Pension Coverage and Pension Type: Using W-2 tax Records to Correct SIPP Survey Reports

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Abstract

Pension income traditionally has been one of the pillars of retirement income in the United States. Over the past few decades the type of pension plans held by workers has been shifting from defined benefit plans where the employer bears all the risks of providing retirement income to defined contribution plans where the employee bears all the risks. The accuracy of information on pension coverage and type is important in understanding the economic well-being of future retirees. Survey reports are subject to reporting errors, however. To the extent respondents misreport their plan characteristics such as pension participation and plan type any projections of pension wealth at retirement will be erroneous and therefore will provide an inaccurate picture of economic security of future retirees. Using data from the 1996 and 2004 panels of SIPP, a major source of information on pensions, we assess the extent of measurement error in respondent reported pension participation and plan type among workers ages 18-64. To examine the extent of and to correct for the potential reporting error in SIPP reports we use information from W-2 tax records about tax-deferred contributions to defined contribution plans. Our results indicate that overall pension participation is about 9 percentage points higher when the survey reports are corrected based on information in the W-2 tax record data. Similarly, the fraction of public sector workers with both types of plans (defined benefit and defined contribution) increases by about 11 percentage points.

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I. Introduction

In the past few decades, employer-provided pension plans have shifted from traditional defined benefit (DB) plans, where the employer bears all the risks of providing retirement income to their employees, toward defined contribution (DC) plans where the employee bears all the risks (Munnell and Sunden 2004). DB retirement plans provide retirement benefits based on a formula typically involving the final salary, age, and years of service. These benefits traditionally were paid as an annuity over a worker's retirement years, and spouses have legal rights to survivor benefits. In contrast, DC pensions are tax deferred savings accounts where employer and employee contributions into the account are invested and retirement income depends on the account balance at retirement. The dramatic shift from DB to DC plans has been identified by researchers using different data sources, such as the Bureau of Labor Statistics' National Compensation Survey (Costo 2006), Form 5500 employer submissions to the Department of Labor (Buessing and Soto 2006), and household population surveys such as the Health and Retirement Study (Dushi and Iams 2008) and the Survey of Income and Program Participation (Purcell 2005, 2009; Copeland 2005, 2009; Verma 2006). Buessing and Soto (2006), for example, using Form 5500 data found that 27 percent of private sector workers in 1981 participated in a 'DB only' plan, 9 percent participated in a 'DC only' plan, and 11 percent participated in both. Almost two decades later, in 1999, about 7 percent of private sector workers participated in a 'DB only' plan, 29 percent in a 'DC only' plan, and 14 percent in both types of plans. Other studies (Purcell 2005, 2009; Copeland 2005,2009; and Verma 2006) have used household population survey data, particularly the Census Bureau's Survey of Income and Program Participation (SIPP), to examine pension participation by plan type.

An advantage of the SIPP data, compared to Form 5500 private employer data, is the availability of socio-economic and job characteristics that allows one to study pension coverage by plan type for the entire work force rather than just the private sector workers. However, one major concern with population survey data is reporting error. If survey reported information, for example pension participation or plan characteristics, suffer from reporting error then projections of pension wealth at retirement of future retirees will be incorrectly measured and also the understanding of financial security of future retirees will be impaired. Previous research (Mitchell 1988; Gustman and Steinmeier 1989, 2004, 2005; Gustman, Steinmeier, and Tabatabai 2009) has shown that respondents' survey reports on pension plan characteristics often differ from pension characteristics reported in the employers' Summary Plan Description.[1] Their analyses assume correct matching of employer plans to survey respondents and accuracy of the employer plan(s) in representing the respondent's retirement plan. In the case of DC pensions, the assumption that the employer plan characteristics are more accurate than the respondent reports is particularly problematic with respect to the DC account balances (Cunningham et al., 2007). It is common that DC pension account holders receive an annual statement of the account balance, which suggests that respondents' reports would be more accurate than inferences from a Summary Plan Description (Scholz 2004).

