

Chapter 8

Social Security and the Racial Wealth Gap

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The US racial wealth gap is large and, if anything, has widened over the last 40 years (Derenoncourt et al. 2022). Interestingly, it is substantially larger than the racial income gap: over the 2013–2019 period, the median Black (Hispanic) American earned 32 percent (36 percent) less per adult than their White counterpart. Yet, the median White household had six times more wealth. When households have similar saving rates, it would seem that the earnings and wealth gaps would also be similar. However, if low- and middle-class earners save primarily through mandatory public programs like social security, the earnings and wealth gaps will only be similar if the definition of wealth includes the value of entitlements.

This chapter builds on this core intuition to illustrate that the focus on private marketable wealth provides an incomplete picture of levels and trends in US racial wealth inequality. Specifically, wealth inequality measures that include public wealth—like the value of social security benefits—are more evenly distributed than are measures restricted to marketable assets. Once social security is included, the racial income and wealth gaps look more similar than prior studies suggest.

As work dating back to Feldstein (1976) makes clear, total wealth—inclusive of social security—is more evenly distributed than marketable wealth alone. Catherine et al. (2022a) showed that the inclusion of social security also changes our understanding of trends in wealth inequality. When social security is accounted for, the increase in the top 1 percent share of marketable wealth over the last 30 years disappears. Social security offsets the rise in marketable wealth inequality due to both the interaction of a substitution effect between private and public wealth, and a valuation effect. Because it is progressive, social security represents a much greater share of the balance sheet of households below the top of the wealth distribution. The present value of these benefits has also increased as interest rates have declined, just like the market price of annuities with identical cash flows or the value of long-duration assets held by wealthy households.

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Those at the top of the US wealth distribution are disproportionately White Americans, and those at the bottom are disproportionately Black and Hispanic Americans. This means that this same fact—that a focus on marketable rather than total wealth inequality misstates inequality trends—is relevant for our understanding of racial wealth inequality as well.

In what follows, we follow Catherine et al.'s (2022a) methodology to study how accounting for social security wealth changes our understanding of racial wealth inequality dynamics. For retirees, we estimate social security wealth by valuing benefits reported in the Survey of Consumer Finances (SCF) using a standard annuity formula. For those still in the workforce, we simulate earnings trajectories and use social security rules to construct estimates of future retirement benefits and payroll taxes. Our present value computations account for mortality differences between racial groups, historical changes in the market yield curve, and the systematic risk associated with macroeconomic uncertainty.

Like prior work, we find sizable differences in marketable wealth across racial groups. In 2019, the median White household had over six times more marketable wealth (\$115,100) than did the median Black (\$17,850) and Hispanic (\$20,331) household. By contrast, social security wealth was much more evenly distributed: it represented \$184,788, \$135,746, and \$151,496 for the median White, Black, and Hispanic American household, respectively. Consequently, total wealth was more evenly distributed as well. In 2019, the median White household had under twice the total wealth (\$343,035) of the median Black (\$187,965) and Hispanic household (\$193,392). Our findings confirm Feldstein's (1976) broad intuition that public wealth continues to be more evenly distributed than private wealth.

Furthermore, trends in inequality over the last three decades differ from those documented by prior work. Specifically, in 2019, the median Black and Hispanic American household held 55 and 56 percent of the total wealth of White Americans, an increase of 29 and 50 percentage points in the last three decades alone. This is because, over this period, social security wealth increased substantially, from \$3.4 trillion in 1989 to \$37.2 trillion in 2019 (Catherine et al. 2022b). It now represents 61 percent and 63 percent of the total wealth of Black and Hispanic households, up from just 23 and 9 percent three decades ago.

Why did this rise in social security's value have a larger impact on the total wealth of Black and Hispanic households? We conclude that this was a natural consequence of the progressive nature of the social security benefit formula, which pays higher replacement rates to workers with lower lifetime earnings. Because Black and Hispanic Americans represent a larger share of workers in lower income brackets, increases in social security wealth played a greater role in the way they faced retirement. To the extent that social security and private wealth are substitutes, the more individuals accumulate

in social security wealth, the less they will need to save privately to finance post-retirement spending. Since replacement rates differ across groups, private savings rates will be proportionately higher for White Americans whose public savings rates are proportionately lower, than for Black and Hispanic Americans. This results in a pronounced inequality in marketable wealth, but a lesser difference in total wealth inequality.

These differences are relevant to not just the level of racial wealth inequality, but also to its evolution. Falling interest rates increase wealth inequality because they raise the market value of long-duration assets more. These assets, such as stocks and private businesses, are disproportionately held by households at the top of the US wealth distribution (Greenwald et al. 2022). Social security wealth is a very long-lived investment and plays an outsized role in Black and Hispanic household portfolios. Studies that focus on marketable wealth alone capture the capital gains on privately held long-duration assets, but they miss the closely related increase in the fair value of long-duration promises on future economic output made by governments through programs like social security. Black and Hispanic households have an outsized share of these claims. Further, the fact that low earners hold less of their marketable wealth in longer duration assets, such as stocks, can itself be the result of substitution effects in their portfolios caused by their implicit holdings of high duration annuities promised in exchange for their social security contributions (Catherine et al. 2022c).

