

# Slavery and the Intergenerational Transmission of Human Capital

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## Abstract

How much do sins visited upon one generation harm that generation's future sons, daughters, grandsons and granddaughters? I study this question by comparing outcomes for former slaves and their children and grandchildren to outcomes for free blacks (pre-1865), and their children and grandchildren. The outcome measures include literacy, whether a child attends school, months spent in school, whether a child lives in a female headed household, and two measures of adult occupation. Using a variety of different comparisons, (e.g. within versus across regions) I find that it took roughly two generations for the descendants of slaves to "catch up" to the descendants of free black men and women. There is some evidence that this convergence was facilitated by intermarriage among slave and free families. The finding of convergence is consistent with modern estimates and interpretations of father-son correlations in income and socioeconomic status. The data used are from the 1880, 1900 and 1920 1 percent (IPUMS) samples, and a 100 percent sample of the 1880 Census. This latter data set is from an electronic version of the 1880 Census recently compiled and released by the Mormon Church with assistance from the Minnesota Population Center.

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"In America, anybody can become somebody."

Jesse Owens, Four time Olympic Gold Medallist, Medal of Freedom holder,  
Grandson of Slaves

## Introduction

In 1967 Damon Keith was appointed to the U.S. District Court in the Eastern District of Michigan. In 1977 President Carter elevated Judge Keith to the U.S. Court of Appeals, 6<sup>th</sup> Circuit, where he still works today. Judge Keith is remarkable in part for his decisions promoting racial integration in Detroit schools and in part for the fact that he is the grandson of slaves.<sup>1</sup>

Is a family's journey from slavery to professional and economic success in two generations a rare event? More broadly, after institutional or political barriers are lifted, how many generations are needed for outcomes for previously separated groups of people to converge? How long before the less and more advantaged groups converge on measures of income, health and education?

The rich existing literature on social mobility and income mobility would suggest that such convergence may take place rather rapidly. Many authors find that within OECD countries, the elasticity of son's earnings with respect to father's earnings is within the range of .3 to .5. (This range spans estimates by Altonji and Dunn [1991], Solon [1992], Zimmerman [1992], Mulligan [1997], and Bjorkland and Jantti [1997]. Solon [1999] is a detailed summary of this literature.) If income transmission follows a simple first order autoregressive (AR1) process, then the elasticity of a grandson's income with respect to his grandfather's income could be as little as  $.3^2$  or  $.09$ .<sup>2</sup>

Convergence of wealth between two previously separated groups may be similarly rapid. Charles and Hurst [2001] find parent-child wealth correlations in the range off .23-.5 which suggests that child-grandparent wealth correlations could be between .04 and .25.

This simple math implies a great deal of income and wealth mobility within two generations. Grandchildren are quite likely to fall into a different income, wealth, or education quintile than their

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<sup>1</sup> There are of course many successful African-americans alive today who can trace their roots back to slavery. The most famous may be L. Douglas Wilder, the former governor of Virginia who actually became governor of the state in which his grandparents were enslaved.

<sup>2</sup> By AR1, I mean autoregressive with the current generation's outcomes dependent on only one lagged value of the data. In other words, if a child's income depends upon the income of her parent's but not income from previous generations, then we can simply square the parent-child coefficient to get the parent-grandchild relationship. Recent work by Mazumder [2001] finds parent-child income correlations that are even higher than those of Zimmerman or Solon. However, the basic implication of very high mobility within two generations remains.

grandparents. And hence, groups of people that start with very different levels of physical and human capital *could* end up with similar distributions of income, education, physical and human capital two generations down the road. Whether or not such convergence actually takes place will depend in part on the degree to which institutional and social barriers that separate the two groups are lifted.

This paper tests for convergence (or at least high mobility) within two generations by comparing outcomes for former U.S. slaves, their children and their grandchildren to outcomes for free blacks born before 1865 and their children and grandchildren. The outcomes examined include literacy, whether or not children ages 7-18 are in school, months spent in school, whether children live in a female headed household and two measures of occupation. (I examine median income by occupation and I use a dummy for manual versus non-manual occupation.)

The paper uses Census data from 1880, 1900 and 1920. I group people into three generations and examine outcomes for householders born before 1865 and their children and grandchildren.<sup>3</sup> I also present summary statistics by birth cohort. I use year and place of birth to classify blacks as being born into slavery or not. The assumptions behind this classification are defended in the data section that follows.

I find that in 1880 there is a huge literacy gap between former slaves and free blacks, and that this gap narrows considerably over the next two generations.<sup>4</sup> Similarly, the children of former slaves are less likely to be enrolled in school than the children of blacks born free, but this gap disappears when we examine the grandchildren of blacks born into slavery and the grandchildren of blacks born free. Former slaves do work in occupations with lower median income than blacks born free. However, once I control for current region, this gap is small and relatively constant between 1880 and 1920. There is a large effect of mother's slavery status on the probability that a child lives in a female headed household. This size of this effect does not decrease for the next generation.

My conclusions regarding relatively rapid convergence in literacy and “in-school” status are partially supported by the work of contemporary authors and intellectuals. Both Booker T. Washington and John Alvord, the Inspector of Schools for the Freedman’s Bureau, indicate a very strong demand for

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<sup>3</sup> Throughout the paper, I use the word *householder* to refer to the head of household and his or her spouse if any. I use the term “free blacks” to refer to blacks who were free prior to 1865.

<sup>4</sup> Literacy turns out to be one useful measure of human capital during this time period. Both Higgs [1982] and Margo [1984] find that black literacy rates at the county level are strongly correlated with black wealth per capita.

education on the part of freed slaves and their children.<sup>5</sup> These authors (along with Donohue, Heckman and Todd [2002] and Anderson [1988]) document the very large number of black schools that were funded and built in the South during 1867-1930. I make no claim that these black schools were of the same quality as Northern schools or Southern white schools; the Census data do not allow me to measure school quality anyway. But the increasing availability of schools for blacks in the South, adds credibility to the finding of large increases in literacy and school attendance among children and grandchildren of slaves during 1880-1920.

*Relation to the literature on the black-white wage gap*

The literature on the 20<sup>th</sup> Century black-white gap (eg Smith and Welch [1979], Welch [1989] and Margo[1990]) has found strong convergence of wages between the 1940s and 1970s, which is consistent with my simple interpretation of parent-child income transmission coefficients. The more recent additions to this literature including Chandra [2001], Darity, Dietrich and Guilkey [2001], Johnson and Neal [1996], and Heckman, Lyons and Todd [2000] do not find a narrowing of the black-white wage gap during the 1980-1990 period.

While this contrasts with my findings regarding nearly complete convergence within blacks during 1865-1920, it is certainly possible to reconcile the two results. It is likely that institutional or cultural barriers between two groups of blacks were lower than barriers between blacks and whites. This fact could explain the rapid intra-black convergence that I find and the slower black-white convergence that others find. The persistence of black-white differences could be explained if a new set of discriminatory institutions rose up after emancipation (as in Wright [1986]), and these institutions were not dismantled until the 1960s and 1970s as argued by Donohue and Heckman [1991] and Almond, Chay and Greenstone [2001]. It is of course more difficult to understand why the black-white convergence process would get under way and then stop.

Margo [2001, 1995] and Wright [1986] show that controlling for occupation, black-white wage gaps in the post-Bellum South were small. This suggests the importance of understanding the degree to

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<sup>5</sup> At the same time, Washington's personal childhood stories indicate that his freed family's extreme poverty was an obstacle to his learning to read and his ability to attend the Hampton Normal and Agricultural Institute in Virginia. Unfortunately for me, the writings of Washington and W.E.B. DuBois spend little time directly addressing differences between free families and former slave families.

which freed slaves and their descendants sorted into lower paying occupations (relative to free blacks and their descendants or relative to whites) which is one of the questions I examine.<sup>6</sup>

Atack [1994] concludes that freed slaves in the South experienced at least a 34 percent gain in income from emancipation, if one considers the value of increased leisure time. This is Atack's compilation of estimates provided by Ransom and Sutch [1977] and Fogel and Engerman [1974]. If this estimate is correct, then such a large jump in income would imply some convergence in income levels between slaves and free blacks as a result of emancipation. I address the period after emancipation and ask whether such convergence continued.<sup>7</sup>

The literature on the black-white *wealth* gap finds the gap narrowed rapidly during 1865-1910.<sup>8</sup> (See Higgs [1982] and Margo[1984].) And Collins and Margo [2001] find that the black-white gap in homeownership narrowed considerably during the twentieth century. And yet as Blau and Graham [1990] show, a large black-white wealth gap remains by the 1980s, even conditioning on age and income. My hypothesis of intra-black convergence might suggest that the modern black-white wealth gap cannot be attributed to the direct effects of slavery, but I don't actually observe wealth and hence do not address this question.

### *Effects of Slavery on Black Family Structure*

I find that the overwhelming majority of children and grandchildren of slaves live in two parent households. This confirms the results of Fogel and Engerman [1974] and Gutman [1976] who argued against the prevailing wisdom that slavery and the plantation system destroyed the black family.<sup>9</sup> Nonetheless I do find some evidence that children and grandchildren of slaves are modestly more likely to live in female headed households than children and grandchildren of free blacks. This is consistent with W.E.B. DuBois' conviction that slavery induced some tendency towards "loose cohabitation and family dissolution" among descendants of slaves.

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<sup>6</sup> The existing work on post-Civil War wages and income is far more detailed and comprehensive than what I can provide using Census data. My interest is really in following families over time using the crude outcome measures in the Census.

<sup>7</sup> I am heavily indebted to the work of Fogel and Engerman [1974], David, Gutman, Sutch, Temin and Wright [1976] and Atack [1994] who provide a wealth of detail on the occupations, living conditions, human capital, and geographic location of slaves and free blacks.

<sup>8</sup> The gap in 1910 was still enormous. In 1880, whites in Georgia held 36 times as much property as blacks and this ratio fell to 16 by 1910. (from Higgs [1982]).

<sup>9</sup> Fogel and Engerman's conclusions about the stability of slave unions are partly challenged by the later work of David, Gutman, Sutch, Temin, and Wright [1976].

If there is convergence between the descendants of slaves and free blacks, undoubtedly this convergence is partly helped and partly hindered by a myriad of institutional factors. Donohue, Heckman and Todd [2002] and Anderson [1988] show the important roles of the Rosenwald school building program and NAACP litigation in promoting school availability and school quality in the South. Anderson [1988] demonstrates that Southern commitment to funding black schools was markedly better during Reconstruction than during the Jim Crow period. Unfortunately it is well beyond the scope of this paper and the data used here to evaluate which institutions and legal changes were instrumental in allowing within-black convergence on literacy, school attendance and other outcomes.<sup>10</sup> I do take a cursory look at whether compulsory schooling laws in the North can account for convergence in literacy and in-school status there, and I find little evidence in favor of this hypothesis.

The remainder of the paper is structured as follows: Section II outlines the empirical approach and three separate estimators of the differences in outcomes between former slaves and their progeny and free blacks and their progeny. Section III discusses the data and how I classify people as being born slaves versus born free and Section IV presents the empirical results. Section V presents results on intergenerational transmission using a sample in which I have merged records for families in the 1920 1 percent sample and their ancestors in the 1880 100 percent sample.

## **II. Empirical Approach**

All of the estimates of the difference in outcomes between former slaves and free blacks (and their children and grandchildren) are presented either as a difference in means or as a coefficient from an ordinary least squares regression. I argue that one of my estimates represents an upper bound on the direct effect of slavery and that another represents a lower bound.

In the simplest analysis, one could estimate the difference in outcomes between former slaves and free blacks (and their progeny) as the raw difference between the two groups, without controlling for a given family's current location. For example, I estimate the difference in literacy between the groups as  $\beta_1$  in the following regression:

$$(1) \text{ literacy} = \alpha + \beta_1 * \text{former slave} + \gamma \mathbf{X}.$$

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<sup>10</sup> My lack of discussion of the institutional factors should not be misinterpreted as saying that institutions were not important.

