

Improving Pension Coverage at Small Firms

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Introduction

The private pension system is a vital component of retirement income for many Americans. However, as recently as 2004, only 52 percent of full-time year-round private-sector workers were covered by a pension in the United States. While this represents a one percentage point increase over the level of coverage in 1988, large numbers of workers remain uncovered.

With growing concerns about the ability of Social Security to continue its current level of generosity, policymakers are considering ways to encourage other forms of retirement saving. Since there is evidence that the ability to save through a private pension plan increases retirement saving, particularly among low-income households, improving pension coverage rates has been an important goal for many legislators.¹

While numerous variables are useful predictors of whether a worker has a pension, one of the most salient predictors is the size of the firm employing him. In 2004, only 20 percent of workers employed at firms with less than twenty-five employees were covered by a pension, whereas 60 percent of workers employed at firms with a thousand or more employees was covered. Given that more than one of every four workers is employed at firms with less than twenty-five employees, improving coverage at small firms would significantly enhance pension coverage in the U.S.²

This study examines the source of lower pension coverage rates at small firms. After reviewing some of the hypotheses for why coverage is lower at small firms, we discuss recent trends in coverage rates by firm size. An important finding is that pension coverage rates rose over the past fifteen years, particularly at small firms. This study uses a variety of data sources

¹See, for example, Poterba, Venti, and Wise (1996); Engen, Gale, and Scholz (1996); and Gale (2005).

²Calculations are from the March 2005 Current Population Survey.

to determine why pension coverage rose over time, and why the increase was greatest among small firms. Our analysis finds that changes in worker characteristics increased worker demand for pensions over time, particularly at small firms. Although rising worker demand explains most of the increase in coverage at small firms, there is evidence that other factors such as legislative attempts to improve pension coverage at small firms by reducing administrative costs contributed to improvements as well.

This study also compares small and large firms in terms of the type of pension plan offered and the generosity of the plans. Both large and small firms shifted away from defined benefit (DB) and toward defined contribution (DC) plans in recent years. The major difference between small and large firms is that large firms are more likely to offer both a DB and a DC plan, whereas small firms are more likely to offer only a DC plan. Although one might expect that scale economies in the provision of pensions and the greater administrative costs of DB plans could account for this pattern, this study shows that differences in the type of workers employed at large and small firms accounts for much of the difference.

Finally, the generosity of pension plans is compared for workers at large and small firms. Among workers covered by a pension, generosity is quite similar at small and large firms. Consequently, the main concern regarding a shortfall of pension wealth for workers at small firms is a lack of pension coverage.

Some Reasons for Differences in Pension Coverage

A company's decision to offer a pension plan depends on the costs and benefits of the pension. Offering a plan entails several costs. First and foremost, employers frequently make contributions to fund the pension. Second, the employer must cover the administrative expense of the plan. The benefits of offering a pension include the fact that a worker will be willing to accept lower wages in return for a pension. Whether the worker is willing to give up more or

less than one dollar of wages for a dollar of pension benefits will depend on the worker's saving preferences, the value placed on the access to tax-advantaged saving, and the perception of how much risk is involved in contributing to the pension. Contributing to the pension may be viewed as risky if there is some chance that the firm will go bankrupt and be unable to meet its pension obligations. Alternatively, if the pension is not perfectly portable, the worker is faced with the risk of losing some pension wealth upon a change of employers.

Firms also benefit from offering pensions because by switching compensation from wages to pensions, they potentially improve worker productivity.³ Since pensions can be designed to backload pay, the pension can be used to screen out quitters and thus conserve on hiring and training costs. Pensions may also reduce monitoring costs, since employees will be more concerned about dismissal when pay is backloaded.

The benefits and costs of a pension differ across employers for several important reasons. First, the amount of wages that a worker is willing to exchange for a pension differs across employee groups. Given the tax advantages of pension saving and the progressive income tax structure in the United States, firms that employ predominantly high-income workers are more likely to offer a pension plan. Also, firms that employ a relatively young workforce are probably less likely to offer a pension because younger workers are generally less concerned about saving for retirement. Second, the per capita cost of administering a plan varies across firms. Several studies document that there are scale economies in the administration of pensions.⁴ Consequently, the higher per capita cost of administration will make small firms less likely to offer a pension.

Legislative Efforts to Improve Coverage at Small Firms

³See Even and Macpherson (2003) for a review of the productivity effects of pensions.

⁴Information on the extent of scale economies in pension plan administration is found in Andrews and Mitchell (1981); Andrews (1989); Hay-Huggins (1990); and Ghilarducci and Terry (1999).

To help improve the low pension coverage offered by small firms, Congress specifically designed two pensions that attempt to reduce administrative costs -- the Simplified Employee Pension (SEP) and the Savings Incentive Match Plan for Employees (SIMPLE).

Created by the Revenue Act of 1978 for use by firms with twenty-five or fewer employees, the SEP was designed to reduce set-up and administration costs that were thought to impede pension adoption by small companies. Under the SEP, an individual retirement account (IRA) is established for each eligible employee, and the employee is immediately vested in employer contributions. Employer contributions must be made for each employee who has reached age twenty-one and worked for the employer during at least three of the preceding five years. Employers must contribute the same percentage of compensation for all eligible employees in any given year, but contribution rates may vary from year to year. The maximum employer contribution is the lesser of \$30,000 or 15 percent of compensation in a given year. Employees may make elective contributions to a SEP, subject to the restriction that employer plus employee contributions may not exceed the lesser of \$30,000 or 15 percent of compensation. Also, elective contributions are subject to nondiscrimination requirements.

In the Tax Reform Act of 1986, Congress created a salary reduction SEP (SARSEP) that allowed for the SEP to be funded entirely by contributions from the employee rather than the employer. At least half of all eligible employees had to participate for the plan to be qualified. These plans were subjected to the same eligibility, vesting, and nondiscrimination requirements as other defined contribution plans. Congress prohibited the adoption of new SARSEPs in the Small Business Job Protection Act of 1996, though existing plans were allowed to continue enrolling new participants.

The SIMPLE was established for firms with less than one hundred employees under the Small Business Job Protection Act of 1996. Designed to avoid complex nondiscrimination

testing and reduce administrative burdens for the employer, the SIMPLE can be either an IRA for each employee or part of a 401(k) plan to which employees make elective contributions. Employee contributions must be expressed as a percentage of compensation and cannot exceed \$6,000 per year (indexed). The employer is required to satisfy one of two contribution formulas. Under the matching contribution formula, the employer matches on a dollar-for-dollar basis up to 3 percent of employee compensation. Alternatively, the employer may make a nonelective contribution of 2 percent of compensation for all eligible employees. All contributions must vest immediately.

More recent legislative attempts to improve pension coverage at small firms include the provision in the Economic Growth and Tax Relief Reconciliation Act of 2001 to provide a tax credit of up to \$500 for qualifying start-up costs for businesses with up to one hundred employees. The Pension Protection and Expansion Act of 2003 (which did not pass) proposed two new stimuli for coverage at small firms. First, businesses with more than ten employees that did not offer a pension plan would be required to allow employees to fund an IRA through payroll deductions. Second, small businesses could receive a tax credit for contributions to a new pension plan.

Despite these legislative efforts to improve pension coverage at small firms, there remains a wide gap in coverage rates. Surveys of small firms conducted by the Employee Benefits Research Institute (EBRI) reveal some of the reasons that small firms do not offer pension plans. In a recent survey (EBRI 2001), firms with one hundred or fewer employees were asked to identify the most important reason for not offering a pension. The three most common answers were 1) employees prefer wages or other benefits (20 percent); 2) revenue is too uncertain to commit to a plan (18 percent); and 3) a large portion of workers are seasonal or part-time, or there is high turnover among workers (15 percent). The expense of setting up and administering a pension was identified by only 12 percent of firms as the “most important”

reason for not offering a pension. However, 34 percent of firms indicated that this expense was a “major” reason. In a more recent survey (EBRI 2003), small firms currently without a pension identified the following as the four factors that would be most likely to motivate them to add a plan: 1) an increase in business profits; 2) a plan that requires no employer contributions; 3) increased business tax credits for starting a plan; and 4) a plan with reduced administrative expenses.

If there are scale economies in setting up and administering pensions, smaller firms should be more likely than larger firms to report set-up and administrative costs as a greater impediment to pension offerings. However, the EBRI (2001) survey data do not support this hypothesis. Comparing firms with five to twenty employees with those that have twenty-one to one hundred employees, the survey found that the smallest firms were only one-half as likely to cite set-up and administration costs as the most important reason for not offering a pension plan (11 percent versus 22 percent). The very smallest firms were more likely to cite employee preferences for wages and/or other fringe benefits (20 versus 11 percent) and revenue uncertainty (19 versus 6 percent) as the most important reasons for not offering a pension.

The EBRI data also reveal that while the SEP and SIMPLE are common choices for small firms, the most popular plan is the 401(k). Among companies with one hundred or fewer employees that offer a DC plan, 58 percent offer a 401(k), 22 percent offer a SIMPLE, 22 percent offer a deferred profit sharing plan, and 13 percent offer a SEP. The SEP and SIMPLE combined represent about one-third of pension offerings for small firms with DC plans. This fact may lead one to the conclusion that the SEP and SIMPLE played an important role in improving coverage at small firms. However, it is possible that the firms that adopted SEP or SIMPLE plans would have adopted an alternative type of pension anyway.⁵ Hence, it is

⁵A similar controversy surrounds the 401(k) plan: some have argued that the 401(k) plan represents “new” pension coverage, whereas others argue that it is simply a replacement of older plans. See, for example, Papke (1999) and Ippolito (2000).

difficult to estimate the effect of the SEP and SIMPLE on coverage at small firms. The approach we take is to estimate the effect of other variables on coverage at small firms, and to treat any "residual" effect as possibly reflecting the effects of legislative initiatives such as the SEP or SIMPLE.

Trends in Pension Coverage at Small and Large Firms

The March Current Population Survey (CPS) provides information on whether a worker is employed by a firm offering any of its workers a pension and, if so, whether the worker is covered by the plan. Our analysis draws on data from 1989 to 2005 and focuses on differences by firm size in the percentage of workers included in a pension plan (henceforth, the "coverage rate").⁶ The March CPS data place firms into one of five size categories based on the number of employees: 1-24, 25-99, 100-499, 500-999, and 1000 or more. For the analysis below, the sample is restricted to individuals aged twenty-two to fifty-five who worked at least one week in the prior year and whose longest job in the prior year was in the private sector.

