to grow over the next 20 or 30 years because of past growth in coverage and vesting. Microsimulation models are a relatively new tool for forecasting the distribution of pension income for the elderly. The models offer a framework for considering the research questions that, if answered, would help improve our understanding of the impact of the pension system on future income security.

Table 1.—Percent of couples and unmarried persons aged 65 or older receiving various sources of income, 1990

Source of income	Total	Couples	Unmarried persons		
			Total	Men	Women
Social Security	92	93	91	89	92
Pensions, total [1]	44	57	34	41	32
Public	17	22	13	13	14
Private	30	41	22	29	20
Earnings	22	34	13	16	12
Asset income	69	79	63	61	63
Public assistance	7	3	9	8	10

[1] Includes some who receive both public and private pensions.

Source: Susan Grad, *Income of the Population 55 or Older, 1990*, Office of Research and Statistics, Social Security Administration, April 1992.

Pensions in the Income of the Elderly

This section examines the role of pensions in the income of the elderly in 1990, reviews the changes in the role of pensions since the mid-1970's, and examines the role of pensions by total income levels of the elderly in 1990. All the estimates are based on tabulations of the March Current Population Surveys that have been published biennially by the Office of Research and Statistics of the Social Security Administration.

Sources of Income, 1990

Of the total population of married couples and nonmarried persons aged 65 or older in 1990, 44 percent reported some income from a public or private pension. They include 30 percent with a private pension and 17 percent with a public pension, and 3 percent who received both public and private pensions (table 1). A couple is counted as receiving a pension if either the husband or wife has a pension. Nearly 6 in 10 (57 percent) elderly couples had pensions, while among the unmarried, 41 percent of the men and 32 percent of the women received a pension.

Social Security is the most commonly received source of retirement income, with about 9 in 10 elderly couples and unmarried persons receiving benefits. Public and private pensions differ somewhat in the roles they have filled relative to Social Security. Because nearly all private sector jobs have been covered by Social Security for several decades, nearly all private pensions are designed to supplement Social Security benefits. In 1988, the median annual private pension income received by elderly individuals was $3,590. Because private pensions are designed to supplement Social Security, such pensions rarely are the major source of income for the elderly. In 1990, for example, private pensions accounted for 50 percent or more of total income for just 8 percent of the elderly units who received such pensions (or 2 percent of all the elderly).

Public pensions from Federal, State, or local government employment have traditionally had varied roles in relation to Social Security. Federal civilian employees were not covered by Social Security until January 1, 1984, when coverage was extended on a mandatory basis to those hired after that date. Since the 1950's, State and local government employees have been covered under Social Security at the option of the governmental entity for which they work. In recent years, about 7 in 10 State and local government employees have been covered by Social Security.[1] Those not covered by Social Security generally have pension plans that are meant to substitute for both Social Security and a supplemental pension, while the others have supplemental pensions akin to private pensions. This mix of roles of public employee pensions is reflected in the pension amounts. In 1988, for individuals who also received Social Security, the median public pension was $5,100, while the median for the smaller group who did not receive Social Security was $14,660, reflecting the likely case that the pension is a substitute for both Social Security and a pension. Public pensions that serve dual roles are likely to be the recipient's major source of income. Of all elderly who received government employee pensions in 1990, the pensions were more than 50 percent of total income for 36 percent of the recipients.

Income from public and private pensions combined accounted for about 18 percent of the reported aggregate income of the elderly in 1990 (chart 1). Because public pension amounts are larger, they are a slightly larger share of aggregate income than private pensions—despite the fact that private pensions are nearly twice as likely to be received.

Trends in Income, 1976-90

The proportion of the elderly receiving pensions has increased steadily since the mid-1970's. The proportion receiving private pensions grew from 20 to 30 percent, while the public pension receipt rate grew from 13 to 17 percent (table 2).

Although the proportion of the elderly receiving pensions has grown steadily since the mid-1970's, the share of aggregate income the elderly receive from pensions has grown only modestly. As the proportion of the elderly receiving public or private pensions grew from 31

to 44 percent, the share of aggregate income from public and private pensions combined grew from 16 to 18 percent (tables 2 and 3, respectively). The relative role of pensions in aggregate income is influenced not only by the rate of receipt and amount of pensions but also by the size of other income sources.

From 1976 to 1990, the largest changes in the composition of the income of the elderly were a decline in the share of earnings from work (from 23 to 18 percent) and an increase in the share of income from assets (from 18 to 24 percent)—largely in the form of interest, dividends, and rental income. During this period, asset income as a share of the aggregate income of the elderly was highest in 1984, when interest rates were unusually high.

The growth in the share of income the elderly receive from assets may also reflect changes in the private pension system. Defined contribution plans account for a growing share of private pension payouts. These payments typically are paid as lump-sum distributions. If the retiree annuitizes the lump-sum payment, it should be counted as "private pensions or annuities" in the CPS. If, however, the lump sum is held as an income-producing asset, it would be counted as asset income. We have no information to quantify the extent to which lump-sum pensions may be reflected in asset income.

Pensions and Other Sources by Income Quintiles, 1990

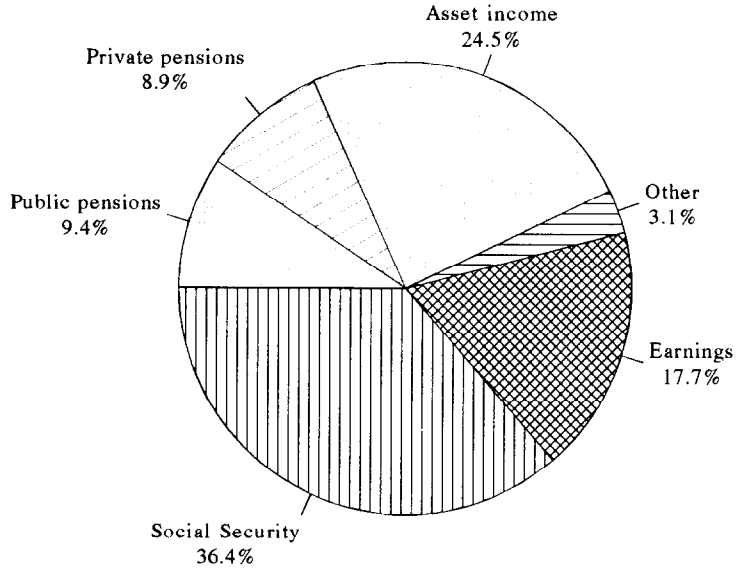
When we divide the elderly into quintiles based on total money income as reported in the CPS, we find that the likelihood of receiving pensions rises with income—from 8 percent for those in the lowest income quintile, to 26 percent in the second quintile, to 50 percent in the middle quintile, and to 67 percent in the top two quintiles (table 4). The likelihood of receiving earnings from work or asset income also rises sharply with income.

Social Security is received by the large majority of the elderly in all income levels; about 95-96 percent of those in the middle three quintiles receive it. Social Security receipt rates are lower among those in the bottom quintile (85 percent). Of those elderly persons in the lowest income group, some may not have qualified for Social Security benefits based on their own or a family member's earnings and therefore rely on public assistance, primarily Supplemental Security Income. The Social Security receipt rate is also below average in the top income quintile (88 percent), which may include some high-earning persons aged 65-69 who are not receiving Social Security because they are not yet retired. At the age of 70, Social Security benefits are paid regardless of the beneficiary's earnings.

When we look at shares of aggregate income of the elderly by total income quintiles, we see that pensions are an important supplement to Social Security for the middle and upper income elderly.

