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Working Paper No. 311

Racial Wealth Disparities: Is the Gap Closing?

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INTRODUCTION

It is evident that the economic positions of two families with the same incomes but widely different wealth levels are not identical. The wealthier family is likely to be able to better provide for the educational and health needs of its children, to be living in a neighborhood characterized by more amenities and lower levels of crime, to have greater resources that can be called upon in times of economic hardship, and to have more influence in political life.

While the ratios measuring the relative income and earnings positions of African Americans tend to show they remain substantially behind whites, the gaps are small compared to the staggering chasm in wealth levels. For instance, Wolff (1998) estimates the ratio of mean net worth for non-Hispanic African Americans to non-Hispanic whites at 0.17 in 1995, with this fraction being even lower when measured in terms of medians (0.12). To put these numbers in perspective, the ratio of both the mean and median income of African-American households to those for white ones was 0.64 in 1997 (U.S. Census Bureau, 1999).¹ Though the data needed to examine trends in wealth ratios over long periods of time are scarce, there is little evidence to suggest that they have risen substantially from even lower levels, at least over the past decade or so. For instance, in 1983, the mean and median ratios stood at 0.19 and 0.07, respectively.²

The handful of recent studies on racial differences in wealth have focused almost exclusively on trying to explain gaps in wealth *levels* and have paid much less attention to patterns in wealth *accumulation*.³ The typical approach followed has been to employ a Blinder-Oaxaca means-coefficient analysis (e.g., see Blinder 1973), using regressions estimated separately by race, to calculate how much of the gap can be attributed to differences in characteristics that are associated with wealth accumulation, such as family income and education (e.g., Blau and Graham, 1990; Oliver and Shapiro, 1995; Menchik and Jianakoplos, 1997; Avery and Rendall, 1997; and Conley, 1999). The resulting estimates, however, turn out to vary widely depending on whether coefficients are used from the regression equation estimated for whites or that from African Americans. That is, because the wealth of whites rises more steeply than that of African Americans with increases in such characteristics as income and education, the lower mean levels of these characteristics for African Americans "explain" much more when the coefficients for the whites are used.

The fact that the explanatory power of this exercise depends on the coefficients used is less than satisfying, however, as a more complete understanding of the forces behind the racial wealth gap as well the efficacy of various public policies designed to narrow it hinge on what causes the wealth functions to differ so much by race in the first place. That is, do white families have higher levels of wealth than African American families at

comparable age levels because they have received greater amounts of inheritances and other intergenerational transfers, because they devote higher amounts of income to savings, or because they earn higher rates of returns on assets? Unfortunately, with data on family wealth for only one point in time, it is difficult to do more than speculate as to which of these three categories holds the key to racial wealth inequality.

Making use of the supplements on household wealth carried out by the Panel Study of Income Dynamics (PSID) in 1984, 1989 and 1994, this study follows a different tack. By following families over time, it is possible to reconstruct the path of wealth accumulation and thereby attribute observed increases in wealth to intergenerational transfers, savings out of income, or the appreciation of existing assets. Comparisons of these patterns between racial groups enable the question of the sources of the differences in the levels of wealth to be addressed more directly.

We find, as expected, that inheritances play a much greater role in the wealth accumulation of whites than of African Americans. Perhaps surprisingly, however, we do not find consistent evidence that the share of wealth accumulation that is attributable to capital gains is greater for whites than for African Americans, though, of course, the absolute amount from this source is much greater for the former.

Counterfactual experiments suggest that African Americans would have gained significant ground relative to whites during the period under examination, if they had inherited similar amounts, had comparable levels of family income and, more speculatively, had portfolio compositions similar to those of whites. In addition, the wealth gap would have narrowed had the share of income that African Americans devoted to savings been as high as that for whites; however, much of this difference is attributable to fact that (average) saving rates rise with income and African Americans have lower incomes than whites, rather than to whites having a higher savings rate conditional on income level.

The remainder of the paper proceeds as follows. The next section describes the data used. Section III examines basic data on the levels of wealth by race, while Section IV presents decomposition results similar to those in the past literature. Section V provides an analysis of differences in wealth accumulation by race, while Section VI offers conclusions.

DATA

The main source of data used in this study is the PSID and its supplements on family wealth.⁴ The PSID has followed about 5,000 U.S. families since 1968, interviewing them annually. Data on wealth were collected via special supplements carried out in 1984, 1989 and 1994;⁵ a sequence on questions falling under the PSID rubric "active savings", used to collect information on flows of money into and out of different assets, was included in 1989 and 1994. For the purposes of this study, the PSID data have several key advantages over other datasets available to study race differences in wealth. First and foremost, given that families are followed over time and that questions are asked about movements into and out of assets, one can, subject to certain caveats that will be discussed subsequently, attribute changes in net worth over time to components due to intergenerational transfers, savings and capital gains. Second, in part because the PSID contains an oversample of the low-income population, the number of African American families is larger than in the Survey of Consumer Finances (SCF) or wealth supplements to the National Longitudinal Surveys (NLS). Third, presumably owing to the rapport that PSID interviewers have developed with respondent families over time, the rate of item non-response in the wealth questions is relatively low, no small consideration given the reluctance of many families to divulge information on their net wealth (Hurst, Luoh, and Stafford, 1998).

We would be remiss, however, if we did not note some important limitations of the PSID data. Given that it was not designed as a wealth survey, the PSID does not take steps to oversample the richest of the rich, necessary to obtain precise estimates of wealth for those in the upper tail in the distribution. Thus, with respect to the upper tail of the distribution, estimates from the PSID are unavoidably less accurate and less precise than from the SCF, which does. Alleviating to some extent concerns in this area, Juster, Smith and Stafford (1998) find that the PSID wealth data for 1989 stack up well next to those from the Survey of Consumer Finances for 1989 through the 98th percentile. A second key limitation of the PSID is that assets are grouped into seven broad categories (or eight if one includes net equity in the home, information on which is collected annually), just a small fraction of the number of categories in the SCF.

The concept of wealth used here is what Greenwood and Wolff (1992) refer to as "fungible wealth", *i.e.*, that

which is saleable and therefore has current market value. The fact that social security and pension wealth, in addition to consumer durables and so-called household inventories, are excluded is an important caveat to keep in mind when interpreting the results. Net worth is measured by adding up the net values of the main home, other real estate, the farm or business, stocks, checking and savings accounts and other savings and then subtracting debts. This wealth concept makes use of information on all asset categories collected in the PSID, with the exception of net equity in vehicles. Details on the assets and liabilities included in each category can be found in Appendix A.

In order to understand in some depth how wealth accumulation differs by race, it is essential to have information not only on family wealth at different points in time, but also enough additional details to determine the path a family followed in order to arrive at its net worth.⁶ Questions about the market value of the main home and the remaining principal of the mortgage are asked each year. A series of what the PSID refers to as "active savings" questions, used in 1989 and 1994, also asked respondents about a number of different types of financial transactions over the previous five years including: the amount invested in other real estate, a business or in stocks; the value of additions to the main home or other real estate; and the value of gifts or inheritances.⁷ Details on these questions are contained in Appendix A.

