Assessment of Retirement Plan Coverage by Firm Size, Using W-2 Tax Records

by Irena Dushi, Howard M. Iams, and Jules Lichtenstein*

We use data from a Census survey merged with W-2 tax records to examine the extent of respondents' reporting error regarding retirement plans among private-sector workers by firm size. We find substantial reporting error with respect to both offer and participation rates in a retirement plan. About 14 percent of workers who self-reported nonparticipation in a defined contribution (DC) plan had contributed as indicated by W-2 records, whereas 9 percent of workers self-reported participation in a DC plan when W-2 records indicated no contributions. There is little difference in reporting error by firm size, however. Interestingly, although substantial differences exist in pension coverage and participation by firm size, employees in small firms are not that different with respect to take-up of pension plans than their counterparts in large firms. Finally, after correcting for reporting error, a substantially larger proportion of workers in small firms have access to some type of pension than commonly believed based on survey reports.

Introduction

The primary challenge of both researchers and policymakers interested in retirement security is to better understand how to expand pension coverage so that more workers have enough income in retirement to avoid sharp drops in their living standards. Kobe (2010), using data from the Census Bureau's 2006 Survey of Income and Program Participation (SIPP), found that about 58 million private-sector workers (47 percent) do not have access to any type of retirement plan through their workplace. Moreover, an additional 20 million workers (16 percent) do not participate in the plans their employers offer. Almost three-quarters of private-sector workers in small firms with fewer than 100 employees have no retirement plans available compared with about a quarter of workers in larger firms with 100 or more employees. In contrast, conditional on the employer offering a retirement plan, the take-up rate of workers in small and large firms is essentially the same—about 70 percent (Kobe 2010). These substantial differences by firm size suggest that probably the most significant step that can be taken is to make it easier for small firms to provide some sort of retirement plan to their employees.

Policymakers have implemented many options to help small businesses overcome some of the obstacles of sponsoring retirement plans. Unfortunately, despite their availability for many years, these simplified options (for example, Simplified Employee Pension (SEP) plans and Savings Incentive Match Plans for Employees (SIMPLE)) have produced only minor

Selected Abbreviations

DB	defined benefit
DC	defined contribution
IRA	individual retirement account
SIPP	Survey of Income and Program Participation
SSA	Social Security Administration

** Irena Dushi is an economist with the Division of Policy Evaluation, Office of Research, Evaluation, and Statistics (ORES), Office of Retirement and Disability Policy (ORDP), Social Security Administration (SSA). Howard M. Iams is a senior research adviser to ORES, ORDP, SSA. Jules Lichtenstein is a senior economist with the Small Business Administration's (SBA's) Office of Advocacy.*

gains in plan sponsorship (Kobe 2010). The Obama administration has proposed new policies to expand retirement savings. It is estimated that through a program of automatic individual retirement accounts (IRAs), approximately 75 million workers not currently offered a plan at work would be able to save through automatic IRAs (Iwry and John 2007). Under the proposal, employers with more than 10 employees and who are in business for at least 2 years, not currently offering a pension plan, would be obligated to allow their employees the use of the payroll system to direct their earnings to an IRA and would also be obligated to automatically enroll their employees.

A second issue of great importance is plan participation because any policy would not be effective if employees do not participate in the offered plan. In other words, even if all eligible employees under the new automatic IRA were offered such a plan, it is of interest to know what percentage of workers would take up the offer. Although we cannot predict this with certainty, evidence from existing defined contribution (DC) plans may at least be suggestive of what the take-up of such plans would be. Thus, from a policy perspective it is important to understand not only the factors affecting retirement plan participation, but also to analyze the relationship between pension coverage and participation and firm size by controlling for selected socioeconomic, demographic, and job characteristics. However, because such relationships are sensitive to the accuracy of survey-reported information regarding pension offer and participation, for policy purposes it is also important that these relationships are measured as accurately as possible.

In general, to estimate pension coverage and wealth, researchers rely heavily on survey reports about pension plan characteristics. However, survey respondents may incorrectly report their pension plan information. Previous research has documented the widespread inconsistencies between survey-reported characteristics of defined benefit (DB) pensions and the plan characteristics described in the employer's plan summary (Mitchell 1988; Gustman and Steinmeier 2004, 2005; Gustman, Steinmeier, and Tabatabai 2009). Respondent reporting error is also found regarding DC plans (Dushi and Iams 2010; Dushi and Honig 2008). Using SIPP data matched to the Social Security Administration's (SSA's) W-2 records, Dushi and Iams (2010) found that the DC pension participation rate was about 11 percentage points higher when using W-2 tax records compared with respondent survey reports, suggesting that respondents either do not understand the survey questions about participation or they do not recall making a decision to participate in a DC plan. The authors also found inconsistencies between the survey report and the W-2 record regarding contribution amounts to DC plans. Dushi and Honig (2008), using data for older workers in the Health and Retirement Study, found that while respondents interviewed in 2004 were more likely to report correctly whether they were included in DC plans, they were no more accurate in reporting whether they contributed to their plans than respondents interviewed in 1992. The authors also found that respondents in both cohorts significantly overestimated their annual contributions.