Here  $\mathbf{X}$  is a vector of controls including a dummy for male, the number of children in the household, and birth year dummies. When I measure the effect of slavery on the first generation born after emancipation, the right hand side variable of interest becomes whether or not a person's mother was born into slavery. And for the second generation after emancipation, the dummy is for whether or not the person's mother's mother (maternal grandmother) was born a slave.<sup>11</sup>

In this simple analysis,  $\beta_1$  is obviously picking up more than just the negative impacts of slavery itself. Most former slaves and their families continued to live in the South and hence were affected by schooling conditions, labor market conditions and social interactions that were different than those experienced by blacks outside the South.<sup>12</sup> For this reason I also attempt to identify the effect of former slavery status on own and children's outcomes by using families that move—both families of former slaves that move out of the South and families of free blacks that move into the South. I do this by including dummies for current region in equation (1).

The dummy for South is actually a dummy for former slave state and hence includes Missouri as well as Delaware, West Virginia, Virginia, Maryland, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Kentucky, Louisiana, Arkansas, and Texas.<sup>13</sup> I am not attempting to use any distinctions between the Old and New South or border versus non-border states or Confederate versus not for identification.

The above approach estimates the effect of slavery as the difference in outcomes between black families that move out of the South and black families that were already outside of the South. This estimate assumes that families that leave the South are similar to families that do not move. If the families that move have unobservably higher SES or human capital (as argued by Margo [1986] and [1990]), then my estimate will understate the effects of slavery and will implicitly overstate the speed of convergence.<sup>14</sup> My third estimator (below) will grossly understate the speed of convergence and my best point estimate for the effect of slavery will lie somewhere between these two bounds.

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<sup>11</sup> Most of the dependent variables are binary and I report coefficients from linear probability models. The marginal effects from probits are not reported here, but are extremely similar. The standard errors are corrected for heteroskedasticity and within family correlation of the error terms.

<sup>12</sup> Margo [1986, 1990] and Donohue, Heckman, and Todd [1995] are among the many papers that document the poor state of black public schools during this time period.

<sup>13</sup> West Virginia was not a separate state until 1863, but I list it here for clarity.

<sup>14</sup> Clearly families that move are different than ones that stay and so I offer the various estimates of the effect of slavery not as perfect estimates, but rather as the best estimates that I can devise.

My third estimator of the difference in outcomes for former slaves (and their families) and free blacks (and their families) uses outcomes for whites to estimate the effects of being born in the South separately from the effects of slavery. For the first generation following emancipation, I run the following regression for black and white families:

$$(2) \text{ literacy} = \alpha + \beta_0 * \text{black} + \beta_2 * \text{mother born in slave state} + \beta_1 * \text{black and mother born in slave state} + \text{dummies for current region} + \gamma \mathbf{X}.$$

I then interpret  $\beta_1$  as the effect on child's literacy from having a mother born into slavery.  $\beta_1$  is the interaction effect of being black and having a mother born in the South, over and above the main effects of being black, having a mother born in the South, and current region. The principal objection to this approach is that I attribute all of the interaction effects of being born black and in the South to slavery, when in fact there is good reason to believe that post-slavery institutions in the South were also differentially worse for blacks. For this reason,  $\beta_1$  must almost surely overstate the direct effects of slavery on literacy.

I also run several tests of whether intergenerational transmission of socioeconomic status (SES) depends solely on father's SES or also depends on grandfather's SES. I find that, consistent with the AR1 model, grandfather's SES does not matter conditional on father's SES. I do this using a small sample in which I have merged families in the 1920 1 percent sample back into the 1880 100 percent sample.

### III. Data Description

The data come from the 1880, 1900, and 1920 U.S. Censuses. (I have also run but in the interest of space, do not report results from the 1870 Censuses.) The first set of results use the 1 percent IPUMS (Integrated Public Use Micro Samples) created by the Minnesota Population Center at the University of Minnesota. These data sets provide basic demographic variables for a large number of households and the individuals within those households.

I also have several data items from a 100 percent sample of the 1880 Census. These data were compiled by the Church of Jesus Christ of Latter Day Saints (The Mormon Church) for genealogical research. The Minnesota Population Center assisted the Mormon Church in cleaning and preparing the data for a release on a set of 35 CDs. This project took 20 years and thousands of volunteers to complete. The main disadvantage of the 100 percent sample is that the Mormons pulled a limited subset of variables including name, place of birth, age, race, and occupation. I present results based on a 100 percent sample of black families living in New England and in the New York City area, which consists of New York City plus Westchester, Suffolk, and Nassau Counties.

Table I contains descriptive statistics for both the 1880 and 1920 1 percent samples. The 1880 sample contains 12,342 black children and 55,570 white children. In the 1880 sample I drop children who are older than 15 because they were born before the Civil War ended. I also drop children who are younger than 7 because they have missing values for both the schooling measure and the literacy measure. I drop any heads of household or their spouses who were born after 1865. (There were very few such cases.)

Within the 1880 sample, 97 percent of black children had a mother born in a slave state and 93 percent of black children lived in a slave state at the time of the Census. On average, the black children come from a family of four children and the white children come from a family of 3.7 children.

Thirty-five percent of the black children and 85 percent of the white children are reported as being literate. Census enumerators asked separately about ability to read and ability to write for each individual in the household. The questions are only asked for persons age 10 or older. I coded the literacy variable as a dummy variable which equals 1 if the person is able to read and write.

A separate census question asked whether or not each person was enrolled in school any time during the previous year. I created an "in-school" dummy for all children who were aged 7-18. The dummy equals 1 if the child was enrolled in school in the past year and 0 if the child was not enrolled. Table I shows that 32 percent of black children and 73 percent of white children (ages 7-18) in the 1880 sample were reported as enrolled.

One criticism of this variable is that it does not capture the number of days of schooling during the year, but rather asks for any school attendance at all. To mitigate this problem, I also report one table of results for the 1900 Census, because the 1900 Census collected the number of months that each child was in school during the past year.

The Censuses also asked for the occupation of each person in the household. This was written down as a text field by the enumerator. Children who do not have an occupation are frequently listed as being "At Home." I use the occupation variable in two ways. First, I use reported occupation to classify men as having manual or non-manual jobs. This classification has some intuitive appeal and classification of jobs is relatively straightforward. However, there is only a modest amount of variation in the manual job dummy. Table I shows that 84 percent of white male heads of household were manual workers and the equivalent figure for blacks is 96 percent.

Second, IPUMS researchers have linked each occupation to the median occupational income from the 1950 census.<sup>15</sup> This number is the annual median income by occupation in hundreds of 1950 dollars. Table I shows that the black male heads of household in the 1880 sample have an occupational income score of 15.24 versus 19.88 for the white male heads of household. These figures exclude men with occupations that have a score of 0 (for example, "retired") and men with no occupation listed.

The occupational score is obviously a highly imperfect measure of income. The biggest problem is the fact that relative incomes among occupations undoubtedly shifted between 1880 and 1950, when median incomes are calculated. Goldin and Katz [1998, 1999] document large changes in the return to skill and return to various occupations during this period. Furthermore, it is likely that some 1880 occupations are misclassified because the nature or name of the occupation changed greatly during 1880-1950. Despite the limitations of the occupational income score, papers such as Angrist [2001] and Darity, Dietrich, and Guilkey [2001] use the measure because it is available for long periods of time and is not subject to the same types of measurement error as self reports of income.

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<sup>15</sup> Details are available at [www.ipums.org](http://www.ipums.org). The 1880 Census did not collect individual income.

While the occupation score is probably a bad measure of actual income, it may be a reasonable index of "socioeconomic status." Occupations that paid a lot in 1950 were typically also high paying, high human capital, desirable jobs in 1880. Appendix Table III in Sacerdote [2002] shows the 1880 occupations and income scores for blacks heads of household who were born free. These data are from the 100 percent sample of black families in New England and the New York metropolitan area. Physicians have the highest score in the table (at 80). Craftsmen have scores that range from 24-29 (not shown) and unskilled laborers have income scores of 9. One glaring problem is that preachers and clergy receive a relatively low occupational income score of 24 despite the fact that preachers were among the most educated and influential members of the black community during the time period in question. Figures IX and X show the full distribution of scores for male household heads by race in 1880 and 1920.

Panel B of Table I gives the means for the 1920 sample. By 1920, 83 percent of the black children are literate and 98 percent of white children are literate. Sixty-seven percent of black children are in school versus 81 percent for whites. The average child age is higher for the 1920 sample because I include children in the household who are ages 7-18. In the 1880 sample, I excluded any child born before 1865, because I wanted the first post-Bellum generation. The occupational income scores for the male householders in 1920 are modestly higher than in 1880, and the percent who are manual workers is modestly lower.

### *Classification of Slavery versus Non-Slavery Status for Blacks*

I classify blacks as being born into slavery if they are born in a slave state before 1865. While this appears to be a bold assumption, it turns out to be a reasonable approximation to the truth. Fogel and Engerman estimate that in 1860, 94 percent of blacks in the South were slaves. This approximation can be confirmed by examining the 1860 Census IPUMS data by state, by race (not shown). These counts include only the free population in a 1 percent sample and show only 2,485 free blacks in the 16 slave states. In 1880, the 1 percent sample contains 51,618 blacks living in the former slave states. Thus the ratio of free blacks in 1860 to total blacks in 1880 is roughly  $248,500 / 5,161,800$  or 4.8%. Fogel and Engerman estimate that the slave population in 1860 was roughly 4 million, which implies that the ratio of free blacks to total in the South in 1860 was roughly 5.8 percent.

In truth many of the 248,500 free blacks in the South in 1860 were born as slaves, but were manumitted.<sup>16</sup> So 94 percent is an underestimate of the percentage of Southern blacks who were born into slavery. Olwell [1996] documents that many free blacks in the South purchased their own freedom using extra income earned working on their "own time." We know from Phillips [1997] and Gould [1998] that many of the free blacks in the South lived in Baltimore, New Orleans and Charleston and the other major cities. I could further improve my approximation by dropping blacks in these cities.

For the children born one generation after slavery, my right hand side variable of interest is the mother's slavery status. This is easily obtained for the majority of children since own place of birth *and* mother's place of birth is collected for each person. In other words for a given household, the place of birth for the female householder would be noted once for her own record and once again for every child she has in that household. For the children born two generations after slavery, I use the mother's mother's place of birth to obtain child's grandmother's slavery status. I obtain this from the record for the mother in the household, so the grandmother need not actually be present. There is one additional condition needed to determine grandmother's slavery status for children in 1920 households: I limit the sample to households in which the mothers are born after 1865 but before 1885. This generates a sample of households in which the mothers are all born after slavery ended, but the mother's mother is almost surely born prior to Emancipation.

Margo has questioned whether I should be worried about measurement error in determining slavery status. I am relying on individuals in the Census to accurately report their own place (e.g. state) of birth and in some cases their mother's state of birth. I have no reason to suspect that people in 1880, 1920, or 2003 have unusual difficulty in knowing where they were born or where their mother was born. On the contrary, this is probably one survey variable that is recorded with a high degree of accuracy. Within families and within regions, the patterns of reported state of birth (and the implied migration patterns) seem plausible. For example, the majority of people live in the state in which they were born, and reported migrants are highly likely to have migrated from a neighboring state. Most children are reported as being born in the same state as their siblings and infants are almost always reported as being born in the state in which the Census record was collected.

If free blacks in the South were primarily manumitted slaves, who were the free blacks in the North? Work by McManus [1966], Hodges [1997], and other historians suggests that many of the blacks

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<sup>16</sup> Fogel and Engerman use census data to estimate numbers of manumissions. Olwell [1996] contains a wealth of detail regarding the circumstances surrounding individual manumissions.

in the ante-bellum North were the descendants of colonial era slaves. My examination of the 100 percent sample of the 1880 Census is consistent with this claim. In Appendix Table II of Sacerdote [2002], I list the birthplace of the mother of the female householder (ie the 1880 children's maternal grandmother) for free black households in New York and New England. Fully 36 percent of the mothers in my sample had mothers born in New York and 16 percent had mothers born in Connecticut. This does not demonstrate that free black families have northern roots that extend back to the American Revolution, but it does show that the vast majority are not recent migrants to the region. This fact is important for interpretation of my results, because in essence I am comparing the descendants of slaves from a distant era to the descendants of slaves from a more recent era.

Figures I through V present mean outcomes by race, place of birth, and by birth cohort. Figure I shows average literacy rates by 10 year birth cohort for slaves and their descendants and for free blacks and their descendants.