A comparison of our findings and related work by Suarez et al. (2025) also illustrates the importance of changes in the interest rate environment. Because these authors use the same discount rate to value social security cash flows in 1989 and 2019, they find relatively small changes in the weight of social security wealth in household portfolios and no improvement in racial wealth gaps. The evolutions that have occurred only become apparent when social security claims are marked to market.

Interestingly, trends in US racial wealth inequality depend both on whether we consider social security wealth and whether we measure the wealth gap in terms of means or medians. Snapshots of the entire wealth distribution in 1989–1992 and 2016–2019 show that, while the share of Black households with virtually zero wealth (inclusive of social security) dropped considerably, the wealth of White households at the very top rose dramatically. Because of these countervailing forces in the tails of the distribution, the mean racial wealth gap has declined less rapidly than the median. But these offsetting effects also illustrate that a focus on the top of the distribution, while important, hides important trends in the bulk of the distribution.

Social security's unique features and outsized role in the wealth of Black and Hispanic households' merit careful attention from policymakers. First, social security wealth is illiquid and cannot be used to absorb shocks today,

or to finance projects like an entrepreneurial venture or a home purchase. However, this also holds true for many assets included in prior inequality estimates (e.g., private pension wealth, private business wealth). Catherine et al. (2022a) showed that the inclusion of social security in the definition of wealth had large effects on inequality trends, even after applying a large illiquidity premium. Nonetheless, it is important that most of the wealth of many Black and Hispanic Americans cannot be used to finance consumption today, to cover unexpected shocks.

It is also the case that social security is subject to unique policy risks. Within the next ten years, absent entitlement reform, the Social Security Administration (SSA) will not be able to pay scheduled beneficiaries. To be sure, sources of private wealth are also subject to uncertainty in their valuation, such as private business wealth. But how the social security financing gap is resolved bears on the value of social security today, as well as on its distribution and its impact on the racial wealth gap. We estimate that reducing benefits to match projected tax revenues would reduce the total wealth of Black and Hispanic Americans by 13 percent and 16 percent respectively, whereas White Americans would only face a 7 percent reduction.

Stylized Facts

We begin by documenting the evolution of racial income and marketable wealth gaps since 1989. We find, like prior studies, that the racial marketable wealth gap is persistent and far exceeds the racial income gap. As Figure 8.1 shows, in 2019, the median Black American earned 76 percent of the earnings of the median White American. Results are similar for Hispanic Americans, whose median earnings represented 67 percent of White Americans'. If anything, the earning gaps relative to White households seem to have declined over time. Moreover, median marketable wealth gaps by contrast, far outpaced the income gap: as of 2019, the median Black (Hispanic) household held just 16 percent (18 percent) of the marketable wealth of the median White household. Relative to 1989, the racial wealth gaps have remained relatively flat.

Since our focus is on social security, we next shift our attention to unpacking the program's institutional details and how they vary by racial group. The headline fact is that the replacement rate, defined as the percentage of an individual's average lifetime income replaced by social security benefits, varies by group—61 percent for White workers, with higher replacement rates for Black (66 percent) and Hispanic workers (71 percent). These differences are accounted for by the progressive nature of the social security benefits formula. Benefits are a concave function of lifetime earnings: marginal replacement rates fall from 90 percent for the