In order to estimate retirement pension wealth, researchers generally rely on survey reports about pension plan characteristics. However, given the presence of reporting errors some have proposed enhancements to increase the validity of the survey reports. One approach is to rely upon pension reports of those reaching retirement because the respondent reports on pensions would be more salient when people are about to retire or recently have retired (Chan and Stevens 2004; Hurd and Rohwedder 2007). Another approach is to identify DC pension participation from the

[1] Summary Plan Descriptions (SPD) contain information about pension plan characteristics that employers offer to their employees. ERISA requires that plan administrators give plan participants a copy of their plan's SPD as well as a copy of the plan's summary annual report which is reported annually to the Department of Labor.

presence of tax deferred contributions either from survey reports and/or from W-2 tax records of the Internal Revenue Service (IRS).

Turner et al (2003) and Dushi and Honig (2009) use data from IRS W-2 tax records to identify the magnitude of reporting error in DC plans among private sector workers. Turner et al. (2003) compare their new measure of active participation in DC plans (termed accrual definition – it requires the worker to earn a benefit based on current contributions either by himself or his employer) among private sector workers with more traditional measures of participation. They combined information reported by respondents in the 1993 and 1996 SIPP panels about tax deferred contributions with information in W-2 tax records to identify the presence of positive deferred contributions to retirement plans and to determine the accuracy of individual responses as to whether they are contributing to their DC plans. The authors report finding errors and adjust the survey data to be consistent with the W-2 record of tax deferred contributions.[2] Unfortunately, while the authors correct survey reports regarding DC plans with information from W-2 record, they do not report the impact of reporting error in DB plan participation rates. Furthermore, they do not examine the reporting error among public sector workers. Dushi and Honig (2009) using data from the Health and Retirement Study matched to W-2 records, examine reporting error of participation and contribution amounts among private sector workers ages 51-61 in 1992 and 2004. They find that respondents in the younger cohort are more likely to correctly report whether they were included in DC plans, but they were no more accurate in reporting whether they contributed to their plans. These findings, however, may not apply to workers younger than 51 years old and those in the public sector.

This paper extends the previous literature by examining the extent of reporting error of pension offer, participation and pension type by using SIPP data matched with information from W-2 tax-records on tax-deferred contributions. In contrast to Turner et al (2003) we use the information in W-2 records to correct the survey reported information regarding offer and participation in any pension plan, and participation rate by plan type (DC and DB plans). In addition, since it is plausible that public sector workers may exhibit a different degree of reporting error regarding their pensions than private sector workers, our analysis is stratified by private and public sector workers. Our findings indicate that when information from W-2 tax records is used, both pension offer and participation rates are higher than the rates obtained from SIPP reported information. Similarly, the distribution of the type of pensions held by workers is affected when using tax record data.

The remainder of the paper is organized as follows. Section II provides a discussion of SIPP and W-2 tax record data, and of our definitions. Section III presents findings regarding the extent of measurement error, and section IV concludes.

II. Data and Methodology

The Survey of Income and Program Participation (SIPP), conducted by the Census Bureau, is the principal household survey for investigating pension participation in DB and DC plans for the entire labor force in a single cross-section or for examining trends over time. For this study we use data from the 1996 and the 2004 panels of the SIPP. We use data from two different panels because, given the changes in pension environment and the shift in pension types available to workers over the last 15 years, the extent of reporting error may differ in the two samples. Consequently, pension participation trends will be subject to measurement errors. Information on employer pension coverage is collected in the Retirement and Pension Plan Coverage Topical Module to Wave 7, fielded from April to July 1998 and February to May 2006 for the 1996 and 2004 panels, respectively. Because of differences in worker access to different types of pensions in private and public sector, our sample for this analysis consists of wage and

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[2] The pension information for the two panels was collected in 1995 and 1998, respectively. Based on respondents' reports of own contributions, the authors find that when only SIPP reports are used the DC participation rate in 1995 was about 7 percentage points lower than when the SIPP reports were supplemented with information from W-2 tax records (Turner et al., 2003, Table 1).

salary workers ages 18-64 in the private and public sector.[3] Thus, the analysis is stratified by private and public sector employees as well as full- and part-time employees.

