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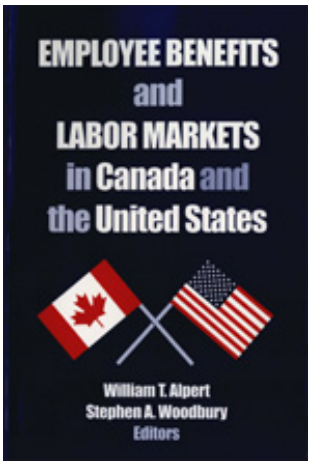

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9 Employee Benefits and the Distribution of Income and Wealth

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Changes in the size distribution of income during the 1980s have resulted in a proliferation of new research on the distribution of income and earnings (for a review of the work through the 1980s, see Levy and Murnane 1992). Most of the recent work has focused on explaining increased earnings inequality in the United States during the 1980s, although Raj and Slottje (1994) found that the trend of increasing inequality extends back further.

Far less is known about the size distribution once employer-provided nonwage benefits are taken into account. It is well-known, however, that employee benefits are a significant part of total compensation—voluntarily provided employee benefits such as pensions, health insurance, and life insurance accounted for 9.2 percent of all employer expenditures for employee compensation in 1994, and legally required employee benefits such as Social Security, unemployment insurance, and workers' compensation accounted for another 7.4 percent of compensation expenditures (U.S. Department of Commerce 1998). Two issues need to be explored: 1) whether the picture of income inequality would change if employee benefits were taken into account and 2) whether changes in the mix of total compensation have occurred concurrently with changes in income inequality, hence altering the picture of changes in inequality over time.

The basic difficulty faced by researchers who would like to include employee benefits in estimates of income distribution is that few existing household surveys record the employer contribution *in dollar terms* for major voluntarily provided benefits, such as health insurance and pensions. It is now relatively common for household surveys to record whether a worker is covered by an employer-provided health insurance or pension plan—for example, the Current Population Survey (CPS), National Longitudinal Surveys, and Panel Study of Income Dynamics all include questions on health insurance and pension plan coverage at least periodically. Coverage data are little help, however, in gaining an understanding of how employer provision of benefits (or changes over time in that provision) might bear on the size distribution of income (or changes over time in that distribution).

The lack of household data on employer contributions for fringe benefits explains the scarcity of research on how benefits bear on the size distribution of income. In what is, to our knowledge, the first attempt to examine the issue, Tim Smeeding (1983) linked establishment data on benefit contributions from the Survey of Employer Expenditures for Employee Compensation (EEEC) to household data from the CPS, thereby imputing the dollar benefit contributions made in behalf of individual workers. Lack of data directly linking a worker to employer contributions in that worker's name necessitated such an imputation procedure, although it is clearly a less than ideal way of understanding how benefits bear on income distribution.

In this chapter, we attempt to improve on Smeeding's work in three ways. First, we make use of two household surveys that provide data on concurrent health insurance contributions, accumulated pension contributions made by an employer in a worker's name, or the pension benefits that a worker can expect to receive from participation in the pension plan of a current or past employer. The direct link between a worker and his or her employee benefits is clearly a desirable improvement. Second, we examine inequality in both the joint distribution of total compensation and the marginal distributions of the income components. In particular, we present a decomposition of the Gini inequality coefficient that gives a rough idea of the contribution of each component of compensation to overall inequality. Third, by using more recent data, we are able to draw inferences on whether and how

the role of benefits in contributing to income inequality changed over the decade of the 1980s.

Others have attempted improvements on Smeeding's work as well, although most have focused exclusively on the effect of pensions on the distribution of income and wealth. For example, Benedict and Shaw (1995) used the 1983 Survey of Consumer Finances (SCF) to examine how annual pension accruals (calculated as the annual increase in the present value of pension wealth) affect the distribution of earnings. They found that pensions increased annual income inequality slightly in 1983. (Our work using the 1983 and 1989 SCF, reported below, differs from that of Shaw and Benedict by focusing on pension wealth—and changes in pension wealth—between 1983 and 1989.) Several others, including Weicher (1997), Wolff (1994), and Kennickell and Sunden (1997), have done work yielding results that can be compared with those in our fourth section, and we draw those comparisons below.

The chapter is organized as follows. In the first section, we briefly describe the measures we use to make inferences about inequality. In particular, we develop the decomposition of the well-known Gini coefficient. We show that inequality can be decomposed by component of compensation into inequality within each component of compensation and inequality across components. We use the Gini coefficient to make these decompositions meaningful within and across components of compensation.

The second section presents results on the distribution of compensation using current contributions to health insurance and pensions from an old establishment data set—the 1977 EEEC survey. Oddly enough, the EEEC remains the most recent establishment-level data available. (The establishment-level data underlying the Employment Cost Index have never been made available to researchers.) Although dated, the 1977 EEEC do provide a useful benchmark because they are the data on which Smeeding's inferences were based.

The third section examines the distribution of personal income and employer contributions to health insurance plans using the 1977 National Medical Care Expenditure Survey (NMCES) and the 1987 National Medical Expenditure Survey (NMES). These two surveys were fielded to improve understanding of a broad array of health care issues, but they can also be used to obtain estimates of the extent to

which employer contributions to health insurance plans increase or decrease the distribution of compensation.