Chart 1.—Shares of aggregate income from major sources, 1990

Couples and unmarried persons aged 65 or older



Source: Susan Grad, ***Income of the Population 55 or Older, 1990***, Office of Research and Statistics, Social Security Administration, April 1992.

Table 2.—Percent of elderly units[1] receiving various sources of income, 1976–90

Source of income	1976	1980	1984	1988	1990
Social Security	89	90	91	92	92
Pensions, total [2]	31	34	38	42	44
Public	13	14	16	16	17
Private	20	22	24	29	30
Earnings	25	23	21	22	22
Asset income	56	66	68	68	69

[1] Couples and unmarried persons aged 65 or older.

[2] Includes some who receive both public and private pensions.

Source: Susan Grad, *Income of the Population 55 or Older, 1990*, and comparable publications by Grad in earlier years, Office of Research and Statistics, Social Security Administration.

Pensions account for 16 percent of aggregate income for those in the middle income quintile and about 20 percent of the income of those in higher income quintiles (table 5). Social Security accounts for over 75 percent of aggregate income for those in the lowest two income quintiles, over 50 percent of total income for those in the middle income quintile, and is the largest single source of income for those in the fourth income quintile. In the highest income quintile, income from assets is the largest single source of income, earnings are the second largest source, followed by pensions.

The relative size of mean total income by income quintile and the respective roles of Social Security, pensions, earnings, and asset income are illustrated in chart 2.

Of the four main sources of income of the elderly, Social Security is the most evenly distributed across income groups. This is to be expected because it is the most widely received source of income, the benefits are designed to replace a higher proportion of lifetime earnings for low earners than for high earners, and it provides continuity in benefit income to elderly widows or widowers of deceased workers.

Pension income is more concentrated in the upper end of the income distribution than is Social Security, but it is more evenly distributed between the middle and upper income elderly than are reported asset income or earnings. Of pension income reported by the elderly in the CPS, more than 50 percent was received by those in the top income quintile, while nearly 40 percent was received by those in the third and fourth income quintiles (table 6). In contrast, about 70 percent of asset income and nearly 80 percent of earnings were received by those in the top income quintile.

While pension income is highly concentrated in the top income quintile, it is less concentrated at that level than is asset income or earnings. As will be discussed later, the growth in private pension plans that pay lump-sum distributions make it increasingly difficult to distinguish pensions from

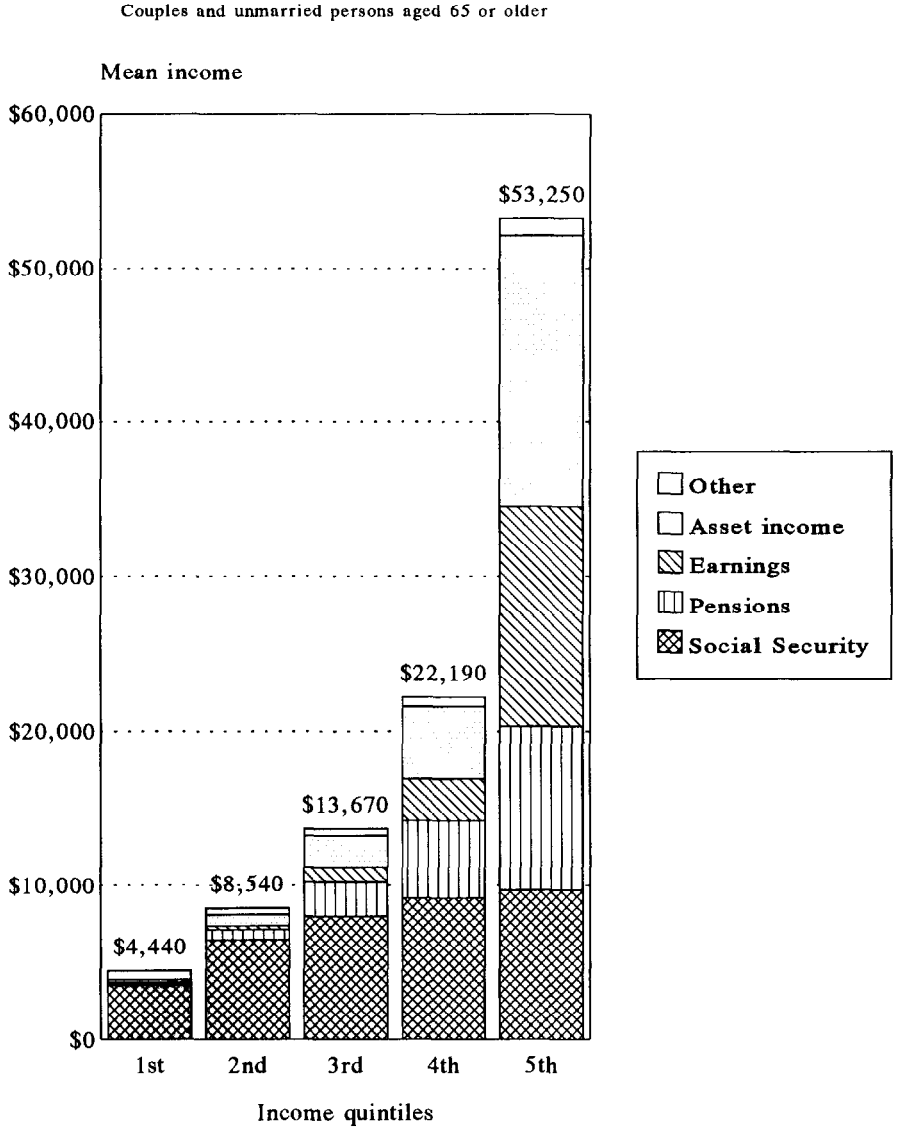
Table 3.—Percent of aggregate income of the elderly[1] from various sources, 1976–90

Source of income	1976	1980	1984	1988	1990
Total	100	100	100	100	100
Social Security	39	39	38	38	36
Pensions	16	16	15	17	18
Earnings	23	19	16	17	18
Asset income	18	22	28	25	24
Other	4	4	3	3	3

[1] Couples and unmarried persons aged 65 or older.

Source: Susan Grad, *Income of the Population 55 or Older, 1990*, April 1992, and comparable reports by Grad in earlier years, Office of Research and Statistics, Social Security Administration.

Chart 2.—Composition of mean income by total income quintiles, 1990



asset income as reported by the elderly in the CPS.

Pension Coverage and Vesting for Workers

This section describes pension coverage of active workers in 1988, trends in coverage since 1940, recent trends by age, gender, and educational attainment, trends in vesting, and in the types of private plans covering workers today. Most of the data are from four special supplements to the CPS, which were conducted in April or May of 1972, 1979, 1983, and 1988.

Pension Coverage, 1988

Estimates of the proportion of workers covered by pension plans vary depending on how coverage is defined and measured. This article uses measures of pension availability and coverage for wage and salary workers that are based on a series of questions in the May 1988 CPS pension supplement. First, workers were asked if their employer or union had a "pension or retirement plan" for *any* employees in their organization. Those who did not answer "yes" were asked if their employer offered a particular kind of retirement plan—a deferred profit-sharing plan or a stock plan. Later in the interview, it was determined whether or not the employer offered a 401(k) type plan that included employer contributions. A positive response to any of these questions is counted here as pension "availability."

Workers are counted as "covered" if they indicated that they were actually included or participating in any of these plans.[2] Self-employed workers are counted as covered if they reported that they contributed to a Keogh plan or an Individual Retirement Account (IRA) in the preceding year.

Of all workers, 44 percent met these criteria for being covered by a pension or retirement plan (table 7). The coverage rate for private wage and salary workers was 40 percent, while a significantly larger group (56 percent) said that their employer had a plan for at least some of its employees. Among government employees, the coverage rate was 75 percent; and 21 percent of the self-employed were contributing to either an IRA or Keogh plan.

