Kinship structure and bequest inequalities between black and white households in the United States, 1989-2019

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October 1, 2023

Abstract

This paper investigates the joint role of mortality differentials and kinship structure for the wealth turnover among Blacks and Whites in the United States. The black-white wealth gap is one of the most persistent and best documented economic inequalities in the United States (Conley, 2010; Derenoncourt et al., 2022; Du Bois, 2021). Previous work has explained the gap with differences in earnings, attitudes towards saving and investment, and the vastly different starting positions after Emancipation (Barsky et al., 2001; Boerma & Karabarbounis, 2022; Derenoncourt et al., 2022). We ask what the role of differential mortality and fertility is. We combine wealth data from household surveys with kinship structures derived from demographic microsimulations to overcome the limitations imposed by survey sample sizes. We find that surviving children of white fathers can expect 3 to 4 times higher bequests than same-age surviving children of black fathers. We also find that bequests occur late during the beneficiaries' lives, with little black-white differences. The Great Recession of 2008 reduced overall bequest amounts and absolute differences between bequests left by black and white fathers, but increased relative differences.

1 Introduction

The wealth gap between Blacks and Whites in the post-Emancipation United States has been extensively documented and studied (Derenoncourt et al., 2022, provides a recent overview). This literature has, however, focused more attention on individual-level and economic variables such as earnings, investment decisions, and risk preferences than structural demographic factors like differential mortality and fertility. Even demographically-oriented work usually focuses on inequalities of wealth within cohorts instead of on intergenerational links (Killewald, 2013; McKernan et al., 2014). Demographic factors are unlikely to dominate the economic chasm that is the current black-white wealth gap and its 150-years history, but they can inform attempts to remedy the current situation and prevent its reemergence.
Demography directly influences inheritance: mortality, parity, child gender, age at (first) birth, and the relative size of cohorts all contribute to the timing and distribution of inheritances across the population. An “inheritance boom” has been predicted for Australia, the United Kingdom, and the United States as the large post-World War 2 cohorts who experienced sustained prosperity throughout their working life transfer their wealth to their smaller successor cohorts (Gardiner, 2017; Productivity Commission, 2021; E. N. Wolff & Gittleman, 2011). While this is expected to result in larger inheritances for a larger share of households than in previous generations, the authors also note that most recipients will receive their inheritance after their most necessitous life period when establishing an own household and child-rearing causes the most financial stress. For the United Kingdom, (Gardiner, 2017) have matched respondents from different surveys to calculate an expected modal age at first inheritance of 61 years for people aged 20-35 years in 2015. (Brimble et al., 2017) and (Productivity Commission, 2021) acknowledge the role of changing birth rates and longevity when discussing different scenarios for future intergenerational transfers in Australia, but do not discuss their contribution to the timing and age distribution of transfers. We systematically investigate the contribution of parity, mortality, and parent-child age differences and their different consequences for Black and White donors in the United States.

There is much scholarly debate on how the racial wealth gap is transmitted and what contributes to its widening or narrowing. While (Conley, 2010) has argued that it is entirely explicable through parental wealth disadvantage (but see (Killewald, 2013) for a reanalysis of the same data that comes to different conclusions), most conclude that no single variable dominates the process for all points of wealth distribution across all cohorts (Barsky et al., 2001; Chiteji & Hamilton, 2002; Derenoncourt et al., 2022; McKernan et al., 2014; Percheski & Gibson-Davis, 2020, 2022; Rucks-Ahidiana, 2017; Sullivan et al., 2015). We do not attempt to adjudicate between different variables. Instead, we draw attention to an underappreciated dimension of the black-white wealth gap: the joint age structure parents (the potential benefactors) and children (the potential beneficiaries). Much of the literature on the impact of wealth inequality focuses on outcomes during early and middle adulthood, such as education, access to home ownership, and the financial burden of child-rearing (and its gendered impact) (Bandelj & Grigoryeva, 2021; Chang, 2010; Conley & Ryvicker, 2005; Hällsten & Pfeffer, 2017; Maroto, 2018; Maroto & Aylsworth, 2017; Pessin et al., 2022; Pfeffer, 2011; Senyono & Lewin-Epstein, 2001, 2013; Spilerman, 2004; Spilerman & Wolff, 2012; Torche & Costa-Ribeiro, 2012; Torche & Spilerman, 2006, 2009). This literature assumes that family wealth is “shared” between parents and children during their lifetime, in the form of inter vivos transfers (inter vivos = between the living, as opposed to bequests/inheritances). Surveys that asked for receipt of inter vivos transfers find, however, very low incidences, in the low single digits (Gardiner, 2017; OECD, 2021; Productivity Commission, 2021). In addition, as previous literature finds, and as we will show later on, individuals hold on to substantial parts of their wealth all through old age (Asher et al., 2017; Brimble et al., 2017; D’Arcy & Gardiner, 2017; Wood et al., 2019). A non-negligible part of household wealth is indeed transferred at death.
We provide estimates of the distribution of ages at which surviving children and spouses may expect such a transfer. As we will show, these distributions are centered on middle and late adulthood instead of early adulthood. This implies that a substantial part of transferred family wealth does not directly contribute to early adulthood financial stability and prosperity.

