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ABSTRACT

This document contains 4 charts and 15 tables describing the pension coverage of workers and the income of retirees in the United States as of 1984. Data were gathered through the fourth wave topical module to the 1984 panel of the Survey of Income and Program Participation, conducted from September through December of 1984. The prevalence of pension coverage among different segments of the population, the reliance on employee-directed retirement plans, and differences in the level of economic well-being of today's retirees are some of the topics discussed in this report. Some highlights of the report are the following: (1) two-thirds of the nation's wage and salary workers, aged 25 and over, were covered by employer-sponsored public and private pensions; (2) about 90 percent of workers in firms with 1,000 or more employees were covered by pension plans, compared with one-quarter of those in firms with fewer than 25 employees; (3) pension coverage ranged from only 38 percent of workers with monthly earnings under $500 to 84 percent of those earning $2,000 or more; (4) about one-fifth of wage and salary workers aged 25 or over had individual retirement accounts (IRAs), whereas only 12 percent of workers earning under $1,000 monthly participated in an IRA; (5) the average monthly pension for the 11.5 million retirees receiving a pension was $570, and combined Social Security and pension income brought the average to $930; and (6) the 6.7 million retirees who had pensions with cost-of-living adjustment provisions had average pensions nearly 80 percent higher than retirees with no cost-of-living provisions. (KC)

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Pensions: Worker Coverage and Retirement Income, 1984

Data from the
Survey of Income and
Program Participation

Issued September 1987

U.S. Department of Commerce
Clarence J. Brown, Acting Secretary
Robert Ortner, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
John G. Keane, Director

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Contents

CHARTS

TEXT TABLES

APPENDIXES

APPENDIX TABLES

Pensions: Worker Coverage and Retirement Benefits, 1984

INTRODUCTION

The fourth wave topical module to the 1984 panel of the Survey of Income and Program Participation (SIPP), conducted September through December of 1984, contained supplemental questions on both pension eligibility of the working population and on characteristics of persons receiving retirement income. This report presents findings based on these supplemental questions. The prevalence of pension coverage among different segments of the population, the reliance on employee-directed retirement plans (such as IRA's and 401(k) plans), and differences in the level of economic well-being of today's retirees are some of the topics discussed in this report.

There have been other surveys conducted by the Census Bureau containing questions on pension eligibility. Since 1980, the annual income supplement to the March Current Population Survey (CPS) has included a limited number of questions on pension eligibility for each person identified as a worker during the calendar year prior to interview.[1] In addition, there have been two pension supplements to the CPS. The Department of Labor and the Social Security Administration sponsored a pension supplement in May 1979 and the Employee Benefit Research Institute (EBRI) and the Department of Health and Human Services sponsored a similar supplement in May 1983. An analysis of data from these two CPS pension supplements is contained in a study by Emily Andrews of the EBRI, entitled "The Changing Profile of Pensions in America." Although the May CPS and SIPP data sets are somewhat different, the data in this report are based on the definitions of pension eligibility used in the EBRI study.

Pension eligibility, as defined in this study, was restricted to employer-provided pensions. Eligibility for Social Security retirement benefits was not included. According to the Social Security Administration, 92 percent of all civilian wage and salary workers were eligible for Social Security retirement benefits in 1984.

This is the first Census Bureau study to highlight specifically the economic status of retirees. The March CPS income supplement has provided information on the economic situation of the population by age group, including the 65-and-over population; however, the CPS does not directly identify the "ever-retired" population nor does it link the level of retirement income with important retirement related variables such as years since retirement and former industry. Thus, these new SIPP data can provide a more comprehensive picture of the economic status of retirees than any other information previously available from the Census Bureau.

HIGHLIGHTS

(Note: The figures in parentheses signify the 90-percent confidence intervals of the estimates.)

Pension Coverage

- In 1984, 52.7 (±1.0) million wage and salary workers were covered by an employer-sponsored pension plan. This represents 67.1 (±.9) percent of all wage and salary workers.
- The pension coverage rate of workers with monthly earnings of less than $500 was only 37.8 (±2.6) percent. In contrast, the pension coverage rate of workers with monthly earnings of $2,000 or more was 84.1 (±1.3) percent.
- Employees of larger firms were far more likely to be covered by an employee-sponsored pension plan than employees of smaller firms.
- In 1984, 16.3 (±.6) million wage and salary workers contributed to Individual Retirement Accounts (IRA's). The pension coverage rate of these workers was 75.8 (±1.7) percent.
- About 6.1 (±.4) percent of all wage and salary workers participated in employer-sponsored thrift plans, known as 401(k) plans. Of employees in firms that offer 401(k) plans, the participation rate was 55.5 (±2.8) percent.
- The percentage of workers covered by either an employer-sponsored pension, IRA, or 401(k) plan was 72.1 (±.8) percent.

[1] See Current Population Reports, Series P-60, No. 155, *Receipt of Selected Noncash Benefits: 1985*, for the latest CPS data on pensions. Other P-60 reports have contained CPS pension data for the 1979-84 period.

Retirement Benefits

- There were 11.5 (±.8) million retirees receiving pension benefits in August 1984; their mean monthly pension income was $570 (±$41).
- Of all retirees receiving pension benefits, 66.4 (±3.2) percent were men. The mean monthly pension income of male retirees was $670 (±$56), significantly higher than that for females, $370 (±$41).
- Retirees under the age of 65 received significantly more pension income, on average, than retirees 65 years old and over. Older retirees were much more likely to be receiving Social Security benefits in addition to their pensions than younger retirees.
- Of the 11.5 (±.8) million retirement pension recipients, 19.6 (±2.7) percent completed 4 or more years of college. The mean pension income of these retirees was $950 (±$132). The mean pension income of retirees with 4 years of high school only was $550 (±$56).
- About 15.7 (±2.5) percent of all retirement pension recipients, or 1.8 (±.2) million retirees, worked during the reference month. The mean pension income of working retirees was $730 (±$59), while the mean pension income of nonworking retirees was $540 (±$43).

PENSION COVERAGE

Defining Pension Eligibility

On the SIPP fourth wave topical module, all persons 25 years old and over with a wage or salary job at any time during the 4 months prior to the interview were asked a battery of pension questions. The exact sequence of questions is shown in appendix D. As classified by the responses to these questions, there are four separate levels of pension eligibility. These levels are hierarchical, in that each is a subset of the previous one.

1. A *covered* worker was one whose employer had a retirement plan for any of its employees.
2. A *participant* was a worker included in such a plan.
3. A *vested* employee was one eligible to receive payments from this plan either upon reaching retirement age or in a lump-sum distribution. Thus, a vested employee is one with pension rights that cannot be forfeited.
4. A worker with *future benefit entitlement* was one eligible to receive benefits upon retirement age. This group excludes those who are only eligible for a lump-sum distribution.

The data in table A summarize these four levels of pension eligibility for 1984. It shows that 52.7 million wage and salary workers were covered by an employer-sponsored pension plan. This yields a pension coverage rate of about 67 percent; 70 percent of all male workers and 64 percent of all female workers had pension coverage (figure 1). The proportion of total wage and salary workers participating in an employer-sponsored pension plan was 55 percent, or 43.3 million workers. Two-thirds of all covered workers, 35.5 million, were vested in a plan. Of these vested workers, about 29.8 million, or 84 percent, were eligible for future benefits, while the other 5.7 million were eligible for lump-sum distributions.

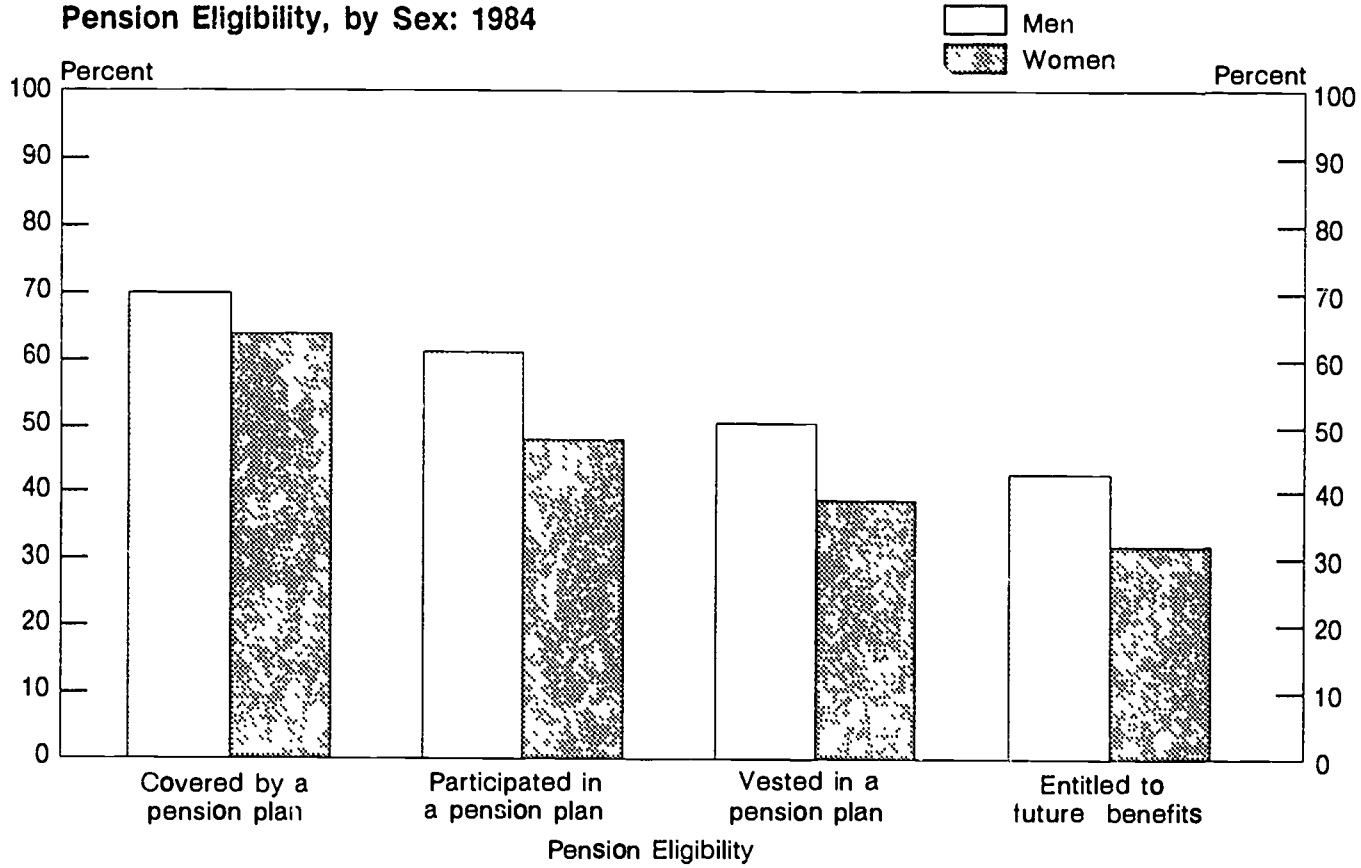
Pension coverage and vesting rates are considered by many to be the key indicators of pension eligibility. Pension coverage rates provide information on the proportion of workers who are potentially eligible for employer-provided pensions, while the vesting rate measures the proportion of workers currently eligible for nonforfeitable pension benefits. The following section contains estimates of coverage and vesting rates by worker characteristics.

Table A. Pension Eligibility—Wage and Salary Workers 25 Years and Over, by Sex: 1984

(Numbers in thousands)

Eligibility	Both sexes	Male	Female
All wage and salary workers	78,619	43,467	35,152
Covered by a pension plan	52,727	30,351	22,376
Percent of total workers	67.1	69.8	63.7
Participating in a pension plan	43,290	26,496	16,793
Percent of total workers	55.1	61.0	47.8
Vested in a plan	35,479	21,865	13,614
Percent of total workers	45.1	50.3	38.7
Entitled to future benefits	29,764	18,553	11,211
Percent of total workers	37.9	42.7	31.9
Entitled to lump-sum payments	5,715	3,312	2,403
Percent of total workers	7.3	7.6	6.8

Figure 1.
Pension Eligibility, by Sex: 1984



Pension Coverage and Vesting Rates by Worker Characteristics

Age. Pension eligibility is usually linked to the number of years of service on the job. Therefore, since younger workers are less likely to have the required work experience, age plays an important role in determining pension eligibility. Table B shows that only 29 percent of workers under 30 were vested in a pension plan. The vesting rate was 44 percent for workers between the ages of 30 and 39, 54 percent for those between the ages of 40 and 49, and 58 percent for those between the ages of 50 and 59. As would be expected, the age of a worker plays a larger role in pension vesting than in pension coverage. This is demonstrated by the fact that, while a worker 50 to 59 years old was more likely to be

Table B. Age—Wage and Salary Workers 25 Years and Over, by Pension Status: 1984

(Numbers in thousands)

Age	All workers	Covered by a pension plan		Vested in a pension plan		
		Number	Percent	Number	Percent of—	
					Covered workers	Total workers
Total	78,619	52,727	67.1	35,479	67.3	45.1
25 to 29 years	16,039	9,686	60.4	4,590	47.4	28.6
30 to 39 years	26,350	17,962	68.2	11,527	64.2	43.7
30 to 34 years	14,162	9,338	65.9	5,732	61.4	40.5
35 to 39 years	12,188	8,624	70.8	5,795	67.2	47.5
40 to 49 years	17,190	12,385	72.0	9,295	75.1	54.1
40 to 44 years	9,653	6,959	72.1	5,039	72.4	52.2
45 to 49 years	7,537	5,426	72.0	4,256	78.4	56.5
50 to 59 years	12,846	9,139	71.1	7,474	81.8	58.2
50 to 54 years	6,712	4,707	70.1	3,847	81.7	57.3
55 to 59 years	6,134	4,432	72.3	3,627	81.8	59.1
60 to 64 years	4,054	2,570	63.4	2,043	79.5	50.4
65 years and over	2,141	985	46.0	551	55.9	25.7

vested in a pension plan than a worker 40 to 49 years old, the pension coverage rates of workers in those two age groups were not significantly different from one another.

