

# **The Potential Effects of Cash Balance Plans on the Distribution of Pension Wealth At Midlife**

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## **THE POTENTIAL EFFECTS OF CASH BALANCE PLANS ON THE DISTRIBUTION OF PENSION WEALTH AT MIDLIFE**

### **Abstract**

Recent pension plan conversions by numerous large employers have sparked debate about the merits of cash balance plans. This paper compares pension wealth in traditional defined benefit (DB) plans and cash balance plans for a nationally representative sample of Americans ages 51 to 61 with pension coverage. Data for our analysis are from the Health and Retirement Study, which includes detailed information for about 800 DB plans.

The simulations indicate that replacing DB plans with cash balance plans would redistribute pension wealth from those who held long-term jobs for many years to those with a series of short-term jobs. Because long-term workers have high levels of DB pension wealth, replacing DB plans with cash balance plans would benefit individuals with limited DB wealth. Four-fifths of those in the bottom quartile of the DB wealth distribution would fare better in cash balance plans than DB plans, while 61 percent of those in the top DB wealth quartile would fare worse. Many women in their fifties in 1992 with DB coverage would have lost pension wealth if they had instead participated in cash balance plans throughout their working lives, because relatively few women had accumulated pension wealth on past jobs. However, cash balance plans may be more advantageous for later cohorts of women, as employment and earnings patterns for men and women continue to converge.

## **THE POTENTIAL EFFECTS OF CASH BALANCE PLANS ON THE DISTRIBUTION OF PENSION WEALTH AT MIDLIFE**

Recent pension plan conversions by numerous large employers have sparked debate about the merits of cash balance plans. These hybrid plans combine features of traditional defined benefit (DB) pension plans and defined contribution (DC) plans. Like DC plans, cash balance plans base benefits on the balances that have accumulated in worker accounts, to which employers make regular contributions. However, unlike DC plans, the balances in these accounts do not depend on uncertain investment returns. Instead, retirement benefits paid to participants are set by formulas which specify the interest rate at which the account balances grow. Cash balance plans are similar to DB plans, in that employers bear all investment risks. However, wealth accrual profiles generally differ sharply between DB and cash balance plans. In most DB plans, pension wealth grows slowly early in the career but rises rapidly as workers approach retirement age. In cash balance plans, pension wealth tends to grow more evenly over the course of the career. For some workers, particularly those who change jobs frequently, the relatively smooth accrual profile for cash balance plans may generate larger lifetime pension benefits than DB plans. Critics of cash balance plan conversions, however, contend that they will reduce benefits for long-term employees. This paper examines the impact of cash balance plans on the distribution of pension benefits by comparing actual pension wealth for workers in DB plans with the wealth they would likely accumulate if they had instead participated in cash balance plans.

Little is known about how workers are likely to fare under cash balance plans. A handful of recent studies have compared pension wealth in DB and cash balance plans and most have found that many workers would do better in cash balance plans. But data and other problems

with these studies limit the conclusions that they reach. Some studies examine plan conversions in only a very few firms, which may not represent outcomes in typical cash balance plans. Other studies examine outcomes for prototypical workers, instead of considering actual employment patterns and earnings histories. By focusing solely on prototypical workers, these studies neglect potential outcomes for many segments of the population. Another shortcoming of the existing research is that it has ignored pension wealth on previous jobs. Cash balance plans may be especially important for workers who hold a series of short-term jobs over their lifetimes, instead of a single long-term job.

This paper compares pension wealth in DB plans and cash balance plans for a nationally representative sample of Americans ages 51 to 61 with pension coverage. Our analysis focuses on individuals near the end of the worklife because lifetime pension wealth becomes increasingly important as workers approach retirement, and we have information about workers' entire employment histories. We begin by computing the actual level of pension wealth for men and women with DB plans. We then simulate what their pension wealth would be if they had participated in cash balance plans instead of DB plans for their entire careers. We set the parameters of the hypothetical cash balance plans so that the level of aggregate pension benefits paid by the employer would equal aggregate benefits paid under the existing DB plans. The model compares outcomes under each type of plan by job tenure and by demographic and economic characteristics of participants. We examine how DB-covered workers would fare if they had participated in cash balance plans on their current jobs and if they had also participated in cash balance plans on past jobs with DB coverage. We also test the sensitivity of our findings to assumptions in the model about the structure of the hypothetical cash balance plans. Our analysis measures the effects of cash balance plans on the distribution of pension wealth at

midlife. We can not examine the effects on aggregate pension wealth, because our simulations set total pension wealth in cash balance plans equal to total wealth in DB plans.

## **BACKGROUND**

Employer-sponsored pension plans are important vehicles for retirement savings. About 64 percent of Americans in their fifties were covered by pension plans in 1992 from current or past jobs, and pension wealth accounted for 29 percent of total wealth for those with coverage (Gustman, Mitchell, Samwick, and Steinmeier 1999). However, pension plans have changed dramatically in the past 25 years, as DB coverage has eroded over time and DC plans have emerged as the dominant type of pension plan. From 1988 to 1997, the proportion of full-time employees in medium and large private establishments participating in DB plans fell from 70 percent to 50 percent, while the proportion participating in DC plans increased from 52 percent to 57 percent (U.S. Bureau of Labor Statistics 1989, 1999).<sup>1</sup>

The trend toward DC plans has been attributed to the high cost of DB plan sponsorship for employers and to preferences for DC coverage among mobile workers. The administrative costs of sponsoring DB plans are high, because employers must maintain detailed records, ensure that the plan conforms with complex federal and state regulations, and pay insurance premiums to the Pension Benefit Guaranty Corporation (PBGC). Firms providing DB coverage must also forecast the salary and length of service of its workforce many years into the future, because DB plans generally guarantee lifetime benefits to recipients based on years of service and a measure of final earnings. In addition, by specifying retirement benefits instead of contributions, DB plans subject employers to investment risk. Fluctuations in interest rates and in stock market

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<sup>1</sup> Some workers participate in both DB and DC plans. In 1997, 79 percent of full-time employees in medium and large private firms participated in some type of employer-sponsored retirement plan.

returns can change substantially the amount that firms must set aside each year to fund their future pension commitments.

Many young workers and those who expect to change jobs frequently may prefer DC coverage to DB coverage. Although DB pension wealth generally increases rapidly near the end of the career, it grows slowly in the early years when years of service are limited and salary is typically low. As a result, young workers with DC coverage can often accumulate more pension wealth than young workers with DB coverage. In addition, workers participating in DB plans generally lose pension wealth when they change jobs, especially when their benefits are tied to final salary. Benefits for workers who remain at a single employer for their entire worklives will be based on salary received just prior to retirement. However, for those who change jobs more frequently, benefits earned on jobs held early in the worklife will be based on salary received at relatively young ages. As a result, workers with DB coverage who change jobs will receive lower pension benefits than those who remain at a single employer, as long as nominal earnings increase with age. The penalty to changing jobs is much lower in DC plans, because balances in DC accounts can continue to grow after participants leave the original employer.<sup>2</sup> In an increasingly mobile workforce, DC plans may appeal to many workers.