Private pension coverage grew rapidly during the 1940's and 1950's and more slowly in the 1960's and 1970's (chart 3). The proportion of private employees covered by a pension plan grew from about 12 percent in 1940 to about 37 percent in 1960.

Table 4.—Percent of the elderly[1] receiving various sources of income by total income quintiles,[2] 1990

Source of income	Total	Quintiles				
		1st	2nd	3rd	4th	5th
Number (in millions)	23.1	4.6	4.6	4.6	4.6	4.6
Social Security	92	85	96	95	95	88
Pensions	44	8	26	50	67	67
Earnings	22	5	9	19	29	46
Income from assets	69	31	56	75	87	96
Public assistance	7	22	8	3	1	0

[1] Couples and unmarried persons aged 65 or older.
[2] Quintile limits are $6,570, $10,752, $17,208, and $28,714.

Source: Susan Grad, *Income of the Population 55 or Older, 1990*, Office of Research and Statistics, Social Security Administration, April 1992.

Table 5.—Percent of aggregate income of the elderly[1] from various sources, by total income quintiles,[2] 1990

Unit source of income	Total	Quintiles				
		1st	2nd	3rd	4th	5th
Number (in millions)	23.1	4.6	4.6	4.6	4.6	4.6
Total percent	100	100	100	100	100	100
Social Security	36	79	76	59	41	18
Any pension	18	3	8	16	23	20
Public pensions	9	2	4	8	11	11
Private pensions or annuities	9	2	4	8	11	10
Earnings	18	1	3	7	12	27
Asset income	25	4	9	15	21	33
Public assistance	8	11	3	1	(3)	0
Other	2	2	3	3	3	2

[1] Couples and unmarried persons aged 65 or older.
[2] Quintile limits are $6,570, $10,752, $17,208, and $28,714.
[3] Less than 0.5 percent.

Source: Susan Grad, *Income of the Population 55 or Older, 1990*, Office of Research and Statistics, Social Security Administration, April 1992.

Table 6.—Percent of aggregate income from major sources received by low, middle, and high income elderly,[1] 1990

Source	Total from source	Income quintiles		
		"Low" (1st & 2nd)	"Middle" (3rd & 4th)	"High" (5th)
Social Security	100	27	47	26
Pensions	100	4	39	57
Asset income	100	4	27	70
Earnings	100	1	20	78

[1] Couples and unmarried persons aged 65 or older.

Source: Author's calculations based on data in chart 2 and table 5.

Coverage continued to grow, but at a slower rate during the 1960's and 1970's. Between 1979 and 1988, the coverage rate suffered a modest decline, from 43 percent to 40 percent.[3]

The recent decline among private wage and salary workers was concentrated among full-time workers, but brought with it a decline in coverage for the total work force (table 8). While the coverage rate for government employees was fairly stable during the 1980's, the rate among full-time private sector employees decreased from 50 percent to 46 percent.

Private Pension Coverage: Trends by Age, Gender, and Educational Attainment

The decline in private plan coverage was not even between men and women, or across age groups. In fact, among full-time private employees only men experienced a decline (chart 4). Pension coverage for women rose, thereby narrowing the gender gap, which had been 15 percentage points in 1979, down to 6 percentage points by 1988 (49 percent for men and 43 percent for women).

Furthermore, the decline in private pension plan coverage for men who work full time was greatest among younger men—those under age 35. Between 1979 and 1988, the coverage rate declined by 12 percentage points for those aged 25-34, compared with 5-6 percentage points for those aged 35-54 (table 9).

The decline in private pension coverage for men working full time was also much greater among those with no more than a high school education. The coverage rate declined 15 percentage points for those who did not complete high school and 13 percentage points for those with only a high school education. Declines in pension coverage were much smaller (5-6 percentage points) for men with some college education. Among women, changes in pension coverage in 1979-88 were also associated with educational attainment. The overall private pension coverage rate for women aged 25-54 who were working full time increased by 1 percentage point over the

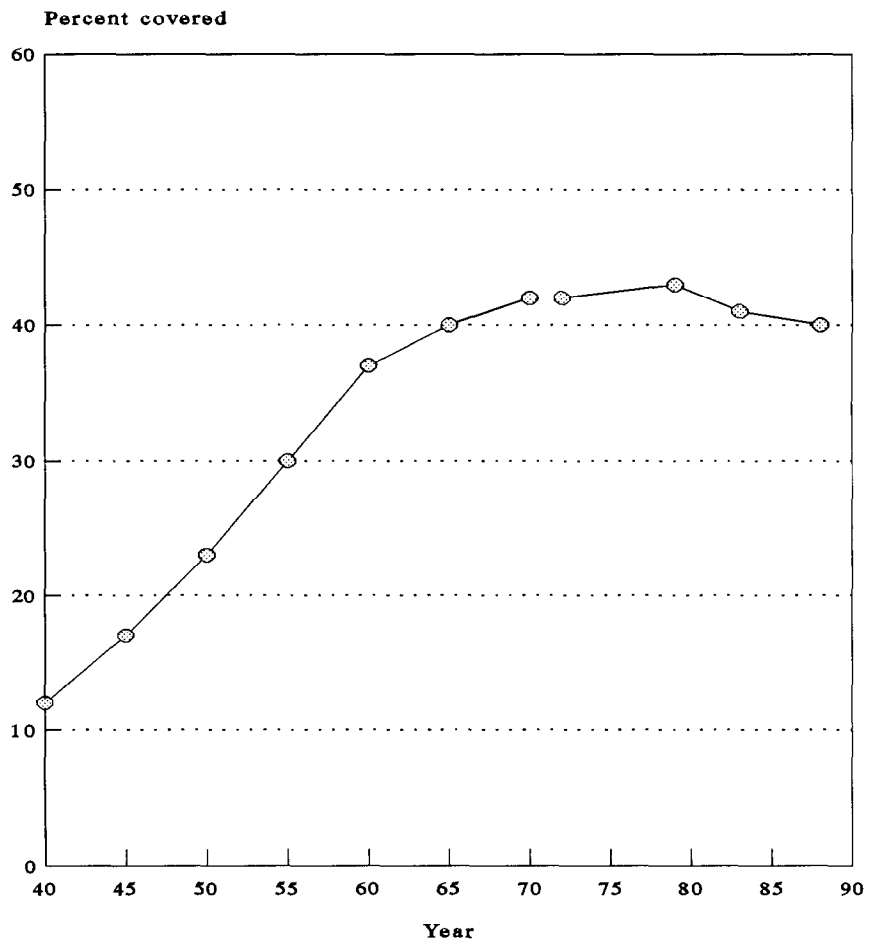
Table 7.—Pension availability rate and pension coverage rate, by type of employment, 1988

[Rates in percent]

Type of employment	Number of workers (in millions)	Employer had a plan for some workers (availability rate)	Worker is included in the plan (coverage rate)
All workers	113.7	58	44
Wage and salary workers	103.4	62	46
Private wage and salary	86.3	56	40
Full-time	71.5	61	46
Part-time	14.9	31	9
Government employees	17.1	93	75
Self-employed	10.3	21	21

Source: Adapted from unpublished tabulations of the May 1988 Supplement to the Current Population Survey, John R. Woods, Office of Research and Statistics, Social Security Administration.

