

HOW RIGID IS THE WEALTH STRUCTURE?
INTERGENERATIONAL CORRELATIONS OF FAMILY WEALTH

Fabian T. Pfeffer¹
University of Michigan
&
Alexandra Killewald
Harvard University

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INTRODUCTION

The concentration of family wealth is high and increasing (Piketty 2014; Pfeffer et al. 2013). However, the extent to which wealth is also concentrated across generations, i.e., the intergenerational correlation in family wealth, has received little attention, despite wealth's position as a highly unequal resource with substantial consequences for life chances (Conley 1999) and high intergenerational transmissibility through bequests and *inter vivos* transfers (Kotlikoff and Summers 1981, Kohli 2004). In particular, in comparison to the numerous studies of intergenerational correlations in income and occupations, information on the intergenerational persistence of wealth is very limited (Bowles and Gintis 2002).

The best existing evidence on the extent of intergenerational rigidity in the U.S. wealth distribution comes from two studies, both of which, like us, use data from the Panel Study of Income Dynamics (PSID), but had to be limited to examining wealth mobility primarily for younger adults (Charles and Hurst 2003; Conley and Glauber 2008). However, it is more appropriate to measure wealth at later ages, when adults have had more time to accumulate assets (Charles and Hurst 2003: fn.5; Conley and Glauber 2008: p. 10). We hypothesize that adult wealth will more closely resemble that of their parents as both generations enter middle and late adulthood, aging out of the period of intensive investments in young adulthood and accumulating assets. Our analyses specifically examine the changing rigidity of the wealth distribution across generations from early through late adulthood.

Intergenerational earnings correlations have been shown to be subject to substantial life-cycle bias if assessed during early adulthood even with controls for parent and child age – they are much higher if assessed during middle adulthood and decrease again for older adulthood (Haider and Solon 2006, Böhlmark and Lindquist 2006). For wealth, we expect a continued increase in correlations through pre-retirement late adulthood, given the continued accumulation of assets. This makes it even more pressing to attend to potential life-cycle bias in prior estimates of wealth correlations. We are able to do so thanks to the availability of more recent data covering wealth attainment across the full course of working life.

Additionally, we explicitly examine the contours of the intergenerational reproduction of wealth. We hypothesize that wealth positions at the top and bottom of the distribution may be particularly sticky, with

very wealthy parents able to secure a substantial wealth advantage for their children, and parents who live in debt especially likely to have adult children who are also net debtors. When the intergenerational transmission of wealth is measured with a single elasticity, estimated by correlating the logs of parents' and children's wealth (Charles and Hurst 2003), this variability is lost. For this reason (among others), sociologists studying intergenerational mobility by occupation or education often use mobility tables that demonstrate not only the extent of mobility across cells but also *where* immobility is particularly pronounced (Hout 1988; Erikson and Goldthorpe 2002). Mobility tables also have the advantage of easily incorporating the experiences of net debtors – a substantial share of our adult offspring sample.

Drawing on newly available data, we are able to update and significantly expand the few baseline estimates of intergenerational wealth correlations and document new rigidities in the wealth distribution.

THEORETICAL MOTIVATION AND PRIOR WORK

Compared to income and earnings, wealth in the United States is substantially more unequally distributed (Budría Rodríguez et al. 2002; Scholz and Levine 2004). Access to wealth is in turn associated with a wide range of outcomes, including longevity, family formation, and the educational achievement and labor market outcomes of offspring (Attanasio and Emmerson 2010; Charles, Hurst, and Killewald 2013; Conley 1999, 2001; Pfeffer 2011; Bond Huie et al. 2003; Orr 2003; Schneider 2011). Furthermore, these associations are not fully explained by standard measures of socioeconomic advantage, such as income, education, and occupation. The wealth distribution is thus an important measure of the concentration of social inequality and advantage.

Unlike education and income, wealth can be directly passed down to subsequent generations through bequests or *inter vivos* transfers, such as assistance for the down payment on a first home (Charles and Hurst 2002; Hall and Crowder 2011). Family wealth can also be used to facilitate wealth-generating investments of the next generation, most notably post-secondary education (Conley 2001a; Pfeffer 2011). Thus, wealth plays a central role in the reproduction of inequality across generations. While a large literature in economics and sociology has investigated intergenerational associations in income,

occupations, and education (Solon 1999; Black and Devereux 2011; Ganzeboom et al. 1991; Hertz et al. 2007, Pfeffer 2008), our knowledge of how similar the wealth of parents is to the wealth of their offspring relies on very few studies.

