Defining participation in defined contribution pension plans

Traditional measures appear to overstate the number of participants in defined contribution pensions; using data from the Survey of Income and Program Participation and the Social Security Administration's Detailed Earnings Record may result in a more accurate measure

John Turner,
Leslie Muller,
and
Satyendra K. Verma

Expanding pension coverage has long been a goal of Federal pension policy. In recent years, progress towards that goal has occurred entirely through growth in defined contribution plans. The number of active participants in defined benefit plans peaked at 30.2 million in 1984, and had declined to 23.0 million by 1998.[1] During this period, the number in defined contribution plans grew from 30.6 million to 50.3 million.[2]

The concept of pension participation has been defined different ways. The standard legal concept of "active participation" is whether a participant is "benefiting" under a plan in a given year. For defined contribution plans, this generally means that a participant has received an allocation of a contribution or forfeitures that year—not just that he or she has an account. An exception to this rule is for 401(k) plans, wherein a participant is counted as active if he or she is eligible to make a contribution, whether or not he or she actually does.

We suggest two criteria for measuring pension participation. First, to assess progress in improving pension participation, policy analysts need empirical measures of participation that are consistent with the underlying goal of increasing the amount of retirement income provided through the private pension system. Second, for comparability across plan types, the measure of pension participation for defined contribution plans should be consistent with the measure for defined benefit plans. Concepts that have been developed for defined benefit plans do not always transfer directly to defined contribution plans.

This article discusses the meaning of participation in a defined contribution pension plan, and addresses why many workers who say they are participants are not actively participating because they have no contributions made on their behalf. We also present a new measure of active participation that requires the worker to earn a benefit based on current contributions either by himself or his employer; this measure is then compared with a more traditional measure of participation. To our knowledge, this definition has not been used in any previous study. Additionally, by making use of a match between Survey of Income and Program Participation (SIPP), which is a survey of persons, and Internal Revenue Service (IRS) W-2 payroll data filed by employers with tax-collecting authority, we are able to determine the accuracy of individual responses as to whether they are contributing to their defined contribution plan.

Previous measure of participation

Three different definitions of pension participation in defined contribution plans have been used in empirical studies. First, the Department of Labor distinguishes between total participants and active participants. In its filing instructions to

John Turner is Senior Policy Advisor at the Public Policy Institute AARP; Leslie Muller is an economist at the Social Security Administration; and Satyendra K. Verma is Senior Research Advisor at the Public Policy Institute AARP.
E-mail:
JTurner@aarp.org
Leslie.Muller@ssa.gov
SVerma@aarp.org

employers, it indicates that active participants should include all individuals who are eligible to elect the employer to make contributions to a 401(k) plan. The Department of Labor, in the Form 5500 statistics, defines an active participant in a defined contribution plan as a worker with a positive account balance with his or her current employer. Active participants exclude beneficiaries and separated vested participants. Total participants include beneficiaries. Thus, it is possible with this definition for workers not to contribute to their defined benefit plan and still be counted as actively participating. Leslie E. Papke used the Form 5500 data to study 401(k) participation and contribution rates, defining participation this way.[3]

Second, in studies using data from the Current Population Survey (CPS), the Survey of Consumer Finances, and the SIPP, workers are generally counted as participating in a pension plan if they respond affirmatively—having decided the definition of participation themselves. For example, Craig Copeland used the February 2001 Contingent Worker Supplement to the CPS and the March 2001 CPS to determine pension participation, based on a question asking workers if they participated in a plan sponsored by their employer.[4] It is not known what definition or definitions employees are implicitly using when responding that they are pension participants. In defined contribution plans, some workers may mean that they have such a plan with a positive account balance with their current employer, but others may be using the more restrictive definition of making a contribution to their plan.

Third, Andrea L. Kusko, James M. Poterba, and David M. Wilcox count only those employees making contributions to the plan in a given year as participants that year.[5] This definition is also used by Robert L. Clark and Sylvester J. Schieber, who use plan data to examine the factors that affect participation in 401(k) plans.[6] This definition does not include as participants employees who did not contribute but whose employers contributed on their behalf. Thus, this definition does not apply to non-401(k)-type plans.

Hence, previous studies use three definitions of defined contribution pension participation: (1) the worker has a positive account balance; (2) the worker answers "yes" to the question, "Are you a participant?"; and (3) the worker contributes to the plan.

