

Reducing Retirement Inequality

Building Wealth and Old-Age Resilience

Edited by

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and
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Chapter 4

Understanding Trends in Hispanic and African American Retirement Preparedness in the US

Edward N. Wolff

Retirement income security refers to a household's ability to receive an adequate stream of income after retirement from the labor force. Over time, retirement savings in the US improved from 1989 to 2007, in that the share of households with retirement income below the poverty line declined, and the share of households that could replace at least three-quarters of their pre-retirement income at age 64 rose over the same period. Moreover, minorities saw larger improvements in retirement preparedness than their counterparts, although they remained less well prepared in 2007 than White households. Yet from 2007 to 2019, Black families experienced a reversal of fortune, while Hispanic families also saw a reduction in expected mean retirement income but saw continued progress in replacement rates and reducing poverty.

The empirical analysis below involves two steps. The first is a calculation of expected retirement income in 1989, 2001, 2007, and 2019, based on four components: (i) standard non-pension wealth holdings, (ii) defined contribution (DC) pension holdings, (iii) actual or expected defined benefit (DB) pension entitlements, and (iv) actual or expected social security benefits. The first two components are converted into an annuity. All the data (except rates of return) for these calculations are available from the Survey of Consumer Finances. The second step is a comparison of the expected retirement income stream to two standards of retirement adequacy: the poverty level income, and the ratio of final income replaced by retirement income. I also analyze changes in retirement income security by race and ethnicity.

Retirement Income Adequacy: A Brief Background

Retirement adequacy addresses the question of whether working individuals have saved enough (or will save enough) to meet their needs during retirement. Pension accumulations, social security, and savings in non-retirement assets all play a role in determining whether accumulated wealth at retirement is (or will be) sufficient to meet retirement needs. Measuring retirement adequacy is usually done by comparing predicted income at time of retirement with previous income (the so-called 'replacement rate'). It should be noted that estimates of the replacement rate are quite sensitive to the choice of denominator. Some studies use family income at the time of the survey, others use a measure of permanent income, and still others use actual (or predicted) income as of the age just before retirement.

Measurement of adequacy also depends on the standard used for adequacy. Calculations of retirement income adequacy typically relate retirement consumption to pre-retirement consumption in two ways. First, a household may be considered adequately prepared for retirement if it can maintain a real level of consumption similar to what it had during its working years. Usually, 75 or 80 percent of pre-retirement income is thus considered adequate since retirees' income needs are likely to be lower than those of workers (McGill et al. 1996). Households no longer need to save for retirement, taxes are lower, work-related expenses disappear, the family size of retirees is smaller than that of workers, and households eventually pay off their debt. Second, real consumption may decline if the marginal utility of consumption is held constant and uncertainty about income and life expectancy is introduced (Engen et al. 1999). When households contemplate uncertain futures, the marginal utility of certain consumption today will be higher than that of less certain consumption in the future.

Several studies document that household consumption generally falls after retirement compared to the time when the household is working. Fisher et al. (2005) use the US Consumer Expenditure Survey covering years 1984 to 2003. They found that consumption expenditures fell by 2.5 percent when individuals retired and continued to decline at about a rate of 1 percent per year after that. Hurst (2008) showed that declines in spending after retirement for the average household were limited to the categories of food and work-related expenses, while spending in nearly all other categories of non-durable expenditure remained constant or even rose.

Scholz and Seshadri (2009) argue that the choice of replacement rates should be theory-based. Using an augmented life-cycle model of household behavior to examine optimal replacement rates, they showed that using average income over the last five (or fewer) years of the pre-retirement

period results in living standards ratcheting upwards as people age. Using the Health and Retirement Survey (HRS), they computed an average optimal replacement rate of 0.68 for the population as a whole, using lifetime income, and 0.57 on the basis of income averaged over the top five earnings years.

Here we extend the results in Wolff (2011) following that methodology. The earlier work used the 1989 and 2007 SCF, and findings indicated substantial progress in overall mean retirement income, 75 percent replacement rates, and poverty reduction among households age 47–64. The expected mean retirement income of non-Hispanic Whites in 2007 was 2.33 times as great as that of Blacks and Hispanics (who were grouped together in this work). Nevertheless, this ratio was substantially down from 2.68 in 1989.

Mitchell et al. (2021) examined HRS respondents to observe how their financial situation unfolded as they aged. Those authors found that real income remained relatively stable as individuals approach and enter retirement, and progress through their retirement years. Moreover, their labor force participation declines and thus earnings became less important with age, while social security and retirement savings rise as a proportion of annual income.

An alternative approach to measuring retirement adequacy comes from the Center for Retirement Research (CRR), which developed its ‘national retirement risk index’ (NRRI), involving two steps (Munnell et al. 2006). The first projects replacement rates for each household and to determine a target replacement rate. The second step compares the projected replacement rates to the targets. Projected retirement income is based on income from financial assets, including defined contribution plans, net of non-mortgage financial debt, housing net of mortgage debt, defined benefit pensions, and social security. Using this index, the authors suggest that ideal replacement rates should be higher for low-income households versus high-income ones, because low-income households save very little before retirement and enjoy less in the way of tax savings. Overall, they calculated that 43 percent of households were ‘at risk’ in 2004, with a sizeable increase in the share of households at risk from 1983 to 2004 (Munnell et al. 2007) and almost no change to 2019 (Munnell et al. 2021).

It is instructive to compare that methodology with what we use in the present chapter. Both studies use four components to assess retirement security: (i) standard non-pension wealth holdings, including owner-occupied housing (ii) DC pension holdings, (iii) DB pension benefits, and (iv) social security benefits. Both net out mortgage and non-mortgage debt in the calculation of net worth. Both project retirement income to age 65 by individual component and transform financial assets into a lifetime

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annuity. One difference in methodology is that in the projection of financial assets to retirement, the CRR projections used wealth-to-income patterns by age group. In contrast, my approach projects the value of financial assets on the basis of historical rates of return for these assets. Second, for housing, the CRR projections used the imputed rental value for homeowners and the amount of equity they could borrow from their housing wealth through a reverse mortgage. In my approach, I project the value of housing on the basis of its historical rate of return. Third, I include two additional components in calculating the projected value of DC wealth: the projected accumulations in DC plans of future employer contributions (DCEMP), and the projected accumulations in DC plans of future employee contributions (DCEMPW).¹ Fourth, my work provides a decomposition of expected retirement income, poverty, and replacement rate by income source.

All in all, previous studies on retirement savings adequacy have been relatively inconclusive. Some found that retirement savings were adequate and expected replacement rates were generally high, whereas others concluded that expected replacement rates were relatively low and a large number of households near retirement age were at risk of inadequate income at retirement. In what follows, I construct three indicators of retirement adequacy: projected retirement income, projected replacement rates, and the projected share of retirees above the poverty line. My results show a very large gain in projected mean retirement income from 1989 to 2019. Expected replacement rates show improvement from 1989 to 2007, though gains were due more to a reduction in pre-retirement income than to advances in projected income at retirement, followed by almost no change from 2007 to 2019. The share of households at risk of falling below the poverty line declined from 1989 to 2007, followed by an uptick from 2007 to 2019.