Given the presence of respondent reporting errors, some researchers have used different approaches to increase the validity of the survey reports. They (Mitchell 1988; Gustman and Steinmeier 2004, 2005; Gustman, Steinmeier, and Tabatabai 2009) have used information from employers' Summary Plan Descriptions to assess the extent of and correct for reporting error from survey respondents. Another approach was to rely on pension reports from workers who were about to retire or had recently retired because pension information is more current and particularly important for those respondents (Chan and Huff Stevens 2004; Hurd and Rohwedder 2007). A third approach was to supplement survey reports of participation in DC plans with data on tax-deferred contributions taken from W-2 tax records of the Internal Revenue Service (IRS). Turner, Muller, and Verma (2003) combined tax-deferred contribution information reported in the SIPP with information in the W-2 tax records to identify the presence of positive deferred contributions to retirement plans. The authors reported finding errors and adjusted the survey data to be consistent with the W-2 record of tax-deferred contributions.[1] Dushi and Iams (2010), using data from the 1996 and 2004 SIPP Panels matched to W-2 records, found substantial underestimation of reported offer and participation in DC retirement plans, by comparing respondents' reported information regarding DC plans with information in the W-2 tax records.

Given that the self-reported rates of offer, participation, and take-up[2] identified by workers are prone to reporting error either because of misunderstanding of survey questions or other reporting procedures, such as Census imputation of missing data, in this analysis we supplement SIPP data with information about tax-deferred contributions to DC plans from the respondent's W-2 tax records. We find that when tax record data are used, both pension offer and participation rates are higher than those obtained when using only the worker's self-reported information. Even after correcting for errors in reporting DC participation, firm size is positively related to the offer and participation rates of retirement plans, whereas there is little difference in the pension take-up rates by workers in firms with more than 10 employees. Based on our findings, we estimate that if automatic IRAs were introduced, the participation rate of workers not offered a pension plan would increase by at least 18 percent.

The following sections comprise the remainder of the article. A discussion of the data and methodology is presented next. We then give our findings, which are followed by the conclusion.

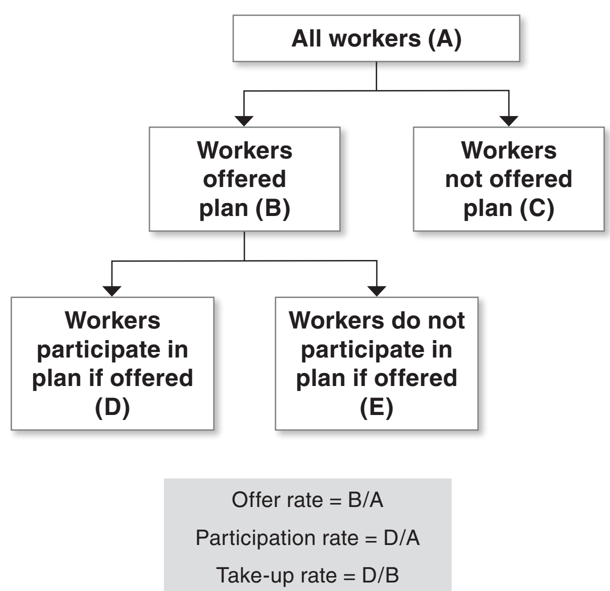
Data and Methodology

The data for this study come from the Census Bureau's SIPP—the principal household survey for monitoring pension coverage and participation as well as the shift from DB to DC plans, for the entire labor force. More specifically, we use the 2004 Panel of the SIPP in which information about employer pension coverage is collected in the topical module to Wave 7, with respondents' interviews conducted over the 4-month period from February to May 2006. The sample for this analysis consists of private-sector wage and salary workers aged 21 to 64.[3]

In the topical module, SIPP respondents are asked if the employer offers a plan and whether the employee is included in the plan.[4] If respondents were included in a plan, then they are asked about the type of plan they are included in (whether a formula-type plan (DB), an individual account-type plan (DC), or a cash balance plan). Then, SIPP collects information about whether the respondents contributed to a retirement plan or an individual account plan during the survey year, whether the contributions were tax-deferred, the amount and frequency of contributions, as well as whether their employers contributed to the plan and the amount of employer contributions.[5]

In the analysis, we first use self-reported SIPP data to assess the employer offer, employee participation, and take-up rate (that is, the rate of participation if offered) of *any* pension plan. Then, we use information on tax-deferred contributions to DC retirement plans from W-2 tax records as a supplement to the SIPP data in order to correct for the presence of measurement error in self-reports of DC plans and also to obtain a more accurate picture of the pension offer, participation, and take-up rates.[6] Next, we follow the same approach to examine separately the offer, participation, and take-up rate of DC plans. Using the self-reported information, a respondent is classified as being offered any pension plan if he or she reports that the employer offered either a DB pension plan or a tax-deferred retirement plan. We define the rate of participation in a retirement plan as the percentage of workers who participated in a formula-based DB plan or a cash balance DB plan,[7] or who actively contributed to a DC plan, among all workers whether offered a plan or not. We then define take-up rate as the percentage of respondents who reported participating in a retirement plan (DB or DC), conditional on workers being offered a plan. In a similar way, a respondent is defined as being offered a DC plan if he or she reported that the employer offered an investment account plan or a tax-deferred retirement savings plan. We define participation in a DC plan among all workers if respondents reported making contributions to the DC plan, whereas the take-up of a DC plan is defined as respondents making tax-deferred contributions to the plan among those who reported being offered a DC plan (see Chart 1).[8]

Chart 1.
Definition of offer, participation, and take-up of retirement plans



SOURCE: Authors' illustration.