In the fourth section, we develop estimates of wealth inequality using the 1983 and 1989 SCF. Much previous work on wealth inequality has been based on the SCF (see, for example, Kennickell and Sunden 1997; Weicher 1995, 1997; Wolff 1987, 1994, 1996), and we attempt to expand on this work by adding private pension wealth and Social Security wealth to the measurement of wealth inequality. We argue that, for two reasons, wealth holdings provide the proper context in which to examine the influence of employer-provided pensions on inequality in the distribution of compensation. First, annual pension contributions in behalf of an individual worker are frequently unobservable (as with defined-benefit plans). Second, when annual contributions are observable (as with defined-contribution plans), they may vary from year to year in ways that have little to do with the ultimate generosity of the retirement income to be derived from a pension plan. (The argument for using pension wealth and Social Security wealth in gauging the extent to which pensions contribute to inequality is similar to the argument for using Social Security wealth and pension wealth in analyzing retirement incentives; see, for example, Burkhauser and Quinn 1983; Quinn and Burkhauser 1983.)

One disclaimer needs to be made at the outset. We have not attempted to adjust the dollar contributions to health insurance or pension plans to reflect the "value" to the worker of those contributions. Since there are both tax advantages and scale advantages to receiving health insurance and pensions from an employer, dollar contributions by an employer may understate the value to workers of employer-provided nonwage benefits (see, for example, Smeeding 1983, pp. 243–245; Famulari and Manser 1989). We defer an examination of these valuation issues for the time being.

INEQUALITY MEASURES AND A DECOMPOSITION OF THE GINI COEFFICIENT

In this chapter, we use three measures of inequality: 1) the percentage of compensation (or a component of compensation) received by

the top 5 percent, 10 percent, and 20 percent of the size distribution, 2) the coefficient of variation, and 3) the Gini coefficient, including a decomposition of the Gini. Although other measures of inequality could be used, all three of these measures (except for the Gini decomposition to be developed next) are well understood and should provide useful estimates of the extent of inequality of total compensation and its components. (For an accessible discussion of a variety of other inequality measures, see Cowell 1977.)

As already mentioned, a decomposition of the Gini coefficient is useful in showing how changes in the distribution of employee benefits have influenced the distribution of total compensation. Yitzhaki (1983) has shown that the Gini coefficient can be written as:

$$G(x) = 2 \operatorname{cov}[x, F(x)] / \mu_x \tag{1}$$

where $F(x)$ is the cumulative distribution of x, and μ_x is the mean of x. Note that this formulation is similar to the coefficient of variation: writing the variance as $\operatorname{cov}(x, x)$, the coefficient of variation is $\operatorname{cov}(x, x)^{1/2} \div \mu_x$.

Suppose now that total compensation (x) is composed of wage and salary earnings (w) and employee benefits (b):

$$x = w + b \tag{2}$$

Since $\operatorname{cov}(w + b, z) = \operatorname{cov}(w, z) + \operatorname{cov}(b, z)$, where z is a random variable, the Gini coefficient can be decomposed as follows:

$$G(x) = 2 \operatorname{cov}[w, F(x)] / \mu_x + 2 \operatorname{cov}[b, F(x)] / \mu_x \tag{3}$$

Now multiply the first term by the following well-chosen 1,

$$\operatorname{cov}[w, F(w)]\mu_w / \operatorname{cov}[w, F(w)]\mu_w \tag{4}$$

where μ_x is the mean of w, and multiply the second term by a similar well-chosen 1,

$$\operatorname{cov}[b, F(b)]\, \mu_b / \operatorname{cov}[b, F(b)]\, \mu_b \tag{5}$$

where μ_b is the mean of b, and rearrange terms to obtain

$$G(x) = \frac{\text{cov}[w, F(x)]}{\text{cov}[w, F(w)]} \cdot \frac{2\,\text{cov}[w, F(w)]}{\mu_w} \cdot \frac{\mu_w}{\mu_x} + \frac{\text{cov}[b, F(w)]}{\text{cov}[b, F(b)]} \cdot \frac{2\,\text{cov}[b, F(b)]}{\mu_b} \cdot \frac{\mu_b}{\mu_x} \tag{6}$$

The first part of the first term $\{\text{cov}[w, F(x)] / \text{cov}[w, F(w)]\}$ is the Gini correlation coefficient of w (wage and salary earnings) with x (total compensation), which we denote R_w. This correlation has a mixture of properties of the Pearson and Spearman rank correlation coefficients. Specifically, it is Pearson in w and Spearman in x. The second part of the first term $\{2\,\text{cov}[w, F(w)] / \mu_w\}$ is the Gini coefficient of w, which we denote G_w. The third part of the first term (μ_w / μ_x) is the share of wage and salary earnings in total compensation, which we denote S_w. Defining R_b as the Gini correlation coefficient of employee benefits (b) with total compensation, G_b as the Gini coefficient of employee benefits, and S_b as the share of employee benefits in total compensation, we can rewrite Eq. 6 as follows:

$$G(x) = R_w G_w S_w + R_b G_b S_b \tag{7}$$

That is, the contribution of each component of compensation to the inequality of total compensation equals the Gini correlation between that component and total compensation (R_i), multiplied by that component's Gini coefficient (G_i), multiplied by that component's share of total compensation (S_i).

FINDINGS FROM THE SURVEY OF EMPLOYER EXPENDITURES FOR EMPLOYEE COMPENSATION (EEEC)

The EEEC was a survey of establishments conducted by the Bureau of Labor Statistics from 1966 through 1977. The 1977 EEEC sampled 3,320 establishments of all sizes in order to obtain detailed data on wages and employer contributions to employee benefit plans.

From our standpoint, the main advantage of the EEEC is that it includes data on dollar expenditures by the employer on health insurance and pension plans, as opposed to just employee benefit coverage. Hence, it allows one to examine inequality in the distribution of three components of compensation: wages and salaries (or payroll), employer contributions to health insurance (a category that includes life insurance in the EEEC), and employer contributions to pensions.

