UPWARD

INTERGENERATIONAL ECONOMIC MOBILITY

IN THE UNITED STATES

BY DR. BHASHKAR MAZUMDER

ECONOMIC
MOBILITY
PROJECT

An Initiative of The Pew Charitable Trusts

UPWARD

INTERGENERATIONAL ECONOMIC MOBILITY

IN THE UNITED STATES

CONTENTS

ECONOMIC
MOBILITY
PROJECT

An Initiative of The Pew Charitable Trusts

ABOUT THE ECONOMIC MOBILITY PROJECT

With the convergence of a presidential election cycle, income inequalities at a level last seen nearly a century ago and emerging new data on the state of mobility in America, the present moment provides a unique opportunity to refocus attention and debate on the question of economic mobility and the American Dream.

The Economic Mobility Project is a unique nonpartisan collaborative effort of The Pew Charitable Trusts and respected thinkers from four leading policy institutes—The American Enterprise Institute, The Brookings Institution, The Heritage Foundation and The Urban Institute. While as individuals they may not necessarily agree on the solutions or policy prescriptions for action, each believes that economic mobility plays a central role in defining the American experience and that more attention must be paid to understanding the status and health of the American Dream.

The project is developing new findings, tackling difficult questions such as the role of education, race, gender and immigration in economic mobility, and analyzing the effects of wealth accumulation and the extent to which short-run fluctuations in income may be affecting mobility. Our purpose is to provoke a more rigorous discussion about the role and strength of economic mobility in American society.

By forging a broad and nonpartisan agreement on the facts, figures and trends related to mobility, the Economic Mobility Project seeks to focus public attention on this critically important issue and generate an active policy debate about how best to ensure that the American Dream is kept alive for generations that follow.

For more information please visit www.economicmobility.org.

EXECUTIVE SUMMARY

UPWARD INTERGENERATIONAL ECONOMIC MOBILITY IN THE UNITED STATES

BY BHASHKAR MAZUMDER

In an era of rising income inequality, understanding the extent of economic mobility from one generation to the next in America has never been more important. Only if there is considerable opportunity for children from disadvantaged backgrounds to move beyond their parents' place in the income distribution, may economic inequality be viewed as tolerable. This report introduces two new and flexible measures to examine upward relative mobility—the extent to which children can rise above their parents' position when compared to their peers. The report also explores various factors that might account for racial differences in upward economic mobility rates. Using the National Longitudinal Survey of Youth and measuring family income averaged over several years, the report discusses the following key findings:

The vast majority of individuals, 71 percent, whose parents were in the bottom half of the income distribution actually improved their rankings relative to their parents. However, the amount of their movement was not large.

- Only about 45 percent of those who started in the bottom half moved up the income distribution by more than 20 percentiles relative to their parents' ranking.

- Many of those who did manage to exceed their parents' income started near the very bottom, where exceeding one's parents is not a very steep hurdle. As a result, only 38 percent of individuals who started in the bottom half of the income distribution moved to the top half of the distribution as adults.

Men experience sharply higher rates of upward economic mobility than women.

- While 41 percent of women who start in the bottom income quintile remain there, just 27 percent of men do.

- Only 38 percent of women who start in the bottom half of the income distribution surpass their parents by at least 20 percentiles, compared to 51 percent of men.

- Further, women born to parents in all 5 quintiles are significantly more likely to fall down to the bottom quintile than men. For example, women born to parents in the fourth and top quintiles are more than twice as likely as men to fall to the bottom quintile.

Blacks experience dramatically less upward economic mobility than whites.

- Forty-four percent of blacks will remain in the bottom income quintile in adulthood compared with just 25 percent of whites.

- Although the vast majority of blacks in the bottom half of the income distribution will exceed their parents' place in the distribution, the extent of their movement is markedly lower than that of whites.

  - Only about 35 percent of blacks who start in the bottom half of the income distribution will increase their relative position by 20 percentiles compared to nearly 50 percent of whites.

Rates of upward economic mobility are highest for white men, followed by white women, black men and, finally, black women.

- The economic mobility gender gap is more pronounced among whites and the economic mobility racial gap is more pronounced among men.

Measures of human capital during adolescence, particularly tests scores, could explain the entire black-white upward economic mobility gap.

- Individuals, both black and white, with higher academic test scores are more likely to move up and out of the bottom quintile. Both black and white children born in the bottom quintile with median academic test scores are twice as likely to move up and out of the bottom quintile than if they had scores in the lowest percentile of the test score distribution.

- Some other factors, such as self-esteem and health, also appear to be important in determining upward economic mobility, but they account for little of the racial gap in economic mobility.

- The racial gap in economic mobility out of the bottom quintile remains even when controlling for single- or two-parent families.

The new measures introduced in this report can help us to further understand and identify the factors that promote or impede upward economic mobility, a task that is vital to ensure that the American Dream is within the reach of those at the bottom.

I. INTRODUCTION

One of the fundamental ways to evaluate the fairness of a society is by measuring the degree to which there is equality of opportunity. Do children who are born into poorer families have the same chances to achieve economic success as those from more advantaged backgrounds? One useful way to answer this question is by measuring the rate at which families change their *relative* standing in the income distribution over successive generations. A large and growing body of research has developed measures of relative intergenerational economic mobility and used these measures to characterize the degree of equality of opportunity.[1] In recent years, these studies have begun to receive considerable attention from the media as well as the policy-making community. A consensus view has emerged suggesting that the United States exhibits much less intergenerational economic mobility than previously thought and appears to be less economically mobile than are many other industrialized countries.[2]

These findings are perhaps even more striking given the notable increases in economic inequality in recent decades. Rising economic inequality may be viewed as tolerable only if there is considerable opportunity for children from disadvantaged backgrounds to move beyond their parents' place in the income distribution. If, on the other hand, advantages and disadvantages in one generation are largely passed on to the next, then rising economic inequality may have long-term implications for generations to come.

Most of the recent studies that have shaped the new view of economic mobility in America have emphasized a particular measure of intergenerational economic mobility, the intergenerational elasticity or IGE.[3] This statistic measures the degree to which, on average, differences in income between families in one generation are associated with differences in the subsequent generation.

While the IGE is a useful statistic for broadly assessing mobility, it nonetheless presents some important limitations. To begin with, the measure does not tell us whether those who start out poor have more or less economic mobility than those who start out better off. In addition, the IGE does not distinguish between the *directions* of economic mobility, namely, upward versus downward mobility. If society's interest in intergenerational economic mobility is primarily a concern about equal opportunity for economic success, then ideally we want to measure upward mobility for those who start in disadvantaged circumstances. Indeed, many of the high-profile articles in the media on intergenerational economic mobility have been explicitly or implicitly couched mainly in terms of "upward mobility"

and discuss whether or not individuals are still able to do better than their parents in relative terms. Another important limitation is that the IGE cannot be used to meaningfully assess group differences. It cannot tell us, for example, whether the barriers to upward economic mobility are greater for women than for men or for blacks than for whites. This is a particularly compelling question with respect to race given the historical legacy of slavery and the fact that state-sanctioned racial segregation existed even as recently as two generations ago. Finally, the IGE may be sensitive to certain technical measurement issues.[4]

Because of these limitations, it would clearly be valuable to use a different set of measures in order to directly capture upward economic mobility and to examine group differences. This report builds upon new research by Debopam Bhattacharya and Bhashkar Mazumder that has developed an alternative set of tools for characterizing intergenerational economic mobility.[5] A feature of these measures is that they are relatively straightforward to express in words and probably better conform to the public's view of intergenerational economic mobility.

Measuring Upward Mobility Using Transition Rates

The first measure, a transition rate, refers to the likelihood of moving from one point in the income distribution to another, across generations. Typically, the income distribution in each generation is first evenly divided into equal sized groups, such as five "quintiles," and then a full set of transition rates from parent to child income group are organized into a table or chart. Transition rates answer fairly straightforward questions such as how likely it is that someone whose parents were in the bottom fifth of the income distribution will rise to the top. One reason that transition rates are easy to describe is that unlike the IGE, they are easily cast in terms of the *direction* of mobility (i.e., upward or downward). One innovation in this paper's use of transition rates is to consider not just mobility between quintiles, but *upward* mobility out of successively larger parental income categories. Another advantage of using transition rates relative to the IGE is that they are simple to interpret when making comparisons across groups (e.g., blacks vs. whites) when using a common set of cutoffs.[6]

Previous studies of intergenerational mobility have not emphasized transition rates. This is due, in part, to the fact that the tools for determining the precision of the estimates have been lacking. In addition, the statistical methods for including other explanatory variables have not been well developed. Using the new methodology, one can now not only estimate the difference in transition rates between blacks and whites, but can do so accounting for the effects of years of schooling or test scores and determine whether these differences are statistically significant.[7]

UP—A New Measure of Upward Mobility

The second measure that is used in this report is a new direct measure of upward mobility. It asks how likely is it that someone whose parents were in the bottom half of the income distribution will surpass *their parents' place* in the distribution.[8] This new measure, which is referred to as "UP," might provide the best answer to the question the average person has in mind when thinking of upward economic mobility: Am I, in relative terms, better off than my parents were?

Parents' and children's positions are compared using percentiles, which indicate the percentage of people who have lower incomes than a parent or adult child. If a parent had a larger income than 30 percent of families, while the child is richer than 50 percent of families, the upward mobility is equal to moving up 20 percentiles. Like the transition rate, this measure can be used to look at group differences and to also include explanatory variables. However, unlike transition rates, UP is a summary measure that does not require breaking the distribution into an arbitrary number of groups, such as quintiles. This new measure allows us to look at the incidence of upward mobility movements of different magnitudes (for instance, movements of 30 percentiles).

Both of these new methods are applied to a dataset, the National Longitudinal Survey of Youth 1979 cohort (NLSY) that has been neglected by most previous studies despite having several attractive features.[9] Most notably, there is a very large sample of over 6,000 individuals for whom we know both family income in adolescence (1978–1980) and family income as adults (1997–2003). The analysis in this report uses multi-year averages of family income wherever possible to better capture "permanent income" and reduce measurement error. The data and the sample construction are described in the Appendix.

Consistent with the previous findings of the Economic Mobility Project, the NLSY shows strong "stickiness" in both the bottom and top quintiles of the income distribution. A sizeable number of children who grew up in the bottom fifth remained there as adults, and the same was true of those who grew up in the top fifth. Overall, fewer than 40 percent of individuals who start in the bottom half of the income distribution move to the top half of the distribution as adults. The vast majority of individuals, 71 percent, whose parents were in the bottom half of the income distribution actually improved their rankings relative to their parents. However, the amount of their movement is not large. Only about 45 percent of those who started in the bottom half gained more than 20 percentiles relative to their parents' ranking. In addition, many of those who did manage

to exceed their parents' income started near the very bottom, where exceeding one's parents is not a very steep hurdle. Overall, these findings suggest some modest but limited upward economic mobility for those who begin with lower-than-average family income.

Racial Differences. Chapter III of this report highlights the sharp differences in intergenerational economic mobility between whites and blacks. Unlike previous studies, this report uses a dataset with a much larger sample of blacks, calculates the *precision* of the estimates and utilizes the new measures of upward economic mobility described above. A key finding is that blacks experience dramatically less upward economic mobility than do whites. Among those starting in the bottom quintile of the income distribution, 44 percent of blacks will remain there compared with just 25 percent of whites. The instances of blacks rising from the bottom income quintile to the top quintile ("rags to riches") are very rare. A perhaps equally stark finding is that blacks experience sharply higher levels of downward economic mobility than do whites. Blacks are twice as likely to fall from the top income quintile to the bottom quintile as are whites. The new measures of upward mobility reveal a complex picture. Although the vast majority of blacks in the bottom of the income distribution will exceed their parents' place, their gains are sharply lower than those of whites. Only about 35 percent of blacks who start in the bottom half of the income distribution will increase their relative position by 20 percentiles, compared to nearly 50 percent of whites who do so.

Gender Differences. Differences between men and women in intergenerational mobility are the focus in chapter IV of this report. Men experience sharply higher rates of upward economic mobility and lower rates of downward mobility. For example, while 41 percent of women who start in the bottom income quintile remain there, just 27 percent of men do. Similarly, 43 percent of men who start in the top income quintile stay in the top, but just 32 percent of women do. While just 32 percent of women who start in the bottom half of the income distribution surpass their parents' income, the comparable figure for men is 44 percent. This portion of the report breaks down the analysis further, by both sex and race. The key finding is that rates of upward economic mobility are most rapid for white men, followed by white women, black men and, finally, black women. The economic gender gap is more pronounced among whites and the economic racial gap is more pronounced among men.

A critical area for research in intergenerational economic mobility involves understanding the variety of mechanisms by which parents transmit income inequality. In chapter V, the report offers a rich variety of measures for understanding

what factors are critical for explaining upward economic mobility and which might account for the group differences. The key finding is that measures of human capital during adolescence, particularly tests scores, can virtually explain the entire black-white upward economic mobility gap. It is also worth highlighting that among those who finished four years of college, there is no racial gap in upward economic mobility: both whites and blacks in this group experience very high rates of upward economic mobility. Some other factors such as self-esteem and health also appear to be important factors in determining upward mobility, but they account for little of the racial gap.

While the importance of test scores in determining economic mobility is an important finding, it does not, on its own, point to a particular policy remedy. A large number of potentially important factors, such as early life conditions, parental behaviors, peer influences and other factors likely determine the black-white test score gap. Understanding how the gap in cognitive skills develops is clearly an important area for research on group differences in upward economic mobility in the United States.

II. Upward Economic Mobility In The United States

Applying the measures of economic mobility described in the introduction to the NLSY sample, I highlight in this chapter the economic mobility patterns for the overall population, presenting conventional transition rates first, followed by upward transition rates and the new upward mobility results.