In the pension Topical Module, SIPP respondents are asked if the employer offers a plan and whether the employee is included in the plan. If respondents report being included in a plan, then they are asked whether the plan is a formula-type plan where benefits are determined using earnings and years on the job (often referred to as defined benefit plans), an individual account-type plan where both the employee and/or their employer contribute to the account (often referred to as defined contribution plans), or a cash balance plan where only the employer contributes to the account a given percentage of the worker's annual earnings and the contributions earn a given rate of return.[4] Then, SIPP collects information about whether the respondents contributed to the retirement plan or individual accounts during the survey year, whether the contributions are tax-deferred, the amount of contribution and the frequency of contributions, as well as whether the employer contributed to the plan and the respective amount of contribution. If respondents say their employer does not offer a plan, they did not know if they participated, they did not have a tax deferred contribution plan, or they did not make contributions to a retirement plan, SIPP asks a follow-up question about the availability of a tax-deferred retirement plan:

> "I'd like to make sure about a particular type of retirement plan that allows workers to make tax deferred contributions. For example, you might choose to have your employer put part of your salary into a retirement savings account and you do not have to pay taxes on this money until you take it out or retire. These plans are called different names, including 401(k) plans, pre-tax plans, salary reduction plans, and 403(b) plans."

If the respondent indicates that this type of plan is offered, SIPP asks if the respondent participates in this plan. Respondents who report participating are then asked whether contributions were made to the plan by them or their employer and the respective amount of contributions.

Using the self-reported information, we classify a respondent to be included[5] in a DB plan if the respondent said the plan is either based on a formula or is a cash balance plan. Although the cash balance plan is an investment style pension, the cash balance plan is actually a form of a defined benefit plan because the employer bears all the risks (Elliott and Moore 2000; Cahill and Soto 2003; Beller 2005). Following Honig and Dushi (2003), we classify a respondent to be included in a DC plan if the respondent said she/he made tax-deferred contributions to an individual account. For respondents working in the private sector, we classify respondents as participating in a DC plan if they reported making a positive tax-deferred contribution to a DC plan either when first asked or in the follow-up question mentioned above.[6] Those respondents who reported being included in a pension plan but reported their contributions were not tax-deferred contributions are classified as participating in a DB plan. For respondents working in the public sector, participation in a DC plan is defined based on whether the respondent reported the type of pension to be an investment account and if they reported that he/she makes tax-deferred

[3] Sample characteristics for the two panels are presented in Appendix Table 1. Overall the two samples are quite similar with respect to selected demographic characteristics. The main difference is with respect to age distribution and annual earnings. The sample of respondents in the earlier panel is younger and has lower nominal earnings than those in the later panel.

[4] In the 1996 panel respondents were not asked about cash balance plans.

[5] We use the term inclusion and participation in a pension plan interchangeably.

[6] It is common in 401(k) type plans that the employer does not contribute to the account unless the employee makes a contribution. However, there are other types of DC plans where the employer may make a contribution even when the employee is not contributing to the account. To account for this, we looked at respondent reported information on employer contribution and found that only 0.7 and 3 percent, in 1998 and 2006, respectively, of respondents who reported making no tax-deferred contribution to their individual account worked for an employer who made contributions to their account. These numbers are even lower, 0.5 and 1.9 percent, respectively, when we supplement the SIPP information with W-2 records (i.e. if W-2 records indicate that the respondent has made a contribution in the survey year, we correct the SIPP report of a zero contribution into making a contribution).

contributions. Public sector respondents who do not report the plan type to be an investment account are defined as participants in a DB plan even if the employee makes tax deferred contributions.[7]

Based on agreements between the Census Bureau and Social Security Administration (SSA), the SSA administrative records are linked to SIPP panels and are available to analysts for research purposes on approved projects at restricted data sites. For this analysis we matched survey pension information reported from respondents in both the 1996 and 2004 SIPP panels with SSA W-2 tax records. About 83 percent of adult respondents in the 1996 panel and 79 percent in the 2004 panel have their survey reports matched to their own SSA records. Analysis by Czajka et al., (2008) finds little selectivity bias from non-matched data in SIPP.