In part because of data limitations, the two most comprehensive evaluations of intergenerational wealth mobility have relied on wealth outcomes for the second generation at relatively young ages (for other contributions see also Mulligan 1997 and Conley 1999). Charles and Hurst (2003) estimate the correlation between children's wealth in 1999 and parental wealth in 1984 and 1989. In order to estimate pre-bequest and pre-retirement associations, parents are required to be not yet retired in 1984 and surviving in 1999. As a result, although members of the second generation are allowed to be any age between 25 and 65 in 1999, the average adult child in their sample is just under 38 years old. Conley and Glauber (2008) restrict their sample to young adults whose parents' wealth was measured in 1984, when the offspring generation was ages 6 to 21. Using data on offspring's wealth through 2003, the oldest offspring are ages 25 to 40 when their wealth is measured. Both studies estimate an intergenerational wealth elasticity based on the correlation in logged parent and child wealth. Charles and Hurst estimate an elasticity of 0.37, while Conley and Glauber estimate a substantially lower 0.28.²

To put these estimates in context, Solon (1992) estimates that the intergenerational correlation in (quasi) permanent income between fathers and sons is 0.41, and subsequent studies have confirmed that intergenerational income elasticity is at least this high (Solon 1999; Mazumder 2006). Given that wealth is both more unequally distributed than income and easier to transmit directly between generations (even prior to bequests), it is surprising that prior estimates of the intergenerational transmission of wealth suggest *less* social reproduction than for income.

² The difference in the two estimates may be due to a number of factors, but one prominent difference is the treatment of those with nonpositive net worth. Previous evidence suggests that the association between parental wealth and the wealth of their young adult children is much weaker for offspring who are net debtors (Killewald 2013). Thus, the lower elasticity estimated by Conley and Glauber may be because they bottom-code wealth for offspring with nonpositive net worth, while Charles and Hurst excluded this group. We return to this point in our analyses.

We argue that previous estimates of the intergenerational transmission of wealth may suffer from downward bias due to the young ages of offspring in previous studies. Using Swedish data, Adermon, Lindahl, and Waldenström (2015) find that the rank-rank correlation in intergenerational wealth is 50 percent higher when second-generation wealth is measured at an average age of 47, rather than an average age of 32. Although previous research on intergenerational wealth transmission in the U.S. has recognized that early adulthood is not the ideal time to measure the intergenerational correlation in wealth (Conley 1999; Charles and Hurst 2003; Conley and Glauber 2008), until recently the PSID had not been collecting wealth for long enough to measure both parents' and offspring's wealth at midlife. Using data from the 1984-2011 waves of the PSID, we are able to compile a sample of parent-child pairs that spans a larger age range in the second generation, and to test how the intergenerational transmission of wealth changes across the life course. By comparing wealth holdings at similar ages for both generations, in the 40s and 50s, after both generations have had time to accumulate assets, we update the limited descriptive evidence on parent-child correlations in wealth.

The risk for bias in intergenerational wealth correlations in these studies is also high because correlations are estimated before the occurrence of bequests from the parent (explicitly in Charles and Hurst, and usually in Conley and Glauber) and, in many cases, even the grandparent generation. Bequests are extremely unequally distributed and have been estimated to account for somewhere between 40 and 60 percent of aggregate net worth (Gale and Scholz 1994; Wolff and Gittleman 2014; Piketty 2014). Again using Swedish data, Adermon, Lindahl, and Waldenström (2015) find that inheritance (descriptively) can explain the majority of the intergenerational correlation in wealth. Bequests are thus a likely mechanism by which rigidity in the wealth structure is maintained. Assessing wealth in the child generation at a higher age is therefore valuable in part because it allows us to include more individuals who have received bequests. We also empirically assess the degree to which receipt bequests account for the intergenerational wealth correlations.

The intergenerational transmission of wealth may occur through channels other than bequests and much earlier in offspring's life course. Prior research has documented strong associations between

parental wealth and their children's educational outcomes (Conley 2001; Morgan and Kim 2006, Belley and Lochner 2007; Haveman and Wilson 2007; Williams Shanks 2007; Pfeffer 2011). Since income returns to educational attainment should translate into differential patterns of asset accumulation, and education itself is associated with wealth accumulation net of income we expect that education accounts for some of the observed intergenerational correlations. Education and income are therefore associated with not only higher wealth levels but also with faster rates of wealth accumulation (Conley 2001b). As offspring age, early adulthood investments will increasingly pay off, which should translate into higher wealth correlations at older ages. Also, we assess the degree to which educational attainment accounts for the observed intergenerational wealth correlations.

Finally, we expect that *inter vivos* transfers will occur throughout early adulthood, including paying for higher education (Conley 2001a; Pfeffer 2011), assistance with downpayments (Charles and Hurst 2002; Hall and Crowder 2011), and contributing to wedding costs. While some of these transfers may be complete by the early 20s, especially investments in higher education, other trigger points for substantial intergenerational transfers happen later, as the median age at first marriage is the late 20s and the median first-time home buyer is in their early 30s (Copen et al. 2012; Taylor 2010). As both marriage and homeownership may in turn be associated with faster rates of wealth growth (Addo and Lichter 2013; Shapiro et al. 2013; Turner and Luea 2009), it is again reasonable to think that the asset-promoting effects of these parental investments may increase with age.