Although they are growing in popularity, an important disadvantage of DC plans for many participants is that they expose workers to substantial investment risk. Retirement benefits from DC plans depend not only on the level of contributions to the plan, but also on the returns they earn. Downturns in the stock market or a prolonged period of unusually low interest rates can substantially reduce DC pension wealth. Since many workers are risk averse and firms

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<sup>2</sup> However, some workers cash out their DC plans when they leave their employers, instead of allowing them to accumulate until they reach retirement age (Burman, Coe, and Gale 1999).

generally have greater access to credit markets than workers, employers may be better able to bear investment risks than individuals.

Cash balance plans have emerged in recent years as an important alternative to traditional DB and DC plans. According to a recent General Accounting Office (GAO) survey, 19 percent of Fortune 1000 firms sponsored cash balance plans in 1999, and more than half of them have been established within the past five years (U.S. General Accounting Office 2000a). Like other hybrid plans, cash balance plans combine features of both DB and DC plans. In cash balance plans, employers regularly set aside a given percentage of salary for each employee and credit interest on these contributions at a pre-determined rate, protecting employees from market fluctuations. Benefits are expressed as an account balance, as in DC plans, but these balances are only bookkeeping devices. Benefits are paid from commingled funds invested in a pension trust on behalf of all participants. The percentage of pay that employers set aside for workers often increases with years of service, although some employers use the same pay credit rate for all workers, regardless of length of service (U.S. General Accounting Office 2000a).

A key difference between DB plans and cash balance plans for workers is the pattern by which wealth accrues in each type of plan. As noted earlier, pension wealth in most DB plans is backloaded, so that wealth grows rapidly late in the career but slowly early on. Younger workers are likely to accumulate less wealth in DB plans than cash balance plans, in which wealth accrues more evenly over time. In addition, workers who change jobs frequently are likely to do better in cash balance plans, because many DB plans impose large penalties when workers separate before the plan's retirement age. Although pay credits in cash balance plans often rise with years of service, the loss in pension wealth associated with early separation is generally lower in cash balance plans than DB plans. Participation in cash balance plans may be

particularly advantageous for women, who tend to have higher turnover rates than men (Jaeger and Stevens 1999). However, workers who spend many years with a single employer may do worse in cash balance plans.

A few recent studies have examined the level of pension wealth that workers would likely receive from cash balance plans. A recent Watson Wyatt report concluded that most workers would do better in cash balance plans than DB plans (Brown et al. undated). It examined three actual plan conversions by large employers. Pension costs decreased by 32 percent in one conversion, increased by 23 percent in the second conversion, and remained approximately constant in the third. Under the cost-neutral conversion, pension wealth increased for 80 percent of participants. Increases in wealth were especially substantial for younger workers and those who had relatively few years of service at the time of the conversion. Clark and Munzenmaier (2001) also examined the effects of an actual conversion from a DB plan to a cash balance plan. They found that typical employees would receive higher benefits under the new plan at early retirement ages, but lower benefits if they remained until age 65. They also found that the cash balance plan provided higher benefits than the DB plan to vested workers who separated before the early retirement age.

Because these case studies are based on only a handful of plan conversions, it is not clear how well the results generalize to the broader workforce. They also lack information on the characteristics of actual workers in the plan. Brown et al. (undated) created a synthetic workforce from Watson Wyatt data, while Clark and Munzenmaier (2001) simulated effects for prototypical workers. Both studies also incorporated the transition rules that workers faced during conversions to cash balance plans. Since transition rules often ensure that existing workers do not lose pension wealth during plan conversions, it is possible that workers who had

always participated in cash balance plans would do worse than those who converted to cash balance plans during the middle of their careers.

Two other studies examined how workers might fare under hypothetical plan conversions. Kopp and Sher (1998) compared a prototypical DB plan with a cash balance plan that yielded equivalent aggregate benefits for a sample of workers who had recently separated from their employers. They found that more than two-thirds of workers would have done better in the cash balance plan than in the prototypical DB plan. Women were especially likely to do better in the cash balance plan, because of their high turnover rates at young ages when the final average pay DB plan generates very little pension wealth. However, those separating after age 55 did better on average under the DB plan. A recent study by the General Accounting Office (2000b) assigned prototypical workers to prototypical plans and found that workers who remained with their employers until the normal retirement age would fare worse in cash balance plans than in DB plans.

Both of these studies have important limitations. The GAO report assumed that workers remain with a single employer throughout their careers, and thus ignored the potential benefits of cash balance plans for workers who change jobs frequently. Moreover, by making comparisons on hypothetical workers, the report offers no insights into the relative size of the groups who win and lose under each plan. Kopp and Sher (1998) examined a large sample of terminated and retired workers with DB coverage, but they had limited wage information. They assigned the same wage to all workers in a given age and tenure cell, and backcast earnings by assuming that all workers received 4 percent annual pay increases. Actual wage histories are much more complex. In addition, both studies considered only pension wealth on the current job, ignoring

wealth on past jobs. Finally, it is not clear how many workers actually have DB plans that are similar to the prototypical plans assumed by these two studies.

Our report extends the literature on cash balance plans in a number of important ways. We utilize information on a large sample of individuals and the actual DB plans in which they currently participate or participated in the past. Since our sample includes about 800 different DB plans, our findings capture the diversity of outcomes that can result from different pension plans. We estimate pension wealth under the assumption that workers had always been covered by cash balance plans, instead of examining the effects of plan conversion on retirement wealth outcomes. Thus, we are able to consider how cash balance plans are likely to affect retirement wealth in the long run, which could differ from the short-run effects of plan conversions. Finally, we examine outcomes on past jobs as well as the current job, which enables us to assess the possible implications of cash balance plans on lifetime pension wealth.

## **DATA AND METHODS**

To measure the possible effects of cash balance plans on retirement outcomes, we examined pension wealth for men and women with DB coverage in the Health and Retirement Study (HRS). Conducted by the University of Michigan for the National Institute on Aging, the HRS is a nationally representative survey of 9,825 noninstitutionalized Americans ages 51 to 61 in 1992.<sup>3</sup> Respondents were questioned about a wide range of subjects, including employment, pension coverage, income, earnings, and demographic characteristics. Interviewers asked about type of pension coverage, industry, occupation, and date of hire for the current job or for the last

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<sup>3</sup> The HRS interviewed the spouses of all married respondents, regardless of their ages. As a result, information was collected from 2,827 individuals older than 61 or younger than 51 in 1992. However, we did not use these interviews because they were not conducted on random samples of individuals in those age groups.

job if the respondent was not currently employed. Employed respondents also reported their current wage, while others reported the quit date and final wage on the past job. In addition, information on type of pension coverage, hire and quit dates, and the wage earned when the respondent left the job was collected for up to three other past jobs that offered pension coverage.