Active pension participation

To clarify concepts, coverage and participation in a worker's current employment can be analyzed as occurring in five steps. These steps can be visualized as levels in a pyramid, starting from the base and proceeding to successively smaller groups of employees at the higher levels. Inclusion in each group is defined by the answer "yes" to the following questions:

1. Does your employer or union sponsor a pension plan?
2. Is your job covered by the plan? (Employers are permitted to exclude some jobs from coverage.)
3. Are you eligible to participate in the plan? (Eligibility refers to whether the worker has met requirements such as age, tenure, and hours worked per year.)
4. Do you have an account balance in the plan?
5. Are you actively accruing benefits based on your current work?[7]

While a fully complete analysis would consider the loss of potential participants that occurs at each of these steps, this article focuses on the measurement of active participation in a pension plan. To be actively participating in a pension plan from the perspective proposed here, a worker must be earning or accruing benefits based on current work (hence, the fifth question).

Our analysis focuses on this fifth question. The significance of this definition of participation is evidenced by examining workers currently considered to be participating according to U.S. pension statistics and under U.S. pension law—but not participating under this definition.

Workers and their employers who do not contribute in a year would not be considered active participants in a defined contribution plan under the definition proposed here. This situation could arise in a profit-sharing plan because employers are not required to contribute to those plans every year. It could also arise in a 401(k) plan, named after a section of the tax code, where the employer contribution typically depends on the employee having made a contribution. Also, if an employee makes a hardship withdrawal, the employer may suspend employer and employee contributions for a period.

In some defined contribution plans, when workers borrow from the plan, they cannot make any contributions to their accounts until they pay off the borrowing. Thus, they have no new accruals. Studies have found that 18 percent of participants in 401(k) plans have loans outstanding.[8] However, it is not known how prevalent the requirement is that plan loans be paid off before contributions can be made to the pension. Also, it is not known how employees in this situation respond on questionnaires when asked if they are contributing to their plan.

An earlier study suggests that nearly 30 percent of workers with 401(k) accounts may not be contributing to those accounts in a year. The 1993 April CPS asked workers with 401(k) accounts whether they planned to contribute to their accounts. Only 68 percent responded "yes"; others responded that they did not know whether they would contribute or refused to answer this question.[9]

The definition of active participation proposed here satisfies both criteria posited at the beginning of the article. First, it measures participation consistent with the goal of workers accruing benefits for retirement. Second, it measures participation in defined contribution plans consistent with the measure in defined benefit plans, where workers are actively accruing benefits.

Data from SIPP—1993 and 1996 panels

We compare data on defined contribution participation rates using three definitions of participation. Under the first definition, the individual responds "yes" to the question in the SIPP asking whether he or she participates in an employer-sponsored defined contribution plan ("SIPP definition"). Under the second definition, the individual responds "yes" to the participation question and also makes a personal contribution to the plan ("Worker contribution definition"). The third definition only considers workers participating if they answer yes to the participation question, and are either making personal contributions to their plans or are having their employers make contributions on their behalf, or both. This is the new definition we propose in this article, one called the "accrual definition."

To overcome shortcomings for our purposes of the commonly used data sets, we study contributions to defined contribution plans using three data sets. We use data from the 1993 and 1996 panels of the SIPP, with pension data collected in 1995 and 1998. We supplement the data for 1995 with Social Security administrative data for that year from the Detailed Earnings Record. We use data for private-sector workers with at least one wage-and-salary job and who are age 25 and older, including part-time workers. A feature of our analysis that is made possible by these data sets is our attempt to cross check and verify the answers provided by workers concerning their contributions to defined contribution plans.

SIPP 1993–Data for 1995. The 1993 SIPP pension topical module was fielded in October 1995-January 1996, depending on the rotation group to which the individual belonged.[10] Because all topical module information refers to the last month of the reference period, all pension contribution information provided by respondents refers to the September–December 1995 period.

There are two sections of participation and contribution information in the topical module. The first section begins by asking the respondents whether they are covered by any type of pension plan at their current place of employment. If the respondents answer "yes," they are asked whether the plan is a *formula* type plan (defined benefit), an *individual account* type plan (defined contribution), or *other* type (a hybrid plan combining features of both defined benefit and defined contribution plans). The individuals are then asked if they contribute to their plan, and how much they contribute. Regardless of whether they contribute, they are also asked if their employer contributes.