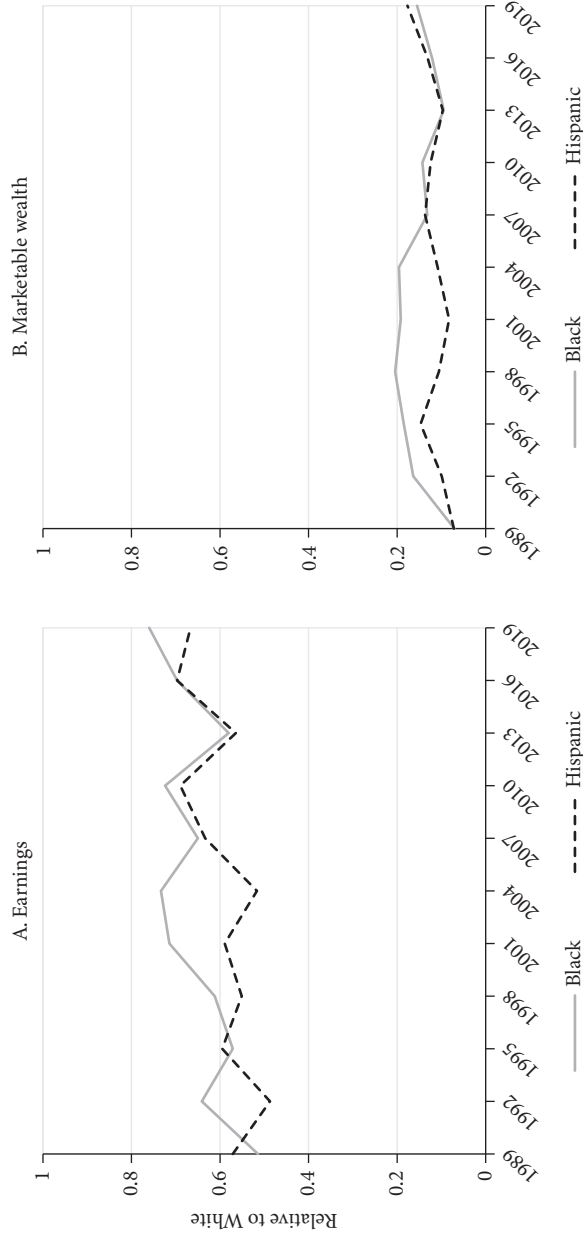


Figure 8.1 Median income and marketable wealth per adult relative to white households

Note: This figure depicts the ratio of median income (Panel A) and marketable wealth (Panel B) per adult of Black and Hispanic households relative to White households over time in the SCF. We restrict the sample to households whose heads are younger than 65 in Panel A, and we define income as household wage income and marketable wealth as net worth. We divide both by the number of adults in the household. Within each year, we calculate the median income and marketable wealth for White, Black, and Hispanic households using SCF sample weights. Then, we divide the medians of Black and Hispanic households by the respective medians of White households.

Source: Authors' calculations using SCF data.

lowest income brackets, to only 16 percent for earnings above \$67,000. Practically, those with lower-than-average earnings enjoy a higher rate of return on social security contributions than do workers at the top of the earnings distribution.

Because Black and Hispanic Americans represent a disproportionate share of the bottom of the earnings distribution, and White Americans represent a disproportionate share of the top, the progressivity of social security impacts each group differently. White Americans see a lower share of their earnings replaced than Black and Hispanic Americans (see Figure 8.2). Accordingly, a focus on marketable assets is likely to overlook a greater share of the wealth of Black and Hispanic households.

Computing Social Security Wealth

Next, we discuss the structure of social security and our computation of the present value of its cash flows. We follow Catherine et al. (2022a), with the exception that, in this chapter, we account for racial differences in life expectancy in our calculations.¹

Taxes and benefits

Social security taxes workers to finance benefits for retirees who paid into the system. The old-age program is financed through a payroll tax, with a flat rate of 10.6 percent applied to annual labor income up to a cap of \$132,900 (2019). Retirement benefits from social security come in the form of payments adjusted for inflation until death. Benefits for retired workers are estimated using an average of their best 35 years of the average indexed yearly earnings (AIYE) until retirement. The SSA then computes the first benefits with a bendpoint formula as follows:

- 90 percent of AIYE up to the 1st bendpoint (2019: \$11,112);
- 32 percent of AIYE between the 1st and 2nd bendpoints (2019: \$66,996);
- 15 percent of AIYE between the 2nd bendpoint and the income cap (2019: \$132,900).

Benefits are subsequently adjusted for inflation. We assume that, in the future, all the parameters of the system will grow at the same rate as the national wage index, which has been the case for the last three decades.

Workers' social security wealth

We define social security wealth as the present value of expected future benefits less payroll taxes, in nominal terms. For each working-aged individual