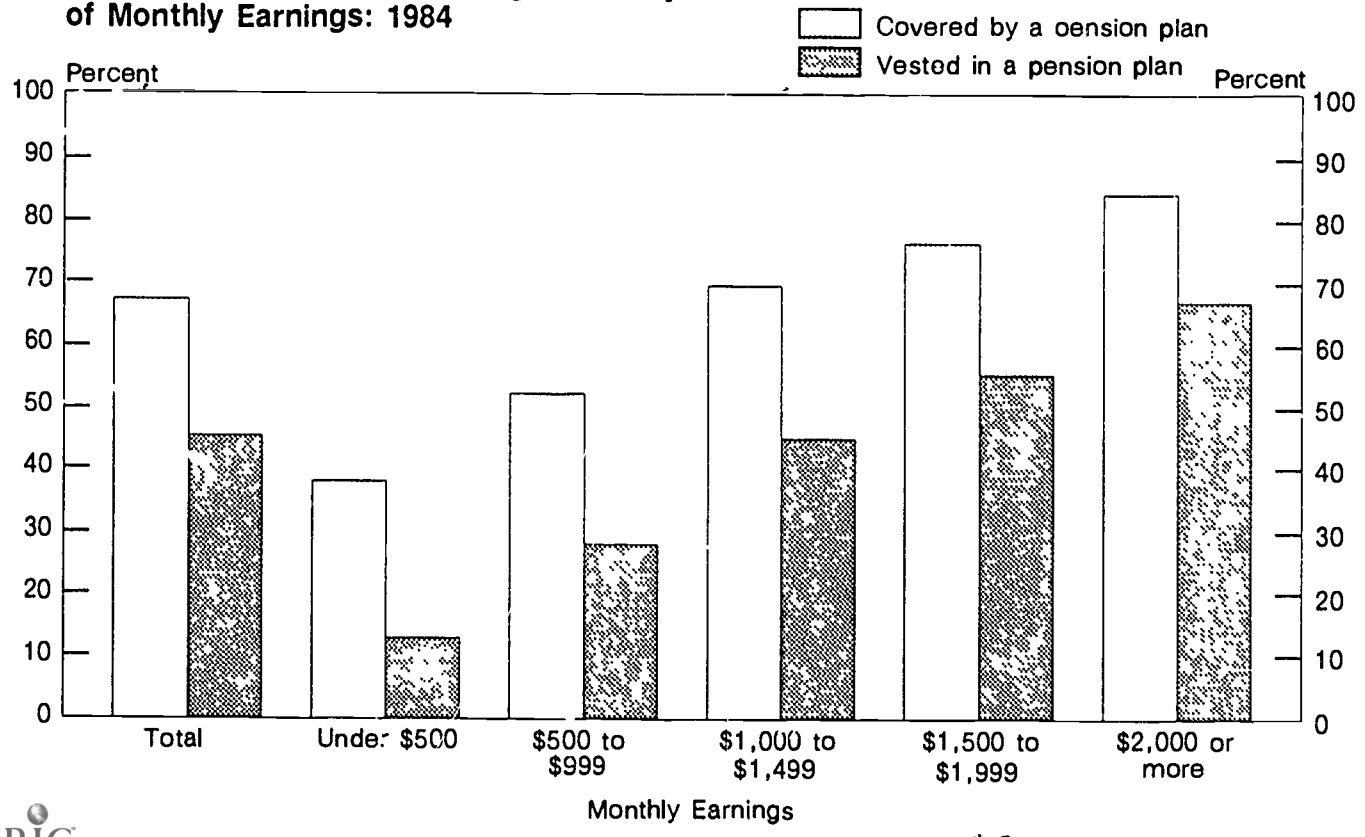
Level of earnings. The median monthly earnings of workers covered by an employer-sponsored pension plan ($1,590) was considerably higher than the median for uncovered workers ($950) (table C). Among work-

Table C. Level of Monthly Earnings—Wage and Salary Workers 25 Years and Over, by Pension Status: 1984
(Numbers in thousands)

Level of earnings	All workers	Covered by a pension plan		Vested in a pension plan			Not covered by a pension plan	
		Number	Percent	Number	Percent of— Covered workers	Percent of— Total workers	Number	Percent
Total	78,619	52,727	67.1	35,479	67.3	45.1	25,892	32.9
Under $500	9,535	3,601	37.8	1,217	33.8	12.8	5,934	62.2
$500 to $999	16,405	8,531	52.0	4,584	53.7	27.9	7,874	48.0
$1,000 to $1,499	18,002	12,486	69.4	8,060	64.6	44.8	5,516	30.6
$1,500 to $1,999	13,345	10,171	76.2	7,363	72.4	55.2	3,174	23.8
$2,000 or more	21,332	17,938	84.1	14,256	79.5	66.8	3,393	15.9
$2,000 to $2,499	9,300	7,791	83.8	6,104	78.3	65.6	1,509	16.2
$2,500 to $2,999	4,953	4,242	85.6	3,326	78.4	67.2	710	14.3
$3,000 to $3,499	2,916	2,450	84.0	2,013	82.2	69.0	466	16.0
$3,500 to $3,999	1,397	1,191	85.3	979	82.2	70.1	206	14.7
$4,000 and over	2,766	2,264	81.9	1,834	81.0	66.3	502	18.1
Median	$1,371	$1,586	(X)	$1,763	(X)	(X)	$945	(X)
Mean	$1,584	$1,789	(X)	$1,956	(X)	(X)	$1,168	(X)

X Not applicable.

Figure 2.
Pension Coverage and Vesting Rates, by Level of Monthly Earnings: 1984



ers with monthly earnings under $500, 62 percent were not covered by a pension plan. These workers accounted for 12 percent of the total working population and 23 percent of the total workers not covered by a plan. In contrast, workers with monthly earnings of $2,000 or more have a pension coverage rate of 84 percent (figure 2).

Industry. Pension coverage and vesting rates varied widely by industry (table D). Workers in the agricultural and personal service industries had the lowest pension coverage rates: only 22 percent of these workers were covered by an employer-sponsored pension plan. Workers in these industries also had a very low vesting rate of 13 percent. Other industries with relatively low (less than 50 percent) pension coverage rates included business and repair services and retail trade.

Nearly all, about 96 percent, of public administration workers were covered by employer-sponsored pensions. Within the public administration industry, Federal and State government workers appear to have somewhat higher pension coverage rates than workers employed by local governments. Among the other industries with relatively high (70 percent or more) pension coverage rates were public utilities, professional and related services, manufacturing, and mining.

Size of firm. There is a direct relationship between firm size and the rate of employee coverage by an employer-sponsored pension plan (table E). Employees of larger firms are far more likely to be covered or vested in a pension plan than employees of smaller firms. Pension coverage rates ranged from 25 percent in firms with less than 25 employees to 89 percent in firms with 1,000 or more employees (figure 3). The corresponding vesting rates ranged from 15 percent to 61 percent. While workers in firms with less than 25 employees account for only 22 percent of the working population, these firms employed one-half of the 25.9 million workers not covered by employer-sponsored pension plans.

IRA and 401(k) plan participation. Individual Retirement Accounts (IRA's) were first established in 1974 as a means of retirement savings for those not covered by a pension plan at work. Beginning in 1982, eligibility for IRA's was expanded to include all workers. As shown in table F, of the 78.6 million workers 25 years old or over, 16.3 million (21 percent) had an IRA. A large majority, 76 percent, of workers with IRA's were also covered by a pension plan at work. The IRA participation rate of those covered by employer-sponsored pension plans, 23 percent, was considerably higher than the 15-percent participation rate of those not covered by pension plans at work. It would appear that, with the liberalization of eligibility requirements, many wage and salary workers are using IRA's as a pension supplement rather than a primary source of future retirement income for wage and salary workers.

Table D. Industry—Wage and Salary Workers 25 Years and Over, by Pension Status: 1984

(Numbers in thousands)

Industry	All workers	Covered by a pension plan		Vested in a pension plan		
		Number	Percent	Number	Percent of— Covered workers	Percent of— Total workers
Total	78,619	52,727	67.1	35,479	67.3	45.1
Agriculture, forestry, and fisheries	1,173	239	20.4	152	63.6	13.0
Mining	679	490	72.2	332	67.8	48.9
Construction	4,078	2,042	50.1	1,472	72.1	36.1
Manufacturing, total	19,428	14,858	76.5	10,218	68.8	52.6
Durable goods	8,037	5,895	73.3	3,931	66.7	48.9
Nondurable goods	11,391	8,963	78.7	6,287	70.1	55.2
Transportation, communication, and other public utilities	6,029	4,730	78.5	3,575	75.6	59.3
Wholesale trade	3,465	2,018	58.2	1,398	69.3	40.3
Retail trade	9,755	4,475	45.9	2,435	54.4	25.0
Finance, insurance, and real estate	4,915	3,426	69.7	2,160	63.0	43.9
Business and repair services	3,130	1,198	38.3	684	57.1	21.9
Personal services	2,223	497	22.4	289	58.1	13.0
Entertainment and recreation services	585	238	40.7	157	66.0	26.8
Professional and related services	17,885	13,422	75.0	8,972	66.8	50.2
Public administration, total	4,630	4,450	96.1	3,443	77.4	74.4
Federal government	1,600	1,577	98.6	1,275	80.8	79.7
State government	1,254	1,224	97.6	978	79.9	78.0
Local government	1,777	1,649	92.8	1,190	72.2	67.0
Armed Forces	644	644	100.0	192	29.8	29.8

Table E. Size of Firm—Wage and Salary Workers 25 Years and Over, by Pension Status: 1984

(Numbers in thousands)

Size of firm	All workers	Covered by a pension plan		Vested in a pension plan		
		Number	Percent	Number	Percent of—	
					Covered workers	Total workers
Total	78,619	52,727	67.1	35,479	67.3	45.1
Under 25 employees	17,348	4,279	24.7	2,617	61.2	15.1
25 to 99 employees	10,075	5,008	49.7	3,379	67.5	33.5
100 to 499 employees	10,368	7,306	70.5	4,863	66.6	46.9
500 to 999 employees	5,045	4,128	81.8	2,813	68.1	55.8
1,000 employees or more	35,782	32,007	89.5	21,808	68.1	60.9

About 4.8 million workers, or 6 percent, participated in employer-sponsored thrift savings plans, known as 401(k) plans. This participation rate is low because most employers do not offer such plans. The participation rate among employees in firms that offer 401(k) plans was 56 percent. The number of workers participating in both IRA and 401(k) plans was 1.8 million, or about 2 percent of all workers.

Table F also shows that 72 percent of all workers were covered by an employer-sponsored pension plan, IRA, or 401(k) Plan. This figure is only slightly higher than the pension coverage rate of 67 percent, a further reflection of the fact that most IRA and 401(k) plan participants were also covered by pension plans at work.