A special strength of the HRS for our study is the availability of detailed pension information collected from pension providers. Respondents who reported participating in pension plans were asked to supply the names and addresses of the plan sponsors, for the current job and for past jobs that they held for at least five years. Summary plan descriptions, which provide information about retirement ages, vesting requirements, cost of living adjustments, Social Security offsets, and the formulas on which pension benefits are based, were collected from plan administrators. Some descriptions were also gathered from records at the U.S. Department of Labor when HRS staff were unable to obtain information from plan sponsors. These plan descriptions provide more reliable estimates of DB pension wealth than estimates based on self-reports from respondents (Johnson, Sambamoorthi, and Crystal 2000).

The HRS pension provider supplement includes information on 839 different DB plans, covering about 72 percent of respondents with DB coverage on the current job and about 43 percent with DB coverage on past jobs. We used hotdeck techniques to impute pension plans for respondents who lacked provider data for any of the DB-covered jobs reported in the survey. Plans were imputed based on industry and occupation.

We used plan parameters to compute pension wealth, defined as the expected present value of the future stream of pension benefits, for current and past jobs.<sup>4</sup> Our estimates were

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<sup>4</sup> We assumed a real interest rate of 3 percent and an annual inflation rate of 4 percent.

based on an algorithm developed by the Institute for Social Research at the University of Michigan. Earnings histories are important inputs to the wealth algorithm. We computed them by extrapolating annual earnings reported in the HRS, based on age-earnings profiles estimated separately by gender and education on a sample of workers with DB coverage.<sup>5</sup>

### *Defining Parameters of the Cash Balance Plan*

The results of our study depend critically on the way in which we assigned workers in our sample to hypothetical cash balance plans, which can be defined by pay and interest credit rates. We set the interest credit rate in all plans equal to 7 percent, the average rate on thirty-year U.S. Treasury bonds between 1990 and 1999. We then set the base pay credit rate so that expected aggregate benefits paid by the firm under the new cash balance plan would equal the expected aggregate benefits paid under the DB plan. If we had simply assigned the same hypothetical cash balance plan to all covered workers in our sample, instead of basing pay credits on the generosity of the DB plan, we would have found that outcomes under cash balance plans depended on the generosity of the DB plan. Our study is based on the more realistic assumption that workers with relatively generous DB plans would participate in relatively generous cash balance plans, if they were to change plan type.

Aggregate pension benefits paid by a firm depend on quit rates and the distribution of ages, job tenure, and wages for men and women in the workforce. We could not use the HRS to describe an employer's workforce, because most pension plans in our sample are linked to only one HRS respondent and all respondents are older than age 50. Instead, we created industry-level synthetic workforces with data from the 1990 Survey of Income and Program Participation

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<sup>5</sup> The age-earnings profiles were based on Social Security earnings records from 1987 to 1998, linked to the 1990-93 panels of the Survey of Income and Program Participation. The trajectories were computed by the Urban Institute under contract to the Social Security Administration and are reported in a forthcoming report by the Urban Institute.

(SIPP), a national household survey that collected information on demographics, earnings, job tenure, and pension coverage. Each industry-level workforce consisted of all SIPP workers participating in DB pension plans in that industry. We assigned the synthetic SIPP workforce to each of the HRS DB plans in our sample in the given industry, and computed aggregate pension benefits paid by the firm to this sample of workers over their entire tenure with the employer. Similar to Kopp and Sher (1998) and Brown et al. (undated), estimates were based on quit rates derived from a Society of Actuary (SOA) study of DB plans (Kopp 1997). We then computed the cash balance base pay credit rate that would set pension benefits in the cash balance plan equal to benefits in the DB plan.<sup>6</sup>

In many cash balance plans the pay credit rate increases with years of service (U.S. General Accounting Office 2000a). In our simulations, we set pay credit rates in years 6 to 10 equal to 150 percent of the base rate in effect at years 1 to 5. Pay credits were set equal to 200 percent of the base rate at years 11 to 20 and 300 percent of the base rate after year 20. We tested the sensitivity of our findings to the pay credit schedule by considering two alternative scenarios. In the first alternative, the pay credit rate was constant across years of service, while in the second pay credit rates were set equal to 400 percent of the base rate after year 20. Because total expected pension benefits were held constant across all pay credit schedules, base pay credit rates in our hypothetical plans were lower when rates increased with tenure than when they were held constant over time.<sup>7</sup>

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<sup>6</sup> Aggregate DB pension benefits will be higher in industries with mature workforces, all else equal, leading to higher cash balance pay credit rates in these industries than in those with younger workforces. Any changes in the age distribution of the industry workforce after 1990 will introduce additional error into our simulations of future cash balance pension wealth.

<sup>7</sup> In some cash balance plans pay credit rates increase with age instead of tenure. However, we did not consider those plans in our analysis. We also assumed that no cash balance plans were integrated with Social Security, although our sample did include some integrated DB plans. By ruling out integrated cash balance plans, we may overstate the gain of converting from DB to cash balance plans for low-

Table 1 reports median pay credit rates by years of service for the hypothetical cash balance plans in our study. In our baseline scenario, in which pay credits rise moderately with years of service and pay credits are set so that aggregate pension benefits for the cash balance plans equal aggregate DB plan benefits, the median pay credit was 3.2 percent of salary for the first five years of service, 4.8 percent at years six to ten, 6.4 percent at years 11 to 20, and 9.6 percent at years 20 or more. Under the first alternative, with level credits, the median pay credit was 5.7 percent of salary at all years of service. Under the second alternative, in which credits rise more sharply with years of service, the median pay credit was 2.9 percent of salary for the first five years of service and rose to 11.6 percent of salary by year 20.

**Table 1. Median Pay Credit Rates by Years of Service in Hypothetical Cash Balance Plans**

<b>Years of Service</b>	<b>Baseline (pay credits increase with tenure)</b>	<b>Alternative 1 (level pay credits)</b>	<b>Alternative 2 (pay credits increase sharply with tenure)</b>
5 or fewer	3.2	5.7	2.9
6 to 10	4.8	5.7	4.4
11 to 20	6.4	5.7	5.8
20 or more	9.6	5.7	11.6

**Source:** Urban Institute, 2001

income workers, because integrated plans generally favor workers with high earnings. However, a recent survey of plan conversions by PricewaterhouseCoopers (2000) suggests that few cash balance plans are integrated with Social Security. Of the 69 integrated DB plans in the survey, only 29 were converted to integrated cash balance plans. The remaining 40 integrated DB plans became non-integrated cash balance plans.

### *Comparing Estimates of Pension Wealth*

We applied the simulated cash balance pay credit rates to HRS respondents with DB plans on current or past jobs, to estimate their pension wealth under the assumption that they had participated in cash balance plans instead of DB plans. We assumed that all participants who left their employers rolled over their cash balance plans until retirement, instead of cashing them out. We capped pension wealth at \$1 million, so that unreasonably large estimates of wealth would not distort our findings. For both the cash balance and DB pension calculations, we based our estimates on quit ages using the SOA turnover rates.