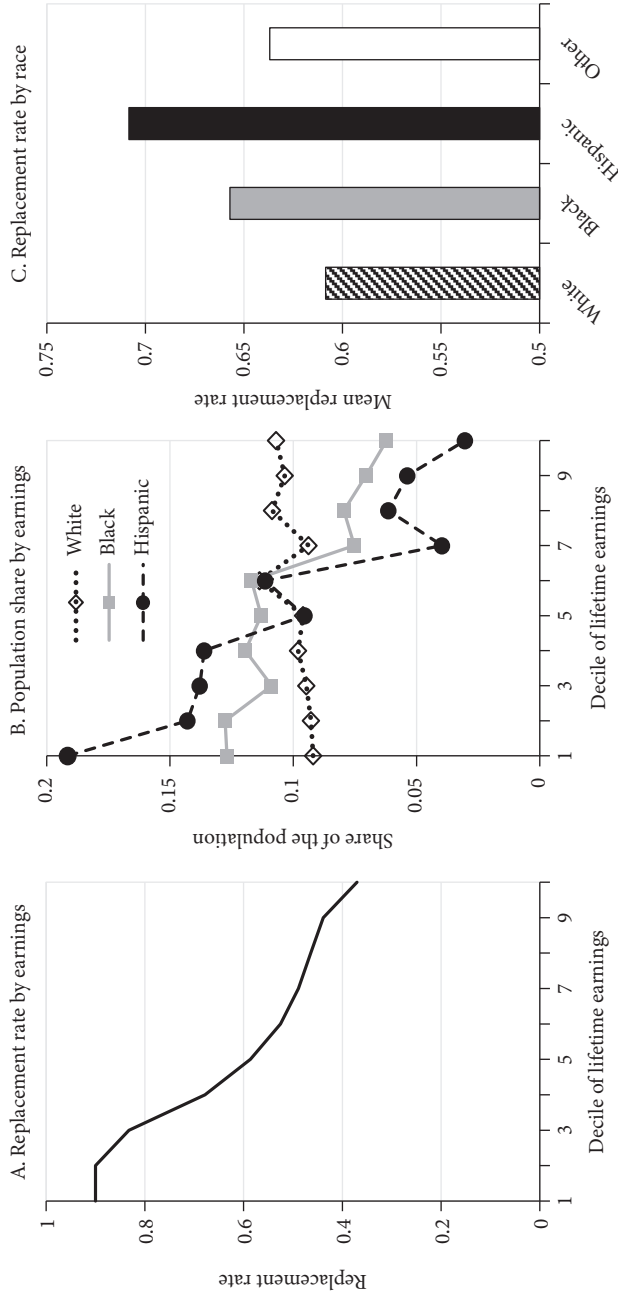


Figure 8.2 Social security replacement rates by race and decile of lifetime earnings

Note: This figure depicts the mean social security replacement rate at each decile of lifetime earnings (Panel A), the share of Black, White, and Hispanic retired individuals in each decile of AIVE (Panel B), and the average replacement rate faced by retirees of each race documented by the SCF (Panel C). The sample consists of all retirees reporting social security retirement benefits in SCF waves after 2010. We proxy for lifetime earnings using the AIVE, an average of the retiree's best 35 years of wage income used by the SSA to compute social security benefits. We back out the AIVE of each retiree using their observed benefits by inverting the benefit formula. For Panels A and C, we define replacement rate as the percentage of each retiree's AIVE that they receive as their retirement benefit.

Source: Authors' calculations using SCF data.

i at time t , we calculate social security wealth as:

$$\text{Social security wealth}_{it} = \sum_{s=66}^T \left(\prod_{k=t}^{s-1} (1 - m_{ik}) \right) \frac{\mathbb{E} [\text{Benefits}_{is}]}{(1 + r_{ts})^{s-t}} - \sum_{s=t+1}^{65} \left(\prod_{k=t}^{s-1} (1 - m_{ik}) \right) \frac{\mathbb{E} [\text{Taxes}_{is}]}{(1 + r_{ts})^{s-t}}, \quad (1)$$

where the rate r_{ts} is estimated with the nominal market yield curve at time t . Following Catherine et al. (2022b), we add a risk-premium to discount rates to reflect the long-run correlation between social security returns and stock returns. This implies that, before retirement, long-term cash flows are adjusted for exposure to systematic risk. m_{ik} is a year $\times$ age $\times$ race $\times$ gender specific mortality probability calculated using mortality tables from annual National Vital Statistics Reports.² Benefits_{is} are defined by the bendpoint formula, and Taxes_{is} follow the flat tax regime described above.

In the SCF, we do not observe workers' past or future earnings, which are needed for the computation of future benefits, so we must therefore infer benefits from their current wage earnings. To this end, we simulate a large set of lifetime income paths using the rich income process estimated in Guvenen et al. (2021). This simulation exercise requires macroeconomic assumptions. For discount rates, we rely on historical yield curve data (FED 2023). For inflation and economic growth, we rely on macroeconomic forecasts from historical SSA Actuarial Reports (SSA 2023). Next, we match each worker in the SCF to a randomly selected simulated earnings profile with the same age, year, gender, and current wage income, and we estimate their future benefits and tax rates to calculate social security wealth using Equation (1). With social security wealth estimates for workers and retirees at the individual level, we sum the wealth of heads and spouses to obtain each household's social security wealth.

Retirees' social security wealth.

Since retirees no longer pay taxes for social security, their wealth calculation becomes:

$$\text{Social security wealth}_{it} = \sum_{s=t}^T \left(\prod_{k=t}^{s-1} (1 - m_{ik}) \right) \frac{\text{Benefits}_{is}}{(1 + r_{ts})^{s-t}} \frac{\mathbb{E} [\text{CPI}_s]}{\text{CPI}_t}. \quad (2)$$

Benefits are observed in the SCF, so their present value is computed as the expected fair value of a lifetime annuity, using mortality tables and the market yield curve. Finally, we also account for social security survivor benefits,