As IRA's represent a way in which to defer current earnings in anticipation of future benefits, one of the important determinants of IRA participation is level of earnings. As shown in table G, the median monthly earnings of IRA participants, $1,890, and 401(k) plan participants, $2,110, was considerably higher than the $1,250 median of workers who did not participate in either of the two plans. The median monthly earnings of workers who participated in both IRA's and 401(k) plans

Figure 3.
Pension Coverage and Vesting Rates, by Size of Firm: 1984

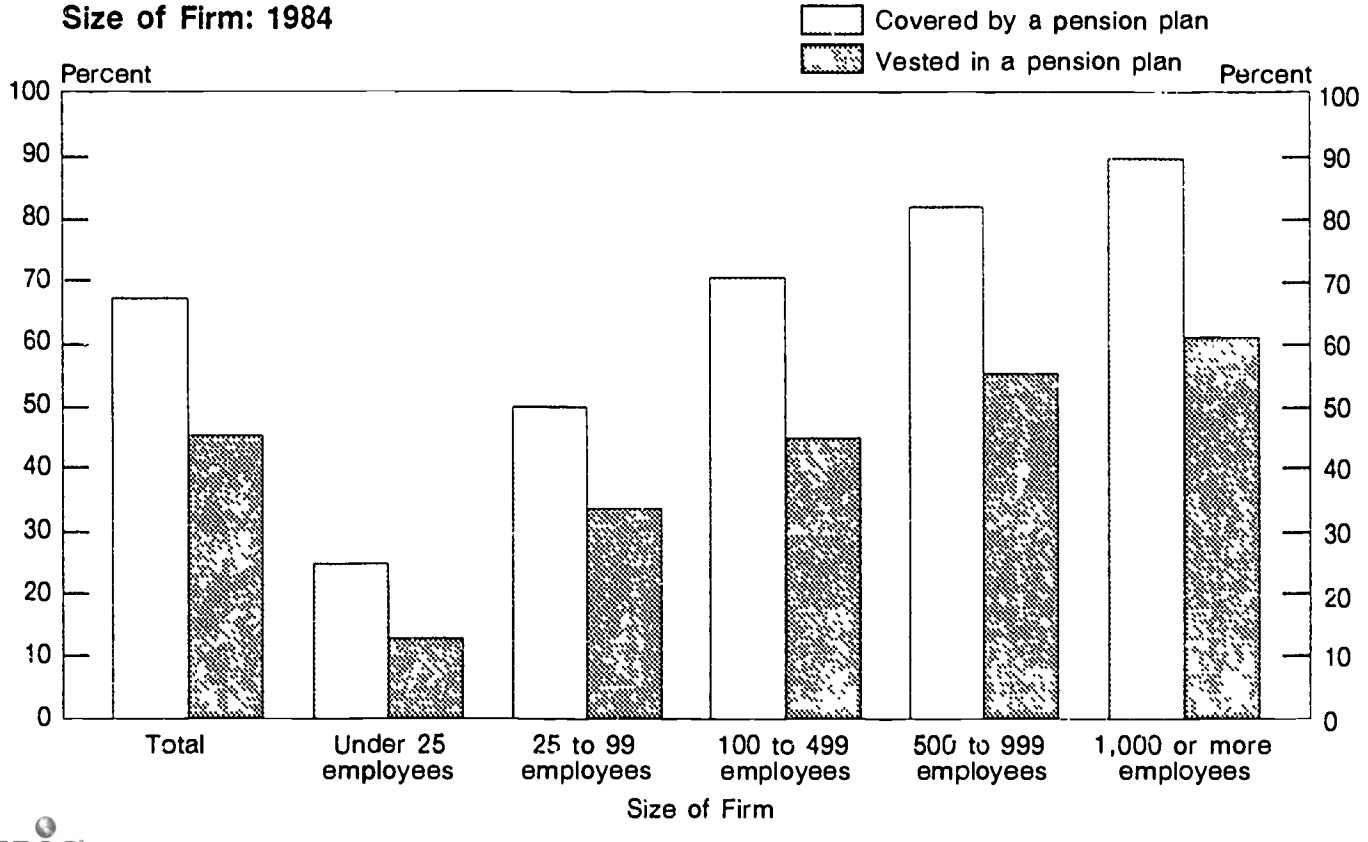


Table F. IRA and 401(k) Plan Participation—Wage and Salary Workers 25 Years and Over, by Pension Status and Sex: 1984

(Numbers in thousands)

Pension status and sex	All workers	With an IRA		With a 401(k) plan			With both plans		With neither plan	
					Percent of—					
		Number	Percent	Number	Total workers	Eligible workers	Number	Percent	Number	Percent
Total	78,619	16,264	20.7	4,826	6.1	55.5	1,762	2.2	59,291	75.4
Male	43,467	9,335	21.5	3,130	7.2	58.1	1,202	2.8	32,203	74.1
Female	35,152	6,928	19.7	1,696	4.8	51.4	561	1.6	27,088	77.1
Covered by a pension plan	52,727	12,340	23.4	4,826	9.2	55.5	1,762	3.3	37,323	70.8
Male	30,351	7,288	24.0	3,130	10.3	58.1	1,202	4.0	21,135	69.6
Female	22,376	5,052	22.6	1,696	7.6	51.4	561	2.5	16,188	72.3
Vested in a pension plan	35,479	9,527	26.9	4,253	12.0	56.7	1,571	4.4	23,270	65.6
Male	21,865	5,968	27.3	2,760	12.6	59.4	1,084	5.0	14,221	65.0
Female	13,614	3,559	26.1	1,492	11.0	52.4	487	3.6	9,049	66.5

Table G. IRA and 401(k) Plan Participation Rates—Wage and Salary Workers 25 Years and Over, by Level of Monthly Earnings: 1984

(Numbers in thousands)

Level of earnings	All workers	With an IRA		With a 401(k) plan			With both plans		With neither plan	
					Percent of—					
		Number	Percent	Number	Total workers	Eligible workers	Number	Percent	Number	Percent
Total	78,619	16,264	20.7	4,826	6.1	55.5	1,762	2.2	59,291	75.4
Under $1,000	25,940	3,071	11.8	526	2.0	48.3	132	0.5	22,476	86.6
$1,000 to $1,499	18,002	2,920	16.2	813	4.5	46.0	165	0.9	14,434	80.2
$1,500 to $1,999	13,345	2,724	20.4	902	6.8	51.4	290	2.2	10,010	75.0
$2,000 to $2,499	9,300	2,337	25.1	789	8.5	57.2	267	2.9	6,442	69.3
$2,500 to $2,999	4,953	1,694	34.2	505	10.2	56.5	183	3.7	2,936	59.3
$3,000 to $3,499	2,916	1,265	43.4	516	17.7	69.5	262	9.0	1,397	47.9
$3,500 to $3,999	1,397	674	48.2	248	17.8	67.6	133	9.5	607	43.5
$4,000 and over	2,766	1,580	57.1	527	19.1	76.2	330	11.9	989	35.8
Median	$1,371	$1,893	(X)	$2,109	(X)	(X)	$2,572	(X)	$1,248	(X)
Mean	$1,584	$2,214	(X)	$2,382	(X)	(X)	$2,879	(X)	$1,385	(X)

X Not applicable.

was $2,570. The IRA participation rate ranged from 12 percent for workers with earnings under $1,000 to 57 percent for workers with earnings of $4,000 or more (figure 4).

The data in table H demonstrate the relationship between size of firm and 401(k) plan participation and eligibility. Employees of firms with 1,000 or more employees were much more likely than employees of firms with less than 1,000 employees to be eligible for 401(k) plans. These larger firms employed 46 percent of all workers and 72 percent of the 4.8 million 401(k) plan participants.

RETIREMENT BENEFITS

Defining the Retirement Universe

The universe for the retirement-related questions on the fourth wave topical module consisted of all persons 25 years old and over who had retired from a job and received income during the reference period from either: 1) a company or union pension, 2) a Federal government employee pension, 3) a U.S. military pension, 4) a National Guard or Reserve pension, 5) a State govern-

Figure 4.
IRA Participation Rates, by Level of Monthly Earnings: 1984

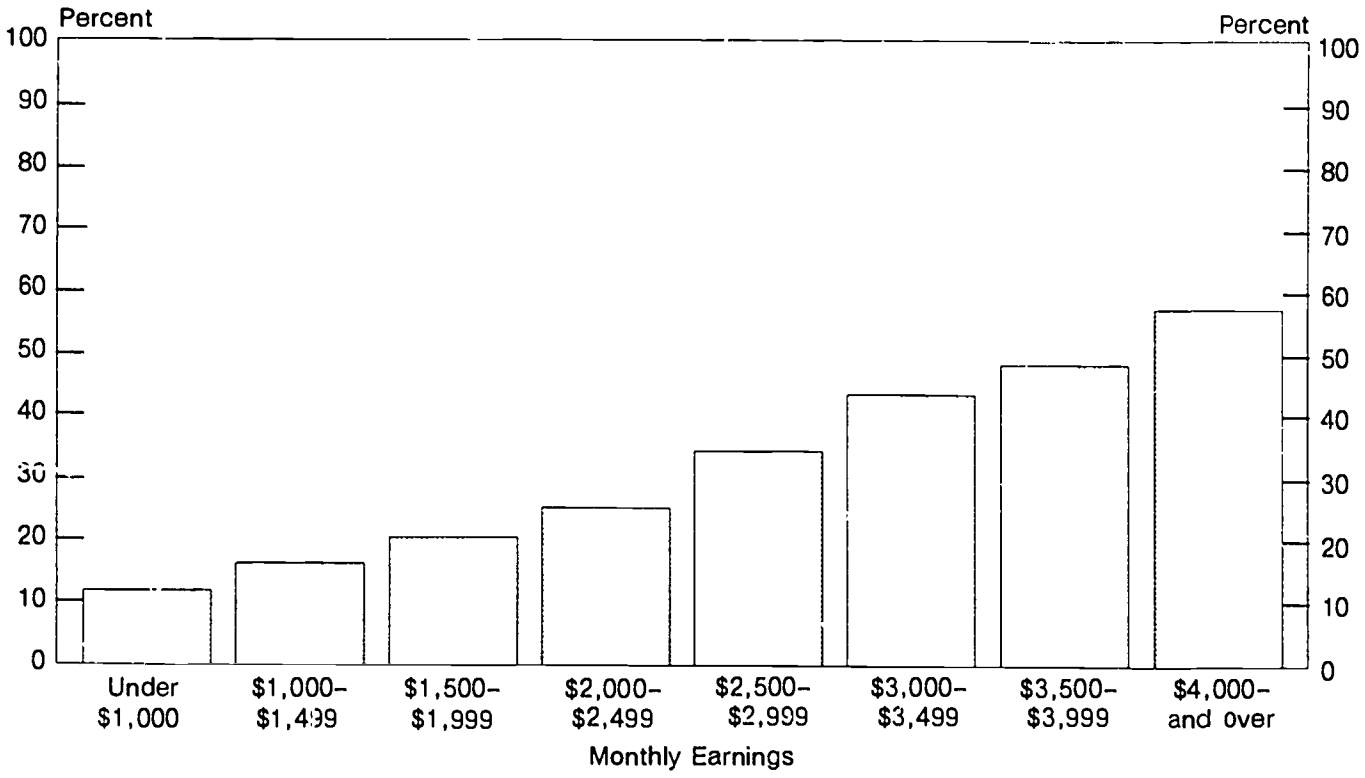


Table H. Participation and Eligibility Rates of 401(k) Plans—Wage and Salary Workers 25 Years and Over, by Size of Firm: 1984

(Numbers in thousands)

Size of firm	Total	Eligible for 401(k) plan		Participant in 401(k) plan		
		Number	Percent	Number	Percent of—	
					Total workers	Eligible workers
Total	78,619	8,688	11.1	4,826	6.1	55.5
Under 25 employees	17,348	467	2.7	271	1.6	58.0
25 to 99 employees	10,075	468	4.6	294	2.9	62.8
100 to 499 employees	10,368	819	7.9	485	4.7	59.2
500 to 999 employees	5,045	617	12.2	281	5.6	45.5
1,000 employees or more	35,782	6,318	17.7	3,495	9.8	55.3

ment employee pension, or 6) a local government employee pension. For the purpose of this study, the analysis was restricted to those retired individuals receiving pension income during August 1984 [2] Thus, the mean amounts shown in tables I through O refer to amounts received during this reference month. Although the universe for this study was restricted to pension recipients who had retired from a job, the amounts of pension income refer to pensions received both directly as a retiree and those that may be received as a survivor or dependent since it was not possible to identify these sources of pension income separately.

There were an estimated 11.5 million retirees receiving pension income in August 1984 according to the SIPP wave four topical module. The mean monthly income received by this group from retirement pensions

[2] August was chosen because it is the one month common to all rotation groups in the SIPP fourth wave. See appendix A for a more detailed description of the sample design.

was $570. Three-quarters of all retirement pension recipients, about 8.7 million retirees, also received Social Security payments, averaging $490. The combined mean Social Security and pension income of retirees, including those not receiving Social Security benefits, was $930.

The mean monthly total household income of the 11.5 million retirement pension recipients was $2,250. Thus, the combined amount received from Social Security and pension benefits, $930, represents about 41 percent of the total household income of retirement pension recipients. The remainder of total household income comes from a variety of sources, including: income received by household members other than retirees, and income received by retirees from sources other than pensions or Social Security benefits. Property income is particularly important as a source of income for those who have retired.

Characteristics of Retirees

Age. Two-thirds of all retirement pension recipients were 65 years old or over and 41 percent were age 70 or older (table I). About 15 percent were under age 60. The mean pension income of retirees in each of the age groups under age 65 was significantly higher than the mean for retirees 65 years old and over. Very few of the younger retirees received Social Security in addition to their pensions. This is not surprising since retirees cannot receive Social Security retirement benefits before the age of 62. Those under the age of 62, however, may receive Social Security survivor or disability benefits.

The mean pension income of retirees 70 years old and over was $410, about 29 percent lower than the average pension received by all retirees. The lower mean pension incomes of older retirees is probably a reflection of their lower levels of income before retirement.