We expected total DB pension wealth from all current and past jobs to approximate total cash balance wealth in our HRS sample, because we set the cash balance pay credit rates so that simulated pension wealth in the SIPP sample would be equivalent in cash balance plans and DB plans. However, mean pension wealth in the HRS sample was somewhat higher for DB plans than for cash balance plans. Combining pension wealth on current and past jobs for all HRS respondents, mean pension wealth was \$97,100 in cash balance plans, compared with \$112,900 in DB plans. Cash balance wealth might be understated because HRS respondents did not fully report all of their past pension jobs, which are likely to generate more cash balance wealth than DB wealth. The estimates might also differ because labor force participation rates, earnings, turnover patterns, and demographic processes have changed over time, leading to differences between the level of pension wealth accumulated by young workers in the SIPP sample and the level of wealth earned by HRS respondents on past jobs early in their employment histories.<sup>8</sup>

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<sup>8</sup> The SOA turnover rates reflect cross-sectional data from 1989 to 1994. If turnover rates have increased over time, the SOA turnover rate tables will understate job tenure for older cohorts of workers. Longer tenure typically leads to higher DB wealth, which would translate to higher cash balance pay credits. As a result, deriving cash balance pay credit rates by applying the SOA turnover rates to workers from the SIPP may understate cash balance pay credits and hence cash balance wealth for the HRS population.

Because the focus of our study is the impact of plan type on the distribution of pension wealth and we are assuming that changing plan type would not affect the level of aggregate pension benefits paid by employers, we increased the estimates of cash balance wealth so that mean total pension wealth across all HRS respondents was equal in DB and cash balance plans. We used an adjustment factor of 1.16 in our baseline case, 1.13 when pay credit rates did not vary by tenure, and 1.18 when pay credit rates increased sharply with tenure.

### *Sample Size*

We restricted our sample to respondents who participated in DB pension plans on their current job or any past job that they held for at least five years. We disregarded jobs held for fewer than five years, because we assumed that all plans had five-year vesting requirements.<sup>9</sup> We dropped from our sample respondents in flat dollar DB plans, because very few, if any, employers have converted these plans to cash balance plans. Our final sample consisted of 3,228 individuals with positive DB pension wealth from current or past jobs, including 1,598 workers with DB plans on the current job. The sample included information on 2,136 past jobs. About 60 percent of respondents in our sample participated in DB pension plans on past jobs.

## **RESULTS**

We compared pension wealth in cash balance plans and DB plans separately for current jobs and past jobs, because the effects of cash balance plans may be quite different for those who separated from their employers at young ages than for those who separated at or near retirement.

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<sup>9</sup> Until 1989, plans could require 10 years of service before granting full pension rights to workers. As a result, we may attribute pension wealth to some individuals in our sample with between 6 and 10 years of service on jobs that ended before 1989, when in fact their benefits never vested. We chose to apply five year vesting rules to all past jobs in our sample because our objective is to measure the potential impact of cash balance plans on pension wealth under current federal regulations, which now generally prohibit cliff vesting requirements that exceed five years.

We also compared wealth outcomes by gender, race, educational attainment, years of service, earnings quartiles, DB pension wealth quartiles, and quit age.

### ***Pension Wealth on the Current Job***

Table 2 reports median pension wealth on the current job by plan type for workers ages 51 to 61. For all covered workers, median wealth in DB plans was \$82,700. If they had instead participated in cash balance plans during their entire tenure with the current employer, median wealth on the current job would have been only \$72,200. Thus, median pension wealth on the current job would have been almost \$10,500 lower in cash balance plans than in DB plans, assuming that earnings and years of service were identical under each plan. In percentage terms, the difference in median pension wealth was 13 percent (relative to wealth in the DB plan). Only 37 percent of workers would have fared better on the current job in cash balance plans than DB plans.

The impact of plan type on pension wealth varied across socioeconomic groups. Median pension wealth was substantially lower in cash balance plans than DB plans for workers projected to spend fewer than 26 years on the current job and for those in the bottom half of the earnings distribution, but it was higher in cash balance plans for those with more than 25 years of service and for those in the upper quarter of the earnings distribution. For example, among workers participating in DB pension plans in the bottom quartile of the earnings distribution, median pension wealth was 30 percent lower in cash balance plans than in DB plans. However, median pension wealth was 2 percent higher in cash balance plans than DB plans for those in the top earnings quartile. The impact of plan type varied considerably with projected job tenure at retirement. Median pension wealth was 45 percent lower in cash balance plans than DB plans for those with fewer than 10 years of service, but it was 31 percent higher in cash balance plans

**Table 2: Pension Wealth on the Current Job by Plan Type**

	Percent of sample	Median Wealth in Cash Balance Plan	Median Wealth in DB Plan	Difference in Median Wealth	Percent Difference in Median Wealth	Percent Who Fare Better in Cash Balance Plans
<b>All</b>	100.0	72,231	82,663	-10,432	-12.6	37.2
<b>Gender</b>						
Male	53.8	114,831	114,034	797	0.7	51.6
Female	46.2	41,260	56,128	-14,868	-26.5	20.4
<b>Race</b>						
Non-Hispanic white	86.9	73,775	86,124	-12,349	-14.3	37.8
Non-Hispanic black	9.7	66,308	80,910	-14,602	-18.0	34.8
Hispanic	3.4	43,408	62,569	-19,161	-30.6	27.4
<b>Education</b>						
Did not complete high school	11.6	35,447	41,030	-5,583	-13.6	39.5
High school graduate	32.9	48,039	56,748	-8,709	-15.3	38.7
Some college	19.0	63,478	85,848	-22,370	-26.1	31.0
College graduate	36.5	121,364	127,409	-6,045	-4.7	38.2
<b>Projected Years of Service at Retirement</b>						
Less than 10	12.6	7,745	14,104	-6,359	-45.1	29.7
10 to 14	12.5	23,240	37,781	-14,541	-38.5	11.2
15 to 19	14.1	41,034	51,592	-10,558	-20.5	15.8
20 to 25	15.8	68,489	92,145	-23,656	-25.7	16.0
26 to 34	27.2	160,355	157,755	2,600	1.6	48.0
35 or more	17.9	233,813	179,175	54,638	30.5	79.6
<b>Earnings Quartiles</b>						
Bottom	25.0	17,359	24,626	-7,267	-29.5	28.0
Second	25.0	50,855	63,465	-12,610	-19.9	30.3
Third	25.0	127,111	134,704	-7,593	-5.6	42.2
Top	25.0	215,045	210,781	4,264	2.0	48.4

**Notes:** Estimates are based on a sample of 1,598 workers ages 51 to 61 in the 1992 HRS who participated in DB pension plans on the current job. Parameters of the cash balance plans were set so that expected aggregate pension benefits paid by the employer were equal under the cash balance plan and DB plan. Retirement ages were determined by quit rates derived from an SOA study. The percent difference in wealth was computed by dividing the difference in median pension wealth by median DB pension wealth. Negative values for the differences indicate that pension wealth is larger for the DB plan than for the cash balance plan. All estimates are weighted to account for the sampling design of the HRS.

**Source:** Urban Institute, 2001

for those with 35 or more years of service. Fewer than 15 percent of workers with 10 to 19 years of service on the current job would fare better in cash balance plans than DB plans, compared with 80 percent of workers with 35 or more years of service.