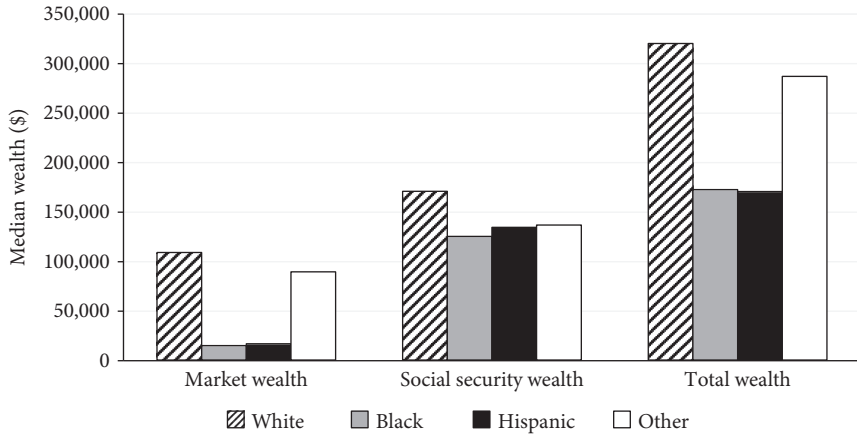


Figure 8.3 Median wealth per adult by race

Note: This figure depicts median marketable wealth, social security wealth, and total wealth per adult by race for all households in the 2016 and 2019 SCF waves.

Source: Authors' calculations using SCF data.

which, in the event of a death within a married couple, allocates the larger of the two benefits to the surviving spouse.³

Results

Our core finding is that social security's inclusion has a substantial impact both on levels and trends in racial wealth inequality. We consider these points in turn.

First, we confirm that social security wealth is indeed much more evenly distributed than is marketable wealth. Of course, that is not to say there are not substantial differences by race in our total wealth measure. Figure 8.3 shows the median Black and Hispanic households have just 55 and 56 percent of the total wealth of the median White household. Nonetheless, total wealth is far less concentrated than marketable wealth: The median Black and Hispanic household has just 16 and 18 percent of the marketable wealth of the median White household.

We next study the evolution of both marketable and total wealth across racial groups over time. Our past work (Catherine et al. 2022c) has shown that differences between the 'marketable wealth' and 'total wealth' series have risen over time. This fact also shapes our understanding of the evolution of the wealth gap for Black and Hispanic households relative to their White counterparts. Specifically, when focusing on marketable wealth, the

differences by racial group are quite persistent, showing no sign of converging towards the earnings gap. As Panels A.2 and B.2 of Figure 8.4 show, the lack of convergence holds whether we look at the marketable wealth gap in terms of mean or median. Yet, as Panels A.3 and B.3 illustrate, trends are strikingly different under the broader ‘total wealth’ concept: the median Black (Hispanic) racial wealth gap shrank from 25 to 55 percent (7 to 56 percent) over the last three decades.

That shift is unsurprising given that social security’s value—and thus its importance to household portfolios—has grown over this period. Social security wealth has increased substantially from \$3.4 trillion in 1989 to \$37.2 trillion in 2019, such that it now comprises over 60 percent of the wealth of the bottom 90 percent of the wealth distribution, where Black and Hispanic households disproportionately are found. Perversely, if an overly narrow wealth construct is used, progressive programs like social security can exacerbate measured differences in inequality that they were designed to address. This is, in part, because of the known substitution between private and public forms of wealth. As household social security wealth rises, its consumption behavior shifts, since it needs to save less to support retirement consumption. The substitution effect could be more pronounced for Black and Hispanic households, since social security replaces a greater share of their lifetime earnings in retirement.

There is also a valuation effect that is critical to understanding our results. Changes in interest rates have a larger effect on the market value of long duration assets, primarily those owned by the wealthy (Greenwald et al. 2022). By focusing on marketable wealth, inequality measures fail to consider the exact same phenomenon increases the value of social security benefits, a long-duration asset that low and middle-class households hold, which are disproportionately Black and Hispanic. Moreover, the disproportionate role social security plays in the retirement of middle- and lower-class households reduces the optimal share of their marketable wealth allocated to long-term assets such as stocks (Catherine et al. 2022c). This means that, in periods of declining interest rates, the existence of social security could have accelerated marketable wealth inequality because poorer households have lower capital gains than wealthy households in their marketable wealth. Yet, this difference in capital gain returns vanishes once the present value of future benefits is adjusted to be consistent with the higher market price of life annuities.

Importantly, focusing on median or mean household wealth yields different results about the evolution of racial wealth inequality. Specifically, social security’s role in attenuating the marketable wealth differences is more pronounced when we focus on median Black and Hispanic wealth per adult relative to White households, as opposed to mean wealth. What drives this difference?