Data Sources and Methods

The primary data sources used for the present study are the 1989, 2001, 2007, and 2019 Surveys of Consumer Finances (SCF), all expansionary business cycle years.² Each survey consists of a core representative sample combined with a high-income supplement. Typically, about two-thirds of the cases came from the first sample, and one-third from the second sample. The principal wealth concept used here is *marketable wealth* (or net worth), defined as the current value of all marketable assets less debt.³ (Online Appendix, Sec. 1).

To compute retirement income, I use actual reported DB benefits for retirees. For current workers, the procedure is more complex. The SCF

provides detailed information on pension coverage among current workers, including the type of plan, the expected benefit at retirement or the formula used to determine the benefit amount (for example, a fixed percentage of the average of the last five year's earnings), the expected retirement age when the benefits are effective, the likely retirement age of the worker, and vesting requirements. Information is provided not only for the current job (or jobs) of each spouse but for up to five past jobs as well. On the basis of this information and on projected future earnings, future expected pension benefits are then projected to the year of retirement or the first year of eligibility for the pension (Online Appendix, Secs. 3 and 6).

For current social security beneficiaries, I use the social security benefit currently being received by the household as reported in the SCF. The imputation of future expected social security benefits among current workers is based on the worker's actual and projected earnings history estimated by regression equation (Online Appendix, Sec. 6). The steps are briefly as follows. First, coverage is assigned based on whether the individual expects to receive social security benefits and on whether the individual is salaried or self-employed. Second, on the basis of the person's earnings history, the person's Average Indexed Monthly Earnings (AIME) is computed. Third, on the basis of the rules current at the time of the survey year, the person's Primary Insurance Amount (PIA) is derived from AIME. The worker's expected social security benefit is then set equal to his or her PIA.⁴ I also use *retrospective* information on work history provided by the respondent.⁵

The resulting accounting framework is as follows:

$$\text{DCEMP} = \text{DCEMP}_a + \text{DCEMP}_b \quad (1)$$

where DCEMP_a and DCEMP_b are projections of the future stream of *employer* and *employee* contributions to DC accounts like 401(k) plans until the expected year of retirement (Online Appendix, Sec. 5). Total DC wealth is now given by:

$$\text{DCTOT} = \text{DCW} + \text{DCEMP} + \text{DCEMPW} \quad (2)$$

and 'non-pension' wealth NWX as marketable household wealth NW minus DCW:

$$\text{NWX} = \text{NW} - \text{DCW} \quad (3)$$

where DCW is the current defined contribution plan wealth.

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Measuring Retirement Income Adequacy

To measure how well families are prepared for retirement, I first project future retirement income, and then I show results for three dimensions of retirement income adequacy: (i) projected retirement income; (ii) projected poverty status during retirement; and (iii) the projected income replacement rate at retirement.

Retirement income is based on four components: (i) standard non-pension wealth holdings (NWX), (ii) DC pension holdings, (iii) DB pension entitlements, and (iv) social security benefits. Future labor earnings are not included since it is assumed that retirees stop working. All income figures are pre-tax, since the official US poverty rate calculation used below is based on pre-tax income. Current holdings of non-pension wealth (NWX) are divided into two: equity in owner-occupied housing (HE), and non-home wealth (FWX). There is some disagreement in the literature about whether home equity should be considered part of the resource base for retirement income. On the one hand, home equity provides consumption services directly to the household and, as a result, it does not augment other sources of income that can be used for non-home consumption. On the other hand, home equity can be used to finance current consumption through new mortgages, home equity loans, and even reverse mortgages. In this regard, home equity can also add to the resource base for non-home consumption. Because both views are legitimate, I compute projected retirement income both including and excluding home equity and, as an intermediate position, including half the value of home equity.

Next, I convert FSX and HE into an annuity equivalent (ANN) based on the formula:

$$ANN_i = r_i \cdot Asset_i / \left[1 - (1+r_i)^{-\max(LERH, LERW)} \right] \quad (4)$$

where r_i is the rate of return on asset i , $LERH$ refers to the life expectancy of the husband when he retires, and $LERW$ is the life expectancy of the wife at retirement. Life expectancies are available by gender, and in 1989 and 2001, they are available for two Whites and non-Whites. In 2007 and 2019, they are available for three categories: non-Hispanic Whites, non-Hispanic Blacks, and Hispanics; I group Asian-Americans with Whites (Online Appendix, Sec. 8). An annuity is calculated for each asset (and debt) class based on the historical rate of return on that asset.⁶

The rationale for converting household wealth into an annuity to gauge retirement adequacy is that the annuity value indicates the sustainable level of withdrawals from each asset that will last the (estimated) remainder of the person's life (or, in the case, of a couple, the life of the longest-living

spouse), and which will totally exhaust the asset value at time of death.⁷ In a sense, this is the wealth equivalent to the concept of permanent income. The rates of return include both capital gains and asset income like dividends and interest, so that the annuity value replaces projected property income. Though a family need not actually withdraw the annuity value of its wealth each year, the annuity value does indicate the level of *potential* consumption that could be maintained over time from the wealth holding. I treat the second component of augmented wealth, DC pension holdings (DCTOT), in exactly the same way, and convert it into an annuity. I treat DCTOT separately from other components of standard wealth since it includes future contributions into DC plans. Longer life expectancies translate into lower yearly annuities for a given amount of wealth. Likewise, the racial retirement income gap may widen because the life expectancy gap between Blacks and Whites narrows over time.

The third component, DB plan benefits, is the sum of DB pension plan benefits currently received by the husband and wife, and future pension benefits expected by the spouses. Up to six pension benefits from past jobs and six benefits from current jobs may be recorded in the SCF survey (Online Appendix, Sec. 3). The latter consists of future expected DB pension benefits as indicated by the respondent.

The fourth component, social security benefits, refers to the sum of social security benefits currently being received plus future expected social security benefits. The latter uses a computation of the Primary Insurance Amount (PIA), which, in turn, is based on estimated work histories for both husband and wife (Online Appendix, Sec. 4).

I then add to current non-pension wealth holdings (NWX) and DC plan holdings the estimated amount of additional wealth accumulated up to retirement. This is based on the historical real rate of return of each asset type (Online Appendix, Table A1). I also estimate the future gains on DC pension wealth, DCTOT. It should be noted that I do not try to estimate future saving rates or wealth transfers received from gifts or inheritances. Indeed, it should be stressed that I am *not* attempting to fully model household saving behavior near retirement, as one might do in a micro-simulation model. As a result, my estimates of retirement income (and replacement rates) should be viewed as lower bounds. Nevertheless, they are useful for comparing retirement preparedness of an age group at *different points in time*, to determine whether there was improvement or deterioration.

For measures of retirement adequacy, I only report calculations for those aged 47–64, for two reasons. First, data on expected DB and social security benefits are fairly reliable and inclusive for this age group. Second, this represents the soon-to-be-retired age cohort, so it is of particular interest. The

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empirical analysis implicitly assumes that each person in the sample survives until age 65 and then to their projected life expectancy.

