Discrimination and Racial Differences in Home Environments: Evidence from the Civil Rights Movement

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Abstract

On average, there are large differences in the home environments of African American and white children. While these differences are known to have important effects on the racial achievement gap and other important outcomes, their underlying causes are not well understood. This paper investigates the role of discrimination, broadly defined, in generating racial differences in home environments. To do so, I study the trends of a widely used index of the home environment (the HOME score) in a sample of mothers who were born between 1957 and 1964, and who therefore grew up in a period of rapidly declining racial discrimination in the US South. The paper first documents that HOME scores increased dramatically across these birth cohorts among Southern African American mothers, but did not increase at all among African Americans outside of the South or among Southern whites. I then investigate the specific forms of reduced discrimination that may explain these differential trends. I find that convergence cannot be explained by relative improvements in maternal education, AFQT score, self-rated health, household income or perceptions of labor market discrimination among Southern African Americans, or by unobservable factors that are constant within counties. The potential roles of improved school quality, increased access to medical care, and the advent of federal antipoverty programs are also discussed, and are deemed unlikely to explain the basic results. As an alternative explanation, I propose that convergence may have been due to shifts in parenting norms that were engendered by the fundamental social and economic changes occurring in the South over this period.

Introduction

On average, there are large differences in the home environments experienced by African American and white children, and one major reason for these differences is that the parenting practices adopted by African Americans with young children differ considerably from those of their white counterparts. These points are demonstrated in Table 1, which reports the race specific averages for several measures of home environments and parenting using data from the Children of the National Longitudinal Survey of Youth (CNLSY).[1] The first three rows report the percentage of children who are read to at least three times a week, who have ten or more children's books in their home, and whose caregivers were observed verbally responding to their speech. In all three cases, striking racial gaps are present: African American children are 28 percentage points less likely to be read to three or more times per week, 40 percentage points less likely to have ten or more children's books in their home, and 10 percentage points less likely to have caregivers who were observed verbally responding to their speech.[2]

The fourth row of Table 1 reports average levels of a widely used composite measure of cognitive stimulation in the home environment, called a HOME score (Home Observation for Measurement of the Environment). This index is constructed using a combination of maternal reports and interviewer observations, and is measured in standard deviation units.[3] Using this composite measure, there are again large racial differences in home environments and parental behaviors. While the average white child lives in an environment that is .25 standard deviations above the mean in terms of cognitive stimulation, the average African American child's home environment is .36 standard deviations below the mean, so that the overall racial gap is .61 standard deviations. Furthermore, these differences do not simply reflect lower levels of socioeconomic status (SES) among African Americans. The final row of Table 1 reports HOME scores that have been adjusted for maternal education, household income, and mother's age at birth, and indicates that even after these factors are accounted for a .49 standard deviation racial gap remains.

Previous studies have demonstrated that these differences in home environments play an

[1] This data is described in detail in Section 1 below.

[2] Similar gaps using large national data sets are reported by Todd & Wolpin (2007), Ferguson (2005) and Brooks-Gunn & Markman (2005), among others. A related literature uses extended in-home observation methods to document large racial differences in language use. Classic studies of this kind include Heath (1983) and Hart & Risley (1995).

[3] HOME score construction is described in detail in Section 1 and Appendix A below.

important role in generating the widely studied racial gap in achievement test scores. The most common methodological approach has been to regress an achievement test score onto an African American dummy variable, note the magnitude of the coefficient, and then to add controls for the home environment and observe the extent to which the coefficient on the African American dummy variable decreases. To ensure that measures of the home environment are not simply proxying for SES, controls for household income, parental education and similar traits are typically included in the specification as well.

Table 2 summarizes results from two previous studies that used this method, and also shows results from an analogous exercise using the CNLSY data from the current paper. The results demonstrate that home environments account for a substantial portion of the achievement gap across a variety of data sets and testing instruments. For example, Table 2 reports results from Phillips, Brooks-Gunn & Duncan et al. (1998), who use data from the Infant Health and Development Program and find that controlling for parenting practices in addition to SES reduces the racial gap on Wechsler Preschool Primary Intelligence Scale from 8.42 points to 3.89 points, a reduction of 54%. Likewise, Fryer & Levitt (2004) use data from the Early Childhood Longitudinal Survey and find that when controls for the home environment are added to a specification that already includes SES controls, it virtually eliminates the racial gap in standardized reading test scores, which falls from .134 to .006 standard deviations. Finally, Table 2 shows original results using CNLSY data, which indicate that controlling for HOME scores in addition to SES reduces the racial gap in scores on the Peabody Individual Achievement Test (PIAT) by 27% for mathematics (from .437 to .319 standard deviations) and fully eliminates the .083 standard deviation gap for the reading recognition test.[4]

While the large *effects* of home environments on test scores and other outcomes is now well established, far less is knows about the *causes* of home environments. Since the home environment is in large part a direct result of decisions made by parents, it makes sense to study it as an outcome in its own right, and not just as a predictor of subsequent child characteristics. But very few empirical studies have treated home environments or parental behaviors as dependent variables, and even fewer existing studies have specifically addressed the determinants of racial differences in home environments. For instance Blau (1999) estimates the relationship between income and maternal behaviors; Frank & Meara (2009) estimate the impact of maternal mental health problems on the home environment; and Guo & Harris (2000) explore home environments as a mediator of the relationship between poverty and a variety of child outcomes, but none of these studies address racial differences

[4]The results reported in Table 2 were selected to represent a variety of data sources and types of achievement tests. However, the cited studies contain several additional results using other samples, test scores and sets of controls, all of which are broadly similar to those reported here.

in home environments or parental behaviors. Carnerio & Meghir (2012) estimate the effect of maternal education on parenting behaviors, and do so separately for different racial groups, finding that maternal education is a stronger predictor of parental behaviors among African Americans than whites, and Mandara, Varner & Greene et al. (2009) estimate bivariate correlations between parental behaviors and various family characteristics in the context of understanding racial achievement test score gaps, but neither study addresses the root causes of the large overall racial differences in home environments.

Given the demonstrated size and importance of racial differences in the home environment, this represents a substantial gap in the existing literature. The current paper seeks to begin closing this gap by investigating discrimination, broadly defined, as one potential explanation for the observed racial differences in home environments. To do so, I study HOME scores in a racially and regionally diverse sample of mothers who were themselves born between 1957 and 1964, and compare the HOME score trends of Southern African Americans with other race-by-region sub-populations. The 1957-1964 birth cohorts are potentially insightful because by virtually any measure, they grew up in a period of large and rapid reductions in the degree of discrimination faced by African Americans. These cohorts entered school between 1962 and 1969, just as full enforcement of the 1954 Brown v. Board of Education desegregation ruling was being implemented, and began to enter the labor force and have children of their own in the mid to late 1970's, in the aftermath of the landmark 1964 Civil Rights Act.

Importantly, reductions in discrimination over this period were mostly concentrated in the South. The removal of overtly discriminatory and segregationist policies was of course concentrated in the Southern states which had adopted Jim Crow laws in the first place, and economic gains were also highly regionalized. Figure 1 reproduces figures from Donahue & Heckman (1991) displaying the time series of black-white wage ratios by region. The figure shows that while these ratios were largely stagnant in the Northeast and Midwest throughout the 1960's and 1970's, Southern African Americans experienced large improvements in their relative wages over the same period.

One implication of these rapid and region-specific changes is that Southern African Americans born in 1964 experienced, on average, a substantively less discriminatory society than Southern African Americans born in 1957, but the same is not true for African Americans outside of the South or for whites in any region. If racial differences in parental behaviors are partially a function of discrimination experienced by parents, we would therefore expect that as mothers from these birth cohorts had children of their own, HOME scores would progressively increase across maternal birth cohorts within the Southern African American

population relative to other race-by-region sub-populations.

The first part of the paper demonstrates that there were indeed striking relative increases in the parenting behaviors of Southern African American mothers across the 1957-1964 birth cohorts. I find that over these cohorts, mean HOME scores increased by approximately .5 standard deviations among Southern African American mothers, but did not increase at all within other race-by-region sub-populations. Triple-differenced models with basic demographic controls estimate that the differential effect of maternal birth cohort on HOME score among Southern African Americans is over .07 standard deviations per year over this 8 year period.