The second section asks for information specifically on 401(k)-type plans, which are the most popular type of defined contribution pension plan in the United States. If the respondents answered that they did not have a pension plan in the first section, they are automatically directed to this section. If they indicated they had a pension plan in the first section, they are asked the questions in this section after completing the first. In this section, however, they are not asked if they contributed in the current year or how much they contributed—they are only asked the current balance in the account. For those people who said they did not have a pension plan in the first section but said they participated in a 401(k) plan in the second, the SIPP does not provide contribution information that is needed for our analysis. This is a serious shortcoming of the 1993 SIPP topical module for our purposes, but we are able to overcome this problem by using data from the Detailed Earnings Record.

Detailed Earnings Record. The Detailed Earnings Record data contain records of various earnings measures maintained by the Social Security Administration. These figures are from the W-2 forms that employers file each year with the Internal Revenue Service for each employee. Each record contains annual earnings for each employee, as well as annual deferred earnings in the form of tax-deductible pension contributions. These data contain information about employee tax-deferred contributions to pension plans, but not about employer contributions. The data set also does not contain information about employee nontax-deferred contributions.

We use the contribution data for the Detailed Earnings Record for 1995 because this year corresponds with the respondent information provided in the 1993 SIPP topical module. These data were matched to the SIPP data based on the Social Security number of the SIPP participants.[11] Roughly 10 percent of the SIPP respondents did not agree to allow their data to be matched based on their Social Security number. As a result, those respondents were eliminated from the sample.

Correction of the data. An important issue in measuring pension participation is the accuracy of responses, and the steps taken by researchers to correct response errors. We use both information contained in the Detailed Earnings Record and within the SIPP questionnaire itself to improve the SIPP data's accuracy in the topical module.

The first place we encounter this issue is in selecting the sample of non-self-employed workers. In verifying whether or not a worker was self-employed, we found that for nearly all workers who had a defined contribution plan and were self-employed, the Detailed Earnings Record indicated that they also had wage-and-salary income. Thus, because we are analyzing the pension participation of employees, workers who indicated they were self-employed and for whom the Detailed Earnings Record indicated they had no wage-and-salary income were excluded.

We also use information about the structure of defined benefit and defined contribution plans, as well as conflicting responses to plan-type questions in the SIPP, to re-classify some worker plan types from defined benefit to defined contribution. One study suggests that participants have difficulty accurately making the distinction between the two types of plans,[12] and this is borne out in this SIPP survey as well. In the first section of the questionnaire, 347 workers responded that they had a "formula type" (defined benefit) plan to which they made a contribution. In the second section of the questionnaire, however, they said this plan was a 401(k) plan, and that it was the same plan mentioned in the first section. We chose to code these respondents as having a 401(k) plan and use the contribution information from the first section (as previously mentioned, contribution information for employees in the second section is missing). We made the choice to code them as 401(k) plans, as employee contributions to private-sector defined benefit plans in the United States are rare.[13]

The results. Defined contribution participation rates are calculated based on different definitions of participation and different assumptions regarding the data (see table 1). Because we use four different sets of assumptions regarding the data, four different calculations are provided for each definition.

Six steps are involved in the calculation of each measure of active participation. In the first step (row *a* of table 1), the worker is asked whether he or she is participating in a plan, thus providing a base-line traditional measure of defined contribution participation (SIPP definition). The second step (row *b*) determines how many workers who answered "yes" to the participation question are not contributing to the plan. The third step (row *c*), for purposes of comparability with studies using other definitions of participation, calculates participation using the definition that the worker contributed to the plan (worker contribution definition). In the fourth step (row *d*), we determine for workers who have answered "yes" to the participation question how many work for employers who are not contributing to the plan. In the fifth step (row *e*), we determine how many workers who answered "yes" are in plans where neither they nor the employer is contributing. In the sixth step (row *f*), we subtract row *e* from row *a* to determine how many workers answered "yes" to the question of participation and also report a contribution to their plan made either by themselves or their employer. This rate reflects participation using the accrual definition of participation. We follow each of these six steps for each of the four sets of assumptions concerning the data.