Workers at midlife with relatively few years of service would fare worse in cash balance plans than DB plans because DB pension wealth accrues rapidly near the end of the worklife. Because our sample consists of individuals ages 51 to 61, many of those with limited job tenure began working for their employers only a few years before becoming eligible to collect pension benefits. DB pension wealth grows rapidly during these years, even for workers with limited years of service. However, cash balance pay credit rates are relatively low for workers with limited tenure in plans that tie rates to years of service, so wealth would not accrue rapidly in cash balance plans for workers with few years of service. As a result, workers at midlife with limited job tenure would on average accumulate less pension wealth in cash balance plans than in DB plans.<sup>10</sup> However, young workers with few years of service would likely do better in cash balance plans, because wealth in DB plans accrues slowly at young ages.

Our estimates indicate that cash balance plans would not have favored women born in the 1930s who were working at midlife. Only 20 percent of working women ages 51 to 61 in 1992 would accumulate more pension wealth on the current job in cash balance plans than DB plans, while 52 percent of men would do better in cash balance plans. Moreover, while median pension wealth on the current job would be slightly higher in cash balance plans than DB plans for men, median wealth among women would be 27 percent lower in cash balance plans than DB plans.<sup>11</sup>

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<sup>10</sup> In some cash balance plans pay credit rates increase with age, either solely or in conjunction with years of service (PricewaterhouseCoopers 2000). Estimated pension wealth for workers at midlife with limited job tenure would be higher in these plans than in the cash balance plans we simulated, in which pay credits do not rise with age.

<sup>11</sup> Estimates from linear regression models of the difference in pension wealth indicated that the transition from DB plans to cash balance plans would cost women in this cohort \$25,000 more pension

Part of this gender difference can be explained by women's relatively limited job tenure. Two-thirds of working women in our sample spent fewer than 26 years on the current job before retirement, compared with only 44 percent of men. Workers approaching retirement with limited years of service do relatively well in DB plans.

### ***Pension Wealth on Past Jobs***

For individuals at midlife who are not employed or who are working on relatively short-term jobs, pension wealth accumulated on previous jobs can be an important source of retirement income. Table 3 reports median pension wealth by plan type for jobs held in the past by individuals ages 51 to 61. Reported averages in the table refer to the median job, not the median individual, since some individuals report more than one past job with pension wealth. Among all past jobs with DB coverage, median pension wealth was \$18,600. If these jobs had offered cash balance coverage instead of DB coverage, median pension wealth would have increased to \$28,000. The difference in median pension wealth was \$9,400, or 50 percent of DB wealth. Pension wealth was higher in simulated cash balance plans than DB plans for 68 percent of all past jobs.

Differences by plan type in pension wealth from past jobs varied sharply by quit age and years of service. Median pension wealth was higher in cash balance plans than DB plans among jobs that were held for fewer than 26 years and among jobs that individuals left by age 55. For example, median pension wealth was only \$4,500 in DB plans in jobs that individuals left by age 40, but it would almost triple, to \$12,600, if these jobs had provided coverage through cash balance plans. In addition, cash balance wealth was higher than DB wealth in 91 percent of jobs that workers left by age 40, but only 32 percent of jobs that workers left after age 55.

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wealth on the current job than men, controlling for earnings, job tenure, education, and race. An appendix table reporting these results is available from the authors upon request.

**Table 3: Pension Wealth on Past Jobs by Plan Type**

	Percent of sample	Median Wealth in Cash Balance Plan	Median Wealth in DB Plan	Difference in Median Wealth	Percent Difference in Median Wealth	Percent Who Fare Better in Cash Balance Plans
<b>All</b>	100.0	27,999	18,644	9,355	50.2	68.1
<b>Gender</b>						
Male	68.1	41,944	25,464	16,480	64.7	71.7
Female	31.9	14,367	12,362	2,005	16.2	60.6
<b>Race</b>						
Non-Hispanic white	88.4	28,060	19,181	8,879	46.3	68.4
Non-Hispanic black	8.4	25,891	17,322	8,569	49.5	64.8
Hispanic	3.2	27,899	14,538	13,361	91.9	70.7
<b>Education</b>						
Did not complete high school	14.0	22,004	14,412	7,592	52.7	71.8
High school graduate	35.2	25,053	18,103	6,950	38.4	69.1
Some college	21.7	27,999	16,137	11,862	73.5	66.4
College graduate	29.1	41,858	33,997	7,861	23.1	66.5
<b>Years of Service</b>						
Less than 10	33.6	8,143	4,088	4,055	99.2	78.7
10 to 14	20.4	21,414	14,538	6,876	47.3	72.8
15 to 19	11.1	36,454	21,207	15,247	71.9	76.6
20 to 25	17.3	95,553	79,151	16,402	20.7	60.2
26 to 34	14.3	175,936	187,653	-11,717	-6.2	41.7
35 or more	3.3	227,170	243,299	-16,129	-6.6	60.1
<b>Quit Age</b>						
40 or younger	28.0	12,633	4,492	8,141	181.2	90.6
41 to 45	17.6	28,210	15,681	12,529	79.9	81.8
46 to 50	21.0	30,184	21,812	8,372	38.4	68.6
51 to 55	21.6	67,391	54,979	12,412	22.6	47.3
Older than 55	11.7	108,951	135,716	-26,765	-19.7	31.5

**Notes:** Estimates are based on a sample of 2,136 past DB-covered jobs held by individuals ages 51 to 61 in the 1992 HRS. Parameters of the cash balance plans were set so that expected aggregate pension benefits paid by the employer were equal under the cash balance plan and DB plan. The percent difference was computed by dividing the difference in median pension wealth by median DB pension wealth. Negative values for the differences indicate that pension wealth is larger for the DB plan than for the cash balance plan. All estimates are weighted to account for the sampling design of the HRS.

**Source:** Urban Institute, 2001

Because benefits in most DB plans are tied to final salary, DB pension wealth erodes with inflation if participants separate before they begin collecting benefits.<sup>12</sup> As a result, DB plans impose larger penalties on pre-retirement separations than cash balance plans. However, in jobs that individuals left after age 55, median pension wealth was \$135,700 in DB plans but only \$109,000 in cash balance plans. In the years immediately prior to retirement, pension wealth grows more rapidly in DB plans than cash balance plans, so jobs that are held beyond age 55 will generally accumulate more pension wealth with DB plans. These large accruals reflect, in part, early retirement subsidies that are often available to those who leave their jobs in their mid to late fifties. Because a disproportionate number of past jobs held by women involved separations after age 55, the difference in median pension wealth between cash balance plans and DB plans was much higher for men than for women.

### ***Pension Wealth on All Jobs***

Combining wealth on both the current job and past jobs, Table 4 reports lifetime pension wealth by plan type for individuals ages 51 to 61. Median total pension wealth in DB plans was \$55,800. If all DB plans had been replaced by cash balance plans, median pension wealth would have increased by \$3,600, to \$59,400.<sup>13</sup> In relative terms, median pension wealth would have been 7 percent higher had those with DB coverage instead participated in cash balance plans throughout their worklives.