For each worker, and each job held in a given year, starting from 1990 the W-2 record available in the SSA Detailed Earnings Record (DER) contains information (in addition to total compensation, taxable earnings, etc.) on the amount of earnings that were tax-deferred either to retirement plans (401(k), 403(b), 457, etc.) or to Health Savings Accounts (HSA).[8] Starting in 2005, tax deferred earnings to retirement accounts are recorded separately from tax-deferred earnings to HSA accounts in the W-2 record. Thus, for the years 2005 and 2006 we can separately identify deferred contributions to HSA and to retirement accounts (401(k), 403(b), 408, 457, and 501 accounts), but for 1997 and 1998 we cannot separately identify the different types of deferred compensation. Because the HSA legislation took effect in 1997 (Committee on Ways and Means 2004: 23-24), it is likely that HSA participation was quite modest in 1997 and 1998 and the bulk of W-2 tax-deferred earnings should reflect contributions to retirement accounts. Therefore, information about respondents' tax deferred contributions to retirement accounts are expected to be comparable between the two years of analysis.

To assess the extent of measurement error in employer offer rate of any pension plan, the employee participation rate in any pension plan, and the distribution of participation by plan type, we first show the estimated rates using only information reported by respondents in SIPP. Then we supplement the SIPP reported data with information on tax-deferred contributions from W-2 tax-records. Our main variable of interest from the W-2 records is whether there are tax-deferred contributions to retirement accounts. The presence of positive tax-deferred earnings in the W-2 record is an indication that the respondent has a DC plan. Because the SIPP pension topical modules were administered in 1998 and 2006, we use information from W-2 records on whether respondent made any tax-deferred contributions to retirement accounts either in 1997 or 1998 (for the 1996 SIPP panel) and either in 2005 or 2006 (for the 2004 SIPP panels), respectively. We use two adjacent years to identify the presence of contributions in W-2 records to account for the possibility that the respondent may report participating in a DC plan even if he/she has chosen not to contribute to the account in the interview year but has made contribution to the plan in the previous year.[9] More specifically, if a respondent self-reports not being offered or not participating in a retirement plan and

[7] Three-quarters of state and local government workers are required to contribute to their defined benefit retirement plans (Wiatroski 2009). Mandatory employee contributions to defined benefit plans for state and local government workers are tax deferred [IRS code provision 414(h)] but they do not appear as such in the IRS W-2 form. Consequently, a self-report of tax deferred contributions to retirement plans by state and local government workers can not be used as evidence of DC plan participation, unless they report participating in an individual account plan type where contributions are made from the employee and/or the employer.

[8] See Pattison and Waldron (2008) for a discussion of W-2 tax-record data available in the Social Security Administration's Detailed Earnings Record (DER).

[9] We use information from both survey year and previous year to determine presence of tax-deferred contributions in the W-2 record for two reasons. First, respondents in SIPP who in the topical module report being included in an investment account are asked "How much do you contribute toward this plan," and how often such payments are made. While the reference period for the pension-related questions on the SIPP is the month preceding the interview month, it is unclear from the wording of this question whether respondent would respond about their current year contributions or previous year contributions. Second, the topical module questions are asked after the core questions, where respondents provide information about their employment and program participation for each of the four months prior to the interview month. Thus, the reference period for the prior four months would differ for people who are interviewed in February of 2006 and those interviewed in May of 2006 (the first and last month, respectively, of the wave 7 topical module in 2004 SIPP panel). This sequence may create ambiguity about the

the W-2 record indicates that in fact he/she has made tax-deferred contributions to a plan then we classify the respondent as being offered a pension plan and participating in a DC plan. If instead the respondent reported being included in only one pension plan and the plan is a formula type plan and W-2 indicates positive tax-deferred contributions then we classify that respondent as included in a DC plan. Respondents who report being included in only one plan and the plan is an individual account plan type and W-2 indicates a zero tax-deferred contribution then we classify them as included in a DB plan. Finally, for each panel, the difference between the SIPP reported estimates and the ones obtained from supplementing SIPP reports with information in W-2 records provides an indication of the extent of reporting error.