We derive inequality estimates from a sample of 5,714 groups of workers from the 1977 EEEC. It is important to understand that, although the EEEC are establishment-level data, we actually observe workers disaggregated into two groups in each establishment: blue-collar workers and white-collar workers. Hence, the unit of observation is not the establishment per se, but either a group of blue-collar workers or a group of white-collar workers observed in an establishment included in the EEEC survey.

Table 1 displays the basic results on the distribution of total compensation from the 1977 EEEC. The average payroll per worker of establishments in the survey was just over $12,500, average contributions to health and life insurance were nearly $550, and average pension contributions were just over $550. As Table 1 shows, the median level of each of the three components is lower than the mean, suggesting positively skewed distributions.

All the measures of inequality—shares of the top 5 percent, 10 percent, and 20 percent, as well as the coefficient of variation and the Gini—suggest that payroll earnings are the most equally distributed component of compensation and that pension contributions are the least equally distributed component. This finding accords with Smeeding's (1983) basic finding although, as already noted, Smeeding linked the EEEC data with individual CPS data.

The evidence suggests that health insurance and pension contributions are highly correlated with total compensation—the Gini correlation coefficient between health contributions and total compensation is 0.75, and that between pension contributions and total compensation is 0.76. The findings suggest, then, that health and pension contributions both tend to increase the overall inequality of total compensation: the Gini coefficient for payroll is 0.265, whereas the Gini for total compensation is slightly higher, 0.277.

Table 1 Distribution of Total Compensation, 1977

	Mean ($) (std. dev)	Median ($)	% Share of Top 5%	% Share of Top 10%	% Share of Top 20%	Coefficient of variation	Gini correlation	Gini coefficient	Share of total compensation (%)
Total compensation	13,658 (6,844)	12,797	11.1	19.8	35.0	0.501	–	0.277	100.0
Payroll	12,557 (6,040)	11,898	10.8	19.3	34.2	0.481	0.995	0 265	91.9
Health and life insurance contributions	544 (489)	423	17 7	29.7	48.4	0.899	0.749	0 473	4.0
Pension contributions	557 (770)	267	26.5	42.6	64.7	1 383	0.760	0 657	4.1

SOURCE: Authors' tabulations of 1977 EEEC data on 5,714 worker groups in 3,320 establishments.

FINDINGS ON HEALTH INSURANCE FROM THE MEDICAL EXPENDITURE SURVEYS

In this section, we examine two surveys that combine data on the income of individuals with data on employer contributions to health insurance that were made for an individual. The first is the 1977 National Medical Care Expenditure Survey (NMCES), and the second is the 1987 National Medical Expenditure Survey (NMES). Our goal is to understand the distribution of employer contributions to health insurance and the extent to which that distribution adds to or subtracts from overall inequality in the distribution of compensation.

Data Sources

The National Medical Care Expenditure Survey (NMCES) is a 1977–1978 survey of roughly 14,000 households. It was designed to obtain data on the health status, access to health care, and health insurance coverage of a representative sample of the civilian, noninstitutional U.S. population. The NMCES has two parts. The first part—a household survey—contains standard data on demographic characteristics and personal income, as well as the data on health status and access to health care that were the primary reasons for conducting the survey (Kasper, Walden, and Wilson 1983). The second part—the Health Insurance/Employer Survey (or HIES)—is a supplement to the NMCES that is highly unusual in that it includes data obtained from employers on premiums paid for the health insurance of each covered worker in the sample (Cantor 1986).

The National Medical Expenditure Survey (NMES) is a 1987 survey of roughly 14,000 households whose purpose was the same as the 1977 NMCES (U.S. Department of Health and Human Services 1991). Like the NMCES, the 1987 NMES includes both a household survey and a supplement—the Health Insurance Plan Survey (or HIPS)—that includes data on the characteristics of the employer-provided health insurance (if any) covering each worker in the sample. As with the NMCES, these data were collected from employers and include the premiums paid by employers for health insurance.

Data on workers' wages and salaries are nonexistent in the 1977 NMCES sample and limited in the 1987 NMES sample, a drawback

when using these data sets for the purposes we have in mind. We are forced to use personal income from all sources as a proxy for wage and salary earnings. The availability of accurate data on employer contributions to health insurance is the overriding reason for using these data sets.

To examine how employer-provided health insurance contributed to inequality in the distribution of compensation, we select samples of workers aged 25 and over who were employed full-year from the 1977 NMCES and 1987 NMES. We have attempted to create samples that are as comparable as possible, but the questions on employment in the two surveys differ somewhat. Specifically, the 1977 NMCES includes a single variable indicating whether a worker was "continuously employed," whereas the 1987 NMES includes a series of questions (and variables) in each of four survey rounds on whether the worker was employed or unemployed and the number of weeks of employment. For the 1977 NMCES, we have included workers in the sample who are defined as "employed all year." (The definition of this variable is rather problematic. It appears to include both workers who were employed continuously during 1977 and workers who were employed at some time during 1977 but whose employment continuity was unknown.) In the 1987 NMES, we have included individuals who worked 48 or more weeks during 1987. It is impossible to know precisely how comparable these two sets of inclusion criteria are, but we believe that, given the survey questions, we have created two samples that are as comparable as possible. Ultimately, we have used a sample of 7,963 workers from the 1977 NMCES and a sample of 6,009 workers from the 1987 NMES. (For the 1977 NMCES, we use the WTINSP weight; for the 1987 NMES, we use the INCALPER weight.)

Findings

Table 2 shows descriptive statistics and various measures of the inequality of employer contributions to health insurance, personal income, and total compensation for 1977 (from the NMCES) and 1987 (from the NMES). As already noted, because the NMCES does not include information on wage and salary earnings, we define total compensation here as personal income plus employer contributions to health insurance.