Retirement adequacy is measured in three different ways. The first is the annual projected retirement income. The second is the percentage of households whose projected retirement income is greater than the poverty threshold.⁸ The third is the replacement rate based on projected retirement income at time of retirement compared to projected income prior to retirement (typically, age 65). For the latter, I use a 1.70 percent annual growth rate of real income, an estimate based on the growth of real income for persons age 47–64 (from 1989 to 2019).⁹ It should be noted that this is a stringent measure of the replacement rate compared to most of the literature on the subject, since it associates (projected) retirement income against (projected) pre-retirement income on the eve of retirement.¹⁰ Other studies use a measure akin to average lifetime income (or over 10–20 years preceding retirement), or a measure of permanent income as the basis for comparison. Nevertheless, a comparison of expected retirement income to projected income received in the year just before retirement may be a quite meaningful comparison, as the drop in income after retirement can have a major effect on family well-being. As a result, my estimates of the share of households meeting this replacement rate standard will be lower than in other previous studies.

Expected Retirement Incomes

Table 4.1 summarizes my results on future mean expected retirement incomes for in 2019, overall and by race/ethnicity, and Figure 4.1 illustrates the patterns graphically. Here we see that Black households are projected to have 29.5 percent of the income of Whites at retirement, and Hispanic households 38.9 percent. Mean projected retirement incomes advanced very strongly between 1989 and 2001, at an average annual real rate of 4.35 percent. Nevertheless, changes were generally much lower from 2001 to 2007, at an annual real rate of only 0.96 percent. There was a pickup in growth over the years 2007–2019, to an annual real rate of 1.59 percent.

There are also substantial disparities in median retirement income by race/ethnicity, with Black households projected to have 37.4 percent and Hispanic households 45.0 percent compared to Whites. Gaps in mean retirement income between groups generally widened over time. The Black/White ratio of mean retirement incomes first rose from 0.338 in 1989 to 0.356 in 2007, and then it fell to 0.295 in 2019, for a net reduction over the entire period. The Hispanic/White ratio in mean retirement income dropped sharply from 0.644 in 1989 to 0.524 in 2001, picked up to 0.582 in 2007, and then declined steeply again to 0.389 in 2019.

TABLE 4.1 Expected retirement income based on wealth and expected pension and social security benefits, 1989–2019 (In thousands, 2019 dollars)

	Annual Percentage Rate of Growth							
	1989	2001	2007	2019	1989–2001	2001–2007	2007–2019	1989–2019
A. Mean retirement income								
All households	81.2	136.7	144.8	175.3	4.35	0.96	1.59	2.57
Non-Hispanic White	92.4	157.1	164.1	215.0	4.43	0.72	2.25	2.82
Non-Hispanic Black	31.2	49.3	58.4	63.4	3.80	2.82	0.69	2.36
Hispanic	59.4	82.3	95.6	83.7	2.71	2.49	-1.11	1.14
B. Ratio of mean retirement income								
Black/White households	0.338	0.314	0.356	0.295				
Hispanic/White households	0.644	0.524	0.582	0.389				
C. Median retirement income								
All households	43.7	60.8	65.5	56.1	2.75	1.24	-1.30	0.83
Non-Hispanic White	51.0	69.4	75.2	72.4	2.57	1.33	-0.32	1.17
Non-Hispanic Black	9.5	25.6	38.2	27.0	8.30	6.67	-2.87	3.50
Hispanic	17.1	29.7	32.9	32.6	4.59	1.74	-0.09	2.15
D. Ratio of median retirement income								
Black/White households	0.185	0.368	0.508	0.374				
Hispanic/White households	0.335	0.427	0.438	0.450				

Notes: Total retirement income includes expected future gains on all components of net worth NW. Households are classified by the age of the head of household. Asian and other races are excluded from the table because of small sample sizes.

Key: (1) HE: Net equity in owner-occupied housing

(2) FWX: Non-home, non-pension wealth = NW–DC–HE

(3) DCTOT: Total DC wealth = DC + DCEMP + DCEMPW

Source: Author's computations from the SCF, age 47–64 only

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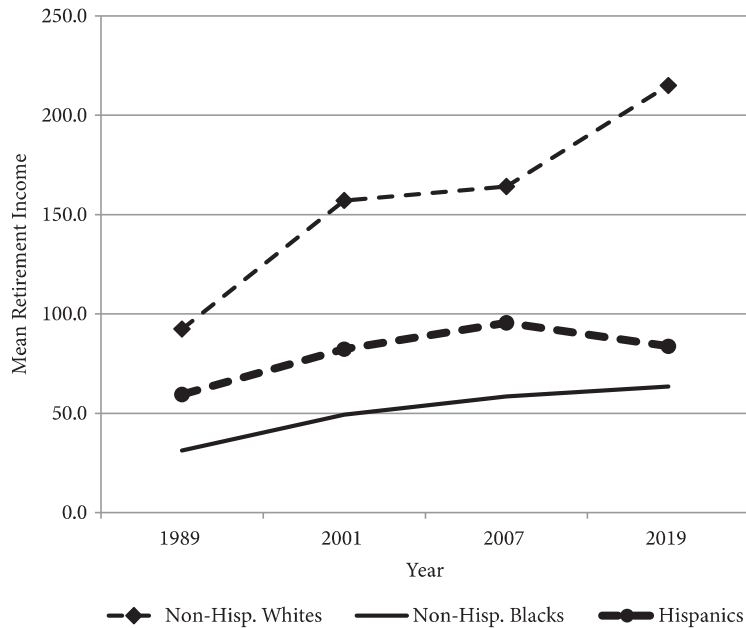


Figure 4.1 Mean retirement income (in 1000s, 2019 dollars)

Source: Author's calculations from the SCF.

The story is rather different for median values. Median real retirement incomes grew robustly from 1989 to 2001, at an annual clip of 2.75 percent, slowed to 1.24 percent in 2001–2007, and then turned negative over 2007–2019 at an annual -1.30 percent rate. Comparing Black and White households, the ratio improved notably from 0.185 in 1989 to 0.508 in 2017, but then it fell back to 0.374 in 2019. In contrast, the Hispanic/White median retirement income ratios improved steadily from 0.335 in 1989 to 0.450 in 2019 (see Figure 4.2).

Further details are provided in Table 4.2. Overall, the expected real mean retirement income for those aged 47–64 climbed by 78.4 percent between 1989 and 2007 and then by 21.1 percent in 2007–2019. The expected annuity from FWX among all households grew strongly in the first period, by 96.9 percent, but more slowly in the second, by 28.2 percent. The portion from DCTOT showed a huge gain in the first period, more than tripling in value, followed by a smaller increase in the second period, 68.8 percent. Expected DB pension benefits remained largely unchanged in the earlier period but then plummeted by 48.7 percent in the second. Expected social security benefits rose sharply in the first period, by over half, and then remained largely unchanged in the second period. As a result, the share of FWX in total retirement income grew from 37.6 percent in 1989 to 43.9 percent in