Table I. Age and Sex of Retirement Pension Recipients—Mean Monthly Pension Income, Total Household Income, and Social Security Income: 1984

Sex and age		Pension income		Total household income		Social Security income			Pension and Social Security income	
	Number (thous.)	Mean	Standard error	Mean	Standard error	Number (thous.)	Mean	Standard error	Mean[1]	Standard error
Both Sexes										
Total	11,547	$568	$25	$2,251	$79	8,688	$487	$8	$934	$23
25 to 49 years	427	682	82	2,917	330	23	(B)	(B)	707	79
50 to 54 years	417	896	103	3,128	386	40	(B)	(B)	948	98
55 to 59 years	928	931	93	2,842	294	47	(B)	(B)	967	93
60 and 61 years	546	803	132	2,602	367	88	(B)	(B)	881	129
62 to 64 years	1,492	711	91	2,581	293	1,122	453	20	1,052	89
65 years and over	7,736	456	26	2,007	86	7,368	490	9	923	25
65 to 69 years	3,029	534	46	2,171	124	2,860	494	15	1,000	46
70 years and over	4,706	406	30	1,902	117	4,508	487	11	872	28
Male										
Total	7,671	670	34	2,408	99	5,359	518	10	1,032	31
25 to 49 years	392	714	84	2,962	348	9	(B)	(B)	724	82
50 to 54 years	365	930	111	3,255	389	31	(B)	(B)	979	107
55 to 59 years	758	1,050	103	2,976	349	39	(B)	(B)	1,082	100
60 to 61 years	363	943	173	2,520	438	27	(B)	(B)	988	170
62 to 64 years	1,018	834	126	2,776	359	739	488	25	1,188	120
65 years and over	4,775	530	37	2,120	112	4,514	521	11	1,023	35
65 to 69 years	1,933	639	65	2,281	167	1,792	538	18	1,138	62
70 years and over	2,842	455	43	2,011	149	2,722	511	14	945	40
Female										
Total	3,875	366	25	1,940	127	3,329	436	12	740	26
25 to 49 years	35	(B)	(B)	(B)	(B)	14	(B)	(B)	(B)	(B)
50 to 54 years	52	(B)	(B)	(B)	(B)	9	(B)	(B)	(B)	(B)
55 to 59 years	170	(B)	(B)	(B)	(B)	8	(B)	(B)	(B)	(B)
60 to 61 years	183	(B)	(B)	(B)	(B)	61	(B)	(B)	(B)	(B)
62 to 64 years	474	447	71	2,161	497	383	386	28	759	80
65 years and over	2,961	337	27	1,825	134	2,854	440	13	761	28
65 to 69 years	1,096	348	45	1,976	173	1,068	421	22	758	49
70 years and over	1,864	330	34	1,737	186	1,786	451	15	763	34

B Base less than 200,000.
[1]Based on all retirement pension recipients, including those not receiving Social Security income.

Age appears to play an extremely important role in determining levels of pension income received by retirees. In fact, many of the differences in average pension income that will be noted later in this report (current work status, for example) are at least partially attributable to differences in age distributions between retirees.

Sex. Two-thirds of those receiving retirement pensions were men. The mean pension income received by male retirees was $670, a significantly higher figure than the women's mean of $370. The proportion of retirees receiving Social Security benefits was higher for women than for men. This is a reflection of the fact that a larger proportion of women retirees were 65 years old or older than male retirees. The combined mean Social Security and pension income received by male retirees was $1,030, 39 percent higher than the women's mean of $740.

Years since retirement. One-third of those receiving retirement pensions retired less than 5 years prior to the survey. The mean monthly pension income of these retirees was $640, 21 percent higher than the mean of those who retired 5 years or more prior to the survey (table J). The higher pension incomes of recent retirees may be a reflection of their higher levels of earnings before retirement. Recent retirees also received more Social Security income, on average, than other retirees. The mean Social Security income for those who retired less than 5 years prior to the survey, $520, was 10 percent higher than the mean for those who retired 5 years or more prior to the survey.

Former industry. The data in table K show the relationship between former industry and level of retirement income. Those who retired from the Armed Forces and public administration had the highest mean pension incomes of any industry group. While the mean pension incomes of former Armed Forces members and public administration employees were substantially higher than the overall mean pension income of retirees from other industries, smaller proportions of Armed Forces retirees and public administration retirees received Social Security benefits than retirees of other industries. As a result, while the mean pension income of former Armed Forces members was 88 percent higher than the overall mean, the mean combined Social Security and pension income, $1,190, was 27 percent higher than the combined mean for all pension recipients. The same pattern is true for former public administration employees. Their mean combined pension income and Social Security income is much closer to the overall mean than their mean pension income.

The industry from which the largest number of pension recipients retired was manufacturing. Former employees of this industry accounted for 31 percent of all retirees. The mean pension income of these retirees was $400, 30 percent lower than the overall mean of $570. However, the proportion of manufacturing retirees that qualified for Social Security benefits was 87 percent—higher than the overall proportion of 75 percent. Their mean Social Security income was $530, 9 percent higher than the overall mean. Thus, the sum of Social Security and pension income of manufacturing retirees was $860, only 8 percent lower than the overall mean.

Marital status. About two-thirds of all retirement pension recipients were married. The mean pension income of married retirees was $630, not significantly different from the overall mean of all retirees (table L). However, the mean household income of married retirees was higher than the overall household mean. Eighteen percent of all retirement pension recipients were widowed. Their mean retirement income was $380, 34 percent lower than the overall mean. Sixty-nine percent of all widowed retirees were women. Widowed retirees were more likely to receive Social Security payments in addition to their pensions than other retirees: 93 percent of these widows received Social Security payments, com-

Table J. Years Since Retirement of Pension Recipients— Mean Monthly Pension Income, Total Household Income, and Social Security Income: 1984

Years since retirement	Number (thous.)	Pension income		Total household income		Social Security income			Pension and Social Security income	
		Mean	Standard error	Mean	Standard error	Number (thous.)	Mean	Standard error	Mean[1]	Standard error
Total	11,547	$568	$25	$2,251	$79	8,688	$487	$8	$934	$23
Under 5 years	3,832	643	42	2,330	131	2,438	520	17	974	41
5 years or more	7,714	530	30	2,211	98	6,250	473	9	914	28
5 to 9 years	3,279	508	46	2,138	143	2,593	494	15	899	42
10 to 14 years	2,503	551	53	2,287	184	2,084	463	16	937	50
15 years or more	1,932	541	60	2,238	196	1,573	452	15	909	56

[1]Based on all retirement pension recipients, including those not receiving Social Security income.

Table K. Former Industry of Retirement Pension Recipients —Mean Monthly Pension Income, Total Household Income, and Social Security Income: 1984

Industry	Number (thous.)	Pension income		Total household income		Social Security income			Pension and Social Security income	
		Mean	Standard error	Mean	Standard error	Number (thous.)	Mean	Standard error	Mean[1]	Standard error
Total	11,547	$568	$25	$2,251	$79	8,688	$487	$8	$934	$23
Agriculture, forestry, and fisheries	50	(B)	(B)	(B)	(B)	41	(B)	(B)	(B)	(B)
Mining	87	(B)	(B)	(B)	(B)	71	(B)	(B)	(B)	(B)
Construction	486	468	92	1,960	326	436	536	36	949	87
Manufacturing, total	3,602	395	37	1,962	139	3,123	532	11	856	36
Durable goods	1,255	318	45	1,882	177	1,161	518	18	798	49
Nondurable goods	2,348	436	50	2,005	191	1,962	540	15	887	49
Transportation, communication, and other public utilities	1,196	689	77	2,276	241	823	474	28	1,015	74
Wholesale trade	249	396	114	2,515	584	200	543	40	834	107
Retail trade	519	279	72	1,750	300	434	471	32	674	73
Finance, insurance, and real estate	382	365	129	1,782	257	345	517	36	832	138
Business and repair services	107	(B)	(B)	(B)	(B)	89	(B)	(B)	(B)	(B)
Personal services	68	(B)	(B)	(B)	(B)	58	(B)	(B)	(B)	(B)
Entertainment and recreation services	33	(B)	(B)	(B)	(B)	28	(B)	(B)	(B)	(B)
Professional and related services	2,208	493	43	2,194	171	1,816	450	18	863	44
Public administration, total	1,636	896	75	2,537	215	990	377	26	1,125	71
Federal government	790	1,113	116	2,543	257	438	279	30	1,268	111
State government	384	646	107	2,494	542	254	455	52	947	113
Local government	462	733	126	2,564	425	299	455	45	1,026	126
Armed Forces	924	1,067	103	3,549	311	232	471	43	1,186	109

B Base less than 200,000.
[1]Based on all retirement pension recipients, including those not receiving Social Security income.

Table L. Marital Status and Sex of Retirement Pension Recipients —Mean Monthly Pension Income, Total Household Income, and Social Security Income: 1984

Marital status and sex	Number (thous.)	Pension income		Total household income		Social Security income			Pension and Social Security income	
		Mean	Standard error	Mean	Standard error	Number (thous.)	Mean	Standard error	Mean[1]	Standard error
Both Sexes										
Total	11,547	$568	$25	$2,251	$79	8,688	$487	$8	$934	$23
Married	7,831	630	33	2,526	101	5,564	495	10	982	31
Divorced or separated	872	538	74	1,760	216	558	468	29	838	67
Widowed	2,059	375	36	1,511	116	1,915	467	17	809	37
Never married	785	481	63	1,994	348	651	486	28	885	61
Male										
Total	7,671	670	34	2,408	99	5,359	518	10	1,032	31
Married	6,277	700	39	2,526	112	4,319	526	11	1,062	36
Divorced or separated	509	659	107	2,028	331	256	491	43	906	101
Widowed	645	432	70	1,761	260	602	475	30	875	66
Never married	240	522	125	1,869	487	181	(B)	(B)	914	106
Female										
Total	3,875	366	25	1,940	127	3,329	436	12	740	26
Married	1,554	348	36	2,525	228	1,245	388	17	659	40
Divorced or separated	362	368	80	1,385	204	301	449	38	742	69
Widowed	1,414	349	41	1,397	119	1,313	464	21	779	45
Never married	545	463	71	2,049	453	470	474	31	872	74

B Base less than 200,000.
[1]Based on all retirement pension recipients, including those not receiving Social Security income.

pared with 71 percent of all other retirees. This higher rate of Social Security recipiency may reflect the survivor benefits received by this group.

Current work status. Of the 11.5 million retirees receiving pension income, 1.8 million, or 16 percent, worked at a wage or salary job during the reference month (table M). The mean pension income of working retirees, $730, was 37 percent higher than the mean pension income of the 9.7 million nonworking retirees. Two-thirds of the 1.8 million working retirees worked full time during the reference month. The mean pension income of these retirees, $830, was also substantially higher than the nonworkers' mean. The mean monthly total household income of working retirees was $3,140—50 percent higher than the mean household income of nonworking retirees.

As shown below, working retirees tend to be much younger than retirees who did not work during the reference month. Sixty-nine percent of all working retirees were under 65 years old, compared with 26 percent of nonworking retirees.

Work status	Total	Under age 65		Age 65 and over	
		Number (thous.)	Percent	Number (thous.)	Percent
All retirees	11,547	3,811	33.0	7,736	67.0
Working retirees	1,812	1,257	69.4	556	30.7
Nonworking retirees	9,734	2,554	26.2	7,180	73.8

Education. The mean pension income of retirees who were high school graduates ($550) was not significantly different from the overall mean for all retirees, while the mean for retirees with less than a high school education ($330) was 41 percent lower than the overall mean (table N). The mean pension income of those with 4 years or more of college ($950) was 68 percent higher than the overall mean pension income of all retirees.

Though there was no statistically significant difference in the mean Social Security income received by retirees of different educational attainment levels, a higher percentage of retirees with less than a high school education received Social Security benefits, 89 percent, than retirees in each of the other groups. As a result, while the mean pension income of these retirees was 41 percent lower than the overall mean, the sum of pension and Social Security income of retirees with less than a high school education was $760, 19 percent lower than the overall mean of $930.

There are two possible reasons for the similarity in mean Social Security income by educational level. First, Social Security retirement benefits replace a higher proportion of earnings for workers with lower incomes. Second, the restriction of the retirement universe in this study to those receiving pensions may tend to lessen the differences in Social Security benefits across educational levels.

Presence of a COLA (cost of living adjustment) provision. Of the 11.5 million retirement pension recipients, 6.7 million, or 58 percent, had pensions with COLA provisions. The mean pension income of these retirees was $700, 79 percent higher than the mean pension income of the 4.9 million retirees with no COLA provisions (table O). The mean combined pension and Social Security amount for retirees with COLA provisions was $1,010, 23 percent higher than the mean for retirees without COLA provisions. Those without COLA's were much more likely to receive Social Security benefits, and mean Social Security income was higher for retirees without COLA provisions than for those with COLA's. The mean household income of retirees with COLA provisions was $2,460, 25 percent higher than the mean for those without COLA provisions.

Table M. Current Work Status of Retirement Pension Recipients—Mean Monthly Pension Income, Total Household Income, and Social Security Income: 1984

Current work status	Number (thous.)	Pension income		Total household income		Social Security income			Pension and Social Security income	
		Mean	Standard error	Mean	Standard error	Number (thous.)	Mean	Standard error	Mean[1]	Standard error
Total	11,547	$568	$25	$2,251	$79	8,688	$487	$8	$934	$23
Worked[2]	1,812	734	36	3,135	105	585	498	18	895	34
Full time	1,174	832	46	3,682	136	158	(B)	(B)	901	46
Part time	639	553	50	2,131	112	428	494	19	884	46
Did not work	9,734	537	26	2,086	84	8,103	486	8	941	25

B Base less than 200,000.
[1]Based on all retirement pension recipients, including those not receiving Social Security income.
[2]Restricted to persons working at a wage or salary job.