Unsurprisingly, there is a huge literacy gap between blacks born as slaves and blacks born free. Free blacks born in 1850-1860 have about a 65 percent literacy rate as measured in the 1880 Census. Blacks born into slavery during 1850-1860 have about a 22 percent literacy rate. Margo and Goldin have both pointed out that the 22 percent literacy rate for former slaves appears to be vastly overstated given that slaves had very limited opportunities for education under the plantation system. It is certainly conceivable that some former slaves learned to read as adults after emancipation. Indeed, the literacy rate among the 1850-1860 birth cohort of former slaves *as measured in the 1870 Census* is a modestly lower 17 percent. This is consistent with the idea of blacks learning to read after Emancipation. But another likely explanation is that respondents to the 1880 Census had some tendency to overstate their own degree of literacy.

Looking at the first generation born after slavery, children of former slaves and children of free blacks born pre-1865, both have a huge gain in literacy. There is a fair amount of upward convergence in which the children of slaves begin to achieve literacy rates closer to rates for children of free blacks. By the third generation, the grandchildren of free blacks have literacy rates approaching 100 percent and the grandchildren of former slaves have further narrowed the gap.

Figure II shows literacy rates by birth cohort, race, and place of birth (South versus non-South.) There is a negative effect on literacy from being black, and a negative effect from being born in the South. But the interaction effect of being black and in the South is much bigger than the black or South effects

alone. By the 1895 birth cohort (1890-1900), all whites and blacks born outside the South have literacy rates approaching 100 percent. Blacks born in the South during 1890-1900 have about an 82 percent literacy rate.

Figure III shows the percent of children who are living in a female headed household, by race, birth cohort, and slave state parentage. I define a female headed household as one in which a woman is the head of household as listed by the Census enumerator. Invariably, such households do not contain a person listed as that woman's spouse.<sup>17</sup> The first data points are for children born during 1870-1880 in the 1880 Census. The data are stratified by race and mother's birth in a slave state. The other two cohorts are the 0-10 year old children in the 1900 and 1920 Censuses. Here I stratify by race and maternal grandmother's birth in a slave state. I limit these households to ones with the mother born between 1865 and 1885 which implies that the mother's mother was likely born before 1865.

Black children are uniformly more likely to live in a female headed household than white children. In 1880, black children of free mothers are about 5 percent less likely to live in a female headed household than children of slaves. This effect does not diminish with the data from 1900 and 1920 Censuses. Grandchildren of slaves are more likely to live in a female headed household than grandchildren of free blacks.

Figure IV shows occupational income scores for free blacks and their progeny and former slaves and their progeny. There appears to be roughly a 3-5 point gap between the two groups that does not close over time. However, once I control for current region (as in the next section) this gap is not statistically significant, even for the first generation.<sup>18</sup>

Figure V shows occupational income scores by birth cohort, race, and born in South (0-1). The rank ordering from highest to lowest is non-Southern born whites, Southern born whites, non-Southern blacks, and Southern blacks. This pattern appears to persist across the sample period and does not show much convergence or divergence. (Recall that the income score does not allow incomes to vary within an occupation over time.)

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<sup>17</sup> There remains the possibility that the spouse was living in a nearby dwelling or had left to seek work to support the family. Female headed households in 1880 may be very different than female headed households in 1980 and I discuss this in the results section.

<sup>18</sup> Controlling for current region, there is never a gap between free blacks and slaves in terms of occupational income score. Hence it doesn't make much sense to think about convergence along this measure.

Figures VI and VII look at coefficients of transmission of literacy and occupational income score. Figure VI shows the OLS coefficient of child literacy on mother's literacy by birth cohort. This coefficient falls steadily over birth cohorts. This happens during a period of greatly increasing literacy. However, falling transmission coefficients are not automatically (algebraically) implied by increasing literacy rates or rates that asymptote to 100 percent. Interestingly, the rate of transmission of literacy is higher for blacks than whites for every single birth cohort. Figure VII calculates transmission coefficients for occupational income score by birth cohort. The transmission coefficients in Figure V appear to be much noisier than those for literacy and no obvious time trend is apparent.

#### IV. Results

Results are presented in Tables II through VII. Tables II through V estimate the effects of slavery on outcomes in the three ways described above. Tables VI and VII use a sample in which I merge families in the 1920 1 percent sample back to their families in the 1880 100 percent sample. I use these data to estimate

##### *Effects on Literacy*

Table II examines the difference in literacy rates between former slaves and free blacks and the descendants of each group. The table is organized as follows: Each row is for either the slaves and free blacks themselves, their children, or their grandchildren. Column (1) shows the raw difference in literacy rates between slaves (and their progeny) and free blacks (and their progeny). Column (2) adds dummies for current region (and year of birth), thereby identifying the effect using families who move. Column (3) includes whites in the regression and estimates the effects of slavery as the interaction effect of being black and born in the South before 1865. Column (4) shows the mean and standard deviation of the dependent variable for the slaves and their descendants and column (5) shows the sample sizes.

The first two rows of Table II are for householders in the 1880 1% sample.<sup>19</sup> Rows (1) and (2) show the raw (uncontrolled) effect of slavery status on literacy for men and women. Slave status is associated with roughly a 47 percent decrease in the probability of being literate for both men and women. For women (men) this effect drops to -26 percent (-21 percent) when I include dummies for current region and birth year [results shown in column (2)]. The standard errors on these point estimates are .03 and .035. Almost all of this decrease in the coefficient is attributable to the inclusion of the region dummies.

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<sup>19</sup> I use the term "householder" to refer to the head of household and his or her spouse if any. The sample is limited to householders born before 1865.

In column (3), I include the whites in the sample and effectively use the whites to estimate the baseline effect of “born South” on literacy. The effect of slavery reported in the table is simply the interaction of black and “born South.” For female householders in 1880, slavery status reduces the probability of literacy by 30 percent. This likely overstates the true direct of slavery, assuming that emancipated blacks in the South faced worse opportunities than Southern whites, beyond the effects of slavery. The estimate of 26 percent based on movers probably understates the effect of slavery on literacy if blacks who moved out of the South had on average higher ability and human capital.

The whole sample of male and female householders in 1880 contains only 542 free blacks. This is basically an issue of precision of the estimates and the standard errors in the tables reflect this small sample. Increasing the sample sizes would shrink the standard errors, but it seems unlikely that a larger sample would change my conclusion of convergence in outcomes among descendants of slaves and free blacks.

The next row of Table II shows analogous regressions for the children of these same householders in 1880. The children here are ages 10-15 ; I limit the sample to children born post-1865 and literacy is only measured for persons 10 or older. Without controls, the free vs. former slave literacy gap is even larger for the children in 1880 than for the householders. For the children, the uncontrolled effect on the slavery status dummy is 55 percent and the effect controlling for current region is 10 percent. The effect of mother’s slavery status using whites to estimate the baseline effect “mother born in the South” is 29 percent.

The fourth row of Table II drops from the sample any families that resulted from the intermarriage between a slave and a free black. The point of this row is to provide evidence on whether intermarriage can explain the patterns that I observe. A large percentage of the children of free mothers had fathers who were born into slavery. However, dropping these children from the sample does not appear to change the point estimates (on the effect of slavery on literacy) by very much.

The fifth row of Table II examines literacy for householders in 1920 whose mothers were either slaves or free blacks.<sup>20</sup> Here we start to observe convergence between the two groups. The uncontrolled effect of mother's slavery status on own literacy is -28 percent. When I add dummies for current region,

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<sup>20</sup> The sample consists of black householders ages 35-55. These adults are too young to have been born into slavery, but old enough that their parents most likely were born before 1865. This is a big assumption, but probably an accurate one for the majority of householders. The youngest householders in the sample were born in 1885, and some of them might have been born to parents who were born after 1865, but this would be a small fraction of my total sample.

the effect falls to -10 percent. When I limit the sample to blacks currently outside the South (not shown in table), the effect falls to -6 percent. Using the whites as a comparison in column (3), I find that the effect of mother's slavery status on literacy is -19 percent. My best point estimate for the true effect of slavery lies between the -10 percent and -19 percent coefficients.

The convergence continues when I examine the grandchildren of slaves and free blacks in row (6). The raw effect of grandmother's slavery status is -15.5 percent and the effect controlling for current region is -3 percent. Controlling for current region, the effect of slavery status on literacy disappears almost completely by the second generation after emancipation. Using any of the three procedures to estimate the effects of slavery, I obtain qualitatively the same conclusion, namely that the children of slaves and free blacks converged towards one another on literacy status.

These point estimates do not change when I limit the sample to grandchildren whose families contain no intermarriage between slaves and free blacks (row 7). Specifically I limit the sample to children for whom all four grandparents were slaves or all four grandparents were free. The fact that the point estimates are not affected by the presence of intermarriage suggests that intermarriage does not explain the convergence in literacy that I observe. However I obtain the opposite conclusion when I examine the relationship between intermarriage and "in-school" status.

One of the disadvantages of the literacy measure is that literacy rates are approaching 100 percent, which is why I consider additional outcomes.

### *Effects on Schooling*

In addition to effects of slavery status on literacy, I am also interested in examining effects on schooling. Unfortunately during this time period the Census did not collect years of schooling. But we can examine whether or not children in the household were enrolled in school during the past year. As mentioned above, I create a binary variable for enrollment and measure this for all children aged 7-18. Table III examines the effect of mother's slave status on child's school enrollment. The sample in the first two rows consists of black children ages 7-15 in 1880 households, where the upper age limit of 15 is imposed to limit the sample to children born after the Civil War.

Without controls (ie the difference in means), children of former slaves are 36 percent less likely to be enrolled in school. Controlling for current region, children of former slaves are 8 percent less likely

to be enrolled in school. The second row shows that these estimates are basically the same if I consider only children whose mother and father have the same slavery status (no intermarriage).

The third and fourth rows use the 1920 data to look at the effect of grandmother's (mother's mother's) slavery status on grandchild's probability of being enrolled. Grandchildren of slaves are 9 percent less likely to be enrolled than grandchildren of free blacks. But, controlling for current region, this effect is not significantly different from zero. Thus, the data show convergence in “in-school” status between the grandchildren of slaves and free blacks.

The final row of Table III shows less convergence when I limit the sample to children in 1920 with no intermarriage among their grandparents. The estimated effect of grandmother’s slavery status using movers is -10 percent. The degree of convergence may be lower for grandchildren without any intermarriage in their families, though the sample size of free blacks for this finding is only 56 children.

Table IIIa uses data from the 1900 Census to examine the effect of grandmother's slavery status on the child's number of months spent in school. On average, grandchildren of slaves spent 4 months in school, versus 7 months for the grandchildren of free blacks. However, controlling for current region reduces this gap to a statistically insignificant .3 months.

Do compulsory schooling laws explain the convergence in literacy rates and school attendance rates among the grandchildren of slaves and the grandchildren of free blacks? Margo and Finegan [1996] examine the period around 1900 and conclude that school attendance increased in states that combined compulsory schooling laws with child labor laws. Lleras-Muney [2001] also finds that compulsory schooling laws had a positive effect on school attendance during 1915-1939.

I address this question in Appendix II. I take all black children outside the South and split the sample by children in states with both compulsory schooling *and* child labor laws (CSL states) versus all other states. I use Margo and Finegan’s determination of which states have both laws. The Table shows the mean of “in-school” and literate categorized by a.) grandchild of free versus slave and b.) compulsory schooling state versus not. The first row shows that in CSL states, 79 percent of the grandchildren of slaves are in school versus 90 percent for the grandchildren of free blacks. In the second row, 77 percent of the grandchildren of slaves in the non-CSL states are in school versus 78 percent of the grandchildren of free blacks. This tells us two things: First, average school attendance (as measured this way) was higher in the CSL states. Second, the CSL states have a much larger gap in school attendance between

the grandchildren of slaves and free blacks. So, the CSL states do not appear to explain the convergence in school attendance between slaves and free blacks.

### *Effects on Female Headed Household Status*

Many social scientists (including Frederic Bancroft and W.E.B. DuBois) have argued that slavery caused a breakdown of the traditional family structure among blacks and that this problem persisted long after emancipation. I investigate this hypothesis in Table IV by comparing the prevalence of female headed households for children of free blacks and children of slaves. The first row of Table IV is for the children ages 0-15 in the 1880 1 percent sample.<sup>21</sup> My dependent variable is a dummy for whether or not the child was living in a female headed household at the time of the Census. The raw (uncontrolled) difference in the female headed household rate between the children of slaves and children of free blacks is 4.1 percent and is statistically significant. The means are 13.5 percent for the children of slaves and 9.4 percent for the children of free blacks (second number not shown in table). The effect of mother's slave status is quite large relative to the mean female headed household rate.