2 Data

We combine estimates of household wealth by age and race from the Survey of Consumer Finances (SCF) with estimates of kinship structure by age and race derived from demographic microsimulations. In this section, we describe these two data sources and how we combined them.

2.1 The Survey of Consumer Finances

The Survey of Consumer Finances is a triennial cross-sectional survey of U.S. families with a focus on families’ balance sheets, pensions, and income that has been fielded since 1989. It is the most detailed survey on economic and financial assets of households in the United States and it is unique in oversampling rich families. More detailed descriptions of the SCF can be found in (Bhutta, Bricker, et al., 2020; Bricker et al., 2015). When weighted, the SCF is representative of the U.S. population of households. To ensure confidentiality, the SCF does not provide sampling design information. Instead, replicate weights and five sets of imputations are provided. We use weights and imputations to estimate total and median amounts of net worth and their standard errors.

2.1.1 Primary economic unit vs. household

While the SCF’s main unit of analysis, the “primary economic unit” (PEU), is conceptually different from household in which it is located, the SCF indicates that “[t]he great majority of the time, the PEU and the household are identical” (Board of Governors of the Federal Reserve System, 2020). The PEU is defined as “an economically dominant single individual or couple (married or living as partners) in a household and all other individuals in the household who are financially interdependent with that individual or couple” (Board of Governors of the Federal Reserve System, 2020). A household composed of a married couple with children and a financially independent parent would contain two PEU. In this paper, we use the terms “household” and “family” interchangeably to refer to the PEU.

2.1.2 Reference person vs. household head

Starting in 2019, the SCF uses the concepts of “reference person” instead of “household head” and defines it as: “the single core individual in a PEU without a core couple; in a PEU with a central couple, […] either the male in a mixed-sex couple or the
older individual in the case of a same-sex couple” (Board of Governors of the Federal Reserve System, 2020). Only the reference person self-reports their race or ethnicity. In consequence, female reference persons are exclusively from unpartnered or same-sex households, and female spouses or partners of male reference persons do not report their race or ethnicity.

2.1.3 Sample definition

Our sample is defined as 20-84 year old men and women who identify as black or non-Hispanic white and who have at least one child (coresident or not).

Our preliminary results are limited to fathers only. In our full paper, we will integrate fathers’ and mothers’ bequests. In order to do so, we have to make some assumptions regarding women’s race or ethnicity. If we estimated the average household net worth of women based on female reference persons in the SCF, we would obtain an estimate for women living alone or in same-sex households. In order to include women in mixed-sex households, we include female partners of male reference persons. When a male reference person reports a female partner or spouse, we assign that partner or spouse the race or ethnicity of the reference person. We then include that female spouse or partner in the calculations of women’s household net worth, together with unpartnered and same-sex household female reference persons. Even if we opted for a more complex approach, our Socsim simulations are so far based on separate populations.¹

We restrict the sample to ages 20-84 because there are too few respondents below and above these thresholds for meaningful estimation. Table 1 provides the number of respondents by year, age, sex, and race.

We restrict the sample to black and non-hispanic white respondents because we lack high-quality demographic simulations for hispanic whites (or other groups) and wealth data for groups besides blacks and (non-hispanic) whites.