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<sup>12</sup> Workers in 1997 were five times as likely to participate in DB plans that computed pension benefits on the basis of terminal earnings than career average earnings, among full-time workers in medium and large private establishments (U.S. Bureau of Labor Statistics 1999).

<sup>13</sup> Median pension wealth reported in Table 4 was lower than the estimates reported in Table 2 because Table 4 includes some individuals with DB pension wealth only from previous jobs. Table 2, however, was restricted to workers participating in DB plans on the current job. Median pension wealth is substantially higher among those with coverage on the current job than for those with only coverage from past jobs.

**Table 4: Pension Wealth on All Jobs by Plan Type**

	Percent of sample	Median Wealth in Cash Balance Plan	Median Wealth in DB Plan	Difference in Median Wealth	Percent Difference in Median Wealth
<b>All</b>	100.0	59,405	55,770	3,635	6.5
<b>Gender</b>					
Male	60.4	94,194	77,326	16,868	21.8
Female	39.6	29,159	34,446	-5,287	-15.3
<b>Race</b>					
Non-Hispanic white	87.5	61,577	57,446	4,131	7.2
Non-Hispanic black	9.1	50,539	46,685	3,854	8.3
Hispanic	3.4	43,120	37,790	5,330	14.1
<b>Education</b>					
Did not complete high school	13.3	33,539	30,006	3,533	11.8
High school graduate	34.9	46,058	39,278	6,780	17.3
Some college	20.5	52,888	52,439	449	0.9
College graduate	31.3	98,863	100,237	-1,374	-1.4
<b>Final Years of Service on Longest Job</b>					
Less than 10	17.4	8,989	6,009	2,980	49.6
10 to 14	16.6	23,063	22,021	1,042	4.7
15 to 19	13.5	42,336	42,083	253	0.6
20 to 25	18.8	85,987	85,803	184	0.2
26 to 34	22.8	168,643	171,318	-2,675	-1.6
35 or more	11.0	233,813	189,426	44,387	23.4
<b>Employment in DB jobs</b>					
Current job, no past jobs	39.7	83,402	95,848	-12,446	-13.0
Current job, one or more past jobs	9.2	83,051	81,366	1,685	2.1
No current job	51.1	40,808	27,408	13,400	48.9
<b>DB Pension Wealth Quartiles</b>					
Bottom	25.0	9,683	5,339	4,344	81.4
Second	25.0	33,023	31,835	1,188	3.7
Third	25.0	92,052	98,425	-6,373	-6.5
Top	25.0	249,329	264,985	-15,656	-5.9

**Notes:** Estimates are based on a sample of 3,228 individuals ages 51 to 61 in the 1992 HRS who participated in DB pension plans. Parameters of the cash balance plans were set so that expected aggregate pension benefits paid by the employer were equal under the cash balance plan and DB plan. Retirement ages were determined by quit rates derived from an SOA study. The percent difference in wealth was computed by dividing the difference in median pension wealth by median DB pension wealth. Negative values for the differences indicate that pension wealth is larger for the DB plan than for the cash balance plan. All estimates are weighted to account for the sampling design of the HRS.

**Source:** Urban Institute, 2001

Median lifetime pension wealth would increase under cash balance plans, even though our simulations hold *mean* lifetime wealth constant, because cash balance plans distribute pension wealth more equally across the covered population than DB plans. Replacing DB plans with cash balance plans would raise median pension wealth among those in the bottom half of the DB pension wealth distribution, while lowering median wealth among those in the top half of the distribution. The increase in median pension wealth would be especially strong among those in the bottom quartile of the distribution. Among these individuals, median pension wealth would be 81 percent higher in cash balance plans than in DB plans.<sup>14</sup>

The level of total pension wealth in DB plans varied sharply by race, education, and years of service, but cash balance plans would mute many of these differences. Among individuals with DB coverage, through the current job or past jobs, median DB pension wealth was about 50 percent higher for whites than for Hispanics, 2.5 times higher for college graduates than for high school graduates, and almost eight times higher for those with 26 to 34 years of service on the longest job than for those with 10 to 14 years.<sup>15</sup> Estimated pension wealth was substantially higher in cash balance plans than DB plans for Hispanics, those with limited education, and those with limited job tenure, but median wealth was virtually unchanged for non-Hispanic whites, college graduates, and those with 26 to 34 years of service. As a result, wealth differences by race, education, and years of service were smaller in cash balance plans than DB plans, although the differences remained substantial in cash balance plans. For example, median

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<sup>14</sup> As noted earlier, we did not simulate integrated cash balance plans. Our results may overstate the effect of cash balance plans on low-wealth workers if employers integrate their cash balance plans with Social Security.

<sup>15</sup> Pension coverage rates also vary dramatically by worker characteristics (e.g., Johnson, Sambamoorthi, and Crystal 1999).

wealth in cash balance plans was 2.1 times higher among college graduates than high school graduates.

The increase in median pension wealth would be especially high among those with coverage from past jobs. Slightly more than half of our sample of individuals at midlife with some history of DB plan participation were not employed at the time of the survey. Median pension wealth for these individuals would be 49 percent higher if they had participated in cash balance plans instead of DB plans. By contrast, median pension wealth for workers with DB coverage on the current job but not on any past jobs would fall by 13 percent if they had participated in cash balance plans. Participation in cash balance plans would considerably narrow the gap in pension wealth between covered workers and non-workers with coverage from past jobs. However, even in cash balance plans, workers in covered jobs would on average accumulate more than twice as much pension wealth as nonworkers at midlife with coverage from past jobs.

Current workers with coverage from past jobs comprise 9 percent of our sample. Median pension wealth among these workers would be only 2 percent higher in cash balance plans than DB plans. Accounting for pensions on past jobs is critical to accurate estimates of the impact of plan type on pension wealth for these workers. Considering only pensions from the current job, median pension wealth was 30 percent lower in cash balance plans than DB plans. However, median wealth accumulated on past jobs was 72 percent higher in cash balance plans than DB plans.

In addition to benefiting those with a series of relatively short jobs, cash balance plans would also benefit workers with very long job tenures, according to our simulations. Among those projected to spend at least 35 years with their employers, median pension wealth was 23

percent higher in cash balance plans than DB plans. For workers with many years of service, DB accrual profiles are often flat or even declining, while cash balance wealth continues to grow, leading to large differentials in pension wealth by plan type among workers with very high years of service. However, few workers in DB plans may choose to remain with their employers once their pension wealth begins to decline. By ignoring the interdependency between pension plan provisions and retirement decisions and the possibility that workers would retire once their DB pension wealth begins to decline with additional years of service, our simulations may overstate the impact of cash balance plans on pension wealth for individuals who we project to have very long job tenures.