This combination of information on asset levels and flows enables a division of changes in net worth into savings, capital gains and transfers. While details of the algorithm used are contained in Appendix A, the basic approach is as follows: For those assets for which the amount of the net inflow is known, it is straightforward to calculate the capital gain, as it is simply the difference between the end-period value and the sum of the beginning-period value and the net inflow. Following the usage of Hurst, Luoh and Stafford (1998) and Juster, Smith and Stafford (1998), the amount of the inflow is put into a category called "active savings."⁸ For assets for which nothing is known about net inflow, an appropriate rate of return based on the household average for that asset over the period is assigned in order to calculate the amount of the capital gain, and, in this case, the amount of active savings is calculated as the residual. Summing over the group of assets, one arrives at a total for capital gains and one for active savings.

As the description hopefully makes clear, active savings differs substantially from the traditional definition of savings as the difference of income and expenditures, as this savings could have been funded by any source of funds, not just income. As a result, it is necessary to subtract the other flows into the household, the largest of which is inheritances and other gifts, leaving an estimate of the amount of saving that comes directly out of income.

LEVELS AND TRENDS IN WEALTH BY RACE

As shown in Table 1, the gap in wealth levels between African Americans and whites is staggeringly wide, regardless of whether it is measured in terms of mean or median holdings. In 1994, the average African American family had a net worth of \$32,426⁹ less than one-fifth of the average net worth of \$180,720 for white families. Perhaps even more jolting is the comparison in terms of medians. In 1994, the median African-American family had a net worth of \$1,100, barely positive and just one-fiftieth of the median wealth for whites.

Examining wealth by age, we find that the profile for whites has the traditional hump shape -- with wealth increasing through the prime earnings years and then tailing off, while that for African Americans shows a greater tendency to be monotonic with age.¹⁰ The upshot is that the ratio of African-American to white wealth is highest for the elderly group, though at about 0.30 it is clearly not high in any absolute sense. It is striking to see how wide these gaps are at even at young ages. As the median value of wealth for African Americans does not climb above 0 until the age group 45-54, the median ratio stays at 0 up to that age group. Even as measured by mean ratios, the ratio for young household heads, those under the age of 25, is only 0.22. This wide gap at an early age, even before a household head has had time to accumulate assets through saving from one's own income, hints at the importance of intergenerational transfers in causing young white and African-American household heads to start off on an unequal footing.

The pattern of racial wealth differences changes little when education is controlled for. The mean ratios within the four education groups shown in Table 1 are in the neighborhood of 0.2. As this is little higher than the 0.18 for all families, it is clear that the racial wealth gap is primarily attributable to large differences at the same educational level, rather than to the fact that there is a smaller portion of African Americans relative to

whites in the wealthier, higher-education groups. In a broadly similar fashion, neither marital status nor income class has much explanatory power, as the racial wealth gaps are primarily attributable to differences within groups defined by these variables.

The ratios shown in Table 2 indicate that there was little change between 1984 and 1994 in the relative distance between white and African-American wealth holdings, with the proportions for means staying in the neighborhood of 0.18-0.19 and those for the medians around 0.02-0.03.¹¹ Though the amount of wealth is substantially higher in Wolff (1998), the mean ratios shown here are within a couple of hundredths of a point of those presented by Wolff (1998) for the ratio of non-Hispanic whites to non-Hispanic blacks, calculated for near-identical years (1983, 1989 and 1995), using the Survey of Consumer Finances. The levels and trends of the median ratios are a bit different using that source, going from 0.07 in 1983 down to 0.03 in 1989 and back up to 0.12 in 1995.

As background for the examination of wealth accumulation that will follow in Section V, it is useful to note the rate of change in wealth over time. Wealth rose more quickly between 1984 and 1989 than between the latter and 1994, rising 28% for whites and 35% for African Americans in the first sub-period, while rising 1% for whites and falling 5% for African Americans in the second. For the period as a whole, the average wealth increased by 29% for both groups. Though the increase in wealth over the second half-decade may seem small given the rise in stock market prices in the 1990s, there are a couple of mitigating factors. First, the increase in the stock market was much greater in the second half of the 1990s than the first, with the Standard & Poor's composite index rising 156% in real terms between 1994 and 1999, versus 19% between 1989 and 1994. Second, as noted above, the PSID survey does not track the extremely rich very accurately, a group that undoubtedly benefited disproportionately from the stock market run-up. Third, pension wealth is excluded from the calculations, so the wealth that was accumulated here is excluded from consideration.¹²

Not surprisingly, there are important differences between the two race groups in the portfolio allocation, as shown in Table 3. Consistent with recent research showing much lower rates of self-employment for African Americans than for whites (e.g., Fairlie, 1999; Fairlie and Meyer, 1996, 1997), in 1994, only 2.1 percent of African Americans had assets in a business or farm, less than one-sixth the comparable share for whites (13.1 percent). Under two-fifths of African-American families owned their own residences (37.8 percent), well below the nearly two-thirds for whites (65.8). Finally, only 10.4 percent of African-American families had any holdings in stock. While this represents a rise from 6.9 percent in 1984, in terms of percentage points, it is well below the rise for whites during the same span, from 27.1 percent to 37.5 percent.

Despite the much lower rate of home ownership among African Americans than the rest of the population and the fact that African-American homes tend to have lower market value (Long and Caudill, 1992), home equity carries a much heavier weight in their portfolios, accounting for 53.7 percent of total wealth in 1994, versus 30.5 percent for whites. It is evident that this is due to the fact that the portfolios of whites are much more diverse, as the value of home equity of whites was more than three times that for African Americans in 1994. Stock, as of 1994, was the second most important asset group in white portfolios, having more than doubled its share over the decade to reach 21.0 percent of total wealth. The share of wealth in stocks also doubled for African Americans, but as it started at a much lower base, it had not reached even 10 percent by 1994. Not surprisingly, the share of white wealth in businesses and real estate (other than the main home) is much greater than that for African Americans.

REGRESSION COMPOSITION OF RACIAL WEALTH DIFFERENCES

To what extent can differences in wealth by race be "explained" by differences across races in characteristics correlated with levels of wealth? To answer this question, Blau and Graham (1990) and others in the literature that followed (e.g., Menchik and Jianakoplos 1997; Oliver and Shapiro, 1995; Avery and Rendall, 1997) have employed Blinder-Oaxaca means-coefficients analysis, using controls for variables such as age, education and sex of the head of household, income, and location.

Table 4 shows the means, by race and year, for a comparable set of variables that will be used to do a similar analysis for the PSID data. The samples used here differ somewhat from those used in the calculations shown in Tables 1-3 and are described, as are all samples used throughout the paper, in Appendix A. For the regression analysis of this section, observations were excluded if data were missing or if values of wealth were extreme (less than -\$100,000 or greater than \$1,000,000). Though the effect of excluding extreme values

has the impact of lowering mean values for both groups and affects whites more than African Americans, the mean ratios of wealth by race change by only few percentage points and now are 0.23 in 1984, 0.22 in 1989 and 0.25 in 1994. Thus, the basic pattern of a yawning gap with little sign of narrowing remains.

There is evidence of key differences by race in the variables shown in Table 4 that are likely to be associated with differences in wealth levels. Most notable among these is the gap in family income, with the ratio of mean income by race falling short of 60 percent in all years. There is also evidence of the fact that the heads of African-American families are more likely to be unmarried and tend to be less educated than their white counterparts, with a much higher proportion of those who have never completed high school and a much smaller one who have completed college.