Furthermore, we expand prior evidence by taking into account heterogeneities in wealth correlations across the wealth distribution. Prior research relying on single-number estimates of intergenerational correlations obscures the possibility that the wealth structure is particularly rigid at specific locations. We hypothesize that intergenerational reproduction is likely to be particularly strong at the top and bottom of the distribution, while there is relatively more mobility in the middle.

Recent research focused on historical trends in persistence at the very top of wealth distribution has documented much higher intergenerational correlations than those based on the entire population (e.g.,

Piketty 2014)³. Previous research documents that young adult wealth is more strongly associated with parental wealth above the first quartile of parental wealth (Killewald 2013), suggesting strong intergenerational reproduction at the top of the wealth distribution. In a sample of Norwegian adults ages 37-40 with at least one surviving parent, Hansen (2014) finds that parental wealth has little association with offspring wealth across the bottom $\frac{3}{4}$ of the parental wealth distribution, while the association is much stronger at the top of the distribution. Also, Adermon, Lindahl, and Waldenström (2015) find that the intergenerational association in wealth rises across the wealth distribution for Swedish adults. We expect that the nonlinearity of this relationship will be even stronger later in adulthood and following bequests, which are highly skewed (Avery and Rendall 2002).

However, consistent with previous research on the intergenerational reproduction of poverty (see Corcoran 1995 for a review), we expect that children born to asset-poor parents may also be particularly likely to reproduce their parents' position in the wealth distribution. For example, given the importance of parental assets for higher education (Conley 2001a), children of asset-poor parents may be particularly unlikely to receive higher education themselves, reducing their income- and wealth-generating potential. Recent research by Sharkey (2008) demonstrates that, for blacks, the intergenerational transmission of neighborhood context is concentrated at the bottom of the distribution. Given the importance of assets for homeownership and neighborhood selection, spatial patterns suggest another mechanism by which the reproduction of wealth may be concentrated at the bottom of the distribution. This perspective is consistent with the notion of an intergenerational "underclass," with children raised by extremely economically, spatially, and socially disadvantaged parents likely to experience the same deprivations as adults (Wilson 1987).

³ Research based on historical register data often shows much higher intergenerational wealth correlations (Menchik 1979, Walh 1985, Kearl and Pope 1986, Clark 2014), perhaps due to these studies' reliance on wealth measures derived from death records that include all bequests and transfers ever received. However, other factors may also account for the high correlation: historical differences (this research mostly studies the 18th and 19th centuries), the focus on the top of the wealth distribution (wealth measures in death records are available only for individuals who had significant wealth to bequest), or the restriction to a specific population (e.g., Mormons in Utah).

As hinted above, patterns of intergenerational reproduction may also differ substantially by race. First, the race gap in wealth is enormous (Oliver and Shapiro 1997). As a result, concentration in intergenerational reproduction at different points of the wealth distribution is likely to affect blacks and whites differently. Second, prior research suggests that blacks' wealth benefits less from their own demographic traits and income (Altonji and Doraszelski 2005). As a result, parental investments that facilitate educational attainment and income for their offspring may have diminished success for black parents, lessening the intergenerational transmission of advantage. This is consistent with evidence that the intergenerational transmission of socioeconomic status (Blau and Duncan 1967), and wealth in particular (Conley and Glauber 2008), is stronger for whites than for blacks. Although not the main focus of our analysis (for more detail, see Conley and Glauber 2008), we include separate estimates of intergenerational transmission of wealth by race, to test whether the same kinds of differences observed by Conley and Glauber appear when offspring are considered beyond the young adulthood range. In addition, we assess the ability of a race-blind pattern of intergenerational transmission of wealth to close the racial wealth gap.

DATA AND METHODS

The PSID is ideal for intergenerational analyses due to its genealogical design, in which children born to PSID households become PSID respondents themselves. It is the only nationally representative panel study that has been in the field long enough to include both a second and a third generation of adult survey respondents (Pfeffer 2014). The PSID has collected information on housing wealth (home values and mortgages) since its inception in 1968 and detailed information on families' assets since 1984 (every five years until 1999 and every wave since then), which allow the calculation of both a family's net worth and wealth components, such as financial assets (savings, stocks, bonds, mutual funds, etc.) and real assets (business, farm, vehicles).

We take advantage of the earliest (1984-1989) and latest wealth data collected in the PSID (2009-2011), spanning more than three decades and, in particular, including around a decade more wealth data

than prior contributions that assessed wealth correlations based on the PSID. The main analytic sample to estimate intergenerational wealth association contains more than 4,500 individuals aged 25-64 in 2011 and their parents, aged 25-64 in 1984 (when they reported on their own wealth).

