Defined Contribution Pension Participation and Contributions by Earnings Levels Using Administrative Data

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Many observers question how the shift from defined benefit (DB) to defined contribution (DC) retirement plans affects workers with different compensation levels. To advance the empirical basis for understanding pension outcomes, this article estimates DC plan participation and contribution rates in 2006 both by the worker's current earnings and by the annual average of real earnings over the 10-year period 1997–2006. Using earnings data from W-2 tax records linked to data from the Census Bureau's Survey of Income and Program Participation, we find that workers in the lower part of the earnings distribution are less likely to participate in a DC plan, and the contribution rates for those who do participate are lower than those for workers with higher earnings.

Introduction

The shift from defined benefit (DB) pension plans to defined contribution (DC) retirement savings plans over the past three decades is well documented (Munnell and Sundén 2004; Wiatrowski 2004; Purcell 2005; Dushi and Iams 2008). In essence, this change shifts the investment decisions and risks from the employer to the employee and exposes employees to longevity risk; that is, the possibility of running out of money in retirement (Munnell and Sundén 2004). Although employers commonly enroll all eligible employees in DB plans, most DC plans require employees to choose to participate. One reason why employees usually must opt into a DC plan is that two-thirds of private employers require employees to contribute part of their own earnings into the plan (BLS 2010, Table 8). This development has led to important changes in the distribution of workers participating in a pension plan. Observers question how the shift from DB to DC retirement savings plans affects workers across different economic and sociodemographic subgroups (Huberman, Iyengar, and Jiang 2007; Ghilarducci 2008). Previous research provides evidence that low-income workers are less likely to be eligible for a DC plan and less likely to participate when eligible (Bassett, Fleming, and Rodrigues 1998; BLS 2010; Papke 2004; Munnell and Sundén 2004, 2006). As DC plans supplanted DB plans over the past three decades, the participation rates among low-income workers decreased by one-third (Karamcheva and Sanzenbacher 2010, 2). Such unequal distribution of pension participation would imply greater inequality in retirement resources of future retirees.

Despite growing research and policy attention, studies using nationally representative data to examine variations in DC plan participation and contribution rates by earnings level are relatively limited. One

Selected Abbreviations

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

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important issue not previously addressed is whether using a longer period, such as a decade, to measure earnings provides a better representation of pension outcomes for low earners than a short-term measure does. One year of earnings may not be representative of a worker's lifetime earnings. For example, during an economic downturn, a job loss or a job change may produce a relatively anomalous earnings level in 1 year of cross-sectional data and may consequently affect participation in and contributions to DC plans.

Previous research that examined determinants of DC plan participation and contributions primarily used survey-reported cross-sectional data (Bassett, Fleming, and Rodrigues 1998; Papke 2004; Munnell and Sundén 2004, 2006; Purcell 2009). Consequently, the literature relies on self-reported information on participation and contributions. One exception, a study by Joulfaian and Richardson (2001), uses federal income tax data from 1 year (1996) and finds that low earners are not only less likely to participate, they also have lower contribution rates than high earners. Although useful, self-reported information about DC plan participation and contributions is subject to substantial measurement errors (Dushi and Iams 2010).[1]

This article analyzes the relationship between earnings levels and DC pension participation and contribution rates. We take advantage of a unique and restricted-use dataset that links a nationally representative sample of workers from the Survey of Income and Program Participation (SIPP) with detailed longitudinal earnings data from their Internal Revenue Service (IRS) W-2 tax records. Such administrative data permit us to estimate the relationship between DC participation and contribution rates and an individual's earnings levels for the current (survey) year and over the 10-year period ending with the current year. Moreover, because information on both the DC contributions and annual earnings come from workers' own tax records, they are not subject to bias from respondent self-reports.

Our analysis examines the extent of DC participation and contributions among workers categorized both by their annual earnings in 2006 and by their average annual earnings for the 10-year period 1997–2006. Results indicate that earners at the lower end of the earnings distribution, whether measured by their single-year or 10-year average earnings, are much less likely to participate in DC pensions and that participants contribute a lower share of their earnings than do their counterparts at the higher end of the earnings distribution. Although findings on overall participation and contribution rates are not considerably different between the single-year and 10-year earnings measures, there are distributional differences in participation rates between the two. For example, using current-year earnings, which is most common in the literature, is likely to either overestimate or underestimate the DC plan participation rate if workers' current earnings are lower or higher than their historical earnings. Specifically, participation rates by earnings deciles seem to be distorted downward among workers whose current earnings are substantively higher than their 10-year average. By contrast, participation rates seem to be distorted upward among workers whose current earnings are substantively lower than their 10-year average.