Transition Rates Across Quintiles

Figure 1 displays the transition rates between quintiles of the family income distribution across successive generations. For example, the chart shows that about 27 percent of individuals whose parents were in the bottom quintile moved up to the second quintile of the family income distribution in the child's generation.

A key contribution of this paper is that the standard error for each transition rate and upward economic mobility measure is calculated and shown in parentheses below the estimates. One can use this to easily calculate confidence bands and test whether the rates are significantly different from each other or from "perfect" mobility. The standard error for the bottom-to-second-quintile transition rate is 1.2 percentage points, implying a 95 percent confidence band of 24.5 percent to 28.3 percent. If there were "perfect" mobility then each rate would be 20 percent—the odds of being in that quintile would be random and independent of one's parents' income. With the large NLSY samples, it is easy to see that even relatively small differences in transition rates of around five percentage points may be statistically meaningful.

FIGURE 1   **Percent of Children Reaching Each Quintile**
(Standard errors shown in parentheses)
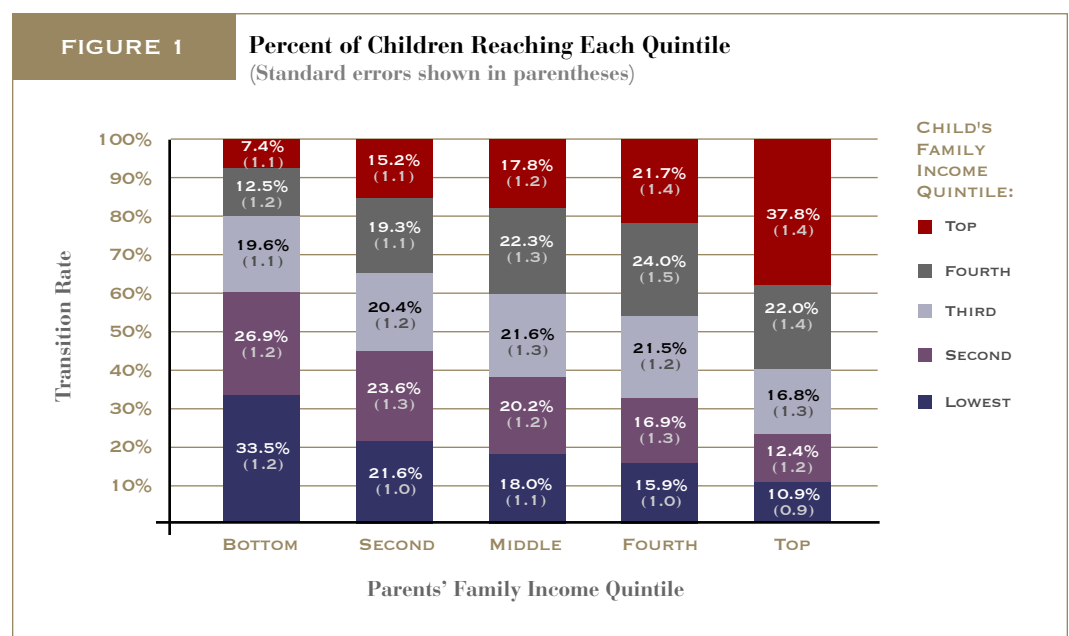
As do other results of the Economic Mobility Project, Figure 1 exhibits substantial "stickiness" at the lowest and highest income quintiles.[10] There is a tendency for people whose parents had low or high incomes to have low or high incomes themselves. The bottom of the first bar on the left shows that 34 percent of individuals whose parents were in the bottom quintile, remain in the bottom quintile as adults. The top of the last bar on the right shows a similar stickiness at the top: 38 percent of those whose parents were in the top income quintile remain in the top quintile. Of those who start at the bottom only about 7 percent reach the top income quintile as adults. This can be thought of as the "rags to riches" scenario. Similarly, only about 11 percent who start at the top fall to the bottom ("riches to rags").

These findings are in line with other results of the Economic Mobility Project using Panel Study of Income Dynamics (PSID) data, which found that 42 percent of those starting at the bottom stayed there, that 39 percent of those starting at the top remained at the top, that 6 percent experienced "rags to riches," and that 9 percent went from "riches to rags."[11] It is perhaps comforting that broadly similar results are obtained with a completely different dataset that tracks a very large sample of individuals.

Upward Mobility

While transition rates across quintiles provide an indication of upward and downward economic mobility patterns by displaying movements across broadly constructed cells, it is useful to focus on upward economic mobility more generally. Before turning to the new measure of upward economic mobility designed to do this, it is helpful to begin by describing upward economic mobility patterns more completely, using transition rates that are not confined to just quintiles. This exercise will also serve as a good point of comparison for the new measure of upward economic mobility. The first column of Table 1 shows estimates of the percent of individuals who *exceed* a given percentile range (e.g., percentiles 1 to 50) in their generation, if their *parent* income was in this same range. This is conceptually a bit different than what was shown in the transition rates across income quintiles. For example, if the percentile range is 1 to 20, then the upward transition rate would be the percent of people who started in the bottom quintile but rose above it in their own generation. Since the transition rates in Figure 1 showed that 33.5 percent remained in the bottom quintile, that implies that 66.5 percent (100 − 33.5 = 66.5) exceeded the bottom quintile, as shown in Table 1.

In Table 1, the rate at which individuals rise above the percentile range of their parents is shown as the percentile range is gradually increased from the

bottom 5 percent to the bottom 50 percent. Note that the number of families used in each row accumulates as the range is expanded.[12] As might be expected, among those whose parents' income was at the very bottom, below the fifth percentile, more than 90 percent exceed the fifth percentile as adults. However, it is perhaps alarming to see that less than 40 percent of individuals who start below the median (or 50th percentile) in the parent generation exceed the median as adults.

Table 1 also presents estimates of upward mobility (columns 3 to 8) based on the new UP measure that looks at the likelihood of exceeding one's *parents' exact percentile* in the income distribution. The estimates are also arrayed based on being in a given percentile range in the parent generation. For example, among those who start in the bottom quintile (i.e., 1 to 20), 85 percent achieve a higher percentile than their parents as adults. More than 70 percent of individuals

TABLE 1	**Upward Transition Rates and Upward Mobility Estimates for Children in Bottom Half of the Income Distribution, Using Cumulative Samples**

	TRANS. RATE	UPWARD MOBILITY					
PARENTS' PERCENTILE RANGE	PERCENT EXCEEDING RANGE	UP PERCENT EXCEEDING PARENT RANK BY 1	UP-10 PERCENT EXCEEDING PARENT RANK BY 10	UP-20 PERCENT EXCEEDING PARENT RANK BY 20	UP-30 PERCENT EXCEEDING PARENT RANK BY 30	UP-40 PERCENT EXCEEDING PARENT RANK BY 40	UP-50 PERCENT EXCEEDING PARENT RANK BY 50
1 to 5 *(N=525)*	91% (1.4%)	96% (0.8%)	77% (2.0%)	61% (2.7%)	45% (3.0%)	33% (2.9%)	24% (2.7%)
1 to 10 *(N=1125)*	83% (1.2%)	92% (0.9%)	72% (1.6%)	56% (1.8%)	42% (1.9%)	29% (1.9%)	21% (1.7%)
1 to 15 *(N=1659)*	73% (1.3%)	88% (0.9%)	70% (1.3%)	54% (1.5%)	41% (1.6%)	29% (1.6%)	20% (1.3%)
1 to 20 *(N=2121)*	66% (1.0%)	85% (0.9%)	68% (1.1%)	53% (1.3%)	40% (1.4%)	29% (1.4%)	20% (1.2%)
1 to 25 *(N=2516)*	61% (1.0%)	82% (0.8%)	66% (1.2%)	51% (1.2%)	39% (1.2%)	29% (1.1%)	20% (1.1%)
1 to 30 *(N=2906)*	56% (1.1%)	80% (0.9%)	65% (1.0%)	51% (1.1%)	39% (1.2%)	28% (1.2%)	19% (0.9%)
1 to 35 *(N=3238)*	51% (1.0%)	78% (0.9%)	63% (1.0%)	49% (1.1%)	38% (1.1%)	27% (1.1%)	19% (0.9%)
1 to 40 *(N=3529)*	47% (0.8%)	76% (0.7%)	62% (0.8%)	48% (1.0%)	37% (0.9%)	27% (0.9%)	17% (0.8%)
1 to 45 *(N=3836)*	43% (0.9%)	73% (0.8%)	59% (0.8%)	46% (0.9%)	36% (0.9%)	25% (0.8%)	16% (0.7%)
1 to 50 *(N=4111)*	38% (0.7%)	71% (0.8%)	58% (0.8%)	45% (0.8%)	34% (0.9%)	24% (0.8%)	15% (0.6%)

Notes: See text for details. Standard errors in parentheses below point estimates.

who start below the median still exceed their parents' percentile. This measure clearly paints a much more positive picture of mobility. The difference between the two measures can be reconciled by the fact that many people who start in say, the bottom quintile might do better than their parents but still not well enough to make it out of the bottom quintile.[13] Therefore, while the UP measure suggests more upward mobility than upward transition rates, it does not capture the *extent* of mobility.

One way to preserve some of the nice conceptual features of the UP measure but still allow it to capture the extent of upward economic mobility is to redefine upward mobility as exceeding parent income by a certain amount, such as 10 or 20 percentiles. Table 1 shows the effects of such a change in the next five columns, (labeled "UP – 10", "UP – 20", "UP – 30", "UP – 40", and "UP – 50"). These measures show that among those who start in the bottom quintile, for example, 68 percent move up by at least 10 percentiles, and 53 percent move up 20 percentiles, compared to their parents. Furthermore, only 20 percent of those in the bottom quintile exceed their parents by 50 percentiles, an amount which would place them firmly in the top half of the distribution. Among those who start in the bottom half of the distribution, fewer than half exceed their parents' rank by 20 percentiles. Overall, these measures suggest a somewhat similar story as the upward transition rates: there is a fairly limited amount of upward economic mobility in the United States.

While this "cumulative" approach of progressively adding more families in each row provides a useful set of descriptive measures of upward mobility, it could obscure patterns that might arise if we focused more finely on upward economic mobility for individuals coming from *specific* parts of the income distribution. In Table 2, the measures are recalculated by using non-overlapping ranges that move progressively up the income distribution. For example, the transition rate in the fourth row of Table 2 shows that the likelihood of surpassing the 20th percentile if families were between the 16th and 20th percentiles in the parent generation is 71 percent. In Table 2, entries in each row now utilize an entirely different set of families defined by intervals of the percentiles of the parent income distribution.

Table 2 shows a much more similar pattern between the upward transition rate in column 2 and the basic upward economic mobility measure (UP) in column 3 when we utilize the smaller percentile intervals. For example, among those individuals whose families were between the 16th and 20th percentiles, 71 percent surpassed the 20th percentile in their own generation and 75 percent exceeded their parents' percentile. Relative to Table 1, the shift to using families at more narrowly defined
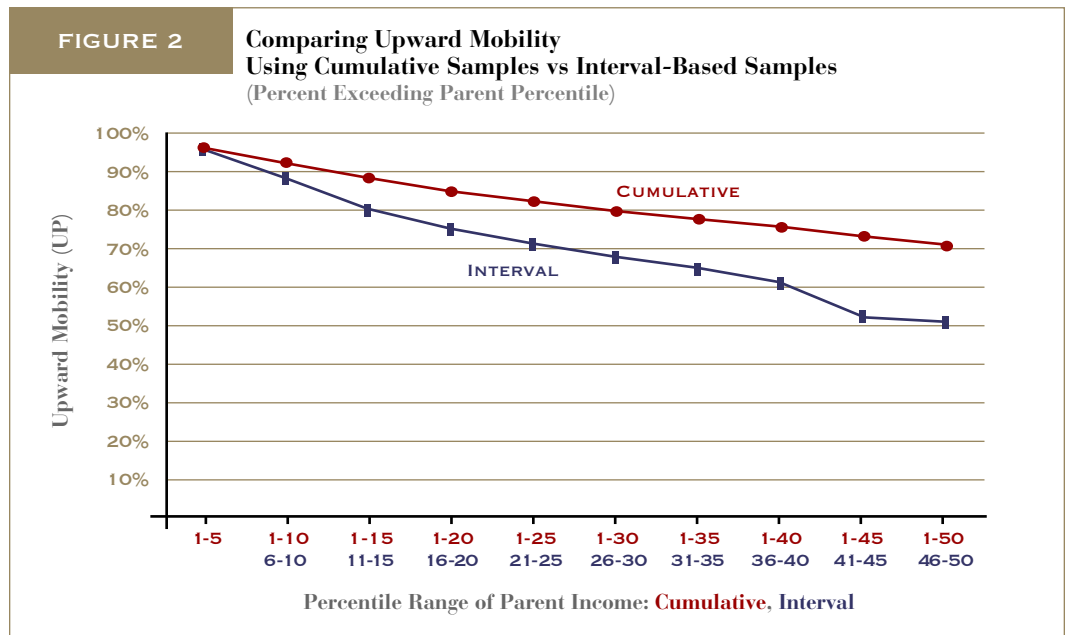
intervals in the distribution raises the transition rate estimates at each point in the distribution while lowering the upward mobility estimates. This is not surprising. The more narrowly the samples are defined using parent income percentiles, the more similar to the two measures will become. In fact, in the extreme case of using individuals only from one specific percentile of the distribution, the two measures will become identical.[14] One obvious downside to this approach is that the smaller samples mean that figures are less precisely estimated.