The PSID is not the only nationally representative survey that collects information on net worth. The Survey of Consumer Finances (SCF), often considered the gold standard among wealth surveys, does not track offspring wealth and therefore does not contain the necessary data to estimate intergenerational wealth correlations. Recent research has shown that the PSID wealth measures compare very favorably to the SCF wealth measures, attesting to the high validity of the former (Pfeffer et al. 2015).

Since 1985, the National Longitudinal Survey of Youth 1979 (NLSY79) has also collected information on respondents' net worth, ages 14-22 in 1979. Like the SCF, NLSY79 does not measure parental wealth and therefore does not allow the estimation of intergenerational wealth correlations.

Our main wealth measure is family net worth, which is the sum of all financial assets, real assets, home equity, minus any financial obligations. To reduce measurement error, we average wealth measures across two adjacent survey years (1984 and 1989 for the parents and 2009 and 2011 for the offspring generation). We use a range of different specifications of these wealth variables to reduce the impact of outliers and capture the full wealth distribution including zero and negative net worth (including logs, wealth ranks, and inverse hyperbolic sine transformations).

Following a large literature on intergenerational associations in economic status (Solon 1999, Black and Devreux 2011) and prior work on intergenerational wealth correlations (Mulligan 1997, Charles and Hurst 2003), we first estimate the intergenerational correlation in wealth with the age-adjusted elasticity of offspring wealth with respect to parental wealth based on OLS regressions

$$(1) \quad W_c = \alpha + \beta_1 W_p + \beta_2 Age_c + \beta_3 Age_c^2 + \beta_4 Age_p + \beta_5 Age_p^2 + \epsilon_c$$

for offspring net worth W_c and parental net worth W_p (log and IHS transformed) and with quadratic controls for child and parent age (average of maternal and paternal age if both are observed).

Elasticities are one of the most widely used parameters in the economic mobility literature. However,

comparing elasticities across groups or time is complicated by the fact that they are a product of the intergenerational correlation (exchange mobility) and the variances in both generations (marginal distributions). To directly compare (exchange) mobility across groups, we therefore rely on the Spearman rank correlations. These correlations control for differences in the marginal distributions and, for this reason, have been used to compare intergenerational correlations (D'Agostino and Dardanoni 2009, Jäntti and Jenkins 2014; Chetty et al. 2014). The Spearman rank correlations furthermore allow us to assess the full distribution of wealth since – unlike the standard log specification used for the elasticities – it includes cases of net debt. This is particularly important since nearly one in five individuals in our sample of the offspring generation has no wealth or negative net worth (i.e. net debt) and as many as one in four among the youngest cohort (25-43 in 2011).

There is also increasing appreciation for the fact that the interpretation of elasticities relies on an assumption of constant elasticity, that is, that the relationship between the logged variables in both generations is linear. Solon (1999: p. 1787-88) already noted that “the implicit assumption of a constant-elasticity relationship between child's and parents' incomes [...] must surely be at least somewhat false”. A priori, the case for non-linearity in the correlation of wealth appears even more convincing given its high concentration at the very top and the fact that the lower part of the distribution extends to net debt, potentially a quite different dimension of lacking economic well-being. We formally test whether the correlation between parental and offspring wealth shows signs of non-linearity (see Mitnik et al. 2014). We then move to mobility tables / transition matrices as a flexible approach to assess potential non-linearities in the wealth association across generations.

Our analyses are sensitive to other substantively important group differences in wealth correlations by estimating them separately by race (facilitated by an oversample of African-American households in the PSID; see also Conley and Glauber 2008).

To assess the contribution of two of the main channels of transmission that we hypothesized to underlie intergenerational wealth correlations, bequests and education, we enter controls for these characteristics into equation (1) and observe whether they mediate parts of the intergenerational elasticity.

For education, we use offspring's highest educational degree attained (less than high school, high school, some college, B.A. or more). For bequests, we can draw on a direct survey question on whether large gifts or inheritances of over \$10,000 have been received and, if so, how much. We can cumulate this information across all waves at which these individuals were observed to approximate the total value of bequests received since 1984. This set of survey questions has two drawbacks: First, it sets a lower limit to the size of the bequest (\$10,000). Second, it allows for the transfer to come from anyone, including but not limited to parents. For this reason, we also draw on another proxy indicator of potential bequests from parents by indicating any parental death⁴ by 2009 (the time we observe offspring wealth), which is a necessary condition for a bequest to occur.

RESULTS

Descriptives

Descriptive statistics for our main analytic sample are displayed in Table 1. Dollars values are adjusted for inflation and expressed in 2013-\$. Notably, mean net worth has increased from the parent to the child generation – so has median net worth (not shown) – a finding in line with prior assessment of trends in the wealth distribution between those years (Pfeffer et al. 2013). A large part of the lower net worth in the child generation is accounted for by losses during the recession. Mean wealth was higher – and median wealth higher compared to parental median worth (not shown) – before the large-scale asset destruction during the Great Recession. Also, the share of those without wealth (zero or negative net worth) has dramatically increased from 5% in the parent generation of this sample to 13% pre-recession and 19% after the recession. In other words, nearly a fifth of the child sample analyzed here held no wealth, which can also be observed in the distribution of quintiles.