As noted earlier, given the possibility of reporting error, we match survey pension information reported from respondents in the 2004 SIPP Panel with Social Security W-2 tax records.[9] About 85 percent of respondents in the Wave 7 interviews of the 2004 Panel have their survey reports matched to their own SSA records.[10] We use information in the W-2 records to supplement the self-reported DC information and thus create a new measure of offer and participation. The main field of interest from the W-2 records is whether in a given year there were tax-deferred contributions to a retirement plan.[11] The presence of positive tax-deferred contributions in the W-2 record is an indication that the respondent not only is offered but also participates in a DC plan. Thus, for respondents who self-reported not being offered a plan or not participating in a plan but whose W-2 record indicates a positive tax-deferred contribution (to a 401(k), 403 (b), 408, 457, or 501 account), we classify them as being offered and participating in a DC plan.[12] Note that the lack of a tax-deferred contribution in the W-2 record does not necessarily indicate that the employee was not offered a DC plan or any pension plan; there is no way of telling from the W-2 records whether the self-reported information is valid or not because the employee may have been offered a plan, but chose not to participate in it. Thus, our measure of the offer rate only partially corrects for the reporting error and may still be subject to measurement errors because in cases where the W-2 record is zero but respondents' reported being offered a plan, we classify them as being offered. We correct participation in any pension in the same way as the offer. However, regarding participation in a DC plan, we correct for both types of error (discussed in note 12) and report participation rates based solely on W-2 record information.

Given the SIPP pension topical module of the 2004 Panel was administered in early 2006, it is not clear whether respondents reported their contributions for the current survey year or the previous year. Therefore, we use information from W-2 records regarding tax-deferred contributions to retirement accounts made by respondents either in 2005 or in 2006. Furthermore, we use the two adjacent years to identify contributions in W-2 records to account for the possibility that respondents may have reported participating in a DC plan even if they had chosen to not contribute to the account in the current year, but made contributions to the plan in the previous year.

We first present the unadjusted and the corrected offer, participation, and take-up rates for *any* type of pension plan (DB, DC, or cash balance) and separately for a DC plan, by firm size.[13] Then, we estimate multivariate probit models of offer, participation, and take-up—controlling for workers' demographic and job characteristics, including firm size. In these models, the dependent variable for being offered *any* pension plan (or for participating in any plan) is defined among all workers as equal to 1 if the worker is offered any plan (or participates in any plan) and 0 otherwise. Take-up is defined only for workers who are offered a plan; it is equal to 1 if the respondent participates in the offered plan and 0 otherwise. The dependent variables for being offered, participation in, and take-up of a DC plan are defined similarly.

Findings: Pension Plan Coverage and Participation

We first look at the offer of and participation in any pension plan by firm size.[14] Approximately two-thirds (65 percent) of workers at the time of survey in 2006 self-reported that their employer offered a pension plan (either a DB, DC, or both); see Table 1, column 1. About three-quarters (77 percent) of workers in large firms were offered a pension plan, compared with less than half (42 percent) of workers in small firms with fewer than 100 employees. The percentage of workers that self-reported being offered a retirement plan increases with firm size, from 27 percent in firms with fewer than 10 employees to about 77 percent in large firms with 100 or more employees. When the self-reported data is supplemented with information on tax-deferred contributions in the W-2 records, we find that the overall offer rate of retirement plans by employers increases by 7 percentage points to 72 percent (column 2).[15] Similarly, within each firm size the offer rate increases by approximately 7 percentage points after the W-2 adjustment.

About 45 percent of all workers self-reported participating in a pension plan (that is, self-reported either that they were included in a DB plan or made a contribution to a DC plan); see Table 1, column 3. The reported participation rate dramatically increased with firm size from a rate of about 18 percent of workers in firms with fewer than 10 employees to a rate of 54 percent of workers in firms with 100 or more employees. Self-reported participation rates appear to be underestimated, by about 13 percentage points, compared with those that are adjusted using W-2 records (column 4).[16] Thus, after the W-2 adjustment, a higher percentage of workers—about 58 percent overall—participate in any pension plan. Similarly, after the W-2

Table 1.
Offer, participation, and take-up rates of any retirement plan among all private-sector workers in 2006, by firm size (in percent)

Firm size (number of employees)	Offered a retirement plan		Participate in a retirement plan		Take-up of a retirement plan	
	SIPP[a] (1)	W-2 adjusted[b] (2)	SIPP[a] (3)	W-2 adjusted[b] (4)	SIPP[a] (5)	W-2 adjusted[b] (6)
All	65	72	45	58	69	80
100 or more	77	84	54	68	70	81
Fewer than 100	42	50	28	39	65	79
Fewer than 10	27	34	18	28	65	83
10–24	39	46	24	36	63	77
25–49	51	60	34	46	67	77
50–99	63	70	41	54	66	78
10 or more	70	77	49	62	69	80
Number of observations	23,753		23,753		15,631	

SOURCE: Data are from the 2006 topical module of the 2004 SIPP Panel matched to Social Security W-2 records.

NOTES: Estimates are weighted using survey weights. Offer is defined as equal to 1 if the employer offers any retirement plan (either a DB, DC, or cash balance plan) and 0 otherwise. Participation is defined as equal to 1 if the respondent reports either inclusion in a DB plan or active participation (that is, making tax-deferred contributions) in a DC plan and 0 otherwise. Take-up is defined, among respondents who are offered any retirement plan, as equal to 1 if respondents participate in a plan and 0 otherwise.

a. This definition takes into account only a respondent's self-reported information in the SIPP.

b. This definition takes into account a respondent's self-reported information in the SIPP and/or whether the W-2 record indicates a positive tax-deferred contribution either in 2005 or 2006. In other words, if a SIPP respondent reports not being offered (or participating in) a pension plan and the W-2 record indicates that he or she made a tax-deferred contribution to a DC account in 2005 or 2006, then the respondent is classified as being offered and participating in a retirement plan.

adjustment, participation rates of workers across firm sizes increase monotonically from about three-tenths (28 percent) in firms with fewer than 10 employees to about two-thirds (68 percent) in firms with 100 or more employees.