Table N. Education of Retirement Pension Recipients —Mean Monthly Pension Income, Total Household Income, and Social Security Income: 1984

Educational attainment	Number (thous.)	Pension income		Total household income		Social Security income			Pension and Social Security income	
		Mean	Standard error	Mean	Standard error	Number (thous.)	Mean	Standard error	Mean[1]	Standard error
Total	11,547	$568	$25	$2,251	$79	8,688	$487	$8	$934	$23
Less than high school	3,956	333	22	1,635	75	3,520	481	11	761	22
High school graduate	3,695	546	34	2,139	124	2,588	483	15	885	32
College:										
1 to 3 years	1,627	649	70	2,445	191	1,124	499	25	994	68
4 years or more	2,268	954	80	3,368	259	1,455	496	22	1,273	76

[1]Based on all retirement pension recipients, including those not receiving Social Security income.

Table O. Presence of COLA Provision for Retirement Pension Recipients— Mean Monthly Pension Income, Total Household Income, and Social Security Income: 1984

Presence of provision	Number (thous.)	Pension income		Total household income		Social Security income			Pension and Social Security income	
		Mean	Standard error	Mean	Standard error	Number (thous.)	Mean	Standard error	Mean[1]	Standard error
Total	11,547	$568	$25	$2,251	$79	8,688	$487	$8	$934	$23
With COLA provision	6,689	698	34	2,460	113	4,642	456	12	1,014	32
With no COLA provision	4,858	389	31	1,963	102	4,046	522	11	823	31

[1]Based on all retirement pension recipients, including those not receiving Social Security income.

Appendix A. Overview of the SIPP Program

BACKGROUND

The Survey of Income and Program Participation (SIPP) provides a major expansion in the kind and amount of information available to analyze the economic situation of households and persons in the United States. The information supplied by this survey is expected to provide a better understanding of the level and changes in the level of well-being of the population and of how economic situations are related to the demographic and social characteristics of individuals. The data collected in SIPP will be especially useful in studying Federal transfer programs, estimating program cost and effectiveness, and assessing the effect of proposed changes in program regulations and benefit levels. Analysis of other important national issues such as tax reform, Social Security program costs, and national health insurance can be expanded and refined, based on the information from this new survey.

The first interviews in the SIPP took place in October 1983, nearly 8 years after the research and developmental phase, the Income Survey Development Program (ISDP), was initiated by the Department of Health, Education, and Welfare, in 1975. Between 1975 and 1980 extensive research was undertaken to design and test new procedures for collecting income and related socioeconomic data on a subannual basis and in a longitudinal framework. Much of the work centered around four experimental field tests that were conducted in collaboration with the Bureau of the Census to examine different concepts, procedures, questionnaires, and recall periods. Two of the tests were restricted to a small number of geographic sites; the other two were nationwide. In the first nationwide test, the 1978 Research Panel, approximately 2,000 households were interviewed. Because of the relatively small number of interviews, controlled experimental comparisons of alternatives were not possible; however, the panel did demonstrate that many new ideas and methods were feasible. It also laid a foundation for the largest and most complex test: the 1979 Research Panel. This panel consisted of a nationally representative sample of 8,200 households and provided a vehicle for feasibility tests and controlled experiments of alternative design features.

In the fall of 1981, virtually all funding for ISDP research and planning of the continuing SIPP program was deleted from the budget of the Social Security Administration. The loss of funding for fiscal year 1982 brought all work on the new survey to a halt. In fiscal year 1983, however, money for initiation of the new survey was allotted in the budget of the Bureau of the Census. Work began almost immediately in preparation for the survey start in October 1983. The design of the questionnaire for the first interview was similar in structure to that used in the 1979 ISDP panel study with two important exceptions. First, the reference period for the questions was extended from 3 months to 4 months in order to reduce the number of interviews and, therefore, lower costs. Second, the questions covering labor force activity were expanded in order to provide estimates that were closer, on a conceptual basis, to those derived from the Current Population Survey (CPS). The design also incorporated a number of other modifications resulting from experience with the 1979 pilot study.

SURVEY CONTENT

There are three basic elements contained in the overall design of the survey content. The first is a control card that serves several important functions. The control card is used to record basic social and demographic characteristics for each person in the household at the time of the initial interview. Because households are interviewed a total of 8 or 9 times, the card is also used to record changes in characteristics such as age, educational attainment, and marital status and to record the dates when persons enter or leave the household. Finally, during each interview, information on each source of income received and the name of each job or business is transcribed to the card so that this information can be used in the updating process in subsequent interviews.

The second major element of the survey content is the core portion of the questionnaire. The core questions are repeated at each interview and cover labor force activity, the types and amounts of income received during the 4-month reference period, and participation status in various programs. Some of the important elements of labor force activity are recorded separately for each week of the period. Income recipiency and amounts are recorded on a monthly basis with the exception of amounts of property

income (interest, dividends, rent, etc.). Data for these types are recorded as totals for the 4-month period. The core also contains questions covering attendance in postsecondary schools, private health insurance coverage, public or subsidized rental housing, low-income energy assistance, and school breakfast and lunch participation.

The third major element is the various supplements or topical modules that will be included during selected household visits. The topical modules cover areas that need not be examined every 4 months. Certain of these topical modules are considered to be so important that they are viewed as an integral part of the overall survey. Other topical modules have more specific and more limited purposes. No topical modules were included in the first or second waves of SIPP during the first year of the survey. (See the following section on sample design and table A-1 for a definition of the term "wave.")The third wave topical module covered (1) educational attainment, (2) work history, and (3) health characteristics (including disability). The fourth wave topical module covered (1) assets and liabilities, (2) pension plan coverage, and (3) housing characteristics. The fifth wave topical module covered (1) child care, (2) child support agreements, (3) support for nonhousehold members, (4) program participation history, and (5) reasons for not working. The sixth wave topical module covered (1) earnings and benefits, (2) property income and taxes, and (3) education and training.

SAMPLE DESIGN

The SIPP sample design for the 1984 panel consists of about 26,000 housing units selected to represent the noninstitutional population of the United States. (See appendix C for more details on the procedures used to select the sample.) About 20,900 of these were occupied and eligible for interview. Table A-1 shows the sample design for the first panel of SIPP. Each household in the sample was scheduled to be interviewed at 4-month intervals over a period of 2 1/2 years beginning in October 1983. The reference period for the questions is the 4-month period preceding the interview. For example, households interviewed in October 1983 were asked questions for the months June, July, August, and September. This household was interviewed again in February 1984 for the October through January period. The sample households within a given panel are divided into four subsamples of nearly equal size. These subsamples are called rotation groups and one rotation group is interviewed each month. In general, one cycle of four interviews covering the entire sample, using the same questionnaire, is called a wave. This design was chosen because it provides a smooth and steady work for data collection and processing.

A new panel of smaller size was introduced in February 1985 and has been introduced in February of each succeeding year. This overlapping design provides a larger sample size from which cross-sectional estimates can be made. The overlap also enhances the survey's ability to measure change by lowering the standard errors on differences between estimates for two points in time.

SURVEY OPERATIONS

Data collection operations are managed through the Census Bureau's 12 permanent regional offices. A staff of interviewers assigned to SIPP conduct interviews by personal visit each month with most interviewing completed during the first 2 weeks of that month. Completed questionnaires are transmitted to the regional offices where they undergo an extensive clerical edit before being entered into the Bureau's SIPP data processing system. Upon entering this processing system the data are subjected to a detailed computer edit. Errors identified in this phase are corrected and computer processing continues.

Two of the major steps of computer processing are the assignment of weights to each sample person and imputation for missing survey responses. The weighting procedures assure that SIPP estimates of the number of persons agree with independent estimates of the population within specified age, race, and sex categories. The procedures also assure close correspondence with monthly CPS estimates of households. In almost all cases, a survey nonresponse is assigned a value in the imputation phase of processing. The imputation for missing responses is based on procedures generally referred to as the "hot deck" approach. This approach assigns values for nonresponses from sample persons who did provide responses and who have characteristics similar to those of the nonrespondents.

The longitudinal design of SIPP dictates that all persons 15 years old and over present as household members at the time of the first interview be part of the survey throughout the entire 2-1/2 year period. To meet this goal, the survey collects information useful in locating persons who move. In addition, field procedures were established that allow for the transfer of sample cases between regional offices. Persons moving within a 100-mile radius of an original sampling area (a county or group of counties) are followed and continue with the normal personal interviews at 4-month intervals. Those moving to a new residence that falls outside the 100-mile radius of any SIPP sampling area are interviewed by telephone. The geographic areas defined by these rules contain more than 95 percent of the U.S. population.

Because most types of analysis using SIPP data will be dependent not on data for individuals but on groups of individuals (households, families, etc.), provisions were made to interview all "new" persons living with original sample persons (those interviewed in the first wave). These new sample persons entering the survey through contact with original sample persons are considered as part of the sample only while residing with the original sample person.

Table A-1. Design of First SIPP Panel

Rotation	Wave	Interview month	Reference months
1	1	Oct. 83	June, Juiy, Aug., Sept. (83)
2	1	Nov. 83	July, Aug., Sept., Oct. (83)
3	1	Dec. 83	Aug., Sept., Oct., Nov. (83)
4	1	Jan. 84	Sept., Oct., Nov., Dec. (83)
1	2	Feb. 84	Oct., Nov., Dec. (83), Jan. (84)
2	2	March 84	Nov., Dec. (83), Jan., Feb. (84)
3	2	April 84	Dec. (83), Jan., Feb., March (84)
4	3	May 84	Jan., Feb., March, April (84)
1	3	June 84	Feb., March, April, May (84)
2	3	July 84	March, April, May, June (84)
3	3	Aug. 84	April, May, June, July (84)
4	4	Sept. 84	May, June, July, Aug. (84)
1	4	Oct. 84	June, July, Aug., Sept. (84)
2	4	Nov. 84	July, Aug., Sept., Oct. (84)
3	4	Dec. 84	Aug., Sept., Oct., Nov. (84)
4	5	Jan. 85	Sept., Oct., Nov., Dec. (84)
1	5	Feb. 85	Oct., Nov., Dec. (84), Jan. (85)
2	5	March 85	Nov., Dec. (84), Jan., Feb. (85)
3	5	April 85	Dec. (84), Jan., Feb., March (85)
4	6	May 85	Jan., Feb., March, April (85)
1	6	June 85	Feb., March, April, May (85)
2	6	July 85	March, April, May, June (85)
3	6	Aug. 85	April, May, June, July (85)
4	7	Sept. 85	May, June, July, Aug. (85)
1	7	Oct. 85	June, July, Aug., Sept. (85)
2	7	Nov. 85	July, Aug., Sept., Oct. (85)
3	7	Dec. 85	Aug., Sept., Oct., Nov. (85)
4	8	Jan. 86	Sept., Oct., Nov., Dec. (85)
1	8	Feb. 86	Oct., Nov., Dec. (85), Jan. (86)
2	8	March 86	Nov., Dec. (85), Jan., Feb. (86)
3	8	April 86	Dec. (85), Jan., Feb., March (86)
4	9	May 86	Jan., Feb., March, April (86)
1	9	June 86	Feb., March, April, May (86)
2	9	July 86	March, April, May, June (86)
3	9	Aug. 86	April, May, June, July (86)

Appendix B. Definitions and Explanations

Population coverage. The estimates in this report are restricted to the civilian, noninstitutional population of the United States and members of the Armed Forces living off post or with their families on post.

Household. A household consists of all the persons who occupy a housing unit. A house, an apartment or other group of rooms, or a single room is regarded as a housing unit when it is occupied or intended for occupancy as separate living quarters; that is, when the occupants do not live and eat with any other persons in the structure and there is direct access from the outside or through a common hall.

For this report, the household composition was determined as of the interview date. A household includes the related family members and all the unrelated persons, if any, such as lodgers, foster children, wards, or employees who share the housing unit. A person living alone in a housing unit, or a group of unrelated persons sharing a housing unit as partners, is also counted as a household. The count of households excludes group quarters. Examples of group quarters include rooming and boarding houses, college dormitories, and convents and monasteries.

Size of firm. If a firm operates in only one location, size of firm refers to the number of persons employed at that location. If a firm operates in more than one location, size of firm refers to the total number of persons employed at all locations.

Full time and part time. The data on full- and part-time workers pertain to the number of hours a person usually worked per week. Persons who reported usually working 35 or more hours each week during the weeks they worked are classified as "full-time" workers, persons who reported that they usually worked fewer than 35 hours are classified as "part-time" workers.

Years of school completed. Data on years of school completed in this report were derived from the combination of answers to questions concerning the highest grade of school attended by the person and whether or not that grade was completed. The following categories used in this report are based on the number of years of school completed: not a high school graduate (less than 12 years); high school graduate (12 years); college, 1 to 3 years (13 through 15 years); and college, 4 or more years (16 or more years of school completed).

Industry. Data refer to the job currently held at the time of the interview. If two or more jobs were held, the industry shown in this report refers to the job in which the respondent worked the most hours.

Rounding of estimates. Individual numbers are rounded to the nearest thousand without being adjusted to group totals, which are independently rounded. Derived measures are based on unrounded numbers when possible; otherwise, they are based on the rounded numbers.

Pension eligibility. Data on employee-sponsored pension eligibility were obtained from persons interviewed in September through April 1985, who worked at a job at any time during the four months prior to interview. For respondents who worked at more than one job, the pension eligibility questions refer to the job in which the respondent worked the most hours.

Median income. The median income is the amount which divides the distribution into two equal groups, one having incomes above the median, and the other having incomes below the median.

Mean income. The mean income is the amount obtained by dividing the total income of a group by the number of units in that group.

Monthly household income. The monthly income estimates shown in this report for households are based on the sum of the monthly income received by each member of the household age 15 years old or over at the date of interview.