Controlling for region (the second column of row 1) actually increases the coefficient on the dummy for "mother born slave" to 8.9 percent. In Sacerdote [2002] I show that this large effect is from those few free black families that move back to the South; such families are very unlikely to be female headed households.

Additional estimates are shown in rows (2) and (3) of Table IV. I look at female headed household status for children within the 100 percent sample of the 1880 Census for all black children in New England and all black children in New York City. Within New England there is no difference in female headed household status between children of free blacks and children of slaves. Within New York City there is a large effect from mother's slave status.

The final row is for the children in the 1920 1 percent sample. These children are the grandchildren of former slaves and free blacks. This panel also shows large point estimates for the effect of grandmother's slavery status on the probability of a child's living in a female headed household. Grandchildren of slaves are 6.5 percent more likely to live in a female headed household than grandchildren of free blacks, though this difference is not statistically significant at conventional levels.

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<sup>21</sup> Figure III shows data for children 0-10 because the figure is for 10 year birth cohorts.

Unlike the results for literacy and school attendance, the effects of slavery on family structure appear to have persisted well into the twentieth century. This provides one possible channel through which slavery could have long lasting effects on successive generations of black Americans. Two important points are worth mentioning. First, we know that in more modern data, female headed households are strongly associated with poverty, criminal victimization, low employment, and lower educational attainment. However, the female headed households of 1920 may have been less damaging to children, and the reason for the father's absence may have been very different then versus now. For example, the fathers may have been living elsewhere in order to secure work and income for the family.

Second, the prevalence of black female headed households in 1880 was much less than in 2000. While 13 percent of black children in 1880 were in female headed households, 42 percent of black children in 2000 lived in female headed households<sup>22</sup>. Thus the effects of slavery would have to be both severe and increasing over 150 years in order to explain a substantial fraction of the present day prevalence of black female headed households. Consistent with Gutman [1976], I do not find evidence that slavery destroyed the black family or that slavery alone can explain modern black-white differences in family structure.

### *Effects on Occupation*

Now I turn to the effect of slavery status on male household head's occupation, as measured by the occupational income score and a dummy for manual occupation. The first row in Table V uses the 1880 1 percent sample and compares black heads of household born into slavery to those born free. Controlling for current region, being born a slave lowers the occupational income score by only .13. Row (5) shows that former slaves are 15 percent more likely than free blacks to be manual workers, but that this effect falls to 3 percent controlling for current region. The mean of "manual" for free blacks is 82 percent.

Rows 2 and 3 of Table V compute the effects of slave status on occupational income score for a portion of the 100 percent of the 1880 Census. Within both New England and New York, former slavery status is not associated with statistically different occupational income scores. Furthermore, there is no effect on manual worker status.

Rows (4) and (8) look at the analogous effects for male heads of household in the 1920 sample. These are the children of former slaves and free (pre-1865) blacks. Controlling for region, the effect of father's mother's slave status on the occupational income score is a small and statistically insignificant-

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<sup>22</sup> Calculated from the 2000 Census STF2 using American FactFinder on [www.census.gov](http://www.census.gov).

.77. The effect of mother's slave status on likelihood of being a manual worker is 6 percent and is statistically significant at the 10 percent level.

The estimated effect of slavery status on manual worker status is somewhat larger for the children of slaves than for the former slaves themselves. This is plausible and consistent with Margo's [1990] discussion of the transition of labor from the farm to the nonfarm sector. In 1880, nearly everyone was a manual worker in agriculture, and slavery status had little effect on manual status. During the next 40 years, those workers with high levels of human capital were the most likely to exit the farm sector. If children of slaves received less education than children of free blacks (as shown in Tables II and III), then children of free blacks were differentially more likely to exit the agricultural sector.

### *Effects on Home Ownership*

Ideally one would also look at wealth differences between the descendants of slaves and descendants of free blacks. The Census data do contain an indicator variable for homeownership. In 1920, 34 percent of the householders who are children of slaves own their own home. The comparable number for householders descended from free blacks is 32 percent. If we thought that home ownership was a measure of wealth, we might conclude (almost surely incorrectly) that slavery increased family wealth. However, we have no measure of the quality or value of the home and we do know that home ownership in 1920 is highly correlated with work in agriculture. Many of the black homeowners could be sharecroppers and might own as little as a shack, so the homeownership measure is not particularly informative about wealth.

## **V. Results for the Merged Sample of 1880 and 1920 Households**

One of the obstacles to studying transmission of income or SES over multiple generations is that it is unusual to have data for three (or more) generations of adults in the same data set. To attempt to mitigate this problem I have merged some of the data for the 1920 IPUMs households back into the 1880 Census.

I merge the data sets by taking male heads of household (fathers) in the 1920 1 percent sample and locating them in the 1880 100 percent sample. I did not attempt to trace any of the women in the 1920 sample due to the high likelihood of name changes at time of marriage. I merge the data for the fathers based on first name, last name, year of birth, place of birth, mother's place of birth and father's place of birth. This is a surprisingly unique combination of variables; it is rare for any two individuals to have

exactly the same data for all six fields above. This happens in at most 1 percent of cases in the 1920 data and when it does occur I drop the data point.

The objective is to take men who are heads of household in 1920 and locate them in their 1880 household record, when most of them were children. I limit the potential sample for the merge to fathers who have a reported occupation, are U.S. born, are ages 40-60 in 1920 (0-20 in 1880) and have at least once male son 18 or older in their 1920 household. This last limitation is so that I can obtain some measure of the income score for the children in the 1920 households (the grandchildren of the 1880 householders).

The 1880 100 percent sample includes a National Index which allows me to search for the fathers not just in their 1920 state, but in all US states. The search software on the CDs also allows me to check for various possible spellings of the first names, e.g. Charlie and Charles. Permitting the first names to vary in this way did help create additional matches and did not often create multiple 1880 matches for the same 1920 observation.

There were 16,238 fathers (black and white) in the 1920 data for the potential match. As shown in Table VI, I successfully matched 1,854 of these fathers for an 11 percent success rate.<sup>23</sup> While this match rate is low, Table VI shows that the matched and unmatched observations have similar levels of literacy and occupational income scores.

The key piece of data that I pull from the 1880 household is the head's occupation. This is the occupation of the grandfather of the children in the 1920 households. The occupation is a text field in the 1880 data, but I coded it to match the occupation codes created in the IPUMs data. I then merged in occupational income scores and my 0-1 variable for manual occupation.

In Table VII I examine transmission of SES from grandparents to grandchildren holding father's SES constant.<sup>24</sup> The first three columns are for black families. In column (1), I regress child's income score on father's and grandfather's income scores. The coefficient on father's score is .55 with a t-statistic of 4.3, while the coefficient on the grandfather's score is .06 and is not statistically significant. In the absence of measurement error, and under the null of the AR1 model of SES transmission, we would

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<sup>23</sup> An additional 3 percent of the fathers were matched, but were not living with their parents in 1880. Most of these had either formed their own households already or were working as laborers while living with a different family.

<sup>24</sup> Unfortunately the sample is too small to allow me to compare grandchildren of slaves to grandchildren of free blacks within the merged sample.

expect the coefficient on grandfather's SES to be 0. Column (4) for the whites yields very similar coefficients. I interpret the regressions as evidence that the AR1 model of SES transmission is roughly correct.

Columns (2) and (5) include only the grandfather's score. Here I wish to test whether the coefficient on the grandfather's score is equal to the square of the coefficient on the father's score. For black children, the coefficient on grandfather's score is negative and insignificant and for the white children the coefficient is .13. In both cases, the coefficient on grandfather's score is actually smaller than the square of the coefficient on the father's income score. Taken at face value, these estimates would suggest that transmission of SES over two generations actually degrades even faster than a simple AR1 process. However, given the large standard errors and the measurement error inherent in the occupational income score this finding is at most suggestive.

In columns (3) and (6) I drop all observations for which the 1920 head of household is working as a farmer or farm laborer. Given that a large fraction of people work in agriculture, some of whom pass on the "family farm" to their children, it may be important to consider transmission outside of the farm sector. Predictably, transmission coefficients are much lower among the non-farmers. The transmission coefficient is .20 for blacks and .23 for whites.

## **Conclusion**

This paper has demonstrated that on certain basic outcome measures, namely literacy, schooling, and occupation, the descendants of slaves "caught-up" to the descendants of free blacks within two generations. This statement is particularly true when we identify the effects of slave status by comparing descendants of free blacks and slaves who reside outside of the South. If we instead measure the progress of free blacks and slaves (and their descendants) relative to whites born in the same regions, then we find partial but not complete convergence.

This convergence is consistent with the high degree of social mobility implied by modern estimates of parent-child income and education correlations. When I regress son's SES on father's and grandfather's SES, I find that father's SES has a coefficient of .20 to .55 but grandfather's SES only matters a small amount controlling for the father's outcome. This is evidence of strong father-son correlations which decay rapidly with each successive generation.

The one outcome that shows little intra-black convergence is female headed household status for children. The large 1880 gap in female headed household rates between free black families and former slave families supports the hypothesis that the plantation system hurt the stability of black families. The persistence (into 1920) of the slavery effect on female headed households is more surprising.

If there is convergence, what is the cause? For literacy, one natural explanation would be the rise of public schools and the passage of mandatory schooling laws. Today's high mobility of income and wealth may also be driven in part by public schools and the availability of high quality public universities, and in part by other "great equalizers" like cable television or the internet. High social mobility in post-Bellum America or in the modern OECD need not be an inevitable outcome that is independent of government institutions. Social activism could be just as important or more important than other market forces in creating convergence.

A major topic for future research is whether or not convergence within two generations is a common phenomenon observed after social barriers between groups are removed. This has particular relevance for the U.S. given the 20<sup>th</sup> Century's dismantling of racial barriers in access to schooling and jobs. A natural extension of this paper would be to attempt to tie these results to the modern literature on black-white wage and education differentials. If political changes in the 1960s and 1970s freed black workers from institutionalized discrimination, then perhaps black-white convergence might occur within one or two generations from today.

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**Table I**  
**Panel A: Means For Children in 1880 Census**

|                                    | Black Households |       |           | White Households |       |           |
|------------------------------------|------------------|-------|-----------|------------------|-------|-----------|
|                                    | N                | Mean  | Std. Dev. | N                | Mean  | Std. Dev. |
| Child's literacy                   | 7,442            | 0.35  | 0.48      | 34,752           | 0.85  | 0.36      |
| Child is in school                 | 12,342           | 0.32  | 0.47      | 55,570           | 0.73  | 0.44      |
| Mother was born a slave            | 12,342           | 0.97  | 0.16      | 55,570           | 0.42  | 0.49      |
| Child Age                          | 12,342           | 10.52 | 2.53      | 55,570           | 10.66 | 2.52      |
| Mother's age                       | 11,868           | 36.57 | 8.69      | 53,798           | 38.47 | 7.66      |
| Number of siblings                 | 12,342           | 4.00  | 2.17      | 55,570           | 3.68  | 2.04      |
| Child is Male                      | 12,342           | 0.51  | 0.50      | 55,570           | 0.51  | 0.50      |
| Current region is South            | 12,342           | 0.94  | 0.26      | 55,570           | 0.40  | 0.48      |
| Curent region is Northeast         | 12,342           | 0.03  | 0.14      | 55,570           | 0.25  | 0.43      |
| Current region is Central          | 12,342           | 0.03  | 0.22      | 55,570           | 0.31  | 0.48      |
| Current region is West             | 12,342           | 0.00  | 0.04      | 55,570           | 0.03  | 0.17      |
| Mother's literacy                  | 11,868           | 0.17  | 0.38      | 53,798           | 0.87  | 0.34      |
| Father's literacy                  | 10,550           | 0.22  | 0.41      | 51,660           | 0.89  | 0.31      |
| Father has manual job              | 11,859           | 0.96  | 0.20      | 53,323           | 0.84  | 0.37      |
| Father's occupational income score | 10,396           | 15.24 | 5.15      | 50,881           | 19.88 | 10.90     |