Figure 1 illustrates the trend in the pension coverage rate from 1979 through 2004 for private-sector workers aged twenty-two through fifty-five as well as those sixteen and over.⁷ It is useful to compare the pension coverage rate for prime age workers to the overall coverage rate since school enrollment and early retirement decisions may affect the coverage rate of workers outside the prime age range. A comparison of the two age groups reveals that, while the level of pension coverage is higher in the twenty-two- to fifty-five-year-old population than in the sixteen and over population, the trends in the two groups are quite similar. During the 1980s, coverage rates fell by approximately five percentage points for both age groups. Even and Macpherson

⁶We do not examine size differences in the fraction of workers employed at firms that sponsor a pension plan (i.e., the "offer rate"). With the growing popularity of voluntary participation features inherent in 401(k) plans, the difference between the offer rate and participation rate has grown over time.

⁷While the CPS data range from 1980 through 2005, the survey asks about pension coverage in the year prior to the survey.

(1994) finds that much of the decline in coverage for men in the 1980s was caused by employee participation rates dropping as firms switched to 401(k) plans and gave workers a choice of whether to join the pension plan. The trend reversed in the 1990s, and by the year 2000 coverage rates had returned to the 1980 levels. The coverage rate rose in the 1990s due to a rise in coverage at small firms. Since 2000, coverage rates have begun to decline again.⁸ (Because the March CPS provides information on firm size beginning in 1989, this study focuses on size-related differences in pension coverage since 1988. It is worth noting that this ignores the 1980s, when pension coverage fell fairly substantially. We are unable to determine whether the decline in coverage during this period differed by firm size.)

Figure 2 presents pension offer, coverage, and participation rates for the five firm size categories available in the March CPS. The offer rate is the percentage of workers employed at a firm that offers at least some of its workers a pension plan. The participation rate is the percentage of workers who are offered a pension who are enrolled. The coverage rate is the percentage of workers who are enrolled in an employer-sponsored pension.

The data shown in figure 2 support several conclusions. First, pension coverage rises with firm size. Most of the reason for this is that small firms are less likely to offer pension plans, although a small part of the explanation is that workers at small firms are slightly less likely to participate in the pension plans offered. Second, since 1988, pension coverage rose most among the smaller firms. Over the 1988-2004 period, the percentage point increase in pension coverage was seven among firms with 1-24 employees, eleven among firms with 25-99 employees, seven among firms with 100-499 employees, and three among those with 500-999 employees. Coverage fell two percentage points among firms with 1000 or more employees. Third, the growth in coverage among the smallest firms occurred primarily since the mid-1990s, whereas coverage fell since 2000 in the larger size categories. Finally, while much of the decline

⁸Munnell, Lee, and Meme (2004) report a very similar pattern of declining coverage in the 1980s, followed by

in coverage rates in the 1980s was due to a decline in participation rates, participation rates were quite stable during the 1990s. Most of the increase in coverage during the 1990s was the result of an increase in the percentage of firms offering pension plans.

While it is clear that workers at small firms are much less likely to have pension coverage, the importance of this fact depends on how many workers are employed at such firms. Figure 3 illustrates that a substantial share of workers is employed at small firms, and that the share of employment at small firms has been quite stable over time. In 2004, 41 percent of private-sector workers aged twenty-two to fifty-five were employed at firms with less than one hundred employees (27 percent at firms with one to twenty-four employees and another 15 percent at firms with twenty-five to ninety-nine employees).

An important question raised by this study is why pension coverage has risen more among small than among large firms in recent decades. To investigate the source of this decline in the gap in pension coverage, we estimate how much of the gap is accounted for by the fact that small and large firms employ different kinds of workers. We do this by estimating a probit model of pension coverage for each worker in the CPS sample with controls for worker and firm characteristics. The size of the firm is not included as one of the control variables. Then, based on the probit model of pension coverage, we impute a probability of pension coverage for each worker in the sample. The predicted probabilities are averaged across workers within a given firm size category to generate a coverage rate for each firm size category. With this approach, differences in the predicted coverage rate across firm size categories result solely from differences in the type of workers employed by firms of different size. This portion of size-related differences in coverage is explained by differences in worker characteristics. The remainder is considered unexplained. The unexplained portion reflects differences in the costs

or benefits of administering pensions that are not accounted for by differences in worker characteristics.

The probit model of pension coverage includes controls for worker and firm characteristics that are likely to affect pension coverage. The worker characteristics include income, age, education, race, weeks worked, part-time employment, region, occupation, and marital status. All of these characteristics are expected to affect pension coverage.

While the characteristics of the individual worker are an important determinant of whether the worker is employed by a firm offering a pension plan, the characteristics of coworkers at the firms are important as well. One reason for this is that nondiscrimination rules require that pension plans cannot be skewed towards high-income employees. Consequently, a low-wage worker is more likely to be covered by a pension plan if the majority of her coworkers have high incomes.⁹ In the CPS data, we know relatively little about the firm beyond its industry and the number of employees. To proxy workforce characteristics for a firm, firms within a given firm size and three-digit industry code are combined to estimate the distribution of earnings and educational attainment.

For the decomposition of size-related differences, the coverage rates of the four smallest firm size categories are subtracted from the coverage rate of the largest firms (over one thousand employees) to generate four different “size gaps” in coverage. Each of these size gaps is then decomposed into an explained and unexplained portion according to the process described above. The analysis is performed separately for 1988 and 2004 with results summarized in table 1.

The decompositions provide insight into why pension coverage is lower among smaller firms. First, in both 1988 and 2004, the shortfall in coverage among smaller firms that can be attributed to workforce characteristics is substantial. In 1988, for example, as table 1 shows, the

size gap in pension coverage for firms with less than twenty-five employees was 49.5 percentage points, with 33.5 points accounted for by differences in workforce characteristics. Moving into larger firm size categories reduces the size gap and the amount explained by differences in workforce characteristics. The overall pattern in both 1988 and 2004 suggests that much of the reason that smaller firms have lower pension coverage is that they employ different types of workers.

The unexplained portion of the size gap in coverage represents differences in coverage that are not accounted for by workforce characteristics. In 1988, the unexplained portion of the size gap ranged from 15.9 percentage points among the very smallest firms (<25 employees) to 4.4 percentage points among the largest (500-999 employees). Holding workforce characteristics constant, then, we find that smaller firms are less likely to provide pension coverage. Higher per capita administrative costs are one plausible explanation for this difference. Alternatively, it could be that smaller firms find that pensions are less valuable as a means to retain workers or enhance productivity.

Comparing the decompositions for 1988 and 2004 yields some important clues as to why the size gap in coverage is diminishing. One reason is that the explained gap in coverage between small and large firms fell over the period. Hence, either workers at small and large firms became more similar over time, or the effect of worker characteristics on pension coverage diminished. We return to this distinction later.

The unexplained portion of the size gap, as table 1 shows, fell over time in three of the four size categories, but it rose slightly for firms in the smallest category. Consequently, it appears that smaller firms continue to be less likely to provide coverage for a given type of worker. Moreover, if workforce characteristics are held constant, the size gap between the very

⁹Evidence that coworkers affect the probability that an individual worker is covered is found in Carrington, McCue, and Pierce (2002) and Scott, Berger, and Black (1989).

smallest and largest firms grew over time. This is despite numerous legislative attempts to reduce the administrative and regulatory burdens of pensions for small firms.

Since workforce characteristics explain a large share of the size gap, it is useful to examine which differences account for the largest share. Table 2 reports a breakdown of the explained portion of the size gap according to groups of workforce characteristics.¹⁰ For the four size gaps examined, the combination of worker- and industry-level earnings accounts for virtually all of the explained gap in coverage. In 1988, lower worker earnings account for 11.4 percentage points of the gap in coverage between firms in the smallest and largest firm size categories. Measures of the workforce earnings distribution play an even larger role in accounting for 15.0 percentage points of the gap;¹¹ the other characteristics included in the model explain relatively little of the gap. Inspection of the decompositions for the other firm size categories (25-99, 100-499, and 500-999) yields a similar conclusion. Earnings differentials are the most important source of explained differentials in pension coverage across firm size.

Comparing the decompositions for 1988 and 2004 reveals that the most important reason the explained gap in coverage diminished over time is that earnings differentials across firm size categories diminished in importance. Either earnings have converged across firm size categories, or earnings differences have become less important determinants of coverage.

Additional evidence on the role of the differential earnings trend in explaining the narrowing of the size gap in coverage is presented in table 3, which shows a decomposition of the change in pension coverage for each firm size category. The decomposition is performed by estimating a separate model of pension coverage for each firm size category with the 1988 data.

¹⁰The decomposition of the explained portion into the part explained by each characteristic is accomplished using the approach in Even and Macpherson (1990).

¹¹The portion of the size gap attributed to individual earnings or workforce earnings distribution is quite robust to the number of variables used to characterize them. For example, doubling the number of earnings categories used to characterize the workforce earnings distribution changed the portion of the size gap explained by that factor by at most 0.4 percentage points. Adding a cubic and quartic term to reflect individual earnings changed the size gap explained by earnings differences by at most 0.8 percentage points. In most cases, the portion explained by either the workforce earnings distribution or individual earnings changed by less than 0.2 percentage points.

Using this model, a predicted change in pension coverage is generated for each firm size category based upon observed changes in worker and industry characteristics between 1988 and 2004. The results suggest that earnings growth (individual earnings and the workforce distribution of earnings combined) among the smallest firms contributed to a modest increase (1.6 percentage points) in predicted coverage over the period. In contrast, a decline in earnings among the largest firms contributed to a modest decrease (2.2 percentage points) in predicted coverage. In total, differential trends in earnings explain 3.8 percentage points of the 9.2 percentage point decline in the coverage gap between the smallest and largest firms. Another 1.4 percentage points of the decline in the gap is explained by differential trends in individual and industry education levels across firm size. The results for the other firm size categories support a similar conclusion. A narrowing of earnings and education differentials across firm size categories contributed to a more equal distribution of coverage across firm size categories.