Among all workers offered a pension plan, about 69 percent of them take-up the offered pension (Table 1, column 5). The take-up rate is higher in large firms than that in small firms with fewer than 100 employees (70 percent compared with 65 percent, respectively). The take-up rate varies relatively little across small firms. After adjusting the self-reported SIPP data with W-2 records, the overall take-up rate increases, by 11 percentage points, to 80 percent (column 6). The adjustment increases the pension take-up rate for all firm sizes, but the largest increase is in firms with fewer than 10 employees (an 18 percentage-point increase versus an approximate 10 to 14 percentage-point increase in other firm sizes). After adjustment, the take-up rate for workers in firms with fewer than 100 employees is about 79 percent, only 2 percentage points lower than the 81 percent for workers in the larger firms.

Defined Contribution Plan Coverage, Participation, and Take-Up

As DB plans are being frozen or eliminated, DC plans are becoming the dominant type of pension plan available to employees (National Compensation Survey 2010, Table 2; Pension Benefit Guaranty Corporation 2010). Using the 2006 SIPP-reported data, we find that almost three-fifths (57 percent) of all workers reported being offered a DC pension plan in their current job (Table 2, column 1) and about two-fifths (39 percent) of all workers reported making tax-deferred contributions to a DC plan (column 3). Both DC participation and take-up rates of workers dramatically increase with firm size. Thus, only 24 percent of respondents in small firms (with fewer than 100 employees) self-reported participation in a DC plan, compared with 47 percent of those employed in large firms (with more than 100 employees). In contrast, there is a smaller difference in the take-up rate between workers in small firms compared with workers in large firms (67 percent versus 69 percent, respectively), suggesting that a majority of workers in small firms are likely to participate if offered a DC plan. Within

Table 2.
Offer, participation, and take-up rates of DC plans among all private-sector workers in 2006, by firm size (in percent)

Firm size (number of employees)	Offered a DC plan: SIPP[a] (1)	Offered a DC plan: W-2 adjusted[b] (2)	Participate in a DC plan: SIPP[a] (3)	Participate in a DC plan: W-2[c] (4)	Take-up of a DC plan: SIPP[a] (5)	Take-up of a DC plan: W-2[c] (6)
All	57	60	39	44	69	73
100 or more	68	71	47	53	69	74
Fewer than 100	36	39	24	27	67	70
Fewer than 10	21	24	15	17	73	71
10–24	32	36	21	24	65	68
25–49	45	48	30	34	67	70
50–99	57	59	37	41	65	70
10 or more	62	65	42	48	69	73
Number of observations	23,753		23,753		13,778	14,403

SOURCE: Data are from the 2006 topical module of the 2004 SIPP Panel matched to Social Security W-2 records.

NOTES: Estimates are weighted using survey weights. Offer is defined as equal to 1 if the employer offers a DC retirement plan and 0 otherwise. Participation is defined as equal to 1 if the respondent reports active participation (that is, making tax-deferred contributions) in a DC plan and 0 otherwise. Take-up is defined, among respondents who are offered a DC plan, as equal to 1 if respondents participate in a DC plan and 0 otherwise.

a. This definition takes into account only a respondent's self-reported information in the SIPP.

b. This definition takes into account a respondent's self-reported information in the SIPP and/or whether the W-2 record indicates a positive tax-deferred contribution either in 2005 or 2006. In other words, if a SIPP respondent reported not being offered a DC plan and the W-2 record indicates that he or she made a tax-deferred contribution to a DC account in 2005 or 2006, then the respondent is classified as being offered a DC plan. In contrast, if a SIPP respondent reported being offered a DC plan but the W-2 record indicates that no contributions were made, we consider him or her as being offered because there is no way we can tell from the W-2 record whether the offer was made or not.

c. This definition takes into account only information in the W-2 record.

small firms, the DC participation rate increases from about 15 percent of workers in firms with fewer than 10 employees to 37 percent of workers in firms with 50–99 employees. The DC take-up rate is relatively constant across the small firm sizes, with around two-thirds (67 percent) in firms with 10–99 employees and almost three-quarters (73 percent) in those with fewer than 10 employees. These findings suggest that the main factor in low participation rates among workers is the lack of offer of a DC plan. Thus, we infer that even if all uncovered workers were offered a DC or an IRA plan, all else equal, only about two-thirds of them would participate if it was left to their choice.[17]

When we replace the self-reported information about DC participation with information in the 2005 and 2006 W-2 records, the DC offer rate increases only by 3 percentage points and the participation and take-up rates increase by 5 and 4 percentage points, respectively (Table 2, columns 2, 4, and 6). Using the W-2 record information does not change the overall pattern by firm size. While the offer and participation rates increase with firm size, the take-up rate remains relatively constant (about 70 percent) in small firms.