**Panel B: Means For Children 1920 Census**

|                                    | Black Households |       |           | White Households |       |           |
|------------------------------------|------------------|-------|-----------|------------------|-------|-----------|
|                                    | N                | Mean  | Std. Dev. | N                | Mean  | Std. Dev. |
| Child's literacy                   | 13,799           | 0.83  | 0.37      | 84,713           | 0.98  | 0.13      |
| Child is in school                 | 13,119           | 0.67  | 0.47      | 77,822           | 0.81  | 0.40      |
| Grandmother was born a slave       | 16,647           | 0.98  | 0.14      | 101,204          | 0.49  | 0.50      |
| Child Age                          | 16,647           | 14.69 | 5.19      | 101,204          | 14.93 | 5.28      |
| Mother's age                       | 16,647           | 42.57 | 5.45      | 101,204          | 43.37 | 5.50      |
| Number of siblings                 | 16,647           | 4.10  | 2.52      | 101,204          | 3.28  | 2.21      |
| Child is Male                      | 16,647           | 0.51  | 0.50      | 101,204          | 0.53  | 0.50      |
| Current region is South            | 16,647           | 0.91  | 0.29      | 101,204          | 0.43  | 0.50      |
| Curent region is Northeast         | 16,647           | 0.04  | 0.19      | 101,204          | 0.19  | 0.39      |
| Current region is Central          | 16,647           | 0.05  | 0.21      | 101,204          | 0.31  | 0.46      |
| Current region is West             | 16,647           | 0.00  | 0.07      | 101,204          | 0.07  | 0.26      |
| Mother's literacy                  | 16,647           | 0.67  | 0.47      | 101,204          | 0.96  | 0.19      |
| Father's literacy                  | 13,300           | 0.66  | 0.47      | 92,315           | 0.95  | 0.22      |
| Father has manual job              | 13,103           | 0.95  | 0.21      | 89,748           | 0.79  | 0.41      |
| Father's occupational income score | 13,155           | 16.17 | 5.82      | 90,526           | 22.65 | 11.57     |

Notes: All data are from 1880 and 1920 IPUMS 1 percent samples of the Census of Population. 1880 sample includes children ages 7-15. (Observations for children under age 7 have neither literacy measure nor the schooling measure. Children over 15 were born before the end of the Civil War. ) Means for mothers and fathers are taken at the child level, ie the means are weighted by the number of children in the family.

1920 sample includes any children ages 7-35 within households. South dummy is defined as all former slave states.

**Table II**  
**Effect of Own Slave Status, Mother's or**  
**Grandmother's Slave Status on Literacy**

This table shows OLS estimates of the effect of being born into slavery (or having an ancestor born into slavery) on literacy. Column (1) shows the raw difference in literacy between slaves (and their progeny) and free blacks (and their progeny). Column (2) estimates the difference in literacy between the two groups within current region. This estimate is identified from slave families that move out of the South and free families that move into the South, where South is defined as the former slave states. Column (3) adds the white population to the sample and estimates the effect of slavery as the interaction effect of being black and born in the South, over and above the effect of being born in the South for whites. Column (4) shows means and standard deviations of the dependent variable for the slaves and their progeny and Column (5) shows sample sizes for slaves (or progeny), free blacks (or progeny), and whites. The samples are from the 1880 and 1920 Censuses.

| <i>Effect of ...</i>  | (1)<br>No Controls<br>(Raw<br>Difference<br>Between<br>Slaves and<br>Free Blacks) | (2)<br>Using<br>Movers<br>(Controls<br>for Region<br>and Year of<br>Birth) | (3)<br>Using<br>Whites to<br>Estimate<br>Effect of<br>"Born<br>South" | (4)<br>Mean<br>Literacy for<br>Slaves and<br>Their<br>Progeny<br>(std dev) | (5)<br>N<br>[Slaves,<br>Free Blacks,<br>Whites] |
|---|---|--|---|--|---|
| <b><i>Own Slavery Status</i></b>                                      |   |  |   |  |   |
| <b><i>(Householders in 1880)</i></b>                                  |   |  |   |  |   |
| all women heads HH or spouses<br>of HH                                | -.466<br>(.023)   | -.259<br>(.030)  | -.302<br>(.019)   | .193<br>(.395)   | 8,622<br>317<br>48,745                          |
| all male heads of HH  | -.466<br>(.028)   | -.207<br>(.035)  | -.334<br>(.021)   | .237<br>(.425)   | 7,352<br>232<br>43,520                          |
| <b><i>Mother's Slavery Status</i></b>                                 |   |  |   |  |   |
| <b><i>(Children in 1880)</i></b>                                      |   |  |   |  |   |
|   | -.548<br>(.028)   | -.100<br>(.037)  | -.290<br>(.027)   | .339<br>(.474)   | 7,237<br>205<br>34,752                          |
| <b><i>Mother's Slavery Status</i></b>                                 |   |  |   |  |   |
| <b><i>(Children in 1880)</i></b>                                      |   |  |   |  |   |
| <b><i>Families W/o Inter-marriage Between<br/>Slaves and Free</i></b> | -.584<br>(.027)   | -.082<br>(.042)  | -.299<br>(.028)   | .337<br>(.473)   | 7,189<br>140<br>29,447                          |
| <b><i>Mother's Slavery Status</i></b>                                 |   |  |   |  |   |
| <b><i>(Householders in 1920)</i></b>                                  |   |  |   |  |   |
|   | -.275<br>(.013)   | -.099<br>(.015)  | -.187<br>(.014)   | .656<br>(.475)   | 13,694<br>495<br>98,495                         |
| <b><i>Grandmother's Slavery Status</i></b>                            |   |  |   |  |   |
| <b><i>(Children in 1920)</i></b>                                      |   |  |   |  |   |
|   | -.155<br>(.010)   | -.030<br>(.011)  | -.131<br>(.010)   | .831<br>(.375)   | 13,509<br>276<br>84,727                         |
| <b><i>Grandmother's Slavery Status</i></b>                            |   |  |   |  |   |
| <b><i>(Children in 1920)</i></b>                                      |   |  |   |  |   |
| <b><i>Families W/o Inter-marriage Between<br/>Slaves and Free</i></b> | -.163<br>(.006)   | -.031<br>(.017)  | -.140<br>(.008)   | .837<br>(.370)   | 9,137<br>59<br>47,031                           |

**Table III**

**Effect of Mother's or Grandmother's Slave Status on Probability of Being in School For Children in Black Households in 1880 and 1920 Census IPUMS**

This table compares “in-school” status for black children with mothers (grandmothers) who were former slaves and “in-school” status for black children with mothers (grandmothers) born free. These children are born one (two) generations after slavery. Effects of mother's (grandmother's) slave status are calculated by using an OLS regression of "in-school" on mother's (grandmother's) former slave status.

Column (1) shows the raw difference in probability of being “in-school” between children (grandchildren) of slaves and children (grandchildren) of free blacks. Column (2) estimates the difference in “in-school” between the two groups within current region. This estimate is identified from slave families that move out of the South and free families that move into the South, where South is defined as the former slave states. Column (3) adds the white population to the sample and estimates the effect of slavery as the interaction effect of being black and having one’s mother born in the South, over and above the effect of having one’s mother born in the South for whites. Column (4) shows means and standard deviations of the dependent variable for the slaves and their progeny and Column (5) shows sample sizes for children (grandchildren) of slaves, children (grandchildren) of free blacks, and white children. The samples are from the 1880 and 1920 Censuses.

| <i>Effect of ...</i>   | (1)<br>No Controls<br>(Raw<br>Difference<br>Between<br>Slaves and<br>Free Blacks) | (2)<br>Using<br>Movers<br>(Controls<br>for Region<br>and Year of<br>Birth) | (3)<br>Using<br>Whites to<br>Estimate<br>Effect of<br>“Born<br>South” | (4)<br>Mean “In<br>school” for<br>Children,<br>Grandchild<br>(std dev) | (5)<br>N<br>[Slaves,<br>Free Blacks,<br>Whites] |
|--|---|--|---|--|---|
| <i>Mother’s Slavery Status<br/>(Children in 1880)</i>  | -.360<br>(.036)   | -.084<br>(.042)  | -.125<br>(.036)   | .309<br>(.462)   | 12,025<br>317<br>55,570                         |
| <i>Mother’s Slavery Status<br/>(Children in 1880)<br/>Families W/o Inter-marriage Between<br/>Slaves and Free</i>      | -.390<br>(.040)   | -.090<br>(.048)  | -.124<br>(.038)   | .307<br>(.461)   | 11,952<br>215<br>46,985                         |
| <i>Grandmother’s Slavery Status<br/>(Children in 1920)</i>   | -.088<br>(.037)   | -.019<br>(.036)  | -.090<br>(.033)   | .664<br>(.472)   | 12,862<br>242<br>77,837                         |
| <i>Grandmother’s Slavery Status<br/>(Children in 1920)<br/>Families W/o Inter-marriage Between<br/>Slaves and Free</i> | -.229<br>(.039)   | -.102<br>(.032)  | -.177<br>(.027)   | .682<br>(.466)   | 8,899<br>56<br>43,498                           |

Notes: 1880 sample includes children in households in IPUMS. Mother's former slave status is imputed from year and state of birth. All of the mothers are born before 1865 and all of the children are born after 1865. (Children older than 15 and households with mothers younger than 15 are dropped .) 1920 sample includes children ages 7-18 in IPUMS sample.

"In-school" status is determined from the Census question which asked whether or not a person "attended school within the past year."

**Table IIIa**

**Effect of Grandmother's Slave Status on Number of Months in School For Children in Black Households in 1900 Census IPUMS**

This table compares months in school for black children with mothers who were former slaves and months in school for black children with mothers born free. These children are born two generations after slavery. Effects of grandmother's slave status are calculated by using an OLS regression of "months in-school" on grandmother's former slave status.

Column (1) shows the raw difference in "months in-school" between grandchildren of slaves and grandchildren of free blacks. Column (2) estimates the difference in "months in-school" between the two groups within current region. This estimate is identified from slave families that move out of the South and free families that move into the South, where South is defined as the former slave states. Column (3) adds the white population to the sample and estimates the effect of slavery as the interaction effect of being black and having one's grandmother born in the South, over and above the effect of having one's grandmother born in the South for whites. Column (4) shows means and standard deviations of the dependent variable for the slaves and their progeny and Column (5) shows sample sizes for grandchildren of slaves, grandchildren of free blacks, and white children. The samples are from the 1880 and 1920 Censuses.

| <i>Effect of ...</i>                                       | (1)<br>No Controls<br>(Raw<br>Difference<br>Between<br>Slaves and<br>Free Blacks) | (2)<br>Using<br>Movers<br>(Controls<br>for Region<br>and Year of<br>Birth) | (3)<br>Using<br>Whites to<br>Estimate<br>Effect of<br>"Born<br>South" | (4)<br>Mean<br>"Months<br>school" for<br>Children,<br>Grandchild<br>(std dev) | (5)<br>N<br>[Slaves,<br>Free Blacks,<br>Whites] |
|--|---|--|---|---|---|
| <i>Grandmother's Slavery Status<br/>(Children in 1900)</i> | -3.229<br>(.468)  | -.307<br>(.538)  |   | 4.104<br>(6.176)  | 1,821<br>60                                     |

**Table IV**  
**Effect of Mother's or Grandmother's Slave Status on Probability of Being in Female Headed Household For Black Children in 1880 and 1920**

This table compares female headed household status for black children with mothers (grandmothers) who were former slaves versus female HH status for black children with mothers (grandmothers) born free. These children are born one (two) generations after slavery. "Effects" of mother's (grandmother's) slave status are calculated by using an OLS regression of female headed household on mother's (grandmother's) former slave status.

| <i>Effect of...</i>   | (1)<br>No Controls<br>(Raw<br>Difference<br>Between<br>Slaves and<br>Free Blacks) | (2)<br>Using<br>Movers<br>(Controls<br>for Region<br>and Year of<br>Birth) | (3)<br>Using<br>Whites to<br>Estimate<br>Effect of<br>"Born<br>South" | (4)<br>Mean<br>"Female<br>Head" for<br>Children,<br>Grandchild<br>(std dev) | (5)<br>N<br>[Slaves,<br>Free Blacks,<br>Whites] |
|---|---|--|---|---|---|
| <i>Mother's Slavery Status<br/>(Children in 1880 IPUMS)</i>                       | .041<br>(.018)  | .089<br>(.026)   | .034<br>(.018)  | .135<br>(.341)  | 24,911<br>652<br>112,443                        |
| <i>Mother's Slavery Status<br/>(Children in 1880 100% New England<br/>Sample)</i> |   | .0004<br>(.015)  |   | .125<br>(.330)  | 1293<br>2401                                    |
| <i>Mother's Slavery Status<br/>(Children in 1880 100% New York<br/>Sample)</i>    |   | .082<br>(.021)   |   | .188<br>(.391)  | 786<br>2139                                     |
| <i>Grandmother's Slavery Status<br/>(Children in 1920 IPUMS)</i>                  | .065<br>(.032)  | .084<br>(.035)   | .062<br>(.028)  | .154<br>(.361)  | 13,860<br>258<br>120,551                        |

Notes: 1880 sample includes black children ages 0-15 in IPUMS sample and in 100 percent sample. Mother's former slave status is imputed from year and state of birth. All of the mothers are born before 1865 and all of the children are born after 1865. 1920 sample includes children ages 0-15 in IPUMS sample.