Evidence that earnings differentials narrowed across firm size categories is found in table 4. Between 1988 and 2004, the total growth in average real annual earnings (1993 dollars) ranged from a low of 6.5 percent among the largest firms to a high of 25.2 percent among the smallest firms. The distribution of real earnings within a given firm size/industry category also changed between 1988 and 2004. Among the smallest firms, the fraction of the workforce with earnings under \$15,000 fell by 12.5 percentage points, whereas it fell by 0.5 percentage points among the largest firms. Also, the fraction of workers in the middle-income groups (\$35,000-\$49,999, \$50,000-\$64,244) rose 1.8 and 0.9 percentage points among the smallest firms but fell by 4.3 and 1.3 percentage points among the largest firms. Over time, the distribution of earnings at large and small firms has become more equal, and this has contributed to a convergence in pension coverage rates.

We provide additional evidence on trends in the size gap in pension coverage using data from the Survey of Consumer Finances (SCF) administered between 1983 and 2001.¹² To provide time-consistent firm size categories, firms are divided into those with more or less than one hundred employees.¹³ We restrict the sample to private-sector wage and salary workers aged twenty-one to fifty-four.¹⁴ Consistent with the trends discovered in the March CPS series, the SCF coverage rates presented in figure 4 illustrate a decline in the size gap in pension coverage. The coverage rates of firms with less than one hundred employees rose from 21.3 percent in 1983 to 30.6 percent in 2001. In contrast, the coverage rate at firms with one hundred or more employees fell from 68.0 percent in 1983 to 64.4 percent in 2001.¹⁵

Compared to the rates calculated with the CPS data, the SCF coverage rates are generally higher. Part of the explanation for the different coverage rates in the SCF and CPS is that the sampling of workers is necessarily different. The SCF includes people who were working at the time of the survey. The CPS includes anyone who was working at any time in the prior year. This difference causes the CPS to include more transient workers and generates lower pension coverage rates.¹⁶ Also, unlike the SCF, the CPS does not explicitly ask about coverage by a

¹²The 1986 SCF was not used because firm size information was not available in the survey.

¹³The March CPS data reveal that the size distribution of firms within the <100 and 100+ categories was remarkably stable over time. Between 1988 and 2004, there was less than a two percentage point change in the percentage of workers in the five different size categories (1-24, 25-99, 100-499, 500-999, 1000+). Consequently, there is no evidence that the growth in coverage at small firms is due to the small firms becoming larger, or that the decline in coverage at the large firms is because the big firms are becoming smaller.

¹⁴The SCF does not include a public-sector worker status variable. To delete those employed in the public sector, we excluded individuals employed in the public administration industry as well as imputed public-sector workers employed outside the public administration industry. We imputed public-sector status in the following manner. First, a model of public-sector status was estimated among a sample of private-sector workers and public-sector workers employed outside the public administration industry in the April 1993 CPS. Second, the coefficients from the model were applied to nonpublic administration workers in the SCF to generate a predicted probability of public-sector status (with a randomization term) for each worker. Third, a sufficient number of workers was deleted from the SCF on the basis of their predicted probability of being public-sector workers, in order to match the percentage of nonpublic administration industry workers employed in the public-sector according to each year's Outgoing Rotation Group (ORG) CPS.

¹⁵The 1983 firm size categories are <100 and 100+. The firm size categories for 1989 and later are <10, 10-19, 20-99, 100-499, and 500+.

¹⁶In a separate analysis, we restricted the CPS sample to workers who were employed at least thirty-nine weeks in the prior year. This increases the CPS coverage rates by two to six percentage points depending on the year and firm size category.

401(k) plan. Consequently, some workers with 401(k) plans in the CPS might not be counted as covered by a pension in the CPS.

Another difference between the CPS and SCF data is that the former show pension coverage rising over time at firms with more than one hundred workers, and the latter show it falling over time. The best explanation we can find for this difference is that the SCF coverage rate in 1989 is substantially higher than that in the CPS. Moreover, the workers sampled at large firms differed systematically between the two surveys during that year, and this generated a higher coverage rate in the SCF.¹⁷ Using methods identical to those employed with the CPS data, the explained portion of the gap in pension coverage between small (less than one hundred employees) and large firms is estimated with the SCF data for the years 1983, 1989, and 2001. The probit model of pension coverage includes many of the same controls as were employed for the CPS data. The major differences are that, unlike the CPS, the SCF provides information on employee tenure with the firm and on union membership. The SCF has less detailed information on industry (six categories) than the CPS, however.

Table 5 shows that both the explained and unexplained portion of the size gap in coverage declined over time, just as we found with the CPS data. Whereas differences in workforce characteristics contributed to a 40.4 percentage point difference in pension between small and large firms in 1983, they contributed to a 29.9 percentage point gap in coverage in 2001. The unexplained gap in coverage between small and large firms fell from 6.3 percentage points in 1983 to 3.9 percentage points in 2001.

A breakdown of the explained portion of the size gap is presented in the bottom of table 5. In the SCF, the combination of individual and workforce earnings accounts for the largest share of the size gap in coverage. Size-related differences in earnings accounted for 23.2, 27.2,

¹⁷This conclusion was made by pooling the CPS and SCF data for large firms and performing a regression analysis of pension coverage. While coverage rates are higher in the SCF for large firms in 1989, approximately one-half of the difference can be explained by differences in the characteristics of the workers in the SCF and CPS.

and 12.7 percentage points of the size gap in 1983, 1989, and 2001, respectively. Consistent with the CPS results, the effect of earnings differences on the coverage gap diminished in the 1990s.

Changes in characteristics other than earnings had modest impacts on the size gap in coverage. For the 1983 to 2001 period, no single worker or firm characteristic accounted for more than a two percentage point decline in the coverage gap.

Taken together, the March CPS and SCF data lend support to several conclusions. First, the gap in coverage between small and large firms diminished in the 1990s. Second, the majority of the size gap in pension coverage is accounted for by differences in worker and firm characteristics. Third, the most important explanation for the convergence in coverage is that the level and distribution of earnings at small and large firms became more similar over time. Finally, despite the fact that a wide array of worker and firm characteristics are observed, our statistical models are unable to account for the entire decline in the coverage gap. Both the CPS and SCF data indicate that changes in unobservable worker or firm characteristics contributed to the declining gap, except for the very smallest firms (less than twenty-five employees) in the CPS. This might reflect a decrease in the administrative costs of pensions at small relative to large firms. It is important to reiterate, however, that the majority of the decline in the coverage gap is due to a convergence in the earnings of workers employed at small and large firms.

Pension Type and Firm Size

Over the past twenty years, firms offering a pension have shifted away from defined benefit and towards defined contribution plans. From the employer perspective, the DC plans may be preferred for several reasons. First, they allow employers to shift rate of return risk and plan contributions to their employees. Second, they allow firms to directly pass the administrative expenses to employees by charging these expenses to the plan. Alternative

explanations for the shift from DB to DC plans include a shift of employment away from the types of firms that were most likely to offer DB plans (e.g., large unionized firms); regulatory changes driving up the administrative cost of DB plans relative to DC plans; and the introduction of the 401(k) plan, which made DC plans more attractive by allowing for greater flexibility in their design.¹⁸

The shift from DB to DC plans has several potential consequences. First, the shift will affect retirement incentives. DB plans encourage retirements within a certain range of service and/or age, whereas DC plans are essentially neutral with respect to retirement. Second, the shift from DB to DC plans could raise the level and inequality of pension wealth at retirement.¹⁹ Given that DC plans are more portable than DB plans, a third potential effect of the shift from DB to DC plans is that worker turnover may increase. This has both positive and negative effects on labor market efficiency. On the positive side, if DC plans allow workers to switch to jobs where they are more productive, labor market efficiency is increased. On the negative side, if firms are less confident in their ability to retain workers, they may be less inclined to invest in job-specific training.

The shift from DB to DC plans has not been uniform across plan size categories. Purcell and Graney (2001) summarizes data from Internal Revenue Service Form 5500 on the number of active participants in DB and DC plans for the period 1990 through 1997. Among pension plans with one hundred or more participants, DB enrollments dropped from 25.2 million to 22.1 million over the period, while DC enrollments rose from 28.7 million to 38.8 million. This represents a 12.3 percentage point drop in DB enrollments and a 35.2 percentage point increase in DC enrollments among large plans. Among small plans (under one hundred participants), DB enrollments dropped from 1.2 million to 660,000, and DC enrollments rose from 6.8 million to

¹⁸Studies exploring the source of the shift from DB to DC plans include Kruse (1995); Gustman, Mitchell, and Steinmeier (1992); Ippolito (1995); Aaronson and Coronado (2005); and Friedberg and Owyang (2004).

¹⁹See Samwick and Skinner (2004) and Even and Macpherson (forthcoming).

9.2 million. This represents a drop in DB enrollments of 45 percentage points and an increase in DC enrollments of 35.2 percentage points. Overall, the data point to similar rates of growth in DC enrollments in small and large plans, but greater percentage point declines in DB enrollments among small plans.

SCF data on plan type by firm size, shown in figure 5, also reflect the trend away from DB and toward DC plans. Between 1989 and 2001, the percentage of workers with only a DB plan fell from 8.7 to 4.2 percent at small firms and from 25.9 to 10.6 percent at large firms. At the same time, the percentage of workers with only a DC plan rose from 11.0 to 23.7 percent at small firms and from 22.6 to 41.0 percent at large firms. The fraction of workers with both a DB and DC plan was fairly stable at small firms over the period (in the range of 2.6 to 2.9 percent), whereas it fell from 19.6 to 12.8 percent among large firms.

Turning now to workers with pension coverage, we see notable differences by employer size in the types of pension plan offered. While the fraction of covered workers with only a DB plan is quite similar for large and small firms, small firms are much more likely to have only a DC plan, and large firms are much more likely to have both a DB and DC plan. For example, in 2001, 13.7 and 16.5 percent of covered workers at small and large firms had only a DB plan; 77.4 and 63.7 percent had only a DC plan; and 9.0 and 19.8 had both a DB and DC plan. Comparing these statistics to those in earlier years reveals, for both large and small firms, a substantial decrease in the percentage of workers with only a DB plan and an increase in the percentage of workers with only a DC plan. The fraction of covered workers with both a DB and DC plan was fairly stable for small firms but fell sharply for large firms.