Data

We use a nationally representative sample of workers aged 35–61 from SIPP's 2004 panel. Workers were interviewed in 2006 during wave 7, the Retirement Expectations and Pension Plan Coverage Topical Module. The sample's demographic characteristics, such as age, education, marital status, and race/ethnicity, are also from the Topical Module. Because self-reported information about participation in and contributions to DC plans suffers from substantial measurement error, we link survey information for SIPP respondents with the earnings data from their W-2 tax records.[2] The W-2 records contain high-quality information about DC plan participation and contributions in 2006, as well as annual earnings over the 10 years prior to the survey.

The Detailed Earnings Record, which is an extract of the Social Security Administration's (SSA's) Master Earnings File, contains the earnings information collected from the W-2 forms that employers submit to the IRS.[3] These data include information on a worker's total wage and salary earnings for a given year that are subject to federal income tax (box 1 in the W-2 form) and tax-deferred contributions to employer-sponsored retirement accounts (box 12 in the W-2 form). It is important to note that our measure of total earnings is the sum of the tax-deferred contributions in box 12 and the total taxable earnings in box 1.

We use 2006 tax-deferred contributions from respondents' matched W-2 records to identify two main outcome variables: participation in and contributions to DC plans. In 2006, the W-2 records separately identified contributions to different types of retirement accounts (such as 401(k), 403(b), 408, 457, and

501) and to Health Saving Accounts; our measure of tax-deferred contributions in 2006 includes only those made to retirement accounts. Using this information, we define the participation rate in 2006 as the percentage of wage-and-salary workers for whom the W-2 record indicates a positive contribution was made to a retirement plan during that year (those for whom the tax-deferred contribution amount is zero are defined as nonparticipants).[4] We define the contribution rate as the percentage of total earnings that is tax-deferred to a retirement plan in 2006, among those with positive contributions in 2006. Note that the contribution rate is calculated separately for the single-year and 10-year average earnings measures.

Earnings deciles are defined separately for the single-year and the 10-year average earnings measures. Our analysis sample is all workers aged 35–61 in 2006.[5] All earnings for 1997–2006 are price-indexed to 2006 dollars using the Consumer Price Index (CPI-W) from the 2009 Social Security Trustees Report.

We first assess the extent to which a worker's earnings in a single year are a good proxy for average annual earnings over the prior 10 years. Then the 2006 DC participation rate by earnings decile is examined for both the 2006 and the 10-year earnings measures. We disaggregate the participation rate by "current-earnings trend," a measure of the percentage change between 1-year and 10-year earnings; specifically, whether 2006 earnings are more than 20 percent lower or higher than, or within 20 percent of, the 10-year average of annual earnings. The same method is followed for contribution rates.

Although mainly descriptive, our analysis includes multivariate regression estimates that allow us to examine how DC plan participation and contributions vary by level of earnings (for both the 1-year and 10-year measures) while controlling for key demographic characteristics such as age, sex, education, marital status, and race/ethnicity. We estimate the probability of participation in a DC plan among all workers using a probit model and the contribution rate among participants using an ordinary least squares model. All analysis applies SIPP's sample weights for wave 7. Our regressions also account for both stratification and clustering within SIPP's survey design.

Results

Before assessing the association between DC plan participation and earnings, we examine how well workers' annual earnings in 2006 approximate their average annual earnings for 1997–2006. Table 1 shows that 2006 mean earnings are 12 percent higher than the 10-year earnings average, a difference of $5,650. Median earnings reveal a similar pattern, but the differences are smaller (the 2006 median is $2,428, or 7 percent, higher than the 10-year average median).

Table 2 highlights the current-earnings trend for our sample of workers. Earnings in 2006 were within 20 percent of 10-year average earnings for roughly half of the workers, and were more than 20 percent higher than the 10-year average for about one-third of the sample. The 2006 earnings of the remaining workers—almost one-sixth of the sample—were lower than their 10-year average earnings by more than 20 percent.