Female headed household are those with a woman listed as the head of household (and no spouse of the head listed within the household.)

**Table V**  
**Effect of Self or Mother Born Slave on Occupational Income Score, Probability of**  
**Being a Manual Laborer**  
**(Male Household Heads in 1880 and 1920)**

This table compares occupational outcomes for black male heads of household who were former slaves (or whose mothers were former slaves) to outcomes for black male heads of household born free (or with mothers born free). "Effects" of slave status are calculated by using an OLS regression of the outcomes on former slave status.

| <i>Effect of ...</i>  | (1)<br>No Controls<br>(Raw<br>Difference<br>Between<br>Slaves and<br>Free Blacks) | (2)<br>Using<br>Movers<br>(Controls<br>for Region<br>and Year of<br>Birth) | (3)<br>Using<br>Whites to<br>Estimate<br>Effect of<br>"Born<br>South" | (4)<br>Mean<br>Outcome<br>for Slaves<br>and Their<br>Progeny<br>(std dev) | (5)<br>N<br>[Slaves,<br>Free Blacks,<br>Whites] |
|---|---|--|---|---|---|
| <i>Own Slavery Status on Income Score</i><br><i>(Male Householders in 1880 IPUMS)</i>                       | -2.867<br>(.361)  | .133<br>(.447)   | 1.062<br>(.705)   | 15.300<br>(5.316)   | 7,218<br>227<br>42,507                          |
| <i>Own Slavery Status on Income Score</i><br><i>(Male Householders in 1880 100%</i><br><i>New England)</i>  |   | .566<br>(.191)   |   | 17.954<br>(6.537)   | 2170<br>2982                                    |
| <i>Own Slavery Status on Income Score</i><br><i>(Male Householders in 1880 100%</i><br><i>New York)</i>     |   | -.497<br>(.217)  |   | 15.967<br>(6.984)   | 1709<br>2616                                    |
| <i>Father's Slavery Status on Income</i><br><i>Score</i><br><i>(Male Householders in 1920 IPUMS)</i>        | -4.46<br>(.509)   | -.768<br>(.619)  | -0.385<br>(0.731)   | 17.119<br>(6.517)   | 5,936<br>172<br>43,960                          |
| <i>Own Slavery Status on Manual Status</i><br><i>(Male Householders in 1880 IPUMS)</i>                      | 0.154<br>(0.012)  | 0.028<br>(0.015)   | 0.072<br>(0.023)  | 0.973<br>(.164)   | 7,200<br>226<br>41,776                          |
| <i>Own Slavery Status on Manual Status</i><br><i>(Male Householders in 1880 100%</i><br><i>New England)</i> |   | .003<br>(.006)   |   | .961<br>(.193)  | 2050<br>2742                                    |
| <i>Own Slavery Status on Manual Status</i><br><i>(Male Householders in 1880 100%</i><br><i>New York)</i>    |   | -.013<br>(.006)  |   | .952<br>(.214)  | 1670<br>2605                                    |
| <i>Father's Slavery Status on Manual</i><br><i>Status</i><br><i>(Male Householders in 1920 IPUMS)</i>       | .156<br>(.021)  | .063<br>(.034)   | 0.074<br>(0.027)  | .931<br>(.253)  | 5,896<br>172<br>43,505                          |

Notes: Samples include all black male heads of household. In the 1920 sample, the householders are ages 35-55 in 1920 (ie born 1865-1885) which makes them old enough to have parents who were born as slaves, but young enough to be born post-1865. In the 1880 sample, the householders are all born before 1865.

Former slave status is imputed from year and state of birth. Those blacks born in one of 16 slave states prior to 1865 are coded as former slaves. (The count of 16 states includes West Virginia.) For the 1920 data, if the householder's mother was born in one of 16 slave states, the mothers are coded as former slaves. There are four regional dummies coded such that the "South" dummy is really a slave states dummy. Missouri is coded as "South" and Washington, DC is not.

The occupational income score is the median 1950 annual income in hundreds of dollars for a given occupation. Manual versus non-manual status is designated by the author based on job title.

**Table VI**  
**Means from Sample of Families in Both 1880 Census and 1920 IPUMS**  
**Means By Matched and Unmatched Samples**

The data are from a sample that matches father's ages 40-60 in the 1920 IPUMS back into the 1880 Census (when the fathers were ages 0-20). The match is done on first name, last name, year of birth, race, place of birth and mother and father's place of birth. The objective of the merge is to get some information on father's father's occupation and to create a sample with three generations of adults within each family.

| Variable                  | Obs   | Matched |           | Obs    | Unmatched |           | t-stat for<br>diff in<br>means |
|---------------------------|-------|---------|-----------|--------|-----------|-----------|--------------------------------|
|                           |       | Mean    | Std. Dev. |        | Mean      | Std. Dev. |                                |
| <i><b>Children</b></i>    |       |         |           |        |           |           |                                |
| Literacy                  | 5,789 | 0.98    | 0.15      | 42,397 | 0.97      | 0.17      | 2.79                           |
| Occupational income score | 3,261 | 18.51   | 10.47     | 25,214 | 18.21     | 10.84     | 1.50                           |
| Manual worker             | 3,209 | 0.74    | 0.44      | 24,951 | 0.74      | 0.44      | 0.30                           |
| Age                       | 7,126 | 15.97   | 6.96      | 50,033 | 17.42     | 7.49      | -15.4                          |
| Male                      | 7,126 | 0.62    | 0.49      | 50,033 | 0.63      | 0.48      | -2.05                          |
| Black                     | 7,126 | 0.14    | 0.35      | 50,033 | 0.10      | 0.30      | 9.24                           |
| Region=northeast          | 7,126 | 0.27    | 0.45      | 50,033 | 0.19      | 0.40      | 15.94                          |
| Region=south              | 7,126 | 0.37    | 0.48      | 50,033 | 0.44      | 0.50      | -10.20                         |
| Region=central            | 7,126 | 0.32    | 0.47      | 50,033 | 0.31      | 0.46      | 1.64                           |
| Region=west               | 7,126 | 0.04    | 0.19      | 50,033 | 0.06      | 0.24      | -8.98                          |
| <i><b>Fathers</b></i>     |       |         |           |        |           |           |                                |
| Literacy                  | 1,854 | 0.94    | 0.23      | 14,384 | 0.92      | 0.26      | 2.77                           |
| Occupational income score | 1,854 | 22.57   | 10.28     | 14,382 | 22.43     | 11.02     | 0.51                           |
| Manual worker             | 1,854 | 0.82    | 0.38      | 14,383 | 0.80      | 0.40      | 2.24                           |

Pre-merge sample is limited to father's in 1920 IPUMS who were born after the Civil War but prior to the 1880 Census. I further limit the sample to families that have at least one male child in the household who is 18 or more years of age.

**Table VII**  
**Intergenerational Transmission of Occupational Income Score**

The data are from the merged sample of families described in the previous table. Families in the 1880 Census are merged with families in the 1920s IPUMs. Transmission coefficients are obtained by regressing child's income score on father's and grandfather's income score. Columns (3) and (6) show the transmission coefficients when we exclude households in which the father (1920 Head of Household) is a farmer or farm laborer.

|   | Blacks  |   |  | Whites  |   |  |
|---|---|---|--|---|---|--|
|   | (1)   | (2)   | (3)  | (4)   | (5)   | (6)  |
|   | Son/<br>daughter's<br>occupational<br>income<br>score | Son/<br>daughter's<br>occupational<br>income<br>score | Son/<br>daughter's<br>occupational<br>income<br>score<br>non-<br>farmers | Son/<br>daughter's<br>occupational<br>income<br>score | Son/<br>daughter's<br>occupational<br>income<br>score | Son/<br>daughter's<br>occupational<br>income<br>score<br>non-<br>farmers |
| Father's occupational income score      | 0.554<br>(0.128)                                      |   | 0.198<br>(0.122)   | 0.525<br>(0.025)                                      |   | 0.230<br>(0.030)   |
| Grandfather's occupational income score | 0.057<br>(0.073)                                      | -0.042<br>(0.070)                                     | 0.015<br>(0.061)   | 0.036<br>(0.026)                                      | 0.134<br>(0.028)                                      | 0.008<br>(0.024)   |
| male                                    | 3.380<br>(0.860)                                      | 3.624<br>(0.855)                                      | 7.179<br>(1.814)   | -0.397<br>(0.504)                                     | -1.510<br>(0.507)                                     | 2.323<br>(0.422)   |
| age                                     | 0.389<br>(0.110)                                      | 0.448<br>(0.112)                                      | 0.176<br>(0.129)   | 0.290<br>(0.051)                                      | 0.327<br>(0.062)                                      | 0.355<br>(0.060)   |
| Number children in household 1920       | -0.290<br>(0.200)                                     | -0.479<br>(0.210)                                     | -0.235<br>(0.305)  | -0.348<br>(0.096)                                     | -0.612<br>(0.116)                                     | -0.362<br>(0.096)  |
| Current region = south                  | -3.343<br>(1.892)                                     | -6.366<br>(2.108)                                     | -0.899<br>(1.928)  | -1.503<br>(1.052)                                     | -2.400<br>(1.315)                                     | -0.773<br>(1.317)  |
| Current region = north                  | 1.325<br>(2.438)                                      | 2.158<br>(2.162)                                      | 1.019<br>(2.206)   | 1.243<br>(1.020)                                      | 2.107<br>(1.239)                                      | 0.474<br>(1.204)   |
| Current region = central                |   |   |  | -1.995<br>(1.018)                                     | -2.669<br>(1.265)                                     | -0.898<br>(1.228)  |
| Constant                                | -5.216<br>(4.046)                                     | 7.472<br>(3.435)                                      | 4.925<br>(4.267)   | 2.545<br>(1.715)                                      | 13.911<br>(1.865)                                     | 9.640<br>(1.962)   |
| Observations                            | 298   | 298   | 99   | 2167  | 2167  | 1371   |
| R-squared                               | 0.45  | 0.34  | 0.34   | 0.36  | 0.13  | 0.17   |

Standard errors are clustered at the family level. Families are in both the 1880 Census and 1920 IPUMs and merged based on data for the male head of household in 1920 (the "fathers" in the 1920 data). Match is on first name, last name, year of birth, race, place of birth, mother's place of birth, father's place of birth. Father's are ages 0-15 in 1880.

## Appendix I

### Frequency of Children Born to Intermarriages Of Slave and Free Families

#### Children in 1880 IPUMS

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|                   | Father Born<br>Free | Father Born<br>Slave |
|-------------------|---------------------|----------------------|
| Mother Born Free  | 443                 | 196                  |
| Mother Born Slave | 110                 | 24,796               |

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#### Children in 1920 IPUMS

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|  | Grandmother<br>Born Free | Grandmother<br>Born Slave |
|--|--------------------------|---------------------------|
| No intermarriage among parents &<br>grandparents | 91                       | 13,953                    |
| Some intermarriage                               | 176                      | 191                       |

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## Appendix II

### In-School Status and Literacy By States With and Without Compulsory Schooling Laws Children in 1920 Households

This table shows the mean of "in-school" and "literate", by mother's place of birth and by whether or not the state had both compulsory schooling laws (CSL) and child labor laws as in Margo and Finegan (1996). The states with both CSL and child labor laws as of 1900 are Illinois, Connecticut, Indiana, Massachusetts, Michigan and New York. Only households currently outside the South are included.