The reductions in discrimination that occurred in the wake of the Civil Rights Movement took many forms, and the second part of the paper investigates several specific mechanisms which potentially explain the documented trends. To assess the role of improvements in maternal SES and human capital traits, I add controls for household income and maternal education, self-rated health, and scores on the Armed Forces Qualification Test (AFQT) to my baseline specifications. To assess the role of reductions in the degree of labor market discrimination, which could affect parenting by increasing its eventual impact on child economic success, I add controls for mother's self-reported perceptions of labor market discrimination. I additionally estimate county fixed-effects models that account for any unobserved determinants of home environemtns which are constant within relatively small geographic areas. The surprising result of these exercises is that none of the controls meaningfully reduce the size of cohort effects among Southern African Americans relative to other groups. I also discuss the potential roles of improved school quality, increased access to medical care, and the advent of federal antipoverty programs, and conclude that these factors are unlikely to explain my basic results.

Since observed parenting shifts cannot be explained with conventional economic variables, the final part of the paper proposes an alternative explanation. Specifically, I argue that parental behaviors are largely determined by social norms, and that the far-reaching changes which took place during and after the Civil Rights Movement may have been sufficient to shift those norms among Southern African Americans. Sociological and anthropological studies of the relationship between child-rearing practices and basic social and economic structures are discussed in support of this proposition.

The remainder of the paper will proceed in five sections. Section 1 describes the data. Section 2 reports the paper's main results and tests their robustness. Section 3 investigates how the main results are impacted when different sets of control variables are added to the baseline specifications. Section 4 discusses shifting social norms as a potential alternative explanation

for the main results. Section 5 briefly discusses policy implications and concludes.

1 Data

My main data sources are the linked mother-child files from the National Longitudinal Survey of Youth (NLSY) and the Children of the National Longitudinal Survey of Youth (CNLSY). The first NLSY began in 1979 with a sample of 12,686 individuals and participants were eligible to be interviewed annually until 1994 and biennially thereafter, with the most recent wave available at the time of writing occurring in 2008. Respondents were aged 14-21 when the survey was initiated in 1979, and were therefore members of the 1957-1964 birth cohorts. Starting in 1986, an additional biannual survey of all biological children of female NLSY respondents began, allowing for the construction of an unusually rich and nationally representative intergenerational data set. Of the 6,283 original female NLSY respondents, 4,929 gave birth to a total of 11,495 children who participated in the CNLSY.

One unique feature of the data is that it contains credible direct measures of parental behaviors, and the primary parenting measure that I employ is the cognitive stimulation sub-score from the Home Observation for Measurement of the Environment (HOME) Short-Form Inventory (Caldwell & Bradley 1984). As noted above, the HOME score is a measure of environmental stimulation in the home that is widely utilized by child development researchers as a reliable index of factors that contribute to children's cognitive growth (Mott 2004; Elardo & Bradley 1981). The exact contents of the HOME inventory score depend on the age of the child, but prototypical components include indicators for the presence of children's books and other reading materials in the home, whether the mother reports helping the child learn numbers, the alphabet, shapes and colors, the frequency with which the mother speaks to the child, how often the child visits museums and goes on other educational outings, and whether the home and child's play space are reasonably clean and well lit. The appendix presents a detailed description of HOME score's components and of how the composite measure is calculated. Importantly, most of the items comprising the HOME score are reasonably direct consequences of decisions made by parents, and few are associated with prohibitive monetary costs.

Although the CNLSY collects HOME scores through adolescence, I limit my analysis to observations occurring from birth through age 5. The reasons for this restriction are twofold. First, there are large literatures in economics and elsewhere demonstrating that experiences in early childhood have a disproportionately large effect on adult outcomes (Heckman 2007; Almond & Currie 2010). Second, parental behaviors observed through age 5 are less likely to be influenced by child and school characteristics. An important concern is that children

with certain predetermined traits may be able to directly influence the parenting they are subject to, for example by requesting more children's books or asking their parents to read to them. Also, after children enter the formal educational system, a large number of school and teacher characteristics could potentially have direct or indirect influences on children's home environments. Restricting the analysis to children ages 5 and under will help to mitigate these problems and ensure that HOME scores accurately measure independent parental decision making.

HOME scores were collected during each survey wave, so that most children in the CNLSY have multiple recorded scores. To create a single measure of environments for each child over the relevant age range, all recorded HOME scores were standardized within child age groups and then averaged over all valid observations occurring from birth through age 5. While this procedure creates a credible summary measure of the home environment over multiple years, it also conceals potentially important aspects of each individual HOME score observation, such as the ages at which the component HOME scores were observed and the total number of observations that were used to construct the average.[5] To adjust for these factors, my specifications below include indicators of the ages at which component HOME scores were observed and the total number of HOME score observations that were used to construct the average.

A primary cause of missing HOME scores is the fact that the CNLSY did not begin until 1986, so many participants are missing HOME scores for some or all of the relevant ages simply because the CNLSY did not exist when they were those ages.[6] The fact that children with later birth dates are mechanically more likely to have valid HOME score observations causes my working sample to be disproportionately comprised of children born to older mothers. Given this, I additionally include dummy variables indicating each child's age (in months) at the time they were first observed.[7]

An important task for any study examining changes across successive birth cohorts is to distinguish between cohort effects and secular time effects. The issue is that mothers from later birth cohorts will, on average, have children in later birth cohorts as well. Thus if HOME scores were trending upward over time for purely secular reasons, mothers from later birth cohorts would have higher average HOME scores, but this association would not be

[5]For example, if a given child was observed only once at age 4, while another child was observed three times at ages 1, 3 and 5, these differences would not be accounted for in the average HOME score measure.

[6]For instance, a child born in 1980 was not observed until they were at least 6 years old, and is thus excluded from my sample entirely, while a child born in 1984 was not observed for ages 1 or 2.

[7]The inclusion of these indicators will absorb variation in HOME score due to fertility-timing driven selection into the working sample, but it should be noted that that my working sample is still composed of somewhat older mothers than the CNLSY as a whole.

attributable to their membership in a later birth cohort. An intuitively appealing solution to this problem is to control for both maternal and child birth cohort. Unfortunately, any credible specification must also include mother's age at birth, and this engenders perfect collinearity because child birth cohort is exactly equal to the sum of maternal birth cohort and maternal age at birth. An alternative approach that leads to an estimable specification is to replace child birth cohort with the actual year(s) in which HOME scores were observed. Observation year is not a deterministic function of maternal birth cohort and maternal age at birth because CNLSY interviews are conducted over the course of several months, not simultaneously. This means that even if two children are born in the same month, their HOME scores can still be observed in different years.[8] This allows me to estimate models that include indicators of the calender year(s) in which HOME score was observed for each child, and these indicators help ensure that the estimated effect of maternal birth cohort is not an artifact of secular trends.

While controls that adjust for child age at HOME score observation, the effect of maternal fertility timing on sample composition, and secular parenting trends are in principal important to include in my specifications, in practice they have a relatively small effect on my results. Below I present robustness checks that include estimates from specifications that exclude these adjustment variables, and the basic nature of the results are unchanged. Also, it should be noted that since the main results rely on comparisons of HOME score trends across racial groups and regions, the effects of these factors would have to differ across race-by-region sub-populations in order to bias the results. Since there is no clear reason to believe that such differences are present, a large portion of these effects are probably differenced out in my baseline specifications.

In addition to maternal birth cohort and HOME scores, I utilize data on a large set of parent and child characteristics that could impact parental behaviors. To measure basic demographic background, I use variables giving each child's gender and birth order, as well as each mother's age at birth, marital status and labor force participation status. To measure maternal SES and human capital traits, I use variables giving gross household income and maternal education, AFQT score and self-rated health. Whenever possible, I measure these variables over the period when children were ages 0-5. Maternal education is therefore defined as the highest grade achieved prior to the child's 6th birthday; maternal labor force participation is measured using a set of dummy variables indicating the number of years

[8]For example consider two children born in August of 1990. In the 1990 wave of the CNLSY, the majority of interviews (approximately 80%) were conducted in July, August and September. If one child's family was interviewed in July and the other child's family was interviewed in September, then only the former would have a valid HOME score observation for 1990.

the mother worked for pay when the child was between ages 0-5; maternal marital status is measured with an indicator of whether the mother was married at any point during the child's first 5 years of life; and household income data (inflated to 2008 dollars using the CPI-U-RS) is averaged over the child's first 5 years of life.[9] AFQT scores are adjusted for age at time of testing and measured as z-scores. Finally, I make use of the NLSY geocode supplement (which reports each respondent's county of birth, county residence at age 14, and county of residence at each survey wave) to estimate county fixed-effects specifications that account for potential unobserved parenting determinants that are constant within counties.