Table 5 provides a sense of the relationship between these differences in characteristics and those for wealth levels in 1984, 1989 and 1994. It is immediately evident that, as in past research, the amount of the wealth difference that can be "explained" hinges on whether the coefficients from the regression for whites or those from the regression for African Americans are used. With the former, the decompositions account for most of the difference in wealth: the fact that the sample of African Americans have substantially lower income levels, tend to be less educated, are more likely to be unmarried and are younger on average than their white counterparts explains about 4/5 of the gap. On the other hand, if the coefficients are taken from the regressions for African Americans, less than 1/3 of the gap is explained.¹³ This difference in explanatory power based on the choice of wealth function is comparable to that found by Blau and Graham (1990).

In the literature that probably has used these types of decompositions the most -- that seeking to divide earnings differentials by race into a portions attributable to discrimination and to productivity differences -- the difficulties of coming up with a single estimate of the impact of discrimination have been long recognized and are still an active area of research.¹⁴ The problem arises from the impossibility of knowing the wage structure that would exist in the absence of discrimination. Though we do not wish to underrate the difficulties of that literature, the problem seems even more serious here, since the wealth functions differ more by race than do the earnings functions.

Blau and Graham (1990) argue that, from a policy perspective, the African-American wealth function is more relevant since it shows that the vast majority (78% in their estimates) of the wealth gap would remain even if society were successful in evening incomes between races and eliminating adverse differences in locational and demographic characteristics. While this argument carries some force, it seems more important for policy purposes to understand why the wealth functions are so different in the first place. Blau and Graham (1990) use their decomposition results to make speculations as to whether the large differences in the wealth functions are related to differences in savings behavior, capital appreciation or intergenerational transfers. Because of the methodological difficulties with this approach, we use a different procedure, described below, to assess the importance of savings, capital gains, and transfers in accounting for the racial wealth gap.

PATTERNS OF WEALTH ACCUMULATION BY RACE

Background

In recent years, there have been a number of policy proposals offered to narrow the racial wealth gap or, more generally, to close the gap between the asset rich and asset poor, which, if successful, would be expected to raise the wealth of African Americans disproportionately more than that of whites.¹⁵ These measures represent several, sometimes overlapping approaches to raising wealth accumulation among African Americans through some combination of raising the rate of capital gains, encouraging additional savings, or diminishing the inequality-increasing impacts of intergenerational transfers of wealth. Some proposals seek to raise the wealth of African Americans by shifting their portfolio toward assets that have historically had high rates of returns or are considered to have particular advantages, such as homes and businesses. In these proposals, African Americans are viewed as facing barriers to the acquisition of these assets, owing to discrimination in mortgage and small business credit markets, customer discrimination, limited access to information about investment opportunities and other factors (Munnell, *et al.*, 1996; Blanchflower, Levine and Zimmerman, 1998).

In light of the much lower home ownership rate of African Americans, housing is considered to be an asset of paramount importance, not only for any financial benefits that may flow directly from it, but also because a

home often serves as collateral for borrowing to finance investment in business opportunities, among other purposes. Given the low rate of self-employment among African Americans, moreover, particular emphasis has been placed on the need to raise minority ownership of businesses. In addition to making it easier for African Americans to access credit, other proposals for raising ownership of homes and small businesses have involved providing greater incentives for savings.

Prominent in this debate have been the proposals of Sherraden (1991), who argues that anti-poverty policy should be focused on the accumulation of wealth rather than on raising levels of income and consumption and, as a result, recommends the establishment of asset accounts that can be used to finance not only home ownership, but education, business start-ups, and retirement. Incentives to start up such accounts could include tax exemption for the money deposited and matching by the federal government. Related concerns have been raised that asset limits on the receipt of income from Aid to Families with Dependent Children (AFDC), its successor, Temporary Assistance for Needy Families (TANF) and other means-tested programs discourage savings by the poor.¹⁶

Finally, there has been discussion of measures to reduce the inequality of wealth via taxes. Wealth being passed along to beneficiaries may be targeted by an estate tax or, more generally, a tax may be placed on a family's current holdings.¹⁷

Despite the existence of these and other proposals, there is actually little evidence both on the extent to which these policies address the underlying causes of the racial wealth differential as well as on the potential for these proposals to reduce that inequality, gaps we hope to begin to fill with the analysis of this section. While Table 3 and evidence elsewhere clearly display the racial differences in portfolio composition, it is less obvious how returns to capital for specific assets may differ and to what extent any differences have contributed to the where homes in African American neighborhoods have appreciated at a lower rate (Blau and racial wealth gap. Evidence on rate of returns is rather scanty, except for the housing market, Graham, 1990; Denton, 1998).¹⁸

Interestingly, economic theory does not offer unambiguous predictions about the effect of racial discrimination in the small business credit market with respect to the rate of return to business ownership for African Americans relative to whites. If such discrimination occurs in the form of higher credit costs, it can lower the relative rate of return. If, however, a lack of access to credit causes African Americans to be unable to start businesses that a similarly qualified white would be able to, then, on average, African American entrepreneurs able to start businesses would be expected to be better qualified than their white counterparts, and thus have a higher rate return.

Similarly, despite the proposals to raise savings among African Americans, it is not clear whether any deficit in their rate of savings has played a role in the racial wealth gap. In fact, Blau and Graham (1990) conclude that a lower propensity to save is not a likely explanation, in light of the fact that their review of the small number of studies on savings by race uncovered no evidence that African Americans have a lower savings rate than whites. Finally, though recent research by Menchik and Jianakoplos (1997) and Avery and Rendall (1997) clearly demonstrates that inheritances play an important role in explaining differences in wealth levels across races, the magnitude of the effect is open to debate.

Wealth Accounting Framework

To examine differences in wealth accumulation by race, it is useful to lay out a simple wealth accounting framework. The wealth of a household at any point in time can be represented by the following formula:

$$W_{ft} = \sum_{a=1 \text{ to } A} \Pi_{aft} W_{aft}$$

where W = net worth in constant dollars, Π represents the share of each asset in the portfolio, f is the index for family, t for time and a for asset. Assuming that there are no changes in portfolio allocation, the change in wealth between periods t and $t + 1$ can be expressed as follows:

$$\Delta W_f = \sum_{a=1 \text{ to } A} r_{aft} \Pi_{aft} W_{aft} + S_{ft} I_{ft} + T_{ft}$$

where r represents the asset specific rate of return, s the rate of saving out of income, I the income and

T the amount of inheritances or gifts received by the family.¹⁹ It may be worth emphasizing that the rates of return are family and period specific, given what may be substantial differences across families in the path of asset prices within the broad groups of assets noted above. Finally, the rate of change in wealth is the ratio of the equation (2) to equation (1):

$$\Delta W_f / W_{ft} = (\sum_{a=1 \text{ to } A} r_a \Pi_{aft} W_{aft} + S_{ft} I_{ft} + T_{ft}) / W_{ft}$$

This formula makes clear that the rate of wealth accumulation for a family depends on five factors: 1) the rates of returns on assets; 2) portfolio allocation; 3) the savings rate; 4) the income level; and 5) the amount of transfers. All of these factors may differ by race and thus are potential causes of disparate patterns of wealth accumulation by race. Data on income by race is easily available and past studies of race differences of wealth have provided information on the extent to which lifetime transfers (e.g., Menchik and Jianakoplos, 1997; Avery and Rendall, 1997) and portfolio allocation (e.g., Blau and Graham, 1990) differ by race. As noted above, much less is known, however, about racial differences in savings rates and rates of returns on assets, gaps that can be filled with the PSID data.