Table 2 Distribution of Personal Income and Employer Contributions to Health Insurance, 1977 and 1987

	Mean($) (std. dev.)	Median ($)	% Share of Top 5%	% Share of Top 10%	% Share of Top 20%	Coefficient of variation	Gini correlation	Gini coefficient	Share of total compensation (%)
NMCES (1977)									
Total compensation	14,120 (13,238)	11,683	19.8	29 6	44.9	0.938	–	0.403	100.0
Personal Income	13,705 (13,141)	11,150	20.2	30.1	45.4	0.959	0.999	0.407	97.1
Employer contributions to health insurance	415 (527)	243	22.7	37.4	60.4	1.270	0.434	0 634	2.9
NMES (1987)									
Total compensation	27,547 (24,598)	23,000	17.6	27.4	42.9	0.893	–	0.375	100.0
Personal income	26,334 (24,265)	21,802	18.1	28.0	43.5	0.921	0 998	0.381	95.6
Employer contributions to health insurance	1,213 (1,321)	873	19.4	32.7	54.1	1.088	0.479	0.569	4.4

SOURCE: Authors' computations from samples of workers aged 25 or older and employed "full-year" in the 1977 National Medical Care Expenditures Survey (N=7,963) and the 1987 National Medical Expenditures Survey (N=6,009).

In 1977, the average personal income of full-year workers aged 25 and over in the NMCES was about $13,700 (in current dollars), and the average employer contribution to health insurance was slightly over $400. In 1987, the average personal income of full-year workers aged 25 and over in the NMES was about $26,300 (in current dollars), and the average employer contribution to health insurance was about $1,200. Thus, in 1977 employer contributions to health insurance made up 2.9 percent of what we are defining as total compensation (personal income plus employer contributions to health insurance), whereas in 1987 employer contributions to health insurance were 4.4 percent of total compensation. This roughly 50 percent growth in the share of compensation accounted for by health insurance closely mirrors the economy-wide growth in the share of total compensation accounted for by employer contributions to health insurance observed in the National Income and Product Accounts from 1977 to 1987 (U.S. Department of Commerce, Bureau of Economic Analysis 1998).

In both 1977 and 1987, the median personal income and the median employer contribution to health insurance are well below the means for either of these variables in both years, suggesting positively skewed distributions.

Figures on the share of personal income and of contributions to health insurance going to workers in the top 5 percent, 10 percent, and 20 percent of the size distribution clearly show that, in both 1977 and 1987, personal income was more equally distributed than employer contributions to health insurance. The coefficients of variation and the Gini coefficients for personal income and employer contributions to health insurance provide the same inference.

However, total compensation is more *equally* distributed than either personal income or employer contributions to health insurance. The Gini coefficients for personal income are 0.407 (in 1977) and 0.381 (in 1987), and the Ginis for employer contributions to health insurance are 0.634 (in 1977) and 0.569 (in 1988). The Ginis for total compensation, however, are slightly lower than the Ginis for either component—0.403 (in 1977) and 0.375 (in 1987). That is, even though employer contributions to health insurance were more unequally distributed than personal income in both 1977 and 1987, health contributions were distributed so as to slightly lower overall inequality. Similar inferences follow from an examination of the coeffi-

cients of variation and shares of total compensation going to the top 5, 10, and 20 percent of individuals. The distribution of health insurance contributions reduces the inequality of the distribution of total compensation, even though it is less equally distributed than personal income.

The finding that total compensation is more equally distributed than its components suggests both the importance of micro data in drawing inferences about compensation inequality and the usefulness of the Gini decomposition. Also, it accords with the rather low correlations between total compensation and health contributions—the Gini correlation coefficients of health contributions with total compensation are just 0.434 (in 1977) and 0.479 (in 1987).

The finding from both the NMCES and the NMES that health contributions are more unequally distributed than personal income accords (in a rough way) with the finding from the EEEC establishment data that health contributions are more unequally distributed than is payroll. But the conclusion from the NMCES and NMES that health contributions *decrease* overall inequality is counter to the analogous finding from the EEEC establishment data. The result suggests both the importance of micro data in drawing inferences about compensation inequality and the usefulness of the Gini decomposition.

In contrast to many studies of wage and income inequality in the 1980s, the NMCES and NMES suggest that the distribution of personal income became somewhat more equal between 1977 and 1987. (On the distribution of earnings, see Levy and Murnane 1992; on the distribution of personal income, see Raj and Slottje 1994.) Given the preponderance of evidence that the distribution of earnings and income became less equal during the 1980s, we are unwilling to place much weight on this interyear comparison. It seems likely that the result is due to the difficulty we had in creating comparable samples of workers from the NMCES and NMES. In other words, the finding that personal income inequality fell between 1977 and 1987 should probably be viewed as an artifact of the way we had to draw our samples.

To summarize, employer contributions to health insurance in both 1977 and 1987 were far less equally distributed than personal income among full-year workers aged 25 and older. However, although very unequal, the distribution of employer contributions to health insurance was such that it slightly lowered the distribution of total compensation

(defined as the sum of personal income and employer contributions to health insurance).

FINDINGS ON RETIREMENT BENEFITS AND WEALTH DISTRIBUTION FROM THE SCF

In analyzing the EEEC data, we took the annual employer contribution to the pension plan as an accurate reflection of the pension plan's generosity. But the annual contribution may vary from year to year depending on changes in the performance of the pension plan's assets or in changes in actuarial assumptions. Hence, the annual contribution to a pension plan may be a poor reflection of the plan's generosity, understood as the stream of retirement income that the pension plan ultimately will yield. In order to obtain a more accurate picture of how pensions contribute to individual inequality, it is necessary to consider the asset value of a pension plan—that is, the present value of the promised future income stream to be derived from the pension.