2 Results

2.1 Baseline Results

As noted, the cohorts of women who participated in the NLSY were born between 1957 and 1964, a period of rapid reductions in the degree of discrimination faced by African Americans in the US South. The fact that reductions in discrimination were largely restricted to Southern African Americans implies that the their effect on parental behaviors can be identified by comparing the relationship between birth cohort and HOME score among Southern African Americans with the same relationship in other race-by-region sub-populations. Any underlying parenting trends that are specific to racial groups (across regions) or to regions (across racial groups) can be accounted for by observing non-Southern African Americans, Southern whites, and non-Southern whites.[10] Below I examine mean HOME score trends and estimate split-sample regression specifications and difference-in-difference models that rely on these comparisons.

Mean HOME Score Trends

As an initial implementation, Figure 2 plots mean HOME score by annual birth cohort for each of the 4 race-by-region sub-populations.[11] HOME scores were adjusted to account for maternal age at birth, but no other controls are used. The figure for Southern African

[9] Unfortunately, maternal self-health ratings are only available at age 40.

[10] As noted above, an added benefit of differencing is that it removes any common variation in HOME score that is due to mechanical selection or composition issues, such as child age at HOME observation, the effect of maternal fertility timing on sample composition, or secular parenting trends.

[11] A mother is considered to be from the South if she reported living in one of the following states at age 14: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia. All of the results presented below are insensitive to reasonable alternatives to this definition (for example including Missouri and excluding parts of Florida, or requiring Southern birth in addition to residence at age 14).

Americans exhibits an unequivocal upward trend: the mean HOME score among mothers born in 1957 is approximately .7 standard deviations below average, but for later birth cohorts has increased to around only .2 standard deviations below average, a change of approximately .5 standard deviations. The figures for other race-by-region sub-populations suggest that these improvements were not due to underlying trends which were general to African Americans or to Southerners, as there is no discernible relationship between maternal birth cohort and HOME score for non-Southern African Americans or for whites both in and out of the South.

Split-Sample Regressions

The first four columns of Table 3 show results from regressions of HOME score onto maternal birth cohort and a minimal set of controls. A separate model is estimated for each race-by-region group, thus allowing the coefficient on maternal birth cohort to vary across these groups. The estimating equation is as follows:

$$HOME_{im} = \beta_0 + \beta_1 BC_m + X_i^{'}\gamma + Z_m^{'}\delta + \varepsilon_{im} \tag{1}$$

where $HOME_{im}$ denotes the HOME score for child i of mother m; BC_mdenotes the birth cohort of the mother, measured in months;[12] $X_i^{'}$ is a vector of child level control variables that includes gender, birth order, and the controls designed to adjust for mechanical elements of HOME scores and secular time trends as described in section 1;[13] $Z_m^{'}$ is a vector of mother level controls that includes maternal age at birth and indicators of maternal marital status and labor force participation during the child's first five years of life; and ε_{im} is an error term.

Our primary interest is differences in the estimated value of β_1 across the sub-populations, and Table 3 shows that there is a striking contrast between the cohort effect for Southern African American mothers and those of the other three groups. Among Southern African Americans, being born a year later is associated with a .087 standard deviation increase in HOME score, while among the other sub-populations this effect is practically and statistically indistinguishable from zero. The reported p-values show that these differences are highly statistically significant.

[12]Although it is measured monthly, the birth cohort variable was annualized to ease the interpretation of its coefficient, and a one unit change in this variable corresponds to being born a year later.

[13]Again, these controls include dummy variables indicating child ages at the time of HOME observations, the number of HOME observations used to construct the summary measure, indicators of missing HOME observations for each age, and the calendar years that HOME scores were observed.

Difference-in-Difference Specifications

An alternative approach, which is conceptually similar to estimating separate models for each race-by-region sub-population, is to pool the sample and estimate standard differences-in-differences specifications using interaction terms between a variable indicating mothers who are Southern African Americans and maternal birth cohort. Using the same notation as equation 1, the estimating equations for simple difference-in-difference models are as follows:

$$HOME_{im} = \beta_0 + \beta_1 BC_m + \beta_2 Black_m + \beta_3 (Black_m \times BC_m) + X_i^{'}\gamma + Z_m^{'}\delta + \varepsilon_{im} \quad if\, South_m = 1 \quad (2)$$

and

$$HOME_{im} = \beta_0 + \beta_1 BC_m + \beta_2 South_m + \beta_3 (South_m \times BC_m) + X_i^{'}\gamma + Z_m^{'}\delta + \varepsilon_{im} \quad if\, Black_m = 1 \quad (3)$$

In standard difference-in-difference terminology, specification 2 uses Southern African Americans as the treatment group and Southern whites as the control group, while specification 3 uses Southern African Americans as the treatment group and non-Southern African Americans as the control group.[14] The estimated treatment effects are given by β_3, and have been cleansed of any trends which are common to Southerners of both races (in equation 2) or to African Americans in both regions (in equation 3). Results are presented in columns 5 and 6 of Table 3, and are broadly consistent with the split-sample results from columns 1-4. In both cases, the treatment effect β_3 is positive and statistically significant. The size of the treatment effect is somewhat larger when Southern whites are used as the control group (column 5) than when non-Southern African Americans are (column 6), but in both cases the effect sizes are broadly similar and substantively large.

A natural extension to the difference-in-difference specifications just presented is to take differences across racial groups and regions simultaneously by estimating a triple-differenced model. This approach first takes the difference in HOME scores between Southern and non-Southern African Americans, removing effects common to African Americans in the two regions, and then further differences off any effects common to Southerners. The estimating equation for a regression based triple-diff is the following:

$$HOME_{im} = \beta_0 + \beta_1 BC_m + \beta_2 South_m + \beta_3 Black_m + \beta_4 (South_m \times Black_m) + \beta_5 (South_m \times BC_m) + \beta_6 (Black_{m} \times BC_m) + \beta_7 (Black_m \times South_m \times BC_m) + X_i^{'}\gamma + Z_m^{'}\delta + \varepsilon_{im}. \quad (4)$$

[14] In these specifications the treatment itself is best thought of as a general reduction in discrimination, which in this particular historical context is captured by maternal birth cohort.

The treatment effect is now given by β_7, which indicates whether the effect of birth cohort on parental behaviors is greater for treatment group Southern African Americans than for the control groups. Results from this specification are reported in column 7 of Table 3, and lead to similar conclusions as the stratified sample and difference-in-difference approaches. After accounting for common race and region effects, the impact of maternal birth cohort for Southern African Americans is a statistically significant .071 standard deviations.

2.2 Robustness Checks

Before proceeding, it is important to verify that the basic differential trends documented thus far are not sensitive to reasonable modifications to the specification, sample, or treatment group definition.

One potential issue is that I have so far defined Southern status using residence at age 14, but migration across regions before or after this age was not uncommon for African Americans in my sample. It is well established that large numbers of African Americans left the South in the 1940's, 1950's and early 1960's in the so-called "Great Migration". Out-migration slowed sharply after 1965, and actually reversed in the 1970's, a decade of net African American migration into the South (Farley & Allen 1987). This dramatic migration history makes it likely that birth cohort is associated with the probability that a given mother in the NLSY migrated into or out of the South at some point. Since it is also highly plausible that parenting could be influenced by migration or by time spent out of the South, it is possible that the documented correlations between birth cohort and HOME score are driven by migration patterns as opposed to reduced discrimination.