For all estimates provided in the result section we calculate standard errors using SUDAAN to account for the complex sampling procedure in the SIPP panels. We also performed significance test of the difference between the estimates in the two panels, and due to large sample sizes the percentage differences of greater than 1 percentage points were usually statistically significant at the 5 percent level. While one can perform the significance test of estimates in the two panels since they meet the significance test requirements of comparison of different samples, we do not perform parametric statistical significance test for the difference between the two different measures (such as between SIPP only versus SIPP supplemented with W-2) within a given year since the estimates are for the same sample of respondents and the two measures are different only for a subset of the sample. In the later case, interpretation of differences in estimates must rely on whether the percentage difference seems substantially important.

Another source of data by which to estimate the percentage of employers offering a pension plan and the percentage of employees included in a pension plan is the National Compensation Survey (NCS). It is a representative survey of employers conducted by the Department of Labor [NCS of private sector employers (2007a) and of State/Local government employers (2007b)] where employers report the availability of plans, plan characteristics, and the number of employees participating in such plans. We use data from National Compensation Survey (NCS) as a benchmark to substantiate our estimates of offer and participation rate when SIPP data are supplemented with W-2 record information.

III. Results

III.1. Pension plan offer and participation rates: SIPP versus matched W-2 records

Table 1 (upper panel) shows, separately for each SIPP panel, employer offer rates under two alternative measures: the SIPP reported and SIPP supplemented with W-2 information. In 2006, approximately 67 percent of workers reported that their employer offered a pension plan (either a DB or a DC type plan). As expected, having an employer that offers a retirement plan was much more prevalent among full-time workers in the public sector than in the private sector (87 versus 67 percent); only 48 percent of part-time employees report that their employer offered a plan. When SIPP data are supplemented with information from W-2 records on tax-deferred contributions, we find that the overall offer rate of employer's retirement plans increases to 74 percent in 2006, a 7 percentage point difference compared to the estimates based on SIPP reports only, suggesting that reporting error regarding employer offers of pension plans is relatively small. Substantial differences in offer rates remain between full-time private and public sector workers (75 versus 92 percent), even after supplementing SIPP reports with W-2 data; only 53 percent of part-time workers in 2006 have been offered a plan by their employer.

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reference period in the contribution question. To the extent that such ambiguity is present, the estimates assuming the reported contributions are from the survey year would be biased. Our measure, thus, accounts for this type of error. More specifically, the presence of a positive contribution in W-2 record is determined based on whether a contribution was made either in 1997 or 1998 for the earlier SIPP panel, and either in 2005 or 2006 for the latter panel. Results using this measure do not differ from those obtained when using W-2 information from the survey year only (results available on request by the authors).

Table 1 (lower panel) reports the proportion of respondents who were included in a pension plan. Overall, in 2006, about 50 percent of workers in the SIPP report being included in a pension plan. Among full-time workers, public sector workers were more likely to report being included in a pension plan than their counterparts in the private sector (78 percent versus 51 percent, respectively). In contrast, only about one-fifth of part-time workers report being included in a pension plan. When we supplement self-reported information with data from W-2 tax records, the overall proportion of workers included in a pension plan increases by 12 percentage points. The increase is about 13 and 8 percentage points among full-time private and public sector workers, respectively, and 10 percentage points among part-time workers, indicating that reporting errors regarding participation to pension plans are considerable. In addition, these findings show that reporting error is higher for plan participation than plan offer.

The rates in 1998 were similar to those in 2006. While there are a few significant differences in offer and participation rates between the two years those differences are not substantial. There were no significant differences in the employer offer or employee participation rates between 1998 and 2006 among full-time workers irrespective of whether one uses W-2 tax records or not (Table 1). Both the W-2 adjusted employer offer rate and employee participation rate were significantly higher, although small in magnitude, in 2006 than in 1998 among part-time workers (by only four and six percentage points, respectively).