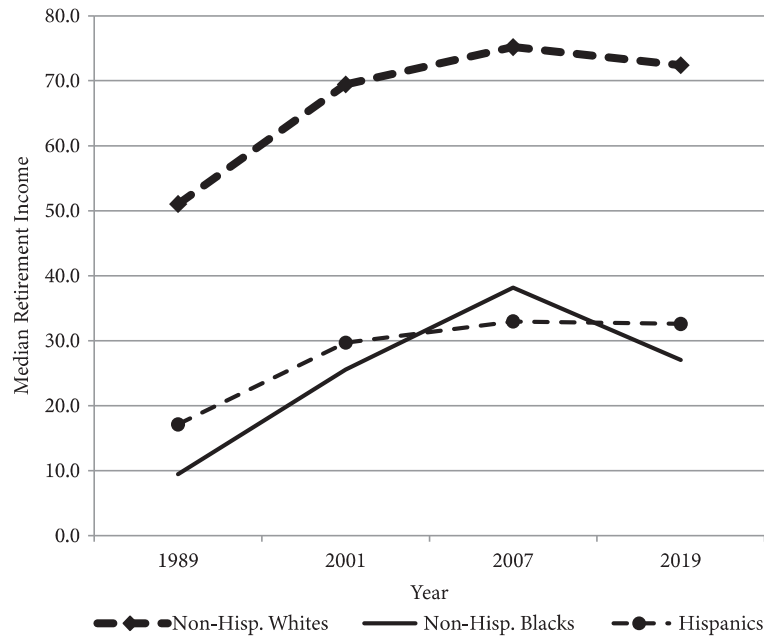


Figure 4.2 Median retirement income (in 1000s, 2019 dollars)

Source: Author’s calculations from the SCF.

2019, while the share of social security benefits dropped from 18.8 to 14.0 percent. However, the share of DCTOT climbed by 16.8 percentage points, from 10.2 to 27.0 percent, while that of DB pension benefits fell by 15.4 percentage points, from 20.5 to 5.1 percent.

In 2019, the ratio of mean expected retirement income between Black and White households was 29.5 percent, and that between Hispanics and Whites was 38.9 percent. The ratios of the expected annuity from non-housing wealth FWX were much lower, at 13.6 and 19.1 percent, respectively. The ratio of the expected annuity from defined contribution plans DCTOT was higher for Blacks at 37.2 percent but lower for Hispanics at 28.0 percent. On the positive side, the ratios of both expected DB benefits and social security benefits were much higher than the overall ratio.

The ratio of mean expected retirement income between Black and White households first jumped from 0.338 in 1989 to 0.356 in 2007, but then retreated to 0.295 in 2019. The convergence was due largely to the growth in expected social security benefits and DCTOT among Black households, which outstripped that among Whites. From 1989 to 2007, expected social security benefits rose by 103.5 percent among the former and 49.7 percent among Whites, while DCTOT increased more than 11-fold for the former and slightly more than tripled for the latter. The expected annuity from

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TABLE 4.2 Expected mean retirement income based on wealth holdings and expected pension and social security benefits by component, 1989–2019 (in thousands, 2019 dollars)

	Non-Home Non-Pension Wealth (FWX)	Home Equity (HE)	DC Plans (DCTOT)	DB Pensions
A. Mean values (\$)				
1989				
All households	30.5	10.5	8.3	16.6
Non-Hispanic White	36.3	11.6	10.0	17.8
Non-Hispanic Black	4.0	4.6	1.0	13.0
Hispanic	9.1	8.2	1.1	21.4
2001				
All households	58.9	12.0	25.0	17.5
Non-Hispanic White	70.3	13.7	28.8	19.0
Non-Hispanic Black	9.1	4.2	7.8	13.8
Hispanic	13.3	6.3	10.2	21.6
2007				
All households	60.0	15.5	28.1	17.5
Non-Hispanic White	71.1	17.1	32.1	18.8
Non-Hispanic Black	8.3	8.0	11.2	13.4
Hispanic	21.7	11.1	10.1	22.1
2019				
All households	77.0	17.4	47.4	9.0
Non-Hispanic White	100.4	20.9	57.4	9.5
Non-Hispanic Black	10.0	6.5	21.3	8.1
Hispanic	13.3	9.8	16.1	11.8
B. Ratios of mean retirement income				
1989				
Black/White households	0.111	0.399	0.100	0.731
Hispanic/White households	0.252	0.708	0.111	1.201
2001				
Black/White households	0.130	0.307	0.271	0.727
Hispanic/White households	0.190	0.463	0.353	1.134
2007				
Black/White households	0.117	0.467	0.349	0.712
Hispanic/White households	0.306	0.648	0.314	1.175
2019				
Black/White households	0.099	0.314	0.372	0.846
Hispanic/White households	0.133	0.471	0.280	1.235
C. Percentage change over time				
1989–2007				
All households	96.9	48.8	237.8	5.2
Non-Hispanic White	95.7	47.3	221.3	5.9
Non-Hispanic Black	105.8	72.2	1,025.4	3.1
Hispanic	137.8	34.9	811.8	3.6

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	Non-Home Non-Pension Wealth (FWX)	Home Equity (HE)	DC Plans (DCTOT)	DB Pensions
2007–2019				
All households	28.2	12.0	68.8	–48.7
Non-Hispanic White	41.3	22.1	78.7	–49.4
Non-Hispanic Black	20.3	–17.9	90.3	–39.9
Hispanic	–38.6	–11.2	59.5	–46.8
1989–2019				
All households	152.4	66.6	470.2	–46.0
Non-Hispanic White	176.6	79.9	474.3	–46.4
Non-Hispanic Black	147.6	41.5	2,042.1	–38.0
Hispanic	45.9	19.8	1,354.4	–44.9

Notes: Households are classified by the age of the head of household. Each column equals the expected annuity (or annual benefit) from the current holdings of the indicated asset plus any future expected gains on the asset. Asian and other races are excluded from the table because of small sample sizes.

Key: (1) HE: Net equity in owner-occupied housing

(2) FWX: Non-home, non-pension wealth = NW–DC–HE

(3) DCTOT: Total DC wealth = DC + DCEMP + DCEMPW

Source: Author's computations from the SCF, age 47–64 only.

NWX grew about the same for Blacks and Whites from 1989 to 2007, as did future DB benefits.

The share of expected social security benefits in expected retirement income also rose among Blacks, from 27.5 percent in 1989 to 30.0 percent in 2007, whereas it fell among Whites from 18.1 to 15.2 percent. As a result, the ratio of expected social security benefits between the two groups climbed from 0.515 in 1989 to 0.700 in 2007. Black families will obtain a much higher share of their retirement income from social security than Whites (27.5 percent versus 15.2 percent in 2007) and also a much higher proportion from pensions (DC plus DB) (42.2 percent versus 31.1 percent) and a correspondingly much smaller share from standard wealth holdings NWX) (27.9 percent versus 53.7 percent).

To understand the reversal of fortunes among Black households from 2007–2019, we note that divergence was mainly due to the much faster growth in the expected annuity from NWX among Whites. This climbed by 37.6 percent, compared to 1.6 percent among Black households. The ratio of net worth between the two races also plummeted over these years and the mean wealth of Black households in particular dropped by 7.0 percent in real terms. Expected social security benefits also grew a bit faster for Whites over these years, though gains in the expected annuity from DCTOT were somewhat stronger for Black households.

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The share of expected social security benefits in expected retirement income also fell off among Blacks, from 30.0 percent in 2007 to 27.6 percent in 2019, as it did among Whites from 15.2 to 12.4 percent, and the ratio of expected social security benefits declined from 0.700 to 0.655. However, Black families still obtained a much higher share of their retirement income from social security than Whites (27.6 percent versus 12.4 percent in 2019) and also a higher portion from pensions (DC plus DB) (46.3 percent versus 31.1 percent) and a correspondingly much smaller segment from standard wealth holdings (NWX) (26.1 percent versus 56.4 percent).