Next, we examine the mismatch in participation between self-reported data and W-2 records. The joint distribution of participation in a DC plan, as self-reported by respondents and as indicated in the 2005 and 2006 W-2 records by firm size, is shown in Table 3.[18] Overall, about 30 percent of all workers actively participated in DC pensions *and* correctly reported their participation as confirmed by the information in the W-2 records (column 4). Fourteen percent of workers self-reported that they did not participate in a DC plan when in fact W-2 records indicate that they contributed to the plan. In contrast, 9 percent of workers self-reported participation in a DC plan when in fact W-2 records indicate that they did not contribute to the plan. These two types of reporting errors lead to a net gain of only about 4 percentage points in DC pension participation and take-up when using W-2 records (Table 2).[19] The percentage of workers with a false-negative report of

Table 3.
Percentage distribution of participation in a DC plan as self-reported in the SIPP and as indicated in the W-2 records among private-sector workers in 2006, by firm size

Firm size (number of employees)	Self-reported no participation in a DC plan; W-2 record contribution is— Zero (1)	Positive (2)	Self-reported participation in a DC plan; W-2 record contribution is— Zero (3)	Positive (4)	Total
All	46	14	9	30	100
100 or more	37	16	10	37	100
Fewer than 100	58	13	9	21	100
Fewer than 10	75	9	8	8	100
10–24	68	11	8	13	100
25–49	57	13	9	21	100
50–99	50	14	9	28	100
10 or more	43	15	10	33	100
Number of observations	11,335	2,896	2,529	6,993	23,753

SOURCE: Data are from the 2006 topical module of the 2004 SIPP Panel matched to Social Security W-2 records.

NOTES: Estimates are weighted using survey weights. Totals may not sum to 100 because of rounding.

participation in a DC plan (that is, the respondent self-reports not participating in a DC plan when in fact the W-2 record indicates positive contributions) increases from 9 percent of workers in firms with fewer than 10 employees to 16 percent of workers in firms with 100 or more employees.

These findings have some implications for the proposed automatic IRA plan. According to Iwry and John (2007), the automatic IRA would apply to employers with 10 or more employees, who do not sponsor a pension plan of any type and have been in business for at least 2 years. The authors of this proposal assert that half of US workers are not offered a pension of any type.[20] Disregarding the 2-year requirement, our adjusted data provide an estimate for private-sector workers in 2006 and suggest that overall 72 percent of private-sector workers are in firms that offer some type of pension plan (Table 1, column 2); thus, 28 percent are not offered any pension plan. Under the automatic IRA, employees without a pension offer would be enrolled into an IRA plan, but the employee has the option of opting out of the plan. Our estimates indicate that almost three-quarters (73 percent) of workers in firms with 10 or more employees take up a DC plan when it is offered (Table 2, column 6). However, this is lower than the take-up rate in DC plans with automatic enrollment, which previous research has shown to be higher than three-quarters (Choi and others 2002, 2004a, 2004b; Madrian 2005). If the automatic IRAs were introduced to private-sector workers in firms with 10 or more employees not offered *any* pension plan by their employer, then based on our findings, at least 18 percent of the employees would participate (an 80 percent take-up rate multiplied by the 23 percent of all workers not offered any type of pension plan (Table 1, columns 2 and 6).[21] Note that our estimates are not a lower bound because they assume the same take-up rate as that of plans without automatic enrollment.[22] Some employers in 2006 had plans with the automatic enrollment provision, which consequently elevates the participation and take-up rates in our 2006 data.

Multivariate Analysis

We now turn to the multivariate analysis of offer, participation, and take-up by estimating separate probit models using as a dependent variable (for offer, participation, and take-up)—either a measure based on self-reports or a measure based on the self-report adjusted for information available in the W-2 records. Both offer and participation models are estimated among all private-sector wage and salary workers, whereas the take-up model is estimated among the sample of all workers who are offered a plan. In our models, we control for several socioeconomic and job characteristics such as age, sex, education, marital status, race/ethnicity, annual W-2 earnings, major industry categories, tenure, and firm size. For ease of exposition, we report only firm-size marginal effects, that is, measuring the effect of firm size holding all other characteristics constant.

Table 4 shows the marginal effects of firm size on the probability of being offered any type of pension plan, the probability of participating in a plan, and the probability of taking up the offered plan. Probit results indicate that the probability of being offered a pension plan increases with firm size (column 1). In other words, workers in small firms have a lower probability of being offered a plan (by 46 percentage points, for example, in firms with fewer than 10 employees) than those in large firms (with 100 or more employees). A similar pattern is evident when the dependent variable is constructed based on SIPP-reported data adjusted for information in the W-2 records (column 2). Moreover, the marginal effects by firm size between the two measures are not that different, suggesting that estimates of offer rates of any pension plan by firm size are not likely to be biased when using just the self-reported information.

The probability of participation in a pension plan increases with firm size, and the effect of firm size is larger when using the W-2 adjusted measure compared with the survey-reported measure. Thus, workers in firms with fewer than 10 employees are about

Table 4.
Estimated marginal effects of firm size on the probability of being offered, of participating in, and of take-up of any retirement plan among all private-sector workers in 2006

Independent variable	Offered a retirement plan[a]		Participate in a retirement plan[a]		Take-up of the retirement plan[d]	
	SIPP[b] (1)	W-2[c] (2)	SIPP[b] (3)	W-2[c] (4)	SIPP[b] (5)	W-2[c] (6)
Firm size (number of employees)						
Fewer than 10	-0.458**	-0.471**	-0.295**	-0.344**	-0.032	0.044**
10–24	-0.365**	-0.379**	-0.245**	-0.299**	-0.050*	-0.013
25–49	-0.253**	-0.250**	-0.162**	-0.205**	-0.012	-0.026
50–99	-0.136**	-0.141**	-0.105**	-0.125**	-0.042*	-0.025
100 or more (omitted)	---	---	---	---	---	---
Number of observations[e]	23,141	23,141	23,141	23,141	15,250	16,860
Pseudo R^2	0.190	0.254	0.241	0.280	0.209	0.218
Observed probability	0.654	0.725	0.453	0.582	0.692	0.803
Predicted probability (at x-bar)	0.678	0.778	0.425	0.603	0.731	0.856

SOURCE: Data are from the 2006 topical module of the 2004 SIPP Panel matched to Social Security W-2 records.