In deciding whether to offer a DB or DC plan, employers must consider the advantages and disadvantages of each. Dorsey (1987) outlines several important advantages of the DB plan. First, whereas DC plans are viewed as portable, the DB plan has the ability to defer pay and penalize workers who leave prior to retirement. The deferred pay aspect of DB plans would be

particularly valuable to employers for whom hiring or training investments are large. Second, rate of return risk is absorbed by employers in DB plans, but by employees in DC plans. If employers are less risk averse than employees, DB plans may be preferred. Third, DB plans give employers a means to encourage retirement within a given age range, whereas DC plans are virtually neutral with respect to retirement age. Fourth, the ability to underfund a DB plan affords employers the opportunity to improve employee interest in firm survival. This feature can be particularly important in a collective bargaining environment (Ippolito 1985).

The DB plan has some disadvantages relative to the DC, notably from the point of view of employees, who, concerned with the potential for job lock (Ippolito 1994) or firm failure (Curme and Kahn 1990), may not like the deferred pay aspect of the plan. Even from the employer's point of view, there remains the fact that, except in very large plans, DC plans have lower administrative costs than DB plans (Hay/Huggins 1990).

In sum, both worker and firm characteristics affect the choice of plan type. Since the cost disadvantage of DB plans generally declines with plan size, it is not surprising that DB plans are less common among small firms. However, the cost disadvantage of DB plans is not overwhelming. Hay-Huggins (1990) estimates that in 1991, the per capita administrative cost of a DB plan was only \$224 higher than a 401(k) plan in a plan with fifteen participants. In a plan with one hundred participants, the cost disadvantage shrinks to \$70 per capita. While the greater administrative cost of DB plans is undoubtedly an important factor in the greater tendency of small firms to offer DC plans, an alternative explanation for this tendency is that small firms employ workers who have a greater preference for portable pensions.

To determine whether differences in worker characteristics can account for the fact that small firms are less likely to choose DB plans, we first estimate a bivariate probit model of DB and DC plan coverage. The model can be described as follows:

$$DB_i = 1 \text{ if } DB_i^* = X_i\beta_1 + e_{1i} > 0$$

$= 0$ otherwise

$$DC_i = 1 \text{ if } DC_i^* = X_i\beta_2 + e_{2i} > 0$$

$= 0$ otherwise

where DB_i and DC_i are dummy variables indicating whether person i has DB or DC coverage, X_i is a vector of characteristics influencing the net benefit of either a DB or DC plan, β_1 and β_2 are vectors of coefficients, and e_{1i} and e_{2i} are random errors with standard normal distributions which may be correlated with each other.

Estimates of the bivariate probit model are summarized separately for the 1989 and 2001 data in table 6. For each year, separate vectors of coefficients are presented for the DB and DC probit equations. The sign of a coefficient in the DB or DC equation indicates whether the variable has a positive or negative effect on that coverage. If the size of a coefficient is larger in the DB than the DC equation, the variable has a larger effect on the probability that a DB plan will be offered than on the probability that a DC plan will.

Several variables are particularly important determinants of the probability that either a DB or DC plan is offered. For example, the probability of either DB or DC coverage rises as a person's income rises. However, the probability of DC coverage rises more rapidly with income than the probability of DB coverage. Consistent with earlier findings on the effect of unions, unionism increases the probability of DB coverage in both years, but it has a statistically insignificant negative effect on the probability of DC coverage.

After estimating the bivariate probit equation for a pooled sample of small and large firms, the parameter estimates are employed to generate a predicted fraction of workers, by firm size, who will have only a DB plan, have only a DC plan, have both a DB and DC plan (henceforth DBDC), and have no pension. To the extent that differences in worker characteristics alone can account for the differences in the frequency of plan types, size-related differences in the type of plan are explained by differences in worker characteristics.

The portion of the gap in coverage between large and small firms that can be accounted for by differences in worker and employer characteristics is summarized in table 7 for the 1989 and 2001 samples. Differences in the frequency of plan offerings between small and large firms are explained predominantly by differences in workforce characteristics. For each of the four types of coverage (DB only, DC only, DBDC, and no pension), more than two-thirds of the difference between small and large firms can be accounted for by differences in worker and employer characteristics.

Comparing the 1989 and 2001 data reveals a dramatic shift away from DB plans, particularly for large firms. DC-only coverage rose, while DB-only and DBDC coverage dropped. Workers at small and large firms became more similar in terms of the probability of DB-only and DBDC coverage. At the same time, however, the gap between workers at small and large firms with DC-only coverage rose over time.

The growth in DC-only coverage is due to entirely different phenomena at small and large firms. At small firms, the growth is due primarily to a rising share of workers with some type of pension coverage and to a lesser extent to a decline in the fraction with DB coverage. At large firms, the growth is due primarily to a switch away from DB or DBDC plans to DC-only coverage.

Table 8 presents a breakdown of the importance of each worker and employer characteristic in accounting for size-related differences in pension types. The most important explanations for the size gap in plan choices are size differences in the level and distribution of earnings. Over time, diminution of size differences in worker earnings made small and large firms more alike in their propensity to have DB-only or DBDC coverage. On the other hand, size differences in worker earnings have become a more important source of size differences in DC-only coverage. The fact that earnings differentials are leading to a convergence in DB-only coverage but a divergence in DC-only coverage may seem contradictory. However, the seeming

contradiction can be explained by the fact that the influence of worker earnings on the probability of DC coverage rose over time.

An alternative means to examine differences in plan choices is to estimate, by firm size, the determinants of plan choice, and then to estimate for a given firm size how much of the change in plan type choices can be explained by changes in worker and employer characteristics. This approach, presented in table 9, reveals that changes in the level and distribution of earnings are the most salient explanation for changes in coverage and the type of plan chosen. Examination of the results reveals that changes in the earnings distribution contributed to a shift from DB to DC plans, but the effects were greater at large firms.

While changes in worker and employer characteristics account for the majority of the change in plan choices, the growth in DC coverage is greater than predicted for both small and large firms. At small firms, the percentage of workers with DC coverage rose by 12.6 percentage points, yet only a 6.8 percentage point hike can be accounted for by changes in worker and employer characteristics. At large firms, there was a 18.4 percentage point increase in workers with only a DC plan, and 13.5 percentage points are accounted for by changing characteristics.

In summary, several conclusions can be drawn regarding firm size differentials in the frequency of pension plan offerings. Differences between small and large firms in terms of the level and distribution of earnings explain a large share of the difference in plan offerings. Changes in earnings across time led to a shift away from DB plans and toward DC plans -- particularly at large firms. While changing worker and employer characteristics account for the majority of the change in plan choices, these characteristics alone do not account for the entire shift. Other factors that are not controlled for in our statistical models appear to be amplifying the shift away from DB and toward DC plans at both small and large firms.

Pension Generosity at Small and Large Firms

Pension generosity varies widely across employers. Using data from the Health and Retirement Study (HRS), Even and Macpherson (1998) simulates the benefits that a worker with average earnings would receive after thirty years of inclusion in the various pension plans found in HRS. Among the universe of DB plans ranked according to generosity, the plan at the 75th percentile is estimated to be 3.7 times more generous than the plan at the 25th percentile. This 75-25 ratio is 2.7 for non-401(k) DC plans and 3.4 for 401(k) plans.

Although pension generosity varies considerably among firms with pension plans, the determinants of generosity levels are not well understood. The existing evidence suggests that unionized firms provide more generous pensions and that pensions are more generous in the public sector.²⁰ Presumably, the factors that influence whether a pension is offered also influence the generosity level. For example, given the tax advantages of pensions, employees in higher tax brackets may want to devote a larger share of pay to their pension. The fact that Social Security replaces a smaller fraction of income for high-income workers could amplify this effect.

Administrative costs are likely to have differential effects on pension coverage and generosity. Clearly, higher administrative costs could reduce the likelihood that a firm offers a pension. However, when a company provides a pension, administrative costs are not likely to affect the level of generosity, since such costs are not likely to vary with the level of generosity.

Evidence on the generosity of pensions from the SCF and HRS is provided in table 10. Separate tabulations are provided for DB and DC plans. For DC plans, the percentage of pay

²⁰Freeman (1985) and Allen and Clark (1986) find that unionism is associated with a more generous pension plan. Evidence that pensions are more generous in the public than private sector is found in Ippolito (1987); Lovejoy (1988); and Wiatrowski (1994).

contributed to the plan by the employer and employee combined is listed. For DB plans, the percentage of final pay replaced per year of service (the "generosity rate") is listed.²¹

Both the 1989 and 2001 SCF data show that DC plans were slightly more generous at large firms. At firms with one hundred or more employees, the percentage of pay contributed to the plan was 10.03% in 1989 and 11.04% in 2001. At small firms, the contribution rates were 9.36% in 1989 and 10.27% in 2001. In both 1989 and 2001, the hypothesis that contribution rates are identical for small and large firms is rejected at the .05 significance level. While the differences are statistically significant, they are relatively modest in size. That is, workers included in DC plans at small firms accumulate on average at least 90 percent of what is accumulated by workers at large firms.

Evidence from the 1992 HRS, however, runs contrary to the pattern in the SCF. In the HRS, contribution rates are higher at the small firms, but the difference is not statistically significant at conventional levels. The conflicting findings between the HRS and SCF may reflect the fact that the HRS focuses only on older workers, whereas workers from a wide range of ages are in the SCF.

Comparing the DB generosity rates at small and large firms reveals significantly more generous plans for small firms in the 1989 and 2001 SCF. Large plans have an average generosity rate that is between 76 percent (2001) and 83 percent (1989) of that at small firms. Results from the 1992 HRS, however, are opposite to the pattern in the SCF. In the HRS, generosity rates are insignificantly higher at the large firms.

Overall, it appears that if a pension plan is offered, the average generosity of both DB and DC pensions is quite similar at small and large firms. While there are some statistically

²¹The generosity rate is computed differently for two groups of employees, depending on whether their expected retirement benefits were reported as a percentage of final pay or as a dollar amount. For the first group, the generosity rate is computed as the percentage of pay received at retirement divided by years of service at retirement. For the second group, the generosity rate is computed as annual benefits expected divided by the product of years of service and projected pay at retirement. To project pay at retirement, we assume a 1.1% growth in real wages and a

significant differences, the pattern is not consistent across data sets. When the differences are statistically significant, they are relatively modest in size. Consequently, if the shortfall in pension coverage for workers at small firms can be eliminated, most of the gap in pension accumulation will disappear as well.