TABLE 2	**Upward Transition Rates and Upward Mobility Estimates for Children in Bottom Half of the Income Distribution, Using Intervals of Parent Income Percentiles**						

	TRANS. PROB.	UPWARD MOBILITY					
PARENTS' PERCENTILE RANGE	PERCENT EXCEEDING RANGE	UP PERCENT EXCEEDING PARENT RANK BY 1	UP-10 PERCENT EXCEEDING PARENT RANK BY 10	UP-20 PERCENT EXCEEDING PARENT RANK BY 20	UP-30 PERCENT EXCEEDING PARENT RANK BY 30	UP-40 PERCENT EXCEEDING PARENT RANK BY 40	UP-50 PERCENT EXCEEDING PARENT RANK BY 50
1 to 5 (N=525)	91% (1.3%)	96% (0.8%)	77% (2.0%)	61% (2.7%)	45% (3.0%)	33% (2.9%)	24% (2.7%)
6 to 10 (N=600)	83% (1.8%)	88% (1.6%)	67% (2.4%)	50% (2.6%)	38% (2.8%)	26% (2.7%)	17% (2.3%)
11 to 15 (N=534)	76% (2.3%)	80% (2.3%)	65% (2.7%)	52% (2.8%)	39% (3.0%)	28% (2.7%)	17% (2.2%)
16 to 20 (N=462)	71% (3.1%)	75% (2.8%)	64% (2.8%)	47% (3.3%)	38% (3.5%)	30% (3.3%)	22% (2.9%)
21 to 25 (N=395)	66% (2.9%)	71% (2.7%)	58% (3.2%)	45% (3.3%)	35% (3.2%)	26% (3.0%)	18% (2.6%)
26 to 30 (N=390)	66% (3.6%)	68% (3.3%)	59% (3.6%)	48% (4.0%)	39% (3.4%)	28% (3.0%)	18% (2.7%)
31 to 35 (N=332)	62% (3.9%)	65% (4.3%)	53% (4.7%)	41% (5.2%)	32% (3.6%)	19% (3.0%)	13% (2.4%)
36 to 40 (N=291)	59% (3.4%)	61% (3.6%)	52% (3.7%)	43% (3.6%)	32% (3.1%)	22% (3.0%)	10% (2.0%)
41 to 45 (N=307)	48% (3.4%)	52% (3.5%)	40% (3.3%)	31% (3.0%)	24% (3.1%)	12% (2.7%)	5% (1.7%)
46 to 50 (N=275)	50% (3.7%)	51% (3.5%)	42% (3.5%)	33% (3.1%)	21% (2.9%)	12% (2.7%)	3% (1.2%)

Notes: See text for details. Standard errors in parentheses below point estimates.

Figure 2 plots the baseline UP estimates from Table 1 ("cumulative") and Table 2 ("interval"). It is clear, by focusing more precisely at specific points in the distribution, that cumulative upward mobility of 71 percent for all individuals in the bottom half of the distribution was largely driven by the extremely high rates of upward economic mobility for those near the bottom. This reflects the fact that for those who start near the bottom of the income distribution, surpassing one's parent is not so difficult. Overall, however, the various measures presented here, do not paint a very positive view of upward economic mobility.

FIGURE 2   **Comparing Upward Mobility
Using Cumulative Samples vs Interval-Based Samples**
(Percent Exceeding Parent Percentile)

III. Black-White Differences in Upward Economic Mobility

The large and persistent gap in economic status between blacks and whites has been a topic of great concern and interest among social scientists and policy makers. While there is an enormous literature on black-white inequality there has been much less written about black-white differences in intergenerational mobility.[15] This is unfortunate since an understanding of the rate of intergenerational mobility and its underlying causes could be highly informative in understanding a host of policy issues such as affirmative action.[16]
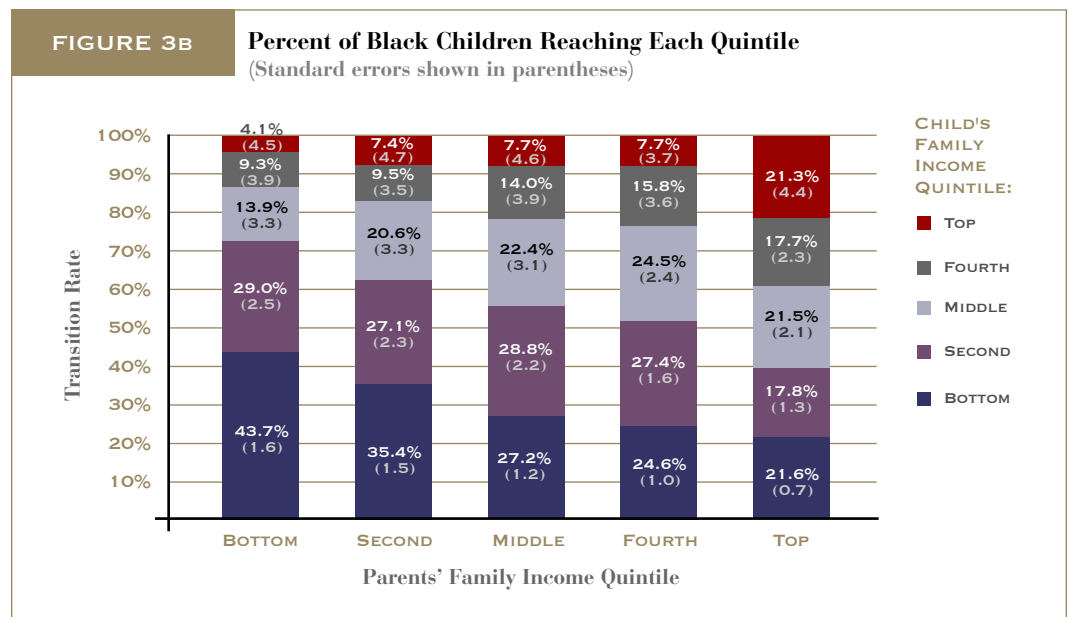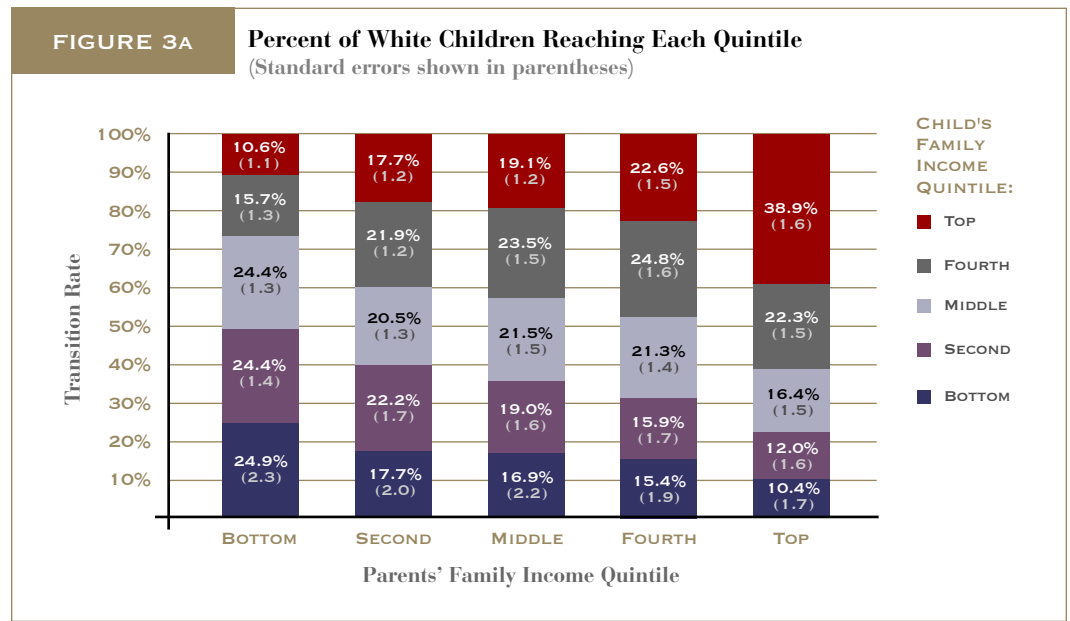
One notable exception is the work of Tom Hertz, who documents very large differences in transition rates between blacks and whites using the PSID.[17] Hertz finds for example, that blacks are 30 percentage points more likely to remain in the bottom quarter of the income distribution. A more recent study undertaken by The Brookings Institution as part of the Economic Mobility Project also finds substantially more downward mobility for blacks than whites from the middle of the distribution.[18] This report differs from these previous studies in a number of ways: it uses a larger sample from a different dataset; it introduces a new measure of upward mobility; it determines whether black-white differences are statistically meaningful; and it utilizes a much wider range of explanatory variables to try to explain the black-white mobility gap.

In addition, the UP measure overcomes one important limitation of upward transition rates when comparing blacks and whites. Since whites on average have more income than blacks within virtually any income range, blacks are always less likely to transition upward relative to a common yardstick even if all blacks were to experience the same dollar gain in income as whites. By using one's *own parents' income* as the yardstick, the UP measure does not give a "built in" advantage to whites.[19]

Transition Rates Across Quintiles

Figure 3 compares the transition rates across income quintiles for whites with those of blacks.[20] For whites, the stickiness at the top is apparent as 39 percent of the children in families in the top income quintile remain in the top quintile. However, there is considerably less stickiness at the bottom of the income distribution as only 25 percent of white children starting in the bottom remain in the bottom quintile. For blacks, the reverse holds, as 44 percent of blacks who begin in the bottom remain in the bottom while only 21 percent of those who start in the top income quintile remain there as adults.

These striking facts suggest that not only are whites more upwardly mobile than blacks but that they are less downwardly mobile. This is also apparent when looking at some of the transition rates that do not involve the very top and bottom income quintiles. For example, whites are 12 percentage points more likely to move from the second quintile to the fourth quintile. Similarly, whites are 12 percentage points less likely to fall from the fourth quintile to the second quintile. These differences are not only quantitatively large but also statistically significant. One particularly unsettling result for blacks is that the "rags to riches" scenario, that of moving from the bottom to the top, is very rare, as just 4 percent make such a transition.

FIGURE 3A **Percent of White Children Reaching Each Quintile**
(Standard errors shown in parentheses)

FIGURE 3B **Percent of Black Children Reaching Each Quintile**
(Standard errors shown in parentheses)

These results are broadly similar to the findings in the chapter on black-white differences in mobility contained in the recent Brookings Institution report for the Economic Mobility Project.[21] There are a few notable differences, however. For one thing, the stickiness in the bottom quintile for blacks (44 percent) is a bit less pronounced in this report than in the previous Economic Mobility Project report (54 percent). The findings here also show less downward mobility for black families who start in the middle of the distribution. For example, among blacks starting in the middle quintile, 27 percent fall to the bottom quintile, compared to 45 percent in the Brookings study. One important difference is that the samples used here are substantially larger and that the estimates are more precisely estimated. There is also reason to believe that the sample of blacks in the NLSY is more representative than the sample of blacks in the PSID.[22]

Upward Economic Mobility

As in the previous chapter, I now turn to a set of results using upward transition rates where I estimate the likelihood of surpassing a given percentile range, if an individual started in that percentile range. Recall that using this approach the samples are "cumulative"—as the cutoff percentile is increased, additional individuals are progressively being added to the sample.[23] The estimates are plotted along with confidence bands in Figure 4. It is immediately evident that blacks are dramatically less likely to transition upwards compared to whites throughout the bottom half of the income distribution, except at the very bottom. While 46 percent of whites who are born to parents below the median will surpass the median, the comparable figure for blacks is only 22 percent.

FIGURE 4   **Percent of Children Exceeding Their Parents' Income Range, by Race**
(Cumulative, Transition Rate)

Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.
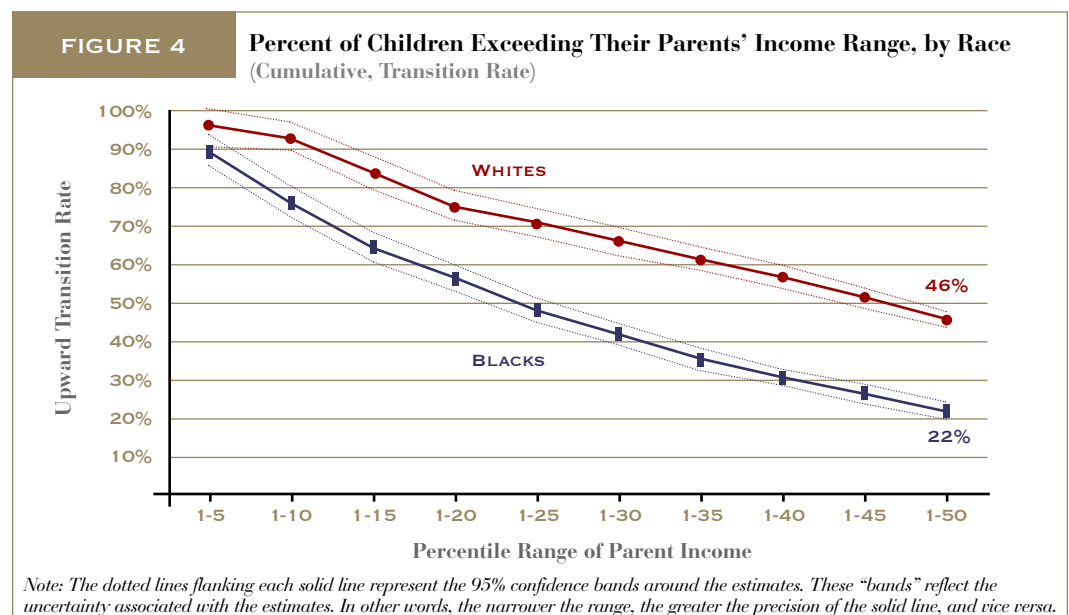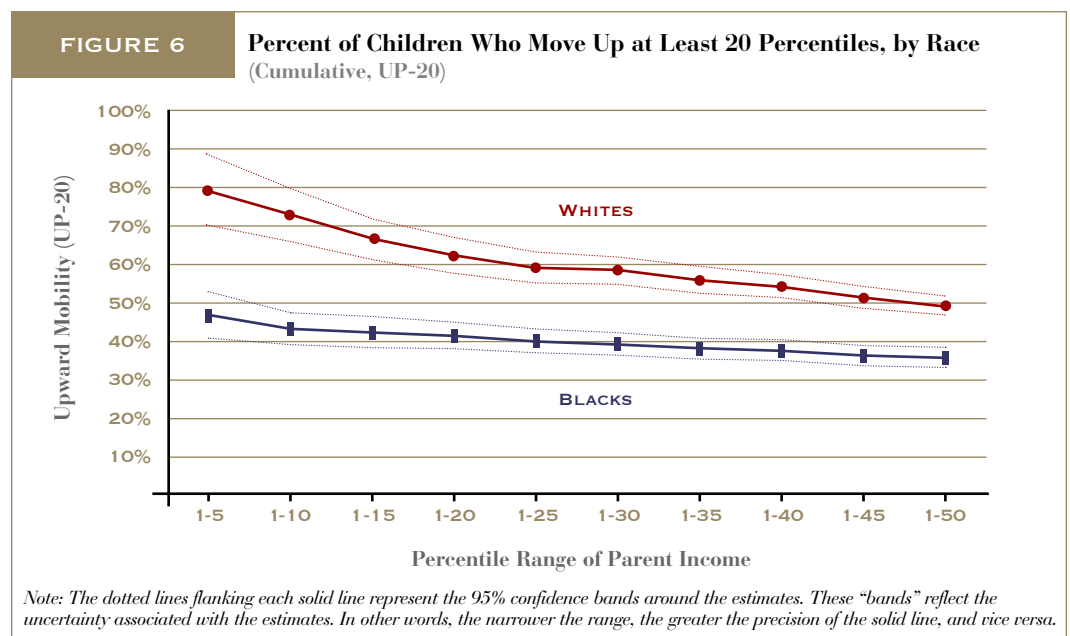
Figure 5 plots the new UP measure that indicates the rate of exceeding one's parents' percentile in the distribution. As before, this is done by using cumulative samples of families and the same percentile ranges as the transition rate estimates in Figure 4. Compared to Figure 4, what is immediately evident is that the rates of upward mobility based on the UP measure are higher than the comparable transition rates. For example, among black families below the 20th percentile, in Figure 5, 82 percent surpass their parent's position in the distribution even though only 56 percent make it out of the bottom quintile (see Figure 4).

| FIGURE 5 | **Percent of Children Who Exceed Their Parents' Percentile, by Race** (Cumulative, UP) |

Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.

| FIGURE 6 | **Percent of Children Who Move Up at Least 20 Percentiles, by Race** (Cumulative, UP-20) |

Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.

Clearly, many blacks at the bottom of the distribution have made economic progress relative to their parents, but the extent of the gains has not been large enough to move them very far in the overall distribution.

In Figure 6 the measure of upward mobility shows the fraction who surpass their parents by at least 20 percentiles (UP-20). By this measure we again see a sharp difference in upward mobility between whites and blacks that is statistically significant. An interesting feature of this chart compared to the upward transition rates shown in Figure 4 is the relative stability of the estimates, especially for blacks. Aside from those at the very bottom of the distribution, the fraction of blacks who gain at least 20 percentiles remains fairly constant, declining only slightly even as the sample is expanded to include increasingly well-off parents.
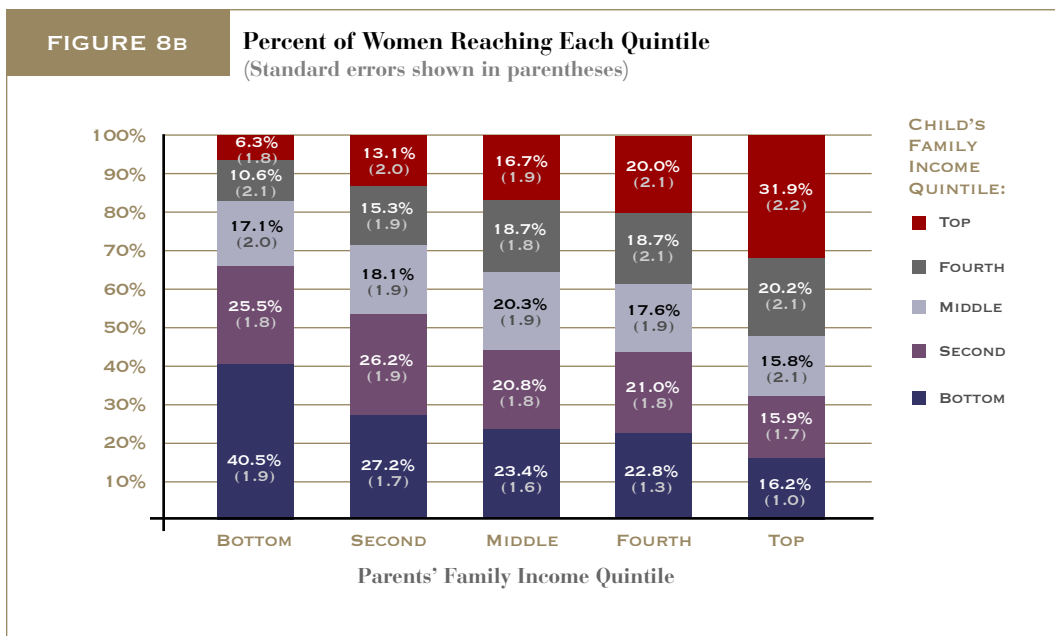
Since the samples used in constructing Figures 4 to 6 are cumulative, the preceding discussion might obscure patterns in the data that would be revealed by looking at non-overlapping samples at specific points in the distribution. Figure 7 plots the UP measure (percent surpassing their parents' percentile) by race using successive *intervals* of five percentiles of the distribution so that each estimate is based on a distinct sample. While the estimates are now a bit "noisier," they reveal more striking differences in upward economic mobility between whites and blacks whose parents' income is greater than the 20th percentile but below the median. Put differently, although upward economic mobility is lower for blacks across the bottom half of the income distribution, the gap is much narrower at the very bottom of the income distribution.

FIGURE 7   **Percent of Children Exceeding Their Parents' Income Percentile, by Race**
(Interval, UP)

Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.
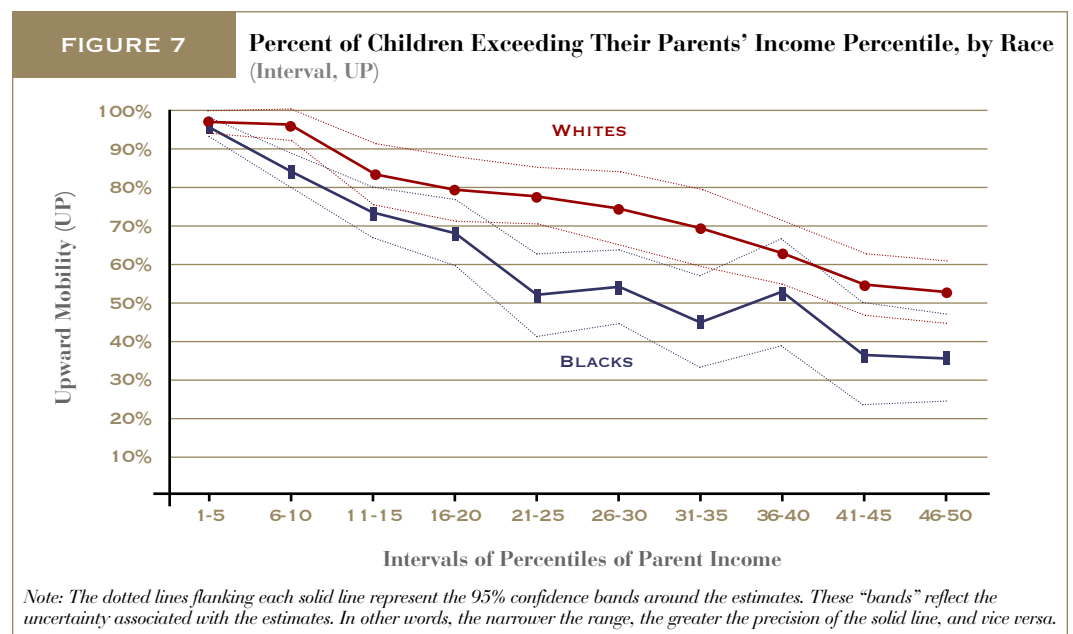
Overall, the data suggests that there are stark differences between whites and blacks with respect to upward mobility. While transition rates can potentially exaggerate the differences because they compare both groups against a common set of income cutoffs, the UP measure could underestimate the racial gap because the average percentile gains of blacks are much smaller than those of whites. The UP-20 measure appears to provide a reasonable balance. It provides the conceptual advantages of the UP estimator over transition rates while incorporating the fact that the average upward movements of blacks are still quite small. Finally, using the UP estimator but looking at specific intervals of the distribution, also reveals that black-white differences in upward mobility are more dramatic among families between the 20th and 50th percentiles. Therefore, while none of the measures may be ideal, viewing all in combination provides a more complete picture of interracial mobility differences.

IV. Economic Mobility Differences Between Men and Women

This chapter explores the degree to which intergenerational mobility might differ between the sexes.[24] There have been pronounced changes in the labor market opportunities of women and a sharp increase in women's participation in the labor force in recent decades. There have also been notable increases in education levels for women relative to men. Many of these factors have had a bearing on inequality trends and could potentially affect intergenerational mobility as well. At the same

FIGURE 8A

Percent of Men Reaching Each Quintile
(Standard errors shown in parentheses)

Child's Family Income Quintile:
■ Top
■ Fourth
■ Middle
■ Second
■ Bottom

Parents' Family Income Quintile

FIGURE 8B

Percent of Women Reaching Each Quintile
(Standard errors shown in parentheses)

Child's Family Income Quintile:
■ Top
■ Fourth
■ Middle
■ Second
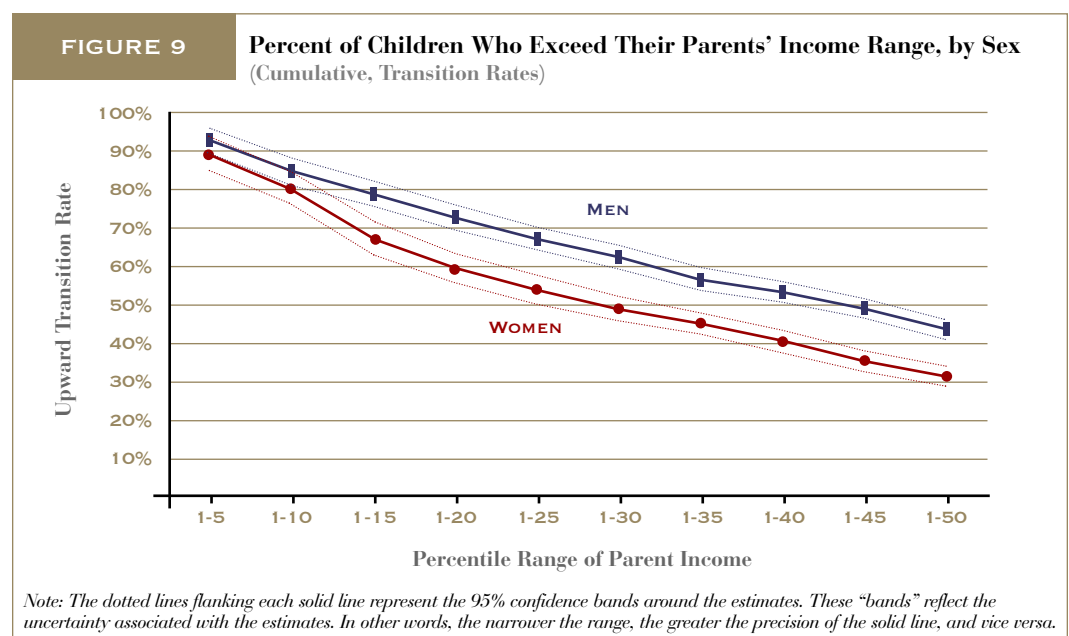■ Bottom

Parents' Family Income Quintile

time, differences in labor market participation rates make it somewhat more difficult to measure economic mobility differences between men and women. The approach taken in this report is to use family income as the measure of economic status. Therefore, for both sexes the mobility estimates combine the effects of one's own income with the income of other family members, most notably spouses.

Transition Rates Across Quintiles

Figure 8 displays the transition rates across quintiles separately for men and women.[25] Men experience greater upward mobility and less downward mobility. Only 27 percent of men who start in the bottom quintile remain there compared to 41 percent of women. Men are also 11 percentage points more likely to remain in the top fifth of the distribution. Both of these differences are highly statistically significant.[26] There are also much higher rates of large downward transitions among women compared to men. For example, 23 percent of women who start in the fourth quintile fall all the way to the bottom quintile, compared to just 9 percent of men.

Upward Economic Mobility

Figure 9 plots the upward transition rates for men and women. Men experience much higher rates of upward mobility throughout much of the bottom half of the distribution. The gender gap is typically between 10 and 15 percentage points and is small only among those who start in the bottom 10 percentiles.