Chart 3.—Pension coverage of private wage and salary workers, 1940-88



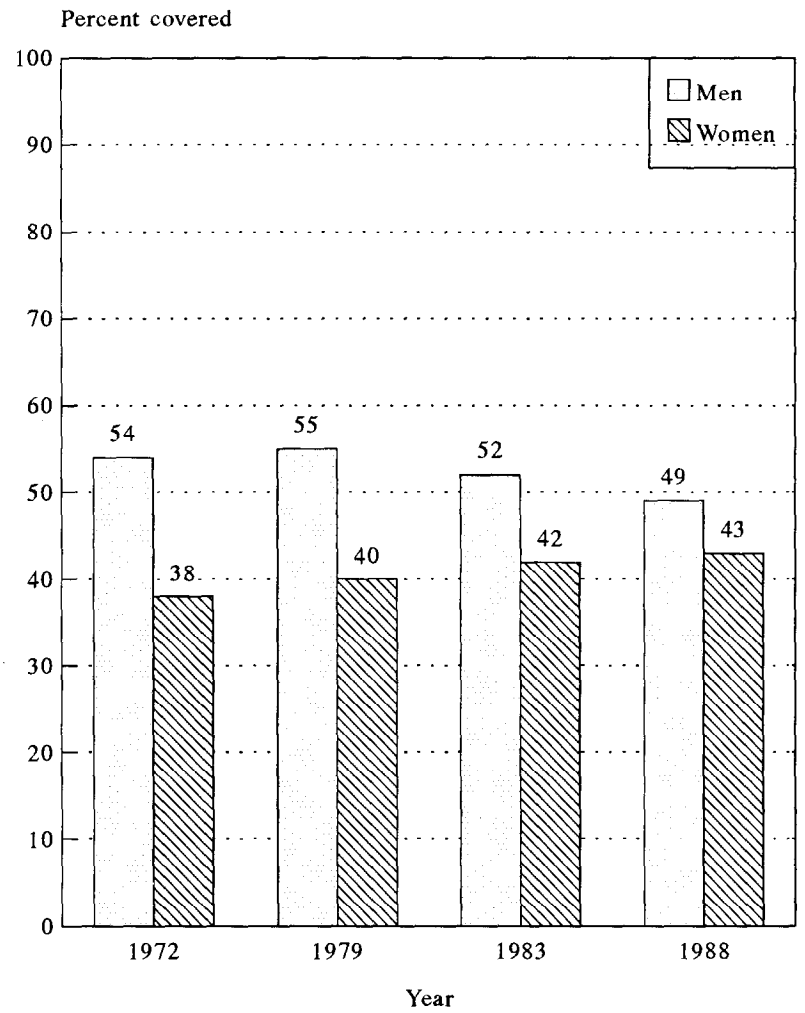
Source: Office of Research and Statistics (ORS), Social Security Administration. For 1940-70, estimates based on data from insurance industry and other sources; for 1972-88, SSA tabulations of data from Current Population Survey supplements. This time series is currently under review by ORS and may be subject to slight modifications.

Table 8.—Trends in pension coverage, by type of employment, 1979-88

Type of employment	Percent covered		
	1979	1983	1988
All workers	46	44	44
Private wage and salary	43	41	40
Full-time	50	49	46
Part-time	9	10	9
Government employees	77	74	75
Self-employed	15	20	21

Source: Unpublished tabulations of Supplements to the Current Population Survey, John R. Woods, Office of Research and Statistics, Social Security Administration.

Chart 4.—Pension coverage for full-time private wage and salary workers, by gender, 1972, 1979, 1983, and 1988



Source: John R. Woods, "Briefing for the Advisory Council on Social Security," Office of Research and Statistics, Social Security Administration, 1990.

period. The gains, however, were mainly among women aged 35-44 and among those with more than a high school education. The coverage rate grew by 5 percentage points for women with 4 or more years of college, but declined by 8 percentage points for women with less than a high school education.

Recent Trends in Private Pension Vesting

While pension coverage rates declined in the 1980's, a growing portion of those covered by pension plans earned vested rights to future pensions from their current jobs. During the 1979-88 period, the proportion of pension-covered full-time private employees who had vested rights to future pensions grew from 48 percent to 64 percent (chart 5). Furthermore, the growth in vesting more than offset the decline in coverage, so that a growing portion of all private full-time employees had some vested pension rights—29 percent in 1988, compared with 24 percent in 1979.

Types of Private Plans

A key change since the mid-1970's is the growth in defined contribution (DC) plans relative to defined benefit (DB) plans (table 10). Defined benefit plans typically pay monthly benefits at retirement, with amounts based on the worker's length of service and earnings. The benefits are usually wholly financed by employer contributions with the amount of contributions based on actuarial estimates of the cost of future benefits.

Defined contribution plans, in contrast, provide for a fixed rate of contributions or, in the case of profit-sharing plans, a portion of profits. Contributions are allocated to individual accounts for each worker. The benefits are based on the size of the account—contributions plus any gains, losses, income, expenses, and (in some cases) forfeitures allocated to the account. DC plans offer lump-sum payouts at retirement or when a worker leaves the plan before retirement. Almost half of all

DC plan participants contribute to the plan.[4]

DC plans have increased both as the primary plan and as supplemental plans for covered workers. Between 1975 and 1987, the proportion of covered workers with a DC plan as the primary plan rose from 13 percent to 32 percent (table 10). Over the same period, the proportion of covered workers with a supplemental plan in addition to the primary DC or DB plan rose from 20 percent to 39 percent. Almost all supplemental coverage is in DC plans.

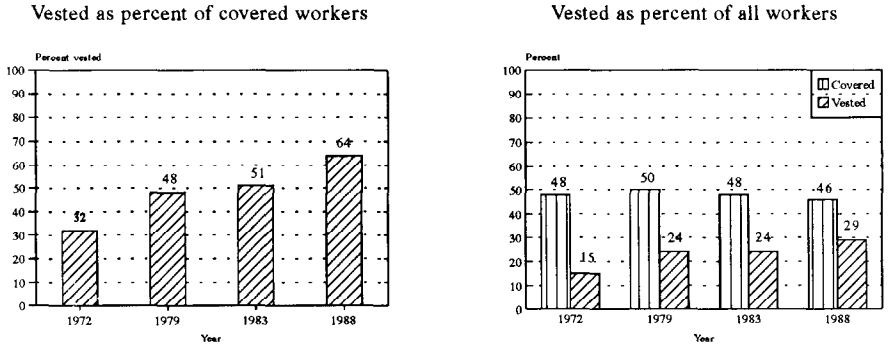
Defined contribution plans account for virtually all of the growth in the number of active workers covered by private plans. The number of active participants whose primary plan is a defined benefit plan has been fairly stable, ranging from 28 million to 30 million between 1978 and 1988. Among explanations for the growth in DC plans is the shift in employment from large unionized firms in manufacturing, which traditionally have provided defined benefit plans, to smaller nonunionized firms in the service sector, where defined contribution plans are more common.

In addition, Federal legislation, beginning with the Employee Retirement Income Security Act (ERISA) of 1974, has added to the cost and complexity of defined benefit plans. Many of the changes were enacted with the aim of improving the likelihood that covered workers or their survivors would receive plan benefits. Firms, however, may avoid those requirements by developing DC plans instead of DB plans, or by terminating DB plans and replacing them with DC plans. The latter appears to account for only a small portion of the growth in DC plans, however. Of the 5.4 million participants in DB plans that were terminated between 1975 and 1987, only about 17 percent were in firms that indicated intent to establish a successor defined contribution plan (table 11). This direct shift from defined benefit to defined contribution plans accounts for only about 10 percent of the growth in primary DC coverage between 1975 and 1988.[5] For nearly 3 in 4 participants in terminated plans, the firm did not indicate intent to form a successor plan.