Summary and Conclusions

Workers at small firms are much less likely to have pension coverage than those at large firms. Explanations for this fact can be broken into two broad categories. First, it is more expensive on a per capita basis for small firms to administer pension plans. Second, employees at small firms systematically differ from those at large firms and are less willing to sacrifice earnings for pension saving.

Data from the Current Population Survey and Survey of Consumer Finances reveal that the gap between coverage rates at large and small firms diminished in the 1990s. The empirical analysis reveals that approximately two-thirds of the size gap in coverage in 1988 and 2001 is due to differences in the type of workers employed by small and large firms. Specifically, differences in the level and distribution of earnings of workers at small and large firms are important explanations for the size gap in coverage. Moreover, between 1988 and 2001, a convergence in the level and distribution of earnings at small and large firms reduced the size gap in coverage.

Using data from the Survey of Consumer Finances and the Health and Retirement Survey, we examined size differences in the type and generosity of plan. We found that among firms offering a pension, small firms are more likely than large firms to offer only a DC plan. Large firms are more likely than small firms to offer either only a DB plan or both a DB and DC plan. During the 1990s, the percentage of workers offered only a DC plan grew at both large and

small firms, but the source of the change differed at small and large firms. At small firms, the growth in coverage by only a DC plan was primarily the result of increases in pension coverage and, to a lesser extent, a decrease in the percentage of workers with only a DB plan. At large firms, it was primarily the result of workers losing coverage by only a DB or by both a DB and DC plan.

Empirical analysis of pension choices reveals that over two-thirds of the size difference in choices of plan type are due to size differences in the type of workers. As with the coverage decision, differences in the level and distribution of earnings are especially important reasons for the greater propensity among small firms to offer only a DC plan. Firms with a relatively large fraction of workers in middle- to high-income categories are the most likely to choose a DC plan, and this effect became more pronounced in the 1990s. Moreover, changes in the distribution of workforce earnings and education contributed to almost two-thirds of the shift away from DB and toward DC plans, at both large and small firms.

Among firms offering a pension, there are only modest differences between small and large firms in terms of the level of plan generosity. The main conclusion drawn from the analysis of generosity rates is that the most important concern for pension saving among workers at small firms is coverage, not pension generosity for those with coverage.

Overall, there are several major conclusions we draw from this study. While scale economies in the administration of pension plans may contribute to small firms' lower pension coverage rates and greater propensity to choose DC plans, the majority of the differences between small and large firms can be explained by differences in the characteristics of the workforces that they employ. During the 1990s, a convergence in the level and distribution of earnings at small and large firms contributed to a substantial closure in the gap in coverage and differences in the type of plan offered. Based on these results, we conclude that legislative

attempts to improve pension coverage at small firms by reducing administrative costs (e.g., through the SEP and SIMPLE) address only one aspect of the problem with low coverage rates at small firms. A potentially fruitful approach would focus on improving the coverage rates of workers with low income levels, possibly by providing greater tax incentives for pension saving among low-income workers.

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Table 1. Decomposition of Pension Coverage Differentials by Firm Size

Firm Size by Number of Employees	Gap in Coverage Relative to Firms with 1000 or More Employees	Explained Portion of Gap (Differences in Workforce Characteristi cs)	Unexplained Portion of Gap	Portion Explained
1988				
<25	49.5%	33.5%	15.9%	67.8%
25 to 99	33.5%	20.4%	13.1%	61.0%
100 to 499	19.2%	12.4%	6.9%	64.2%
500 to 999	10.4%	6.0%	4.4%	57.4%
2004				
<25	40.2%	24.0%	16.2%	59.7%
25 to 99	20.0%	11.9%	8.2%	59.3%
100 to 499	9.8%	5.4%	4.4%	54.6%
500 to 999	4.7%	1.6%	3.1%	34.2%

Note: Decompositions are based on probit model of coverage using data from the 1989 and 2005 March Current Population Survey data. Sample sizes for 1989 and 2004 are 41,182 and 60,953, respectively.

Table 2. Factors Accounting for Pension Coverage Differentials by Firm Size in March CPS

Variable	Firm Size (No. of Employees)			
	1-24	25-99	100-499	500-999
1988				
Individual Earnings	11.4%	6.6%	4.4%	2.5%
Distribution of Workforce earnings	15.0%	9.4%	6.2%	3.3%
Weeks Worked	1.2%	0.7%	0.4%	0.0%
Individual Education	0.2%	0.2%	0.1%	0.0%
Distribution of Workforce Education	1.3%	0.9%	0.5%	0.0%
Part-time	0.9%	0.1%	-0.1%	0.0%
Industry	1.6%	1.7%	0.8%	0.2%
Age	0.6%	0.5%	0.2%	0.2%
Occupation	0.4%	0.3%	0.0%	-0.2%
Other Demographics ^a	0.9%	0.0%	-0.2%	-0.1%
Total Explained	33.5%	20.4%	12.4%	6.0%
2004				
Individual Earnings	17.0%	3.3%	1.7%	0.7%
Distribution of Workforce Earnings.	9.9%	4.6%	1.4%	0.2%
Weeks Worked	0.6%	0.3%	0.2%	0.0%
Individual Education	0.9%	0.6%	0.4%	0.2%
Distribution of Workforce Education	1.9%	1.1%	0.8%	0.3%
Part-time	0.7%	0.0%	-0.2%	-0.1%
Industry	1.5%	1.4%	0.9%	0.7%
Age	0.2%	0.1%	0.0%	-0.1%
Occupation	0.7%	0.5%	0.1%	-0.1%
Other Demographics	0.6%	0.2%	0.0%	-0.1%
Total Explained	24.0%	11.9%	5.4%	1.6%

^a Other demographics includes race, Hispanic or not, gender, and region.

Table 3. Factors Contributing to the Change in Pension Coverage between 1988 to 2004 by Firm Size

Variable	Firm Size (No. of Employees)				
	1-24	25-99	100-499	500-999	1000+
Individual Earnings	1.8%	2.3%	2.1%	4.8%	-0.1%
Industry Earnings	-0.2%	1.3%	0.5%	-6.6%	-2.1%
Weeks Worked	0.3%	0.6%	0.6%	1.6%	0.3%
Individual Education	0.1%	0.2%	-0.1%	-1.8%	-0.1%
Industry Education	0.8%	0.7%	2.1%	5.3%	-0.4%
Part-time	0.2%	0.0%	0.0%	0.0%	-0.1%
Industry	0.1%	0.1%	-0.5%	-2.9%	-0.3%
Age	0.3%	1.3%	0.8%	2.8%	0.7%
Other Demographics ^a	0.1%	-0.6%	-0.4%	-2.3%	-0.3%
Occupation	-0.1%	-1.0%	-0.3%	-1.4%	-0.8%
Total Predicted Change	3.5%	4.8%	4.7%	-0.5%	-3.2%
Total Change	7.8%	12.1%	8.0%	4.2%	-1.4%

Note: The decomposition is based upon the probit coefficients for the 1988 model of pension coverage.

^a Other demographics includes race, Hispanic or not, gender, and region.

Table 4. Change in Level and Distribution of Real Earnings by Firm Size between 1988 and 2004

Variable	Firm Size (No. of Employees)				
	1-24	25-99	100-499	500-999	1000+
Percentage Change in Average Earnings	25.2%	17.5%	14.6%	12.6%	6.5%
Percentage Change in Share of Workers in Earnings Categories					
< \$15,000	-12.5%	-18.3%	-7.5%	-4.2%	-0.5%
\$15,000-\$24,999	5.3%	3.4%	0.9%	-0.5%	1.6%
\$25,000-\$34,999	2.6%	1.6%	2.4%	1.2%	0.2%
\$35,000-\$49,999	1.8%	1.6%	0.5%	-1.0%	-4.3%
\$50,000-\$64,245	0.9%	0.1%	0.4%	0.9%	-1.3%
>\$64,245	1.9%	2.9%	3.2%	3.6%	4.3%

Note: Earnings estimates are based on data from the 1989 and 2005 March CPS. Real earnings are measured in 1993 dollars.

Table 5. Factors Contributing to Size Gap in Pension Coverage: Survey of Consumer Finances

Variable	Year		
	1983	1989	2001
Total Gap	46.7%	45.9%	33.8%
Unexplained Gap	6.3%	4.6%	3.9%
Explained Gap	40.4%	41.3%	29.9%
<u>Portion of explained gap due to:</u>			
Union	4.0%	2.1%	1.8%
Individual Earnings	4.9%	2.7%	1.8%
Industry Earnings	18.3%	24.5%	10.9%
Tenure	5.7%	4.5%	3.8%
Individual Education	0.3%	0.4%	1.5%
Industry Education	5.5%	1.3%	7.6%
Part-time	0.6%	1.8%	1.3%
Industry	0.9%	2.4%	0.0%
Other	0.3%	1.4%	1.2%
Sample Size ^a	1,932	7,861	12,124

Note: Size gap in coverage refers to difference between coverage rate at firms with one hundred or more employees and those with less than one hundred employees.

^a For 1989 and later, the SCF replicates each observation five times to allow for sampling variation in imputed variables. Consequently, sample sizes for these years are overstated by a factor of approximately five.