The NLSY contains geographic identifiers for each respondents at birth, at age 14 and at each wave of the survey, and Panel A of Table 4 shows results from models that use these variables to construct three non-migrating samples of Southern African Americans. The first column reports the estimated cohort effect using the baseline sample of all African American mothers who were living in the South as of age 14. The model in the second column restricts the sample to African American mothers who were born in the South *and* reported living in the South at age 14, thus excluding in-migrants. The model in the third column restricts the sample to African American mothers who were living in the South at age 14 *and* did not report living outside of the South in any subsequent wave of the NLSY, thus excluding out-migrants. Finally, the model in the fourth column restricts the sample to African American mothers who were born in the South, *and* lived there are age 14, *and* did not report living outside of the South in any wave of the NLSY, thus excluding all mothers known to have lived outside the South at any point. In all of these cases, the cohort effects are large and

highly significant, indicating that my baseline results are not an artifact of the unique African American migration patterns occurring around this period.

Another potential concern is that the baseline results used non-Southern African Americans and Southern whites as control groups, but the construction of more refined control groups that are likely to have unobserved traits more similar to those of Southern African Americans are possible, and may be more appropriate. Specifically, since Southern African Americans tend to have relatively low incomes, it may be preferable to compare Southern African Americans to lower-income Southern whites, say those with incomes below the median.[15] The baseline models also compare Southern African Americans to African Americans in all other parts of the US, but there is potentially a great deal of heterogeneity in the unobserved characteristics of African Americans in various non-Southern regions. A more desirable comparison may be African Americans in the Rust Belt region, which is reasonably close to the South geographically and contains large concentrations of African Americans.[16] Panel B of Table 4 shows the baseline model for Southern African Americans as well as for these two alternative control groups. The results indicate that using more refined control groups has little substantive effect on the results: as before, the only statistically or substantively significant cohort effects occur among Southern African Americans.

All of the regression results presented thus far have contained the set of HOME score adjustment variables described in Section 1. For the reasons outlined there, it is appropriate and desirable for these controls to be included in the specification. Still, if their omission dramatically changed the results, it would be important to consider why this is the case. Panel C of Table 4 reports results from split-sample and triple-differenced specifications that exclude the HOME score adjustments. The basic nature of the results are unchanged.

A final concern is that all of the previous regression specifications have entered maternal birth cohort linearly, but if the increases in HOME score associated with some annual birth cohorts were substantially larger than others this assumption may be too restrictive. Additional results are shown in Figure 3 that investigate this possibility in two ways. The left hand panel of Figure 3 shows results from a partially linear version of the split-sample specifications, which imposes no specific functional form on the cohort effects. The right hand panel of Figure 3 shows results from a regression specification where each annual birth cohort enters as a dummy variable, and then the coefficients are plotted. In both cases, the relationship between maternal birth cohort and HOME score appear to be approximately

[15] The median household income of Southern whites in my sample is $41,597 (2008 dollars).

[16] For present purposes the Rust Belt is defined as Illinois, Indiana, Michigan, New York, Ohio and Pennsylvania. Chay, Guryan & Mazumder (2009) also utilize this set of states as a control group when analyzing the causes of increased cognitive test scores among Southern African Americans.

linear, suggesting that the models presented in Table 3 are a good approximation of the true functional relationship.

3 Intermediate Factors

While the unique increase in the parenting behaviors of Southern African American mothers following the Civil Rights Era is dramatic and robust, it is also critical to understand what specific forces were driving this trend. If we wish to devise policies that help to equalize the home environments experienced by young children of different racial backgrounds, then understanding the mechanisms underlying the documented trends is crucial. The basic historical context suggests that general reductions in discrimination played an important role, but such reductions could take many forms, and it would be valuable to have a more precise idea of which forms were most operative. One method of assessing the importance of potential intermediate factors is to add them to the baseline specifications as additional controls, and then observe the extent to which the differential trend for Southern African Americans is reduced. I implement several such tests in Table 5.

One intuitive candidate explanation for the unique increases in HOME scores among Southern African American mothers are improvements in their SES and human capital characteristics. A large literature demonstrates that African Americans in these birth cohorts experienced substantial gains in educational attainment, income, and achievement test scores, and that these gains were largely concentrated in the South (Smith & Welch 1989; Donohue & Heckman 1991; Neal 2005; Chay, Guryan & Mazumder 2009). Since these maternal traits have in turn been shown to positively impact parenting behaviors (Blau 1999; Carneiro & Meghir 2012), relative improvements in maternal SES and human capital may account for some or all of the HOME score convergence documented above.

Panel A of Table 5 reproduces the baseline results for purposes of comparison, and then panel B shows results from models that include controls for mother's highest grade completed, gross household income, maternal AFQT score, and maternal self-rated health, all as described in Section 1. Surprisingly, the addition of these control variables does not reduce the cohort effect differences between Southern African American mothers and the other groups at all, and only trivially reduces the estimated treatment effect in the triple-differenced estimator, from .071 to .066. The insensitivity of the results to including these controls indicates that although the general socioeconomic well being and human capital of Southern African Americans was improving across the cohorts of mothers studied, these improvements don't explain the observed changes in parental behaviors.

Another possible mechanism is that Southern African American mothers changed their parenting behaviors because reduced labor market discrimination increased the expected rate of return to skill among their children. This is an intuitive explanation for economists accustomed to analyzing behavior in terms of incentives, and the basic logic is as follows. Suppose that the parenting behaviors measured by HOME score increase children's educational attainment and scores on cognitive achievement tests ("skill"), but that for African Americans labor market discrimination reduces the extent to which these skills are translated into increased wages. In the years following the Civil Rights Movement, there were major reductions in the degree of labor market discrimination experienced by African Americans in the South, and these reductions in large part took the form of increasing returns to human capital characteristics.[17] As a result, the marginal benefit of cognitively stimulating parenting behaviors likely increased, and the optimal parenting level would therefore be correspondingly higher.[18] This type of logic is similar to that found in models of so-called statistical discrimination (for example Arrow, 1973; Coate & Loury, 1993; Lundberg & Startz, 1983), in which the returns to skill and the levels of skill investment among African Americans become mutually reinforcing phenomena.[19]

The 1979 and 1982 waves of the NLSY contained a question asking respondents whether race based discrimination was an impediment to them finding a good job, and I utilize mother's responses to this question as a proxy for their perceptions of labor market discrimination. Of course, this is an imperfect measure of maternal beliefs regarding the rate of return to skill their children will experience. The reports are subjective and hypothetical, and for present purposes the relevant question is the perception of labor market discrimination in the next generation, not the current one. Still, direct maternal reports are a reasonable proxy for the true variable of interest, and to the extent that the disparate trends in HOME

[17] For instance Welch (1973) and Smith & Welch (1989) find that the increase in wages associated with an additional year of schooling among African Americans grew dramatically in the period after the 1964 Civil Rights Act; Cutright (1973) finds that the returns to AFQT score among African Americans drafted in the Korean War increased substantially over the same period; and Darity, Dietrich & Guilkey (2001) decompose the determinants of occupational prestige and find that the reductions experienced by African American men due to differential returns to observable characteristics fall from 17.8% in 1960 to 13.3% in 1970 to 8.7% in 1980.

[18] It should be noted that although racial differences in the returns to skill are a potential explanation for the changes in parenting behaviors documented in this paper, they are less compelling with regard to overall contemporary parenting gaps. This is because most available evidence suggests that for at least the past several decades, the wage returns to human capital characteristics have been as high or higher among African Americans than among whites (Carneiro, Heckman, & Masterov, 2005; Neal 2005; Neal & Johnson, 1996). However, it should also be noted that most of this evidence pertains only to wages, and exceptions have been documented with respect to employment status (Ritter & Taylor 2012) and health (Thompson 2011).

[19] In most models of statistical discrimination, individuals make decisions about their own skill investments, but the basic logic of the model applies equally well to skill investment decisions made by altruistic parents.

score documented above are driven by changing perceptions of discrimination, controlling for these maternal reports should reduce the effect size. Panel C of of Table 5 reports results from specifications that add controls for whether the mother ever reported race based discrimination to the models from Panel B, and indicates that maternal perceptions of racial discrimination do not account for the HOME score trends documented above. In both the split sample and triple-difference specifications, the differential effect among Southern African Americans is virtually unchanged.