Participation in cash balance plans would have different effects for men and women in our sample of individuals born between 1931 and 1941. Median lifetime pension wealth would be 22 percent higher in cash balance plans than DB plans for men, but 15 percent *lower* in cash balance plans for women. As a result, the gender gap in median pension wealth at midlife among those with coverage in this cohort would increase from \$42,900 in DB plans to \$65,000 in cash balance plans. Part of the explanation for the gender difference in the impact of cash balance plans is that women ages 51 to 61 in 1992 were less likely than men to have accumulated DB pension wealth on past jobs, which would generally increase in cash balance plans. Only 51 percent of women had participated in DB pension plans in past jobs, compared with 67 percent of men. Moreover, among those with DB coverage only on the current job, median pension wealth was 11 percent higher in cash balance plans than DB plans for men, but 24 percent lower in cash balance plans for women. Many working women at midlife had relatively short tenures on the current job. As noted earlier, DB pension wealth grows rapidly near the end of the worklife, and sacrificing those large accruals by participating in cash balance plans instead of

DB plans would lead to substantial losses in pension wealth. Cash balance plans are likely to be more favorable for future cohorts of women, who tend to have longer and more continuous job histories than women born in the 1930s (Blau 1998).

Table 5 reports the percentage of individuals who fare better under cash balance plans than DB plans and the percentage who fare worse, under the assumption that employers replaced DB plans with cash balance plans that generated the same level of aggregate benefits. Overall, slightly more than half (53 percent) of those ages 51 to 61 would accumulate more lifetime pension wealth in cash balance plans than in DB plans. The median increase in pension wealth among those who would fare better was \$15,700, or about 47 percent of DB wealth. Among those who would fare worse under cash balance plans, the median decline in pension wealth was \$19,200, or 27 percent of DB wealth.

The distribution of winners and losers follows the patterns observed in Table 4. Four-fifths of those in the bottom quartile of the DB wealth distribution would fare better in cash balance plans, while 61 percent of those in the top quartile would fare worse. Whereas 64 percent of men would receive more lifetime pension wealth under cash balance plans than DB plans, only 37 percent of women would fare better in cash balance plans. About two-thirds of those with limited education and two-thirds of those with pension coverage from past jobs but not from current jobs would accumulate more lifetime wealth in cash balance plans than DB plans. By contrast, only 40 percent of workers with pension coverage on the current job but not on any past jobs would earn more wealth in cash balance plans. Those who did not attend college were also more likely to fare better in cash balance plans than college graduates. Fully three-quarters of those with at least 35 years of service on their longest jobs would fare better in

**Table 5: Winners and Losers Under Cash Balance Plans on All Jobs and the Size of Gains and Losses**

	Percent of Sample	Percent Who Fare Better in Cash Balance Plans	Median Gain	Median Percent Gain	Percent Who Fare Worse in Cash Balance Plans	Median Loss	Median Percent Loss
All	100.0	53.2	15,676	46.5	46.8	19,218	27.0
<b>Gender</b>							
Male	60.4	63.9	24,108	52.6	36.1	25,172	23.5
Female	39.6	36.8	5,037	36.8	63.2	15,272	29.7
<b>Race</b>							
Non-Hispanic white	87.5	53.8	16,442	46.1	46.2	19,467	27.4
Non-Hispanic black	9.1	49.0	11,373	47.2	51.0	19,475	24.5
Hispanic	3.4	48.0	12,777	59.8	52.0	15,959	25.7
<b>Education</b>							
Did not finish high school	13.3	59.0	11,314	53.6	41.0	9,380	27.2
High school graduate	34.9	56.1	14,535	50.6	43.9	14,233	28.8
Some college	20.5	50.6	15,103	58.2	49.4	22,667	29.8
College graduate	31.3	49.2	18,364	46.5	50.8	31,125	25.7
<b>Final Years of Service on Longest Job</b>							
Less than 10	17.4	66.2	3,193	70.9	33.8	4,888	39.7
10 to 14	16.6	52.5	9,429	78.8	47.5	10,687	33.9
15 to 19	13.5	47.1	14,219	60.7	52.9	16,460	31.2
20 to 25	18.8	42.5	25,446	55.4	57.5	35,050	32.0
26 to 34	22.8	45.4	31,377	26.7	54.6	35,248	19.2
35 or more	11.0	75.6	58,800	35.2	24.4	24,616	13.7
<b>Employment in DB Jobs</b>							
Current job, no past jobs	39.7	39.5	26,811	28.4	60.5	16,420	26.8
Current job, one or more past jobs	9.2	41.7	18,771	25.2	58.3	20,454	27.5
No current job	51.1	65.9	12,418	72.8	34.1	26,208	27.1
<b>DB Wealth Quartiles</b>							
Bottom	25.0	79.7	5,406	121.3	20.3	2,204	28.1
Second	25.0	50.6	19,006	61.0	49.4	10,257	32.6
Third	25.0	43.4	32,668	32.1	56.6	25,263	27.4
Top	25.0	39.0	59,482	23.7	61.0	61,957	23.7

**Notes:** Estimates are based on a sample of 3,228 individuals ages 51 to 61 in the 1992 HRS who participated in DB pension plans. Parameters of the cash balance plans were set so that expected aggregate pension benefits paid by the employer were equal under the cash balance plan and DB plan. Retirement ages were determined by quit rates derived from an SOA study. Median gains were estimated only for those who fared better under cash balance plans, and median losses were estimated only for those who fared worse. The percent gain and loss were computed by dividing the change in pension wealth by DB pension wealth. All estimates were weighted to account for the sampling design of the HRS.

**Source:** Urban Institute, 2001

cash balance plans than DB plans, under the assumption that quit rates do not respond to financial incentives created by pension plans.

### ***Pension Wealth Under Alternative Pay Credit Assumptions***

Table 6 compares lifetime pension wealth under alternative cash balance pay credit assumptions. In panel A, we assumed that all workers in a given plan received the same pay credit rate regardless of years of service, while in panel B we assumed that pay credits increased sharply with years of service. As expected, those with short job tenures fared better in cash balance plans when pay credit rates were flat than when they increased sharply with years of service. Among those with fewer than 10 years of service on the longest job, median pension wealth in cash balance plans was 77 percent higher with level pay credit rates than with steep pay credit rates. As a result, more than four-fifths of those with fewer than 10 years of service would accumulate more pension wealth in cash balance plans with level pay credit rates than in DB plans. Only 62 percent of those with fewer than 10 years of service would fare better in cash balance plans if pay credits increased sharply with tenure.

Women, who on average have fewer years of service than men, would fare better in cash balance plans that applied the same pay credit rate for all tenure levels than those in which rates increased with years of service. If cash balance plans used level pay credit rates, 44 percent of women would accumulate more pension wealth in cash balance plans than DB plans. However, if pay credit rates increased sharply with years of service, only 36 percent of women would fare better in cash balance plans than DB plans. Overall, 58 percent of individuals ages 51 to 61 would fare better in cash balance plans than DB plans if cash balance plans used level pay credit rates, while 52 percent would fare better in cash balance plans if pay credit rates increased sharply with tenure.