The story is rather different for Hispanics. The ratio of mean expected retirement income between Hispanic and White households declined from 0.664 in 1989, to 0.582 in 2007, and then it fell sharply to 0.389 in 2019. The first drop-off was essentially a weighted average effect. Indeed, the expected annuity from NWX grew a bit faster for Hispanics from 1989 to 2019 (89.1 percent versus 84.0 percent), the expected annuity from DCTOT surged four times faster for Hispanics, and future projected social security benefits rose modestly more for Hispanics (55.5 percent versus 49.7 percent). Hispanics are projected to obtain a much higher portion of their retirement income from social security than Whites (31.9 percent versus 15.2 percent in 2007) and a somewhat higher proportion from total pensions (33.7 percent versus 31.1 percent) and, as a consequence, a much smaller segment from NWX (34.3 percent versus 53.7 percent).

As noted, the expected retirement income of Hispanics relative to Whites continued to drop through 2019. In fact, the expected retirement income of Hispanics fell in absolute terms, by 12.4 percent, while it gained 31.0 percent among Whites. Here, again, the main culprit was income from non-pension wealth NWX, which plunged by 29.4 percent for the former but climbed by 37.6 percent for the latter. The change for Hispanics mirrored the trajectory of mean net worth for this group, which plunged by 34.4 percent. Expected social security benefits grew about the same for the two groups, though gains in the expected annuity from DCTOT were stronger for Whites. Hispanic families, like Black families, will still obtain a much higher share of their retirement income from social security than Whites (39.0 percent versus 12.4 percent in 2019) and also a somewhat higher portion from pensions (DC plus DB) (33.3 percent versus 31.1 percent) and a correspondingly much smaller proportion from NWX (27.7 percent versus 56.4 percent).

Expected Poverty in Retirement

Trends in projected poverty rates at retirement tend to follow trends in *median* retirement income (see Table 4.3 and Figure 4.3). In 2019, 9.5 percent of households age 47–64 were projected to have retirement income

TABLE 4.3 Percentage of households with expected retirement income less than the poverty line, based on wealth holdings and expected pension and social security benefits, 1989–2019 (in percentage points)

	Non-Home Non-Pension Wealth (FWX)	FWX plus Half of Home Equity (HE)	Non-Pension Wealth (NWX)	NWX Plus DC Plans (DCTOT)	NWX Plus Pensions (PW)	Total Expected Retirement Income: NWX + PW + social security
A. Poverty rates						
1989						
All households	80.5	73.7	60.2	52.0	33.4	14.7
Non-Hispanic White	77.1	70.0	54.9	45.7	25.7	6.1
Non-Hispanic Black	97.7	92.5	85.6	80.1	65.4	56.1
Hispanic	86.9	82.2	77.2	77.2	71.9	39.6
2001						
All households	70.3	62.9	53.1	38.6	29.5	8.1
Non-Hispanic White	66.6	58.4	48.4	33.1	24.1	4.8
Non-Hispanic Black	83.7	81.7	75.8	64.1	53.2	25.0
Hispanic	89.4	82.1	67.9	57.0	50.6	15.9
2007						
All households	71.2	61.6	48.8	33.6	27.3	7.3
Non-Hispanic White	67.2	56.8	44.2	28.9	22.9	5.4
Non-Hispanic Black	89.7	82.0	69.8	51.1	43.1	14.0
Hispanic	85.9	81.8	64.9	59.3	51.6	18.8
2019						
All households	76.1	66.6	54.9	37.7	34.4	9.5
Non-Hispanic White	71.3	60.3	47.4	29.7	26.7	6.0
Non-Hispanic Black	90.6	85.1	79.3	62.0	57.6	22.1
Hispanic	88.5	82.4	69.9	57.6	53.0	14.1
B. Racial/ethnic differences in poverty rates						
1989						
Black minus White	20.6	22.5	30.8	34.4	39.6	50.0
Hispanic minus White	9.7	12.2	22.3	31.5	46.1	33.5
2001						
Black minus White	17.1	23.3	27.4	31.0	29.1	20.2
Hispanic minus White	22.7	23.6	19.5	23.8	26.5	11.1

Continued

TABLE 4-3 Continued

	Non-Home Non-Pension Wealth (FWX)	FWX plus Half of Home Equity (HE)	Non-Pension Wealth (NWX)	NWX Plus DC Plans (DCTOT)	NWX Plus Pensions (PW)	Total Expected Retirement Income: NWX + PW + social security
2007						
Black minus White	22.6	25.2	25.6	22.2	20.2	8.6
Hispanic minus White	18.8	25.0	20.7	30.4	28.8	13.3
2019						
Black minus White	19.3	24.8	31.9	32.3	30.9	16.0
Hispanic minus White	17.3	22.1	22.4	28.0	26.3	8.0
C. Time trends; percentage point differences						
2007 minus 1989						
All households	-9.3	-12.2	-11.5	-18.4	-6.2	-7.4
Non-Hispanic White	-10.0	-13.2	-10.6	-16.8	-2.8	-0.7
Non-Hispanic Black	-8.0	-10.5	-15.8	-29.0	-22.2	-42.2
Hispanic	-0.9	-0.4	-12.3	-17.9	-20.2	-20.9
2019 minus 2007						
All households	4.9	5.0	6.1	4.1	7.1	2.1
Non-Hispanic White	4.1	3.5	3.2	0.7	3.8	0.6
Non-Hispanic Black	0.8	3.1	9.5	10.9	14.4	8.1
Hispanic	2.6	0.6	5.0	-1.7	1.4	-4.7
2019 minus 1989						
All households	-4.3	-7.2	-5.4	-14.3	0.9	-5.2
Non-Hispanic White	-5.9	-9.7	-7.4	-16.1	1.0	0.0
Non-Hispanic Black	-7.2	-7.4	-6.3	-18.1	-7.8	-34.0
Hispanic	1.7	0.2	-7.3	-19.6	-18.8	-25.5

Note: Total retirement income includes expected future gains on all components of net worth NW. Households are classified by the age of the head of household. Asian and other races are excluded from the table because of small sample sizes.

Key: (1) HE: Net equity in owner-occupied housing

(2) FWX: Non-home, non-pension wealth = NW-DC-HE

(3) DCTOT: Total DC wealth = DC + DCEMP + DCEMPW

Source: Author's computations from the SCF, age 47-64 only.