Most of the growth in DC plans is occurring in new plans, particularly in 401(k) plans, which became available in 1980 under provisions of the Revenue Act of 1978. By 1987, they were the primary plan for 8 percent of private plan participants and were supplemental plans for 23 percent of participants.[6] Payouts from 401(k) plans also grew rapidly. Their total payouts in both retirement and pre-retirement distributions grew from 33 percent of all DC payouts in 1984 to 43 percent in 1988.[7]

The distinguishing feature of 401(k) plans is that employees can make voluntary tax-deferred contributions to the plan. A concern sometimes raised about 401(k) plans is that highly compensated employees are more likely than others to opt for making tax-deferred contributions. The availability and appeal of such plans to higher earners is borne out in data from the

Chart 5.—Vesting status of full-time private wage and salary workers, 1972, 1979, 1983, and 1988



Source: John R. Woods, "Briefing for the Advisory Council on Social Security," Office of Research and Statistics, Social Security Administration, 1990

Table 9.—Percent of full-time private wage and salary workers aged 25-54 covered by pension plans in 1988 and percentage point change since 1979, by age and educational attainment

Age and education	Men		Women	
	Percent covered, 1988	Change since 1979	Percent covered, 1988	Change since 1979
Total	53	–9	47	1
Age				
25-34	45	–12	44	0
35-44	59	–6	50	7
45-54	62	–5	49	–4
Education				
Less than 12 years	37	–15	28	–8
12 years	53	–13	48	0
13-15 years	56	–6	50	1
16 or more years	60	–5	52	5

Source: Unpublished tabulations from the May 1979 and May 1988 Supplements to the Current Population Survey, John R. Woods, Office of Research and Statistics, Social Security Administration.

1988 supplement to the CPS (table 12). The likelihood that their employer offered a 401(k) plan rose from 6 percent for workers earning less than $5 an hour to 53 percent for those earning $20 or more an hour. Similarly, the likelihood that a plan was offered *and* the employee participated in it rose from 2 percent for those earning less than $5 an hour to 42 percent for those earning $20 or more an hour.

The growth in defined contribution plans and the lump-sum distributions they typically pay pose new problems in measuring the role of private pensions in the incomes of current and future retirees.

Measuring Private Pensions: Some Issues

Two key questions in assessing the role of private pensions in retirement income are: "Who receives the pension dollars that don't get reported in the Current Population Survey?" and "When lump-sum distributions are paid, what do the recipients do with the funds?"

Discrepancies Between Private Pension Payments and Receipt

Researchers in the Office of Research and Statistics in the Social Security Administration have developed time series data on aggregate public and private expenditures for "social welfare" purposes. Private pensions are a major component of the private social welfare expenditures.[8]

For this series, payments from private pension plans include all payments to provide benefits directly to pension plan participants or their beneficiaries—including retirement, disability, and survivor benefits. They include defined benefit and defined contribution plan payments, including lump-sum distributions at or before retirement, regardless of whether those lump sums are rolled over into other tax-deferred retirement savings. They also include all payments from employment-related pension, thrift, or 401(k) plans that are funded wholly or in part by employee contributions. They do not, however, include IRA's or Keogh plans. The estimates are based on data from the Internal Revenue Service and the Department of Labor Form 5500 file, supplemented with information from the American Council on Life Insurance regarding benefits paid from insured plans.[9]

The 1988 estimate of total private pension plan payments from this series is $124.5 billion. In the same year, estimates of private plan benefits reported by households in the CPS was $61 billion, or just under half the total based on the 5500 file.[10]

For the $61 billion that is reported in the CPS, we have detailed data about the attributes of the pension recipients and their other sources of income. We know nothing about the attributes of those who receive the other half of the aggregate private pension payouts.

We do know that a growing share of private payments are from DC plans, which normally pay lump sums. The DC share of private plan payouts grew from 32 percent in 1975 to 49 percent in 1988. Furthermore, 401(k) plans, alone,

Table 10.—Percent of active participants[1] in private pension plans, by type of primary plan and by presence of a supplemental pension plan, 1975-87

Year	Participants (in millions)	Primary plan type		Supplemental plan status		
		Defined benefit	Defined contribution	None	One or more	Two or more
1975	30.7	87	13	80	20	4
1976	31.7	86	14	77	23	5
1977	32.8	84	16	76	23	6
1978	34.0	84	16	74	26	6
1979	34.8	83	17	72	28	7
1980	35.9	83	17	71	29	7
1981	36.9	80	20	70	30	8
1982	37.5	78	22	67	33	9
1983	39.0	76	24	63	37	11
1984	39.7	75	25	61	39	14
1985	40.4	71	29	60	40	14
1986	41.2	69	31	60	40	14
1987	41.8	68	32	61	39	13

[1] Active participants include any workers currently in employment covered by a plan and who are earning or retaining credited service under a plan. Active participants include any nonvested former employees who have not yet incurred a break in service.

Source: Daniel J. Beller and Helen H. Lawrence, "Trends in Private Pension Plan Coverage," *Trends in Pensions, 1992,* Department of Labor, table 4.10. Data based on form 5500 series reports filed with the Internal Revenue Service.

Table 11.—Participants in terminated defined benefit plans, by sponsor's intent to establish a successor plan, 1975-88

Years	Total participants		Successor plan (percent)		
	Number (in thousands)	Percent	Defined benefit	Defined contribution	No new plan or unknown
Total	5,380.3	100	10	16	74
1975–79	292.9	100	2	7	91
1980–84	1,763.6	100	7	30	64
1985–88	3,323.8	100	12	11	77

Source: Daniel J. Beller and Helen H. Lawrence, "Trends in Private Pension Plan Coverage," *Trends in Pensions, 1992,* Department of Labor, table 4.17. Data based on Pension Benefit Corporation Case Processing File.

accounted for 21 percent of all private plan payouts in 1988.[11] Very little is known about the size of the lump sums paid to individuals, or the age, income, or other attributes of the people who receive them. Available data on participation in 401(k) plans suggest that they are concentrated among high-earning workers.

The Census Bureau is developing ways to improve reporting of pension income and is seeking to capture lump-sum distributions as well as monthly pensions and annuities. Even if the reporting is improved, however, lump sums pose conceptual and measurement problems if we wish to assess the pension system's role in providing economic security in retirement.

Table 12.—401(k) plan availability and participation rates by hourly wage rate for private sector employees, May 1988

Hourly wage	Number of employees (in millions)	Percent offered a 401(k) plan	Percent participating—	
			Of offered	Of all
Total [1]	86.3	24	59	14
Less than $5.00	19.7	7	35	2
$5.00–$7.49	17.8	18	42	7
$7.50–$9.99	14.8	26	56	15
$10.00–$12.49	9.1	34	60	21
$12.50–$14.99	7.0	43	61	27
$15.00–$19.99	6.2	48	72	35
$20.00 or more	5.0	53	79	42

[1] Includes those not reporting hourly wage.

Source: Emily S. Andrews, "The Growth and Distribution of 401(K) Plans," *Trends in Pensions, 1992*, Department of Labor, 1992, tables 8.7 and 8.11.

Lump-Sum Distributions

Traditionally, we tend to think of retirement income security in terms of regular sources of monthly income in retirement. But if a lump sum is not annuitized at retirement, or is not rolled into other retirement savings before retirement, it is no longer identifiable as "pension" or "retirement" income.

