Redefining Retirement

How Will Boomers Fare?

EDITED BY

Brigitte Madrian, Olivia S. Mitchell, and Beth J. Soldo

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Chapter 11

Trends in Pension Values Around Retirement

Michael D. Hurd and Susann Rohwedder

Retirees in the United States generally rely on a mix of financial resources to support old-age consumption including Social Security retirement benefits, Medicare benefits (and sometimes Medicaid), personal wealth, and often, company pensions. Previous research has explored ways to measure Social Security and private saving,[1] but it has been more difficult to assess the value of pension resources partly because many workers have difficulty recollecting and reporting their pension entitlements, and also because dual-earner couples may be individually (and often jointly) entitled to claims on company pension benefits. This chapter develops and applies a new method of valuing pension wealth, to determine the importance of pension benefits in retiree well-being. Specifically, we use workers' self-reports of pension characteristics and pension benefits at the time of separation from a job, to determine their pension values on the verge of retirement.

Drawing on the Health and Retirement Study (HRS), we apply this method to estimate pension values for workers on the threshold of retirement at three different points in time, 1992, 1998, and 2004. We create these pension valuations for three cohorts of workers observed at age 51–56; here we term these groups the HRS cohort, the War Baby (WB) cohort, and the Early Baby Boomers (EBBs).[2] Using workers' self-reports at the time of job separation is more robust to reporting error than alternative techniques, particularly in the context of the HRS. Results indicate a decline in the number of workers with defined benefit (DB) plans near retirement, though their average pension value grew conditional on having a plan. Turning to defined contribution (DC) plans, coverage and the average real value of the pension grew noticeably, producing an overall increase in average pension wealth over the period examined. There is no support for the view that pensions are becoming less important for near-retirees, on average.

Trends in Pension Coverage and Pension Plan Type

Respondents to HRS are asked to self-report whether they have a pension on their current jobs if they are working; Table 11-1 reports responses

TABLE 11-1 Percentage of Workers with Pension Coverage on their Current Job (%)

	HRS Cohort 51–56 in 1992 $N = 4{,}045$	*War Babies 51–56 in 1998* $N = 2{,}308$	*Early Boomers 51–56 in 2004* $N = 2{,}522$
Men	61.5	62.3	61.4
Women	55.1	58.0	59.5
All	58.5	60.2	60.4

Source: Authors' calculations based on HRS Waves 1–7, collected every two years between 1992 and 2004.

to this question by different cohorts, with the questions posed at the time each group was 51–56 years of age. It is interesting that some 59 percent of all workers had an employer-based pension in 1992, and the rate did not change much by 2004 (60 percent); in fact, the difference between the point estimates is not statistically significant.[3] Yet there is an upward trend for women workers, with 55 percent of the females in 1992 having coverage; by 2004, women's coverage stood at 60 percent, only 2 percentage points below men's, and the difference between the coverage rates of men and women is no longer statistically significant. This pattern mirrors the overall national stability in plan coverage over time (Copeland 2005).

There has also been an economy-wide trend away from DB plans and toward DC plans, a pattern also discerned in HRS self-reports. Table 11-2 shows that, among workers with a pension, the rate of DB plan coverage fell by 18 percentage points for both men and women. Of course self-reports are subject to reporting error at the individual level, about which we say more below; nevertheless, the similarity with national trends suggests that the HRS respondents get the plan type questions about right, on average.

Valuing Pension Entitlements

One approach to valuing pensions would use HRS questions asking each worker whether he has a pension (or more than one pension) on his current job; if so, he is asked a follow-on series of questions seeking to reveal the value of these pension entitlements. The value of a pension is defined and measured differently for DB than for DC pensions, so the questions used to assess their value have differed in the survey, according to whether the respondent indicated his plan type was of one kind or the other. Specifically, it was believed that many covered workers might not know the terms 'defined benefit' or 'defined contribution;' instead, the HRS

TABLE 11-2 Distribution of Pension Plans by Type on Current Job, Conditional on Having a Pension (%)

	Men			*Women*		
	HRS	*War Babies*	*Early Boomers*	*HRS*	*War Babies*	*Early Boomers*
DB	38.8	28.1	22.2	44.7	30.7	27.2
DC	29.3	36.4	48.3	33.5	43.2	50.9
Both/other	31.9	35.6	29.6	21.8	26.1	21.9
All	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' calculations based on HRS Waves 1–7, collected every two years between 1992 and 2004.