NOTES: Estimates are weighted using survey weights. The reported statistics are marginal effects of firm size relative to the omitted category (100 or more employees) from the probit model of offer, participation, and take-up, after controlling for demographic and job characteristics and earnings. The marginal effect indicates the discrete change in the probability (for example, of being offered) of a dummy variable (in this case firm size) from 0 to 1. Offer is defined as equal to 1 if the employer offers a retirement plan (either a DB, DC, or cash balance plan) and 0 otherwise. Participation is defined as equal to 1 if the respondent reports either inclusion in a DB plan or active participation (that is, making tax-deferred contributions) in a DC plan and 0 otherwise. Take-up is defined, among respondents who are offered a plan, as equal to 1 if the respondents participate in a plan and 0 otherwise.

* denotes significance at the 5 percent level; ** denotes significance at the 1 percent level; --- denotes variable omitted.

a. The sample consists of all private-sector wage and salary workers.

b. This definition takes into account only a respondent's self-reported information in the SIPP.

c. This definition takes into account a respondent's self-reported information in the SIPP and/or whether the W-2 record indicates a positive tax-deferred contribution either in 2005 or 2006. In other words, if a SIPP respondent reports not being offered (or participating in) a pension plan and the W-2 record indicates that he or she made a tax-deferred contribution to a DC account in 2005 or 2006, then the respondent is classified as being offered and participating in a retirement plan.

d. The sample consists of all workers offered a retirement plan.

e. A small number of observations were excluded from the multivariate analysis because of missing data in the control variables.

34 percentage points (Table 4, column 4) less likely to participate in a pension plan than those in firms with 100 or more employees. This difference decreases to about 13 percentage points for workers in firms with 50–99 employees.

The significance of the marginal effects of firm size on take-up rates of pensions differ between self-reported and W-2 adjusted data (Table 4, columns 5 and 6). Interestingly, when using self-reported information, workers in firms with 10–24 employees and 50–99 employees are significantly less likely (by 4 to 5 percentage points) to take-up an offered plan than workers in large firms, but the difference is not statistically significant when using adjusted W-2 record information. The opposite is true for workers in firms with fewer than 10 employees. This finding suggests that estimates of the take-up probability among workers in small firms will be biased when using self-reported information.

In contrast to Table 4 (which relates to *any* pension plan), Table 5 shows the marginal effects of firm size on the probability of being offered a DC plan, the probability of participating in that plan, and the probability of taking up the offered DC plan among all private-sector workers. The marginal effects of firm size on the probability of being offered a DC plan are

Table 5.
Estimated marginal effects of firm size on the probability of being offered, of participating in, and take-up of DC plans among private-sector workers in 2006

	Offered a DC plan[a]		Participate in a DC plan[a]		Take-up of a DC plan[e]	
	SIPP[b]	W-2[c]	SIPP[b]	W-2[d]	SIPP[b]	W-2[d]
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)
Firm size (number of employees)						
Fewer than 10	-0.427**	-0.440**	-0.242**	-0.294**	-0.089**	-0.008
10–24	-0.330**	-0.340**	-0.202**	-0.238**	-0.005	-0.027
25–49	-0.222**	-0.228**	-0.131**	-0.166**	-0.001	-0.040*
50–99	-0.102**	-0.111**	-0.075**	-0.094**	-0.034	-0.034
100 or more (omitted)	---	---	---	---	---	---
Number of observations[f]	23,141	23,141	23,141	23,141	13,434	14,069
Pseudo R^2	0.149	0.187	0.203	0.231	0.209	0.191
Observed probability	0.574	0.605	0.394	0.444	0.687	0.734
Predicted probability (at x-bar)	0.578	0.621	0.356	0.417	0.725	0.775

SOURCE: Data are from the 2006 topical module of the 2004 SIPP Panel matched to Social Security W-2 records.

NOTES: Estimates are weighted using survey weights. The reported statistics are marginal effects of firm size relative to the omitted category (100 or more employees) from the probit model of offer, participation, and take-up, after controlling for demographic and job characteristics and earnings. The marginal effect indicates the discrete change in the probability (for example, of being offered) of a dummy variable (in this case firm size) from 0 to 1. Offer is defined as equal to 1 if the employer offers a DC plan and 0 otherwise. Participation is defined as equal to 1 if the respondent reports active participation (that is, making tax-deferred contributions) in a DC plan and 0 otherwise. Take-up is defined, among respondents who are offered a DC plan, as equal to 1 if the respondents participate in a DC plan and 0 otherwise.