In this section, we use the 1983 and 1989 Surveys of Consumer Finances (SCF) to examine the distribution of retirement and nonretirement wealth (Kennickell and Shack-Marquez 1992; Fries, Starr-McCluer, and Sunden 1998). We construct estimates of both private pension wealth and Social Security wealth and compare the distribution of these with the distribution of other more conventional forms of wealth, such as housing and business assets. Our premise is that wealth holdings provide the proper context in which to examine the influence of employer-provided pensions on inequality.

Data Sources and Variable Construction

The 1983 and 1989 SCFs are a natural choice for studies of the distribution of wealth, and they have been used in previous work on wealth inequality (Wolff 1987, 1994, 1996, 1998; Weicher 1995, 1997; Kennickell and Sunden 1997). The SCF is an extensive survey designed to estimate the wealth holdings of a representative sample of households in the United States. It includes information on pensions and retirement wealth, as well as data on conventional asset holdings

such as property and financial wealth. In addition, the SCF includes retrospective data on the employment histories of both the respondent and spouse (if present).

The main strength of the SCF, from our standpoint, is its data on asset holdings and coverage by private pension plans. Although asset holdings and pension coverage are self-reported, inspection of the questionnaire and the asset and pension data themselves suggest that considerable lengths were taken to obtain a consistent picture of households' assets and pension expectations. Also, the SCF's employment data are sufficient to construct a reasonable approximation to Social Security wealth, as described below.

We draw samples of households from the 1983 and 1989 SCFs that mirror those used by Feldstein (1976) in his pioneering study of Social Security wealth. That is, we examine all households in which there was a male aged 35 to 64 present. This basic selection criterion yields samples of 1,721 households in 1983 and 1,572 in 1989.

Three forms of wealth are of main interest to us: 1) private pension wealth, 2) Social Security wealth, and 3) nonretirement wealth. The first two are the main forms of retirement wealth held by households, and the third includes all forms of conventional (or nonretirement) wealth. We discuss the construction of variables measuring each in turn.

Private Pension Wealth. The present value of expected annual pension benefits for which a household is eligible represents that household's private pension wealth. Private pension wealth must be computed separately for defined-benefit and defined-contribution pension plans.

For defined-benefit pension plans, we have calculated the present value of 1) pension benefits that are expected in the future from current employment, 2) pension benefits that are expected in the future from past employment, and 3) pension benefits currently being received from past employment.

For both men and women expecting to receive a defined-benefit pension from a current job or jobs, we use the self-reported age of expected pension receipt and the annual pension amount to calculate a present value of the flow of future pension receipts from the expected age at which benefits begin until age 100. We adjust each year's bene-

fit amount for the probability of death based on the worker's gender and age at which the benefit would be received (National Center for Health Statistics 1984). We subtract the present value of employee contributions (also adjusted for the probability of death) from the current year until the expected retirement age. Benefits and contributions are discounted back to the present (1983 or 1989) at a rate of 9 percent (the Federal Funds rate in both 1983 and 1989).

For both men and women expecting to receive a defined-benefit pension from a past job or jobs, the procedure is similar. We again calculate a present value of the flow of future pension receipts from the age when benefits are expected to begin until age 100, adjusting for the probability of death in each year. We subtract the present value of employee contributions (again adjusted for the probability of death) and again use a discount rate of 9 percent.

For both men and women who are currently receiving pensions, we calculate a present value of the flow of future pension receipts from the current age until age 100, using a 9 percent discount rate and adjusting for the probability of death in each year.

For defined-contribution pension plans, we follow Wolff (1987), McDermed, Clark, and Allen (1989), and Kennickell and Sunden (1997) in using the current amount reported in a worker's defined-contribution account as the measure of pension wealth. The dollar amount in any profit-sharing plan held by the individual is also included as pension wealth. The 1983 SCF includes information on one defined-contribution plan from a current employer for each individual (respondent and spouse) and up to three plans (either defined-contribution or defined-benefit) for each individual from past employers. The 1989 SCF includes information on up to three defined-contribution plans from a current employer for each individual (respondent and spouse) and up to six defined-contribution plans for each individual from past employers.

To arrive at a summary measure of private pension wealth for each household, we sum the pension assets from all sources except for Individual Retirement Accounts (IRAs) and Keogh plans. We treat IRAs and Keogh account balances as a separate category of retirement wealth, using the current account balances as the measure of wealth in each.

Social Security Wealth. The present discounted value of the Social Security old-age benefits for which a household is eligible represents the household's Social Security wealth. We compute Social Security wealth in a way resembling the method Feldstein (1976) used with the 1963–1964 Survey of Financial Characteristics of Consumers, a survey that is similar to the SCF used here.

For a respondent and spouse who are not currently receiving Social Security benefits, we impute the expected annual Social Security old-age benefit by assigning a Primary Insurance Amount (PIA) based on the relative position of the individual's earnings in the earnings distribution of workers of his or her age and gender. (Five-year age cohorts of workers were used to avoid using distributions based on very small samples.) Specifically, we use the worker's current earnings unless the worker was not currently employed, in which case we use the highest earnings from past jobs and bring them forward to the current year (either 1983 or 1989) using the wage index factor used by the Social Security Administration (Social Security Administration 1984). For each respondent and spouse, we obtain the relative position in the earnings distribution that the individual occupied in his or her gender and five-year age cohort. If this relative position in the earnings distribution did not change over the working life, then the individual would be at the same relative position in the benefits distribution at the time of retirement. Each worker's Social Security benefit was imputed from the distribution of benefits paid for newly retired workers using the relative position of each worker in the earnings distribution.