Monthly pension income. This refers to the total monthly income received from the following sources: 1) company or union pension, 2) Federal Civil Service pension, 3)U.S. military retirement, 4) National Guard or Reserve retirement, 5) State government retirement, or 6) local government retirement.

Monthly earnings. This refers to the total monthly income received from the following sources: 1) wages and salaries, 2) nonfarm self-employment, and 3) farm self-employment.

Monthly Social Security income. This includes Social Security pensions and survivors' benefits, and permanent disability insurance payments made by the Social Security Administration prior to deductions for medical insurance and railroad retirement insurance checks from the U.S. Government. Medicare reimbursements are not included.

Appendix C. Source and Reliability of Estimates

SOURCE OF DATA

The data were collect[illegible]n the fourth wave of the 1984 panel of the Su[illegible] Income and Program Participation (SIPP). The SIPP universe is the noninstitutionalized resident population of persons living in the United States.[1]

The 1984 panel SIPP sample is located in 174 areas comprising 450 counties (including one partial county) and independent cities. Within these areas, the bulk of the sample consisted of clusters of two to four living quarters (LQ's), systematically selected from lists of addresses prepared for the 1970 decennial census. The sample was updated to reflect new construction.

Approximately 26,000 living quarters were designated for the sample. For Wave 1, interviews were obtained from the occupants of about 19,900 of the designated living quarters. Most of the remaining 6,100 living quarters were found to be vacant, demolished, converted to nonresidential use, or otherwise ineligible for the survey. However, approximately 1,000 of the 6,100 living quarters were not interviewed because the occupants refused to be interviewed, could not be found at home, were temporarily absent, or were otherwise unavailable. Thus, occupants of about 95 percent of all eligible living quarters participated in Wave 1 of the survey.

For the subsequent waves, only original sample persons (those interviewed in the first wave) and persons living with them were eligible to be interviewed. With certain restrictions, original sample persons were to be followed if they moved to a new address. All noninterviewed households from Wave 1 were automatically designated as noninterviews for all subsequent waves. When original sample persons moved without leaving forwarding addresses or moved to extremely remote parts of the country, additional noninterviews resulted.

[1]The noninstitutionalized resident population includes persons living in group quarters, such as dormitories, rooming houses, and religious group dwellings. Crew members of merchant vessels, Armed Forces personnel living in military barracks, and institutionalized persons, such as correctional facility inmates and nursing home residents, were not eligible to be in the survey. Also, U.S. citizens residing abroad were not eligible to be in the survey. With these qualifications, persons who were at least 15 years of age at the time of interview were eligible to be interviewed.

Noninterviews. Tabulations in this report were drawn from interviews conducted from September through December 1984. Table C-1 summarizes information on nonresponse for the interview months in which the data used to produce this report were collected.

Some respondents do not respond to some of the questions. Therefore, the overall nonresponse rate for some items such as income and other money-related items is higher than the nonresponse rates in table C-1. The Bureau has used complex techniques to handle nonresponse, but the success of these techniques in avoiding bias is unknown.

Estimation. The estimation procedure used to derive SIPP person weights involved several stages of weight adjustments. In the first wave, each person received a base weight equal to the inverse of his/her probability of selection. For each subsequent interview, each person received a base weight that accounted for following movers.

A noninterview adjustment factor was applied to the weight of every occupant of interviewed households to account for persons in noninterviewed occupied households which were eligible for the sample. (Individual nonresponse within partially interviewed households was treated with imputation. No special adjustment was made for noninterviews in group quarters.) A factor was applied to each interviewed person's weight to account for the SIPP sample areas not having the same population distribution as the strata from which they were selected.

Table C-1. Sample Size, by Month and Interview Status

Month	Household units eligible			
	Total	Interviewed	Not interviewed	Nonresponse rate
September 1984	5,600	4,800	800	*14
October 1984	5,600	4,800	800	15
November 1984	5,600	4,700	900	15
December 1984	5,600	4,700	900	17

*Due to rounding of all numbers at 100, there are some inconsistencies. The percentage was calculated using unrounded numbers.

An additional stage of adjustment to person weights was performed to bring the sample estimates into agreement with independent monthly estimates of the civilian (and some military) noninstitutional population of the United States by age, race, and sex. These independent estimates were based on statistics from the 1980 Census of Population; statistics on births, deaths, immigration, and emigration; and statistics on the strength of the Armed Forces. To increase accuracy, weights were further adjusted in such a manner that SIPP sample estimates would closely agree with special Current Population Survey (CPS) estimates by type of householder (married, single with relatives or single without relatives by sex and race) and relationship to householder (spouse or other).[2] The estimation procedure for the data in the report also involved an adjustment so that the husband and wife of a household received the same weight.

RELIABILITY OF ESTIMATES

SIPP estimates in this report are based on a sample; they may differ somewhat from the figures that would have been obtained if a complete census had been taken using the same questionnaire, instructions, and enumerators. There are two types of errors possible in an estimate based on a sample survey: nonsampling and sampling. The magnitude of SIPP sampling error can be estimated, but this is not true of nonsampling error. Found below are descriptions of sources of SIPP nonsampling error, followed by a discussion of sampling error, its estimation, and its use in data analyses.

Nonsampling variability. Nonsampling errors can be attributed to many sources, e.g., inability to obtain information about all cases in the sample, definitional difficulties, differences in the interpretation of questions, inability or unwillingness on the part of the respondents to provide correct information, inability to recall information, errors made in collection such as in recording or coding the data, errors made in processing the data, errors made in estimating values for missing data, biases resulting from the differing recall periods caused by the rotation pattern and failure to represent all units within the universe (undercoverage). Quality control and edit procedures were used to reduce errors made by respondents, coders, and interviewers.

Undercoverage in SIPP results from missed living quarters and missed persons within sample households. It is known that undercoverage varies with age, race, and sex. Generally, undercoverage is larger for males than for females and larger for Blacks than for non-Blacks. Ratio estimation to independent age-race-sex population controls partially corrects for the bias due to survey undercoverage. However, biases exist in the estimates to the extent that persons in missed households or missed persons in interviewed households have different characteristics than interviewed persons in the same age-race-sex group. Further, the independent population controls used have not been adjusted for undercoverage in the decennial census.

Comparability with other statistics. Caution should be exercised when comparing data from this report with data from earlier SIPP publications or with data from other surveys. The comparability problems are caused by sources such as the seasonal patterns for many characteristics, definitional differences, and different nonsampling errors.

Sampling variability. Standard errors indicate the magnitude of the sampling error. They also partially measure the effect of some nonsampling errors in response and enumeration, but do not measure any systematic biases in the data. The standard errors for the most part measure the variations that occurred by chance because a sample rather than the entire population was surveyed.

The sample estimate and its standard error enable one to construct confidence intervals, ranges that would include the average result of all possible samples with a known probability. For example, if all possible samples were selected, each of these being surveyed under essentially the same conditions and using the same sample design, and if an estimate and its standard error were calculated from each sample, then approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average result of all possible samples.

The average estimate derived from all possible samples is or is not contained in any particular computed interval. However, for a particular sample, one can say with a specified confidence that the average estimate derived from all possible samples is included in the confidence interval.

Standard errors may also be used for hypothesis testing, a procedure for distinguishing between population parameters using sample estimates. The most common types of hypotheses tested are 1) the population parameters are identical versus 2) they are different. Tests may be performed at various levels of significance, where a level of significance is the probability of concluding that the parameters are different when, in fact, they are identical.

All statements of comparison in the report have passed a hypothesis test at the 0.10 level of significance or better. This means that, for differences cited in

[2]These special CPS estimates are slightly different from the published monthly CPS estimates. The differences arise from forcing counts of husbands to agree with counts of wives.

Table C-2. Distribution of Monthly Earnings Among Wage and Salary Workers 25 Years and Over

Monthly earnings	Number (thous.)	Percent with at least as much as lower bound of interval
Total	52,727	(X)
Under $500	3,601	100.0
$500 to $999	18,531	93.2
$1,000 to $1,499	12,486	77.0
$1,500 to $1,999	10,171	53.3
$2,000 to $2,499	7,791	34.0
$2,500 to $2,999	4,242	19.2
$3,000 to $3,499	2,450	11.2
$3,500 to $3,999	1,191	6.6
$4,000 and over	2,264	4.3

X Not applicable.

the report, the estimated absolute difference between parameters is greater than 1.6 times the standard error of the difference.

Note when using small estimates. Summary measures (such as means, medians, and percent distributions) are shown in the report only when the base is 200,000 or greater. Because of the large standard errors involved, there is little chance that summary measures would reveal useful information when computed on a smaller base. Estimated numbers are shown, however, even though the relative standard errors of these numbers are larger than those for the corresponding percentages. These smaller estimates are provided primarily to permit such combinations of the categories as serve each user's needs. Also, care must be taken in the interpretation of small differences. For instance, in case of a borderline difference, even a small amount of nonsampling error can lead to a wrong decision about the hypotheses, thus distorting a seemingly valid hypothesis test.

Standard error parameters and tables and their use. To derive standard errors that would be applicable to a wide variety of statistics and could be prepared at a moderate cost, a number of approximations were required. Most of the SIPP statistics have greater variance than those obtained through a simple random sample of the same size because clusters of living quarters are sampled for SIPP. Two parameters (denoted "a" and "b") were developed to calculate variances for each type of characteristic.

The "a" and "b" parameters vary by subgroup. Table C-5 provides "a" and "b" parameters for characteristics of interest in this report. The "a" and "b" parameters may be used to directly calculate the standard error for estimated numbers and percentages. Because the actual variance behavior was not identical for all statistics within a group, the standard errors computed from parameters provide an indication of the order of magnitude of the standard error for any specific statisti .

For those users who wish further simplification, we have also provided general standard errors in tables C-3 and C-4. Note that these standard errors must be adjusted by a factor from table C-5. The standard errors resulting from this simplified approach are less accurate. Methods for using these parameters and tables for computation of standard errors are given in the following sections.

Standard errors of estimated numbers. The approximate standard error, S_x, of an estimated number of persons shown in this report can be obtained in two ways. Note that neither method should be applied to dollar values. It may be obtained by use of the formula

$$S_x = fs \qquad (1)$$

where f is the appropriate factor from table C-5, and s is the standard error on the estimate obtained by interpolation from table C-3. Alternatively, S_x may be approximated by the formula,

$$S_x = \sqrt{ax^2 + bx} \qquad (2)$$

from which the standard errors in table C-3 were calculated. Use of this formula will provide more accurate results than the use of formula (1) above. Here x is the size of the estimate and "a" and "b" are the parameters associated with the particular type of characteristic being estimated.

Illustration. SIPP estimates given in text table C show that there were 12,486,000 workers covered by a pension plan with monthly earnings in the range of $1,000 to $1,499. The appropriate parameters and factor from table C-5 and the appropriate general standard error from table C-3 are

$$a = -.0000588,\ b = 10{,}027,\ f = .71,\ s = 484{,}000$$

Table C-3. Standard Errors of Estimated Numbers of Persons

(Numbers in thousands)

Size of estimate	Standard error[1]	Size of estimate	Standard error[1]
200	63	30,000	721
300	77	50,000	883
600	109	80,000	1,020
1,000	141	100,000	1,062
2,000	199	130,000	1,062
5,000	312	135,000	1,055
8,000	392	150,000	1,021
11,000	457	160,000	987
13,000	494	180,000	886
15,000	528	200,000	725
17,000	560	210,000	609
22,000	629	220,000	446
26,000	678		

[1]These values must be multiplied by the appropriate factor in table C-5 to obtain the correct standard error.

Using formula (1), the approximate standard error is

$$S_x = .71 \times 484{,}000 = 344{,}000$$

Using formula (2), the approximate standard error is

$$\sqrt{(-.0000588)(12{,}486{,}000)^2 + (10{,}027)(12{,}486{,}000)} = 341{,}000$$

Using the standard error based on formula (2), the approximate 90-percent confidence interval as shown by the data is from 11,940,000 to 13,032,000.

Standard error of a mean. A mean is defined here to be the average quantity of some item per person. For example, we may discuss the mean monthly earnings level of wage and salary workers. Standard errors are usually provided in the detailed tables for all displayed means. However, if the reader desires to calculate standard errors on means for collapsed groups, formula (3) may be used. Because of the approximations used in developing formula (3), an estimate of the standard error of a mean obtained from this formula will generally underestimate the true standard error. Let y be the size of the base, S^2 be the estimated population variance of the item and b be the parameter associated with the particular type of item.