FIGURE 9 — **Percent of Children Who Exceed Their Parents' Income Range, by Sex** (Cumulative, Transition Rates)

Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.
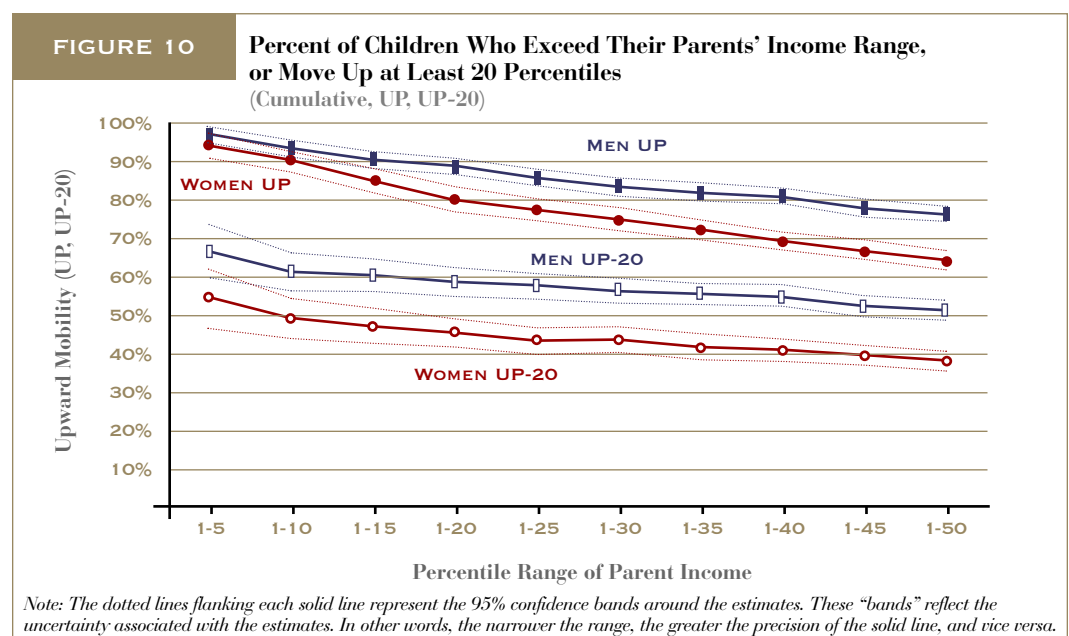
In Figure 10, the upward mobility measures that capture the degree to which individuals exceed their parents' percentile in the distribution (UP) or exceed it by at least 20 percentiles (UP-20) are plotted by sex. As in Figure 9, there is a significantly higher rate of upward mobility for men relative to women by either measure.
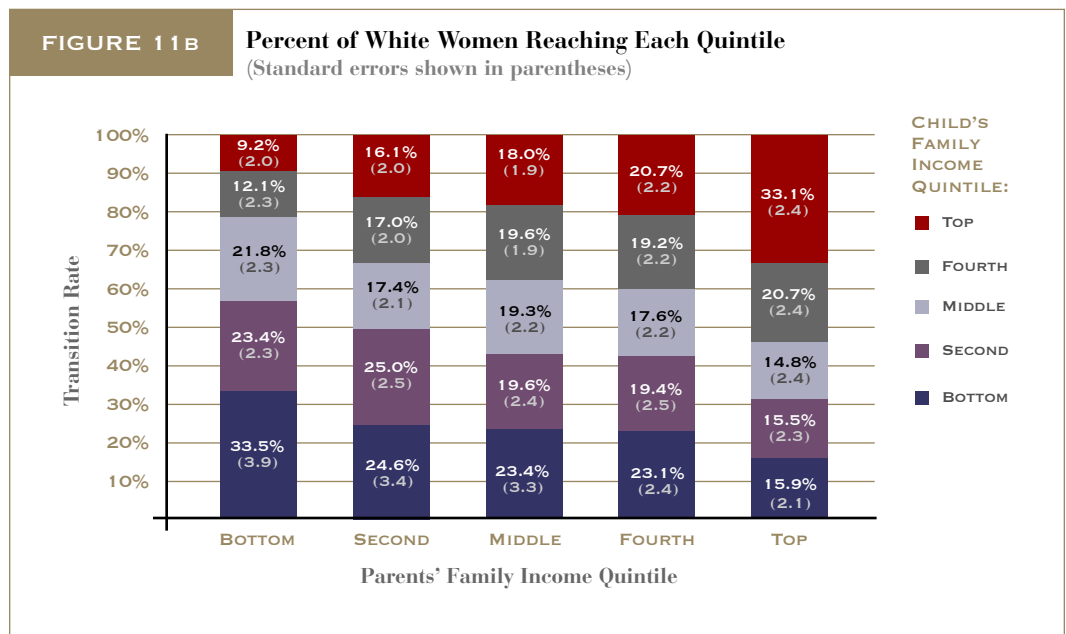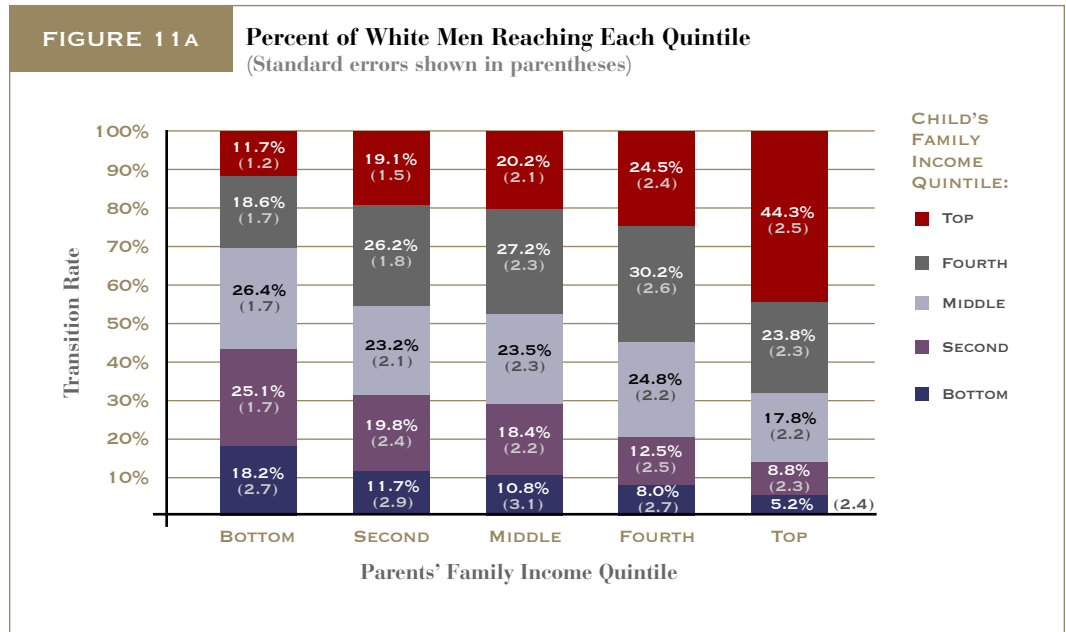
Differences by Race and Sex

Given the large sample size in the NLSY it is possible to further refine the analyses in this chapter and the previous one by stratifying the sample by both sex and race. Figures 11 A–D presents the transition rates across quintiles for these four groups. Overall, the racial differences tend to be more striking than the differences between men and women within racial groups. For example, the pronounced degree of downward mobility among blacks is evident for both men and women: 18 percent of black men and 25 percent of black women who start in the top income quintile will fall to the bottom quintile in a generation. Only 24 percent of black men and 19 percent of black women who start in the top income quintile will remain there.

With respect to upward mobility, however, the prospects are particularly poor for black women. Nearly half of black women (47 percent) who start in the bottom quintile will remain there, compared to just 18 percent of white men. The corresponding figure for black men is a bit smaller than for black women but still stunningly high at 40 percent.

FIGURE 10	**Percent of Children Who Exceed Their Parents' Income Range, or Move Up at Least 20 Percentiles**

(Cumulative, UP, UP-20)

Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.

Figures 11 A and 11 B indicate that there is also an economic gender gap that is much more pronounced among whites. For example, the stickiness at the top is much greater for white men (44 percent) than white women (33 percent). That gap of 11 percentage points is much larger than the corresponding gender gap for blacks of 4 percentage points (see Figures 11 C and 11 D). Similarly there is a sharply higher rate of downward economic mobility among white women than white men.

FIGURE 11A

Percent of White Men Reaching Each Quintile
(Standard errors shown in parentheses)

FIGURE 11B

Percent of White Women Reaching Each Quintile
(Standard errors shown in parentheses)

For example, the rate of falling from the fourth income quintile to the bottom quintile is 23 percent for white women compared to 8 percent for white men. In contrast, black men and black women have similar rates of downward economic mobility from the fourth to the bottom income quintile.

FIGURE 11c **Percent of Black Men Reaching Each Quintile**
(Standard errors shown in parentheses)

	Bottom	Second	Middle	Fourth	Top
Top	4.3% (6.2)	10.1% (5.2)	7.8% (6.8)	8.4% (6.2)	23.7% (6.2)
Fourth	9.2% (5.0)	10.3% (4.3)	17.2% (6.0)	22.9% (5.4)	24.1% (3.5)
Middle	16.5% (4.7)	19.8% (4.5)	14.1% (3.8)	30.4% (3.8)	20.0% (3.0)
Second	29.9% (3.6)	24.5% (3.4)	28.9% (2.9)	13.0% (2.3)	14.5% (2.2)
Bottom	40.1% (2.4)	35.4% (2.3)	32.0% (1.8)	25.4% (1.4)	17.8% (1.1)

Transition Rate (y-axis) / Parents' Family Income Quintile (x-axis)

Child's Family Income Quintile: Top, Fourth, Middle, Second, Bottom

FIGURE 11d **Percent of Black Women Reaching Each Quintile**
(Standard errors shown in parentheses)

	Bottom	Second	Middle	Fourth	Top
Top	3.9% (6.7)	4.7% (7.0)	7.6% (6.2)	6.8% (4.7)	19.3% (5.9)
Fourth	9.5% (5.7)	8.8% (6.7)	10.7% (4.9)	7.3% (3.9)	12.4% (2.9)
Middle	11.5% (4.1)	21.4% (4.9)	30.9% (4.8)	17.4% (2.9)	22.9% (2.8)
Second	28.1% (3.4)	29.7% (3.1)	28.6% (2.9)	44.8% (2.0)	20.5% (1.4)
Bottom	47.0% (2.1)	35.4% (1.9)	22.1% (1.5)	23.7% (1.5)	24.9% (0.8)

Transition Rate (y-axis) / Parents' Family Income Quintile (x-axis)

Child's Family Income Quintile: Top, Fourth, Middle, Second, Bottom

The patterns in upward mobility are also plotted using the UP-20 measure in Figure 12. This describes the probability of exceeding one's parents' place in the distribution by 20 or more percentiles for each of the four demographic groups. This chart demonstrates once again that the rates of upward economic mobility are notably lower for blacks, and especially low for black women. The chart also demonstrates that there is a sizable economic gender gap among whites.

FIGURE 12 | **Percent of Children Who Move Up At Least 20 Percentiles, by Race and Sex**
(Cumulative, UP-20)
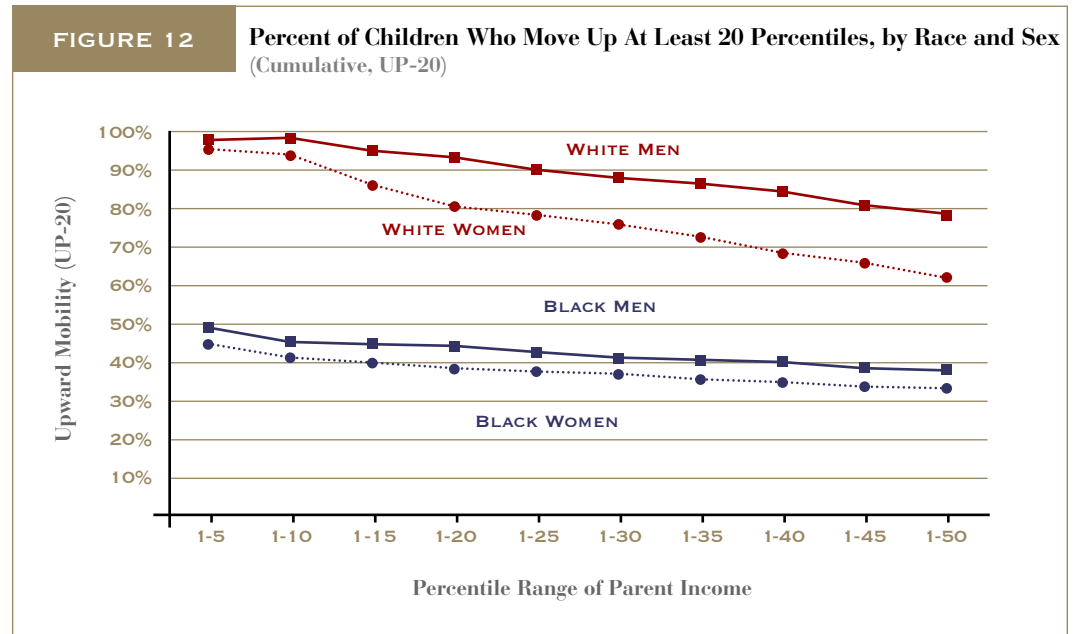
V. Explaining The Black-White Gap in Upward Economic Mobility

What are the key underlying factors that might explain differences in upward mobility? Current research has been only partially successful in trying to account for the sources of intergenerational persistence in income across families. For example, Bowles et al. (2005) were only able to account for about half of the intergenerational elasticity in income using factors such as education, IQ scores and wealth. In this chapter, I apply a new methodological approach and a rich dataset to reexamine this question by focusing on explaining differences across racial groups. While I do not expect to resolve this question in a fully convincing way, I hope to shed some light by using some new explanatory variables available in the NLSY and by utilizing the measures of upward economic mobility described in this report. The basic approach will be to examine each of four types of explanatory variables and see the extent to which they might explain the observed black-white economic mobility gap.