Each household's Social Security benefits are then computed from individual Social Security benefits. For a single-worker household, we sum the worker's benefit amount and the spouse's benefit amount (one-half the worker's benefit). For a two-worker household, we take the larger of 1) the sum of the benefit amount of the worker with higher benefits and the corresponding spouse's benefit amount or 2) the sum of the two workers' imputed benefit amounts.

To convert each household's benefit amount into household Social Security wealth, we calculate a present value of the flow of future Social Security benefits from age 65 until age 100. We adjust each year's benefit amount for the probability of death based on the worker's gender and age. (Also, we take account of expected widow's or widower's benefits by calculating the joint probability that the

worker will be deceased and the spouse will be alive and by applying this probability to the worker's benefit amount.) We assume that the annual benefit amount grows at 4 percent per year from the current year onward, and we discount benefits back to the present (1983 or 1989) at a rate of 9 percent.

For all households currently receiving Social Security old-age or disability benefits, we use current benefit amounts to calculate a present value of the flow of future Social Security benefits from the current age until age 100. We adjust for the probability of death in each year, allow benefits to grow at an annual rate of 4 percent, and discount to the present at a rate of 9 percent.

Nonretirement Wealth. Most forms of assets and wealth as conventionally defined are included in nonretirement wealth. In particular, we consider the following six types of wealth.

1) Housing wealth, which we divide into two components: a) equity in the principal residence and b) equity in other real estate, including up to four (in 1983) or three (in 1989) additional properties, plus the amount owed to the household for land contracts (less the amount owed on land contracts). For each property, we compute equity as the difference between the current market value of the property and the amount owed on that property (using up to two mortgages).

2) Business assets, or the net value of the household's share in up to two (in 1983) or three (in 1989) businesses in which someone in the household had an active management role, plus the net value of the household's share in businesses in which no one in the household had an active management role.

3) Life insurance, the value of which was calculated by taking the cash value of straight (or whole life) insurance and subtracting the amount of borrowing against the policy. (The face value of term insurance was excluded because term insurance is not a financial asset, in that it cannot be borrowed against.)

4) Liquid assets, or the sum of the average balance in all checking accounts, all money market accounts, and all saving accounts, plus the dollar value of short-term certificates and certificates of deposit.

5) Stocks and bonds, or the sum of a) the market value of all stocks, call money accounts, and stock and other mutual funds held, b)

the face value of U.S. savings bonds, government bonds and Treasury bills, state and municipal bonds, and corporate or foreign bonds held; and c) the value of trust accounts and managed investment accounts held.

6) Other assets, comprising cars (net of outstanding car loans) and tangible assets (such as gold, jewelry, and other objects).

Our results leave out debt that is not part of any of the other wealth category; that is, consumer loans, home improvement loans, credit card debt, and other lines of credit are not taken into account in any way.

Findings

Tables 3 and 4 report descriptive statistics and various measures of the inequality of wealth distribution from the 1983 and 1989 Surveys of Consumer Finance. It is useful to first examine the shares of the individual components of total wealth. The largest single component of wealth is housing (27 percent in 1983, 30 percent in 1989), followed by business assets (19 percent in both 1983 and 1989), private pension wealth (17 percent in 1983, 14 percent in 1989), Social Security wealth (17 percent in 1983, 15 percent in 1989), and stocks and bonds (9 percent in 1983, 8 percent in 1989). The other main forms of wealth—liquid assets, life insurance, IRA/Keogh plans, and other assets—each account for 5 percent or less of total wealth. In aggregate, retirement wealth made up 35 percent of total wealth in 1983, 32 percent of total wealth in 1989, and was split roughly evenly between private pension wealth and Social Security wealth in both years.

The computed Gini coefficients suggest that all forms of assets are distributed highly unequally, except for Social Security wealth, which has Ginis of 0.334 in 1983 and 0.352 in 1989. Principal residence housing is next most equally distributed, with Ginis of 0.561 in 1983 and 0.615 in 1989. Private pensions are the third most equally distributed form of wealth, with Ginis of 0.739 in 1983 and 0.765 in 1989. The distributions of business assets, stocks and bonds, and other real estate appear to be most unequal, with Gini coefficients of 0.90 or higher. Life insurance, liquid assets, and other assets have Ginis that are in the middle of the pack. Substantially the same inferences can be drawn from the share figures and the coefficients of variation.

Table 3 Distribution of Wealth by Component, 1983

	Mean ($) (std. dev.)	Median ($)	% Share of Top 5%	% Share of Top 10%	% Share of Top 20%	Coefficient of variation	Gini correlation	Gini coefficient	Share of total wealth (%)
Total wealth	262,643 (916,406)	147,273	36.3	47.0	61.4	3.489	–	0.578	100.0
Retirement wealth	92,786 (107,363)	60,469	22.3	35.2	53.2	1.157	0 796	0.489	35.3
Private pension wealth	45,790 (91,122)	10,644	35 6	53 4	75.8	1 990	0.726	0.739	17.4
Social security wealth	43,628 (27,346)	36,666	13.5	23.5	40.2	0.627	0.632	0.334	16.6
IRA/Keogh plans	3,369 (23,421)	0	70 5	83 1	95 5	6 953	0.768	0 910	1.3
Nonretirement wealth	169,857 (891,456)	64,072	49.5	61.0	73.8	5.248	0.955	0.713	64.7
Housing	71,830 (190,049)	42,082	35.0	47.0	63.0	2.646	0.873	0.619	27.4
Principal residence	49,584 (74,409)	37,098	26.2	38.4	55.7	1.500	0.800	0.561	18.9
Other real estate	22,246 (158,257)	0	67.6	83.4	97.4	7.114	0.819	0.910	8.5
Business assets	49,128 (553,086)	0	82.6	93.8	99.8	11 258	0.916	0.948	18.7

Life insurance	4,626 (19,103)	0	55.2	72 5	89.2	4.130	0.503	0.852	1.8
Liquid asset	12,881 (43,906)	3,009	45.4	61.2	78.9	3.409	0 730	0.761	4.9
Stocks/bonds	24,533 (490,904)	0	88.2	95.3	99.0	20 010	0 930	0.963	9.3
Other assets	6,859 (28,831)	3,650	43.4	54.9	69.3	4 204	0 621	0 719	2.6

SOURCE Authors' tabulations of 1983 SCF data on 1,722 households with a male aged 35 to 64 present. See text for variable definitions.