To corroborate our estimates using SIPP data supplemented by the W-2 record information, we compare them with estimated rates from the NCS. Table 2 presents the offer, participation, and take-up rates, separately for private and state and local government workers, as estimated using 2007 NCS and 2006 SIPP data. Table 2 indicates that the estimated figures for full-time private sector workers are somewhat similar between the two surveys. Among full-time private sector workers both offer and participation rate in 2006 were higher in SIPP (self-report supplemented with information from W-2 tax records) than in NCS. The offer rate in 2006 SIPP was 75 percent compared to 70 percent in the 2007 NCS data and participation rate was 63 percent in SIPP versus 60 percent in NCS. In contrast, among full-time state and local government workers, the NCS records show slightly higher offer and participation rates (99 and 95 percent, respectively) than in SIPP supplemented data (92 and 85 percent, respectively). With respect to part-time workers there is a sizable difference in offer rate between NCS and the SIPP supplemented data, particularly among public sector workers (36 percentage points higher in SIPP than in NCS), whereas the participation rates are only four percentage points higher in SIPP than in NCS. Finally, the take-up rates of full time private sector workers are similar (about 85 percent) in SIPP and NCS and only somewhat higher in the NCS among full-time state and local government workers. In contrast, the take-up rates of both part-time private sector workers and part-time state and local government workers are much lower in the SIPP than in NCS.

In sum, among full-time workers, particularly in the private sector, the estimates using adjusted SIPP data for 2006 appear to be not that different from those using 2007 NCS data and are closer to the NCS estimates than those using only SIPP reports. This finding suggests that supplementing SIPP reports with information from W-2 records can provide a more accurate estimate of pension offer and participation rates among full-time workers.

III.2. Type of Pension Plan

We now turn to the reporting error regarding the type of pension plans. Accurate estimates regarding the type of pension plans employees participate in is important in assessing financial security at retirement because employers bear all the risks in DB plans whereas employees bear all the risks in DC plans. The upper panel of Table 3 reports pension participation by plan type as reported by respondents in SIPP. In 2006, about one-fifth of workers who were included in a pension plan reported having only a DC pension plan, whereas about one-tenth report having only a DB plan, and almost another fifth report having both a DB and DC plan. The prevalence of plan types dramatically varies between full-time and part-time workers. Although a minority of part-time workers were included in a pension plan, as expected, they were more likely to have a 'DC only' plan than a 'DB only' plan (10 vs. 4 percent, respectively).

Among full-time workers, in 2006, private sector workers were slightly more likely than public sector workers to report a 'DC only' plan (24 vs. 20 percent) and thus are somewhat more likely to be the bearers of the pension income risks. In contrast, public sector workers, as expected, were much more likely than private sector workers to report a 'DB only' plan (38 vs. 6 percent) and thus are much more likely to have their employers be the bearers of the pension income risks. Equal proportions of workers in the private and public sectors (about 19 percent) report participating in both types of plans (DC and DB) and thus both the employee and the employer share the pension income risks. Overall, the SIPP reported data suggests that a majority of workers in the private sector are likely to bear some or all of the pension income risks, whereas for the majority of workers in the public sector their employers will bear some or all of the retirement income risks.

The lower panel of Table 3 reports pension participation by plan type when the SIPP reports are supplemented with information from W-2 records.[10] In 2006, compared to figures in rows 1-3, the percentage of full--time private sector workers with a 'DC only' plan increases by six percentage points (from 24 percent to 30 percent), and the proportion with only a DB plan increases by 10 percentage points (from 6 percent to 16 percent).
Thus the error of misreporting plan type is notable. Furthermore, the pattern of DC plans as the dominant type of plan among full-time private sector workers is more pronounced when using W-2 adjusted data than when only self-reported information is considered. In addition, among full-time public sector workers, the proportion of workers with both types of plans, and therefore the prevalence of shared risk by both employers and employees, increases by 11 percentage points (from 19 percent to 30 percent). Similar patterns are observed in 1998 when adjusting the SIPP data with information from W-2 records. Finally, whether or not the W-2 records are used to supplement the self-reported data, the overall proportion of workers participating in a 'DC only' plan was significantly higher in 2006 (by two percentage points) than in 1998, whereas the proportion of public sector workers with a 'DB only' plan was significantly lower in 2006 (by two percentage points).[11]

IV. Conclusion

Pension income traditionally has been one of the pillars of retirement income. As a result, having accurate information on the extent of pension coverage and participation by plan type is important for understanding retirement income security of future retirees. The two types of employer provided pension plans (defined benefit and defined contribution plans) differ fundamentally both in terms of who faces the risks of providing income in retirement and in terms of the way they are funded. In traditional DB pension plans the employer bears all the risks of providing pension income during retirement years, whereas in DC plans the employee bears all the risks for providing adequate income in retirement.