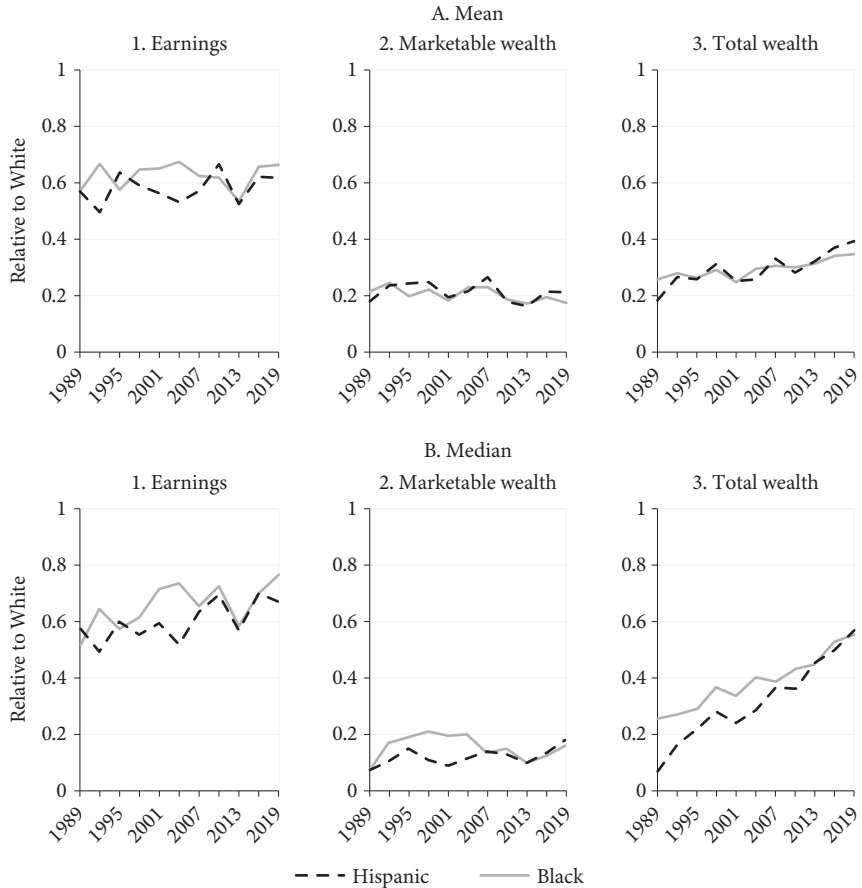


Figure 8.4 Earnings and wealth per adult relative to White households

Note: This figure depicts the ratio of mean (Panel A) and median (Panel B) earnings, marketable wealth, and total wealth per adult of Black and Hispanic households relative to White households over time in the SCF. The sample for the earnings subplots is restricted to households whose heads are younger than 65, whereas the wealth plots include all households in the SCF. For each household, we divide earnings and wealth from each category by the number of adults in the household and calculate the market, social security, and total wealth by race and year. Last, we divide the values of Black and Hispanic households by the respective values of White households.

Source: Authors' calculations using SCF data.

Figure 8.5 provides two snapshots from the SCF: the earliest data in our sample covering the SCF waves from 1989 and 1992, and the most recent SCF waves from 2016 and 2019. We plot the distribution of total wealth per adult (indexed by the social security wage index) separately, for White

and Black households. We find several important changes in the distribution over the course of the last three decades. First, the concentration of Black Americans at the bottom of the distribution has dropped substantially, although there remains a larger concentration of Black households in lower wealth deciles relative to White households. Second, the racial differences in the middle of the distribution have converged, such that Black and White total wealth looks much more evenly distributed than it did three decades prior. But third, and importantly, at the top of the distribution, the Black–White wealth gap has grown, not shrunk, with the percentage of White households holding more than 20 times the average wage in wealth per adult rising from 5 to 10 percent, while the percentage of Black households with that level of wealth rose from only 0.6 to 1.7 percent.

These two changes in the tails counteract one another when we focus on average changes over the course of the last three decades. Black households are less concentrated at the bottom of the distribution than they previously were, given the growth in social security; and White households are more concentrated at the top given the commensurate increased concentration of top wealth. As a result, our focus on the median household is sensible for this study, since our goal is not to study the rise in top wealth of a few households, but rather to emphasize the differences in living standards across racial groups. From a policy perspective, it is worth noting that a focus on the top of the distribution may obfuscate important changes across the distribution. That is relevant, not just for our study of racial wealth inequality, but for inequality more broadly which has tended to home in on top wealth as the variable of focus.

Discussion

It is important to consider the role that social security plays in attenuating marketable wealth inequality differences in the US, yet several features of social security wealth merit attention. First, as we show in Figure 8.6, the importance of social security to the portfolios of Black and Hispanic households means that a relatively large concentration of the wealth of these groups is illiquid, in that it cannot be used to absorb shocks today or finance entrepreneurship. This illiquidity is, of course, a policy choice made in response to the high rate of elder poverty when the social security program was initiated. Social security's introduction successfully addressed this, with the share of Americans over age 65 in poverty decreasing from 30 to 9 percent between 1966 and 2021 (CRS 2022). Yet the substitutability of social security and private savings means that its