Means of in-school and literacy shown in row  
Sample size underneath

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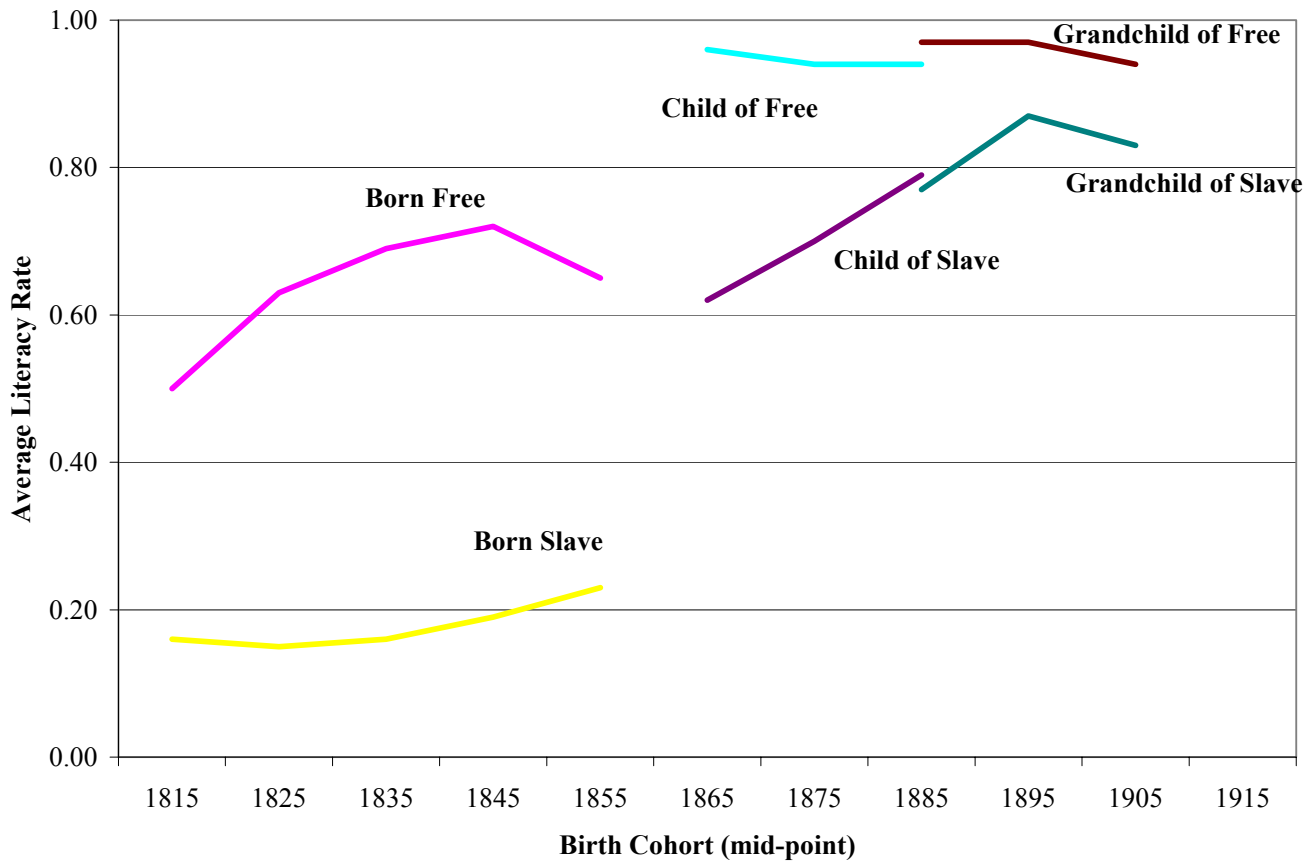
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|                                     | Grandma<br>Born Slave | Grandma<br>Born Free |
|-------------------------------------|-----------------------|----------------------|
| Mean (in-school) for CSL states     | .79                   | .9                   |
| Sample Size                         | 151                   | 40                   |
| Mean (in-school) for non-CSL states | .77                   | .78                  |
|                                     | 392                   | 98                   |
| Mean (literate) for CSL states      | .99                   | 1.00                 |
|                                     | 166                   | 45                   |
| Mean (literate) for non-CSL states  | .99                   | .99                  |
|                                     | 438                   | 166                  |

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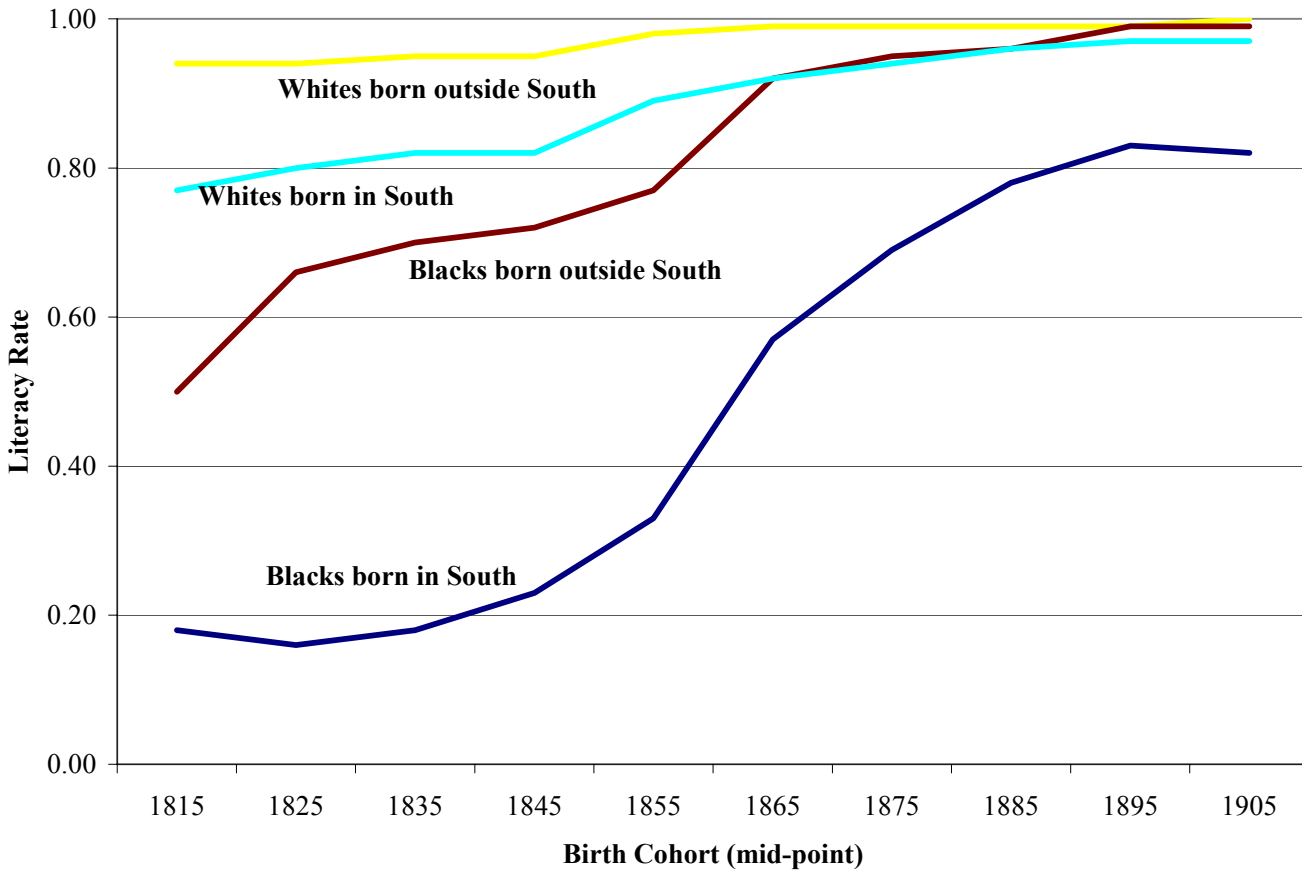
**Figure I**  
**Literacy Rates By Birth Cohort for Free Blacks and Slaves**  
**and Their Children And Grandchildren**



This figure is intended to show the literacy gap between free and slave blacks pre-1865 and how that gap eroded over time and across two generations. Means are taken by generation, by ten year cohort.

Notes: Data are from 1880 and 1920 Census IPUMS. Slavery status of self, mothers, and grandmothers is imputed from birth year and place of birth. Mother and mother's mother are used to assign slavery status of parents or grandparents.. Literacy rates in the first generation are calculated from the 1880 data and the next two generations are taken from the 1920 data. Data from cohorts from 1865+ are taken from the 1920 Census. This switch partially explains the discrete jump shown in the graph. Literacy is measured for persons age 10 or older.

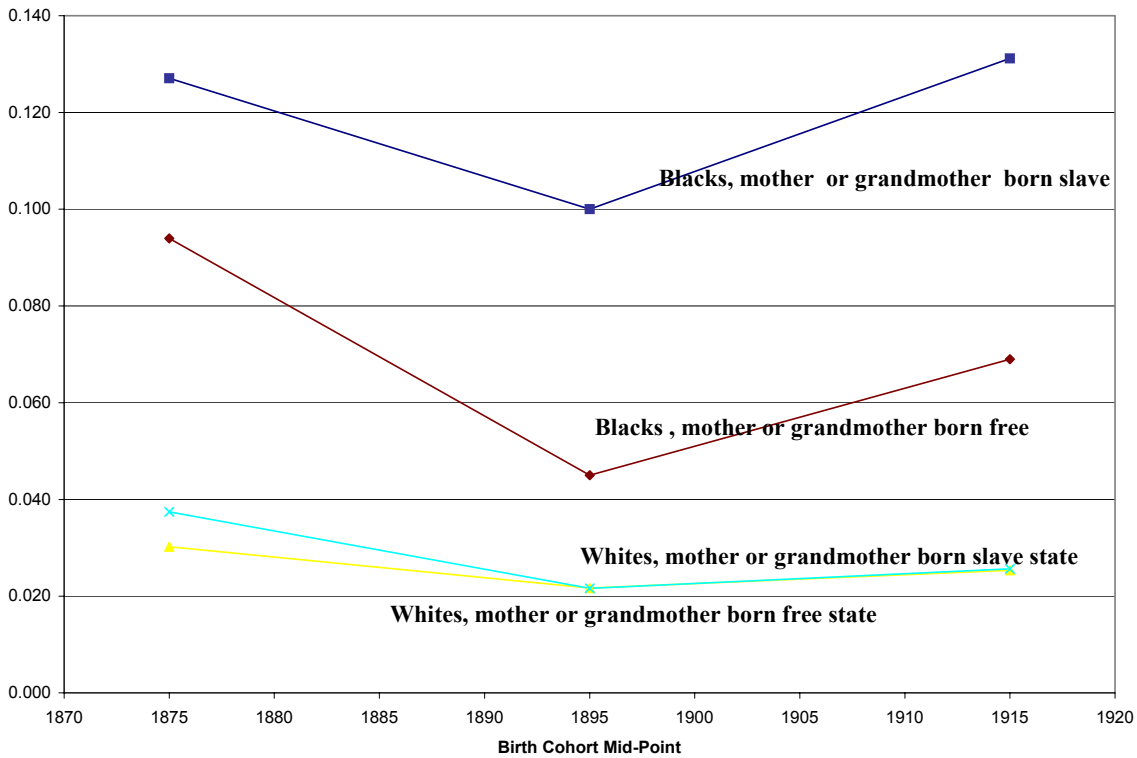
**Figure II**  
**Literacy Rates By Birth Cohort for Whites and Blacks**  
**Born Inside and Outside of the South**



This figure shows average literacy by birth cohort, race, and region of birth (South and non-South). Means are taken by generation, by ten year cohort.