2.1.4 Definition of household net worth

We define household net worth as the sum of the household’s fungible assets minus debts. Assets comprise the following categories: the primary residence; other owned real estate; savings deposits, certificates of deposit, and money market accounts; checking accounts; government bonds and other financial securities; stocks and mutual funds; pension plans, including individual retirement accounts and 401(k) plans; surrender value of life insurance plans; equity in trust funds; and other miscellaneous assets not classified elsewhere. We omit two asset categories available in the SCF from our definition: vehicles and future pension and Social Security income. A vehicle’s resale value is much less than its consumption value and this asset is commonly omitted (Percheski & Gibson-Davis, 2022; E. N. Wolff & Gittleman, 2011). While future pension and Social Security income is routinely included as an asset in analyses of consumption and savings because

¹The basic functionality for inter-group marriage exists, but it has not been tested with population-level simulations yet.
they represent future claims to income, it cannot be transferred to other persons and is therefore not relevant to our analysis. Debts are categorized into: amount owed on primary residence, residential and building debt for other properties, credit card debt, educational debt, installment debt, and debt not classified elsewhere.²

We winsorise net worth to reduce the influence of very high values. We top-code values that exceed the third quartile by more than five times the interquartile range to \(\text{third quartile} + 5 \times IQR\). We bottom-code values below the first quartile by more than five times the interquartile range to \(\text{first quartile} - 5 \times IQR\).

All amounts are \textit{pre-tax}. In the United States, taxes are levied on the estate of the deceased, before distribution to heirs. We ignore taxation in this paper. To the degree that white households have higher net worth than black households, progressive estate taxes attenuate the inequality of bequests. However, the vast majority of bequests are not taxed due to tax thresholds (OECD, 2021).

When assigning household net worth to individuals who are married or living with a partner, we assign them half of the household wealth. The SCF does not report assets separately for individuals and the SCF codebook states: “[…] it is not possible, in general, to make direct separate estimates of the financial characteristics of the individuals in the survey households unless one is prepared to make a number of fairly complex assumptions.” Instead, we opt for simplicity.

### 2.1.5 Inflation adjustment

We convert all amounts to 2019 US$, using the annual mean of the quarterly Consumer Price Index (CPI) for all urban consumers (of Labor Statistics, n.d.). The index covers around 88% of the total population. If age or race are correlated with urban residence (and, thereby, (non-) coverage under the index), changes over time of wealth differences by age or race could be partially confounded by differential measurement error. For example, if black people disproportionately live in rural areas and their living costs increase more slowly than the CPI, our inflation adjustment would excessively “deflate” their net worth estimates before 2019 and, in turn, our comparison of the black-white wealth gap over time would be distorted. Age and urban residence might also be correlated, for reasons linked to lifecycle, period or cohort effects. In this paper, we assume these distortions to be negligible. We are not aware of previous work documenting specific examples where price levels or net worth were misestimated because of age-residence correlations.

### 2.2 Synthetic kinship structures using demographic microsimulation

We use demographic microsimulations to ascertain kinship structure by age, sex, and race in the US for the period of interest (1989-2019). Concretely, we use the Socsim microsimulation platform (Hammel et al., 1976; Theile et al., 2023). Socsim is a stochastic simulator that schedules vital events for individuals based on a competing risk framework.

²Medical debt is counted in the installment or “other debt” categories.
the parameters of which are partly determined by the empirical (age- and sex-specific) mortality, fertility, marriage, and divorce rates. Ultimately, this results in a synthetic population comprised of individuals with simulated dates of birth, death, childbirth, marriage, and divorce. For a detailed description of how vital events are schedule by Socsim, see Mason, 2016. Socsim has been used extensively to model kinship structures in demographic research because it is able to produce populations with plausible age, sex, and kinship distributions (Alburez-Gutierrez et al., 2021; Margolis & Verdery, 2019; Murphy, 2011; Verdery et al., 2020; Zagheni, 2011).