This analysis assesses the extent of measurement error regarding pension offer, participation and the type of pension plans, by comparing estimates based on information provided by respondents in the SIPP survey with estimates obtained when SIPP reports are supplemented with information from W-2 tax records on tax-deferred contributions

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[10] The presence of a positive tax-deferred contribution in the W-2 record (net of Health Savings Accounts in the 2006 data) identifies a contribution to a DC plan in a given year. In this definition, we assume that the presence or lack of a tax-deferred contribution in the W-2 record is the true indication of whether the plan the respondent is included in is a DC or DB plan. Of course, respondents may be included in a DC plan and not contribute in a given year. To account for this possibility we use information from the W-2 record not only for the survey year but also for the previous year. Thus we consider a person as participating in a DC plan if there is a positive tax-deferred contribution either in the survey year or in the previous year. Survey participants who reported being included in only a DB plan and for whom W-2 records indicate a positive tax-deferred contribution either in the survey year or in the previous year are re-classified as participating in a 'DC only' plan. Respondents who reported being included in a 'DC only' plan but whose W-2 record indicated no tax-deferred contributions either in the survey year or in the previous year are re-classified as being included in only a DB plan.

[11] It is plausible that younger and older workers may differ in the size of reporting error regarding their offer, participation and plan type. We examine the extent of reporting error separately for workers ages 21-39 and 40-64. We find that in general the trends for the two age groups are similar to the ones found for the overall sample (results are available upon request by the authors). As expected, participation rates were higher in the older than in the younger age group.

to pension accounts. Several differences are observed. First, both employer offer rates and employee participation rates in retirement plans substantially increased when W-2 records are used, an indication of considerable reporting error in the SIPP pension topical module. Second, the distribution of workers by type of pension they participate in, and consequently the distribution of risk associated with each plan type, changed when W-2 records are used. Among full-time private sector workers, the percentage of employees with a 'DC only' plan (where the employee faces all risks) and the proportion with a 'DB only' plan (where the employer faces all risks) substantially increased with W-2 adjusted data. In contrast, among full-time public sector workers, the proportion with both types of plans (DB and DC), where both employees and employers share the risks, increased substantially. Finally, there were significant but not substantial differences between 1998 and 2006 in the offer and participation rates, and the distribution of type of pension held by employees when W-2 tax record data were used to supplement self-reported SIPP data.

The main implication of our findings is that the proportion of full-time workers participating in a plan is higher when SIPP reports are supplemented with W-2 data than evidence from previous research using SIPP reports only, indicating that future retirees may be better off than widely believed. This suggests that estimates using only survey reports are likely to substantially underestimate the participation rate. In future work, we will examine in more detail the misreporting error of amount of contributions in DC plans, which is particularly important not simply due to the expansion of such plans over the last decade but because employee decisions regarding the amount of contributions to such plans is likely to affect their retirement wealth

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Table 1: Percentage of employees offered and included in a pension plan with alternative definitions, at ages 18-64 years in 1998 and 2006 by hours of work and class of worker.

Pension status	1998				2006			
	Total	Full-time		Part-time	Total	Full-time		Part-time
		Private	Public			Private	Public	
Employer offered a plan								
SIPP reports[a]	66	66	87	45	67	67	88	48*
SIPP or W-2 reports[b]	72	73	91	49	73*	74	92	52*
Included in a plan								
SIPP reports[a]	48	49	76	18	50*	51	78*	20*
SIPP or W-2 reports[b]	58	60	84	25	59*	61	85	28*

Source: Authors calculations using data from Survey of Income and Program Participation Topical Module to Wave 7 and W-2 tax-records.

[a] This definition takes into account only respondents self-reported information in the SIPP.