* denotes significance at the 5 percent level; ** denotes significance at the 1 percent level; --- denotes variable omitted.

a. The sample consists of all private-sector wage and salary workers.
b. This definition takes into account only a respondent's self-reported information in the SIPP.
c. This definition takes into account a respondent's self-reported information in the SIPP and/or whether the W-2 record indicates a positive tax-deferred contribution either in 2005 or 2006. In other words, if a SIPP respondent reported not being offered a DC plan and the W-2 record indicates that he or she made a tax-deferred contribution to a DC account in 2005 or 2006, then the respondent is classified as being offered a DC plan. In contrast, if a SIPP respondent reported being offered a DC plan but the W-2 record indicates no contributions were made, we consider him or her as being offered because there is no way we can tell from the W-2 record whether the offer was made or not.
d. This definition takes into account only information in the W-2 record.
e. The estimation sample consists of all workers offered a DC plan.
f. A small number of observations were excluded form the multivariate analysis because of missing data in the control variables.

only slightly larger when using the W-2 adjusted measure as the dependent variable compared with the self-reported measure (columns 1 and 2), suggesting that estimates of the probability of being offered a DC plan will not be biased when using self-reported information. Thus, for example, workers in the smallest firms are 43 percentage points less likely to be offered a DC plan than those in large firms when using self-reported data, compared with 44 percentage points when using W-2 records (columns 1 and 2). Depending on firm size, estimates from participation equations are 2 to 5 percentage points higher with the W-2 measure than with the self-report measure (columns 3 and 4). Using the W-2 adjusted measure, workers in the smallest firms are about 29 percentage points less likely to participate in a DC plan than workers in large firms. This gap seems to narrow as firm size increases, reaching to a lower probability of participation—9 percentage points—in firms with 50–99 workers, compared with larger firms.

Finally, regarding take-up of offered DC plans, there again is inconsistency in the significance of take-up rates between the self-reported and W-2 data, which could bias interpretations. The self-report estimation indicates that only workers in firms with fewer than 10 employees are significantly less likely to take-up an offered plan than workers in large firms with 100 or more employees. In contrast, the W-2 data suggest that only workers in firms with 25–49 employees are significantly less likely to take-up offered DC plans than are workers in large firms.

Conclusion

Both researchers and policymakers are interested in whether employers offer a retirement plan to their employees and whether workers participate in the plan. This analysis focuses on the relationship between firm size and an employer's offer, as well as a worker's participation in *any* pension plan and in a DC plan, among private-sector wage and salary workers. It also assesses the extent of changes in pension participation rates when information about tax-deferred contributions to pension accounts from the W-2 tax records are used to supplement the information provided by respondents in the SIPP survey. Several differences are observed. First, among private-sector wage and salary workers, both employer offer rates and employee participation rates in *any* type of pension plan considerably increase when W-2 records are used, an indication of substantial reporting error. Second, there is little difference in reporting error by firm size. Third, when using W-2 data, DC pension participation rates increase by a constant percentage across firm sizes.

Within each firm-size category, after adjusting self-reported data with W-2 records, the offer and participation rate of workers in any pension increases approximately by 7 and 14 percentage points, respectively. Those corrected (adjusted) rates, given the offer and participation rate increase with firm size, suggest that some type of pension plan is available to a substantially larger proportion of workers and that a larger proportion of workers in small firms are likely to take advantage of them than commonly believed based solely on survey reports. This means that there is less reason to assert that small businesses are not being "good" employers because a significant number (primarily in the smallest firms) do not sponsor a retirement plan.

As noted earlier, the Obama administration's proposal for an automatic IRA is aimed at the workforce employed by companies that do not offer any sort of pension plan or 401(k)-type retirement saving plan, specifically those with more than 10 employees. Our findings indicate that the offer rate of any type of pension plan for workers in firms with 10 or more employees is 77 percent. Thus, the proportion of private-sector workers who are not offered an employer-sponsored pension (23 percent after adjusting for W-2 records) is much smaller than the 30 percent of all workers who self-reported not being offered (Table 1). Findings also indicate that 50 percent of private-sector workers in small firms (with fewer than 100 employees) are offered some type of pension plan, a significantly higher figure than the 42 percent originally calculated using only self-reported SIPP data. Our estimates indicate that if the automatic IRAs were introduced to private-sector workers in firms with 10 or more employees who were not offered *any* pension plan, then at least 18 percent of those employees would participate. If instead automatic IRAs were introduced to private-sector workers in firms with 10 or more employees who were not offered a DC plan, then at least 26 percent of those employees would participate. The main implication of these findings is that the proportion of private-sector workers with pension offers and participation is larger than evidence from previous research, suggesting that future retirees may be better off regarding access to pension plans than widely believed. Yet, workers in smaller firms (those with fewer than 10 employees) are less likely to have an offer of any pension plan and are less likely to participate than workers in large firms (those with at least 100 employees). Finally, unless researchers use information on tax-deferred contributions in the W-2 tax records, estimates using only survey data are likely to underestimate the participation rate in DC plans.

Notes

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[1] Based on respondents' reports of their own contributions in the 1993 and 1996 SIPP Panels, the authors found that when only SIPP reports were used the participation rate was about 7 percentage points lower than the rate measured when the SIPP report was supplemented with W-2 tax records (Turner, Muller, and Verma 2003, Table 1).

[2] The offer rate is the percentage of employees who have access to a retirement plan through their employer. The participation rate is the percentage of employees who participate in the plan and accrue entitlement to benefits from the plan. The take-up rate is the percentage of eligible employees who participate in the plan. See Chart 1 for an illustration of the definitions of these terms.

[3] The estimated statistics presented in this article are weighted using the Census Bureau's person-sample weights in Wave 7 and account for SIPP complex sampling.

[4] The Employee Retirement Income Security Act (ERISA) permits certain restrictions regarding employees who are eligible to participate when an employer offers a retirement plan. The SIPP question assumes that the employer offers a retirement plan to the respondent and he or she is eligible to participate in the plan. However, there could be a case in which an employee may be in a firm that offers a plan but he or she is not eligible to participate in that plan. Thus, to the extent that such employees report being offered when not eligible, the offer rate will be biased upward. In addition, when asked whether the respondent is included in the plan, the wording of "being included" might be interpreted differently by different workers. For example, one can report being included in a plan just because contributions can be made to the plan if the worker chooses, even though he or she is not currently contributing to the plan.