Table 6. Bivariate Probit Model of DB and DC Plan Choice

Variable	1989				2001			
	DB		DC		DB		DC	
	coeff.	t-stat	coeff.	t-stat	coeff.	t-stat	coeff.	t-stat
Individual Earnings:								
\$15,000-24,999	-0.03	-0.41	0.64	9.30	0.24	3.85	0.42	9.38
\$25,000-34,999	0.09	1.25	0.68	9.24	0.22	3.31	0.68	13.74
\$34,000-49,999	-0.02	-0.20	0.90	10.54	0.27	3.66	0.78	13.90
\$50,000-64,244	0.29	2.66	1.50	13.65	0.27	3.21	1.10	15.30
\$64,245+	0.08	0.68	1.17	10.59	0.35	4.18	1.02	14.22
Industry Earnings:								
\$15,000-24,999	0.00	0.51	-0.01	-2.34	-0.01	-2.35	0.02	6.54
\$25,000-34,999	0.02	4.22	0.03	4.89	0.03	3.39	0.01	1.87
\$35,000-49,999	0.02	5.58	0.01	2.17	0.01	2.36	0.00	0.44
\$50,000-64,244	0.07	6.56	0.02	2.55	0.03	2.74	0.03	4.53
\$64,245+	-0.01	-0.52	-0.01	-0.90	0.03	3.10	0.02	2.65
Years of Schooling:								
9-11	-0.14	-1.11	-0.35	-2.54	0.22	1.75	0.40	3.89
12	-0.20	-1.91	-0.10	-0.78	0.37	3.25	0.43	4.56
13-15	-0.20	-1.73	0.10	0.82	0.27	2.29	0.43	4.46
16	-0.21	-1.72	-0.03	-0.22	0.56	4.62	0.67	6.70
17+	-0.24	-1.86	0.24	1.71	0.54	4.35	0.74	6.90
Industry Schooling:								
12	0.01	2.42	0.00	-0.68	-0.01	-0.92	0.00	-0.01
13-15	0.02	2.90	-0.02	-3.29	-0.03	-3.72	0.01	1.93
16+	0.02	2.67	0.01	1.79	0.03	2.46	0.03	3.37
Female	-0.06	-1.23	0.18	3.73	0.05	1.40	-0.03	-0.81
Nonwhite	-0.20	-3.58	-0.12	-2.29	-0.02	-0.51	0.00	0.05
Part-time	-0.44	-5.44	-0.39	-4.95	-0.21	-2.99	-0.20	-4.13
Tenure	0.11	13.33	0.09	10.60	0.05	8.50	0.11	20.58
Tenure Squared	0.00	-7.57	0.00	-9.31	0.00	-2.95	0.00	-17.29
Union Coverage	0.63	10.37	-0.10	-1.71	0.70	15.83	-0.03	-0.60
Marital Status:								
Married	-0.18	-2.76	0.15	2.32	0.11	2.58	-0.03	-0.95
Spouse Absent	-0.03	-0.36	0.03	0.37	-0.01	-0.17	0.02	0.42
Industry^a:								
Mining, Construction	-1.09	-5.73	-0.01	-0.03	1.11	3.46	-0.59	-3.78
Manufacturing	-0.31	-1.69	0.53	2.76	0.62	2.14	-0.39	-2.77
Trade	0.15	0.78	0.76	3.67	1.19	3.66	-0.42	-3.47
FIRE, Business/Repair Service	0.27	1.14	0.53	2.15	-0.02	-0.07	-1.20	-7.91
TCU, Other Services	0.12	0.48	0.13	0.50	0.66	2.11	-1.00	-5.72
Occupation:								
Tech, Sales, Clerical	0.02	0.26	0.06	1.11	-0.11	-2.39	0.13	3.38
Service and Farm	-0.10	-1.10	0.01	0.14	-0.24	-3.24	-0.13	-2.26
Precision Production, Craft, Repair Operators, Laborer	0.02	0.19	-0.16	-2.05	-0.02	-0.34	-0.16	-2.80
	-0.04	-0.52	-0.22	-2.85	-0.15	-2.31	0.03	0.49

Table 6 (Continued). Bivariate Probit Model of DB and DC Plan Choice

Variable	1989				2001			
	DB		DC		DB		DC	
	coeff.	t-stat	coeff.	t-stat	coeff.	t-stat	coeff.	t-stat
Age:								
26-30	0.47	4.68	0.33	3.57	0.10	1.22	-0.06	-1.07
31-35	0.54	5.44	0.41	4.57	0.17	2.13	0.05	0.79
36-40	0.77	7.74	0.26	2.82	0.24	2.98	0.12	2.05
41-45	0.68	6.55	0.26	2.81	0.20	2.51	-0.01	-0.19
46-50	0.54	5.05	0.42	4.39	0.22	2.65	0.05	0.75
51-54	0.80	7.08	0.48	4.52	0.46	5.40	-0.09	-1.35
Constant	-3.82	-10.01	-2.57	-7.60	-3.67	-7.29	-3.11	-9.04
Rho ^b	-0.14	-5.00			-0.08	-3.75		

Note: Bivariate probit model is estimated using the 1989 and 2001 SCF data.

^a FIRE denotes Finance, Insurance, and Real Estate. TCU denotes Transportation, Communications, and Utilities.

^b Rho is the correlation coefficient for the error terms in the DB and DC equations.

Table 7. Decomposition of Size Differences in Type of Pension Coverage between 1989 and 2001

Firm Size:	DB Only		DC Only		DB and DC		No Pension	
	1989	2001	1989	2001	1989	2001	1989	2001
<100	8.7%	4.2%	11.0%	23.7%	2.6%	2.7%	77.8%	69.4%
100+	25.9%	10.6%	22.6%	41.0%	19.6%	12.8%	31.9%	35.6%
Total Gap	17.3%	6.4%	11.6%	17.4%	17.0%	10.0%	-45.9%	-33.8%
Explained Gap	13.1%	4.8%	8.3%	13.8%	20.0%	10.9%	-41.4%	-29.5%
Portion	75.9%	74.9%	71.3%	79.4%	117.2%	108.6%	90.1%	87.2%
Explained								

Note: Size differences in coverage are based on comparison of firms with more or less than one hundred employees in the 1989 and 2001 SCF.

Table 8. Factors Contributing to Size Differences in Plan Choice between 1989 and 2001

Variable	DB only	DC Only	DB and DC	No Pension
			<u>1989</u>	
Individual Income	0.1%	1.8%	1.4%	-4.4%
Distribution of Workforce Earnings.	8.0%	3.9%	10.7%	-22.3%
Individual Education	-0.1%	0.2%	0.1%	-0.3%
Distribution of Workforce Education.	0.9%	1.0%	1.5%	-3.8%
Tenure	2.5%	0.8%	4.8%	-6.4%
Female	0.1%	-0.1%	0.0%	0.2%
Marital Status	-0.0%	0.0%	0.0%	0.0%
Nonwhite	-0.1%	0.0%	-0.1%	0.1%
Union Coverage	0.8%	-0.1%	0.4%	-0.9%
Industry	0.0%	0.5%	0.3%	-1.1%
Occupation	0.1%	-0.1%	0.0%	0.0%
Age	0.4%	0.1%	0.3%	-0.8%
Part-time	0.5%	0.3%	0.6%	-1.6%
Total	13.1%	8.3%	20.0%	-41.4%
			<u>2001</u>	
Individual Income	0.2%	3.0%	1.1%	-5.0%
Distribution of Workforce Earnings.	2.4%	4.1%	4.2%	-10.2%
Individual Education	0.2%	0.6%	0.4%	-1.2%
Distribution of Workforce Education.	1.1%	4.1%	3.1%	-8.3%
Tenure	0.5%	1.7%	1.6%	-3.5%
Female	-0.0%	0.0%	0.0%	0.0%
Marital Status	0.0%	0.0%	0.0%	0.0%
Nonwhite	0.0%	0.0%	0.0%	0.0%
Union Coverage	0.5%	-0.1%	0.5%	-0.5%
Industry	-0.2%	-0.1%	-0.4%	0.5%
Occupation	0.1%	0.3%	0.2%	-0.6%
Age	0.1%	-0.1%	0.1%	0.0%
Part-time	0.1%	0.3%	0.2%	-0.6%
Total	4.8%	13.8%	10.9%	-29.5%

Note: Size differences in plan choice are measured as difference in frequency of a particular plan choice between firms with one hundred or more employees and firms with less than one hundred employees.

Table 9. Factors Contributing to Change in Plan Choice by Firm Size between 1989 and 2001

Variable	DB only	DC Only	DB and DC	No Pension
<u>Firms With Less Than 100 Employees</u>				
Individual Income	-0.2%	0.7%	0.0%	-0.5%
Distribution of Workforce Earnings.	-3.5%	5.1%	0.0%	-2.1%
Individual Education	-0.0%	0.3%	0.0%	-0.2%
Distribution of Workforce Education.	0.8%	1.5%	-0.1%	-1.7%
Tenure	-0.3%	-0.5%	0.0%	0.5%
Female	-0.0%	0.0%	0.0%	0.0%
Marital Status	0.1%	0.2%	0.0%	-0.3%
Nonwhite	-0.1%	-0.2%	0.0%	0.2%
Union Coverage	-0.3%	-0.1%	0.0%	0.2%
Industry	0.8%	-0.4%	0.0%	-0.2%
Occupation	-0.3%	-0.2%	0.0%	0.4%
Age	0.1%	0.0%	0.0%	0.0%
Part-time	0.2%	0.2%	0.0%	-0.3%
Explained Change	-2.6%	6.8%	-0.1%	-4.1%
Total Change	-4.5%	12.6%	0.2%	-8.3%
<u>Firms With 100 or More Employees</u>				
Individual Income	-0.2%	0.2%	0.2%	-0.2%
Distribution of Workforce Earnings.	-7.2%	8.8%	-3.8%	2.6%
Individual Education	-0.0%	0.1%	0.4%	-0.3%
Distribution of Workforce Education.	-4.1%	5.3%	-1.7%	1.0%
Tenure	-0.3%	-0.4%	-1.8%	1.7%
Female	-0.0%	0.0%	0.0%	0.0%
Marital Status	-0.0%	0.0%	-0.1%	0.1%
Nonwhite	-0.0%	0.0%	0.0%	0.0%
Union Coverage	-0.4%	0.5%	-0.2%	0.1%
Industry	1.3%	-1.5%	-0.1%	0.1%
Occupation	-0.1%	0.1%	0.0%	0.0%
Age	-0.3%	0.3%	-0.4%	0.4%
Part-time	0.0%	0.0%	0.1%	-0.1%
Explained Change	-11.4%	13.5%	-7.5%	5.4%
Total Change	-15.3%	18.4%	-6.9%	3.8%