Many potential determinants of parental behaviors are not observed in my data, but are constant within relatively small geographic areas. One method of attempting to account for these unobservables is to estimate fixed effects models at small geographic levels, which will identify cohort effects using only variation between mothers who live close to one another but were born in different years. The smallest geographic entity identified in NLSY geo-codes is county, and Panel D of Table 5 shows estimates that add county fixed-effects to the models from Panel C.[20] The results indicate that unobserved factors constant at the county level do not explain the basic results, as once again the estimated effects are not substantively changed.

It is unlikely that the observable controls discussed above are fully comprehensive, and county fixed-effects models will only account for unobserved contextual factors that are static across time. Given this, even the most fully saturated models from Panel D of Table 5 fail to account for several potentially important variables. Three factors in particular warrant discussion: improvements in school quality, increased access to professional medical care, and the introduction of major federal anti-poverty programs, and I address these in turn.

The models in Table 5 directly controlled for mother's years of education completed, but mothers born into later cohorts also may have attended schools that were of higher quality. These quality differences could in turn positively impact parenting behaviors and therefore contribute to the documented differential trends. While plausible, this explanation for convergence seems unlikely for two reasons. First, work by Card & Krueger (1992) documents that the majority of racial convergence in very basic measures of school quality – student-pupil ratios, term length and relative teacher pay – occurred between the 1930s and early 1950s, and that these basic measures were largely equal by the early 1960s. Since the cohorts of mothers I study entered school between 1962 and 1969, they were likely to have attended schools that were generally similar along these dimensions. Of course, these measures of school quality are very basic and may not capture important changes in school character-

[20] Mother's county of residence at age 14 is used, but similar results are obtained using county of birth.

istics, including school desegregation. However, the models in Table 5 control for maternal AFQT score in addition to years of education completed, and these scores are likely to capture many more subtle components of school quality. Indeed, much of the modern economics of education literature uses scores on tests similar to the AFQT as direct measures of school or teacher quality (Hanushek 2006). These two considerations reduce the likelihood that the the observed HOME score convergence is primarily due to later born mothers attending higher quality schools, but I acknowledge that it remains a potential contributing factor.

Another important possibility is that Southern African American mothers from later birth cohorts had access to more and higher quality health care, and that the resulting health improvements positively impacted their subsequent parental behaviors. Of particular interest is the possible effect of hospital desegregation, as recent work by Chay, Guryan & Mazumder (2009) has demonstrated a close correspondence between hospital integration in the South (which led to dramatic improvements in post-neonatal health among Southern African Americans) and the subsequent AFQT scores of effected children. While it is plausible that being born in a higher quality hospital could effect future parental behaviors in addition to cognitive test scores, leading to an association between birth cohort and parenting like the one found here, the timing of hospital desegregation largely rules out this possibility. Since the vast majority of hospital integration occurred after 1964, it could not have directly impacted the mothers in my sample, who were born between 1957 and 1964, during an era of nearly full segregation in Southern hospitals. Still, general improvements in maternal health could be associated with both maternal birth cohort and HOME score for Southern African American mothers. The inclusion of controls for maternal self-rated health will hopefully account for some of any such effects, but this is obviously not a comprehensive measure of general maternal health when children were ages 0-5, and like school quality improved maternal health cannot be fully ruled out as a possible explanation of HOME score convergence.

A third possibility is that convergence is a result of federal antipoverty programs that were rolled out over this period, such as Medicaid, Head Start, AFDC and Food Stamps. A prima facie strike against these these programs being an important explanation for my results is that they were national programs and affected both African Americans and whites, whereas the parenting effects observed here were unique to Southern African Americans. Neither was it the case that the major War on Poverty programs tended to have larger enrollments among Southern African Americans. In fact, Southern states were considerably slower than their non-Southern counterparts to introduce Medicaid (Chay, Guryan & Mazumder 2009), and there is some evidence that the introduction of Food Stamps in Southern states targeted mostly white counties over predominantly African American counties (Hoynes & Schanzen-

bach 2007). Furthermore, the effects of social programs on parenting have generally been found to be small, even for programs that are specifically intended to change parental behaviors, such as home visits by trained nurses and social workers (Almond & Currie 2010). This makes it seem unlikely that general social service programs like the ones initiated in the late 1960s could have effects on parenting as large as those documented above.

4 An Alternative Explanation: Shifts in Parenting Norms

One way of viewing the intermediate factors considered in the previous section is that they potentially affected either the marginal costs or the marginal benefits of the parental behaviors being studied. Increases in maternal SES or human capital could decrease the required effort and psychological costs of the parenting activities that comprise HOME scores, as well as offset their (modest) monetary costs. Similarly, reduced labor market discrimination could increase the marginal benefit of the parenting activities that comprise HOME score by raising the associated improvements in child economic well being. The fact that none of these factors helped to explain the documented convergence in parenting behaviors suggests that alternative considerations predominate. Here I consider one possible alternative: that parenting is primarily determined by social norms which were shifted by the Civil Rights Movement and its consequences.

Research in anthropology and sociology provides substantial evidence that parenting behaviors are driven by cultural norms, and that these norms are often shaped by the fundamental economic circumstances faced by a particular group. One general lesson of this literature is that parenting behaviors tend to adapt over time in ways that promote the development of child traits which are valuable in the current social and economic context. Since the Civil Rights Movement and its consequences shifted many basic realities of day-to-day economic, social and political life for Southern African Americans, it is not unreasonable to think that parenting norms may have shifted in response.

The research on parenting norms that is most directly relevant to the current study comes from Melvin Kohn and his collaborators, who have spent decades documenting that parents from different occupational or social classes adopt child rearing values and behaviors that closely correspond to the types of characteristics their children will need to succeed professionally (Kohn 1963; Kohn 1969; Kohn 1976). For example, parents whose occupations require non-routine tasks or have minimal amounts of direct supervision are much more likely to report valuing self-direction in children, and these values are reflected in concrete parenting behaviors such as how and when discipline is exercised. In contrast, parents who come

from occupations requiring mostly manual labor are more likely to value conformity to external direction in children. The relationship between parent's occupational background and child rearing values is extraordinarily robust, and has been documented in dozens of countries with very different economic systems (Pearlin & Kohn 1966; Kohn, Naoi & Schoenbach et al. 1990).

Another relevant example comes from a canonical anthropological study by Barry, Child & Bacon (1959), who ranked 104 indigenous societies in terms of both their primary method of economic subsistence (fishing and hunting, animal husbandry, agriculture, etc.) and in the extent to which the society's child rearing practices encouraged "compliance" as opposed to "assertion." The authors hypothesized that in societies with food production technologies which necessitated food storage, child rearing practices would encourage strict adherence to the routine responsibilities which ensure the survival of domesticated animals or improve the likelihood of an adequate harvest (compliance). In contrast, it was hypothesized that in societies that relied primarily on non-storable food sources such as gathering, hunting or fishing, child rearing practices would encourage individual initiative and innovation (assertion). These hypotheses were strikingly confirmed in empirical testing. The simple correlation coefficient between the measures of economic structure and child rearing techniques was .94, leading the authors to conclude that "knowledge of the economy alone would allow one to predict with considerable accuracy whether a society's socialization pressures were primarily toward compliance or assertion." The fact that the economic structures of these societies were determined primarily by the available natural resources makes it unlikely that child rearing practices were the cause of those economic structures, as opposed to being influenced by them.

More recently, a team of economists and anthropologists (Mulder, Bowles & Hertz et al. 2009) studied intergenerational wealth transmission in 21 small scale societies around the world. Different societies have different forms of wealth, as well as different mechanisms for transmitting wealth across generations. For example, farmable land is an important form of wealth in most agrarian societies, and can often be transmitted directly to offspring as a bequest. In other societies, the most important form of wealth may be hunting skills or durable ties to a social network, which can only be transmitted genetically or via the extended training of offspring. The authors document a powerful positive correlation (.48) between the importance of a particular type of wealth to a given society and how strongly that form of wealth is transmitted across generations. They conclude that their results are "consistent with the view that parents differentially transmit to their offspring the forms of wealth that are most important in that society."

These results are germane to the current study because any parenting norms among Southern African Americans that were established prior to the Civil Rights Movement would have reflected an environment of extreme, overt discrimination and severely limited opportunity, and of course prior to emancipation the situation was even worse. In such an environment, the types of parental behaviors recorded in the HOME score would be impractical, either because they were literally impossible to carry out, or because the child characteristics they encourage were minimally rewarded in such a discriminatory society. The literature summarized above suggests that these basic facts are likely to have become reflected in parenting norms.