Table 1.
Mean and median current-year (2006) and 10-year (1997–2006) average annual earnings

Earnings measure	Mean	Median
Current-year earnings ($)	54,041	39,721
Ten-year average annual earnings ($)	48,391	37,293
Difference ($)	5,650	2,428
Ratio (current-year to 10-year average)	1.12	1.07
Number of observations	21,235	21,235

SOURCE: Authors' calculations using SSA administrative earnings records matched to the 2004 SIPP (wave 7).

NOTES: Estimates are for workers aged 35–61 with earnings in 2006, weighted using survey weights. Ten-year average reflects real earnings from 1997 to 2006. All earnings are expressed in inflation-adjusted 2006 dollars.

Table 2.
Distribution of the sample by current-earnings trend

Current-earnings trend	Number	Percentage distribution
Compared with 10-year average annual earnings, 2006 annual earnings are—		
Lower by more than 20%	3,325	15.6
Within 20%	10,676	50.2
Higher by more than 20%	7,234	34.2

SOURCE: Authors' calculations using SSA administrative earnings records matched to the 2004 SIPP (wave 7).

NOTES: Estimates are for workers aged 35–61 with earnings in 2006, weighted using survey weights. Ten-year average reflects real earnings from 1997 to 2006. All earnings are expressed in inflation-adjusted 2006 dollars.

Table 3 shows the distribution of workers by current-earnings trend, disaggregated by 2006 earnings decile. The median of individual ratios of 2006 earnings to 10-year average earnings is also shown by earnings decile.[6] Findings indicate that the majority (67 percent) of workers in the lowest earnings decile experienced a decrease of more than 20 percent in their earnings in 2006 relative to their 10-year average earnings. The proportion of those with lower earnings in 2006 relative to their 10-year average decreases substantially in higher deciles. Except for the lowest three deciles, annual earnings for 2006 were within 20 percent of the 10-year average earnings for nearly or more than half of the workers. Except for the 1st and 10th deciles, earnings in 2006 were more than 20 percent higher than the 10-year average for about one-third of workers. The median ratio of 2006 earnings to 10-year average earnings increases from 100.3 percent for the 2nd earnings decile to 117.9 percent in the 10th decile. Thus, workers in the highest decile earned 18 percent more in 2006 than their 10-year average, a much higher median ratio than that of workers in lower deciles. The median ratio was very similar in the 3rd through the 7th deciles of earners, at about 109 percent of the 10-year average. In contrast to all other deciles, the 2006 earnings of workers in the 1st decile were only 42.5 percent of their 10-year average earnings. Overall, at the median, single-year earnings modestly overestimate an individual's average annual earnings over the past 10 years.

We now turn to the distribution of participation and contribution rates among deciles of both 2006 earnings and 10-year average earnings, and also by current-earnings trend. Table 4 shows that overall DC participation rates in 2006 were dramatically higher for workers in upper earnings deciles, regardless of whether these deciles are based on 2006 earnings or on the 10-year average of annual earnings. Only about 4–6 percent of workers in the lowest earnings decile and about 12–16 percent of those in the 2nd earnings decile participated in (that is, made contributions to) a DC retirement account. By contrast, about a quarter of workers in the 3rd earnings decile contributed, and in the 6th earnings decile, about half participated. The participation rate at the highest earnings decile reaches about 80 percent. These findings suggest that, regardless of the earnings measure used, DC retirement

Table 3.
Percentage distribution of workers by current-earnings trend, and the median ratio of current earnings to 10-year average earnings, total and by 2006 earnings decile

Decile	Percentage of workers whose 2006 earnings, compared with their 10-year average earnings, are—			Total	Median ratio[a] (%)
	Lower by more than 20%	Within 20%	Higher by more than 20%		
Total	15.6	50.2	34.2	100.0	109.0
2006 earnings deciles					
1st (lowest)	67.0	9.7	23.3	100.0	42.5
2nd	33.9	28.5	37.6	100.0	100.3
3rd	18.4	43.9	37.7	100.0	108.3
4th	10.4	56.3	33.3	100.0	107.9
5th	7.5	58.1	34.4	100.0	109.3
6th	6.2	63.4	30.4	100.0	109.3
7th	3.8	65.4	30.8	100.0	109.6
8th	2.9	63.9	33.3	100.0	111.4
9th	2.3	62.9	34.8	100.0	112.5
10th (highest)	3.8	49.7	46.5	100.0	117.9
Number of observations	3,325	10,676	7,234	21,235	21,235

SOURCE: Authors' calculations using SSA administrative earnings records matched to the 2004 SIPP (wave 7).