Note: DB—Defined Benefit Plan; DC—Defined Contribution Plan; columns do not exactly add up to 100.0 due to rounding.

survey questions ask whether the respondent has a pension of 'Type A', where benefits are based on a formula involving age, years of service, and salary, or of 'Type B', where money is accumulated in an account. When a respondent reports his plan is Type A (which we interpret as a DB plan), he is asked about his expectations of future benefits as an income flow or possible lump sum distribution. On the other hand if he reports his plan is of Type B (which we interpret as a DC plan), the respondent is asked about the value of the account.

Routing respondents into different pension question sequences based on what plan type they think they have can create a problem, as many workers either cannot, or do not, answer the first question about plan type accurately. This may be because they do not know what type of pension they have, or because of the way the question is asked. In any event it creates confusion, as indicated in Table 11-3 which includes only workers who said that their plan type *had not changed* over time. Nevertheless, many such workers report a different plan type in one wave of the survey, compared to

TABLE 11-3 Transition Rates of Plan Types Between Waves Among Those Reporting no Change in Plan Type (%)

Plan Type Reported in Previous Wave	*Plan Type Reported in Current Wave*			
	DB	*DC*	*Both*	*All*
DB	79.0	17.6	3.5	100.0
DC	22.4	74.2	3.3	100.0
Both	53.5	32.1	14.4	100.0

Source: Adapted from Hurd and Panis (2003).

the reported plan type in the previous wave.[4] In principle, there should be complete concordance of such reports, with all the observations lying along the diagonal. Yet as the table shows, there is considerable discordance: for example, 17.6 percent of those who reported having a DB plan in the previous wave report having a DC plan in the subsequent wave of the survey, even though they had previously said their plan had not changed. Conversely, 22.4 percent of those initially stating their plan was of the DC variety said it was a DB plan when next questioned (and yet they affirmed their plan had not changed).

The problem this poses for pension valuation is that the follow-up questions are inappropriate when the worker gets the initial plan type question wrong. For instance, a respondent saying his plan was of the DB variety then is asked what benefit flows he expects as income in retirement. However, if the plan were actually a DC pension which typically pays out as a lump sum, the respondent may not be able to respond to the follow-ups. Conversely, a respondent saying he has a DC plan is then asked his balance amount, which cannot be answered if in fact the plan were really a DB pension.

As an alternative strategy, some prior studies have relied on Summary Plan Descriptions (SPDs) gathered by the HRS project for a subset of workers reporting they have a pension in the HRS and for whom these SPDs could be collected. These SPDs are generally used as inputs to a pension estimation software program to value estimated flows from the various plans (Mitchell et al. 2000; Gustman and Steinmeier 2001; Cunningham et al. this volume). There are pros and cons of using the SPDs.[5] For one thing, SPD match rates are far from perfect, particularly for the later waves of the HRS. This leaves open the possibility of reporting error in plan type and plan values as well as possible bias from missing data. For another thing, relying on the SPDs and software also requires the researcher to make educated guesses about many key pieces of information (e.g. contribution histories, rates of return earned on the accounts, whether benefits are inflation indexed after retirement, and so on).

A novel approach, adopted for the first time here, is to take yet a different path. This relies on information about the respondent's report of his pension benefits and attributes at the time he separates from a pension covered job, rather than asking about the pension before he leaves. Our argument is that, at job separation, the employee is more likely to receive information about his pension and make decisions about the disposition of the benefits. Thus when a worker leaves his job, the HRS asks about characteristics of the pension plan, his pension value, and how he disposed of the pension. Thanks to the longitudinal nature of the survey, we can then follow workers over time and observe this information about pension 'extractions' which