For simplicity, I primarily focus on one measure of upward economic mobility in this chapter: the upward transition rate that shows the likelihood of an individual who starts in the bottom quintile, is able to move out of the bottom income quintile as an adult.[27] I show the effects separately by race using a pooled sample of men and women.[28]

Each chart plots the estimated transition rate for each race on the y-axis against the level of the explanatory variable on the x-axis. For whites, 75 percent of those starting out in the bottom income quintile escape it, while just 56 percent of blacks do. If there was no effect of a given explanatory variable then we would expect to see two flat horizontal lines at 75 percent and 56 percent, about 20 percentage points apart. If a particular explanatory variable had a positive effect on economic mobility, then this would show up as a line with an upward slope. The steepness of the slope indicates the effect of the variable. If the variable could completely "explain" the black-white economic difference, then we would expect to see the two lines overlaid, with no gap separating them. I also plot the white-black difference in the estimates. For each chart confidence bands (dashed) are also shown for all three lines. The confidence bands show the uncertainty in the estimates by giving the range of transition rates consistent with the data at each level of the explanatory variable. Wide bands imply that one cannot put much credence in the estimates.

Human Capital

Economic theory has emphasized human capital investment as the key factor in understanding intergenerational linkages in economic status.[29] Therefore, it is natural to examine how economic mobility is affected by accounting for differences

in years of schooling of the children. I also utilize test scores from the Armed Forces Qualifying Test (AFQT) available in the NLSY. The AFQT combines scores on arithmetic reasoning, mathematics knowledge, word knowledge and paragraph comprehension. The military views the AFQT score as a measure of general trainability and a predictor of on-the-job performance.[30] AFQT scores have been used by economists as a measure of pre-labor market skills to explain black-white inequality in wages,[31] and as a measure of academic achievement to explain minority college enrollment gaps.[32]

Despite the fact that the AFQT is viewed by the military and most social scientists as a straightforward measure of academic skills, it is important to note that Richard Herrnstein and Charles Murray in their controversial 1994 book, *The Bell Curve*, chose to interpret AFQT scores as a measure of "general intelligence" that is genetically transmitted. A growing number of studies, however, have rejected the interpretation that AFQT scores are unaffected by environmental factors such as years of schooling and experience.[33]

Non-Cognitive Skills

Several recent studies have emphasized the importance of skills that are not related to knowledge or academic achievement but might, nonetheless, have an important bearing on labor market success. For example, some studies have found that personality-specific traits affect wages[34] and may account for some of the intergenerational persistence in income.[35] Using the NLSY, I utilize two measures of non-cognitive skills. The first is a "fatalism" scale, known as the Rotter scale, which measures the degree to which individuals believe they control their own fate. The second is a measure of self-esteem.[36]
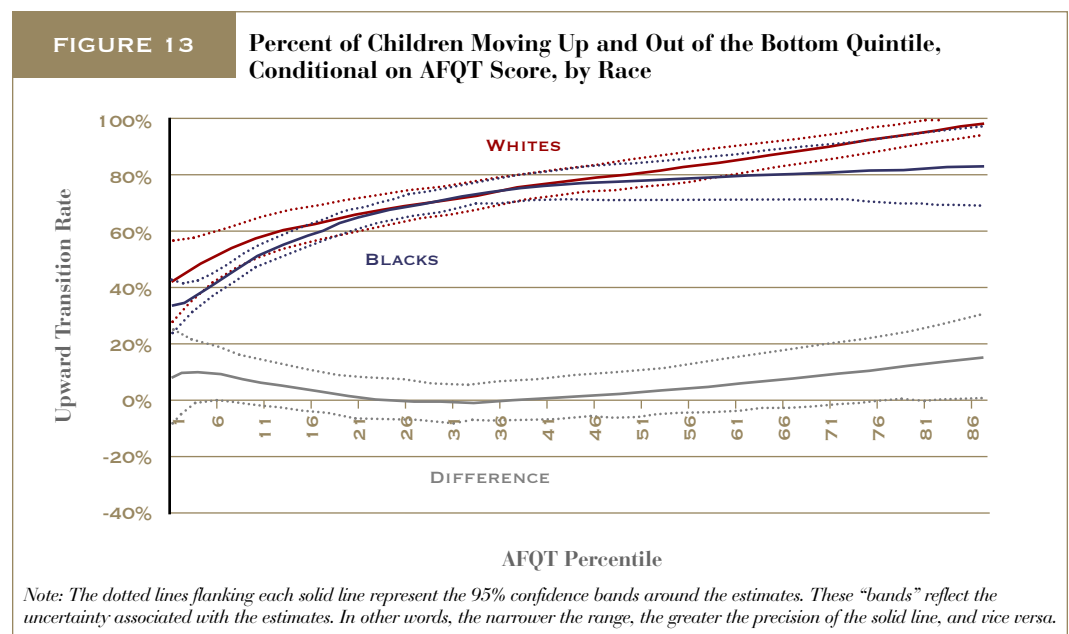
Family Structure

One might speculate that the absence of a parent may be an important factor in hindering upward economic mobility. This may be particularly important for blacks given the high rates of single-parent households. To investigate this, I utilize information collected by the NLSY on the structure of the family when the individual was 14 years old.[37]

Health

Many recent studies have shown that early life health conditions may play an important role in setting the foundations for future educational and socioeconomic

outcomes.[38] This might be one channel by which intergenerational mobility is affected. For example, if poorer households are less able to access adequate health care this could link income in one generation to income in the next. There is some limited data on the health of NLSY respondents when they are young (it asks if they have any health limitations that might prevent work) and there are some very detailed measures of health status during adulthood that are converted into a continuous health scale. Using health measured during adulthood rather than childhood could be problematic because it may be more likely to capture the effects of economic mobility on health rather than the reverse.

Individuals with higher test scores in adolescence are more likely to move out of the bottom quintile, and test scores can explain virtually the entire black-white mobility gap. Figure 13 plots the transition rates against percentiles of the AFQT test score distribution. The upward-sloping lines indicate that, as might be expected, individuals with higher test scores are much more likely to leave the bottom income quintile. For example, for whites, moving from the first percentile of the AFQT distribution to the median roughly doubles the likelihood from 42 percent to 81 percent. The comparable increase for blacks is even more dramatic, rising from 33 percent to 78 percent. Perhaps the most stunning finding is that once one accounts for the AFQT score, the entire racial gap in mobility is eliminated for a broad portion of the distribution. At the very bottom and in the top half of the distribution a small gap remains, but it is not statistically significant. The differences in the top half of the AFQT distribution are particularly misleading because there are very few blacks in the NLSY with AFQT scores this high.

FIGURE 13 — **Percent of Children Moving Up and Out of the Bottom Quintile, Conditional on AFQT Score, by Race**

Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.

**The more years of schooling both black and white children attain, the more likely
they are to move up and out of the bottom quintile. However, years of completed
schooling explains little of the black and white economic mobility gap.**
Figure 14 shows that the transition rate for each race rises sharply with years of
schooling, as might be expected. For example, for blacks the difference between 6 years
of schooling and 17 years of schooling is an increase in the upward transition rate
from 10 percent to 91 percent. However, in contrast with Figure 13, controlling for
years of education, the black-white economic mobility gap at lower levels of education
is not much smaller than it was without controlling for years of schooling, as indicated
by the fact that the gap between the two lines through 12 years of schooling is
nearly as wide as the overall gap between blacks and whites. For example, the
transition rate for whites with 10 years of schooling is 65 percent and is substantially
higher than the comparable figure for blacks, 39 percent. This 26 percentage-point
gap narrows to 16 percentage points for those who complete 12 years of schooling.
For those who have completed college (16 years) the gap is just four percentage
points and is no longer statistically significant. Overall, this suggests that years
of completed schooling do not fully reflect the skills gap as captured by test scores.

FIGURE 14   **Percent of Children Moving Up and Out of the Bottom Quintile,
Conditional on Own Educational Attainment, by Race**
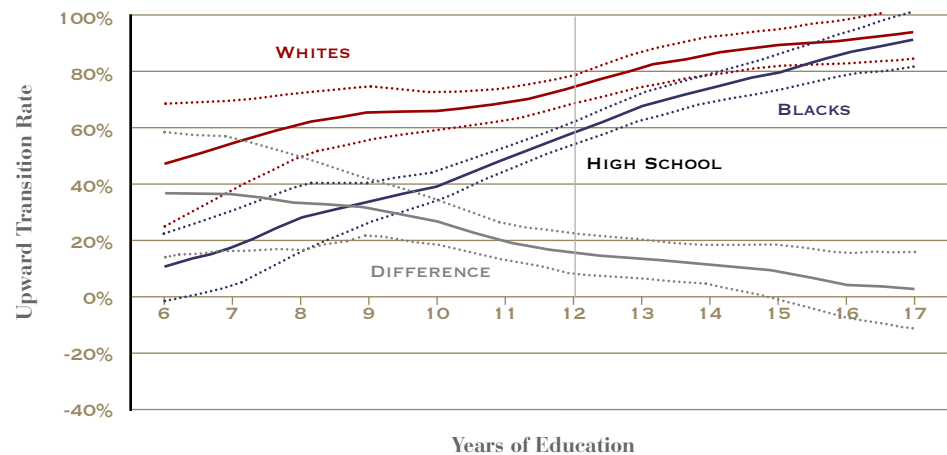
*Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the
uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.*

**Measures of self-esteem and fatalism do not seem to explain the differences
in black and white mobility rates, though self-esteem may play an important
role in influencing upward mobility.** Figure 15 shows the effect of the fatalism
scale on the transition rate. The perception of control over one's life is measured
on a scale of 1 to 13 with each additional unit reflecting a decrease. While,
unsurprisingly, people with more fatalism as youth are less likely to escape
the bottom quintile, because there are few observations at either extreme of the
scale the estimates are very imprecise at those extremes. At roughly the mid-point

of the scale, whites and blacks are about 16 percentage points apart in the
upward transition rate, which is only slightly (and insignificantly) lower than
the overall black-white gap.

I reach a broadly similar conclusion examining Figure 16, which plots the upward
transition rate against a measure of self-esteem that ranges from 1 to 25. While
there is a clear positive relationship, this measure does little to account for black-
white differences. For example, among those with very high self-esteem, whites

FIGURE 15 **Percent of Children Moving Up and Out of the Bottom Quintile,
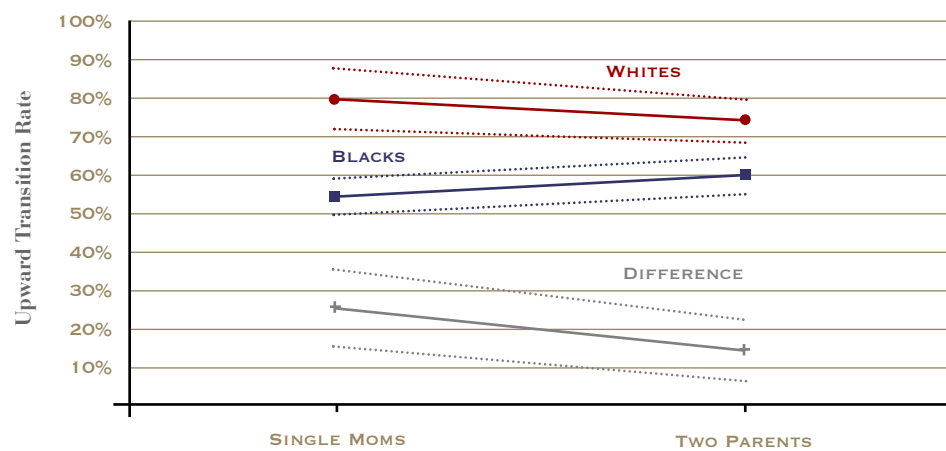Conditional on Fatalism Scale, by Race**
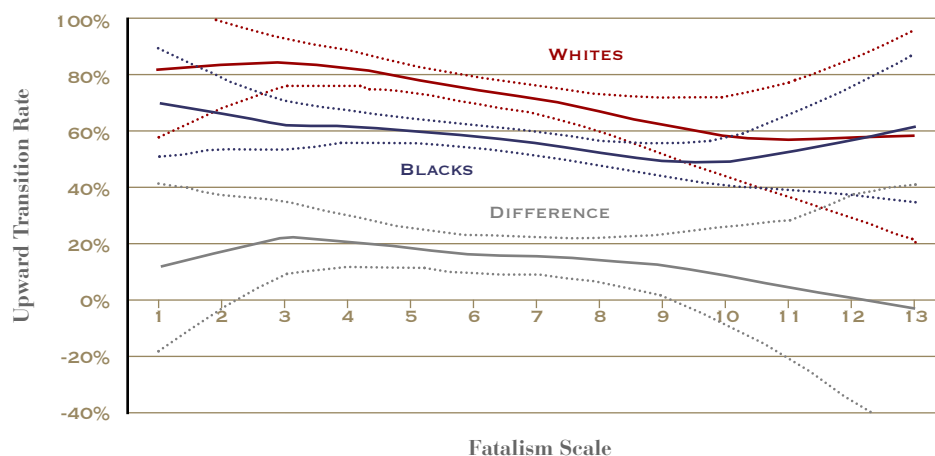
*Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the
uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.*

FIGURE 16 **Percent of Children Moving Up and Out of the Bottom Quintile,
Conditional on Self Esteem, by Race**
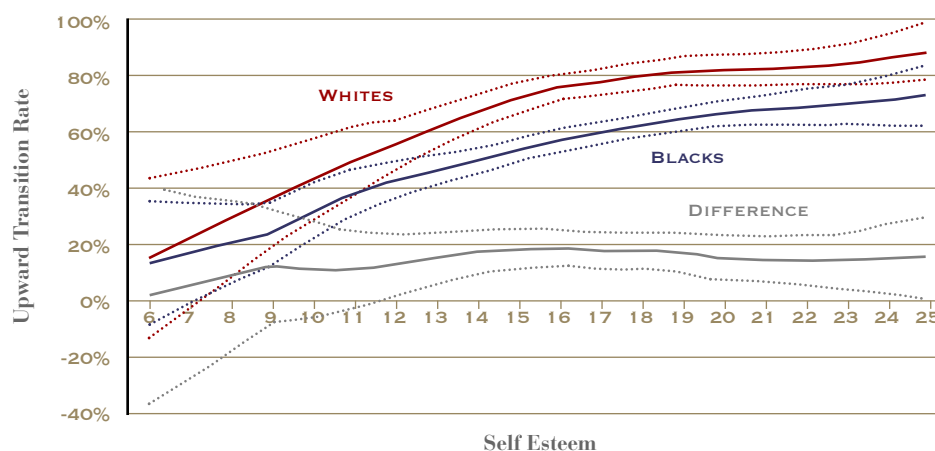
*Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the
uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.*

are still about 15 percentage points more likely to transition out of the bottom quintile. The racial gap is much smaller at the very bottom of the self-esteem distribution, but the paucity of data presents one from inferring much from these observations. Nevertheless the sharp upward slope for both races from the bottom to the middle of the self-esteem distribution suggests that it may play an important role in determining upward mobility even if it does not explain differences between racial groups.