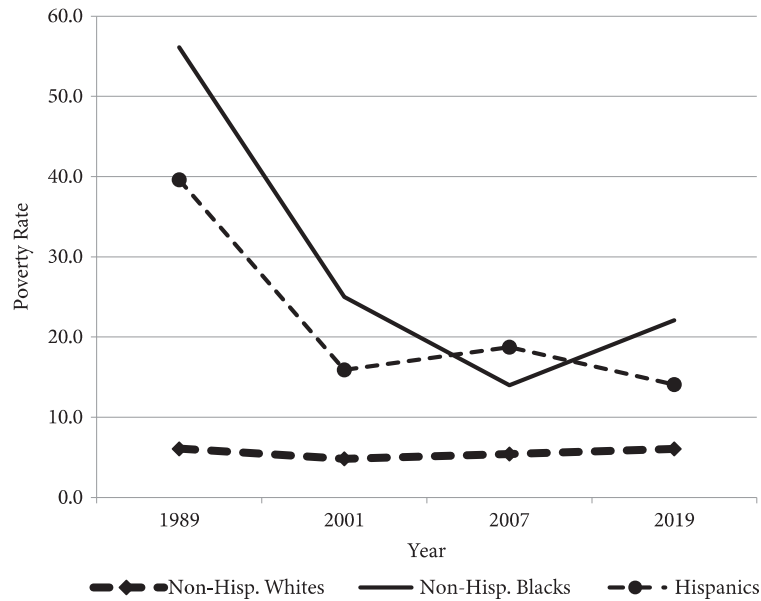


Figure 4.3 Percentage of households with expected retirement income less than the poverty line

Source: Author’s calculations from the SCF.

below the poverty line for their family size. Only 6.0 percent of White households were projected to fall below the poverty standard, compared to 22.1 percent of Black families and 14.1 percent of Hispanic families. Most of the poverty reduction appears to have taken place between 1989 and 2001, when median retirement income leaped by 39.1 percent. The projected poverty rate at retirement for those aged 47–64 fell by 6.6 percentage points over these years. From 2001 to 2007, the projected poverty rate fell by only 0.7 percentage points but from 2007 to 2019, it actually rose by 2.1 percentage points, as median retirement income declined by 14.4 percent.

Racial/ethnic groups with the highest projected poverty rate in 1989 experienced the largest reduction in their projected poverty rates at retirement. The poverty rate for Black families fell by 31.1 percentage points between 1989 and 2001 and that for Hispanics by 23.7 percentage points, while White households saw a slight dropoff of 1.3 percentage points. Between 2001 and 2007, Black families underwent another sharp reduction of 11.0 percentage points, while White and Hispanic families witnessed a slight increase. The racial gap fell sharply from 50.0 percentage points

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in 1989 to only 8.6 percentage points in 2007 and the ethnic differential dropped from 33.5 to 13.3 percentage points.

This pattern generally reversed by 2019. As noted above, the overall projected poverty rate was up to 9.5 percent, a 2.1 percentage point rise from 2007. Among Black families, it jumped by 8.1 percentage points, while White families saw a very slight increase and Hispanic families actually experienced a 4.7 percentage point reduction. As a result, the racial gap in projected poverty rates widened from 8.6 to 16.0 percentage points while the ethnic differential narrowed from 13.3 to 8.0 percentage points.

Among all households age 47–64, standard non-pension wealth holdings NWX alone will bring the expected poverty rate down to a little over half. Another 17.1 percentage point decline comes from adding DCTOT to 37.7 percent, and adding DB benefits brings it down more, to a little over one-third. Finally, adding expected social security benefits lowers the expected poverty rate by an enormous 24.9 percentage points, to 9.5 percent.

There is considerable variation across groups in the importance of these various components. In 2019, the poverty rate on the basis of standard wealth (NWX) was much lower for Whites, 47.4 percent, than Black or Hispanic families (79.3 and 69.9 percent, respectively). Adding in expected DCTOT and DB benefits lowers the rate by 20.7 percentage points for Whites, 21.8 percentage points for Blacks, and 16.8 percentage points for Hispanics. Adding social security causes an even more sizeable reduction in the poverty rate by 35.5 percentage points for Blacks and by 38.9 points for Hispanics, compared to 20.7 points for Whites.

Turning to time trends in poverty rates, on the basis of NWX alone, the expected poverty rate for Whites declined by 10.6 percentage points from 1989 to 2007. The most important factor explaining this reduction in overall poverty was the growth in DCTOT, resulting in a 16.8 percentage drop. When DB benefits are also included, the poverty rate dropped considerably less, only 2.8 points. This smaller effect reflects the sharp decline in DB prevalence over these years. Finally, when social security benefits are incorporated, the expected poverty rate showed almost no change. This pattern reversed from 2007 to 2019: expected poverty rates actually increased by 3.2 percentage points from NWX alone. Adding DCTOT once again reduces the expected growth in poverty to 0.7 percentage points, though this was a much smaller effect than over years 1989–2007. As in the earlier period, including DB benefits led to a greater gain in the poverty rate of 3.8 percentage points. Finally, taking account of social security benefits led to a marginal reduction of the poverty rate of 3.2 points.

There are also important differences for families from different racial groups. Gains in net worth between 1989 and 2007 contributed more to reducing the expected poverty rate for Black families than for White

families, 15.8 versus 10.6 percentage points. The growth in DCTOT also had a more substantial effect for Black families, lowering their expected poverty rate by 29.0 percentage points, versus 16.8 percentage points for Whites. But attrition of DB benefits over the same period meant that the poverty-reducing impact of adding DB benefits was now lower in 2007 than in 1989 for Black families, -8.0 versus -14.8 points. Still, the inclusion of DB benefits had a much greater effect on reducing the poverty rate for Black families than Whites over the 1989–2007 period, 22.2 versus 2.8 percentage points.

The effect of social security benefits was relatively more substantial for Black families. Their expected poverty rates on the basis of FWX plus private pensions was 65.4 percent in 1989, whereas adding social security reduced it by 9.2 points, to 56.1 percent. In 2007, their expected poverty rate from the sum of FWX and private pensions was 43.1 percent; including social security now resulted in a 29.1 percentage point drop, to 14.0 percent. Moreover, the effect was much stronger for Blacks than Whites, since including social security benefits to FWX plus private pensions reduced the expected poverty rate for Blacks by 19.9 percentage points, compared to an *increase* of 2.2 percentage points for Whites.

Between 2007 and 2019, the reduction in NWX raised Black families' expected poverty rates by 9.5 percentage points, compared to a 3.2 percentage point rise for Whites. Adding expected DB benefits raised the poverty rate among Blacks by 3.6 percentage points, once again pointing to the decline in these plans over time. Lastly, the inclusion of social security reduced the poverty rate among Black families by 6.3 percentage points, compared to a much more considerable 19.9 points over the preceding period. Nevertheless, the effect was larger among Black families than Whites over the later period, 3.2 percentage points.

Results for Hispanics differ from those for Blacks. Over the period 1989–2007, the growth in NWX decreased the Hispanic poverty rate by 12.3 percentage points. Including DCTOT lowered the Black poverty rate by 13.2 points, but it reduced the Hispanic rate by only 5.6 points, reflecting the more widespread ownership of such plans among Blacks. While the decline in DB plans raised the Black poverty rate by 6.8 percentage points, the fact that they were more widespread among Hispanics decreased their poverty rate by 2.4 points. Adding social security benefits had a massive effect among Blacks, reducing their poverty rate by almost 20 points, whereas it had virtually no influence on Hispanic families. During 2007–2019, the slowdown in growth of NWX raised the expected Hispanic poverty rate by 5.0 percentage points, considerably less than the 9.5 percentage point increase among Black families. Adding DCTOT benefits reduced the Hispanic rate by a substantial 6.7 percentage points, reflecting the continued spread of DC retirement plans in this community, whereas its cutback increased the

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Black poverty rate by 1.3 points. The attrition of DB plans, on the other hand, raised both the Hispanic and Black poverty rate to about the same degree. Likewise, increases in social security benefits decreased the poverty rate for the two groups to about the same extent (a little over six percentage points).