NOTES: Estimates are for workers aged 35–61 with earnings in 2006, weighted using survey weights. Ten-year average reflects real earnings from 1997 to 2006. All earnings are expressed in inflation-adjusted 2006 dollars.

Totals do not necessarily equal the sum of rounded components.

a. Derived by calculating for each individual the ratio of 2006 earnings to 10-year average earnings, then determining the median of these calculated ratios for all individuals in each earnings decile.

Table 4.
Participation rate in DC plans in 2006, by earnings deciles and current-earnings trend

Decile	Participation rate (in percent) among workers whose 2006 earnings, compared with their 10-year average earnings, are—			Overall (%)
	Lower by more than 20%	Within 20%	Higher by more than 20%	
Total	19.1	54.2	40.2	43.9
Panel A: 2006 earnings deciles				
1st (lowest)	4.8	3.3	2.1	4.0
2nd	16.9	11.8	8.8	12.4
3rd	23.4	32.8	20.5	26.5
4th	37.0	41.3	28.9	36.7
5th	35.1	48.5	36.8	43.4
6th	40.0	53.4	40.7	48.7
7th	52.6	56.2	49.1	53.9
8th	59.7	68.1	52.5	62.7
9th	48.7	75.4	66.1	71.6
10th (highest)	71.9	82.6	76.6	79.4
Panel B: 10-year average annual earnings deciles				
1st (lowest)	0.7	3.7	7.5	5.5
2nd	7.3	13.0	21.2	15.8
3rd	12.8	29.8	30.7	26.6
4th	14.6	39.2	40.5	35.6
5th	17.1	48.3	44.8	42.7
6th	30.1	53.7	53.3	50.6
7th	26.7	55.0	61.0	53.2
8th	31.3	65.7	65.2	62.0
9th	37.2	73.6	72.7	69.6
10th (highest)	52.0	80.6	82.3	77.7
Number of observations	3,325	10,676	7,234	21,235

SOURCE: Authors' calculations using SSA administrative earnings records matched to the 2004 SIPP (wave 7).

NOTES: Estimates are for workers aged 35–61 with earnings in 2006, weighted using surevey weights. Ten-year average reflects real earnings from 1997 to 2006. All earnings are inflation-adjusted to 2006 dollars. The rates in each cell are calculated for that cell subsample.

account participation is more prevalent among workers in the upper half of the earnings distribution. A similar pattern emerges if we look at the participation rate within each current-earnings trend group.

However, an interesting pattern emerges when comparing participation rates between panel A and B within each column. Among workers whose 2006 earnings were more than 20 percent lower than their 10-year average earnings, the participation rate throughout all deciles is higher when measured with 2006 earnings than that measured with 10-year average earnings. By contrast, among those whose 2006 earnings were higher than their 10-year average earnings by more than 20 percent, the participation rate is much lower when measured with 2006 earnings than that measured with 10-year average earnings. Among those with 2006 earnings within 20 percent of their 10-year average earnings, participation rates are similar under both measures. These findings suggest that although our estimate of participation rate, on average, is not substantially different between the two earnings measures, using single-year earnings may underestimate the participation rate for about one-third of the sample, namely those whose current earnings are more than 20 percent higher than their 10-year average. By contrast, using current-year earnings may substantially overestimate the participation rate for almost one-sixth of the sample (those whose current earnings are more than 20 percent lower than their 10-year average).

In Table 5, we examine the DC plan contribution rates, defined as the percentage of a participant's earnings contributed to retirement accounts, by each

Table 5.
DC plan median contribution rate in 2006, by earnings deciles and current-year earnings trend