The Civil Rights Movement ushered in a set of fundamental changes in the life prospects of Southern African Americans. Not only did economic opportunity increase dramatically over a short period of time, but there were concurrent social and political changes – for example riding in the front of public buses and voting in elections – which had few direct economic consequences but were of tremendous social significance. These changes meant that the practicality and importance of the parenting behaviors studied here increased substantially, and that they did so in a very visible manner. Given this, the interdisciplinary research discussed above suggests that parenting norms among Southern African Americans are likely to have shifted in response to these fundamental changes in social and economic circumstances. It may be such a shift that is being observed in the main results of this study.

5 Conclusion

This study began by noting that there are large racial differences in the home environments of young children, and that these differences have important consequences for child outcomes such as the racial achievement gap. Existing studies have documented both of these facts, but have not empirically investigated the root causes of racial parenting differences. I proposed that discrimination may be an important cause of these gaps, and studied this relationship by examining the HOME scores of a racially and regionally diverse sample of mothers who were born between 1957 and 1964. The main result was that the parenting behaviors of Southern African American mothers increased dramatically over this period, but were flat for other race-by-region sub-populations. Since discrimination was declining precipitously over this period for Southern African Americans alone, I interpreted these differential trends as evidence that discrimination is an important cause of racial gaps in parental behaviors.

Additional empirical analysis found that the basic results could not be explained by relative improvements in the SES and human capital characteristics of Southern African American mothers or by relative decreases in their perceptions of labor market discrimination, and

that improved school quality, increased access to medical care, and the advent of federal antipoverty programs were also unlikely to explain the basic results. Finally, I suggested that it may be most insightful to view parenting behaviors as social or cultural norms that adapt to the broad economic and social circumstances of a group. In this case, my basic results can be seen as a shift in parenting norms brought about by the radical transformation of daily life among Southern African Americans during and after the Civil Rights Movement.

From a policy perspective, these results give cause for both optimism and pessimism. On the one hand, they indicate that parental behaviors are broadly malleable, and can shift dramatically over relatively short periods of time. On the other hand, the determinants of such shifts do not appear easy to manipulate through traditional policy channels. For example, my results indicate that relative increases in the education, health or income of African American mothers, while certainly valuable for many reasons, should not be expected to reduce racial differences in home environments. Similarly, my results indicate that policies which potentially increase the labor market returns to skill among African Americans, for example affirmative action, should not be expected to reduce racial parenting gaps.

Roland Fryer (2010) concludes his recent review of racial inequality in the United States by writing that "closing the achievement gap is the most important civil rights battle of the twenty-first century." The existing evidence makes it clear that this battle cannot be won without major improvements in the home environments of young minority children, and understanding what determines those environments is therefore of great importance. The present study has attempted to show that discrimination, broadly defined, is an important cause of racial differences in home environments. But the overall results indicate that marginal reductions in discrimination or improvements in the socioeconomic well-being of African Americans are unlikely to be sufficient to close gaps in home environments, and that instead these differences will only be alleviated by more fundamental changes in the nature of discrimination in the US.

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Appendix A: Details of HOME Score Construction

The first three columns of Table A1 list all items of the HOME score's cognitive component for the ages 0-2 and ages 3-5 versions, which are the two versions of the inventory utilized in this paper. Columns 4 and 5 of the table report whether each item was observed by the interviewer of self reported by the mother.

The calculation of HOME scores from these items is performed as follows: each item is recoded into a dichotomous zero-one variable, in which ones correspond to parenting and environmental factors that are more likely to lead to positive cognitive development. The exact recodes used are listed in the final two columns of Table A1. The simple summation of each recoded item is then taken, and standardized within age groups to have a mean of zero and a standard deviation of one.

Table 1: Mean Levels of Parental Behaviors by Race

	White	African American	Difference
Read to child 3 or more times per week	0.64	0.35	0.28
Have 10 or more children's books in the home	0.82	0.43	0.40
Observed responding verbally to child's speech	0.77	0.67	0.10
HOME Score (standard units)	0.25	-0.36	0.61
HOME Score adjusted for SES	0.11	-0.37	0.49

Notes: Constructed using data from the CNLSY. Index of cognitive stimulation in the home is the cognitive component of HOME score (see Section 1 of text and Appendix A for description). Adjusted index is the residual of HOME score regressed onto maternal education, household income and maternal age at birth. All means are weighted using CNLSY provided sampling weights.

Table 2: Home Environments and the Racial Achievement Gap

	Phillips et al. (1998)			Fryer & Levitt (2004)		
African American Indicator	-17.76	-8.42	-3.89	-.401	-.134	-.006
	(2.07)	(2.17)	(2.13)	(.024)	(.025)	(.026)
SES Controls	N	Y	Y	N	Y	Y
Home Environment Controls	N	N	Y	N	N	Y
Data Source	Infant Health and Development Program (IHDP)			Early Childhood Longitudinal Survey (ECLS)		
Testing Instrument	Wechsler Preschool Primary Intelligence Scale			Reading test specially designed for ECLS		
	Author's Estimates-Mathematics			Author's Estimates-Reading		
African American Indicator	-0.532	-0.437	-0.319	-0.219	-0.083	0.036
	(0.040)	(0.040)	(0.043)	(0.042)	(0.041)	(0.044)
SES Controls	N	Y	Y	N	Y	Y
Home Environment Controls	N	N	Y	N	N	Y
Data Source	Children of the National Longitudinal Survey of Youth (CNSLY)			Children of the National Longitudinal Survey of Youth (CNSLY)		
Testing Instrument	Peabody Individual Achievement Test-Mathematics			Peabody Individual Achievement Test-Reading Recognition		

Notes: Child test results are as of age 5 or kindergarten entry. In Phillips et al. (1998) SES control consist of family income, maternal education, a female headed household indicator variable, household size, maternal age at birth, and neighborhood poverty rates; in Fryer & Levitt (2004) they consist of the educational attainment of both parents, occupational categories, and household income; in the author generated results they consist of maternal age at birth, maternal education, and household income. Home environment controls consist of HOME scores in Phillips et al. (1998) and the author generated results, and the number of children's books present in the home in Fryer & Levitt (2004).

Table 3: The Effect of Maternal Birth Cohort on HOME Score by Race and Region

	(1) Southern African American	(2) Southern White	(3) Non-Southern African American	(4) Non-Southern White	(5) Race Diff-in-Diff	(6) Region Diff-in-Diff	(7) Triple-Diff
Maternal Birth Cohort	0.087***	-0.033	0.011	-0.008	-0.020	0.021	-0.005
	(0.026)	(0.022)	(0.025)	(0.012)	(0.018)	(0.020)	(0.010)
Maternal Birth Cohort x African American	–	–	–	–	0.078***	–	0.005
					(0.017)		(0.014)
Maternal Birth Cohort x South	–	–	–	–	–	0.039**	-0.032***
						(0.019)	(0.011)
Maternal Birth Cohort x South x African American	–	–	–	–	–	–	0.071***
							(0.022)
Observations	1,178	1,145	981	3,241	2,323	2,159	6,545
R-squared	0.304	0.297	0.354	0.236	0.335	0.282	0.299
P-value from Test for Equality with Southern African American Coefficient	_	0.000	0.061	0.000	_	_	_

Notes: Race diff-in-diff model uses only the Southern sample, the region diff-in-diff model uses only the African American sample, and the triple-diff model contains an interaction of South and African American indicators. All regressions additionally control for maternal age at birth, maternal marital status, maternal labor force participation, child gender, child birth order, and the HOME score adjustment variables described in Section 1 of the text. All models are estimated using CNLSY provided sampling weights. Robust standard errors are in parenthesis. *, ** and *** indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 4: The Effect of Maternal Birth Cohort on HOME Score, Robustness Checks