Up to now, though we have implicitly assumed that the composition of families stays the same, this static view of households is clearly not accurate. There is much flux among families, owing to marriage and divorce, births and deaths, children leaving the parental home and elderly parents joining the households of their adult children. In order to prevent changes in household composition from wreaking havoc with the data -- e.g., in most cases a child leaving the household would suffer a large loss in household wealth--we follow the approach of Hurst, Luoh and Stafford (1998) and Juster, Smith and Stafford (1998) and include only those families where the head of household stays the same in the longitudinal samples used to examine wealth accumulation. As this rule does allow for some changes in household composition that have an important influence on wealth-- e.g., marriages, divorce, death of spouse--it is necessary to take account of these effects on wealth.²⁰ In addition, as noted above, flows of funds related to pension annuities are not included in net worth and need to be tracked as well. Augmenting equation (3) to take into account these two categories, we have:

$$\Delta W_f / W_{ft} = (\sum_{a=1 \text{ to } A} r_a \Pi_{aft} W_{aft} + S_{ft} I_{ft} + T_{ft} + H_{ft} + P_{ft}) / W_{ft}$$

where H is the net change in wealth resulting from assets being brought into or removed from family holdings as a result of changes in household composition and P is the net flow of funds out of pension annuities. Additional details on the rule for following households can be found in Appendix A.

Following only those households where the head does not change has the impact of selecting an older and more stable population. Comparisons with the full sample, shown in Appendix A, indicate that this selection tends to make the longitudinal sample wealthier than the cross-sectional sample. In addition to the requirement that household head not change, representation in the longitudinal sample was predicated on the household not undergoing extreme changes in wealth over a five-year period (i.e., a decline of more than \$100,000 or a gain of more than \$1 million). This adjustment is made both because such outliers can distort the results for the rest of the sample and are also liable to be the source of greater measurement error than other cases, given that complicated portfolios are likely to be involved. As any such sample criteria is to some extent arbitrary, the results were redone both with more and less restrictive criteria.

The restrictions tend to exclude both race groups about equally, with the (weighted) proportion of African-American families at about 11%-13% regardless of the sample.²¹ In part because of greater representation of whites in the upper tail, the restrictions raise the ratio of the means somewhat to closer to one-quarter than one fifth and the ratio shows a slight upward trend.²²

Results

Table 6 provides an overview of patterns of wealth accumulation by race for the periods, 1984-89, 1989-94 and 1984-94.²³ The increase in wealth in a given period is broken down into flows related to: capital gains, savings out of income, intergenerational transfers, changes in household composition and annuities. At this point, it may be worth noting again that our measure of wealth excludes pension and social security wealth; considerations related to these excluded assets will, in general, influence the patterns of wealth accumulation for the assets we do observe. Though the fact that the large literature on the relationship between pensions and savings has not reached a consensus suggests substantial uncertainty about whether the inclusion of

retirement wealth would materially affect our results, this question is clearly an important one, but one we must leave for future research.²⁴

Given the vast gap between the races in mean wealth levels, it is not surprisingly the case that the overall increase in wealth is greater for whites than for African Americans, and virtually always the case that increases in each of the five categories are larger as well. Of greater interest is the relative contribution of each category. Though each period has its particularities, several interesting findings come to the surface. First, inheritances played almost no role in the gains of African-Americans over the period, whereas for whites they constituted as much as 10% of the increase in wealth.²⁵ It may be worth stressing that the question of how much inheritances contribute to differences across races in wealth *accumulation* is a very different one from that of the extent to which such transfers are responsible for racial differences in wealth *levels*, addressed in Menchik and Jianakoplos (1997) and Avery and Rendall (1997). Since inheritances received only during the period are considered here, we ignore the appreciation of gifts received before the start of the period.

Second, over the period examined, there is no evidence that capital gains play a more important *relative* role for whites than for African Americans. For the period as a whole, the share was in the neighborhood of 40% for both groups. Third, the contribution of active savings to wealth accumulation is also similar for both groups, at roughly half over the period 1984 to 1994. Fourth, among whites, changes in household compositions are responsible for a non-negligible portion of wealth accumulation,²⁶ whereas they make virtually no contribution to wealth gains among African Americans. The possibility of assortative mating as a factor in the racial wealth gap as well as overall wealth inequality is an area that has received little attention in this literature and may deserve further exploration.²⁷

Table 7 offers another method of assessing racial differences in wealth accumulation over the 1984-94 period. Despite the speculation that African Americans experience lower rate of returns on assets, because of both barriers to acquiring assets that have historically had high returns and factors that may lower returns to specific assets, we were not able to find any evidence that this was case. In fact, the results in Table 7 suggest, if anything, that African Americans had a higher rate of capital return than whites between 1984 and 1994 -- 41 percent versus 32 percent. Though calculations of asset-specific rates of return are less reliable than overall rates, as discussed in greater detail in Appendix A, it seems that home prices actually increased faster for African Americans than for whites, as did business equity, stocks and real estate.

In contrast to the existing literature, however, we do find that whites have a higher (active) savings rate than African Americans -- 8.0 percent of family income over the 1984-94 period versus 4.1 percent.²⁸ The higher savings rate for white families combined with their much higher family income over the period leads to substantially greater savings in absolute terms, though, as shown in Table 6, not in relative terms. We also showed in Table 6 that inheritances and gifts were more important for whites both in absolute terms and as a share of the change in wealth over the period. The results from Table 7 indicate that they are also more important for whites than African Americans as a proportion of initial wealth.

Simulations

We next conduct a series of counterfactual experiments to calculate what the racial wealth gap would have been in 1994 had the behavior of African Americans been identical to whites with respect to the following dimensions: 1) portfolio allocation; 2) rate of return on capital; 3) savings as a share of income; 4) family income; 5) inheritance; and 6) inflows from changes in household composition. For example, in the third simulation, we substitute the average rate of savings for white families with that for African Americans. However, because average savings rates tend to rise with income (Huggett and Ventura, 2000), it is also of interest to specify saving rates as a function of income, and then to replace the savings rate for African Americans by the rate that would be predicted for whites, if whites had the same average income as African Americans. Similarly, it is desirable to allow portfolio composition to depend on income as well.

In each simulation, we both recalculate changes in wealth for African Americans after substituting a white parameter (such as the savings rate) for the corresponding African American parameter and recalculate changes in wealth for whites after substituting the African American parameter for the white parameter. The two calculations tend to give similar results, though in some cases the difference between the counterfactual and the actual are smaller when the white wealth accumulation process is recalculated. Part of this difference

owes to the fact that a ratio of less than one will be affected more by an additive change to the numerator than by a change to the denominator of the same magnitude but opposite sign.