Replacement Rates

Results on replacement rates differ mainly because expected retirement incomes and projected pre-retirement incomes were both rising, at least until 2007. In 1989, the percentage of White households with a replacement rate of 75 percent or more was 41.9 percent (see Table 4.4 and Figure 4.4). The proportion meeting this standard was only 9.4 percent based on NWX, 12.0 percent when DCTOT is included, but 21.2 percent when DB benefits are added. Therefore, including DB benefits made a very large difference of 9.2 percentage points; social security had an even bigger effect, adding another 20.7 percentage points for the White households. Because expected retirement income grew faster than projected income at age 64 between 1989 and 2007, the percentage of White households meeting this standard increased to 54.0 percent. DCTOT made a much larger marginal contribution in the later year, 9.0 compared to 2.5 points, reflecting the widespread growth of these plans. On the other hand, DB benefits and social security benefits made about the same marginal contribution in the two years.

While projected incomes at age 64 continued to rise between 2007 and 2019, expected retirement incomes increased at about the same pace, so that the share of White households meeting the standard rose slightly. The marginal contributions made by component in 2019 were almost identical to those in 2007 except that the impact of DCTOT rose from 9.0 to 15.0 percentage points, reflecting the continued expansion of these plans, while that from DB benefits correspondingly fell off from 11.8 to 6.2 points, reflecting the continued collapse of these plans.

Somewhat surprisingly, there was a sizeable differential between White, Black, and Hispanic families. Most of the gap in 1989 came from the disparity in NWX (9.3 percentage points), and a smaller contribution from the larger DCTOT accumulations of Whites (2.5 percentage points). This was partially offset by the larger marginal contribution made by DB benefits for Black than White households (6.8 percentage points). Social security benefits, on the other hand, favored White families (a marginal contribution of 3.2 points). In 2007, the difference in the accumulation of NWX contributed 5.1 percentage points, less than in 1989. However, the gap in

TABLE 4-4 Percent of households with expected retirement income greater than or equal to 75% of projected income at age 64, based on wealth holdings and expected pension and social security benefits, 1989–2019

	Non-Home Non- Pension Wealth (FWX)	FWX plus Half of Home Equity (HE)	Non- Pension Wealth (NWX)	NWX Plus DC Plans (DCIOT)	NWX Plus Pensions (PW)	Total Expected Retirement Income: NWX + PW + Social Security
A. Percent with expected retirement income \geq 75% projected age-64 income						
1989						
All households	4.3	5.5	8.2	10.2	20.5	40.7
Non-Hispanic White	5.1	6.5	9.4	12.0	21.2	41.9
Non-Hispanic Black	0.1	0.1	0.1	0.1	16.2	33.7
Hispanic	3.1	3.1	10.6	10.6	21.3	40.0
2001						
All households	7.8	9.3	11.3	18.7	28.7	48.8
Non-Hispanic White	9.1	10.9	13.3	21.9	32.1	51.7
Non-Hispanic Black	2.2	2.2	2.5	5.7	16.2	37.6
Hispanic	2.1	2.5	3.0	4.5	12.0	35.2
2007						
All households	6.7	7.8	10.6	18.5	29.9	51.1
Non-Hispanic White	7.3	8.6	11.6	20.6	32.4	54.0
Non-Hispanic Black	3.5	3.8	6.5	9.4	20.0	39.0
Hispanic	5.7	6.0	6.2	9.9	17.9	37.7
2019						
All households	7.6	9.1	11.5	24.0	30.2	51.6
Non-Hispanic White	9.4	11.0	13.9	28.9	35.1	55.8
Non-Hispanic Black	2.0	2.7	3.7	9.4	15.7	37.8
Hispanic	3.5	5.1	6.5	11.3	17.5	44.0

Continued

TABLE 4.4 *Continued*

	Non-Home Non- Pension Wealth (FWX)	FWX plus Half of Home Equity (HIE)	Non- Pension Wealth (NWX)	NWX Plus DC Plans (DCTOT)	NWX Plus Pensions (PW)	Total Expected Retirement Income: NWX + PW + Social Security
B. Racial/ethnic differences in 75% replacement rates						
1989						
Black minus White	-5.0	-6.4	-9.3	-11.8	-5.0	-8.2
Hispanic minus White	-2.0	-3.4	1.1	-1.4	0.1	-1.9
2001						
Black minus White	-6.9	-8.7	-10.9	-16.2	-15.9	-14.1
Hispanic minus White	-7.0	-8.4	-10.3	-17.3	-20.1	-16.5
2007						
Black minus White	-3.8	-4.8	-5.1	-11.2	-12.4	-15.0
Hispanic minus White	-1.6	-2.6	-5.4	-10.6	-14.6	-16.3
2019						
Black minus White	-7.4	-8.3	-10.2	-19.5	-19.5	-18.0
Hispanic minus White	-5.9	-5.9	-7.5	-17.6	-17.6	-11.8
C. Time trends; percentage point differences						
2007 minus 1989						
All households	2.4	2.4	2.4	8.3	9.5	10.4
Non-Hispanic White	2.1	2.1	2.1	8.6	11.2	12.1

Non-Hispanic Black	3.4	3.7	6.4	9.3	3.9	5.2
Hispanic	2.6	2.8	-4.4	-0.6	-3.4	-2.3
2019 minus 2007						
All households	0.9	1.2	0.9	5.5	0.3	0.6
Non-Hispanic White	2.1	2.4	2.4	8.3	2.7	1.8
Non-Hispanic Black	-1.5	-1.2	-2.8	0.0	-4.4	-1.2
Hispanic	-2.2	-0.9	0.3	1.4	-0.3	6.2
2019 minus 1989						
All households	3.2	3.6	3.3	13.8	9.7	11.0
Non-Hispanic White	4.2	4.5	4.5	17.0	14.0	13.9
Non-Hispanic Black	1.8	2.6	3.6	9.3	-0.5	4.0
Hispanic	0.4	1.9	-4.1	0.7	-3.7	3.9

Note: Total retirement income includes expected future gains on all components of net worth NW. Households are classified by the age of the head of household. Asian and other races are excluded from the table because of small sample sizes.

Key: (1) HE: Net equity in owner-occupied housing

(2) FWX: Non-home, non-pension wealth = NW-DC-HE

(3) DCTOT: Total DC wealth = DC + DCEMP + DCEMPW

Source: Author's computations from the SCF, age 47-64 only.