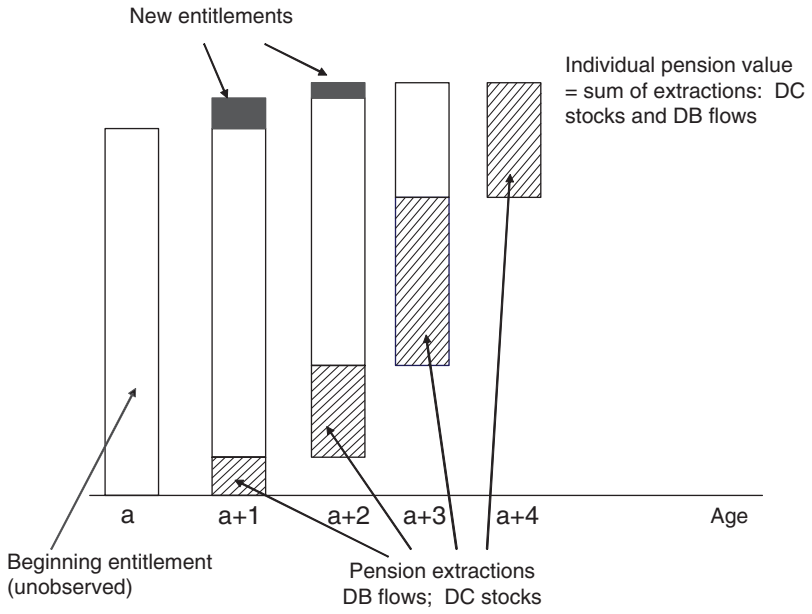

Figure 11-1. Conceptual approach to valuing pension entitlements: an illustration. (*Source*: Authors' computations.)

we use to estimate the value of the plan benefit amounts. To our knowledge, no prior study has made this use of the panel nature of the data for pension valuation purposes.

Our conceptual approach is illustrated in Figure 11-1. Consider a worker first observed at age a, who is then resurveyed at subsequent dates (called 'waves' in the HRS). The initial entitlement is unobserved, but as the worker ages, he can, at some point, extract some of his pension wealth. This can be a periodic benefit, as in the form of a DB annuity, or as a lump sum. Each period there is some probability that the worker will separate from his job and extract resources from his pension, and there is also some chance of remaining on the job and acquiring additional pension entitlements. By age $a + 4$ in this example, the worker has left the firm with probability 1 and extracted his entire pension value. In such a case, the total pension value is obtained by adding up the present discounted value of all the extractions. In the case of a DB plan, the summation would be over the present value of future income flows or annuity streams weighted by the probability of survival; for a DC plan, the sum would be a stock of pension wealth discounted to the relevant period. Combination plans would presumably have both.

TABLE 11-4 Distribution of Separations from Employer: Workers 51–56 in 1992

HRS Wave	*N*	*Percent*
2	871	24.7
3	544	15.4
4	429	12.2
5	416	11.8
6	424	12.0
7	271	7.7
Still working	568	16.1
Total	3,523	100.0

Source: Authors' calculations based on HRS Waves 1–7, collected every two years between 1992 and 2004.

Note: 1992 was the first HRS Wave, with subsequent waves following every two years, so that Wave 2 refers to the year 1994, Wave 3 to 1996 and so on.

Pension Entitlements in 1992

To arrive at the desired extraction measures for members of the HRS cohort, we follow all people working in 1992 until they retire or separate from that 1992 job. The oldest individual in the HRS original cohort was 56 in 1992; by the latest available survey date, that individual would be aged 68. Accordingly, most of the pension extractions would be accounted for by that point. To illustrate the point, the pattern of job separations for this cohort (age 51–56 in 1992) appears in Table 11-4.[6] The evidence shows when separations are observed from the job held in Wave 1 of the survey. It is interesting that the majority had left by 2004, yet some 16 percent was still working for the same employer (the youngest was age 63). For this group there is a (limited) right-censoring problem; below we explain how we correct for this.

When the worker leaves his job, the survey inventories pensions from that job. The DC holders are asked about the amount in the account and what happened to the balance; disposition categories include 'rolled into IRA', cash out, annuitize, and leave to accumulate. Partial amounts in each category are also permitted. For those with DB pensions, respondents are asked about immediate receipt of benefit and amounts, expectation of benefits in future, and amounts and lump sum cash-outs.

To highlight the degree of worker uncertainty about their pensions while working, Table 11-5 summarizes pension extraction at job separation, cross-classified by whether people said they had a pension previously. It is interesting that 17 percent of those who said they had no pension on their

Table 11-5 Concordance of 1992 Pension Reports about Current Job with Job Separation Pension Reports (%)

Reported Pension on Job in 1992	*Reported Pension at Job Separation*		
	No	*Yes*	*All*
No	82.9	17.1	100.0
Yes	6.4	93.7	100.0

Source: Authors' calculations based on HRS Waves 1–7, collected every two years between 1992 and 2004.

job in 1992 eventually received some pension at job separation.[7] And for those who reported a pension on the job earlier, some 94 percent reported an extraction. In other words, if we merely rely on reports of pension coverage from the 1992 wave, we might substantially underestimate pension prevalence for older workers.