A number of interesting findings emerge in Table 8. First, the results for the entire period make clear that decades would be required for the wealth gap to close or even for the wealth ratio to approach the income ratio. Indeed, even with the dramatic changes in behavior implied by these experiments (changes that no policy could easily accomplish), simulated African American wealth levels remain at just a fraction of those of whites. Second, keeping in mind the caveat that calculations making use of asset-specific returns should be interpreted with caution, one finds that if African American families had the same portfolio composition as white families, the wealth gap would have been narrower by six to eight percentage points in 1994. This simulated closure results mainly from the higher share of stocks in white portfolios in comparison to those of African Americans.²⁹

Third, given the relatively small racial difference in the overall rate of return on capital shown in Table 7, substituting the white rate of return for the African Americans' has very little effect on the racial wealth gap. It is possible, however, that this result may be peculiar to the period under the study. In particular, the increase in the stock market since 1994 has probably pushed up the overall rate of return on capital for whites relative to African Americans because of the greater weight of stocks in the portfolio of the former.

Fourth, substituting the (unconditional) white savings rate for the African American savings rate, narrows the 1994 racial wealth gap by about eight percentage points. In contrast, substituting the white savings *function* for the African American savings function narrows the racial wealth gap by only one point. The difference in results is due to the fact that white savings rates conditional on income are only slightly higher than those of African Americans. However, raising African American incomes to the level of white families (and making savings a function of income) would cause the racial wealth ratio to jump by as much as ten percentage points.

Fifth, increasing African American inheritances and transfers to the amount received by white families would result in a five percentage point increase in the racial wealth ratio. Finally, standardizing for wealth inflows related to household composition shifts would have little effect on the racial wealth gap.

Sensitivity Tests

Though we have treated the data with as much care as possible in the preceding exercises, a certain amount of skepticism may be warranted, given that our division of wealth accumulation into its component parts has relied on the ability of respondents to reconstruct accurately their financial transactions of the preceding five years. Even those who have played pivotal roles in the development of the data have acknowledged that the separation of wealth accumulation into active and passive savings components on the basis of PSID data is "quite crude" (Juster, Smith and Stafford, 1998, p. 32). Kennickell and Starr-McCluer (1997b) raise concerns as well about the quality of retrospective reporting of household wealth.

We are able to check our calculations that are based in part on recall over a five-year period against the more reliable information reported at the time of each wave. We do this by redoing the experiments summarized in Table 8 through a regression-based method that uses only the more reliable cross-sectional data.³⁰ One can represent the changes in wealth for family f over period t (ΔW_{ft}) by the following equation:

$$\Delta W_{ft} = \alpha_t + \sum_{a=1 \text{ to } A} \beta_{at} W_{aft} + X_t I_{ft} + \delta_t T_{ft} + \psi_t X_{ft} + \epsilon_{ft}$$

where W_{aft} represents a family's holdings in each asset at a particular time, I_{ft} and T_{ft} , the income and the amount of inheritances or gifts received by the family over the period, and X is a vector of covariates for age, education and sex of the head of household, number of children and location. This reduced form equation describing wealth accumulation captures many, though not all, of the elements in the wealth-accounting framework above. In the absence of portfolio changes, capital gains on each asset can be written as $\beta_{at} W_{aft}$, where β_{at} represents the rate of return on a given asset. Savings cannot be measured directly, but they can be represented as a function of family income, as well as of other demographic characteristics. Inheritances are entered into the equation, but, in contrast to the situation in the wealth-accounting framework, are not assumed to change wealth dollar for dollar. In other words, δ_t could be less than 1 if an inheritance is not completely saved, or greater than 1 if receipt of an inheritance is

correlated with factors leading to faster wealth accumulation - e.g. , access to better business opportunities or superior financial advice - for which the controls are not adequate.

Given certain assumptions, this framework and the coefficients that result from estimating the equations separately by race can be used to conduct many of the same counterfactual exercises as in Table 8.³¹ For instance, one can substitute one race's vector of β_t 's for the other's and estimate what the increase in wealth would have been if that group had the same rate of return as the other group. Or, the impact of portfolio composition can be calculated by maintaining the same level of wealth but reallocating the holdings on the basis of portfolio shares in the other race's holdings.

As before the simulations are performed in two ways: first by recalculating the wealth of African Americans after substituting white parameters for the corresponding African American parameters, and second by recalculating the wealth of white families given African American parameters. The results, shown in Table 9, are very similar to those from the first set of simulations.

Substituting the white wealth portfolio for the African American portfolio would raise the racial wealth ratio by five percentage points; substituting the rate of return on assets owned by white families for those owned by African Americans would lower the wealth ratio by three percentage points; providing African American families with the same level of income as whites would raise the wealth ratio by ten percentage points; and furnishing them with the same amount of inheritances and gifts as whites would increase the wealth ratio by eight percentage points. The regression-based method also allows counterfactuals based on demographic and locational characteristics. The results suggest that interchanging African American for white demographic and locational characteristics, and *vice versa* , would have had very little effect on the racial wealth gap.³²

Overall, the accounting and regression frameworks yield similar pictures, strengthening confidence in the findings from the first method. Perhaps this should not be surprising. While the accounting framework does rely on recall, it also requires that the decomposition of wealth accumulation is consistent with the wealth portfolios in each cross-section.

CONCLUSIONS

Using the 1984, 1989 and 1994 wealth supplements of the PSID, this study has examined patterns of wealth accumulation by race. During the period, the ratio of average wealth between African Americans and whites remained almost constant. Though the much higher wealth of whites implies that the absolute amount of wealth accumulation was much greater for them than for African Americans, there were some surprising similarities in the pattern of wealth accumulation. In particular, (active) savings accounted for slightly more than half of wealth accumulation for both groups, despite the fact that the rate of savings out of income and the level of income were both greater for whites. The return on capital and capital gains as a share of the change in wealth were both somewhat larger for African Americans than for whites. However, inheritances played a much larger role in wealth accumulation for whites than for African Americans.

A number of counterfactual experiments were conducted to gauge the extent to which changes in patterns of wealth accumulation for African Americans have the potential to raise the wealth of this group relative to that of whites. We find that African Americans would have gained significant ground relative to whites during the ten year period under examination, if they had inherited similar amounts (a five to eight percentage point increase in the racial wealth ratio), saved the same share of income (a eight percentage point gain), had comparable levels of family income (six to ten percentage point increase) or had a similar portfolio composition (five to eight percentage point increase).

Even so, in part because it would be a formidable policy challenge to even move in the direction of the changes implied by the experiments, one is left with the general impression that it will be extraordinarily difficult for African Americans to make up significant ground relative to whites with respect to wealth. For example, over the ten year period from 1984 to 1994, both raising African American incomes and savings rates to the levels of white families would raise the racial wealth ratio from 0.28 to only 0.38. Even if one could achieve parity in incomes (and savings rates), the racial wealth gap even after ten years would still be far greater than the actual income gap. Indeed, if we could close the racial income gap today, it would take 72 years for the racial wealth gap to close! These simulations cast some doubt on the efficacy of some of the policy proposals discussed above.

This study has also raised a number of questions for which additional research may be warranted: First, how would wealth accumulation patterns look if retirement assets are included? Second, what factors explain the large differences by race in portfolio composition (see Chiteji and Stafford, 1999). Finally, how do savings rates by race - calculated conventionally -- compare, and to what extent can any gap be explained by the tendency of savings rates to rise with income, rather than to more fundamental differences in savings behavior.