⁴ The PSID confirms the death of its sample members through linkage to the National Death Index. For more than three quarters of our sample, we observe both parents (and their death), for the rest we observe only one parent. The reported analyses are based on cases where we observe both parents (and their death). Stability analyses that include cases where only one parent is observed and the other non-observed parent is assumed to be either dead or alive yield the same substantive conclusions (available from the authors).

As argued before, the latest PSID data allow us to assess children and parents at similar and higher ages; in fact it happens to be the case that the mean age at which we observe the two generations is equivalent, at 44 years. Nearly half of the offspring observed are between 45 and 64 years old.

We observe respondents who primarily identify as white (86%), primarily as black (12%), and too few (2%) as another race to permit comparisons beyond the assessment of black-white differences. By 2009, the earliest measurement point for offspring wealth, at least one parent died for 37.1% of cases for which we observe both parents (and both died for 27.1%).

Wealth Correlations

We begin by reporting intergenerational elasticities and rank correlations in net worth (Table 2). Our baseline estimate of the elasticity in net worth is .39, which is broadly consistent with the prior estimate of .37 provided by Charles and Hurst (2003)⁵. At first sight, the different mean age of our sample therefore does not appear to make a large difference in the estimated elasticity – or, the age controls may adequately adjust for mean age differences. Indeed, excluding the age controls (in particular, the control for child age) yields a much higher elasticity of .45 (not shown). We revisit the relationship between wealth correlations and age in details below.

We find sizeable gender differences when estimating wealth elasticities separately for sons and daughters. Applying a common interpretation that assumes constant elasticity – which we will critically assess later on – the estimates would imply that a doubling of parents' net worth is associated with an increase in net worth by about half for sons and about a third for daughters.⁶ However, the direct comparison of these two estimates is challenged by two complications: First, since they are based on logarithmically transformed net worth variables, they exclude cases with zero wealth or net debt,

⁵ Conley and Glauber (2008) found an appreciably lower elasticity of .28 based on a net worth measures that was bottom coded at \$1 before logarithmic transformation. Doing so reduces the elasticity (in our sample to .34) and foreshadows some of issues around non-linearity in the elasticity that we will discuss in more detail below, as well as potentially reflecting distortions induced by compressing the bottom of the wealth distribution (see also Killewald 2013).

⁶ Lower intergenerational elasticities for women have also been documented for earnings and income (e.g. Chadwick and Solon 2002; Jäntti et al. 2006)

excluding a somewhat higher share of daughters (20%) than sons (17%). Second, as discussed above, elasticities are sensitive to the marginal distribution, in this case, group differences in the variance of wealth. The wealth distribution for daughters is substantially more compressed than for sons (41% lower variance). Together, these factors contribute to deflate the elasticity for daughters compared to sons. The rank correlations presented in the right column of Table 2 address both issues and are therefore much more suitable for group comparisons of the size of intergenerational associations in wealth (see also Jäntti and Jenkins 2014). Here, the gender differences are much more muted (.44 for sons and .42 for daughters). Instead, the degree of association between parental wealth and children's wealth is quite similar.

For the reasons mentioned, we also focus on rank correlations to meaningfully compare the degree of intergenerational wealth correlation across age groups. The correlation rises greatly with increasing age, from .25 among offspring aged 25-34 to double that size for offspring aged 55-64 in 2011. These findings lend strong support to the view discussed earlier that intergenerational wealth correlations are likely to increase with age. Because of the importance of mid- and later-life wealth for both retirement and investments in the next generation, we argue that estimates of rigidity in the wealth structure should be based on measures of wealth attainment during older adulthood. Since we assess the two generations at similar ages within each age group (i.e. the average age of parents in our sample rises with children's age; $r=.88$), one conclusion is that the similarity in wealth between parents and their children increases as both of them accumulate assets. Our estimates suggest that the full extent of intergenerational similarity in wealth status comes to light only once we investigate those aged 45 and above. Based on the Spearman rank correlations, however, intergenerational similarity does not change much across the older two age groups (45-54 and 55-64). In the following analyses, we therefore mostly focus on the older age groups (45-64).

Wealth correlations also differ across racial groups. As expected, the intergenerational reproduction of wealth is much lower for blacks than for whites with the correlation being more than double the size for whites. As noted in research on other aspects of economic inequality by race, the black

and white distributions are so different that one must be cautious in assuming that any observed differences in average associations are due to race itself (Barsky et al. 2002). Instead, the estimated association for blacks may be lower simply because blacks are concentrated in a range of the distribution over which intergenerational association is weaker; in this case, if we find that intergenerational rigidity is concentrated at the very top of the parental wealth distribution, where blacks are dramatically underrepresented, this may contribute to the lower average correlation for blacks. We expand on this finding below, when we assess heterogeneities in the intergenerational persistence of wealth across the wealth distribution and the directionality of mobility.