In Table 11-6 we classify workers according to their reported plan type in 1992, and we include those who did not report having a pension then. Table 11-6 then shows the distribution of actual plan type at separation. Results are qualitatively similar to those seen earlier in Table 11-3: there are substantial discrepancies between the 1992 reports and reports on pensions at job separation. For example, among those stating in 1992 that they had only a DC plan, 25 percent reported only having a DB plan at separation (conversely, 15 percent of those saying they had only a DB plan end up with only a DC plan). Of course, some plans may have changed between 1992 and separation, but in view of the broad shift toward DC plans it seems unlikely that as many as 25 percent would actually transit from DC only to DB only.

Table 11-6 Relationship Between Type of Pension Extracted and Report in 1992 (%)

Pension Type Reported on Job in 1992	*Pension Type Reported on Job Separation*				
	None	*DB Only*	*DC Only*	*Both*	*All*
None	83.4	5.3	10.6	0.7	100.0
DB only	5.9	68.4	14.6	11.1	100.0
DC only	10.6	24.6	52.4	12.4	100.0
Both	1.0	55.3	15.6	28.1	100.0

Source: Authors' calculations based on HRS Waves 1–7, collected every two years between 1992 and 2004.

TABLE 11-7 Present Value of Pension Wealth Extractions: Derived from Lump Sum Amounts (DC and DB) and Annuities (DB), Conditional on Having an Extraction: Workers 51–56 in 1992 (Thousands of $2004)

	N	*Mean*	*Median*
Present value of PW derived from lump sums (DC and DB)	1,960	75.4	28.3
Present value of PW derived from annuities (DB)	1,921	201.7	111.5

Source: Authors' calculations based on HRS Waves 1–7, collected every two years between 1992 and 2004.

The plan valuation numbers we have estimated appear in Table 11-7, which provides numbers of persons and dollars extracted on average and for the median, conditional on there being an extraction. There are several types of extractions, which fall in two broad categories: lump sum extractions from DC plans or from DB plans and extractions in form of annuities derived from DB plans. We convert future income flows from DB plans into the corresponding present value to make the magnitudes comparable across the two types of extractions.[8] In total, we find 1,960 workers received lump sum extractions amounting to $75,400 on average, and to $28,300 at the median ($2004). About the same number of workers (1,921) received annuity income from their DB pension plans with an average present value of $201,700 and $111, 500 at the median.

Predicting Future Pension Extractions

Having valued pension values for HRS workers in 1992, most of whom had completed their extractions, we next seek to estimate what pension wealth might be for the entire HRS cohort, and also for subsequent cohorts who turned age 51–56 in 1998 and in 2004. As these cohorts are more recent, their pension extractions are not yet complete: some of the original HRS respondents have not yet retired; many of the WB cohorts have not; and hardly any of the EBB cohorts have completed their extractions. Accordingly, our approach uses all the respondent information available from pension self-reports in 1992, to predict the present values of observed pension extractions in later survey waves. For instance, information collected in 1992 includes the current account balance and the earliest age when the worker can draw benefits, for workers saying they had a DC plan. For those having a DB pension, the information includes the expected claiming age and the expected pension benefit amount, the early retirement age, and the normal retirement age. Other covariates in the prediction models include 1992 labor income, job tenure, the worker's industry, education, sex, and other variables related to pension entitlements.

We estimate the probability of each type of extraction at each future age using a multivariate logistic regression model.[9] Conditional on extraction, we also estimate models to describe the amount of each type of extraction expressed in present value terms (and constant dollars). From these estimates, we predict the expected present value of pensions using each worker's observed characteristics. Besides predicting pension extractions for those who have completed their extractions, we also predict extractions for the 16 percent of HRS workers observed in 1992 who had not completed them by the end of the 2004 survey. This method accounts for future separations and retirement as well as future pension growth and the trend toward DC plans; as long as these relationships are similar to what is observed in the data, the technique produces good estimates of population pension wealth at retirement. Its weakness is that that some accumulations remain to be earned through future work and extracted; however, as long as the relationship between those future accruals and the 1992 covariates remains the same, extractions based on those accumulations should be well predicted.[10]