	Panel A: Non-Migrating Southern African Americans				Panel B: Alternative Control Groups			Panel C: HOME Score Adjustment Controls Removed				
	Baseline	In-Migrants Excluded	Out-Migrants Excluded	All Migrants Excluded	Southern African American	Low-Income Southern White	Rust Belt African American	Southern African American	Southern White	Non-Southern African American	Non-Southern White	Triple-Diff
Maternal Birth Cohort	0.087***	0.093***	0.110***	0.108***	0.087***	-0.040	0.005	0.069***	-0.023**	0.019	0.010*	-0.005
	(0.026)	(0.029)	(0.035)	(0.039)	(0.026)	(0.066)	(0.037)	(0.016)	(0.010)	(0.014)	(0.005)	(0.010)
Maternal Birth Cohort x South x African American	–	–	–	–	–	–	–	–	–	–	–	0.071***
												(0.022)
Observations	1,178	1,103	674	633	1,178	481	540	1,178	1,145	984	3,244	6,545

Notes: All regressions control for maternal age at birth, maternal marital status, maternal labor force participation, child gender and child birth order. Models from Panels A and B additionally control for the HOME score adjustment variables described in Section 1 of the text. All models are estimated using CNLSY provided sampling weights. Robust standard errors are in parenthesis. *, ** and *** indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 5: The Effect of Controlling for Potential Mediators

Panel A: Baseline Results

	Southern African American	Southern White	Non-Southern African American	Non-Southern White	Triple-Diff
Maternal Birth Cohort	0.087***	-0.033	0.011	-0.008	-0.005
	(0.026)	(0.022)	(0.025)	(0.012)	(0.010)
	–	–	–	–	0.071***
					(0.022)
Demographic Controls	Y	Y	Y	Y	Y
Maternal SES and Human Capital Controls	N	N	N	N	N
Labor Market Discrimination Controls	N	N	N	N	N
County Fixed-Effects	N	N	N	N	N
Observations	1,178	1,145	981	3,241	6,545

Panel B: Maternal SES and Human Capital Controls Added

	Southern African American	Southern White	Non-Southern African American	Non-Southern White	Triple-Diff
Maternal Birth Cohort	0.094***	-0.038	0.016	-0.012	-0.007
	(0.027)	(0.024)	(0.025)	(0.012)	(0.010)
	–	–	–	–	0.066***
					(0.022)
Demographic Controls	Y	Y	Y	Y	Y
Maternal SES and Human Capital Controls	Y	Y	Y	Y	Y
Labor Market Discrimination Controls	N	N	N	N	N
County Fixed-Effects	N	N	N	N	N
Observations	1,110	1,072	922	3,046	6,156

Panel C: Labor Market Discrimination Controls Added

	Southern African American	Southern White	Non-Southern African American	Non-Southern White	Triple-Diff
Maternal Birth Cohort	0.093***	-0.039	0.013	-0.012	-0.008
	(0.027)	(0.024)	(0.025)	(0.012)	(0.010)
Maternal Birth Cohort x South x African American	–	–	–	–	0.067***
					(0.022)
Demographic Controls	Y	Y	Y	Y	Y
Maternal SES and Human Capital Controls	Y	Y	Y	Y	Y
Labor Market Discrimination Controls	Y	Y	Y	Y	Y
County Fixed-Effects	N	N	N	N	N
Observations	1,110	1,072	922	3,036	6,140

Panel D: County Fixed-Effects Added

	Southern African American	Southern White	Non-Southern African American	Non-Southern White	Triple-Diff
Maternal Birth Cohort	0.105***	-0.044*	0.006	-0.026*	-0.016
	(0.026)	(0.026)	(0.029)	(0.015)	(0.014)
Maternal Birth Cohort x South x African American	–	–	–	–	0.058*
					(0.030)
Demographic Controls	Y	Y	Y	Y	Y
Maternal SES and Human Capital Controls	Y	Y	Y	Y	Y
Labor Market Discrimination Controls	Y	Y	Y	Y	Y
County Fixed-Effects	Y	Y	Y	Y	Y
Observations	1,108	1,062	891	2,949	6,010

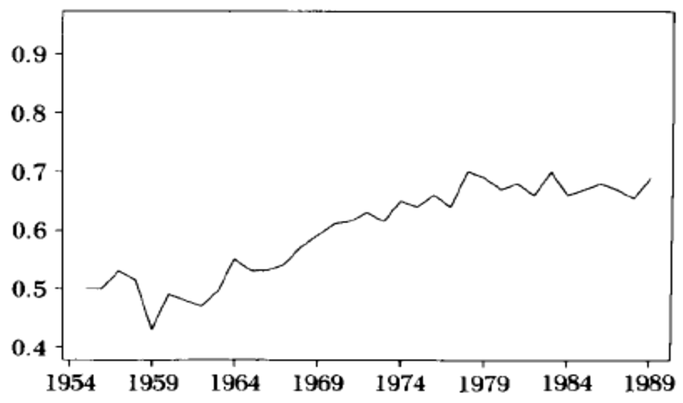
Notes: Demographic controls include maternal age at birth, maternal marital status, maternal labor force participation, child gender and child birth order. Maternal SES and human capital controls include mother's highest grade completed, gross household income, maternal scores on the Armed Forces Qualification Test, and maternal self-rated health. Labor market discrimination controls include an indicator of whether the mother ever reported believing that race based discrimination was an impediment to them finding a good job. All models additionally control for the HOME score adjustment variables described in Section 1 of the text and are estimated using CNLSY provided sampling weights. Standard errors (in parenthesis) are robust in Panels A, B and C and clustered at the county level in Panel D. *, ** and *** indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table A1: HOME Score Components

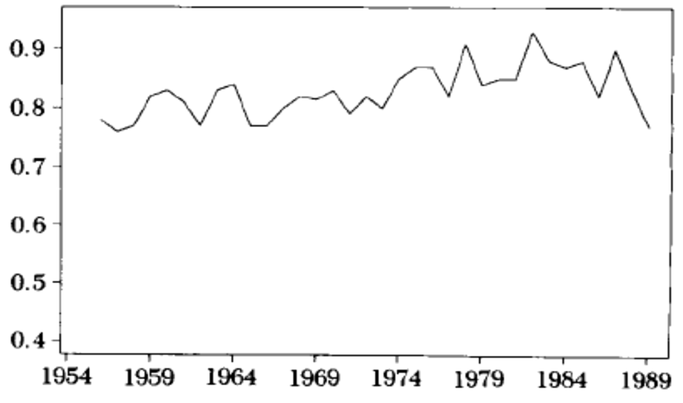
Item	Assessment Age		Reporting Method		Recodes	
	0 to 2	3 to 5	Observed	Self-Reported	1	0
How often does child have a chance to get out of the house?	X			X	6,7	1-5
About how many children's books does child have?	X	X		X	3,4,	1,2
How often do you get a chance to read to child?	X	X		X	5,6	1-4
How often do you take child to the grocery store?	X	X		X	1	2-4
About how many, if any, cuddly, soft, or role-playing toys does child have?	X			X	>=1	0
About how many, if any, push or pull toys does child have?	X			X	>=1	0
Some parents spend time teaching their children new skill while other parents believe children learn best on their own. Which most closely describes your attitude (4 options listed)?	X			X	1,2	3,4
Mother provided toys or interesting activities for child?			X		1	0
Child's play environment is safe?			X		1	0
About how many magazines does your family get regularly?		X		X	2-5	1
Does child have the use of a CD player, tape deck, or tape recorder, or record player at home and at least 5 children's records or tapes?		X		X	1	0
Do you or have you helped [child] with numbers?		X		X	1	0
Do you (or someone else) help [child] with the alphabet?		X		X	1	0
Do you (or someone else) help [child] with colors?		X		X	1	0
Do you (or someone else) help [child] with shapes and sizes?		X		X	1	0
How often does a family member get a chance to take child on any kind of outing?		X		X	3-5	1,2
How often has a family member taken or arranged to take child to any type of museum?		X		X	2-5	1
Interior of the home is dark or perceptually monotonous?		X	X		1	0
All visible rooms of house/apartment are reasonably clean?		X	X		1	0
All visible rooms of house/apartment are minimally cluttered?		X	X		1	0