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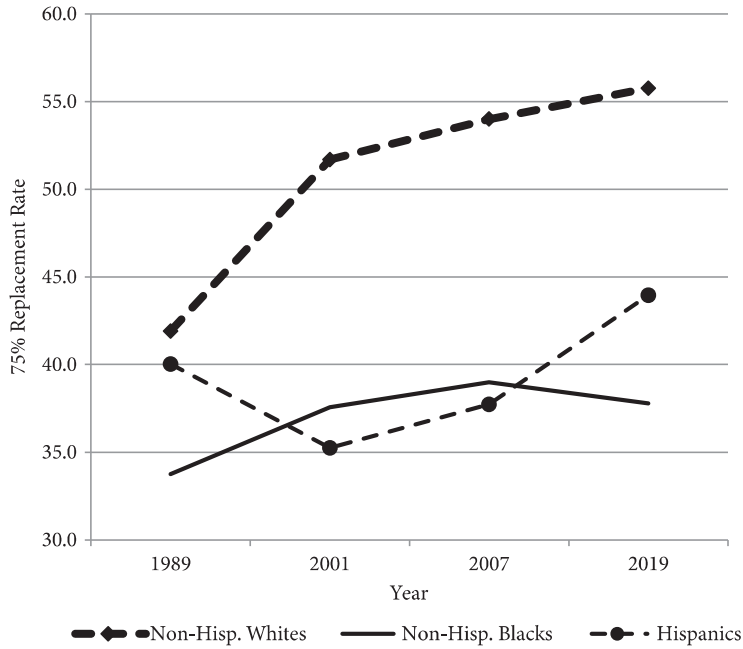


Figure 4.4 Percentage of households meeting 75% replacement rate

Source: Author’s calculations from the SCF.

DCTOT makes an even larger marginal contribution in 2007 than in 1989, 6.1 versus 2.5 percentage points. Social security benefits once again favored White families, adding another 2.6 percentage points to the gap. By 2019 the NWX advantage in favor of Whites bounced back to 10.2 percentage points, reflecting the widening racial wealth gap. The marginal contribution of DCTOT rose again, from 6.1 to 9.3 percentage points, and the marginal contribution of social security now moved slightly in favor of Black families.

A similar pattern is evident from comparing White and Hispanic replacement rates, except for 1989, when the expected annuity from NWX actually slightly favored Hispanics over Whites (1.1 percentage points). The payout from DCTOT once again benefited Whites and to the same degree (2.5 percentage point). DB benefits did help Hispanics more than Whites, but the advantage was now only 1.5 points, instead of 6.8 points. Social security once again aided Whites more than Hispanics, though the difference was somewhat smaller. Hispanic–White differences in 2007 and 2019 were very similar to racial differences. The main exception is that in 2019 differences in social security now favored Hispanics by 5.8 percentage points,

in contrast to only 1.5 percentage points in the case of the Black–White discrepancy.

Conclusions

This chapter points to a marked slowdown in the growth of overall mean expected retirement income for households age 47–64 in the 2000s compared to the 1990s, even before the 2008–2009 financial meltdown. Households also saw a large reduction in their expected poverty rates at retirement, from 14.7 percent in 1989 to 8.1 percent in 2001. There was also only a very small reduction in the expected poverty rate from 2001 to 2007 of 0.7 percentage points. Likewise, the percent of households with expected retirement incomes equal to or exceeding 75 percent of their projected age 64 incomes rose more in the earlier versus the later period (40.7 to 48.8 versus 51.1 percent). Median retirement income also grew much faster in the earlier years, by 39.1 percent, than the subsequent period, by 7.8 percent. Between 2007 and 2019, gains in mean retirement income accelerated to 21.1 percent, while expected poverty rates actually rose by 2.1 percentage points, replacement rates remained largely unchanged, and median retirement incomes showed an absolute decline.

The ratio of mean expected retirement incomes between Black and White families first gained, from 0.338 in 1989 to 0.356 in 2007, but then retreated to 0.295 in 2019, even lower than in 1989. A similar pattern unfolded for the ratio of median retirement incomes. Expected poverty rates among Black families first declined substantially, from 56.1 percent in 1989 to 14.0 percent in 2007, but then they reversed to 22.1 percent in 2019. The share meeting the 75 percent replacement rate likewise displayed a moderate uptick from 1989 to 2007, followed by a small reversal in 2019.

The time pattern was different for Hispanic families, where the ratio of mean retirement incomes between them and Whites exhibited a fairly continuous drop between 1989 and 2019, and the ratio of median retirement incomes advanced. The Hispanic poverty rate dropped fairly continuously, from 39.6 percent to 14.1 percent over these years, while the proportion meeting the 75 percent replacement standard first fell from 1989 to 2001, but then rose sharply in 2019.

The reversal of fortunes for Black households from 2007 to 2019 resulted from the much faster growth in expected annuity from non-pension wealth NWX among Whites: this climbed by 37.6 percent, compared to 1.6 percent among Black households. This, in turn, reflected the continued rise in White household wealth and its absolute fall-off among Black families. The ratio of mean retirement income between Hispanic and White households

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declined from 0.664 in 1989 to 0.582 in 2007 and then fell sharply to 0.389 in 2019. The first drop-off was essentially a weighted average effect. For 2007–2019, the main culprit was income from NWX, which plunged by 29.4 percent for Hispanics but climbed by 37.6 percent for Whites. This largely reflected the rising wealth gap between these two groups, just as in the case of the racial wealth gap.

Social security was much more important as a source of expected retirement income among minorities than among Whites. It has thus served as an important equalizing factor in retirement adequacy. Related studies have reached similar conclusions. Dynan and Elmendorf (2025) use the Panel Study of Income Dynamics (PSID) to investigate retirement preparedness of Black families. Because the PSID oversamples lower-income families, those data offer more precise estimates of income and wealth for lower-income Black families than other datasets. Those authors also report a deterioration in the retirement income of Black families relative to White families after the financial crisis of 2008–2009. Suarez et al. (2025) use the SCF to look at the racial wealth gap over the period 1989–2019, and though those authors do not consider retirement readiness in terms of income directly, they also document a marked decline in the wealth holdings of Black households relative to Whites since 2007.

Notes

1. Variable names refer to nomenclature used in the SCF.
2. The SCF survey was also conducted in 1983. Nevertheless, that year the methodology differed from the more recent years, and it was missing some key variables needed for the present study, so that SCF year is not included in the present study.
3. Additional detail on data and methodological considerations appears in the Online Appendix, available here (URL to be provided).
4. In the case of a married (or co-habiting) couple, the couple's expected social security benefit is set equal to the sum of the PIA of each worker or 150 percent of the greater of the two PIAs, whichever is greater.
5. Future social security benefits may fall by as much as 25 percent if reforms are not made. Nevertheless, I do not incorporate this contingency in projections of future benefits since my projections are based on current rules as of the survey year (Online Appendix, Sec. 7).
6. The asset classes as well as the corresponding estimated historical rates of return appear in Online Appendix Table A1.
7. In principle, the family could convert its net worth into an annuity plan from a life insurance company if the plan were actuarially fair.
8. I use the official US poverty thresholds for this analysis and assume that the family's marital status remains unchanged over time and that at time of retirement

there are no children living with the parents. The poverty rates shown are based on the family unit, not the individual (head count ratio).

9. Though one could project wages and salaries at retirement on the basis of the estimated human capital earnings functions (Online Appendix, Sec. 6), it is not easy to project other forms of income, such as property income, government transfer income other than social security benefits, and miscellaneous income. As a result, I use the historical growth in income as the basis for projecting household income at retirement.
10. Scholz et al. (2009), for example, use two denominators for their replacement rate calculations: the average of lifetime income up to the time of retirement, and income averaged over the top five earnings years. They compute a much lower average replacement rate on the basis of the latter standard: 0.57 versus 0.68. My standard is closer to income averaged over the top five earnings years than to average lifetime income.

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