The racial economic mobility gap remains even when controlling for family structure during adolescence. Figure 17 looks at the effects of family structure at age 14. In this case, the key question of interest is whether being raised by a single mother can explain the mobility gap between whites and blacks. Therefore, the chart simply plots the transition rate by race and for each of the two broad family types: those who were raised by a single mother and those who were raised by two parents.[39] For blacks there is a modest increase in the transition rate from 54 percent for kids from single mother-headed households, to 59 percent for those coming from two parent households. For whites, there is actually a decline from 79 percent to 73 percent, although this change is not statistically significant. The black-white difference is sharply lower for children from two-parent households compared to households headed by single mothers, but the fact that more than half of this is driven by worse outcomes for whites in two-parent households suggests that we should not read too much into this decline. Even in two-parent families, the racial gap is still reasonably large, suggesting that family structure does not account for much of the difference. Nevertheless the true effects may be underestimated since the data only captures family structure at one particular age.
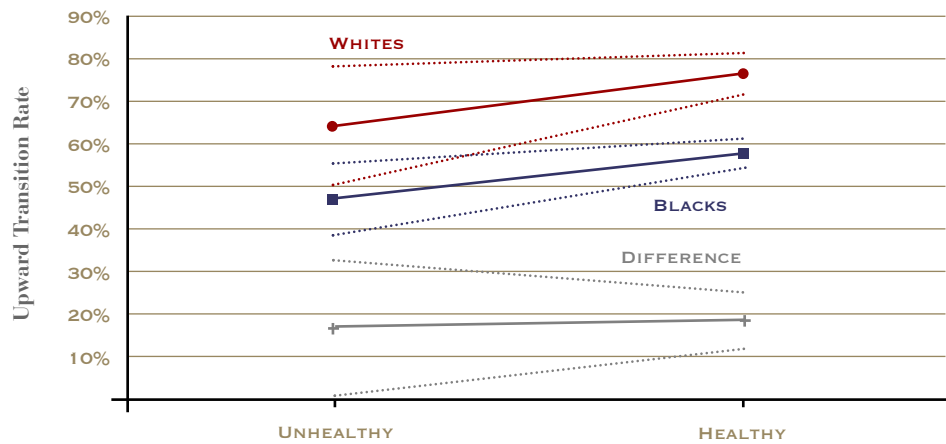

FIGURE 17 | **Percent of Children Moving up and Out of the Bottom Quintile, Conditional on Family Structure, by Race**

Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.

While good health may positively impact upward mobility, it does not explain the black-white mobility gap. Figure 18 shows a plot of the effect of health status during adolescence on the transition rate. For both races there is an upward slope. Those who experienced no health limitation are about 10 percentage points more likely to surpass the bottom quintile. Once again, however, despite the positive effect of health on economic mobility, controlling for this variable, has little bearing on the black-white economic mobility gap, which is just under 20 percentage points.

| FIGURE 18 | Percent of Children Moving Up and Out of the Bottom Quintile, Conditional on Adolescent Health, by Race |

Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.

| FIGURE 19 | Percent of Children Moving Up and Out of the Bottom Quintile, Conditional on Adult Health, by Race |
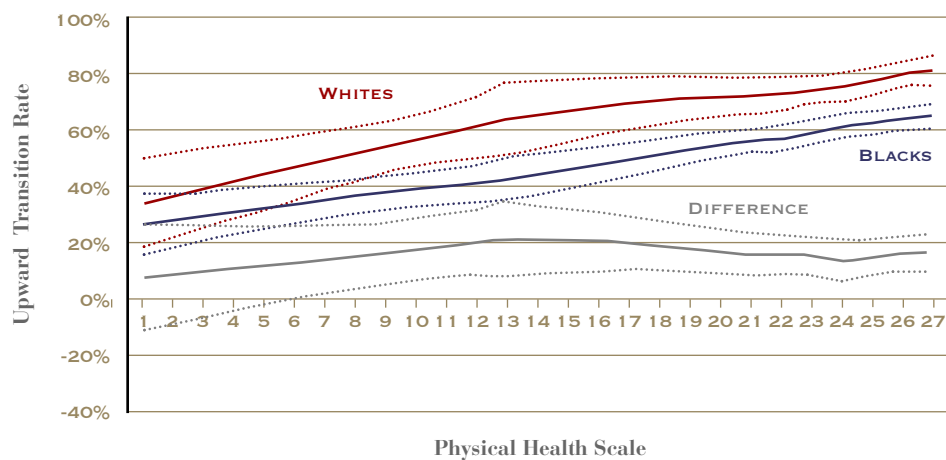
Note: The dotted lines flanking each solid line represent the 95% confidence bands around the estimates. These "bands" reflect the uncertainty associated with the estimates. In other words, the narrower the range, the greater the precision of the solid line, and vice versa.

Since the presence or absence of a health limitation may be too blunt a measure, Figure 19 utilizes a more finely developed health scale to examine the relationship between health and upward economic mobility.[40] This scale, however, measures health during adulthood, when both health and labor market outcomes may be jointly determined. Both lines in the chart have sharp upward slopes suggesting that large differences in health are associated with large differences in upward economic mobility. For example for blacks, moving from the bottom of the scale to the top raises the transition rate from 27 percent to 65 percent. However, throughout most of the health scale whites are still about 15 to 20 percentage points more likely to surpass the bottom income quintile.

Summary

Several factors analyzed here clearly play an important role in accounting for differences in upward economic mobility among the overall population. Differences in test scores, years of schooling, self esteem, and health in adulthood are strongly associated with differences in upward transition rates within racial groups. However, unlike the other factors, test scores during adolescence appear to play a critical role in explaining black-white differences in upward mobility.

A large and growing literature has tried to understand the sources of differences in academic achievement between blacks and whites. Studies have looked at a range of factors, such as parental influences, neighborhood influences, and peer groups.[41] It is likely that whatever factors explain the large gap in academic skills between blacks and whites will also account for the sources of differences in upward economic mobility between the groups. These factors may also provide some useful insight into our general understanding of the process underlying upward economic mobility for those who start from a disadvantaged background.

VI. Conclusion

In recent years there has been heightened interest among the public and policy makers about the extent of economic mobility in the United States. In particular, there has been growing concern about whether there is equal opportunity for economic success, driven in part by a growing number of studies showing that there is much less intergenerational economic mobility than many people might have imagined. These studies of relative economic mobility, however, have used measures that are limited in their ability to characterize upward mobility among those starting at the bottom of the income distribution. In addition, few studies have adequately captured differences in upward economic mobility between population subgroups defined by race and gender or examined the factors behind these differences.

This study used a new large intergenerational dataset and developed new measures of upward intergenerational economic mobility to more accurately capture upward mobility rates. The report confirmed the findings of previous Economic Mobility Project reports that showed "stickiness" at the bottom and top of the income distribution. In addition, new measures of upward mobility suggest that there is some modest degree of upward economic mobility among those who start in the bottom half of the income distribution. However, very stark differences in both upward and downward economic mobility were found between blacks and whites. A gender gap in economic mobility is also identified that is especially pronounced among whites. The study also identified an especially important role for test scores during adolescence in explaining the black-white mobility gap. In addition, years of schooling, self-esteem and health were also found to generally affect rates of upward economic mobility.

Although this report sheds light on some of the key factors associated with intergenerational upward income mobility, there is still a great deal that must be learned before effective policies can be designed. For example, while the results of the report make it clear that human capital development is a key factor, we are only beginning to understand the process by which children who start at the bottom may ultimately develop the requisite skills to have an equal opportunity for economic success. We do not yet know what combination of factors (e.g., parental resources, preschool quality, early life health, peer and neighborhood influences) will ultimately improve human capital development and how policy makers can best intervene in this regard. Given the facts that are presented in this report concerning the degree of equal opportunity in the United States, it is clear that improving our understanding of this issue should be an important priority.

APPENDIX: The National Longitudinal Survey Of Youth

The NLSY began with a sample of individuals who were between the ages of 14 and 21 as of January 1, 1979 and who have since been tracked through adulthood. The NLSY conducted annual interviews until 1994 and has since shifted to biennial surveys. The analysis is restricted to the sample of youth who were living at home with their parents during the first three years of the survey and for whom family income was directly reported by the parents in any of these years. No restrictions were made on the age of parents, and the mean age of fathers is 47. Respondents also must have stayed in the sample to adulthood and been interviewed in one of the surveys beginning with 1998 and ending in 2004. The analysis includes individuals from both the cross-sectional representative samples as well as the supplemental samples (e.g., blacks and Hispanics). Following previous studies, I combine the cross-sectional and supplemental samples of blacks.[42] However, as a group, blacks and Hispanics are overrepresented in the sample. Therefore, all of the analyses utilize the 1979 sampling weights.[43] The final sample includes 3,349 men and 3,186 women.

Family Income

The measures of mobility utilize data on "Total Net Family Income" calculated by the NLSY. This includes up to 19 categories of income including wages and salary earnings, net business income, and income from a variety of transfer programs (e.g., unemployment compensation, child support, welfare programs, rental subsidies). No adjustment is made for taxes. The family income of the children is measured for the years 1997, 1999, 2001, and 2003, when sample members were between the ages of 32 and 44. The measures of permanent family income are constructed for each generation by using multiyear averages using *any* available years of data. Years of zero income are included in the averages. Family income is adjusted for inflation into 1978 dollars using the headline Consumer Price Index (CPI) series.

The NLSY and PSID Compared

There are several major differences with the PSID that might affect estimates of intergenerational economic mobility. First, the PSID, which began in 1968, covers a broader set of birth cohorts and outcome years. Typically, researchers studying intergenerational income mobility have used cohorts born starting around 1950 and extended to cohorts born as late as 1975 and have observed children's income as adults from the 1980s to the current period. The NLSY in contrast,

covers only those born between 1957 and 1964, and earnings as adults can be measured from the 1990s to the 2000s. A second difference is that in the PSID, children's family income as adults is measured only if they become the household head or spouse. In contrast, *all* NLSY sample members are surveyed about their income.

A third important factor that is particularly important when looking at blacks is sample composition. Some researchers have raised concerns about the representativeness of the over-sample in the PSID due to a technical problem in the collection of the initial list of households used for the sampling frame and because of the high rate of attrition among blacks.[44] The previous report for the Economic Mobility Project also notes that two-thirds of the oversample in the PSID was excluded starting in 1997 due to cost reduction.[45] A related concern is that the intergenerational sample size of the PSID, when restricted to the nationally representative portion of the survey, is considerably smaller than that of the NLSY.

Fourth, the NLSY is not a true intergenerational sample and is much more limited with respect to its collection of parent information. Therefore, the NLSY can be used to measure only *total family income* for a few years during *adolescence* when the children live at home with their parents. In contrast the PSID can measure a variety of sources of income from each parent and potentially for any number of years that the child lives with the parent.

NOTES

[1] The literature on intergenerational economic mobility has focused almost exclusively on individuals' "relative" movement across generations rather than on the "absolute" gains or losses compared to their parents. Throughout the rest of this report, I will use the term "mobility" to refer to relative economic mobility.

[2] Bowles et al., 2005 and Corak, 2006.

[3] The intergenerational elasticity (IGE) measure comes from a linear regression equation estimating the relationship between children's and parents' income, with both child and parental income expressed in logarithmic measures. It measures the percentage difference in expected child income associated with a 1 percent difference in parental income.

[4] For example, it is well known that one needs longer time averages of parent income in order to obtain accurate estimates of the IGE (Solon, 1992; Mazumder, 2005). Couch and Lillard, 1997 and Dahl and DeLeire, 2007 argue that the IGE is very sensitive to the treatment of years of zero income although Mazumder, 2005 does not find this to be the case. An advantage to the estimators used in this paper is that they include zero and even negative values of net family income.

[5] See Bhattacharya and Mazumder, 2007.

[6] For example, the IGE for a sample of blacks produces an estimate of the rate at which black income regresses to the black mean, and not to the mean of the overall income distribution. Therefore, the IGE is not as useful as transition rates for looking at group differences in mobility.

[7] Another issue is that there is a "floor-ceiling" problem when calculating transition rates at the very bottom or very top of the distribution. For example, those at the top may appear less mobile because they cannot, by definition, move any higher.

[8] For technical reasons discussed in Bhattacharya and Mazumder, 2007, the measure is meaningful only if the sample is restricted to individuals above or below a certain cutoff (e.g., below the median) or if comparisons are made across groups.