Figure 1: Black-White Wage Ratio Trends by Region

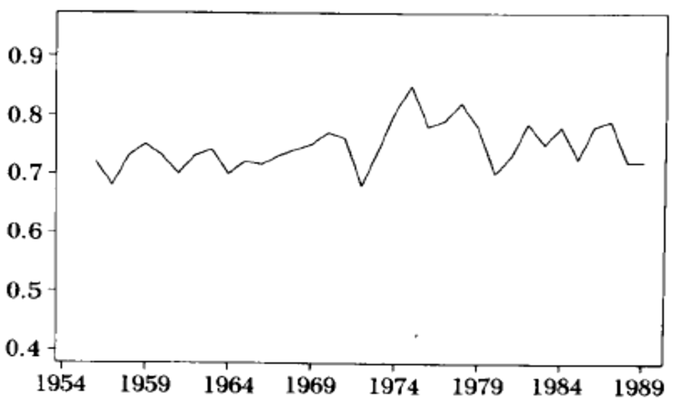
Southern Region



Midwestern Region

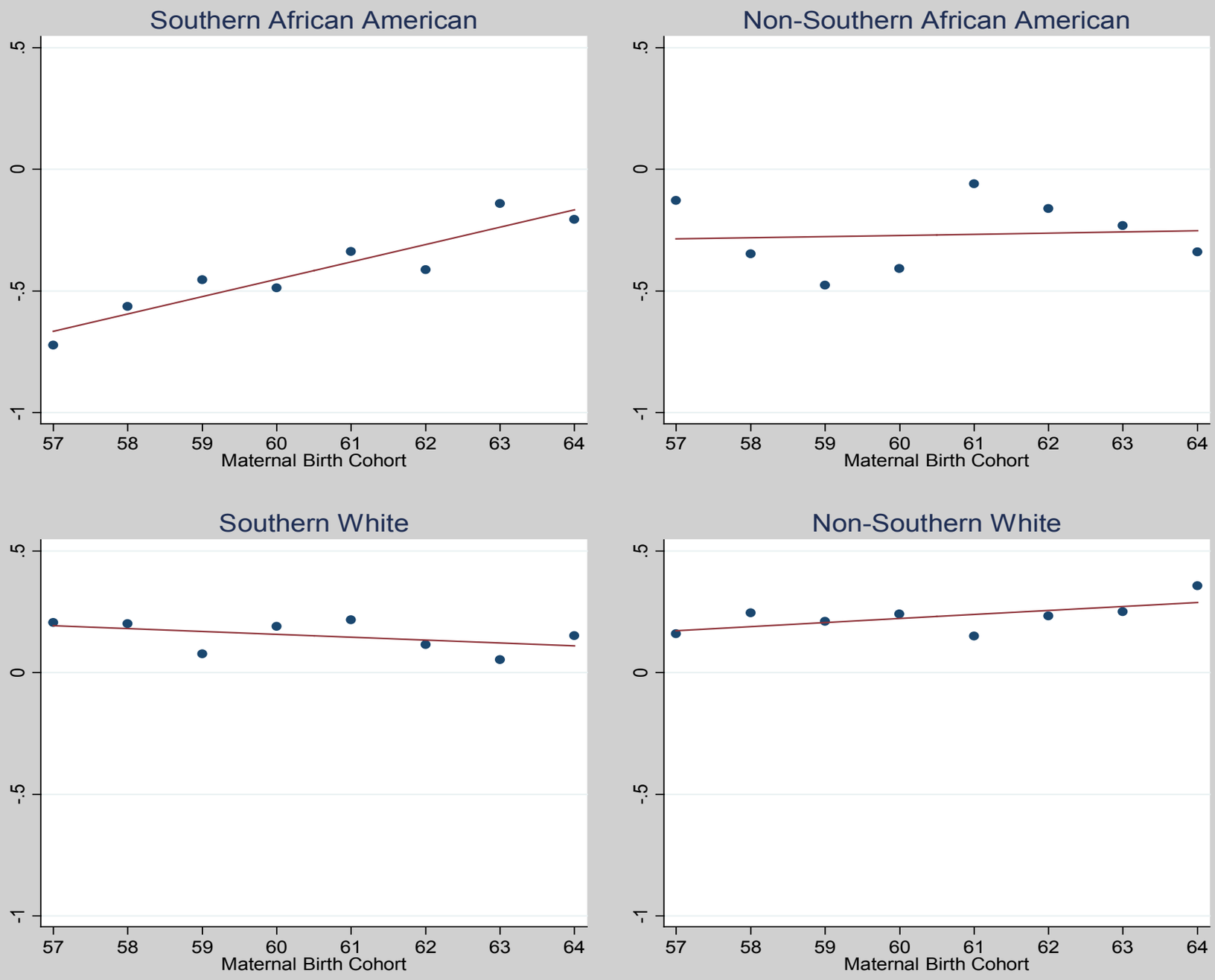


Northeastern Region



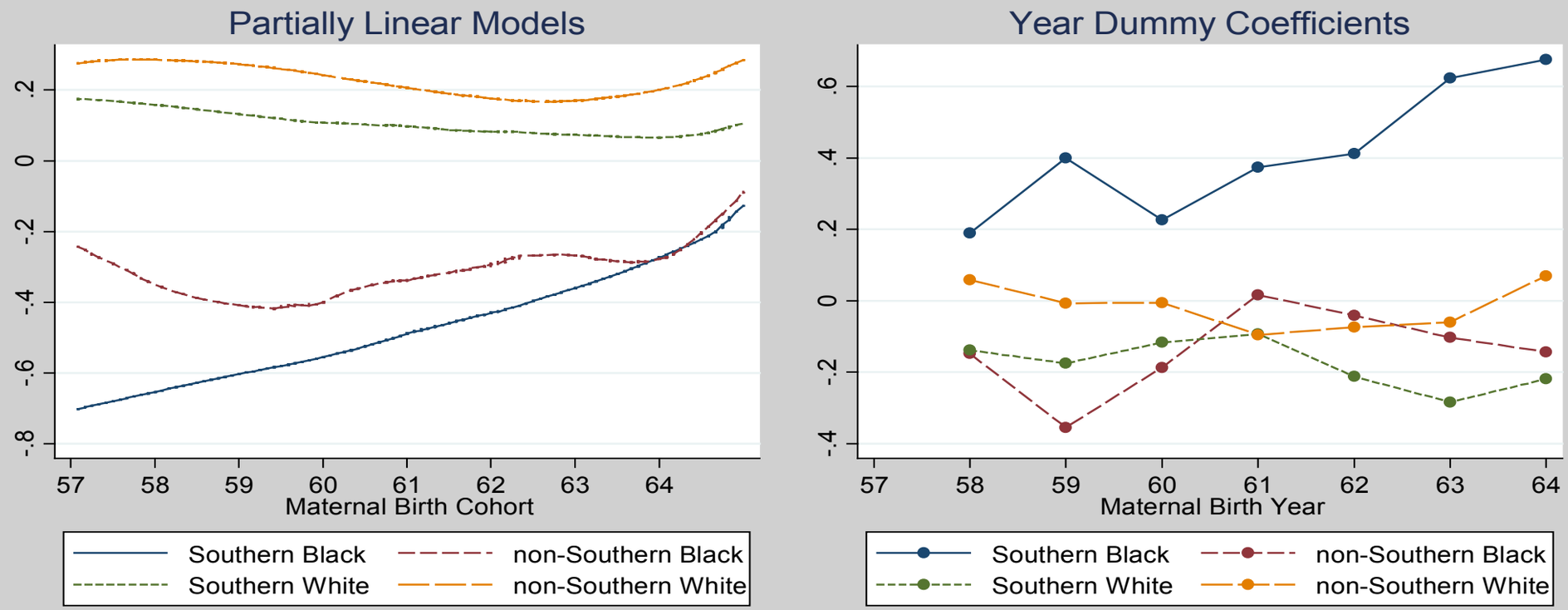
Source: Donahue & Heckman (1991), Figures 2, 3 and 5

Figure 2: Mean HOME Score Trends by Race and Region



Notes: Mean HOME scores are adjusted for maternal age at birth and are calculated using CNLSY sampling weights.

Figure 3: Linearity of Birth Cohort's Effect on HOME Score



Notes: The partially linear models were estimated using a bandwidth of 1 year. All models were estimated using CNLSY sampling weights and control for maternal age at birth, maternal marital status, maternal labor force participation, child gender, child birth order, and the HOME score adjustment variables described in Section 1 of the text.