**Table 6: Pension Wealth on All Jobs by Plan Type, Under Alternative Pay Credit Assumptions**

	Percent of sample	Median Wealth in Cash Balance Plan	Median Wealth in DB Plan	Difference in Median Wealth	Percent Difference in Median Wealth	Percent Who Fare Better in Cash Balance Plans
<b>A. Alternative 1 (level pay credits)</b>						
All	100.0	68,726	55,770	12,956	23.2	58.0
<b>Gender</b>						
Male	60.4	100,228	77,326	22,902	29.6	67.5
Female	39.6	34,446	34,446	0	0.0	43.5
<b>Final Years of Service on the Longest Job</b>						
Less than 10	17.4	14,416	6,009	8,407	139.9	81.9
10 to 14	16.6	31,503	22,021	9,482	43.1	69.9
15 to 19	13.5	49,910	42,083	7,827	18.6	57.7
20 to 25	18.8	93,459	85,803	7,656	8.9	47.0
26 to 34	22.8	156,116	171,318	-15,202	-8.9	39.9
35 or more	11.0	197,907	189,426	8,481	4.5	59.2
<b>B. Alternative 2 (pay credits increase sharply with tenure)</b>						
All	100.0	56,302	55,770	532	1.0	51.7
<b>Gender</b>						
Male	60.4	90,666	77,326	13,340	17.3	62.2
Female	39.6	27,022	34,446	-7,424	-21.6	35.7
<b>Final Years of Service on the Longest Job</b>						
Less than 10	17.4	8,147	6,009	2,138	35.6	61.6
10 to 14	16.6	21,057	22,021	-964	-4.4	46.3
15 to 19	13.5	38,361	42,083	-3,722	-8.8	42.6
20 to 25	18.8	81,198	85,803	-4,605	-5.4	39.6
26 to 34	22.8	172,522	171,318	1,204	0.7	48.4
35 or more	11.0	246,158	189,426	56,732	29.9	82.9

**Notes:** Estimates are based on a sample of 3,228 individuals ages 51 to 61 in the 1992 HRS who participated in DB pension plans. Parameters of the cash balance plans were set so that expected aggregate pension benefits paid by the employer were equal under the cash balance plan and DB plan. Retirement ages were determined by quit rates derived from an SOA study. The percent difference in wealth was computed by dividing the difference in median pension wealth by median DB pension wealth. Negative values for the differences indicate that pension wealth is larger for the DB plan than for the cash balance plan. All estimates are weighted to account for the sampling design of the HRS.

**Source:** Urban Institute, 2001

## CONCLUSIONS

Our simulations indicate that replacing DB plans with cash balance plans would redistribute pension wealth among the covered population. If employers had replaced DB pension plans with cash balance plans that generated the same level of aggregate benefits, those with a series of short tenure jobs, especially those who held pension jobs early in their lives, would gain lifetime pension wealth under cash balance plans, assuming that their earnings and turnover rates did not respond to the change in plan type. However, those with pension wealth derived from a single job that they held until their fifties or sixties would lose wealth in cash balance plans. Because long-term workers have high levels of DB pension wealth, replacing DB plans with cash balance plans would benefit individuals with limited DB wealth. Four-fifths of those in the bottom quartile of the DB wealth distribution would fare better in cash balance plans than DB plans, while 61 percent of those in the top DB wealth quartile would fare worse. The introduction of cash balance plans would also favor those with limited education over college graduates.

By distributing pension wealth more equally across the population than DB plans, cash balance plans would increase median lifetime pension wealth in the total covered population and more people would gain pension wealth than lose. We found that 53 percent of those ages 51 to 61 with coverage from past or current jobs would have accumulated more lifetime wealth in cash balance plans than in their existing DB plans. If they had participated in cash balance plans during their entire careers, median pension wealth would increase by \$3,600, or by almost 7 percent of median pension wealth in existing DB plans. Pension wealth on the current job would fall under cash balance plans, but the decline would be more than offset by large increases in pension wealth from past jobs held at relatively young ages.

However, most women ages 51 to 61 in 1992 with DB coverage would have lost pension wealth if they had instead participated in cash balance plans throughout their working lives. We found that 63 percent of women in our sample would have fared worse in cash balance plans than DB plans, although advocates of cash balance plans often claim that they will improve pension wealth for women. Two factors appear to account for much of the loss in pension wealth for women in cash balance plans. First, women in this cohort were less likely than men to have accumulated pension wealth on past jobs. Pension wealth from jobs held early in the worklife would increase dramatically in cash balance plans, relative to DB plans, offsetting the loss in wealth on the current job. Second, many working women at midlife had relatively short tenures on the current job. Since DB wealth grows rapidly near the end of the worklife, replacing these large accruals with much smaller cash balance accruals would lead to substantial losses in pension wealth. Women in our sample would fare better in cash balance plans that apply the same pay credit rates to all years of service than in those in which pay credit rates increase with years of service.

Cash balance plans may be more advantageous for later cohorts of women, as employment and earnings patterns for men and women continue to converge (Blau 1998). For example, although women continue to have higher turnover rates than men across all age groups, the gender gap is no longer evident among young workers (Royalty 1998). If these trends persist and the gender gap in earnings diminishes, women approaching retirement in future decades may accumulate almost as much pension wealth in cash balance plans as men.

Our findings that many workers would benefit from cash benefit plans are consistent with several other recent studies (Brown et al. undated; Clark and Munzenmaier 2001; Kopp and Sher 1998). Our results may better generalize to the entire population with pension coverage, because

we examined a large number of actual DB plans rather than just a few plans, and we used an actual sample of individuals approaching retirement age rather than prototypical workers. Our findings also highlight the importance of accounting for past jobs when examining the impact of plan type on lifetime pension wealth. Some studies considered only wealth on the current job. In addition, we simulated cash balance plans that were fully phased in, instead of considering the effects of cash balance conversions, which often include protections for older workers so that no participants lose pension wealth during the transition. One limitation of our study as well as previous studies is that we assumed that worker behavior would not change in response to the introduction of cash balance plans. In actuality, workers in cash balance plans may switch jobs more frequently than workers in DB plans, which backload pension wealth late in the career. High turnover rates could curtail growth in pension wealth in cash balance plans when pay credit rates increase with years of service.<sup>16</sup>

How the growing popularity of cash balance plans actually affects the level and distribution of pension benefits depends on the generosity and other features of the plans that employers provide. Our simulations assume that cash balance plans would generate the same level of aggregate benefits as the DB plans they replace. However, workers will do worse than our simulations indicate if firms introduce cash balance plans in order to lower pension costs, or they will do better if firms raise aggregate benefits when they convert to cash balance plans. Cash balance plans may also redistribute less pension wealth to low-income workers if employers choose to integrate the plans with Social Security.

The relative merits of cash balance plans depend in large part on ongoing trends in the labor market. If worker turnover is increasing and few individuals in the future remain with their

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<sup>16</sup> However, the introduction of cash balance plans would be less likely to increase turnover rates if they imposed large penalties in terms of lost pension wealth on workers who separate from the employer.

employers for many years, then cash balance plans are likely to prove especially beneficial to workers, since they generate more pension wealth on short-term jobs early in the worklife than DB plans. While the available evidence suggests that job stability may be declining, turnover rates have not increased nearly as much as popular accounts might suggest (Neumark, Polsky, and Hansen 1999). The steady growth in DC coverage also has important implications for cash balance plans. As DB coverage continues to erode, the option for workers may not be to choose between cash balance plans and DB plans, but rather between cash balance plans and DC plans.

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