[b] This definition takes into account respondents report in the SIPP and/or if W-2 tax record indicates a positive tax-deferred contribution amount. If respondent in SIPP reports not being offered or included in a pension plan and W-2 record indicates a positive tax-deferred contribution amount then he/she is classified as being offered a plan and included in a pension plan.

The * indicates statistically significant difference between 1998 and 2006 at the .05 level of confidence, two-tail test estimated by SUDAAN.

Table 2: Pension plan offer, particiaption and take-up rates by private/public sector, full-/part-time status, and data source

	Offer	Participation	Take-up rate
Private sector workers			
Full-time worker			
NCS[a]	70	60	85
SIPP or W-2 reports[b]	75	63	84
Part-time worker			
NCS[a]	31	23	73
SIPP or W-2 reports[b]	49	27	55
State/Local Public workers			
Full-time worker			
NCS[c]	99	95	97
SIPP or W-2 reports[b]	92	85	92
Part-time worker			
NCS[c]	39	37	93
SIPP or W-2 reports[b]	75	41	55

[a] Department of Labor, National Compensation Survey: Employee Benefits in Private Industry in the United States, March 2007, Table 1.
[b] Authors' tabulations of the 2004 panel of the Survey of Income and Program Participation Topical Module to wave 7 matched to W-2 tax records (Social Security Administration Detailed Earnings Records). See definition in Table 1.
[c] Department of Labor, National Compensation Survey: Employee benefits in State and Local Governments in the United States, September 2007, Table 1.

Table 3: Percentage of employees ages 18-64 participating in a pension by plan type using alternative definitions, in 1998 and 2006 by hours of work and class of worker.

Pension status	1998				2006			
	Total	Full-time		Part-time	Total	Full-time		Part-time
		Private	Public			Private	Public	
SIPP reports[a]								
DC only	16	19	15	6	21*	24*	20*	10*
DB only	14	9	44	6	11*	6*	38*	4*
Both	16	19	17	5	16	18	19	6
SIPP report or W-2 record[b]								
DC only	23	27	17	10	25*	30*	19*	12*
DB only	19	16	38	11	18*	16	36*	11
Both	16	17	29	4	16	16	30	4

Source: Authors calculations using Survey of Income and Program Participation Topical Module to Wave 7 and W-2 tax records.

Note : Samples in both panles consists of workers age 21-64 who are included in a pension plan. DB refers to formula type retirement plans or cash balance plan in 2006, whereas in the 1996 SIPP respondents were not asked about cash balance plans. DC refers to individual accounts.

[a] We classify respondents who report being included in a formula or cash balance type pension as having a DB plan. Respondents in the private sector who reported making tax-deferred contributions are classified as having a DC plan. Respondents in the public sector who reported that they are included in an individual account type plan and said they are making tax-deferred contributions are classified as having a DC plan. Respondents who have more than one plan and report being included in both a DB and a DC plan are classified as having 'Both' plans.

[b] This definition takes into account both respondents report in the SIPP as described in [a] above and whether W-2 indicates a positive tax-deferred contribution amount. Respondents who reported being included in only a DB plan and for whom W-2 records indicate a positive tax-deferred contribution either in the survey year or in the previous year are reclassified as participating in only a DC plan. Respondents who reported being included in only a DC plan and for whom W-2 indicated no tax-deferred contributions are reclassified as being included in only a DB plan.

The * indicates statistically significant difference between 1998 and 2006 at the .05 level of confidence, two-tail test estimated by SUDAAN.

Appendix Table 1: Sample distribution by selected characteristics, 1998 and 2006.

Selected Characteristics	1998	2006
Part-time hours	17	17
Full-time hours	83	83
Private worker	82	82
Public worker	18	18
Men	52	51
Women	48	49
Married	59	57
Not married	41	43
Age 18-39 years	55	48
Age 40-64 years	45	52
White	85	82
Black	11	12
Other	4	7
Less than High School Graduate	45	40
Some College	28	30
College	27	30
Mean taxable gross earnings	$29,235	$40,369
	($87,649)	($201,718)
N. of Obs.	29,225	30,085

Source: Authors' tabulations of the 1996 panel and the 2004 panel from the wave 7 of the Survey of Income and Program Participation and W-2 Earnings Records. Standard deviation is in parentheses.