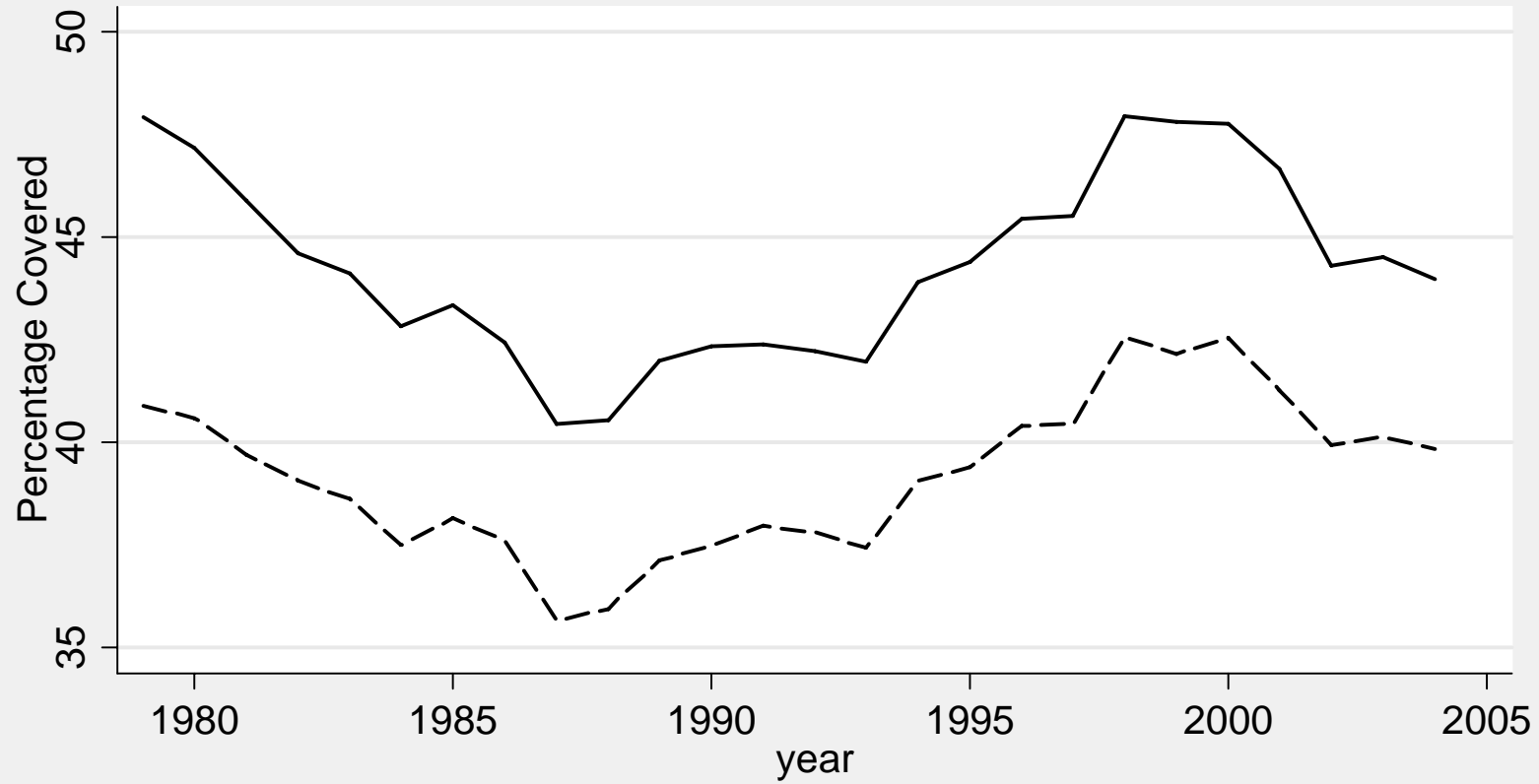
Table 10. DC Contribution and DB Generosity Rates

	Firms With Less Than 100 Employees	Firms With 100 or More Employees	P-value for Equality ^a
DC Contribution Rates			
1989 SCF	9.36%	10.03%	0.05
2001 SCF	10.27%	11.04%	0.00
1992 HRS	10.08%	9.75%	0.62
DB Generosity Rates			
1989 SCF	1.53%	1.27%	0.00
2001 SCF	1.84%	1.39%	0.00
1992 HRS	1.09%	1.30%	0.17

Note: The DC contribution rate is the percentage of pay contributed by both the employer and employee for the average worker with a DC plan. The DB generosity rate is the percentage of final pay replaced per year of service for the average worker with a DB plan.

^aThe p-value for equality is the lowest significance level at which the null hypothesis that contribution rates in DC plans (or generosity rates in DB plans) are equal for small and large firms can be rejected.

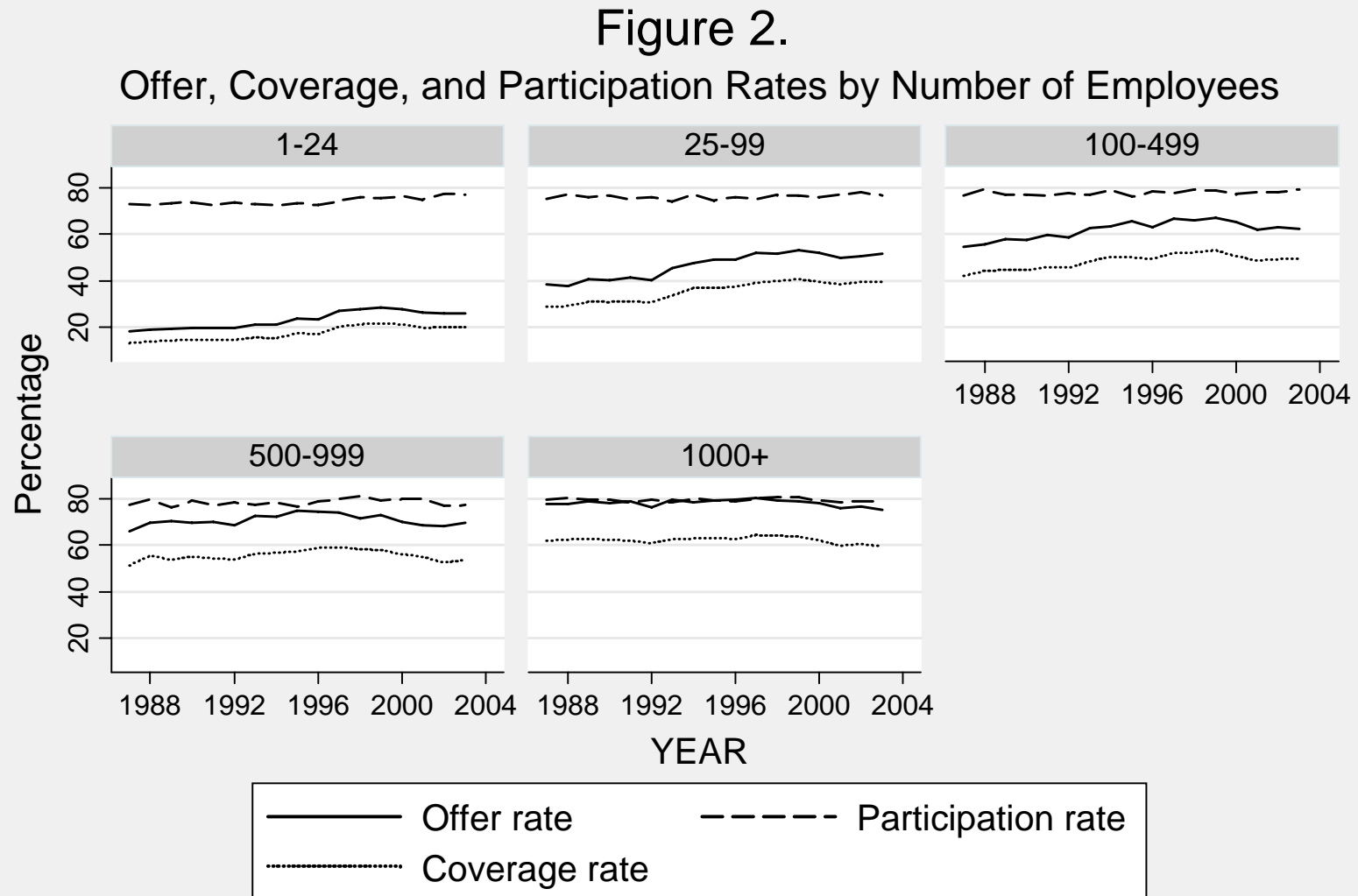
Figure 1. Pension Coverage Rates: 1979-2004