We gain some insights into problems of assessing these issues from EBRI analyses of data on pre-retirement lump-sum distributions that were collected in the May 1988 CPS supplement.[12] Those data are for current workers only. They do not include lump sums paid to retired workers or those out of the workforce for other reasons. In 1988, 8.5 million workers reported they had ever received a lump-sum distribution from a prior job. The majority had received their most recent lump sum in the 1980's, although about 3 in 10 had received it in the 1970's or even earlier. The aggregate amount reported was $48 billion (in 1988 dollars). The average amount of the most recent lump-sum distribution was $6,800. When asked what they had done with the lump-sum distribution:

- 11 percent said they had rolled all of it into a tax-deferred retirement account.
- 19 percent put it in savings accounts or other financial instruments. Although these, too, are savings, the "pension" is no longer identifiable as retirement saving. It can be spent long before retirement.
- 29 percent used it to buy a house or pay a mortgage or other loans or debts. In theory, reducing debt is another form of saving. But reducing today's debt may facilitate more consumption or debt long before retirement.
- 34 percent had presumably consumed all of it. Although this group includes persons who spent their lump sums on such things as the purchase of a car, educational expenses, or expenses incurred during a period of unemployment, the majority of these responses did not fit any of the pre-coded categories on the use of lump sums and were classified as "other."
- 5 percent had a mix of consumption and saving, broadly defined.

These findings indicate that most pre-retirement lump sums paid by 1988 will not be counted in future retirement income. Comparable data are not available on lump-sum distributions paid to retirees. Information on the size of lump sums at retirement, the attributes of those who receive them, and how the funds are used is needed to accurately assess the role of the private pension system in providing retirement income security today and in the future.

Future Pension Receipt

This section compares pension status of persons approaching retirement with pension receipt rates of the elderly to provide a rough approximation of the change in pension receipt among the elderly that might occur over the next few decades. It then reviews recent microsimulation projections of future pension receipt and discusses areas of uncertainty about those projections.

Pension Status of Persons Approaching Retirement

An innovative approach to looking at likely pension receipt rates for persons approaching retirement age was presented by Goodfellow and Schieber in a paper prepared for the Pension Research Council in May 1992. Using data from the March 1991 Current Population Survey, they focus on persons aged 45-59 (including not only workers in both public and private employment, but nonworkers as well) to assess whether they either were already receiving a pension or were currently included in a pension plan on their current job. For married persons, they take account of the spouse's pension receipt or coverage as well as the respondent's. They find that about 4 in 10 single persons in that age group were either receiving a pension or were included in a pension plan on their

Table 13.—Pension status of all persons aged 45-59 by marital status, March 1991

Pension status	Martial status	
	Single	Married
Number of persons (in millions)	9.86	26.50
Total percent	100	100
Respondent receiving pension or included in a plan	40	45
Spouse also receiving or included in a plan	...	23
Only respondent has pension	...	22
Respondent not receiving or included in a plan	60	55
Only spouse receiving or included in a plan	...	23
Neither respondent nor spouse receiving a pension or included in a plan	...	32

Source: Adapted from Gordon P. Goodfellow and Sylvester J. Schieber, "Death and Taxes: Can We Fund for Retirement Between?" prepared for the Pension Research Council, The Wharton School, University of Pennsylvania, Spring 1992 Symposium, May 7-8, 1992.

current jobs (table 13). Similarly, about 45 percent of married persons were either receiving a pension or covered by a plan. Assuming that they share in their spouses' access to pensions, then 68 percent of these married persons may have eventual access to pensions.

These estimates may undercount future pension receipt to the extent that they do not count any deferred vested pensions that those aged 45-59 earned from prior jobs but are not yet receiving. On the other hand, they may overstate future pension receipt to the extent that some of the currently covered workers may not become vested in their pension plans or may receive a lump sum in lieu of pensions at retirement. And, for married persons, access to pensions through their spouses' coverage would continue after the death of the spouse only to the extent that the couple chose the survivor options that the plan offered.

With these caveats, these estimates—in conjunction with pension receipt rates for the elderly in 1990 (table 14)—can provide an approximation of the change in pension receipt that might occur in coming decades. By 2010, couples aged 65-79 will include surviving couples aged 45-59 in 1990 (described above), 68 percent of whom appear to have access to pensions. If this is their rate of pension receipt in 2010, it would represent a 9-percentage point increase, compared with couples aged 65-79 in 1990 (table 14). Similarly, couples aged 80 or older in 2010 will include surviving couples from those aged 65-79 in 1990, 59 percent of whom were receiving pensions. If this is the rate of pension receipt among the older old in 2010, it would represent a 10-percentage point increase, compared with similar couples in 1990. Together, these rates suggest an overall pension receipt rate for couples of about 67 percent in 2010, compared to 57 percent in 1990.[13] This ad hoc estimate indicates that the pension receipt rate for elderly couples is expected to continue to increase in the future.

The data also suggest some increase in pension receipt for unmarried persons. For unmarried persons aged 45-59, the access rate is 40 percent; for those aged 65-79, the receipt rate is 36 percent; and for those in the 80 or older age group, the receipt rate is 29 percent. The pension receipt rate will also be higher if those who become widowed over the next 20 years have a higher rate of entitlement to their own pension and to survivor benefits than do comparable widows in 1990.

Microsimulation Results

Microsimulation models have been developed over the past decade to project the sources and amounts of income the elderly may receive in the future. Most recently, the 1991 Advisory Council on Social Security published projections of the income of the elderly for 2018, based on the Projected Retirement Income Simulation Model (PRISM) of Lewin/ICF, Inc. In 1990, the Urban Institute published projections of the income of the elderly in 2010 and 2030 based on its Dynamic Simulation Model (DYNASIM).

The models were originally developed to simulate individual and family earnings histories to estimate the distribution of future Social Security benefits under current law and various proposals to change Social Security benefit rules. Pension modules were later added. In general, the models use long-range economic and demographic assumptions that are consistent with those used by the OASDI Trustees to project the status of the Social Security trust funds. The overall results are similar between PRISM and DYNASIM. Both models project that significantly more elderly will receive pensions, pensions will be a rising share of the income of the elderly, and real incomes of the elderly will rise due, in large part, to the increased pension receipt and to the assumed real wage growth that is consistent with long-range assumptions used by the OASDI Trustees. Real wage growth is reflected in earnings-related Social Security and pensions benefits.

Both models project pension receipt rates for the elderly in 2010 and thereafter that are much higher than would be expected from 1990 data on pension access of those aged 45-59 and pension receipt by those aged 65-79. While rough estimates suggest that about 2 in 3 elderly couples might have pensions in 2010, the models project that nearly 9 in 10

Table 14.—Pension receipt of the elderly [1] by age, 1990

Marital status	Percent receiving pensions		
	Total	Aged 65-79	Aged 80 or older
Married couples	57	59	49
Unmarried persons	34	36	29

[1] Couples and unmarried persons aged 65 or older.

Source: Author's calculations based on data from Susan Grad, *Income of the Population 55 or Older, 1990*, Office of Research and Statistics, Social Security Administration, April 1992.

Table 15.—Percent of the elderly receiving pensions, 1990, and DYNASIM and PRISM projections

Marital status	Percent receiving any pension			
	1990 Actual [1]	2010 [2]	2018 [3]	2030 [2]
Couples	57	86	88	93
Unmarried men	41	70	73	85
Unmarried women	32	50	67	73

[1] March 1991 CPS; Susan Grad, *Income of the Population 55 or Older, 1990*, Office of Research and Statistics, Social Security Administration, April 1992.

[2] DYNASIM: Sheila R. Zedlewski *et al.*, *The Needs of the Elderly in the 21st Century*, Urban Institute Report 90-5, Urban Institute Press, Washington, DC, page 97.

[3] PRISM: Lewin/ICF, Inc., Projections for the 1991 Advisory Council on Social Security, *Social Security and the Future Financial Security of Women*, Appendix E, Washington, DC, December 1991.

will have pensions in 2010 and thereafter (table 15).