[5] See Dushi and Iams (2010) for a more detailed discussion of the SIPP question structure regarding pensions.

[6] The Social Security W-2 records provide information about the amount of tax-deferred contributions to DC accounts, but do not contain information about employers' contributions to such accounts or whether other types of pensions (such as DB or cash balance plans) are available to the employee. Thus, we cannot correct for potential reporting errors regarding DB plans.

[7] In the following discussion, a DB plan refers to both a traditional DB pension plan and a cash balance plan, which is defined as a DB plan by the Pension Benefit Guaranty Corporation.

[8] We do not classify as participants those respondents who are in plans that do not require the employee to contribute to the plan and for whom only the employer is making contributions to the account. Our previous analysis indicates that less than 3 percent of SIPP respondents fall in this group.

[9] Social Security administrative records are linked to SIPP panels, based on agreements between the Census Bureau and the Social Security Administration. See Pattison and Waldron (2008) for a discussion of W-2 tax record data.

[10] Given this relatively high match rate, we expect that the sample with matched records is not a select sample and thus representative of the total population. Furthermore, we expect little impact from attrition between Waves 1 and 7 and consequently make no formal adjustments. Previous analysis by Czajka, Mabli, and Cody (2008) found little selectivity bias from nonmatched data in the 1996 and 2001 SIPP Panels. The authors also assessed the impact of sample loss in those panels and concluded that there were no substantive impacts from attrition.

[11] Starting in 1990, the W-2 tax records contain a separate field for the amounts of tax-deferred contributions to retirement accounts. Starting in 2005, for each job a worker held in a given year, the W-2 record contains information (in addition to total compensation, taxable earnings, and so forth) on the amount of earnings that were tax deferred either to retirement plans (401(k), 403(b), 408, 457, and 501 accounts) or to health savings accounts (HSAs). Furthermore, tax-deferred earnings to retirement accounts are recorded separately from tax-deferred earnings to HSAs.

[12] We consider this a false-negative type of error, that is, respondents actually were offered and participated in a plan when they said they were not offered and did not participate. There is another type of error—a false-positive error—that occurs when the respondent self-reports being offered and participating in a DC plan when in fact the W-2 records indicate that no contributions were made. For further discussion about the type and extent of respondents' reporting errors, see Dushi and Iams (2010).

[13] Based on SIPP's firm-size categories, we refer to those with 100 or more employees as large firms and those with fewer than 100 employees as small firms.

[14] The following tabulation shows the distribution of respondents in our sample by the size of the firm in which they were employed in 2006. About a third of private-sector wage and salary workers (33 percent) are employed in firms with fewer than 100 employees. The majority of those (20 percent) are employed in firms with fewer than 25 employees, whereas less than half (14 percent) are employed in firms with 25–99 employees.

Firm size (number of employees)	Number	Percent
Fewer than 100	7,896	33
Fewer than 10	2,537	11
10–24	2,123	9
25–49	1,753	8
50–99	1,483	6
100 or more	15,857	67
All	23,753	100

SOURCE: Data are from the 2006 topical module of the 2004 SIPP Panel.

NOTE: The reported percentages are weighted using survey weights.

[15] As mentioned earlier, because SSA's W-2 records do not contain information about DB plans, all of the increase in the participation rate after the adjustment is from DC plans. We adjust the reported offer rates by adding respondents whose W-2 records indicate positive tax-deferred contributions, even though they reported not being offered. Those types of errors could be the result of either respondents forgetting that they were offered a DC plan or the possibility that they were automatically included in a plan and therefore did not recall making a decision to be in the plan.

[16] The IRS W-2 form has a box to check if there is any retirement plan in the firm. SSA's W-2 records only contain the worker's tax-deferred earnings and does not identify whether the worker is in a job with a DB plan or in a job with a DC plan where the worker is not making contributions, but his or her employer is contributing.

[17] The two-thirds is an upper limit on employee choice because some employees in 2006 may have been automatically enrolled. In 2006, about a quarter of all 401(k) plans had automatic enrollment provision according to the Profit Sharing/401(k) Council of America's 2007 annual survey of plans. About 41 percent of plans with 5,000 or more employees had automatic enrollment provision, compared with 7 percent of plans with fewer than 50 employees. The council's membership does underrepresent small firms. In addition, the data do not indicate whether such provision when enacted applied to only new employees or to all employees.

[18] Here, self-reported participation is defined as a respondent's report of making tax-deferred contributions, whereas W-2 record participation is defined as a respondent having a positive tax-deferred contribution in the W-2 record either in 2005 or in 2006.

[19] Offer rate of *any* pension increases dramatically when we add observations with positive contributions in the W-2 record to the SIPP self-reported offer because we correct only for the false-negative type of error.

[20] This estimate is not necessarily accurate, as findings in this article indicate.

[21] If automatic IRAs were introduced to only workers in firms with 10 or more employees who were not offered a DC plan, then at least 26 percent of those employees would participate (a 73 percent take-up rate applied to the 35 percent of private-sector workers not offered a DC pension plan; see Table 2, columns 2 and 6).

[22] According to Karamcheva and Sanzenbacher (2010), the characteristics of workers choosing jobs that offer pensions may differ from those choosing jobs without pension offers. Thus, selective characteristics may affect the participation rate and therefore would not apply to workers in jobs without pensions. Using full-time workers in three SIPP panels, the authors estimated that the participation rate observed among workers who were in jobs that offered pensions would decrease by 23 percent when applied to workers in jobs without pensions.

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