Age Group

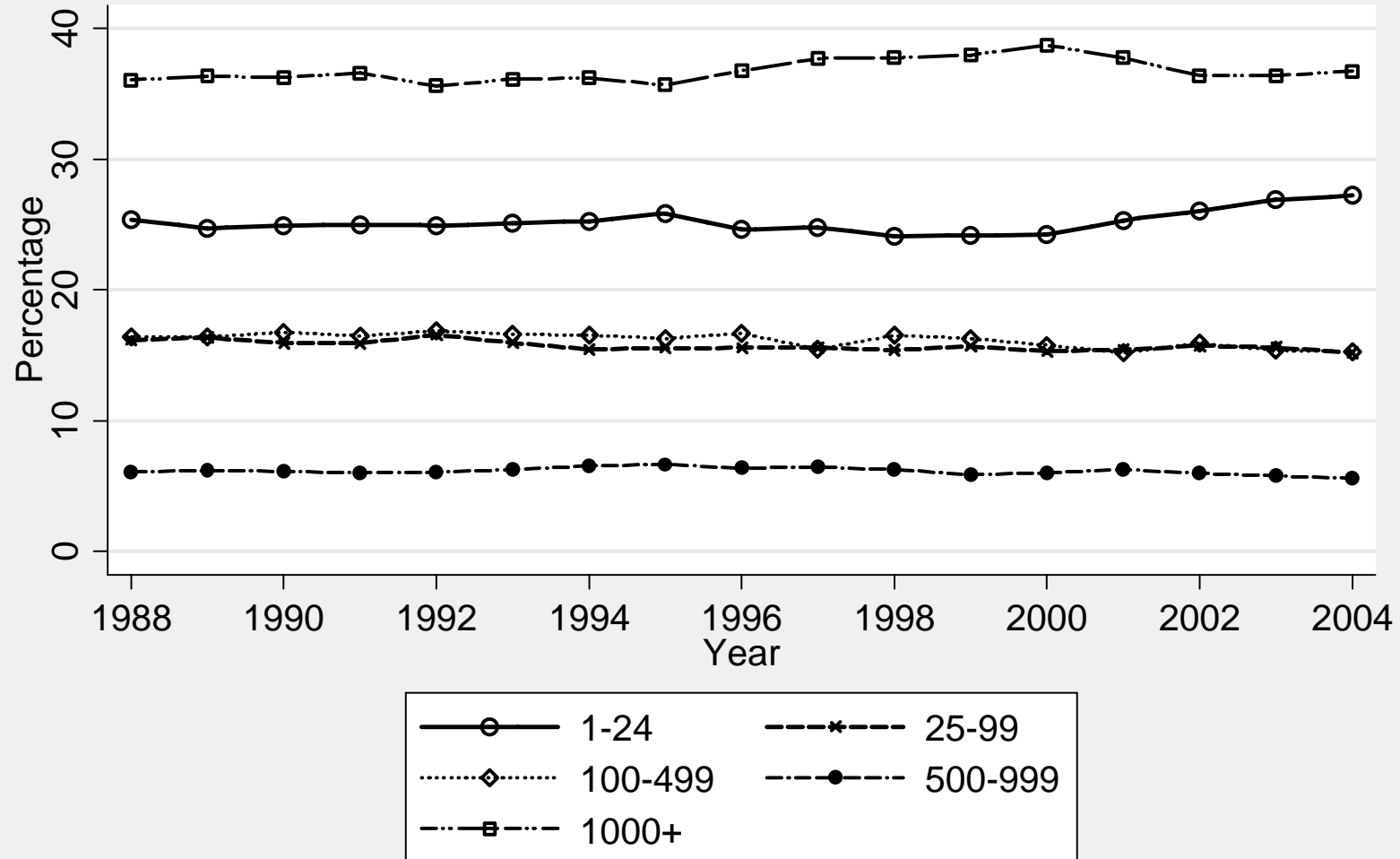
----- 16 and over _____ 22-55

Note: Coverage rates calculated from March Current Population Surveys for private-sector workers.



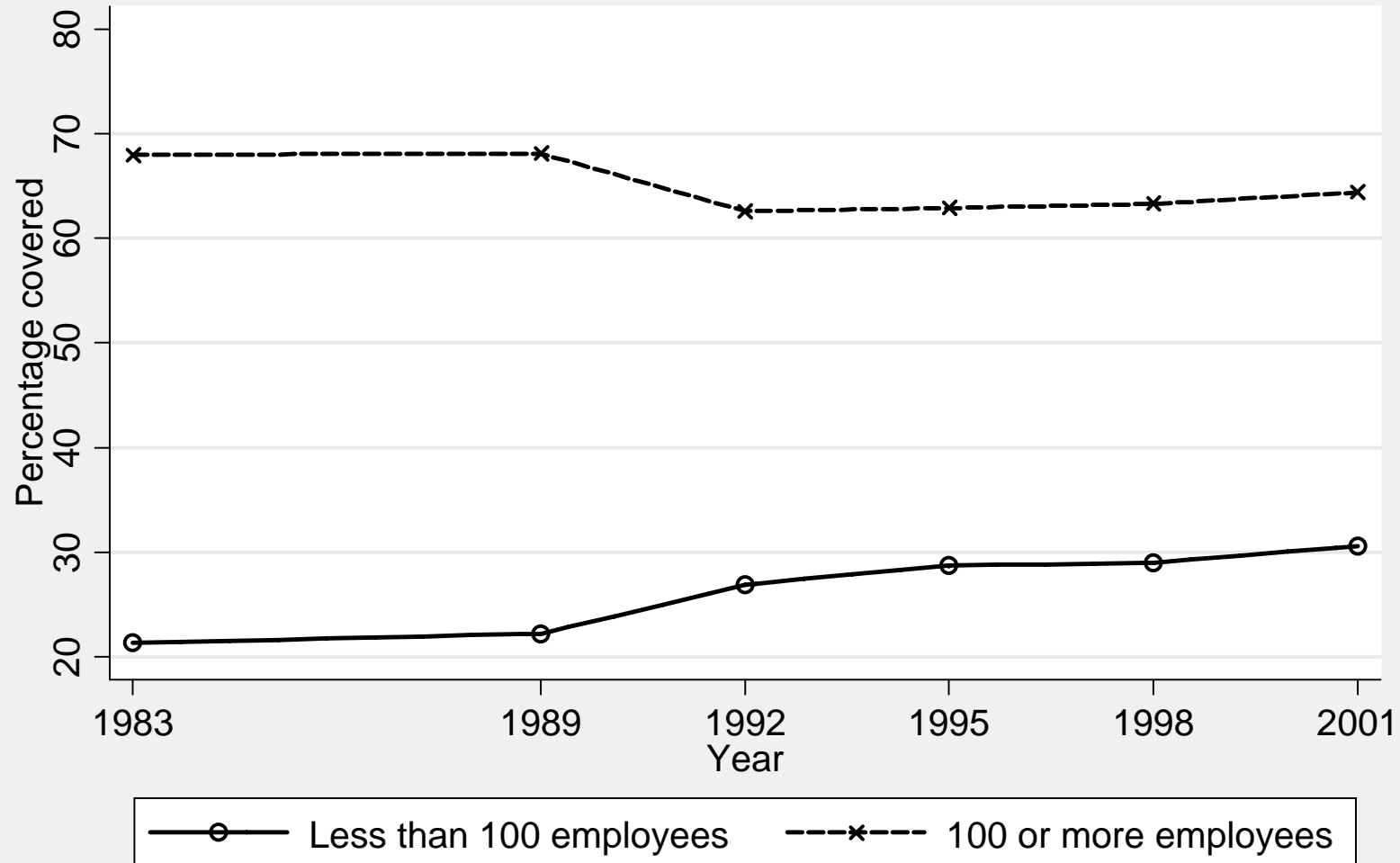
Note: Calculated from March Current Population Surveys for 22- to 55-year-old private-sector workers.

Figure 3. Employment Share by Firm Size



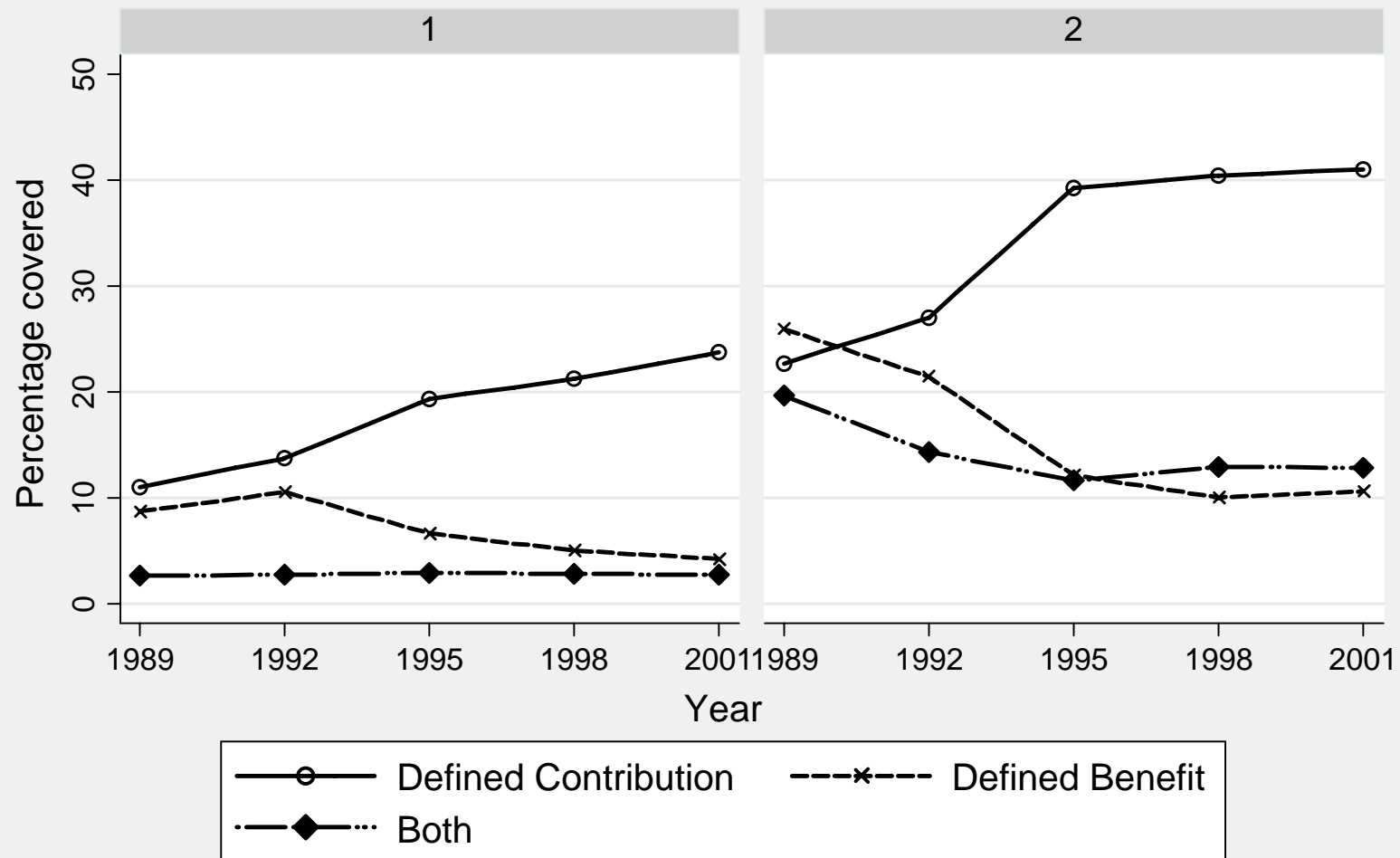
Note: Calculated from March Current Population Surveys for 22-55 year old private-sector workers.

Figure 4. Pension Coverage by Firm Size: 1983-2001



Note: Estimates from Survey of Consumer Finances for 21- to 54-year-old private-sector workers.

Figure 5. Type of Pension Coverage by Firm Size



Note: Estimates from Survey of Consumer Finances for 21-54 year old private-sector workers