Our next objective then is to estimate pension wealth in cohorts where the extraction is incomplete (for the right-censored HRS workers) and for the new cohorts added to the survey in 1998 and also in 2004. We estimate the present discounted value of expected individual pension entitlements *ex ante*, based on our estimated probability of an extraction and on the expected value of an extraction conditional on an extraction. The total present discounted value of expected extractions is just the sum of these expected extractions. This approach is appealing for several reasons: it relies on plan type information collected at or near job separation; accordingly it reproduces nonlinearities in DB pension entitlements around the time of job separation; it can be augmented with information from SPDs from employers if available; and it can integrate worker reported information about early and normal retirement ages.[11]

Estimated expected pension wealth refers to the present value of benefits, expressed in $2004, that workers take out of their pensions, either in the form of a lump sum (DC and some DB plans) or as an annuity (DB plans). We show summary statistics for respondents age 51–56 in 1992, 1998, and 2004 in Table 11-8. The first panel shows the average present values of extractions received as lump sums, the second those received as annuities, and the third panel shows the sum of all extractions by sex. As one would expect, pension entitlements of men are substantially higher than those of female workers. However, the present values of expected entitlements have increased substantially for female workers, much faster than for male workers, as can be seen from comparing cohorts: lump sum entitlements increased by 69 percent from the HRS cohort to the WBs cohort, and by another 27 percent from the WBs cohort to the cohort of

TABLE 11-8 Average Estimated Present Value of Pension Wealth: Workers 51–56 (Thousands of $2004)

	HRS 1992	*WB 1998*	*EBB 2004*
PW (lump sums)			
Males	53.6	62.1	71.1
Females	17.7	29.9	37.9
All	37.0	46.5	54.8
PW (annuities)			
Males	131.0	122.1	125.3
Females	56.3	65.4	71.8
All	96.5	94.7	99.0
PW (lump sums + annuities)			
Males	184.6	184.2	196.4
Females	73.9	95.2	109.7
All	133.5	141.3	153.9

Source: Authors' calculations based on HRS Waves 1–7, collected every two years between 1992 and 2004.

the EBBs, reaching a level of $38,000. Increases in lump sum entitlements among male workers were much more modest (16 percent and 15 percent). Pension resources paid in form of annuities come from DB plans. While DB plans have been on the decline as some employers close these pension plans to new workers or discontinue them altogether, annuities still make up for a large fraction of retirement resources among the cohorts under study. Among men in their 50s we only see a modest decline in entitlements from annuities and the levels are in excess of $120,000. For women, we see again substantial increases across cohorts (16.2% between HRS and WBs; 9.8% between WBs and EBBs). The observed patterns for female workers are a result of women's stronger attachment to the labor market among younger cohorts. Aggregating over men and women, one finds that pension entitlements derived from annuities have not changed much in real terms over time, despite the decline in DB plan coverage.

The statistics in the third panel of Table 11-8 show the present value of total pension wealth, or the sum of entitlements to lump sums and annuities. Total pension wealth is higher in real terms for younger cohorts, by about 15 percent for the EBB cohort compared to the HRS cohort. Yet by 2004, women's extracted pension wealth is still only about half of men's. It is worth noting that measuring pension wealth of individual workers is not necessarily informative for assessing household retirement resources, since a worker can share retirement resources with a spouse who may or may not have pension entitlements from a job. Table 11-9 shows the cohort

TABLE 11-9 Average Predicted Pension Extractions: Workers 51–56 (Thousands of $2004)

	HRS 1992	*WB 1998*	*EBB 2004*
Singles	92.8	81.2	82.2
Couples	178.0	217.3	243.1

Source: Authors' calculations based on HRS Waves 1–7, collected every two years between 1992 and 2004.

comparison of pension entitlements from current jobs for singles and couples; where for the latter we have taken the sum of the entitlement of the husband and the wife.[12] Results show that couples' pension wealth derived from current employment is substantially larger than that of singles, and the gap is largest for younger cohorts. Thus, in the original HRS cohort, couples have about twice as much pension wealth as singles; in the Early Boomer cohort, couples' pension wealth is about three times that of singles.