[9] Exceptions include Bratsberg et al., 2006 and Aaronson and Mazumder, 2008. Some previous studies such as Zimmerman, 1992 have used an earlier NLS cohort of young men and women.

[10] Isaacs, 2008a.

[11] Ibid.

[12] For example, the 525 individuals from families in the bottom 5 percent of the distribution (first row) were also used in calculating rates of upward economic mobility for the 4,111 individuals in the entire bottom half of the distribution.

[13] For example, an individual who is at the 18th percentile and whose parents were at the 15th percentile would register as upwardly mobile by the UP measure but would not make an upward transition out of the bottom income quintile.

[14] For example, if the respective measures used only individuals whose parents were exactly at the 40th percentile of parent income, every individual who surpassed the 40th percentile would by definition also exceed their parents' percentile.

[15] There are two major explanations for the lack of research in this area. First, there is a paucity of intergenerational data on black families. Second, the main measure of intergenerational mobility, the intergenerational elasticity (IGE) is not well suited for comparing black-white differences. This is because the IGE for blacks estimates the rate at which blacks regress to the mean of the black distribution, not the overall distribution.

[16] For example, whether or not 25 years is a long enough time to eliminate the black-white gap in school admissions as suggested by former Supreme Court Justice O'Connor is influenced by the degree of intergenerational mobility in income (Krueger, Rothstein and Turner, 2006)

[17] Hertz, 2005.

[18] Isaacs, 2008b.

[19] On the other hand, the upward economic mobility or UP measure may give a built-in advantage to blacks. For example, suppose it were the case that at every percentile of the distribution blacks and

whites were equally likely to surpass their parents but that those towards the bottom of the distribution were more likely to surpass their parents (irrespective of race). In this case the fact that the black distribution lies to the left of the white distribution would mechanically give blacks a higher rate of upward mobility. In that sense, the finding that whites actually have higher upward mobility using the UP measure is *in spite of* this possible bias in favor of blacks.

[20] A common set of quintile categories are calculated using the overall income distribution.

[21] Isaacs, 2008b.

[22] In the next section we also show that downward mobility from the middle quintile to the bottom quintile is somewhat higher for black *men* (32 percent) than black *women* (22 percent). If the PSID sample of blacks disproportionately captures mobility among men at the expense of women, then this could be one factor explaining the discrepancy. The Appendix provides a more detailed discussion of some of the differences between the NLSY sample used in this study and the PSID sample used by Isaacs, Sawhill and Haskins, 2008 and Hertz, 2005.

[23] See the discussion on page 12 in chapter II.

[24] Previous studies have generally found that the intergenerational elasticity in income is roughly of a similar magnitude between men and women. For example Chadwick and Solon, 2002 using the PSID find an estimate of 0.54 for men compared to 0.43 for women, although the difference is not statistically significant.

[25] A common set of quintile categories are calculated using the overall income distribution.

[26] Isaacs, 2008c also found greater stickiness in the bottom quintile for women (47 percent) than for men (35 percent); however, she found *equal* rates of stickiness in the top (39 percent) for both men and women. The Appendix discusses differences between the PSID and NLSY samples that may account for the difference in results. For example if downwardly mobile women who start at the top are less likely to be a head of household or a spouse of the head of household, they might not be captured in the PSID.

[27] This refers to the figure of 66 percent shown in row 4 and column 2 of Table 1.

[28] In most cases where the explanatory variables are continuous, I utilize "non-parametric" regressions so that the effects of each variable are not forced to have a linear effect and can differ at different points in the distribution of the explanatory variable. For example, mobility may be more sensitive moving from 12 to 16 years of schooling (completing college) than from 10 to 11 years. Bhattacharya and Mazumder, 2007 describe how standard errors can be calculated using this non-parametric approach. In the case of dichotomous variables (e.g., single parent vs two parent), I simply calculate the transition rate for each subgroup. Using this approach, a series of charts will be shown that depict the effects for each variable. As a result, there is no formal decomposition but rather a set of descriptive charts that may shed light on some of the key factors.

[29] See Becker and Tomes, 1979.

[30] See, for example, http://www.defenselink.mil/prhome/poprep2004/enlisted_accessions/recruiting.html.

[31] See Neal and Johnson, 1996.

[32] See Cameron and Heckman, 2001.

[33] See, for example, Neal and Johnson, 1996; Hansen, Heckman and Mullen, 2004; and Cascio and Lewis, 2006.

[34] See Heckman and Rubinstein, 2001.

[35] See Osbourne-Groves, 2005.

[36] Mazumder, 2008 has used these measures previously to examine the sibling correlation in economic outcomes.

[37] This proxy for family structure during childhood is likely to be rather imprecise and may dilute the true effect on economic mobility. Some children in a two-parent family at age 14 may have lived in a single parent family at an earlier age or sometime after age 14, while others in a single-parent family at age 14 may have spent time in a two-parent family.

[38] See Currie, 2007.

[39] For this analysis no distinction was made between biological parents, stepparents or other relatives. Other types of family groupings, such as single-father families were excluded.

[40] This utilizes the SF-12 physical health scale administered to NLSY respondents. The scale runs from 1 to 100 with a value of 50 reflecting the average health of the population and a standard deviation of 10. Values from 30 to 57 encompass over 90 percent of the data so values smaller than 30 and larger than 57 are bottom coded and top coded at these values. This is then rescaled to run from 1 to 27.

[41] See for example Jencks and Phillips, 1998.

[42] See Neal and Johnson, 1996 and Cameron and Heckman, 2001.

[43] The standard errors shown in the paper do not account for the sampling design.

[44] See Lee and Solon, 2007 concerning the representativeness of the sampling frame and Solon, 1992 concerning sample attrition. Although there are some concerns about the representativeness of the NLSY (MacCurdy et al., 1998) there is no known problem that puts into question the *initial* selection of households in the sampling frame.

[45] Isaacs, 2008a.

RESOURCES

Aaronson, Daniel and Bhashkar Mazumder. 2008. "Intergenerational Economic Mobility in the US: 1940 to 2000." *Journal of Human Resources* 43(1): 139-172.

Becker, Gary S. and Nigel Tomes. 1979. "An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility." *Journal of Political Economy* 87: 1153-1189.

Bhattacharya Debopam and Bhashkar Mazumder. 2007. "Nonparametric Analysis of Intergenerational Income Mobility with Application to the United States." *Federal Reserve Bank of Chicago Working Paper* 2007-12.

Bowles, Samuel, Herbert Gintis and Melissa Osbourne-Groves. 2005. "Introduction: Intergenerational Inequality Matters." In *Unequal Chances: Family Background and Economic Success*. Samuel Bowles, Herbert Gintis and Melissa Osbourne-Groves, eds. Princeton, NJ: Princeton University Press.

Bratsberg, Bernt, Knut Røed, Oddbjørn Raaum, Robin Naylor, Markus Jäntti, Tor Eriksson, Eva Österbacka, and Anders Björklund. 2006. "Nonlinearities in Intergenerational Earnings Mobility: Consequences for Cross-Country Comparisons." *Economic Journal* 117(519): C72-92.

Cameron, Stephen V. and James J. Heckman. 2001. "The Dynamics of Educational Attainment for Black, Hispanic and White Males." *Journal of Political Economy* 109(3): 455-499.

Cascio, Elizabeth and Ethan Lewis. 2006. "Schooling and the Armed Forces Qualifying Test: Evidence from School Entry Laws." *Journal of Human Resources* 41(2): 294-318.

Chadwick, Laura and Gary Solon. 2002. "Intergenerational Income Mobility Among Daughters." *American Economic Review* 92(1): 335-344.

Corak, Miles. 2006. "Do Poor Children Become Poor Adults? Lessons from a Cross Country Comparison of Generational Earnings Mobility." *Research on Economic Inequality* 13(1): 143-188.

Couch, Kenneth A. and Dean R. Lillard. 1998. "Sample Selection Rules and the Intergenerational Correlation of Earnings." *Labour Economics* 5: 313-329.

Currie, Janet. 2007. "Healthy, Wealthy, and Wise: Is there a Causal Relationship Between Child Health and Human Capital Development?" Unpublished working paper.

Dahl, Molly and Thomas DeLeire. 2007. "The Association between Children's Earnings and Fathers' Lifetime Earnings: Evidence from Administrative Data." Unpublished manuscript.

Hansen, K. T., J. J. Heckman, and K. J. Mullen. 2004. "The Effect of Schooling and Ability on Achievement Test Scores." *Journal of Econometrics* 121(1-2): 39-98.

Heckman James J. and Yona Rubinstein. 2001. "The Importance of Noncognitive Skills: Lessons from the GED Testing Program." *American Economic Review* 91(2):145-49.

Hertz, Tom. 2005. "Rags, Riches and Race: The Intergenerational Economic Mobility of Black and White Families in the United States." In *Unequal Chances: Family Background and Economic Success*. Samuel Bowles, Herbert Gintis and Melissa Osborne Groves, eds. Princeton, NJ: Princeton University Press.

Isaacs, Julia B. 2008a. "Economic Mobility of Families Across Generations." In Julia Isaacs, Isabel Sawhill and Ron Haskins, *Getting Ahead or Losing Ground: Economic Mobility in America.* Washington D.C.: Economic Mobility Project, an initiative of The Pew Charitable Trusts.

Isaacs, Julia B. 2008b. "Economic Mobility of Black and White Families." In Julia Isaacs, Isabel Sawhill and Ron Haskins, *Getting Ahead or Losing Ground: Economic Mobility in America.* Washington D.C.: Economic Mobility Project, an initiative of The Pew Charitable Trusts.

Isaacs, Julia B. 2008c. "Economic Mobility of Men and Women." In Julia Isaacs, Isabel Sawhill and Ron Haskins, *Getting Ahead or Losing Ground: Economic Mobility in America*. Washington D.C.: Economic Mobility Project, an initiative of The Pew Charitable Trusts.

Isaacs, Julia, Isabel Sawhill and Ron Haskins. 2008. *Getting Ahead or Losing Ground: Economic Mobility in America*. Washington D.C.: Economic Mobility Project, an initiative of The Pew Charitable Trusts.

Jencks, Christopher and Meredith Philips. 1998. *The Black-White Test Score Gap*. Washington, D.C.: Brookings Institution.

Krueger Alan, Jesse Rothstein and Sarah Turner. 2006. "Race, Income, and College in 25 Years." *American Law and Economics Review* 8(2): 282-311.

Lee, Chul-In, and Gary Solon. 2008. "Trends in Intergenerational Income Mobility." working paper, Michigan State University, Department of Economics.

MacCurdy, Thomas, Thomas Mroz and R. Mark Gritz. 1998. "An Evaluation of the National Longitudinal Survey of Youth." *Journal of Human Resources* 33(2): 345-436.

Mazumder, Bhashkar. 2008 (forthcoming). "Sibling Similarities and Economic Inequality in the U.S." *Journal of Population Economics* 21(3).

Mazumder, Bhashkar. 2005. "Fortunate Sons: New Estimates of Intergenerational Mobility In the United States. Using Social Security Earnings Data." *Review of Economics and Statistics* 87(2): 235-55.

Neal, Derek A. and William R. Johnson. 1996. "The Role of Premarket Factors in Black-White Wage Differences." *Journal of Political Economy* 104(5): 860-895.

Osbourne-Groves, Melissa. 2005. "Personality and the Intergenerational Transmission of Earnings." In *Unequal Chances: Family Background and Economic Success*. Samuel Bowles, Herbert Gintis and Melissa Osbourne-Groves eds. Princeton, NJ: Princeton University Press.

Solon, Gary. 1992."Intergenerational Income Mobility in the United States." *American Economic Review* 82: 393-408.

Zimmerman, David J. 1992. "Regression Toward Mediocrity in Economic Stature." *American Economic Review* 82: 409-429.

ABOUT THE PROJECT

The Economic Mobility Project is a unique nonpartisan collaborative effort
of The Pew Charitable Trusts that seeks to focus attention and debate on the
question of economic mobility and the health of the American Dream. It is led
by Pew staff and a Principals' Group of individuals from four leading policy
institutes—The American Enterprise Institute, The Brookings Institution,
The Heritage Foundation and The Urban Institute. As individuals, each principal
may or may not agree with potential policy solutions or prescriptions for action,
but all believe that economic mobility plays a central role in defining the American
experience and that more attention must be paid to understanding the status
of U.S. economic mobility today.

PROJECT PRINCIPALS

Marvin Kosters, Ph.D., *American Enterprise Institute*
Isabel Sawhill, Ph.D., *Center on Children and Families, The Brookings Institution*
Ron Haskins, Ph.D., *Center on Children and Families, The Brookings Institution*
Stuart Butler, Ph.D., *Domestic and Economic Policy Studies, The Heritage Foundation*
William Beach, *Center for Data Analysis, The Heritage Foundation*
Eugene Steuerle, Ph.D., *Urban-Brookings Tax Policy Center, The Urban Institute*
Sheila Zedlewski, *Income and Benefits Policy Center, The Urban Institute*

PROJECT ADVISORS

David Ellwood, Ph.D., *John F. Kennedy School of Government, Harvard University*
Ronald Mincy, Ph.D., *Columbia University, School of Social Work*
Christopher Jencks, M. Ed., *John F. Kennedy School of Government, Harvard University*
Timothy M. Smeeding, Ph.D., *Maxwell School, Syracuse University*
Sara McLanahan, Ph.D., *Princeton University*
Gary Solon, Ph.D., *Michigan State University*
Bhashkar Mazumder, Ph.D., *Federal Reserve Bank of Chicago*
Eric Wanner, Ph.D., *The Russell Sage Foundation*

ECONOMIC
MOBILITY
PROJECT

An Initiative of The Pew Charitable Trusts

THE
PEW
CHARITABLE TRUSTS