Decile	Median contribution rate (%)				Median contribution amount ($)
	Among workers whose 2006 earnings, compared with their 10-year average earnings, are—				
	Lower by more than 20%	Within 20%	Higher by more than 20%	Overall	
Total	4.8	5.9	5.1	5.5	3,180
Panel A: 2006 earnings deciles					
1st (lowest)	3.9	a	a	4.1	164
2nd	3.9	5.3	4.2	4.4	649
3rd	3.7	4.0	4.0	3.9	850
4th	4.2	4.6	4.1	4.4	1,308
5th	4.7	4.4	3.9	4.2	1,532
6th	6.2	5.1	4.9	5.1	2,227
7th	7.2	5.8	4.9	5.4	2,891
8th	6.1	6.2	5.1	6.0	3,786
9th	a	7.9	6.2	7.2	6,135
10th (highest)	7.9	7.9	6.3	7.1	12,304
Panel B: 10-year average annual earnings deciles					
1st (lowest)	a	a	3.3	3.4	581
2nd	2.8	5.2	4.0	4.0	830
3rd	2.9	4.1	4.1	4.0	990
4th	3.7	4.3	4.3	4.3	1,326
5th	4.0	4.3	5.0	4.6	1,615
6th	5.2	5.1	5.1	5.1	2,251
7th	4.6	5.4	5.2	5.3	2,783
8th	4.9	6.1	6.1	6.1	4,007
9th	6.2	7.8	6.9	7.4	6,115
10th (highest)	6.3	7.9	6.1	7.1	11,947
Number of observations	623	5,784	2,943	9,350	9,350

SOURCE: Authors' calculations using SSA administrative earnings records matched to the 2004 SIPP (wave 7).

NOTES: Estimates are for workers aged 35–61 with earnings in 2006, weighted using survey weights. Ten-year average reflects real earnings from 1997 to 2006. All earnings are inflation-adjusted to 2006 dollars. Contribution rate is defined as the amount of the tax-deferred contribution as a percentage of total earnings for 2006. Samples consist of workers with tax-deferred contributions in 2006.

a. Fewer than 30 observations.

earnings measure. The overall median contribution rate to retirement accounts in 2006 was 5.5 percent of earnings. Regardless of whether it is measured with 2006 earnings or 10-year average earnings, the median DC plan contribution rate increases with earnings, from about 4 percent in the lowest four deciles to about 7 percent in the highest two deciles.

Among workers whose 2006 earnings were more than 20 percent lower than their 10-year average earnings, we observe that median contribution rates of those in the 3rd–8th and the 10th deciles of current earnings (panel A) are higher than the median contribution rates of those of similar deciles of 10-year average earnings (panel B). This suggests that contribution rates are overestimated for respondents with lower current earnings relative to their 10-year average. For panel A, in all but the 3rd decile, the median contribution rate for those with 2006 earnings within 20 percent of their 10-year average earnings was slightly higher than for those with current earnings more than 20 percent higher than 10-year average earnings. In panel B, however, contribution rates of those with 2006 earnings within 20 percent of their 10-year average annual earnings do not exceed those of workers with current earnings more than 20 percent higher

than 10-year average earnings in half of the deciles (3rd, 4th, 5th, 6th, and 8th). Using the current (2006) earnings measure suggests that stable earners have higher contributions than those with increased earnings, but this tendency is not as clearly indicated when 10-year average earnings are used. Thus, the relationship between earnings changes (whether decreasing, stable, or increasing) and DC plan contribution rates as measured with current earnings may differ from that measured with 10-year average earnings.

The observed differences by current-earnings trend may result from participants choosing to contribute a flat dollar amount to their DC account, which they tend not to change over time, instead of contributing a fixed percentage of their earnings.[7] Evidence suggests that about half of contributors do in fact choose to contribute a fixed dollar amount instead of a percentage of their salary (Dushi and Iams 2010). In terms of dollars, the median contribution amount is $3,180, ranging from $164 in the lowest earnings decile to $12,304 in the highest earnings decile. Median contribution amounts seem to be relatively low (below the overall median of $3,180) for workers in the lowest seven earnings deciles.

The final portion of our analysis employs multivariate regressions to examine how the level of a worker's earnings associates with DC plan participation and contribution rates, when important covariates are held constant. The regression analysis permits us to test whether the patterns found in our descriptive analysis hold while controlling for key sociodemographic characteristics. Table 6 reports the probit estimates of the probability of participation in a DC plan and the ordinary least square regression estimates of the contribution rate. Estimates are shown for only the lowest seven earnings deciles, and reflect the given decile's value relative to that of the three highest deciles combined. Our models follow two different specifications either using workers' 10-year average earnings or their current earnings while controlling for the commonly used demographic characteristics.