The simulation setup and input data we use in this study come from a published paper by (Verdery & Margolis, 2017). In that study, the authors use a range of contemporary and historical data sources to reconstruct age-specific fertility, mortality, and nuptiality rates for Blacks and Whites in the United States starting in 1880 and up to the present time. We use these rates to simulate synthetic populations with plausible genealogical structures for Whites and Blacks separately using Socsim. We assume no racial intermarriage and use the ‘baseline’ divorce scenario as in (Verdery & Margolis, 2017). In order to account for the stochasticity of the simulations, we run xx independent simulations, each of which produced a population of around xxx individuals alive in 2019. The measures of kinship structure that we use in the empirical analysis constitute the average of all simulation runs. Additional analysis show that the across-simulation heterogeneity is relatively low, so that running more simulations (which are very computationally expensive) would not alter the average values significantly.

The simulations produced by (Verdery & Margolis, 2017) that we re-purpose for this study have been extensively validated against empirical data from surveys (see the SI Appendix of Verdery & Margolis, 2017) and constitute the best available source for ascertaining age-, sex-, and race-specific kin availability and kin loss in the US over time. Whereas surveys can be used to infer kinship structures (Daw et al., 2016), they often lack data on a) the ages of children at the time of parental death, and b) the parity of parents at the time of their deaths. Both of these measures are essential for our analysis.

Socsim keeps track of the genealogical relationships between all simulated individual using parent-child ties, so that we are able to reconstruct a complete extended genealogy from the synthetic population. For the purposes of this study, this means that we are able to fully identify all parent-child relations. We use this microdata (simulated separately for Blacks and Whites) to derive the measures of average kin availability (i.e., number and ages of living children for parents) and kin loss (i.e., number of parental deaths and ages at death of these parents) for the analysis.

2.3 Combining synthetic populations and SCF data

Our approach is as follows:

1. create a Socsim population covering the period of interest (1989-2019)

2. assign household net worth to Socsim individuals according to age, sex, and year
Figure 1: We take the simulated kinship structure and mortality from Socsim and combine it empirical household net worth from the Survey of Consumer Finances to arrive at simulated bequests by parental and child age.

3. “record” deaths and distribute the estate to possible spouses or partners and children

During step 2, we make the assumption that if there exists a surviving spouse or partner and there are surviving children, the spouse or partner receives the entirety of the estate In the full paper, we will also present robustness checks for the alternative assumption that any surviving spouse or partner receives half of the estate and all children receive equal parts of the remaining. Preliminary results indicate that this changes the level but not the pattern of bequests.

To illustrate our approach, figure 1 illustrates the three steps and their intermediary results.

3 Results

In this section, we begin by presenting results for the entire period 1989-2019. We show the distribution of bequests aggregated over the putative recipients’ age groups and as a father-to-child matrix, familiar from the generational accounting research (Zagheni et al., 2015). We then distinguish between the pre- and post-2008 periods.
3.1 Household net worth differences

Figure 2: Household net worth of black and white fathers by age (1989-2019)

Figure 2 shows the median net worth by age (5-year intervals) for black and white fathers across all waves of the SCF (1989-2019). The overall median for black fathers does not exceed $1 \times 10^5$ across age groups. For white fathers, the overall median approaches $3 \times 10^5$ between ages 60 and 74. The oft-discussed life-cycle shape (increasing until retirement, decreasing afterwards) is not obvious (Modigliani, 1986). This may be partially due to our censoring the sample at 85 years and to the large uncertainty around estimates above age 75. However, some researchers have also suggested that the existence of life-cycle “hump” is far from universal: “the validity of life-cycle wealth accumulation models must be restricted to the white, urban, educated middle classes [. . . ]” (E. Wolff, 1981). For black respondents in particular low sample sizes at old ages preclude us from knowing whether there is decrease in assets after retirement or households hold on to what little wealth they have manage to accumulate. Even among white households, any potential dissaving does not massively diminish overall net worth.

3.2 Bequests by white fathers exceed those by black fathers across all age groups and years

Figure 3 shows the average amount bequested by age of (potential) recipient for black and white fathers, across all children (i.e. recipients and non-recipients). It is clear that the incidence is generally low before age 60 and that the average amount is low, consistent with previous research (E. N. Wolff & Gittleman, 2011). Mean bequests by white fathers are higher than those by black fathers across all child ages and survey years in our sample, yet the difference seems minimal up to age 50.