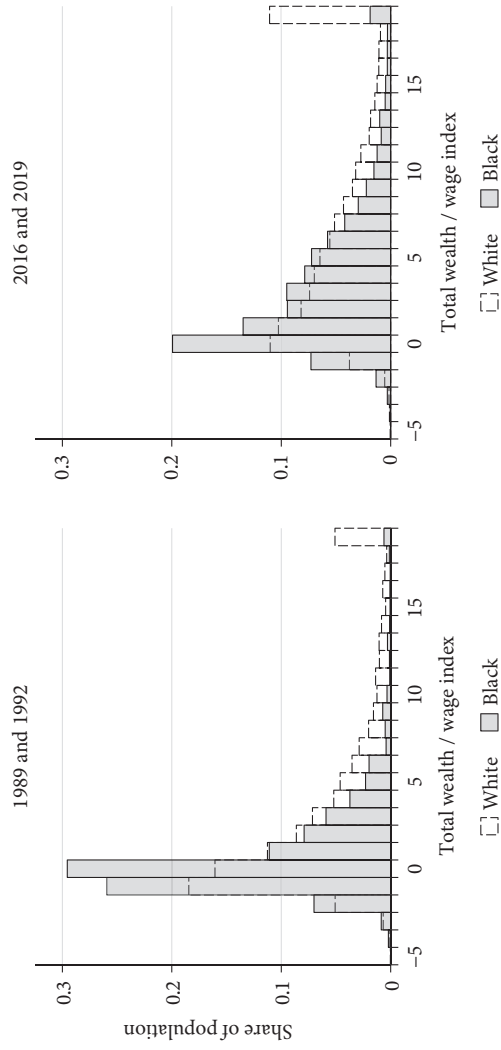


Figure 8.5 Total wealth per adult indexed by the social security wage index for White and Black households

Note: This figure depicts a histogram of total wealth per adult indexed by the social security wage index for White and Black households in the 1989 and 1992 (Panel A) and 2016 and 2019 (Panel B) SCF waves. In both samples, indexed wealth is winsorized above 20 and below -5.

Source: Authors' calculations using SCF data.

introduction and then expansion, increased the share of illiquid wealth in household portfolios. This was done in a way that disproportionately impacted Black and Hispanic households. However, excluding social security from our analysis of inequality would be an oversight, as it still plays a substantial role in shaping inequality trends after accounting for a significant illiquidity premium (Catherine et al. 2022c). Furthermore, other sources of private wealth (e.g., pension wealth, private business wealth) are similarly illiquid, so the exclusion of public wealth because of its illiquidity is misguided.

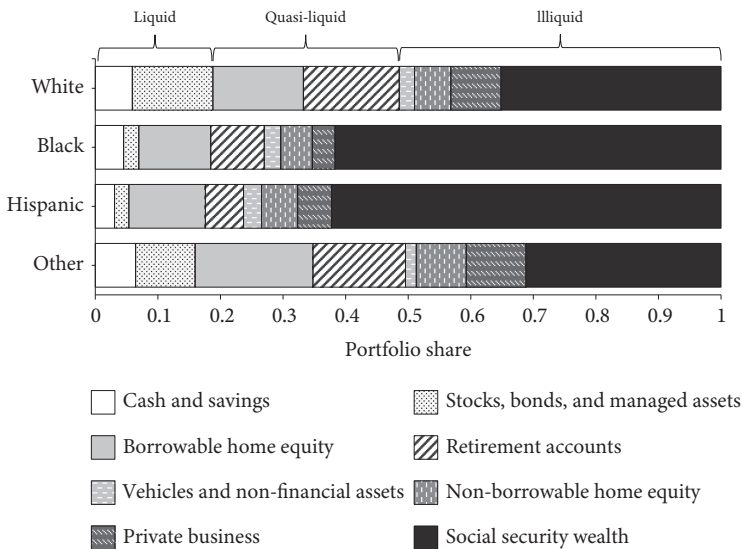


Figure 8.6 Total wealth portfolio composition and liquidity by race

Note: This figure depicts average portfolio shares of different asset classes by race for households in the bottom 99 percent of the total wealth distribution of the SCF 2016 and 2019 waves. We calculate the average portfolio share for each asset class by aggregating the value of all assets in that class held by each racial group and dividing it by the aggregate total wealth of that race. Asset classes are shown in order of decreasing relative liquidity, where our definition of asset liquidity is broadly based on (1) the time taken for a household to sell the asset at its market value and (2) the amount a household needs to forgo in order to sell the asset immediately. We group assets into liquid, quasi-liquid, and illiquid based on these criteria. All asset groupings in the SCF are preserved within the liquidity categories, except for home equity, which we split into borrowable and non-borrowable equity based on a maximum loan to home value ratio of 0.8.

Source: Authors' calculations using SCF data.

Nevertheless, it is important to note that over 60 percent of wealth for the average Black and Hispanic household (in the bottom 99 percent of the wealth distribution) comes from social security wealth (Figure 8.6) and it thus cannot be used to smooth consumption in response to current shocks. The significant differences across different types of wealth are worthy of future attention for researchers more generally.