Probit results confirm a significantly lower participation probability for workers in the lower earnings deciles relative to those in the upper three deciles. Thus, for example, workers falling in the lowest 2006 earning decile are 49.1 percentage points less likely to participate in a plan than those in the highest three deciles, whereas those in the 7th decile are

Table 6.
Probit estimates of the probability of participation in a DC plan in 2006 and ordinary least square estimates of the DC plan contribution rate among workers aged 35–61 with earnings in 2006

	Participate in a DC plan (marginal effects)[a]		Contribution rate[b] (coefficient)	
Decile	2006 earnings deciles	10-year average earnings deciles	2006 earnings deciles	10-year average earnings deciles
1st (lowest)	-0.491**	-0.487**	1.547	-1.306
2nd	-0.441**	-0.426**	-0.283	-1.357*
3rd	-0.361**	-0.360**	-1.897**	-2.178**
4th	-0.293**	-0.300**	-1.507**	-1.847**
5th	-0.245**	-0.247**	-1.546**	-1.501**
6th	-0.207**	-0.185**	-1.334**	-1.248**
7th	-0.168**	-0.164**	-0.610**	-0.873**
8th–10th (omitted)	---	---	---	---
Number of observations	21,235	21,235	9,350	9,350

SOURCE: Authors' calculations using SSA administrative earnings records matched to the 2004 SIPP (wave 7).

NOTES: Reported estimates are weighted to account for SIPP's complex survey design using Stata's svy procedure. Ten-year average earnings refer to real earnings from 1997 to 2006. All earnings are inflation-adjusted to 2006 dollars. All estimated models control for commonly used demographic characteristics such as age, sex, marital status, education, and race/ethnicity. We report here only the estimates for earnings deciles used in each model.

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

a. Participation is defined as equal to 1 if respondent made contributions to a DC plan in 2006 (according to W-2 records) and 0 otherwise; the marginal effects are calculated at the sample means and indicate the change in the probability of participation (in percentage points) for a discrete change in a dummy explanatory variable from 0 to 1.

b. Contribution rate is defined as the ratio of 2006 tax-deferred contribution amount to 2006 total earnings among those with positive contributions in 2006.

16.8 percentage points less likely to participate than their counterparts in the highest three deciles. Furthermore, the marginal effects measured with 10-year average annual earnings are almost the same as those measured with 2006 earnings. Results from the ordinary least square regression indicate that, whatever measure of earnings we use, the contribution rate is significantly lower among those in the 3rd through the 7th earnings deciles than among those in the highest three earnings deciles. The contribution rate in the lowest earnings decile fails to be significant because of the small sample size of contributors compared with the omitted category of high earners.

Conclusion

Previous research provides evidence that low-income workers are less likely to be eligible for a DC plan, and less likely to participate when eligible. As DC plans supplanted DB plans over the past three decades, the pension participation rates among low-income workers substantially decreased. In this context, it is important to estimate the extent to which variation in earnings levels affects participation and contribution rates. From the policy perspective, increasingly sharp variation in the distribution of pension participation by earnings levels would imply greater inequality in retirement resources of future retirees.

Using W-2 tax record data matched to the SIPP, this article explores the relationship between earnings and DC plan participation and contributions. The analysis provides insight into differences between measuring a worker's current-year earnings and using a broader measure—that is, the average of the worker's last 10 years of annual earnings. Our data suggest that a single cross-section (2006) slightly overestimates the 10-year average of workers earnings. About one-third of workers earned substantially higher amounts in 2006 (more than 20 percent above their 10-year average earnings) and fewer than one-sixth earned substantially lower amounts in 2006 (more than 20 percent below their 10-year average earnings).

Results also provide evidence that participation in, and tax-deferred contributions to, retirement accounts are concentrated among higher earners. This pattern is observed whether workers' earnings are measured with their current annual earnings or with the annual average of their prior 10 years of earnings. However, using 2006 earnings versus 10 years of earnings seems to overestimate the participation rate for those with lower current earnings relative to the 10-year average, but underestimates the participation rate among those with higher current earnings relative to the 10-year average. The contribution rate (the percentage of earnings contributed to DC retirement accounts) among participants is less than 5 percent for those in the lower 60 percent of the earnings distribution and about 6–7 percent among those in the upper three earnings deciles. When measured with 2006 earnings rather than with 10-year average earnings, the contribution rates seem to be overestimated among workers with 2006 earnings more than 20 percent lower than their 10-year average earnings. It is important to note that the contribution rates observed herein underestimate the actual dollars contributed to retirement accounts for some employees because they reflect only employee contributions and omit the amount contributed on their behalf by employers. Some employers match contributions to encourage participation, particularly among low earners (Madrian 2005). However, Vanguard (2010, 25) data show that "in a typical DC plan, employees are the main source of funding, while the employer contributions play a secondary role. Thus, the level of participant deferrals is a critical determinant of whether the DC plan will generate an adequate level of savings in retirement." In terms of dollars, our findings indicate that for DC participants in the lowest seven earnings deciles, the median annual contribution amounts in 2006 were less than $3,000. It is unlikely that an account with such amounts contributed over a lifetime would generate, by itself, adequate resources for economic well-being in retirement.