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Table 1
Wealth by Characteristics of Head and Family Income, 1994

	Mean Values			Median Values		
	Whites	African Americans	Ratio	Whites	African Americans	Ratio
<i>All families</i>	180.7	32.4	0.18	57.2	1.1	0.02
<i>Age of head</i>						
Less than 25	18.4	4.1	0.22	22.0	0.0	0.00
25-34	69.2	13.1	0.19	8.8	0.0	0.00
35-44	131.5	22.0	0.17	42.9	0.0	0.00
45-54	252.4	51.2	0.20	97.9	21.7	0.22
55-64	313.7	45.7	0.15	160.6	22.4	0.14
65+	254.7	76.5	0.30	112.2	33.0	0.29
<i>Education of head</i>						
Less than high school	99.6	21.8	0.22	27.5	0.0	0.00
High school graduate	122.4	28.6	0.23	48.8	0.7	0.01
Some college	164.8	36.3	0.22	59.4	9.2	0.16
College graduate	329.4	75.9	0.23	108.9	13.8	0.12
<i>Marital status of head</i>						
Married	252.8	64.4	0.25	95.9	18.7	0.19
Not married	93.4	22.1	0.24	17.6	0.0	0.00
<i>Income quartile</i>						
First	68.8	17.9	0.26	7.7	0.0	0.00
Second	95.3	33.4	0.35	35.7	3.3	0.09
Third	135.5	38.6	0.28	61.5	14.5	0.24
Fourth	412.2	98.7	0.24	171.6	36.7	0.21

Notes: Wealth is measured in thousands of 1998 dollars. Calculations use the cross-sectional samples (for details, see Appendix A). About 2% of families are excluded from the calculations by the education of the head for each year and about 7% for those by income quartile because of missing data. Sample sizes: 7415 (4,804 whites, 2,611 African Americans).

Table 2
Wealth, 1984, 1989 and 1994

	Mean Values			Median Values		
	Whites	African Americans	Ratio	Whites	African Americans	Ratio
<i>All families</i>						
1984	139.8	25.2	0.18	51.8	0.8	0.02
1989	179.0	34.2	0.19	52.6	1.3	0.03
1994	180.7	32.4	0.18	57.2	1.1	0.02

Notes: Net worth is measured in thousands of 1998 dollars. Calculations use the cross-sectional samples (for details, see Appendix A). Samples sizes: 1984: 6,911 (4,336 whites, 2,575 African Americans); 1989: 7,114 (4,505 whites, 2,609 African Americans); and 1994: 7,415 (4,804 whites, 2,611 African Americans).

Table 3
Portfolio Composition by Race, 1984, 1989 and 1994

Asset type	1984		African Americans		1989		African Americans		1994		African Americans	
	% with asset	Share of wealth	% with asset	Share of wealth	% with asset	Share of wealth	% with asset	Share of wealth	% with asset	Share of wealth	% with asset	Share of wealth
Main home	62.9	35.3	37.1	63.8	63.9	33.3	37.9	53.2	65.8	30.5	37.8	53.7
Real estate	21.9	17.3	7.0	11.0	21.0	19.5	8.1	9.1	18.8	17.2	5.4	10.1
Business	12.7	21.2	1.2	5.3	13.2	19.0	1.8	20.8	13.1	15.4	2.1	3.7
Stock	27.3	9.0	6.9	4.5	31.1	11.0	6.4	3.0	37.5	21.0	10.4	9.7
Checking/Savings	86.1	15.3	44.6	11.3	86.4	14.7	48.1	14.5	82.2	13.7	40.8	15.5
Other Savings	24.7	4.1	13.5	10.1	28.0	4.8	13.9	6.0	25.2	5.9	13.3	16.1
Debt	46.6	2.2	44.0	6.0	50.7	2.3	46.6	6.7	49.7	3.8	40.0	8.7

Notes: Calculations use the cross-sectional samples (for details, see Appendix A). Samples sizes: 1984: 6,911 (4,336 whites, 2,575 African Americans); 1989: 7,114 (4,505 whites, 2,609 African Americans); and 1994: 7,415 (4,804 whites, 2,611 African Americans). "Real estate" includes main home while "business" includes both farm and non-farm businesses.

Table 4
Means of Variables Used in Regression Analysis By Year and Race

	1984		1989		1994	
	Whites	African Americans	Whites	African Americans	Whites	African Americans
Net Worth	106,863	24,721	117,799	25,566	125,757	31,616
Age of head	46.69	42.62	47.66	43.12	48.54	44.58
1=female head	0.28	0.51	0.29	0.54	0.27	0.53
1=unmarried head	0.43	0.66	0.45	0.71	0.44	0.75
Number of children	0.67	1.01	0.63	0.93	0.62	0.87
1=high school graduate	0.36	0.34	0.33	0.32	0.33	0.35
1=some college	0.18	0.13	0.20	0.20	0.20	0.21
1=college graduate	0.20	0.07	0.22	0.08	0.25	0.09
Family income	43,276	24,999	49,285	27,973	51,043	27,700
1=Small city	0.47	0.30	0.47	0.30	0.49	0.31
1=Large city	0.16	0.32	0.15	0.31	0.14	0.32

Notes: Net worth and income are measured in 1998 dollars. Calculations use the regression samples (for details, see Appendix A). Samples sizes: 1984: 6,844 (4,271 whites, 2,573 African Americans); 1989: 7,001 (4,396 whites, 2,605 African Americans); and 1994: 6,582 (4,241 whites, 2,341 African Americans). Family income for 1994 is not available so that for 1993 is used instead. "Small city" implies that largest city in county of residence has a population of less than 50,000. "Large city" implies that largest city in county of residence has a population of 500,000 or more.

Table 5
Decomposition of Racial Wealth Differences, 1984-94

Wealth function	1984		1989		1994	
	African American	White	African American	White	African American	White
Unadjusted differential	82,142	82,142	92,249	92,249	94,141	94,141
Wealth evaluated at white means	51,261	106,863	56,093	117,815	57,566	125,757
Wealth evaluated at African-American means	24,721	39,984	25,566	45,313	31,616	53,228
Explained differential	26,540	66,879	30,526	72,503	25,940	72,529
Explained differential as % of unadjusted differential	32.3	81.4	33.1	78.6	27.6	77.0

Notes: Wealth is measured in 1998 dollars. Calculations use the regression samples (for details, see Appendix A). Samples sizes: 1984: 6,844 (4,271 whites, 2,573 African Americans); 1989: 7,001 (4,396 whites, 2,605 African Americans); and 1994: 6,582 (4,241 whites, 2,341 African Americans).