The standard error of a mean is:

$$S_{\bar{x}} = \sqrt{(b/y)\, S^2} \qquad (3)$$

The estimated population variance, S^2, is given by

$$S^2 = \sum_{i=1}^{c} p_i x_i^2 - \bar{x}^2 \qquad (4)$$

Where

$$\bar{x} = \sum_{i=1}^{c} p_i x_i \qquad (5)$$

each sample unit falls in one of c groups; p_1 is the estimated proportion of group i; $x_1 = (Z_{1-1} + Z_1)/2$ where Z_{1-1} and Z_1 are the lower and upper interval boundaries, respectively, for group i. x_1 is assumed to be the most representative value for the characteristics of interest in group i. If group c is open-ended, i.e., no upper interval boundary exists, then an approximate average value of x_c is

$$x_c = \frac{3}{2} Z_{c-1} \qquad (6)$$

Illustration. The distribution of monthly earnings levels of wage and salary workers is given in text table C. Using formulas (4), (5), (6), and the mean monthly earnings amount of $1 584, the approximate population variance for all workers, S^2, is

$$S^2 = \left(\frac{9{,}535}{78{,}619}\right)(250)^2 + \left(\frac{16{,}405}{78{,}619}\right)(750)^2 + \ldots. +$$

$$\left(\frac{2{,}766}{78{,}619}\right)(6{,}000)^2 - (1{,}584)^2 = 1{,}477{,}014$$

Using formula (3) the estimated standard error of a mean x is

$$S_{\bar{x}} = \sqrt{\left(\frac{5{,}475}{78{,}619{,}000}\right)(1{,}477{,}014)} = \$103$$

Table C-4. Standard Errors of Estimated Percentages of Persons

Base of estimated percentage (thousands)	Estimated percentage[1]					
	1 or 99	2 or 98	5 or 95	10 or 90	25 or 75	50
200	3.1	4.4	6.9	9.5	13.7	15.?
300	2.6	3.6	5.6	7.7	11.2	12.(
600	1.8	2.6	4.0	5.5	7.9	9.1
1,000	1.4	2.0	3.1	4.2	6.1	7.1
2,000	1.0	1.4	2.2	3.0	4.3	5.0
5,000	0.6	0.9	1.4	1.9	2.7	3.2
8,000	0.5	0.7	1.1	1.5	2.2	2.5
11,000	0.4	0.6	0.9	1.3	1.8	2.1
13,000	0.4	0.5	0.8	1.2	1.7	2.0
17,000	0.34	0.5	0.7	1.0	1.5	1.7
22,000	0.29	0.4	0.7	0.9	1.3	1.5
26,000	0.28	0.4	0.6	0.8	1.2	1.4
30,000	0.26	0.4	0.6	0.8	1.1	1.3
50,000	0.20	0.3	0.4	0.6	0.9	1.0
80,000	0.16	0.2	0.3	0.5	0.7	0.8
100,000	0.14	0.2	0.3	0.4	0.6	0.7
130,000	0.12	0.17	0.3	0.4	0.5	0.6
220,000	0.10	0.13	0.2	0.3	0.4	0.5

[1]These values must be multiplied by the appropriate factor in table C-5 to obtain the correct standard error.

Table C-5. SIPP Generalized Variance Parameters

Characteristic	Parameters		f factor
	a	b	
ALL RACES OR WHITE			
16 Years and Over			
Program participation and benefits (3)			
Both sexes	-0.0000943	16,059	0.90
Male	-0.0001984	16,059	0.90
Female	-0.0001796	16,059	0.90
Income and labor force (5)			
Both sexes	-0.0000321	5,475	0.52
Male	-0.0000677	5,475	0.52
Female	-0.0000612	5,475	0.52
Pension coverage[1] (4)			
Both sexes	-0.0000588	10,027	0.71
Male	-0.0001240	10,027	0.71
Female	-0.0001121	10,027	0.71
All Others[1] (6)			
Both sexes	-0.0000864	19,911	1.00
Male	-0.0001786	19,911	1.00
Female	-0.0001672	19,911	1.00
BLACK			
Poverty (1)			
Both sexes	-0.0004930	13,698	0.83
Male	-0.0010522	13,698	0.83
Female	-0.0009274	13,698	0.83
All Others (2)			
Both sexes	-0.0002670	7,366	0.61
Male	-0.0005737	7,366	0.61
Female	-0.0004933	7,366	0.61

[1]Use the "16 years and over" "Pension Plan" parameters for pension plan tabulations of persons 16 years and over in the labor force. Use the "All Others" parameters for retirement tabulations, 0+ program participation, 0+ benefits, 0+ income, and 0+ labor force tabulations, in addition to any other types of tabulations not specifically covered by another characteristic in this table.

Note: For cross-tabulations, use the parameters of the characteristics with the smaller number within the parentheses.

Standard errors of estimated percentages. The reliability of an estimated percentage, computed using sample data for both numerator and denominator, depends upon both the size of the percentage and the size of the total upon which the percentage is based. When the numerator and denominator of the percentage have different parameters, use the parameter (and appropriate factor) of the numerator.

The type of percentage presented in this report is the percentage of persons sharing a particular characteristic such as the percent of workers covered by a pension plan.

For the percentage of persons, the approximate standard error, $S_{(x,p)}$, of the estimated percentage p can be obtained by the formula

$$S_{(x,p)} = f_s \qquad (7)$$

In this formula, f is the appropriate "f" factor from table C-5 and s is the standard error on the estimate from table C-4. Alternatively, it may be approximated by the formula

$$S_{(x,p)} = \sqrt{(b/x)\ (p)\ (100-p)} \qquad (8)$$

from which the standard errors in table C-4 were calculated. Use of this formula will give more accurate results than use of formula (7) above. Here x is the size of the subclass of persons which is the base of the percentage, p is the percentage ($0<p<100$) and b is the parameter associated with the characteristic in the numerator.

Illustration. Text table C shows that 69.4 percent of workers covered by a pension plan had a monthly earnings level of $1,000 to $1,499. Using formula (7) with the factor from table C-5 and the appropriate

standard error from table C-4, the approximate standard error is

$$S_{(x,p)} = 0.71 \times 1.5\% = 1.1\%$$

Using formula (8) with the "b" parameter from table C-5, the approximate standard error is

$$S_{(x-p)} = \sqrt{\frac{10{,}027}{18{,}002{,}000}\, 69.4\%\ (100\% - 69.4\%)} = 1.1\%$$

Consequently, the approximate 90-percent confidence interval as shown by these data is from 67.6 to 71.2 percent.

Standard error of a difference within this report. The standard error of a difference between two sample estimates is approximately equal to

$$S_{(x-y)} = \sqrt{S^2_x + S^2_y} \qquad (9)$$

where S_x and S_y are the standard errors of the estimates x and y.

The estimates can be numbers, percents, ratios, etc. The above formula assumes that the sample correlation coefficient, r, between the two estimates is zero. If r is really positive (negative), then this assumption will lead to overestimates (underestimates) of the true standard error.

Illustration. Again, using text table C, 69.4 percent of workers with a monthly earnings level of $1,000 to $1,499 were covered by a pension plan and 76.2 percent of workers with a monthly earnings level of $1,500 to $1,999 were covered in the same manner. The standard errors for these percentages are computed using formula (8), to be 1.1 percent and 1.2 percent. Assuming that these two estimates are not correlated, the standard error of the estimated difference of 6.8 percentage points is

$$S_{(x-y)} = \sqrt{(1.1\%)^2 + (1.2\%)^2} = 1.6\%$$

The approximate 90-percent confidence interval is from 4.2 to 9.4 percentage points. Since this interval does not contain zero, we conclude that the difference is significant at the 10-percent level.

Standard error of a median. The median quantity of some item such as income for a given group of persons is that quantity such that at least half the group have as much or more and at least half the group have as much or less. The sampling variability of an estimated median depends upon the form of the distribution of the item as well as the size of the group. To calculate standard errors on medians, the procedure described below may be used.

An approximate method for measuring the reliability of an estimated median is to determine a confidence interval about it. (See the section on sampling variability for a general discussion of confidence intervals.) The following procedure may be used to estimate the 68-percent confidence limits and hence the standard error of a median based on sample data.

1. Determine, using either formula (7) or formula (8), the standard error of an estimate of 50 percent of the group;
2. Add to and subtract from 50 percent the standard error determined in step 1.
3. Using the distribution of the item within the group, calculate the quantity of the item such that the percent of the group owning more is equal to the smaller percentage found in step 2. This quantity will be the upper limit for the 68-percent confidence interval. In a similar fashion, calculate the quantity of the item such that the percent of the group owning more is equal to the larger percentage found in step 2. This quantity will be the lower limit for the 68-percent confidence interval;
4. Divide the difference between the two quantities determined in step 3 by two to obtain the standard error of the median.

To perform step 3, it will be necessary to interpolate. Different methods of interpolation may be used. The most common are simple linear interpolation and Pareto interpolation. The appropriateness of the method depends on the form of the distribution around the median. If density is declining in the area, then we recommend Pareto interpolation. If density is fairly constant in the area, then we recommend linear interpolation. Note, however, that Pareto interpolation can never be used if the interval contains zero or negative measures of the item of interest. Interpolation is used as follows. The quantity of the item such that "p" percent own more is

$$\text{Pareto: } X_{pN} = \exp\left[\frac{\text{Ln}\,(pN/N_1)}{\text{Ln}\,(N_2/N_1)}\ \text{Ln}\,(A_2/A_1)\right] A_1 \qquad (10)$$

if Pareto interpolation is indicated and

$$\text{Linear: } X_{pN} = \frac{pN - N_1}{N_2 - N_1}\ (A_2 - A_1) + A_1 \qquad (11)$$

if linear interpolation is indicated, where N is the size of the group,
A_1 and A_2 are the lower and upper bounds, respectively, of the interval in which X_{pN} falls,
N_1 and N_2 are the estimated number of group members owning more than A_1 and A_2, respectively,
exp refers to the exponential function, and
Ln refers to the natural logarithm function.

Illustration. Again using text table C the median monthly earnings amount of workers covered by a pension plan was $1,586. The size of this group of workers was 52,727,000.

1. Using formula (8), the standard error of 50 percent on a base of 52,727,000 is about 0.7 percentage points.
2. Following step 2, the two percentages of interest are 49.3 and 50.7.
3. By examining table C-2, we see that the percentage 49.3 falls in the income interval from $1,500 to $1,999. (Since 53.3 percent receive more than $1,499 per month, but only 34.0 percent receive more than $1,999 per month, the quantity that exactly 49.3 percent receive more than must be between $1,500 and $1,999.) Thus A_1 = $1,500, A_2 = $1,999, N_1 = 28,109,000, and N_2 = 17,938,000. In this case, we decided to use Pareto interpolation.

Therefore, the upper bound of a 68-percent confidence interval for the median is

$$\exp\left[\left(\ln\left(\frac{(.493)(52,727,000)}{28,109,000}\right)\Big/\ln\left(\frac{17,938,000}{28,109,000}\right)\right)\ln\left(\frac{1999}{1500}\right)\right]$$

(1,500) = $1,577

Also by examining table C-2, we see that the percentage of 50.7 falls in the income interval from $1,500 to $1,999. Thus, A_1 = $1,500, A_2 = $1,999, N_1 = 28,109,000, and N_2 = 17,938,000. We also decided to use Pareto interpolation for this case. So the lower bound of a 68-percent confidence interval for the median is

$$\exp\left[\left(\ln\left(\frac{(.507)(52,727,000)}{28,109,000}\right)\Big/\ln\left(\frac{17,938,000}{28,109,000}\right)\right)\ln\left(\frac{1999}{1500}\right)\right]$$

(1500) = $1549

Thus, the 68-percent confidence interval on the estimated median is from $1,549 to $1,577. An approximate standard error is

$$\frac{\$1,577 - \$1,549}{2} = \$14$$

Standard errors of ratios of means and medians. The standard error for a ratio of means or medians is approximated by:

$$S_{x/y} = \sqrt{\left(\frac{x}{y}\right)^2\left[\left(\frac{S_y}{y}\right)^2 + \left(\frac{S_x}{x}\right)^2\right]} \qquad (12)$$

where x and y are the means or medians, and S_x and S_y are their associated standard errors. Formula (12) assumes that the means or medians are not correlated. If the correlation between the two means or medians is actually positive (negative), then this procedure will provide an overestimate (underestimate) of the standard error for the ratio of means and medians.

Appendix D. Facsimile of SIPP 1984 Wave Four Questions

Section 4 — TOPICAL MODULES (Continued)

Part B — Retirement and Pension Coverage

Statement B Read to respondent: **These next questions concern retirement and pension coverage.**

CHECK ITEM T3 — *Refer to CC item 24.* Is . .'s age?

8312
1☐ Less than 25 years of age — *SKIP to Check Item T13, page 59*
2☐ 25 to 39 years of age — *SKIP to Check Item T6*
3☐ 40 to 65 years of age
4☐ 66 years of age or older — *SKIP to Check Item T6*

CHECK ITEM T4 — Is "Worked" marked on the ISS?

8315
1☐ Yes — *SKIP to 1a*
2☐ No

CHECK ITEM T5 — Did . . . spend any time looking for work or on layoff from a job?

(Is the "Yes" box marked in item 2a on page 22)

8316
1☐ Yes
2☐ No — *SKIP to 6a, page 56*

1a. At what age does . . . EXPECT to stop working at a regular job?

8318 ☐☐ Age
1☐ Never worked — *SKIP to Check Item T13, page 59*
2☐ Already stopped — *SKIP to Check Item T6*
3☐ Doesn't plan to stop — *SKIP to 1c*
x1☐ DK

b. Will . . . be eligible on the basis of . . . 's own work experience to receive Social Security (Railroad Retirement) Benefits when . . . stops working?

8320
1☐ Yes
2☐ No
x1☐ DK

c. How many years has . . . been employed in jobs covered by Social Security (Railroad Retirement)?

8322 ☐☐ Years
1☐ Less than one year
x3☐ None
x1☐ DK

CHECK ITEM T6 — Are any employers entered in question 2a on page 14 or question 10a on page 16?