Finally, we note that the intergenerational correlation in wealth was virtually the same before (2005-2007) and after (2009-2011) the Great Recession. This stability may be surprising given the well-documented and large fluctuations in wealth during the recession (Wolff 2014, Pfeffer et al. 2013). Though to different intensity, wealth losses hit American households across the wealth distribution, and it appears that it has not appreciably altered the stability of their relative wealth position when compared across generations. Of course, any changes in intergenerational mobility may take time to appear, so future research will be needed to confirm these findings.

Wealth Mobility

Although we present elasticities and rank-rank correlations above, for the reasons previously discussed, we believe that the strength of the intergenerational transmission of wealth is likely to vary across the wealth distribution. To test for this possibility, we follow Mitnik et al. (2014) and apply a simple test for non-linearities in the intergenerational elasticities by assessing the fit of alternative model specifications that include non-linear terms, such as a term for squared parental wealth (to test for a curvilinear intergenerational relationship) or, more flexibly, a spline function (with knots at the quintile cut-off values). Both specifications provide clear evidence against the constant elasticity assumption (based on global F-tests; results not shown).

Here, we therefore move to a framework that allows a more detailed look at intergenerational associations in wealth as they differ across the wealth distribution. We use mobility tables or transition matrices (see also Conley and Glauber 2008) that cross-tabulate parental and offspring's wealth quintiles among the older two age cohorts. We begin by discussing row percentages, also known as outflow percentages, displayed in Table 3. The strongest intergenerational persistence of wealth is observed for the top quintile: More than half (56%) of children from the highest parental wealth quintile end up in the highest wealth quintile themselves. And still more than a quarter (27%) attain wealth that puts them in the second highest wealth quintile. Less than a fifth of offspring from parents in the highest wealth quintile show downward mobility into the bottom three quintiles. Intergenerational immobility is lower for other quintiles, but the share of children who attain the same wealth quintile position as their parents is still substantial for other wealth quintiles, namely still more than a third (34%) for the second highest quintile and more than a fourth for the lowest quintile (26%). Overall, intergenerational persistence of wealth is about double the size at the top compared to the bottom (bottom three quintiles).

Column percentages capture the wealth origins of children within each wealth quintile. They illustrate the limited degree of long-range intergenerational mobility across multiple wealth quintiles, especially for downward wealth mobility: Among those children relegated to the lowest wealth quintile, merely 5% come from parents in the highest wealth quintile. Similarly, 11% of children attaining wealth in the highest quintile come from wealth-poor families.

Black-White Differences

Given previous evidence that mobility patterns differ by race (Conley and Glauber 2008) and our finding of lower intergenerational persistence in wealth for blacks, we evaluate the possibility that blacks experience higher risk of downward mobility. Ideally, we would like to know whether blacks' overall lower level of wealth reproduction is due to their underrepresentation at higher parental wealth levels. Unfortunately, the black and white wealth distributions are so different that we observe extremely few black adults from high-wealth parental households (15 individuals, less than 2% of the weighted sample).

By comparison, over 40% are from the bottom wealth quintile, and over $\frac{3}{4}$ are from the bottom two quintiles. Therefore, it is not possible for us to address this possibility by comparing mobility across quintiles by race.

Instead, we estimate race differences in rates of downward, upward, and no mobility. We define downward or upward mobility as a move of at least 10 percentiles in the rank distribution. Since blacks are concentrated at the bottom of the wealth distribution (a third of blacks falls into the lowest quintile) and severely underrepresented at the top of the wealth distribution (4% of blacks are in the highest quintile), they should mechanically have much lower downward mobility (since many of them cannot move down further in their wealth rank) and, by the same token, higher upward mobility. We therefore restrict this analysis to a truncated sample of children. While restricting the sample to children of parents from between the 10th and 90th percentile would get rid of the mechanical floor and ceiling effects, we choose a restriction to children from parents between the 20th and 80th wealth percentiles. Doing so additionally eliminates the cell that indicates social reproduction in the top quintile, where we observed the highest level of reproduction and in which blacks are extremely underrepresented. In Table 4, we see that blacks have somewhat less immobility than whites (22% versus 26%), higher rates of downward mobility (40% versus 36%) and similar rates of upward mobility (39% versus 38%). Of course, even in the truncated sample, on average, blacks still start from much lower points in the distribution and their upward mobility therefore reflects much smaller intergenerational gains than those of whites.

Together, these results suggest that our estimate of higher intergenerational correlation in wealth for whites than blacks is not entirely due to blacks' underrepresentation at the very top of the distribution but also due to lower immobility rates even when that group is excluded.