Table 6
Sources of Growth of Mean Wealth

	Flows related to:						Wealth at End of Period
	Wealth at Start of Period	Capital Gains	Savings	Inheri-tances and Gifts	Change in House-hold Compo-sition	Annuities	
1984-89							
<i>Levels</i>							
Whites	102,419	26,131	18,340	3,759	3,616	330	154,595
African Americans	23,484	6,463	3,970	323	-119	111	34,234
<i>Share of Wealth Increase (%)</i>							
Whites		50.0	35.2	7.2	6.9	0.6	
African Americans		60.1	36.9	3.0	-1.1	1.0	
1989-94							
<i>Levels</i>							
Whites	112,968	19,142	26,297	4,425	374	-1,235	161,971
African Americans	24,631	6,361	10,400	328	-269	32	41,484
<i>Share of Wealth Increase (%)</i>							
Whites		39.1	53.6	9.0	0.8	-2.5	
African Americans		37.7	61.7	1.9	-1.6	0.2	
1984-94							
<i>Levels</i>							

Whites	83,106	30,485	43,031	8,247	3,677	-2,364	166,185
African Americans	22,771	9,973	12,432	640	57	229	46,102
<i>Share of Wealth Increase (%)</i>							
Whites		36.7	51.8	9.9	4.4	-2.8	
African Americans		42.7	53.3	2.7	0.2	1.0	

Notes: Wealth is measured in 1998 dollars. Calculations use the longitudinal samples (for details, see Appendix A). Samples sizes: 1984-89: 4,899 (3,089 whites, 1,810 African Americans); 1989-94: 4,838 (3,091 whites, 1,747 African Americans); and 1984-94: 3,498 (2,222 whites, 1,276 African Americans).

Table 7
Rates of Capital Appreciation, Savings and Other Inflows

	Flows as a proportion of total wealth at start of period					
	Rate of return on capital	Savings rate	Average family income over period	Inheritances and Gifts	Change in Household Composition	Annuities
<i>1984-89</i>						
Whites	25.5	7.0	261,923	3.7	3.5	0.3
African Americans	27.5	2.8	143,058	1.4	-0.5	0.5
<i>1989-94</i>						
Whites	16.9	10.0	263,190	3.9	0.3	-1.0
African Americans	25.8	7.1	145,382	1.3	-1.1	0.1
<i>1984-94</i>						
Whites	32.3	8.0	535,256	9.9	4.4	-2.8
African Americans	41.2	4.1	302,769	2.8	0.2	1.0

Notes: Income is measured in 1998 dollars. Calculations use the longitudinal samples (for details, see Appendix A). Samples sizes: 1984-89: 4,899 (3,089 whites, 1,810 African Americans); 1989-94: 4,838 (3,091 whites, 1,747 African Americans); and 1984-94: 3,498 (2,222 whites, 1,276 African Americans). Savings rate is measured as savings out of income as a proportion of income.

Table 8
Mean Wealth Ratios Recalculated Under Counterfactual Assumptions Accounting Framework Method

Race whose wealth is recalculated:	1984-89		1989-94		1984-94	
	African American	White	African American	White	African American	White
Actual, Start period	0.23		0.22		0.27	
Actual, End period	0.22		0.26		0.28	
Characteristic from other race assumed to hold for both:						
Portfolio allocation	0.23	0.23	0.31	0.29	0.36	0.31
Portfolio allocation - I	0.24	0.22	0.31	0.27	0.34	0.32
Rate of return	0.22	0.22	0.24	0.24	0.26	0.26
Savings rate	0.26	0.24	0.28	0.27	0.36	0.32
Savings rate - I	0.21	0.24	0.24	0.27	0.29	0.31
Family income	0.24	0.23	0.31	0.28	0.34	0.32
Family income - I	0.26	0.24	0.36	0.29	0.38	0.32
Inheritance	0.24	0.23	0.28	0.26	0.33	0.29
Inflows from changes in household composition	0.25	0.23	0.26	0.26	0.30	0.28

Notes: Calculations use the longitudinal samples. Rows marked with "I" indicate that portfolio allocation and/or the savings rate are, as appropriate, allowed to vary by income (for details, see Appendix A). Samples sizes: 1984-89: 4,899 (3,089 whites, 1,810 African Americans); 1989-94: 4,838 (3,091 whites, 1,747 African Americans); and 1984-94: 3,498 (2,222 whites, 1,276 African Americans).

Table 9
Mean Wealth Ratios Recalculated Under Counterfactual Assumptions Regression-Based Method

Race whose wealth is recalculated:	1984-89		1989-94		1984-94	
	African American	White	African American	White	African American	White
Actual, Start period	0.23		0.22		0.27	
End period:						
Actual	0.22		0.26		0.28	
Characteristic from other race assumed to hold for both:						
Portfolio allocation	0.21	0.21	0.28	0.25	0.33	0.28
Rates of return	0.20	0.20	0.26	0.24	0.25	0.22
Family income	0.26	0.26	0.32	0.30	0.38	0.40
Inheritance	0.23	0.22	0.33	0.26	0.36	0.29
Demographic	0.20	0.22	0.26	0.26	0.25	0.28
Location	0.22	0.22	0.26	0.26	0.29	0.28

Notes: Calculations use the longitudinal samples (for details, see Appendix A). Samples sizes: 1984-89: 4,899 (3,089 whites, 1,810 African Americans); 1989-94: 4,838 (3,091 whites, 1,747 African Americans); and 1984-94: 3,498 (2,222 whites, 1,276 African Americans).

Americans).

APPENDIX A

A. PSID Wealth Supplements

Assets and Liabilities

1. Main home: house value minus remaining mortgage principal.
2. Other real estate: net value of second home, land, rental real estate, money owed in land contract
3. Net equity in farm or business
4. Stock : stock in publicly-held corporations, mutual funds, investment trusts, including stocks in IRAs
5. Checking and savings: checking or savings accounts, money market funds, certificates of deposit, government savings bonds, or Treasury bills, including IRA's
6. Other savings: bonds, rights in a trust or estate, cash value in a life insurance policy, or a valuable collection for investment purposes
7. Other debts: credit card, student loans, loans from relatives, medical or legal bills

Items Asked About in Active Savings Questions (over past five years)

1. Amount of money put aside in private annuities.
2. Value of pensions or annuities cashed in.
3. Amount of money invested in real estate other than main home.
4. Value of additions or improvements worth \$10,000 or more to main home or other real estate.
5. Amount of money invested in farm or business
6. Amount of money realized from sale of farm or business assets.
7. Net value of any stocks in publicly-held corporations, mutual funds or investment trusts bought or sold.
8. Net value of debt and assets removed from family holdings by someone with more than \$5,000 of either leaving the family.
9. Net value of debt and assets added to family holdings by someone with more than \$5,000 of either joining the family.
10. Value of any gifts or inheritances of money or property worth \$10,000 or more.

B. Calculations

Division of Change in Asset Value into Capital Gains and Active Savings

1. Main home: Division is done by calculating capital gains and active savings in each year and then summing them. If family did not move, the capital gains in each year equals the rise in the value of the home and the active savings equals the reduction in mortgage principal. In years in which the family moves, the change in the net value of the house is considered active savings. In addition, the value of additions or improvements is added to active savings as well.
2. Other real estate: Active savings is the amount of money invested in real estate other than main home. Capital gains is the change in the net value of the asset minus active savings in this asset.
3. Net equity in farm or business: Active savings is the difference between the amount of money invested in farm or business and the amount realized from the sale of such assets. Capital gains is the change in the net value of the asset minus active savings in this asset.
4. Stock: Active savings is the net value of stock bought or sold. Capital gains is the change in the net value of the asset minus active savings in this asset.
5. Checking and savings: A 0% annual real rate of return is assumed, so active savings equals the change in the net value of the asset.
6. Other savings: Capital gains are calculated by assuming a 1% annual real rate of return. Active savings is the change in the net value of the asset minus the capital gains for this asset.
7. Other debts: Capital gains are calculated by assuming an annual real rate of return equal to the inflation rate (CPI-U). Active savings is the change in the net value of the asset minus the capital gains for this asset.