Table 4 Distribution of Wealth by Component, 1989

	Mean ($) (std. dev)	Median ($)	% Share of Top 5%	% Share of Top 10%	% Share of Top 20%	Coefficient of variation	Gini correlation	Gini coefficient	Share of total wealth (%)
Total wealth	362,183 (1,643,389)	185,571	42.4	52.7	65.7	4 537	–	0.622	100.0
Retirement wealth	114,887 (149,094)	72,646	24 2	36.9	54.2	1.298	0.824	0.500	31.7
Private pension wealth	51,519 (123,461)	10,000	41.3	59 1	78.3	2.396	0 751	0.765	14.2
Social security wealth	53,558 (35,312)	44,329	13 9	23.9	41 0	0.659	0.594	0.352	14 8
IRA/Keogh plans	9,809 (40,350)	0	58.2	73 9	91.5	4.114	0.773	0.869	2.7
Nonretirement wealth	247,297 (1,611,928)	89,809	55.0	65.6	76.6	6.518	0.969	0 743	68.3
Housing	107,766 (512,182)	52,409	41.9	53.6	68 1	4 753	0.894	0.676	29.8
Principal residence	68,825 (133,577)	41,000	30.0	43.3	59.8	1.941	0.796	0 615	19.0
Other real estate	38,941 (459,591)	1,409	75.8	88.3	96 6	11.802	0 869	0.928	10.8
Business assets	69,280 (1,203,050)	0	91.4	98.1	100.0	17.365	0 928	0.972	19.1

Life insurance	5,886 (39,619)	0	59.8	74.1	91.8	6.731	0.546	0 886	1.6
Liquid asset	17,865 (116,921)	2,800	58.8	72.7	85 5	6.545	0.799	0.824	4.9
Stocks/bonds	28,351 (383,716)	0	85.5	94.1	98 7	13.534	0.915	0.954	7.8
Other assets	18,148 (180,269)	6,000	56.4	67 2	78.4	9.933	0.786	0.774	5.1

SOURCE. Authors' tabulations of 1983 SCF data on 1,722 households with a male aged 35 to 64 present. See text for variable definitions

Comparison of the Gini coefficients for overall retirement wealth (0.489 in 1983 and 0.500 in 1989) with the Ginis for overall nonretirement wealth (0.718 in 1983 and 0.753 in 1989) suggests that retirement wealth is considerably more evenly distributed than is nonretirement wealth. The relatively equal distribution of Social Security wealth is mainly responsible for this result. The Ginis for private pension wealth (0.739 in 1983 and 0.765 in 1989) are similar to those for nonretirement wealth overall (0.713 in 1983 and 0.743 in 1989). Social Security wealth (with Ginis of 0.334 in 1983 and 0.352 in 1989) clearly reduces inequality in the distribution of total retirement wealth. Again, the share figures and coefficients of variation are consistent with the Ginis.

However, the influence of private pension wealth on overall inequality is not simple. Substantially less private pension wealth is concentrated in the top 5 and 10 percent of private pension holders than is the case for nonretirement wealth overall. Also, the coefficient of variation of private pension wealth is lower than that of nonretirement wealth overall. But, as already noted, the Gini coefficients of private pension wealth are slightly higher than those of nonretirement wealth overall. It follows that private pension wealth tends to even out the high end of the wealth distribution, but increases inequality below the 20th percentile or so of the wealth distribution.

A comparison of Tables 3 and 4 suggests that, overall, the distribution of wealth grew more unequal between 1983 and 1989. With the exception of IRA/Keogh plans and stocks and bonds, the Gini coefficient of every category of wealth increased between 1983 and 1989. The Ginis of principal residence housing, liquid assets, and other assets increased especially sharply. The Ginis for both Social Security wealth and private pension wealth increased moderately during the 1980s, and the share figures suggest that much of the increased inequality of private pension wealth occurred because of greater concentration of pension wealth at the very high end of the distribution (that is, above the 10th percentile).

It is useful to compare the findings in Tables 3 and 4 with other empirical findings on the distribution of wealth. Kennickell and Sunden (1997), Weicher (1995, 1997), and Wolff (1994) used the 1983 and 1989 SCF to examine nonretirement wealth and all found slight increases (comparable to that which we displayed in Tables 3 and 4) in

the Gini coefficients of nonretirement wealth between 1983 and 1989. Kennickell and Sunden, Weicher, and Wolff all used more heterogeneous samples that we do—we restrict our sample to households with a male aged 35 to 64 present—and hence obtained higher Gini coefficients than we do. The changes in the Ginis from 1983 to 1989 are similar, however.