This stylized relationship between earnings and DC plan outcomes at the population level has policy implications. The fact that low earners are less likely to be eligible and less likely to participate in a DC retirement plan when given the choice has been a concern among both policymakers and analysts and has led to several policy proposals. For example, in an effort to promote DC plan participation, the 2006 Pension Protection Act permits employers to enroll their employees automatically in retirement plans designed to create retirement savings over a lifetime (Purcell 2009). However, the universal enrollment that is common among DB plans is not characteristic of DC retirement plans even with the changes initiated by the act. A December 2009–February 2010 survey sponsored by AARP suggested that the majority of large employers still had not adopted automatic enrollment for their plan (Brown 2010).

Other proposals include a universal individual retirement account (IRA) under which employees not

offered a retirement plan from their employer would be automatically enrolled in an IRA (Iwry and John 2007). A third proposal is a universal retirement plan shared by workers at all earnings levels. In this vein, Ghilarducci (2008, 2010) proposes eliminating the $193 billion per year in tax breaks for DC retirement accounts and using some of the tax savings to provide support to all workers to participate in a universal retirement plan. The empirical results from this study suggest that, indeed, there is cause for concern that low earners are less likely to participate in DC pensions and, when they do, their contribution levels are quite low. These patterns, if continued, could lead to a substantial portion of workers with inadequate savings to support themselves in retirement.

Notes

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[1] Survey-reported earnings are also subject to measurement errors. See Bricker and Engelhardt (2007) for a discussion of previous research about measurement errors in earnings.

[2] The estimated statistics presented in the results section are weighted using Census Bureau's person sample weights in wave 7 and account for SIPP complex sampling. The match rate for our total survey sample in wave 7 with the W-2 records is 85 percent and thus we expect that the sample with matched records is not a select sample, and so should be representative of the total population. Previous analysis by Czajka, Mabli, and Cody (2008) assessed the impact of sample loss in the 1996 and 2001 SIPP panels and concluded there were no substantive impacts due to nonmatches.

[3] See Olsen and Hudson (2009) and Pattison and Waldron (2008) for a discussion of W-2 tax-record data available in the Master Earnings File.

[4] Although it is uncommon, in some DC plans the employer contributes to an employee's account even when the employee does not. In such cases, the W-2 record will indicate that the employee has not made tax-deferred contributions to a retirement account in a given year. Furthermore, the W-2 record does not indicate whether the employer made any contributions on behalf of the employee. We classify such an employee as a nonparticipant. To the extent that this occurs, we would underestimate DC participation rate. To address this possibility, we looked at self-reported SIPP information and found that only 3 percent of respondents in 2006 reported making zero tax-deferred contributions on their own while their employer contributed to their account. As Vanguard (2010, 12) observes, employer contributions are typically "a secondary source of plan funding."

[5] The sample consists of respondents with wage and salary earnings according to their SSA W-2 earnings record. Our analysis focuses on all workers, rather than only those who report being offered a DC plan, for two reasons. First, from the W-2 record we cannot tell whether a worker is offered a DC plan. Second, as with participation and contributions, self-reported information on offerings is subject to reporting error (Dushi and Iams 2010).

[6] We first calculate for each individual the ratio of his or her 2006 earnings to his or her 10-year average earnings. Then we calculate the median of these calculated ratios for all individuals in each earnings decile. Note that this median of 21,235 individual ratios (1.09, expressed in Table 3 as 109.0) is slightly higher than the ratio of the median of workers' earnings in 2006 to the median of workers' 10-year average annual earnings (1.07) shown in Table 1.

[7] Research shows that inertia typifies individual behavior with respect to enrollment, asset allocation, and contributions to DC pensions (Madrian and Shea 2001; Madrian 2005; Vanguard 2010).

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