How should we use these projections? It may be tempting to treat the projections as if they were predictions, but clearly we shouldn't. Instead, we might use the models as a framework for identifying the research questions that, if answered, would improve our understanding of the role of pensions now and in the future.

The models are designed to play out a set of assumptions about the future, based on research conducted to date. For some variables the models incorporate outside assumptions (such as the long-range economic and demographic assumptions for the OASDI program) or independent projections (such as projections by the Bureau of Labor Statistics of future labor-force participation or industry shifts over the next 10 years). In other instances, lacking data on the behavioral response of workers or employers to pension choices, ad hoc assumptions must be made. Updating the studies on which assumptions are based and conducting new research to fill the void where *ad hoc* assumptions are made will improve our understanding of the future role of pensions.

Sources of Uncertainty in the Future

This section identifies some of the sources of uncertainty about the future of pensions and notes how the PRISM model—the source of the most recent projections—deals with each. Areas of uncertainty include: future pension coverage, changes in pension plan provisions, plan response to policy changes, plan terminations, the impact of job changes, lump-sum distributions at or before retirement, receipt of deferred vested benefits, survivor benefit receipt, and the impact of plan investment performance on future DC benefits.

Pension coverage.—The future course of pension coverage is critically important in estimating future pension receipt. Fortunately, work is underway to update the pension supplement to the CPS in 1993. PRISM assumes that the pension availability rates by industry that were observed in 1988 will continue indefinitely.[14] Enhancements that take account of shifts in coverage by age, educational attainment, and other relevant worker characteristics would also refine pension receipt projections.

Pension plan provisions.—In general, the models assign particular pension plan attributes to covered workers based on data available when the models were developed, generally in the early 1980's. It is not clear how changes in plan attributes that have occurred over the last decade—including the growing role of defined contribution plans—are reflected in the models. No changes in plan attributes are projected for the future.

Plan response to changes in policy.—The models assume that changes in Federal laws made since the pension modules were developed are incorporated into private pension plans and that plan sponsors bear any added cost of those changes.[15] That assumption may be reasonable in the short run. Over the longer term, however, employers have other options for responding to the added cost. They may modify the benefit formula to reallocate costs, forego updates in benefit formulas, terminate plans and replace them with less costly plans or plans that are not subject to the new requirements, or simply terminate the plan, pay off the accrued liabilities, and replace it with nothing or with types of employee benefits other than pensions, such as health benefits, which are a rising component of compensation costs. Model updates that somehow reflect the diversity of plans' long-run responses to changes in existing Federal law would enhance projections of the future role of pensions.

Plan terminations.—A plan that terminates is required to pay off accrued liabilities to plan participants. Accrued liabilities are the pension rights employees have earned as of the date of termination. They may be far less than the value of the employee's pension rights had the plan remained in effect until he or she retired.

In some cases, a terminated plan is replaced with another plan—perhaps a less generous plan, or a defined contribution plan instead of a defined benefit plan. In other cases, the firm may be bankrupt or in financial difficulty and no plan replaces the terminated plan. Between 1980 and 1988, about 5 million workers were in defined benefit plans that terminated and, for about 3 in 4 workers, the employer did not indicate intent to establish a successor plan (table 11). In the absence of information to associate the risk of plan termination with worker characteristics, the models assume that no pension plan terminates. All workers who are simulated to be covered by a pension plan remain with the plan until they leave the job or retire.

Job changes.—Job changes and the resulting impact on pension rights are critically important for estimating future pensions. According to Andrews, very little research has been done on the likelihood of pension coverage upon job change.[16] This likelihood may be

changing over time as pension coverage rates by age have changed.

The PRISM model uses a study done in 1979 by Lewin/ICF to estimate the probability of pension availability for job changers. The pension availability rates are calibrated to match overall pension availability rates reported in May 1988, but otherwise do not change over time. The effect of job change on pension rights is an area where much more research is needed on the disposition of pension accruals from the old job, on the prospects of gaining pension coverage on the new job, and the provisions of the new pension plan.

Lump sums paid at retirement.—In the absence of data on how retirees use lump-sum distributions, the model assumes that all DC payouts at retirement are annuitized to pay regular income throughout retirement. They are counted as pension income. As noted earlier, information is needed about the size of lump-sum distributions paid to retirees, the attributes of the workers who receive them, and how the lump sums are used.

Lump sums paid before retirement.—Changes in law that affect incentives for plans to offer lump-sum cash outs and for employees to spend them make it important to update research on the payment and use of preretirement lump-sums. The PRISM model assumes that all preretirement lump-sums are either rolled into an IRA that pays monthly annuities at retirement or are spent. It incorporates separate assumptions for DC lump sums, small DB amounts (under $3,500), and larger DB amounts.

• *DC benefits.*—The probability that DC cash outs are rolled into IRA's varies by the worker's age, education, income, and the lump-sum amount. It ranges from 100 percent for those aged 55 or older with lump sums of $3,500 or more to 0 for some groups under age 30. The probabilities are based on analyses of data on lump-sum distributions reported in the 1983 CPS Pension Supplement.[17]

• *Small DB amounts.*—Under current law, plan sponsors may unilaterally cash out vested defined benefits as immediate lump sums to workers who

Selected Provisions of Federal Legislation Affecting Defined Benefit Plans

1974—The Employee Retirement Income Security Act (ERISA)

- Set minimum plan standards for participation and vesting;
- Set requirements for the funding of past service credits, and amortization of investment gains and losses within prescribed periods; and
- Established the Pension Benefit Guaranty Corporation (PBGC), financed by premiums paid by plan sponsors to insure pension benefits in terminated plans. (Of the above requirements, DC plans are subject only to minimum plan standards for participation and vesting.)

1984—The Retirement Equity Act

- Mandated that beginning in 1985 the minimum age required for participation would be reduced from 25 to 21 and that credit toward vesting would begin with service at age 18 rather than 22;
- Specified that spousal consent is needed in order to waive survivor benefit coverage; and
- Specified that workers who leave a pension plan may return to the job and retain their prior years of service for participation and vesting status if the break-in-service is not more than 5 years (or, if greater, the number of years of service prior to the break in service).

1986—The Tax Reform Act

- Required that starting in 1989 private single employer plans must vest benefits at least as rapidly as under one of the following two schedules:

  (a) full vesting after 5 years of service; or

  (b) 20-percent vesting after 3 years of service with 20 percent more each year and full vesting after 7 years.
- Stipulated in the Internal Revenue Service nondiscrimination rules that became effective in 1989 that, in general, no more than 30 percent of a plan sponsor's employees can be excluded from a pension plan. Previously, employers could legally exclude up to 44 percent of their employees from the plan;
- Both DB and DC plans must meet new limits on the ways in which private plans are integrated with Social Security. The rules are designed to improve pension amounts for lower-paid workers.

1987—The Omnibus Budget Reconciliation Act

- Increased PBGC premiums from $8.50 to $16.00 per participant, with an additional premium that varied depending on the underfunded status of the plan;
- Restricted the level of tax-deductible contributions to produce plan funding no greater than 150 percent of the amount that would be needed to pay all benefits if the plan were terminated.

leave the plan if the benefits are small (with a present value of less than $3,500). PRISM assumes that all such workers under age 60 receive lump sums and spend them and that all such workers aged 60 or older receive their benefits as annuities.

• *Large DB amounts.*—Current law permits the immediate lump-sum cash out of larger defined benefits amounts to workers leaving a pension plan before retirement if both the worker and the employer agree. Increases in PBGC premiums raises the cost to plan sponsors of keeping deferred benefits in the plan. If a benefit is cashed out, no further premiums are assessed. Based on limited data available, PRISM assumes that of workers who leave jobs with vested defined benefits worth $3,500 or more, 9 percent of those under age 55 and 5 percent of those aged 55 or older receive a lump sum and spend it. The rest receive deferred monthly benefits at retirement.