Each column of table 1 corresponds to a set of assumptions concerning the data. In column 1, we use the SIPP data alone. Because the SIPP did not ask all workers in a pension plan whether they contributed to the plan, only 2,405 (55 percent) of workers who answered the participation question are included in column 1. For this sample, 19.7 percent of workers said they participated in a defined contribution plan; 15.3 percent participated and made a contribution; and 19.4 percent of workers indicated they participated and that either they or their employer contributed to the plan. These figures considerably understate participation in 401(k) plans because the sample eliminates respondents with only 401(k) plans who were not asked whether they contributed. The participation rates shown in column 1 are provided only to highlight the limitations of the 1993 SIPP when used alone for this type of analysis. These rates should not be compared to participation rates in other studies.

In the second column, the SIPP data is supplemented with Detailed Earnings Record data provided by employers on the defined contributions of workers. With the Detailed Earnings Record data providing contribution information for workers not asked in the SIPP survey whether they contributed, the sample of workers participating in a defined contribution plan—and for whom we have contribution data—jumps from 2,405 to 4,320. The participation rate for defined contribution plans based on an answer of "yes" is now 30.0 percent, which is the same for the remaining two columns. Because roughly 8 percent of workers who said they participated did not make a contribution, the participation rate using the worker contribution definition is 21.9 percent. The participation rate based on the accrual definition is higher, at 28.8 percent, because most of those workers who did not contribute themselves had a contribution made on their behalf by their employer.

A fundamental issue in working with household data sets is the accuracy of the responses that individuals themselves provide. While in the first two columns we accept the worker's response as to whether he or she contributed as being accurate, in the third and fourth columns we change the SIPP data if evidence suggests otherwise.

Thus, in column 3 we replace the SIPP data with data from the Detailed Earnings Record if a comparison of the two reveals a discrepancy as to whether the worker made a contribution in that year. A total of 575 respondents in the SIPP said they contributed to their defined contribution plan when the Detailed Earnings Record indicated that they had not contributed—an error rate of 31 percent.[14] Making these changes in the data increases the percentage of workers who said they participated but did not contribute, as is reflected in the "worker contribution" definition of participation that

Table 1. Defined contribution pension participation of private wage and salary workers ages 25 and older in 1995

Definition of participation	SIPP data only (1)	SIPP data with Detailed Earnings Record filling in missing observations (2)	SIPP employee contribution data changed to coincide with Detailed Earnings Record data (3)	SIPP employer contribution data changed to zero if employee does not contribute (4)
a. Participated in at least one defined contribution plan according to answer of "yes" (*SIPP* definition)				
Percent	19.7 (13,697,371 / 69,520,124)	30.0 (24,391,142 / 80,213,895)	30.0 (24,391,142 / 80,213,895)	30.0 (24,391,142 / 80,213,895)
b. Workers participating in (a) who are not contributing				
Percent	4.3 (2,967,286 / 69,520,124)	8.1 (6,492,468 / 80,213,895)	11.3 (9,091,622 / 80,213,895)	11.3 (9,091,622 / 80,213,895)
c. (a) – (b) *Worker contribution* definition				
Percent	15.3	21.9	18.7	18.7
d. Workers participating in (a) and their employer is not contributing				
Percent	1.7 (1,202,495 / 69,520,124)	4.1 (3,259,358 / 80,213,895)	4.1 (3,259,358 / 80,213,895)	9.8 (7,835,954 / 80,213,895)
e. Workers participating in (a) who are not contributing to their plan and their employer is not contributing				
Percent	0.3 (200,987 / 69,520,124)	1.2 (942,861 / 80,213,895)	1.7 (1,362,746 / 80,213,895)	7.4 (5,939,342 / 80,213,895)
f. (a) – (e)*Accrual* definition				
Percent	**19.4**	**28.8**	**28.3**	**22.6**

NOTE: Authors' tabulations based on the wave 9 topical module of the 1993 SIPP panel are matched to Detailed Earnings Records from the Social Security Administration. Numbers are weighted to reflect the respective populations as of October 1995-January 1996, when the topical module was fielded.

The sample for column 1 includes 12,021 private wage and salary workers, ages 25 and older, who answered the question on whether their employer offered a pension plan. Of these workers, 2,405 responded that they had at least one defined contribution plan. The sample for columns 2-4 includes 13,959 private salary and wage workers, with 4,320 individuals having at least one defined contribution plan.

dropped to 18.7 percent. Again, because the majority of workers (498 out of 575 workers, or 87 percent) who did not contribute said they participated and had employer contributions made on their behalf, the participation rate using the accrual definition is only slightly lower than the SIPP definition at 28.3 percent.