Channels of Transmission

We have discussed a number of processes that may give rise to intergenerational wealth correlations. Here, we focus on the empirical assessment of two that have been assumed to be particularly important: (1) inter-vivo transfers and bequests and (2) educational attainment. We assess the degree to which the

intergenerational elasticity is mediated by controls for these processes. As before, we report results for the older age group (aged 45-64), which is particularly important for the assessment of the potential impact of bequests (results for all age groups available from the authors). Of course, the results are descriptive rather than causal. The mediating variables that we condition on may be correlated with other mediating variables, leading us to overestimate (or underestimate) the fraction of the intergenerational association that is due to a particular channel. Our models thus continue our demographic approach, but provide suggestive evidence on the relative contributions of different pathways to the intergenerational transmission of advantage.

In the first section of Table 5, we observe that the receipt of a gift (inter-vivo transfer) or inheritance (bequest) over \$10,000 in any two-year period explains about one eighth of the observed intergenerational wealth elasticity (12.8%). Considering the cumulated value of any large inter-vivo transfers and inheritances does not alter our estimate of the role of these processes appreciably. However, considering the overall size of these transfers explains a much larger share of the intergenerational elasticity among those who have received any transfer (23.3%). That is, higher intergenerational transfers underlie part of the transmission of higher wealth from parents to children, however the role of these transfers is limited for the overall population given that only about a quarter of individuals receive sizeable transfers (see Table 5).

Although the panel data used here allow us to track inter-vivo transfers and bequests across the life-course, one limitation of the survey item used is that it asks only for transfers of \$10,000 or more (for each two-year period). We therefore provide another approach to approximate the potential impact of bequests by capturing parental death as the precondition for a bequest. However, as shown in Table 5, parental death alone (whether we distinguish whether one parent died, both, or at least one parent) does not appear to mediate the intergenerational wealth elasticity. Again, one feasible explanation is that bequests are in fact concentrated at the top of the wealth distribution and the modal impact of parental death is not one of an increase in children's net worth.

Finally, we turn to the assessment of the mediating role of education. Since parental wealth is

associated with children's educational outcomes and, in turn, higher educational attainment enables wealth accumulation, we expect education to be an important channel of intergenerational wealth transmission. Indeed, accounting for educational attainment (whether as years of education completed or the highest completed degree) explains more than a quarter of the intergenerational wealth elasticity. The attainment of a college degree alone mediates more than a fifth of the elasticity. Compared to our indicators of the role of inter-vivo transfers and bequests, we would therefore conclude that the transmission of wealth through the educational attainment of children, on average, takes on the more pronounced role. At the very least, we propose that studies of intergenerational wealth transmission should pay at least as much attention to early-life process (such as the influence of parents' wealth on their children's educational attainment) as to later-life processes (such as bequests). While the overall role of bequests will remain an important topic of debate (Morgan and Scott 2007), an exclusive focus on bequests is bound to underestimate the importance of parental wealth for their children's ultimate wealth attainment.

CONCLUSION

The distribution of family wealth is highly unequal, yet wealth's concentration across generations has received little scholarly attention. Taking advantage of the unique genealogical design of the Panel Study of Income Dynamics and its most recent survey waves (PSID), we provide new estimates of the intergenerational rigidity of the wealth distribution that expand on the few prior studies in this area in important ways. First, we are able to assess wealth correlations in older adulthood and show that they are vastly higher than those estimated based on younger cohorts (in fact, twice as high as for young adults). Second, we take into account the full distribution of wealth, including net debt, by using rank correlations (though, for comparison to previous work, we also present elasticities). Doing so is important because net debtors make up nearly a fifth of the adult offspring generation in our sample. Third, we use mobility tables to detect heterogeneities in the intergenerational wealth correlation across the parent and child wealth distributions. These mobility tables reveal particularly low mobility at the top of the wealth

distribution. Substantial downward mobility for offspring from the wealthiest 20% is relatively uncommon. Fourth, we show substantial differences in wealth rigidity by race with much lower intergenerational persistence among blacks – partly due to their severe underrepresentation at the top of the wealth distribution and partly to lower immobility rates. Overall, we document a substantial degree of intergenerational rigidity in the wealth distribution and clear counterevidence to a narrative that assumes that the stark inequality in wealth is in some way counterbalanced by substantial wealth mobility. In terms of the channels through which wealth is reproduced across generations, our findings suggest that future research on this topic should pay at least as much attention to wealth transmission during offspring's early adulthood (i.e. for educational attainment) as to the transmission of wealth towards the end of parents' life (bequest).