Other researchers have used the 1992 interview of the Retirement History Survey (RHS) to examine the impact of Social Security and private pensions on wealth inequality. Gustman et al. (1997) found that Social Security reduces overall wealth inequality, whereas private pensions increase overall wealth inequality. Gustman et al. found that pensions account for 23 percent and Social Security about 27 percent of total wealth—figures that are far higher than ours using the SCF. McGarry and Davenport (1997) concluded that private pensions have only slightly increased overall wealth inequality. Apart from the relatively high proportion of wealth that is accounted for by Social Security and private pensions (Gustman et al. 1997), the findings from the RHS studies are broadly similar to those from our work with the SCF.

To summarize our results, Tables 3 and 4 show that there are five major forms of wealth holding in the United States: housing (both principal residence and other real estate, which account for 27–30 percent of all wealth), business assets (19 percent of all wealth), private pensions (14–17 percent), Social Security (15–17 percent), and stocks and bonds (8–9 percent). The figures show clearly that business assets, stocks and bonds, and real estate other than the principal residence are the strongest contributors to overall wealth inequality (all have Gini coefficients of at least 0.9), whereas Social Security wealth is the main contributor to greater equality in the distribution of wealth (with a Gini of 0.33 to 0.35).

Principal residence housing plays an intermediate role in the distribution of wealth. Principal residence housing has a Gini coefficient (around 0.6) that is close to that of the total wealth distribution (when Social Security wealth is included), although inspection of the wealth share figures suggests that the distribution of principal residence housing is equalizing at the high end of the total wealth distribution and disequalizing at the low end.

This leaves private pension wealth, which results essentially from employer contributions to pension plans. The Gini coefficients associ-

ated with private pension wealth (around 0.75) suggest that private pensions do increase inequality in the total wealth distribution, when total wealth is defined to include the present value of future expected Social Security benefits. However, the Gini correlation of private pension wealth with total wealth is relatively low: only the Gini correlations of life insurance and (in 1989) other assets with total wealth are lower. Also, as noted above, the distribution of private pension wealth tends to smooth out the high end of the wealth distribution. That is, although the Gini coefficients of private pension wealth are slightly higher than for nonretirement wealth overall, the coefficients of variation of private pension wealth and the shares of private pension wealth going to the top 5 and 10 percent of the distribution are lower than for nonretirement wealth overall. This finding suggests that private pensions play an intermediate role in determining the distribution of wealth. Although they clearly fail to help equalize the overall distribution of wealth (as Social Security does), neither are private pensions a driving force behind increased wealth inequality, as are business assets, stocks and bonds, and real estate other than the principal residence.

SUMMARY AND DISCUSSION

We have attempted to address a rather simple question: do employer contributions to health insurance and pensions increase or decrease inequalities in the distribution of compensation, income, and wealth? Most existing evidence—and intuition informed by the observation that highly paid workers tend to receive more generous nonwage benefits—suggests that employee benefits tend to increase inequality, but the answers we found are a bit more complicated.

First, we find that employer contributions to health insurance are far more unequally distributed than is personal income (most of which is earnings). Nevertheless, health insurance contributions are distributed in such a way that they slightly reduce inequality in the overall distribution of income (defined as the sum of personal income and employer contributions to health insurance). We would not make too much of this finding because the reduction of inequality accounted for by health insurance contributions is small. It is clear, however, that

health insurance contributions made by employers, despite their highly unequal distribution, do not exacerbate inequalities of compensation and income. This is an unexpected result but one that is robust in both the 1977 NMCES and the 1987 NMES (see the third section above).

Second, we find that employer contributions to pension plans are a major form of wealth holding, about equal to Social Security wealth as a proportion of total wealth, and surpassed only by housing wealth and business assets. Stocks and bonds, the other major form of wealth holding, are less significant than private pensions or Social Security. Our main conclusion on the role of private pensions in the distribution of wealth can be summarized in two parts. First, private pensions are not one of the driving forces behind increased wealth inequality. Rather, business assets, stocks and bonds, and real estate other than the principal residence are the main contributors to wealth inequality. Second, it is clear that, when total wealth is defined to include Social Security wealth, private pensions do increase overall inequality in the total wealth distribution. However, the distribution of private pension wealth is quite different from that of overall nonretirement wealth. Private pension wealth clearly smooths the high end of the wealth distribution, increasing wealth inequality only below the 20th percentile of the wealth distribution. Private pensions, then, seem to play an intermediate role in determining the distribution of wealth. Although they do not help to equalize the overall distribution of wealth (as does Social Security), they are not one of the driving forces behind increased wealth inequality, and they reduce inequality at the high end of the wealth distribution.

What are the implications of these findings? Employer contributions to both health insurance and pension plans receive favorable treatment under existing tax law, and the continued favorable tax treatment of each is a key part of the ongoing debate over fundamental tax reform (see, for example, Woodbury 1997 and the references cited there). The main finding from the medical expenditure surveys—that health insurance contributions have a slightly equalizing effect on the distribution of income—tends to argue for continued favorable tax treatment of employer-provided health insurance. It is not a strong argument because the equalizing effect of employer contributions to health insurance is not great. Moreover, the argument must be weighed

against the various arguments for taxing employer contributions to health insurance, most of which are based on efficiency considerations.

There were two main findings from the Surveys of Consumer Finances: Social Security is the great equalizer of wealth and private pensions are not a major force behind increasing wealth inequality. There are two implications. First, Social Security's central role in decreasing wealth inequality could well be an overriding reason to avoid full privatization of Social Security because full privatization would almost surely reduce the tendency of Social Security to equalize the wealth distribution. Second, in that private pensions are not a major force behind increasing wealth inequality, taxing employer contributions to pension plans would be a less effective wealth equalizer than policies directed toward business assets, stocks and bonds, and real estate other than the principal residence. Also, any increases in wealth equality that might be achieved by taxing pension contributions would need to be weighed against the decline in savings that would likely result (Gale 1995).

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