Another unique feature of social security is its financing structure, which introduces distinctive risks to this asset class. Within the next ten years, absent entitlement reform, the SSA will no longer be able to meet its obligations to beneficiaries in full, which has prompted a wide array of potential solutions (e.g., raising taxes on certain high-earners, increasing the retirement age). This will bear on the inevitable distribution of social security benefits in a way that is difficult to account for *ex ante*.

As Catherine et al. (2022b) show, even conservative assumptions about what will happen to social security beneficiaries when the trust fund is exhausted do not change the headline fact that adding this stock of wealth adds to our understanding of inequality trends. However, the differences across racial groups between the share of wealth exposed to policy risk are striking: with \$1.3 (\$1.6) out of every \$10 of Black (Hispanic) Americans' portfolios potentially vanishing, depending on how policymakers choose to address social security's looming insolvency (see Figure 8.7). For policymakers and academics considering differences in retirement preparedness by race, it seems important to grapple with the uncertainty—which is three times larger—for Black and Hispanic families that results from the financing structure of social security. As such, these differences merit consideration from policymakers grappling with solutions to social security's financing gap.

Conclusions

In the past, studies of wealth inequality have typically overlooked measures of public wealth, such as social security, and have found racial wealth inequality to be persistent and much more pronounced than income inequality. In this chapter, we show how accounting for social security wealth affects these conclusions. First, the median White American household owns six times more market wealth than its Black and Hispanic counterparts. While sizable differences remain when social security is accounted for, they are much less stark: the median White household has only twice as much total wealth, inclusive of social security wealth. Second, unlike

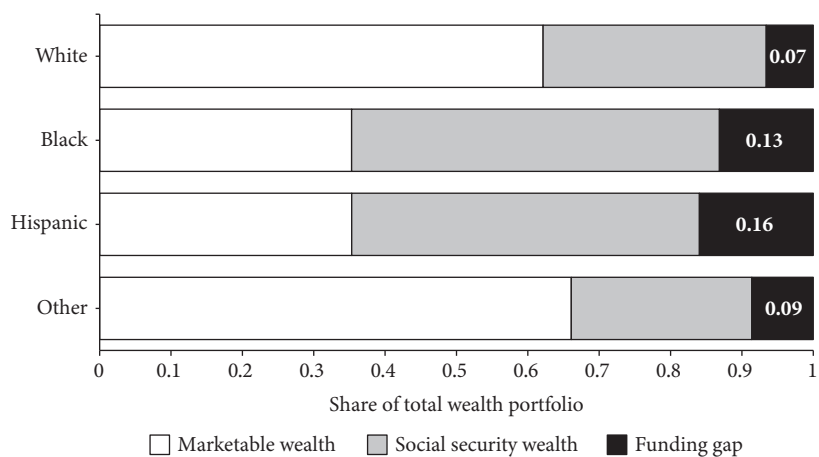


Figure 8.7 Total wealth composition with social security financing gap

Note: This figure depicts the breakdown of total wealth by race in the bottom 99 percent of the total wealth distribution and shows the portion of total wealth that would be lost under the SSA’s proposed benefit cuts to close the financing gap. Specifically, this figure depicts benefit cuts from the SSA’s Intermediate cost (Alternative II) assumptions, which reflect the Trustee’s ‘best estimates’ of how future demographics and economic conditions through 2083 will impact financing shortfalls for social security. Details on these assumptions are available in the 2009 OASDI Trustees Report. The sample includes all households in the bottom 99 percent of the distribution of total wealth from the 2016 and 2019 SCF waves. The gray shaded subarea with the dashed border labeled financing gap represents the portion of total wealth that would be eliminated under the Alternative II financing gap benefit cuts.

Source: Authors’ calculations using SCF data.

the marketable wealth gaps, total wealth gaps have narrowed over the last 30 years. In 1989, the median Black or Hispanic American households owned less than a quarter of the total wealth of White Americans, but more than half in 2019.

Notes

- 1. Interested readers may consult Catherine et al. (2022a, 2022b, and 2022c) for additional detail on the framework presented below.
- 2. We obtain our year $\times$ age $\times$ race $\times$ gender mortality probabilities from the life tables provided on the CDC’s National Center for Health Statistics website. We collect data on the years that correspond with the SCF sample waves between 1989 and 2019. The life tables from 1997 to 2019 contain conditional mortality rates for each individual age from 1 to 100, whereas those from 1989 through 1996 contain conditional mortality rates for 5-year age groups up to 85. To create comparable single age mortality probabilities up to age 100 for years 1989 through 1996, we

start by allocating the 1997 single age probabilities to all previous years. Next, we compute analogous 5-year age group survival probabilities for 1997 and create an adjustment ratio between the 5-year probabilities for each previous year and those of 1997. We then apply this adjustment to the 1997 single age rates for each previous year to obtain the final single age survival probabilities for each year between 1989 and 1996.

3. Catherine et al. (2022a) validates this overall methodology by comparing simulated and observed benefits and showing that, using the same set of macroeconomic and discounting assumptions, it yields aggregate estimates close to that of the SSA's Office of the Chief Actuary.

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