Conclusion and Discussion

The objective of this chapter is to estimate trends in the value of pensions among workers approaching retirement. Previous efforts to value pension wealth have relied on workers' self-reports about their pension balances for DC plans, or anticipated pension benefits for DB plans. But these self-reports are subject to considerable reporting error. Furthermore, self-reports have considerable item nonresponse because respondents may not know the requested values. By contrast, we value pensions using pension outcomes when the worker leaves his employer and therefore needs to decide on how to dispose of his pension rights. Our findings suggest that pension entitlements of the Early Boomers are higher in real terms than for the same age group a dozen years previously. Despite the decline in DB plan coverage, entitlements have only fallen moderately among men, but increased among women. We also note that most workers now approaching retirement are married, so results for individuals do not take into account household pension entitlement changes. That is, married individuals can share their retirement resources, so an assessment of elderly well-being should include household entitlements.

In evaluating the importance of this household pension wealth concept for married couples by summing respondent and spouse entitlements, we find high values of couples' pension wealth, which also rise strongly for the youngest cohorts. This is likely due to women's increased attachment to the labor market, leading to increased dual-career lifestyles for more recent couples. For example, between 1992 and 2002, couples' pension

wealth values rose by about 37 percent in real terms, while they fell by 12 percent for nonmarried persons. Consequently, by 2004, couples averaged $243,000 in predicted pension wealth extractions, compared to $82,000 for singles.

It may be instructive to compare our estimated pension values to bequeathable wealth numbers, which refer to total wealth excluding entitlements to pensions and Social Security. For instance, Early Boomer couples averaged bequeathable wealth of $457,000 (in 2004) including housing; excluding housing, the sum came to $308,000. Since average couples' pension wealth totaled $243,000, it seems that pension values amount to about 79 percent of nonhousing bequeathable wealth. Boomer singles had substantially less bequeathable wealth, at $173,000 (total) or $104,000 without housing; their pension wealth of $82,000 is also lower and amounts to a similar fraction of bequeathable wealth (79%).

In sum, for the three cohorts studied in this analysis, pension wealth has risen over time rather than fallen, and this is true over all workers, not just those with a pension. Consequently, the results should reassure those who express concern that Boomers might enter retirement with fewer financial resources than previous cohorts. Our study could be extended, of course, to focus in more detail on those in the lower part of the wealth distribution. Such an analysis would need to include Social Security entitlements as well, because of their relatively greater importance for low-wealth retirees. Another positive note is the temporal rise in women's pension resources over time, inasmuch as many of them were relatively more exposed to old-age poverty in the past.

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Notes

[1] For earlier research on the Health and Retirement Study, see Mitchell et al. (2000).

[2] This is in keeping with the standard nomenclature of this volume, see Mitchell (Chapter 1, this volume).

[3] Tests of statistical significance are conducted at the conventional 5 percent level.

[4] This table is adapted from Hurd and Panis (2003) and is based on data from Waves 1, 2, 3, 4, and 5 of HRS.

[5] See Rohwedder (2003) and Engelhardt and Kumar (2004) for further discussion of these points. Gustman and Steinmeier (2001) and Chan and Huff Stevens (2004)

provide pension wealth estimates based on HRS self-reports; while Mitchell et al. (2000) and Gustman et al. (1999, 2000) derive pension wealth using the HRS pension estimation program in combination with information from Summary Plan Descriptions. Engelhardt and Kumar (2004) offer refined estimates of DC pension wealth using their own pension calculator that combines the information from the Summary Plan Descriptions with information from respondents' administrative earnings history files and W2 information.

[6] We limit the HRS cohort in this way for comparability with data for 1998 and 2004 when we have fresh cohorts of those ages.

[7] Of course, workers could have become vested after 1992, but the number is likely to be small given the short vesting period and the age of the workers.

[8] The conversion of income flows into present values occurs in two steps. First, we compute the present value for the year the worker starts receiving the benefit by summing over future income flows weighted by the probabilities of survival and discounted by the rate of inflation assumed at 2.5 percent. In the second step we compute the wealth equivalent of that present value in 1992 by discounting by the nominal interest rate assumed at 5.5 percent (2.5% inflation and 3% real rate of return).

[9] We distinguish a total of five types of extractions for the purpose of estimation: DC extractions, DB lump sum extractions at the time of leaving the current job, DB lump sum extractions expected at a future date, DB annuity income first received at time of leaving the current job, and DB annuity income expected at a future date.

[10] It is important to note that these estimates reflect the amount of pension resources workers realize from the 1992 job at separation, and not the amount of pension wealth as of 1992.

[11] In future work, we will also draw on Social Security earnings records to link with the estimates.

[12] For couples, the total is the sum of the pension entitlements of each working spouse. If the spouse is not working that entitlement would be zero.

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