It would be useful to have more complete information about the extent to which defined benefit plans offer immediate lump-sum cash out, the extent to which workers accept the offers, and what they do with the lump-sum payments.

Deferred vested benefits.—An important part of the growth in projected pension receipt is attributed to more strict Federal laws regarding pension vesting. Workers who leave their vested benefits with the pension plan when they leave their jobs are entitled to receive the benefits at the plan's normal retirement age. The models assume that all such benefits are paid as monthly pensions at retirement. Research to evaluate the system for connecting vested workers with their former pension plans and to assess the value of those benefits would be useful.

Under ERISA, plan sponsors are required to report each year to the IRS on the deferred vested benefit amounts of workers who have left the plan. That information is sent to the Social Security Administration, which is required to notify the worker (or his or her survivor) of the availability of those pension benefits when Social Security benefits are claimed. A study of the size of those pensions, the extent to which they are actually received, and the attributes of the workers who receive them would improve our understanding of the long-term impact of stricter vesting rules on retirement income.

Survivor benefits.—Contributing to the projected increase in pension receipt for unmarried women are the ERISA requirements that DB plans offer joint and survivor options and that, beginning in 1985, spousal consent is required for that option to be waived.

In the absence of research on the impact of these provisions, ad hoc assumptions are used to estimate the likelihood that joint and survivor options are taken.

Impact of plan investment performance on DC benefits and individual savings.—The growth in DC plans as both primary and supplemental sources of pension coverage highlights the importance of plan investment returns for retirement income security. In DC plans, the individual participant bears the risk of the investment performance of his pension funds. Investment gains or losses vary considerably, both over time for the same investor and among different investors at any point in time.

The simulation models incorporate neither risk nor variation in investment returns for participants in DC plans or IRA's. In PRISM, the return on all DC plans and IRA's is the long-term interest rate used for the OASDI projections—that is, 6.3 percent nominal or 2.3 percent in excess of inflation.

It would be useful to know whether the probability of excellent or poor investment returns varies by individual attributes such as income, education, age, portfolio size, or type of plan. As the risk of plan investment performance is shifted from plan sponsors to individual workers, it is increasingly important to have some basis for predicting "winners" and "losers" in order to simulate the impact of the private pension system on the distribution of retirement income.

Summary and Conclusions

Employer-sponsored pensions for public and private employees are an important and growing component of the U.S. retirement income system. Public employee pension plans continue to follow the traditional pattern of defined benefit plans with benefits based on length of service and earnings.

The private pension system, in contrast, is dynamic and changing. Changes in Federal laws and in the economy affect incentives and trade-offs for both plan sponsors and workers. To forecast the impact of the private pension system on the income of future retirees is, indeed, a daunting undertaking. The application of microsimulation techniques to that effort over the past 10-15 years has made a major contribution to research on the economic well-being of the future elderly.

Forecasting the future distribution of private pensions is far more complex than projecting the future distribution of Social Security benefits for a number of reasons. First, because Social Security is mandatory with uniform rules for all employers and workers, the effect of a change in the law can be projected with some degree of confidence. Because the private pension system is voluntary, the range of plan sponsors' responses to changes in laws are more varied and much more difficult to predict. Private plans may also offer more choices to eligible workers—such as whether or not to participate, to opt for survivor benefits, or to take a lump-sum cash out and how to use it. Second, because Social Security coverage is universal, the soundness of the system is relatively immune from fluctuations in the fortunes of individual firms or shifts in industry sectors that can have a profound effect on the security and cost of pensions.

Third, while the future amount of Social Security benefits depends on the long-term performance of the economy, on average, it is much less affected by variation in interest rates or investment returns than are pension plan assets. Social Security projections take account of uncertainty by using different sets of assumptions about the average levels of economic indicators—inflation, wage growth, and interest rates. Assumptions based on average investment returns, however, may fail to capture the risk and diversity of pension outcomes, particularly in plans where the risk is borne by individual participants.

These differences between Social Security and private pensions indicate that much more sophisticated techniques may be needed to forecast the future distribution of pension benefits. They also highlight a fundamental policy question: How much do we wish to rely on the mandatory, universal Social Security system versus the voluntary, supplemental, and very diversified private pension system to meet future retirement income needs?

Notes

[1] Legislation enacted in 1990 and effective in July 1991 extended Social Security coverage on a mandatory basis to State and local employees who are not covered under a retirement plan (except for students who are employed by the educational institution they are attending). This change is estimated to increase the proportion of State and local employees covered by Social Security to 75 percent.

[2] This definition of pension coverage has been used over the years in analyses conducted by the Office of Research and Statistics of the Social Security Administration. Some other analyses have labeled as "participation" what is here called "coverage." In addition, some studies have measured pension availability and coverage using only the question about "pension or retirement plans."

[3] The data reported in this section may underestimate the recent decline in pension coverage by a couple of percentage points. The 1988 estimate includes those whose only reported pension coverage was in a "deferred profit sharing or stock plan." (Surveys in 1983 and 1979 did not include a comparable question, although profiting-sharing plans were included in the 1972 survey.) If this group is excluded, the 1988 coverage rate for private wage and salary employees is 38.0 percent rather than 40.0 percent.

[4] Daniel J. Beller and Helen H. Lawrence, "Trends in Private Pension Plan Coverage," *Trends in Pensions, 1992*, U.S. Department of Labor, 1992, p.64.

[5] *Ibid.*, p. 70.

[6] *Ibid.*, tables 4.10 and 4.14

[7] *Trends in Pensions, 1992*, tables A4 and A6.

[8] Wilmer L. Kerns, "Private Social Welfare Expenditures, 1972-1990," *Social Security Bulletin,* Fall 1992.

[9] Similar, but not identical, methods have now been adopted by the Bureau of Economic Analysis for estimating private pension benefits in the National Income and Product Accounts (NIPA). See, Thae S. Park, "Total Private Pension Benefit Payments, 1950-1988," *Trends in Pensions, 1992*, U.S. Department of Labor, 1992. Updated NIPA estimates are in Table 6.11C, *Survey of Current Business*, July 1992.

[10] The $61 billion includes: survivor benefits from company or union plans; disability benefits from company or union plans; and pensions from company or union plans, and annuities.

[11] *Trends in Pensions 1992*, tables A6 and A4.

[12] Joseph S. Piacentini, Preservation of Pension Benefits, *EBRI Issue Brief*, January 1990.

[13] This estimate is consistent with the age distribution of couples in the 1990 CPS (13 percent were aged 80 or older) and of married men in 2010 (16 percent were aged 80 or older) in the DYNASIM projections.

[14] DYNASIM projections were done before the 1988 results were available. Those projections assume that pension availability rates observed in 1983 will continue indefinitely.

[15] For example, the Retirement Equity Act of 1984 and the Tax Reform Act of 1986 changed the minimum plan requirements regarding participation, vesting, break-in service rules, non-discrimination rules, and survivor options. The changes were all designed to increase the likelihood that covered workers or their survivors would ultimately receive future pensions.

[16] Emily S. Andrews, "Gaps in Retirement Income Adequacy," prepared for the Pension Research Council, The Wharton School, University of Pennsylvania, Spring 1992 Symposium, May 7-8, 1992.

[17] G. Lawrence Atkins, *Spend It or Save It, Pension Lump Sum Distributions and Tax Reform,* Employee Benefit Research Institute, 1986.