A 31-percent discrepancy rate between worker responses in the SIPP and data on the Detailed Earnings Record is quite large. One pressing question is why these discrepancies exist. Because it has been shown in other studies that employee knowledge on detailed pension characteristics is quite limited,[15] the differences could be due to lack of knowledge and inaccurate reporting by the worker in the SIPP. Another possibility is that family members who served as proxy respondents for the survey did not have accurate information.[16] A third possibility is that some of these workers made *nontax-deductible* contributions to their defined contribution plans, but the Detailed Earnings Record only reports tax-deductible contributions. Although this last explanation is possible, it is not probable. Discussions with experts in the field of pension design concluded that because it costs the employer very little to add the tax-deferred feature to the employee contribution, it is likely that most employee contributions would be tax-deferred if they were offered in the first place.[17]

The issue of SIPP respondent accuracy regarding employee contributions leads us to question the same regarding *employer* contributions. Because the Detailed Earnings Record does not contain information on employer contributions, we are unable to cross-check this information provided by the SIPP respondent as we did with employee contributions. This situation raises the question of what standard should be used for accepting the validity of data provided by a respondent concerning employer contributions, knowing the high rate of errors in their own contributions. One standard would be to accept the data provided unless there is direct evidence to the contrary. That is the standard we applied in column 3. A more judgmental standard would be to accept the data provided by a respondent unless there is a compelling reason to doubt it.

Using the later standard, and lacking direct evidence as to whether the employer had contributed, we searched for indirect evidence shedding light on the reliability of the workers' responses regarding their employer's contribution. Discussion with experts in the field yielded the consensus that for 401(k) plans—especially for this time period—if the worker did not contribute, the employer also did not contribute.[18] There may be some plans where the employer makes a small contribution for all employees to avoid problems arising from nondiscrimination rules concerning the contributions of highly-paid employees versus those of middle- and lower-paid employees. We have not been able to find data on the prevalence of this practice, but from conferring with practitioners as well as other researchers in the area, the impression is that such practice is uncommon. However, for non-401(k) defined contribution plans, it is common for the employer to contribute even if the employee does not.

Hence, we further examine the SIPP responses regarding employer contributions for those workers with 401(k) plans. In the column 3 sample, we changed the SIPP response on employee contributions to correspond with the Detailed Earnings Record data. In column 4, we amend this sample further for those workers who claim they have a 401(k) plan and make employee contributions—even though the Detailed Earnings Record shows that no employee contribution was made. Because 401(k) plans usually require an employee contribution before an employer match is given, there probably was no employer contribution if indeed an employee contribution was not made first. Hence, we change those responses from *employer contributed* to *employer did not contribute*. We made no such adjustment for non-401(k) defined contribution plans.

The result of this adjustment can most readily be seen in the drop in the participation rate in row *f*—from 30 percent using the SIPP definition to 22.6 percent when defining participation using the accrual method. If we accept the assumptions made in column 4, then there is a substantial difference in the participation rate using the accrual definition.

SIPP 1996—data for 1998. We also examined data from the SIPP 1996 panel, which was released by the U.S. Census Bureau in February 2002. This SIPP dataset is the most recent and detailed data available on pension and retirement plan type for a large, representative sample of the U.S. population. Again, we use data from the Retirement and Pension Plan Coverage topical module, which was fielded in April-July 1998.

In this data set, as in the previous one, we use the participant's identification of his or her pension plan as a defined benefit or defined contribution plan. We also make adjustments to what workers report as defined contribution coverage when subsequent questions yield responses that are inconsistent. Unlike the 1993 questionnaire, the 1996 questionnaire includes contribution information for all individuals who stated they had only a 401(k) plan.

Table 2 reports participation rates using the different definitions of participation described earlier. Using the SIPP definition of participation, we find that 35.7 percent of private-

Table 2. Defined contribution pension participation of private wage and salary workers ages 25 and older in 1998

Definition of participation	Participation rate
a. Participate in at least one defined contribution plan according to answer of "yes" (*SIPP* definition) Percent	35.7 (28,766,808 / 80,393,035)
b. Workers participating in (a) who are not contributing. Percent	9.1 (7,348,021 / 80,393,035)
c. (a) – (b)*Worker contribution* definition Percent	26.6
d. Workers participating in (a) and their employer is not contributing Percent	6.9 (5,570,028 / 80,393,035)
e. Workers participating in (a) who are not contributing to their plan and their employer is not contributing Percent	3.1 (2,486,040 / 80,393,035)
f. (a) - (e)*Accrual* definition Percent	**32.6**

NOTE: Authors' tabulations based on the wave 7 topical module of the 1996 SIPP. Numbers are weighted to reflect the respective populations as of April–July 1998, when the topical module was fielded.