Savings Out of Family Income

The calculations just described divide changes in wealth during a period into capital gains and active savings during the period. Information from the series of questions on active saving is used to calculate the: 1) total amount of inheritance and transfers, 2) the net change in assets as a result of changes in household composition, and the 3) net change in annuities. Summing these three components and then subtracting them from active savings yields a measure of savings out of family income.

Rates of Return on Assets

Two different types of rate return were calculated, asset-specific and overall. For the former, the amount of capital gain over the period was summed up over all families, separately by asset type, and then divided by the sum over all families of the value of that asset at the beginning of the period. For the overall rate, the same calculation was done except the sums were taken over all assets together. As the calculations of asset-specific rates require more assumptions about the flows into each asset, they are presumably less reliable than the overall rate. As a result, in any case where the overall rates could be used, they were (though it turns out that the results are not very sensitive to this choice). In the counterfactual experiments associated with portfolio composition, however, it is necessary to use asset-specific rates.

The questions about active saving are phrased in terms of flows over the past five years, so there is no information given as to when over the past five years these flows occurred. Rates of return were calculated under two assumptions, that the flow occurred at the end of the period (at the time of the survey) and that the flow occurred at the beginning of the period. As the results were not sensitive to these assumptions, it was assumed throughout that the flow occurred at the end of the period. Assuming that the flows occurred at the beginning of the period would have the effect of raising slightly the amount of capital gains and lowering slightly the amount of savings.

Rate of Saving

The savings rate was calculated by summing the estimate of savings out of income (described above) overall families and divided by the sum across families of total family income over the period. As family income was not available for 1993, it was assumed that income in that period equaled the average of income over the preceding four years.

C. Sample Selection

Cross-sectional samples

There are no sample selection criteria for inclusion in these samples. However, Juster, Smith and Stafford (1998) say: "The PSID other savings number in 1984 is unusually high. This is due to a few large outlier values that appear to be miscodes." (p. 17, footnote 12). There are 7 cases where the other savings value is giving as \$9 million, which is an extreme outlier. These observations are excluded from the 1984 cross-sectional sample.

Regression samples

Starting from the cross-sectional samples, all observations where net worth was less than -\$100,000 or greater than \$1,000,000 were eliminated. In addition, there was a problem of missing data for the family income variable in 1994. As the 1994 data from the main PSID files are preliminary, a family income amount is not available for 1994 and so had to be taken from the 1993 data. In a small fraction of the cases, a head in 1994 was not a head in 1993, so there was no meaningful family income amount that could be used. In addition, for a small number of cases for all years but particularly for 1994, there are also data missing for education and size of city. In order to maintain the sample sizes as much as possible, a dummy variable for missing education data and one for missing city size data were included in the group of dummy variables for these two concepts.

Longitudinal samples

Three separate longitudinal samples were formed, for the 1984-89, 1989-94 and 1984-94 periods. To be included in the sample, in addition to the requirements of the regression samples, it is required that the household did not undergo extreme changes in wealth over the relevant five-year period(s) (*i.e.*, a decline of more than \$100,000 or a gain of more than \$1 million) and, following the approach of Hurst, Luoh and Stafford

(1998) and Juster, Smith and Stafford (1998), that the household head does not change over the period. The main rationale for this restriction is to avoid drawing erroneous conclusions about the changes in the level of wealth and their composition. For an individual living with his/her parents in the year of one wealth supplement and then as a head of household in the next, it would not be sensible to calculate wealth accumulation on the basis of a comparison of the wealth of the parents at the beginning of the period to that of the child at the end.

After excluding those families where the household head has changed, one is left with samples where about 90 percent of the sample either underwent no change in family composition or a change that involved a member other than the head or wife, with the remaining cases ones where a wife either left or died, or where the head has a new wife. These cases can only be ones where a wife moves in or moves out, because of the PSID's rule of treating a male as the head of household if one is present. It is possible that this asymmetric treatment of the sexes does introduce some peculiarities into the data, however. If a male respondent marries, divorces, or is widowed, the wealth of his family is tracked both before and after the change in marital status. The wealth of women facing similar changes in circumstances would not, however, be tracked. While there is a large literature on the divergent economic fortunes of men and women after a divorce (*e.g.* , Burkhauser and Duncan, 1989) these results are based on incomes, not on wealth. The possibility exists that changes in wealth are more symmetric than those in income with respect, particularly for the PSID concept of wealth, since assets associated with earnings, such as pension and social security wealth, are not included.

APPENDIX A
Table 1
Sample Statistics

	1984			1989			1994		
	Whites	African Americans	Ratio	Whites	African Americans	Ratio	Whites	African Americans	Ratio
Cross-sectional samples									
Mean net worth	139.8	25.2	0.18	179.0	34.2	0.19	180.7	32.4	0.18
Sample size	4,336	2,575		4,505	2,609		4,804	2,611	
Regression samples									
Mean net worth	106.9	24.7	0.23	117.8	25.6	0.22	125.8	31.6	0.25
Sample size	4,271	2,573		4,396	2,605		4,241	2,341	
Longitudinal samples									
<i>1984-89</i>									
Mean net worth	102.4	23.5	0.23	154.6	34.2	0.22			
Sample size	3,089	1,810		3,089	1,810				
<i>1989-94</i>									
Mean net worth				113.0	24.6	0.22	162.0	41.5	0.26
Sample size				3,091	1,747		3,091	1,747	
<i>1984-94</i>									
Mean net worth	83.1	22.8	0.27	118.4	29.5	0.25	166.2	46.1	0.28
Sample size	2,222	1,276		2,222	1,276		2,222	1,276	

Notes: Net worth is measured in thousands of 1998 dollars.

APPENDIX B

Table 1
Regression Coefficients Used in Decomposition of Racial Wealth Differences, 1984-94 By Year and Race

	1984		1989		1994	
	Whites	African Americans	Whites	African Americans	Whites	African Americans
Intercept	-186,780	-26,344	-197,230	-28,100	-208,537	-6,191
Age of head	5,018	114	5,791	-562	6,429	-400
Age of head squared	-18	8	-23	18	-29	18
1=female head	1,669	4,354	-7,672	-377	-13,155	-5,012
1=unmarried head	-17,753	8,197	-28,303	1,552	-21,695	-14,419
Number of children	2,409	-190	-8,585	1,095	7,544	1,469
1=high school graduate	25,786	8,727	32,761	12,483	27,423	19,499
1=some college	41,744	1,211	43,562	1,864	34,989	24,569
1=college graduate	54,248	29,875	54,741	12,450	53,696	36,371
Family income	1.977	0.984	1.735	1.080	1.607	0.438
1=Small city	8,355	5,195	4,588	3,580	7,656	-1,385
1=Large city	7,816	3,950	902	1,172	1,814	-867

Notes: Family income is measured in 1998 dollars. Calculations use the regression samples (for details, see Appendix A). Samples sizes: 1984: 6,844 (4,271 whites, 2,573 African Americans); 1989: 7,001 (4,396 whites, 2,605 African Americans); and 1994: 6,582 (4,241 whites, 2,341 African Americans). Family income for 1994 is not available so that for 1993 is used instead. "Small city" implies that largest city in county of residence has a population of less than 50,000. "Large city" implies that largest city in county of residence has a population of 500,000 or more.