Figure 4 disaggregates the same results – average simulated bequests from fathers to children pooled over the period 1989-2019 – into a matrix of flows from fathers to children
Figure 3: Average simulated bequest by age of recipient, across all potential recipients

by age. The colors in the matrix show the average bequest size (in thousands of USD) by age of the deceased parent and age of the bereaved child. For example, black fathers aged 75-80 left on average US$1819 to their children aged 40-45. The bars in the margins show the total bequests summed over all paternal ages (horizontal axis) and ages of the bereaved child (vertical axis) (figure 3 is equivalent to the right-hand margins).

The amounts in individual cells (from fathers’ age group $X$ to child’s age group $Y$) are low by construction. We present results averaged across all respondents/simulation individuals alive at the beginning of each survey/simulation year. In other words, this reflects the fact that kin loss – here, loss of a father – is a rare occurrence for many until a fairly advanced age.

3.3 Household wealth and bequests are lower post-2008, with higher relative losses for black individuals

The financial crisis of 2008 resulted in decreased household wealth across the board (Bhutta, Bricker, et al., 2020; Bhutta, Chang, et al., 2020). However, the age distribution of the losses was mediated by differences in asset composition by age. Since real estate valuations decreased sharply and mortgages became more difficult to service, households with low levels of debt (i.e. older households) experienced lesser decreases than younger households. While there was an immediate shock to bequests – there was less wealth to be bequeathed –, there were likely also long-term consequences since certain age cohorts were set back in their wealth accumulation strategy. We observe these different aspects in the SCF data. Figure 5 shows the age distribution of wealth before and after 2008. Not only did the median wealth within age groups decrease, the age gradient of wealth also became less steep and the peak or plateau occurs at higher ages.

Figure 6 shows the impact of the 2008 crisis on bequests in our simulation. Bequests left by white fathers are lower overall, although the age gradient remains similar. Bequests
Figure 4: Mean bequest by age of child and father (in thousands of USD) for Blacks (left) and Whites (right) averaging across the period 1989-2019. Values in the heatmap represent wealth flows due to parental death (i.e. bequests) by the age of the deceased parent and the age of the bereaved child.

Figure 5: The impact of the 2008 financial crisis on household net worth

left by black fathers are also lower, however the difference is most noticeable for children aged 55 and above.

We consider absolute and relative changes in figure 7. Figure 7a shows absolute changes. They are negative across the board, except for a few parent-child age dyads. Changes for white fathers and their children are greater in absolute terms. Figure 7b) shows relative changes. As a proportion of pre-2008 bequests, post-2008 bequests are lower for black fathers and their children.
4 Discussion

4.1 Implications

We concur with earlier research that age inequalities in the receipt of bequests are due to mortality and wealth accumulation patterns among the parental generation (E. N. Wolff & Gittleman, 2011). Both factors combine such that bequests mostly happen when the beneficiaries have passed major life course stages, such as education, establishing their own household, or child-rearing. Given that receiving a transfer past the age of 40 may not be as helpful as receiving it between the ages of 18 and 40, it is possible that families formally or informally arrange transfers to flow directly from the grandparent generation to the child generation. To explore this possibility, one could extend the simulation approach used in this paper to additional generations. Or one could follow an “inflow” approach and focus on inflows from grand-parents and other relatives besides parents. On the other hand, for “sandwiched” individuals (Alburez-Gutierrez et al., 2021), these “tardy” transfers may be quite helpful. With more and more persons caring for aged parents when they are themselves advanced in age, such transfers would change in purpose, from subsidizing early and middle adulthood to alleviating the financial burden of care. A bequest admittedly implies that the donor her- or himself no longer represents a care burden. Yet, there may exist a surviving spouse or surviving parents-in-law who require such care.

4.2 Outlook

The full paper will include more extensive treatment of:

- bequests across all parents, fathers only, and mothers only;
- age inequality and black-white differences in incidence (bequests among all children) and magnitude (bequests among recipients);
### Figure 7: Change in average simulated bequests after 2008

- comparison of the variability and the uncertainty of estimates, and how they limit the conclusion that one can hope to draw, i.e. how much does household net worth vary from year to year in the SCF and how does this limit our ability to identify trends and how uncertain are our estimates given low sample sizes esp. at higher ages.
References