The sample includes 22,603 private wage and salary workers, ages 25 and older, who answered the question on whether their employer offered a pension plan.

sector wage-and-salary workers age 25 and older participated in a defined contribution plan. This percentage drops to 26.6 percent using the worker-contribution definition, and then rises back to 32.6 percent using the accrual definition of participation. These numbers do not correct for respondent errors concerning their own contribution and that of their employer. Thus, they are most closely comparable to the 1995 numbers in column 2 of table 1.[19] Regardless of the definition of participation used, the participation rate for the 1998 data are higher than for the 1995 data, reflecting the growth in 401(k) plans over the period.

When compared with the SIPP–Detailed Earnings Record 1995 data (column 2), the participation rate in defined contribution plans in 1998 appears to have increased by almost 6 percentage points. Even after subtracting the number of workers and employers who did not contribute in such retirement plans, the participation rate net of noncontributors increased 3.8 percentage points since 1995. There is also a 1-percentage point increase in the number of employees not contributing, and a 3-percentage point increase in employers not contributing. The t-test (not shown here) confirms that the difference in the overall participation rate is statistically significant.

DEFINING PARTICIPATION IN DIFFERENT WAYS can lead to substantial differences in defined contribution participation rates. This article argues that the current system of classifying workers as covered and participating should be expanded to incorporate a third concept, which is an active pension benefit accrual deriving from current work. Workers not contributing to a defined contribution plan, and for whom their employer made no contribution in a year, would not be considered as actively participating under the requirement of benefit accrual associated with work. The definition proposed here would not be difficult to implement in pension statistics if questionnaires were appropriately worded. Still, however, serious problems may remain concerning the accuracy of employee responses to questions about pension contributions. Employee responses to detailed pension questions can often be inaccurate, and this should be kept in mind when interpreting household survey pension data. Evidence from the SIPP and Detailed Earnings Record data suggest that traditional measures of participation in defined contribution plans may substantially overstate the number of workers who are actively accruing benefits in those plans. □

Notes

ACKNOWLEDGMENT: The opinions expressed here are solely the responsibility of the authors and do not represent the position of AARP or of the Social Security Administration. We have received valuable comments from Daniel Beller, Jules Lichtenstein, Pamela Perun, William Wiatrowski, Joseph Meisenheimer, as well as participants at a U.S. Bureau of Labor Statistics seminar, a U.S. Social Security Administration seminar, and the U.S. Gerontological Society meetings in November 2002.

[1] *National Compensation Survey: Employee Benefits in Private Industry in the United States, 2000* (U.S. Department of Labor, Bureau of Labor Statistics, and the United States Government Printing Office, 2002).

[2] These statistics are from the Form 5500 data that employers—with pension plans having more than one participant—are required to file annually with the Internal Revenue Service and the Department of Labor. Generally, plans with one participant and less than $100,000 in assets are not required to file. See *Private Pension Plan Bulletin: Abstract of 1998, Form 5500 Annual Reports* (U.S. Department of Labor, Pension and Welfare Benefits Administration, Winter 2001–2002).

[3] Leslie E. Papke, "Participation in and Contributions to 401(k) Pension Plans: Evidence from Plan Data," *Journal of Human Resources*, Vol. 30, No. 2, Spring 1995, pp. 311–25.

[4] Craig Copeland, "Pension Participation: February 2001," *EBRI Notes*, Vol. 22, December 2001, pp. 1–5; Craig Copeland, "Pension Plan Participation Continued to Rise in 2000–What Next?" *EBRI Notes*, Vol. 23, March 2002, pp. 4–7. The CPS has been used in several studies of 401(k) participation. See, for example, Emily S. Andrews, "The Growth and Distribution of 401(k) Plans," in John A. Turner and Daniel J. Beller, eds., *Trends in Pensions* (Washington, DC: U.S. Department of Labor, Pension and Welfare Benefits Administration, 1992), pp. 149–176 and "Salary Reduction Plans and Individual Saving for Retirement," Employee Benefits Research Institute Brief, No. 155, (Employee Benefits Research Institute, 1994).