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TABLES

Table 1. Descriptives

	Mean	Std.Dev.	Min.	Max.
Net worth				
Parents (average 1984-1989)	360,667	(1,047,014)		
Offspring (average 2009-2011)	294,528	(1,053,761)		
Offspring, pre-recession (average 2005-2007)	324,423	(1,206,614)		
Share of cases without wealth (zero or net debt)				
Parents (average 1984-1989)	5.2%			
Offspring (average 2009-2011)	18.6%			
Offspring, pre-recession (average 2005-2007)	13.0%			
Net worth quintiles parents (average 1984-1989)				
Quintile 1 (lowest)	5,658	(47,358)	-1,326,558	26,822
Quintile 2	59,733	(19,566)	26,917	93,364
Quintile 3	144,998	(33,311)	93,401	206,122
Quintile 4	299,149	(62,121)	206,891	431,256
Quintile 5 (highest)	1,295,628	(2,083,700)	434,286	15,100,000
Net worth quintiles offspring (average 2009-2011)				
Quintile 1 (lowest)	-31,221	(52,645)	-959,878	688
Quintile 2	12,436	(8,799)	706	31,204
Quintile 3	66,416	(23,604)	31,320	113,113
Quintile 4	205,885	(65,285)	113,133	347,559
Quintile 5 (highest)	1,221,406	(2,110,958)	349,287	39,100,000
Parental Age in 1984				
	43.9	(10.9)		
Offspring Age in 2011				
	43.9	(10.6)		
Age group 25-34	24.2%			
Age group 35-44	27.5%			
Age group 45-54	28.9%			
Age group 55-64	19.4%			
Offspring Race				
White	85.7%			
Black	12.1%			
Other	1.7%			
Offspring Sex				
Male	47.9%			
Female	52.1%			
Parental Death				
by 1999	3.1%			
by 2009	11.7%			

Table 2: Elasticities & Rank Correlations

	Elasticity	SE	N	Rank Corr.	P> t	N
Overall	0.390***	(0.019)	3,232	0.427	0.000	4,573
By Sex						
Male	0.482***	(0.030)	1,499	0.436	0.000	2,036
Female	0.325***	(0.025)	1,733	0.415	0.000	2,537
By Age (4 groups)						
Age 25-34	0.270***	(0.036)	828	0.252	0.000	1,393
Age 35-44	0.440***	(0.038)	838	0.390	0.000	1,233
Age 45-54	0.362***	(0.033)	928	0.474	0.000	1,202
Age 55-64	0.446***	(0.053)	623	0.504	0.000	728
By Age (2 groups)						
Age 25-44	0.373***	(0.026)	1,666	0.325	0.000	2,626
Age 45-64	0.394***	(0.028)	1,551	0.491	0.000	1,930
By Race						
White	0.388***	(0.024)	2,238	0.434	0.000	2,840
Black	0.065	(0.036)	925	0.191	0.000	1,640
By Year						
Pre-Recession (2005-2007)	0.373***	(0.020)	3,120	0.445	0.000	4,176
Post-Recession (2009-2011)	0.390***	(0.019)	3,232	0.427	0.000	4,573

Table 3: Wealth Quintile Mobility

	QN1	QN2	QN3	QN4	QN5	Total
QN1 (lowest)	26.3 25.7 (60)	24.7 27.5 (65)	13.8 21.2 (50)	7.5 15.0 (35)	4.2 10.7 (25)	12.2 100.0 (235)
QN2	21.9 16.8 (50)	21.8 19.1 (57)	22.7 27.4 (82)	10.7 16.8 (50)	9.9 20.0 (60)	15.5 100.0 (299)
QN3	23.9 14.4 (55)	27.4 18.8 (72)	23.1 21.9 (83)	21.5 26.7 (102)	11.4 18.2 (69)	19.7 100.0 (381)
QN4	16.2 7.4 (37)	18.3 9.6 (48)	26.3 19.0 (95)	33.6 31.7 (158)	26.6 32.3 (162)	25.9 100.0 (500)
QN5 (highest)	11.6 5.2 (27)	7.9 4.0 (21)	14.1 9.9 (51)	26.7 24.4 (126)	47.9 56.5 (291)	26.7 100.0 (515)
Total	100.0 11.9 (229)	100.0 13.6 (261)	100.0 18.7 (361)	100.0 24.4 (471)	100.0 31.5 (607)	100.0 100.0 (1,930)

Table 4: Racial Differences in Upward and Downward Mobility

	Mobility			Total
	Downward	Immobile	Upward	
White	36.4 (827)	25.7 (584)	37.9 (863)	100.0 (2,274)
Black	39.5 (91)	21.7 (50)	38.9 (89)	100.0 (230)
Total	36.8 (938)	25.5 (652)	37.7 (963)	100.0 (2,553)

Table 5. Channels of Transmission

	% of elasticity mediated	N
<hr/>		
Gift/Inheritance (\geq \$10,000 in each period)		
Whether any gift/inheritance received	12.8%	1,551
Value (ihs transformed)	13.9%	1,551
Value among those who received any (ln)	23.3%	439
Parental Death		
Whether one / both parents died	2.3%	1,154
Whether at least one parent died	2.4%	1,154
Education		
Years of Education	27.3%	1,550
Highest degree received	28.0%	1,550
Whether attained BA or more	21.1%	1,550