8324
1☐ Yes — *Enter name(s) and job number(s) below*
2☐ No — *Skip to Check Item T9, page 56*

(Ask 2a–4l for employer 1 first then return to question 2a if there is another employer.)	Employer 1	Employer 2
	Employer name	Employer name
	Job number 8326 ☐	Job number 8328 ☐
2a. About how many persons are employed by *(Read employer's name)* **at the location where . . . works — would you say** *(Read categories)***?**	8330 1☐ Under 25 2☐ 25 to 99 3☐ 100 to 499 4☐ 500 to 999 5☐ 1000 or more x1☐ DK } *SKIP to 3a*	8332 1☐ Under 25 2☐ 25 to 99 3☐ 100 to 499 4☐ 500 to 999 5☐ 1000 or more x1☐ DK } *SKIP to 3a*
b. Does *(Read employer's name)* **operate in more than one location?**	8334 1☐ Yes 2☐ No x1☐ DK } *SKIP to 3a*	8336 1☐ Yes 2☐ No x1☐ DK } *SKIP to 3a*
c. About how many persons are employed by *(Read employer's name)* **at all locations — would you say** *(Read categories)***?**	8338 1☐ Under 25 2☐ 25 to 99 3☐ 100 to 499 4☐ 500 to 999 5☐ 1000 or more x1☐ DK	8340 1☐ Under 25 2☐ 25 to 99 3☐ 100 to 499 4☐ 500 to 999 5☐ 1000 or more x1☐ DK
3a. Does . . .'s employer or union have a retirement plan for any of its employees? *(Exclude Social Security and Railroad Retirement.)*	8342 1☐ Yes 2☐ No x1☐ DK } *SKIP to Check Item T7*	8344 1☐ Yes 2☐ No x1☐ DK } *SKIP to Check Item T9, page 56*
b. Is . . . included in such a plan?	8346 1☐ Yes — *SKIP to 4a* 2☐ No x1☐ DK — *SKIP to Check Item T7*	8348 1☐ Yes — *SKIP to 4a* 2☐ No x1☐ DK — *SKIP to Check Item T9, page 56*
c. Why isn't . . . included in such a plan? *Mark (X) all that apply.*	8350 1☐ Chose not to belong 8354 2☐ No one in . . .'s type of job can belong 8358 3☐ . . . does not work enough hours, weeks, or months per year 8362 4☐ . . . started this job too close to . . .'s retirement date 8366 5☐ . . . is too young 8370 6☐ . . . has not worked for this employer long enough 8374 7☐ Other — *Specify* 8378 x1☐ DK	8352 1☐ Chose not to belong 8356 2☐ No one in . . .'s type of job can belong 8360 3☐ . . . does not work enough hours, weeks, or months per year 8364 4☐ . . . started this job too close to . . .'s retirement date 8368 5☐ . . . is too young 8372 6☐ . . . has not worked for this employer long enough 8376 7☐ Other — *Specify* 8380 x1☐ DK

CHECK ITEM T7	Is another employer listed?	8382	1☐ Yes — *Ask 2a, page 53 for next employer* 2☐ No — *SKIP to Check Item T9, page 56*	*SKIP to Check Item T9, page 56*
4a.	**Is . . . included in more than one retirement or pension plan on this job?**	8384	1☐ Yes 2☐ No x1☐ DK	8386 1☐ Yes 2☐ No x1☐ DK
b.	**Is . . .'s (basic) retirement plan a profit sharing plan?**	8388	1☐ Yes — *SKIP to 4d* 2☐ No x1☐ DK	8390 1☐ Yes — *SKIP to 4d* 2☐ No x1☐ DK
c.	**Are the retirement benefits of . . .'s (basic) pension plan determined by years of service and pay, or by the amount of contributions to the plan?** *Mark (X) only one.*	8392	1☐ Based on years of service and pay 2☐ Based on the amount contributed to the plan x1☐ DK	8394 1☐ Based on years of service and pay 2☐ Based on the amount contributed to the plan x1☐ DK
d.	**Does** *(Read employer's name)* **make payments towards . . .'s (basic) plan?**	8396	1☐ Yes 2☐ No x1☐ DK	8398 1☐ Yes 2☐ No x1☐ DK

		Employer 1	Employer 2
4e.	**Does . . . make payments toward . . .'s (basic) plan? (Include payments deducted from . . .'s pay.)**	8400 1☐ Yes 2☐ No x1☐ DK } *SKIP to 4g*	8402 1☐ Yes 2☐ No x1☐ DK } *SKIP to 4g*
f.	**How much does . . . contribute toward . . .'s (basic) plan?**	8404 $. 00 8408 PER — 1☐ Week 2☐ Biweekly 3☐ Month 4☐ Quarter 5☐ Year OR 8412 . % Percent of salary OR 8416 x1☐ DK x2☐ Ref.	8406 $. 00 8410 PER — 1☐ Week 2☐ Biweekly 3☐ Month 4☐ Quarter 5☐ Year OR 8414 . % Percent of salary OR 8418 x1☐ DK x2☐ Ref.
g.	**How long has . . . been included in this (basic) plan? (Include only the years that count toward . . .'s retirement benefits.)** (If respondent reports years and months, round to full years)	8420 Years 1☐ Less than 1 year x1☐ DK	8422 Years 1☐ Less than 1 year x1☐ DK

h. **If . . . were to leave** *(Read employer's name)* **now or in the next few months, could . . . eventually receive some benefits from this plan upon reaching retirement age?**	8424	1☐ Yes — *SKIP to 4j* 2☐ No x1☐ DK	8426 1☐ Yes — *SKIP to 4j* 2☐ No x1☐ DK
i. **Is that because . . . has not been included in the plan enough years?**	8428	1☐ Yes 2☐ No x1☐ DK	8430 1☐ Yes 2☐ No x1☐ DK
j. **Under this plan, could . . . 's retirement benefits from this plan be received in a lump-sum payment? (Do not include lump-sum payments which are entirely refunds of . . . 's contributions to the plan.)**	8432	1☐ Yes 2☐ No x1☐ DK	8434 1☐ Yes 2☐ No x1☐ DK
k. **Does** *(Read employer's name)* **offer a salary reduction plan, sometimes called either a 401K or 403B plan? Such a plan allows employees to defer part of their salary and not have to pay taxes on the deferred salary until they retire.**	8436	1☐ Yes 2☐ No } *SKIP to Check Item T8* x1☐ DK } *SKIP to Check Item T8*	8440 1☐ Yes 2☐ No } *SKIP to Check Item T9* x1☐ DK } *SKIP to Check Item T9*
l. **Does . . . participate in this plan?**	8442	1☐ Yes 2☐ No x1☐ DK	8444 1☐ Yes 2☐ No x1☐ DK
CHECK ITEM T8 Is another employer listed?	8446	1☐ Yes — *Ask 2a, page 53 for next employer* 2☐ No — *Go to Check Item T9*	*Go to Check Item T9*

CHECK ITEM T9 Is . . . self employed? (Are any businesses entered in question 1a on page 18 or question 12 a on page 21?)

8448 1☐ Yes — *Enter names and business I.D. numbers below*
2☐ No — *SKIP to Check Item T10*

Ask 5 for each business owned.

	Name of first business	Name of second business
	Business I.D. Number	Business I.D. Number
	8450 ☐	8452 ☐
5. **Not counting Social Security, IRA, or KEOGH accounts, is . . . covered by a pension or retirement plan in** *(Read name of business)*?	8454 1☐ Yes 2☐ No x1☐ DK	8456 1☐ Yes 2☐ No x1☐ DK

CHECK ITEM T10 *Refer to CC item 24.* Is . . . 40 to 64 years of age?

8458 1☐ Yes
2☐ No — *SKIP to Check Item T12*

6a. **(Other than the plans we have already talked about) did . . . hold a job in the past from which . . . eventually expects to receive retirement benefits?**

(Exclude Social Security, Railroad Retirement, and other plans already reported.)

8460 1☐ Yes
2☐ No
x1☐ DK } *SKIP to Check Item T11*
x2☐ Ref.

b. Is this pension plan from —

(Read categories)

Mark (X) all that apply.

8462 8464 8466 8468 8470 8472

1 ☐ **A private employer?**
2 ☐ **Military?**
3 ☐ **Federal Government (civilian)?**
4 ☐ **State or local governments?**
5 ☐ **A union?**
6 ☐ **Other** — *Specify*

c. How many years (altogether) did . . . work on (that job/those jobs)?

8474 ☐☐ Years
X1 ☐ DK

CHECK ITEM T11

Refer to question 1a, page 53.
At what age does . . . expect to stop working at a regular job?
Which box is marked in 1a, page 53?

8476
1 ☐ No entry marked in 1a
2 ☐ "Already stopped" marked in 1a
3 ☐ "Doesn't plan to stop" marked in 1a
} *SKIP to Check Item T12*
4 ☐ "Age" given in 1a
5 ☐ "DK" marked in 1a
} *Ask 7*

7. Considering all the retirement plans you have mentioned, including plans with current or past employers and Social Security, how much does . . . EXPECT to receive per year from these plans when . . . retires?

8478 $ ☐☐☐,☐☐☐.00 — per year
X3 ☐ None
X1 ☐ DK
X2 ☐ Ref.

CHECK ITEM T12

Are codes 30, 31, 32, 33, 34, or 35 marked on the ISS?

8480 ☐ Yes
☐ No — *SKIP to Check Item T13, page 59*

Earlier you said . . . received some retirement income other than Social Security.

8482
1 ☐ Retired from job
2 ☐ Some other reason
X1 ☐ DK
X2 ☐ Ref.
} *SKIP to Check Item T13, page 59*

8a. Did . . . receive these benefits because . . . retired from a job or business, or for some other reason?

The next few questions refer to the job in the past from which . . . received the retirement income.

(If . . . received a pension from more than 1 source ask about source of largest retirement income.)

PGM8

8484 _____

b. What kind of business or industry was . . .'s employer?

For example: TV and radio manufacturing, retail shoe store, State Labor Department, farm.

PGM8

ASK OR VERIFY —

8c. Was it mainly —

8486
1 ☐ **Manufacturing?**
2 ☐ **Wholesale trade?**
3 ☐ **Retail trade?**
4 ☐ **Some other kind of business?**

d. What kind of work was . . . doing on that job?

PGM8

For example: Electrical engineer, stock clerk, typist, farmer.

8488 _____

e. What were . . .'s main activities or duties?

PGM8

For example: Types, keeps account books, files, sells cars, operates printing press, finishes concrete.

8490 _____

ASK or VERIFY —

PGM8

f. Was . . . an employee of —

8492
1 ☐ **A private company or union?**
2 ☐ **Federal Government (exclude Armed Forces)?**
3 ☐ **State Government?**
4 ☐ **Local Government?**
5 ☐ **Armed Forces?**
6 ☐ **Unpaid in family business or farm?** — *SKIP to Check Item T13, page 59*

PGM7

9a. About how many persons were employed by that employer at the location . . . worked?

8494
1 ☐ Under 25
2 ☐ 25 to 99
3 ☐ 100 to 499
4 ☐ 500 to 999
5 ☐ 1,000 or more
x1 ☐ DK
} *SKIP to 9d*

b. Did that employer operate in more than one location?

8496
1 ☐ Yes
2 ☐ No
x1 ☐ DK
} *SKIP to 9d*

c. About how many persons were employed by that employer at ALL LOCATIONS?

8498
1 ☐ Under 25
2 ☐ 25 to 99
3 ☐ 100 to 499
4 ☐ 500 to 999
5 ☐ 1,000 or more
x1 ☐ DK

d. How many HOURS a week did . . . usually work at that job?

8500 ☐☐ — Hours per week
x1 ☐ DK

e. How many WEEKS a year did . . . usually work at that job?

(Include paid vacations and sick leave.)

8502 ☐☐ — Weeks per year
x1 ☐ DK

f. How many YEARS did . . . work at that job?

8504 ☐☐ — Years
x1 ☐ DK

9g. In what year did . . . leave that job?

8506
1 9 ☐☐
x1 ☐ DK

h. When . . . left that job, how much was . . . earning (before deductions for taxes or anything else)?

(If self-employed, show NET business income.)

8508 $ ☐☐☐ . 00

PER —
8510
1 ☐ Week
2 ☐ Month
3 ☐ Year

OR

8512
x1 ☐ DK
x2 ☐ Ref. — *SKIP to Check Item T13*

i. **In what year did . . . begin receiving this pension?**	8514	1 9 ☐ ☐ x1 ☐DK
j. **Was the amount of . . .'s (basic) retirement benefits based on . . .'s years of service and pay, or on the amount of . . .'s contributions to the plan?**	8516	1 ☐Based on years of service and pay 2 ☐Based on the amount contributed to plan x1 ☐DK
k. **Did . . . take reduced benefits in order to elect a survivor option?**	8518	1 ☐Yes 2 ☐No x1 ☐DK
l. **Has . . .'s retirement pension ever been increased for cost-of-living changes?**	8520	1 ☐Yes — *SKIP to 9n* 2 ☐No x1 ☐DK
m. **Does . . .'s pension plan include a cost-of-living adjustment provision?**	8522	1 ☐Yes 2 ☐No x1 ☐DK
ASK OR VERIFY — **n.** **Is . . . now covered by a health plan provided through . . .'s former employer?**	8524	1 ☐Yes 2 ☐No x1 ☐DK

NOTES

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