[5] Andrea L. Kusko, James M. Poterba, and David M. Wilcox, "Employee Decisions With Respect to 401(k) Plans," in *Living with Defined Contribution Pensions*, Olivia S. Mitchell and Sylvester J. Schieber, eds. (Philadelphia: University of Pennsylvania Press, 1998).

[6] Robert L. Clark and Sylvester J. Schieber, "Factors Affecting Participation Rates and Contribution Levels in 401(k) Plans," in Olivia Mitchell and Sylvester Schieber, eds., *Living with Defined Contribution Plans* (Philadelphia: University of Pennsylvania Press, 1998).

[7] The 1993 SIPP does not provide information on defined contribution plan eligibility or account balances for all workers—it only reports whether the employer offers a plan, whether the worker says he participates in the plan, and whether the worker makes a contribution.

[8] See Hewitt Associates, "Trends and Experience in 401(k) Plans–2001," on the Internet at **http://was.hewitt.com/hewitt/resource/rptspubs/subrptspubs/trends_index.htm** (visited Nov. 29, 2001); and Sarah Holden and Jack VanDerhei, "401(k) Asset Allocation, Account Balances, and Loan Activity in 2000," *EBRI Issue Brief*, No. 239, November 2001.

[9] Marjorie Honig and Irena Dushi, "The Changing Mix of Benefits over the Life Cycle." Paper presented at the Pension Research Council Symposium on Benefits for the Workplace of Tomorrow, The Wharton School, University of Pennsylvania, Philadelphia, April 30, 2001.

[10] SIPP respondents are grouped in four, mutually exclusive "rotation groups" for interviewing purposes. Each rotation group is interviewed in a different month, in successive four-month periods.

[11] The Detailed Earnings Record is a data set maintained by the Social Security Administration. The data is available on a restricted basis to researchers with prior approval from the Census Bureau and the Social Security Administration. Leslie Muller, an economist with the

Social Security Administration, processed the restricted data used in this analysis.

[12] In the Health and Retirement Survey, respondents for whom their pension data could be linked to employer information correctly identified their plan as being either a defined contribution or defined benefit plan only half of the time. See Alan L. Gustman and Thomas L. Steinmeier, "The Influence of Pensions on Behavior: How Much Do We Really Know," *Research Dialogue*, Vol. 71 (TIAA_CREF Institute, 2002).

[13] Only 5 percent of full-time workers in private industry made a defined benefit contribution in 2000 (U.S. Bureau of Labor Statistics, 2002).

[14] Because the Detailed Earnings Record data provide information on multiple jobs per worker, we are careful to match the income and contribution data from the Detailed Earnings Record with those for the appropriate job for the worker indicated from the SIPP.

[15] See, for example, Alan L. Gustman and Thomas L. Steinmeier, "The Influence of Pensions on Behavior…"; and Martha Starr-McCluer and Annika Sundén, "Workers' Knowledge of their Pension Coverage: A Reevaluation," Federal Reserve Board of Governors Discussion Paper 99/05, 1999.

[16] Fifty percent of the respondents who said they made a contribution—but the Detailed Earnings Record showed they did not—were proxy respondents. Thirty-seven percent of respondents who said they made a contribution—and the Detailed Earnings Record concurred—were proxy respondents.

[17] One exception would be plans specifically designed for highly-compensated employees. Nondiscrimination rules can make it difficult for employers to offer tax-qualified plans to high earners, so plans that allow only nontax-deferred employee contributions are often offered to this group of employees. To see whether our sample of 575 workers had higher earnings than those workers who said they contributed and for which the Detailed Earnings Record also showed a contribution, we tabulated the median 1995 Detailed Earnings Record earnings for both groups. The results show that in fact the group with the inconsistencies had *lower* median earnings than those whose SIPP and Detailed Earnings Record data both said they made contributions, with median earnings of $18,216 versus $32,909 (in 1996 dollars).

[18] Employee contributions to a pension plan are only tax deductible for 401(k) plans or plans with a 401(k) feature. For this reason, employee contributions to non-401(k) defined contribution plans are uncommon. If an employer wishes to permit employee contributions, the employer could add a 401(k) feature to the plan so that the employees could make their contributions on a tax-deferred basis. For this reason, the contributions to non-401(k) plans are made predominantly by employers.

[19] These numbers are not comparable to column 1 of table 1, as nearly half of the 1995 original sample had to be dropped because the SIPP did not contain employee contribution information.