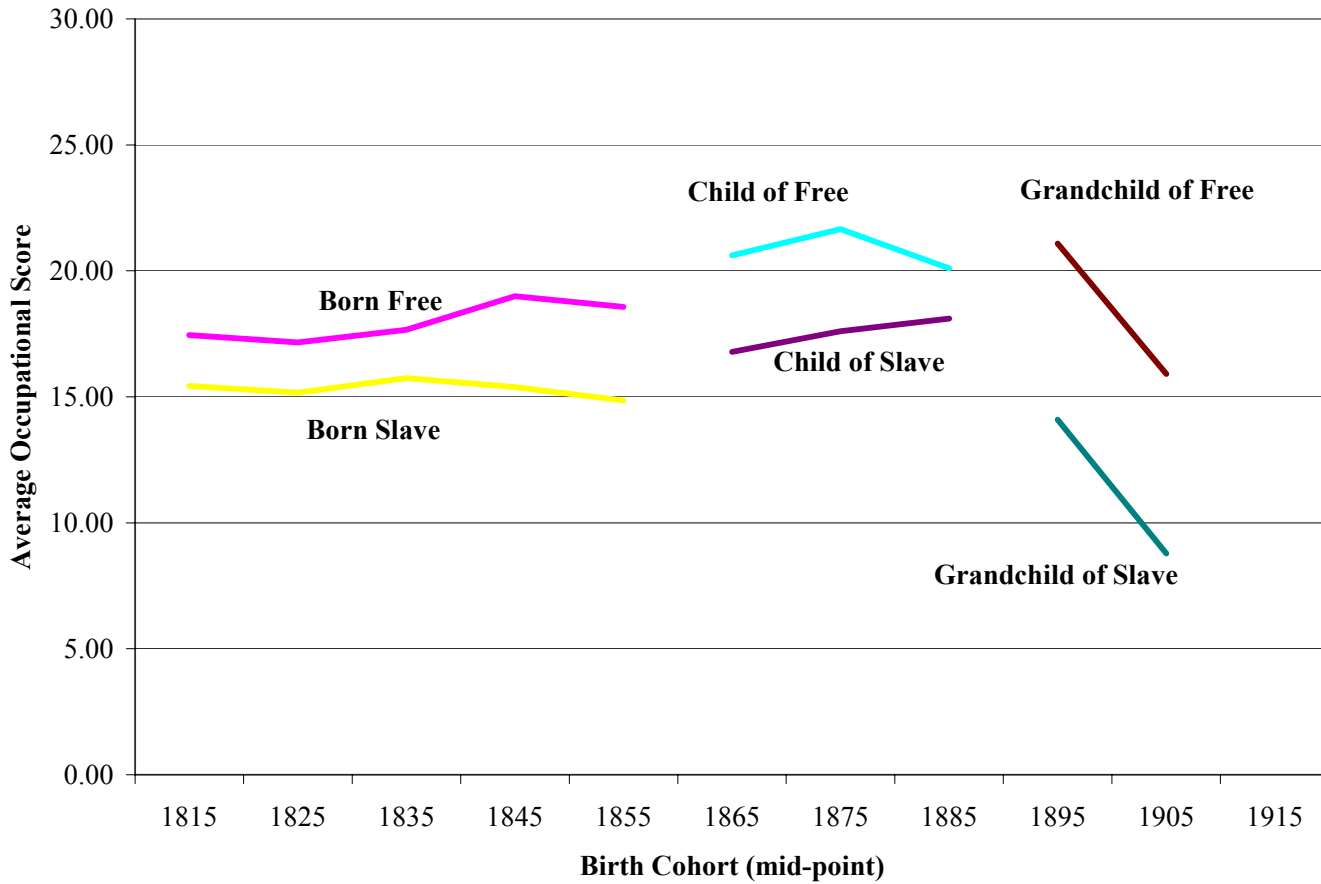
Notes: Data are from 1880 and 1920 Census IPUMS. Data from cohorts from 1865+ are taken from the 1920 Census. This switch partially explains the discrete jump shown in the graph. Literacy is measured for persons age 10 or older.

**Figure III**  
**Female Headed Household Rates By Birth Cohort for White and Black Children with**  
**Grandmothers**  
**Born Inside and Outside of South**



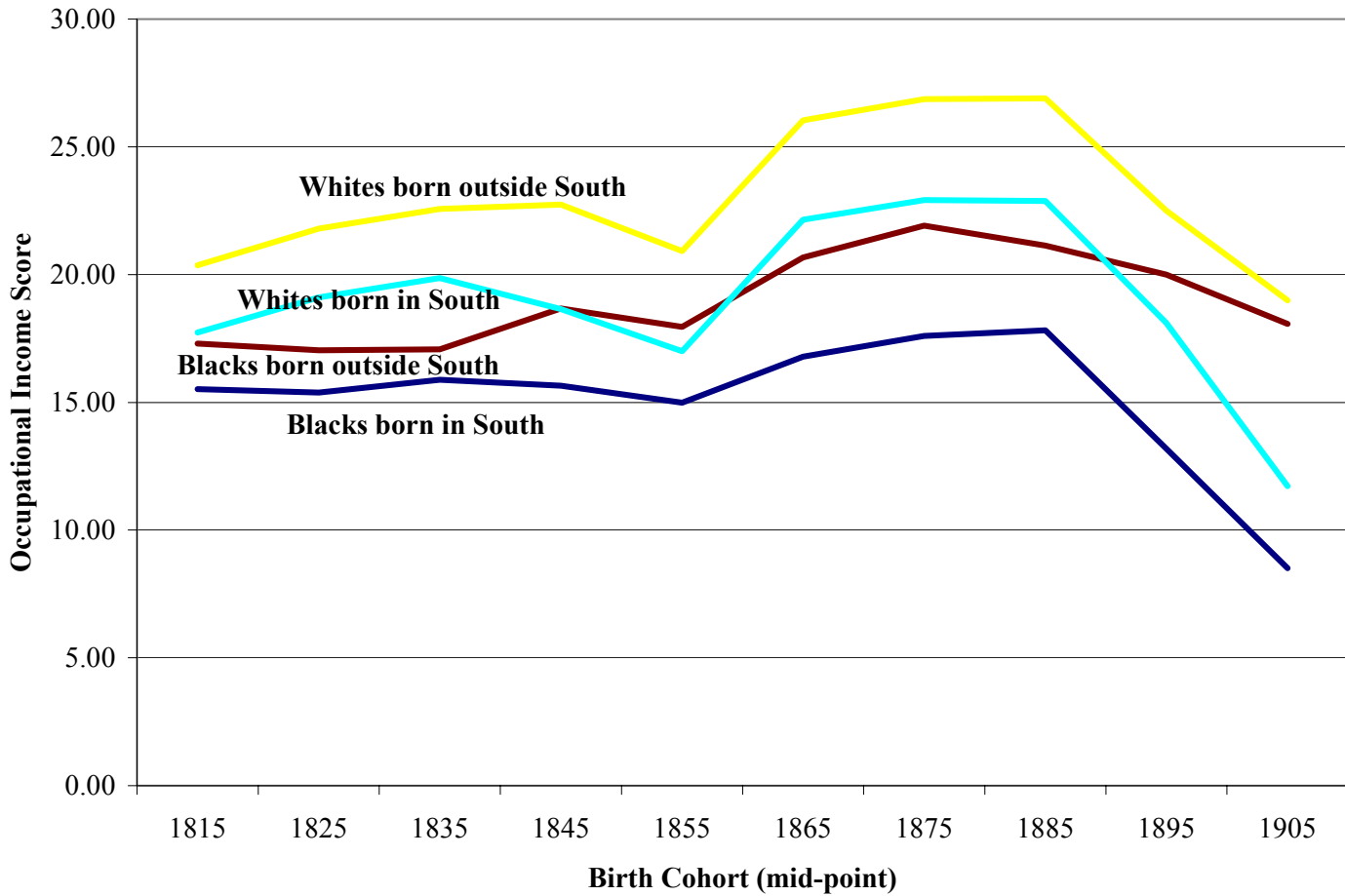
This figure measures whether children ages 0-10 are living in a female headed household. Data are from 1880, 1900, 1920 Census IPUMS. In 1880, data are stratified by race and mother born in slave state versus free. In 1900 and 1920, children are stratified by race and grandmother born in slave state versus free. In both 1900 and 1920, households are limited to those with mother born between 1865 and 1885, in order to increase the likelihood that the mother's mother was born before the end of the Civil War. This selection rule implies that I am selecting older mothers in 1920 and is a potential reason for the increase in female headed households shown in 1920. Female headed household is assumed when head of household is a woman (and her husband is not present in household).

**Figure IV**  
**Occupational Income Scores for Former Slaves and Free Blacks and Their Children and Grandchildren**



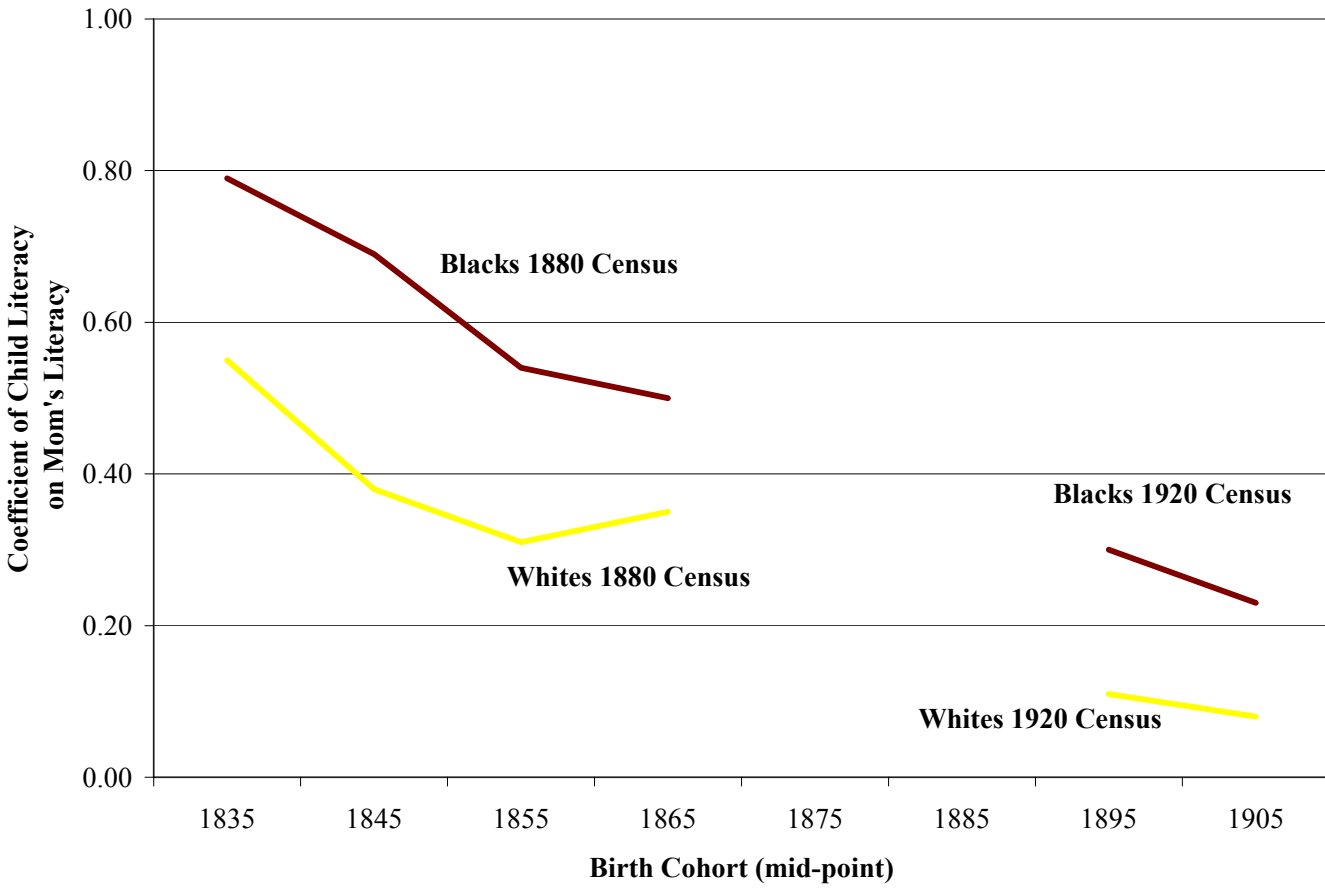
This figure shows average occupational income scores by birth cohort for free black men and former male slaves and their sons and grandsons. The occupational income score is calculated by IPUMS as the median annual income by occupation in 1950 and is reported in hundreds of 1950 dollars. Data for the later two generations come from the 1920 Census. The 1895 and 1905 cohorts have lower scores primarily because younger people are more likely to work in lower wage occupations.

**Figure V**  
**Occupational Scores for Whites and Blacks By Birth Cohort**  
**And Born in South**



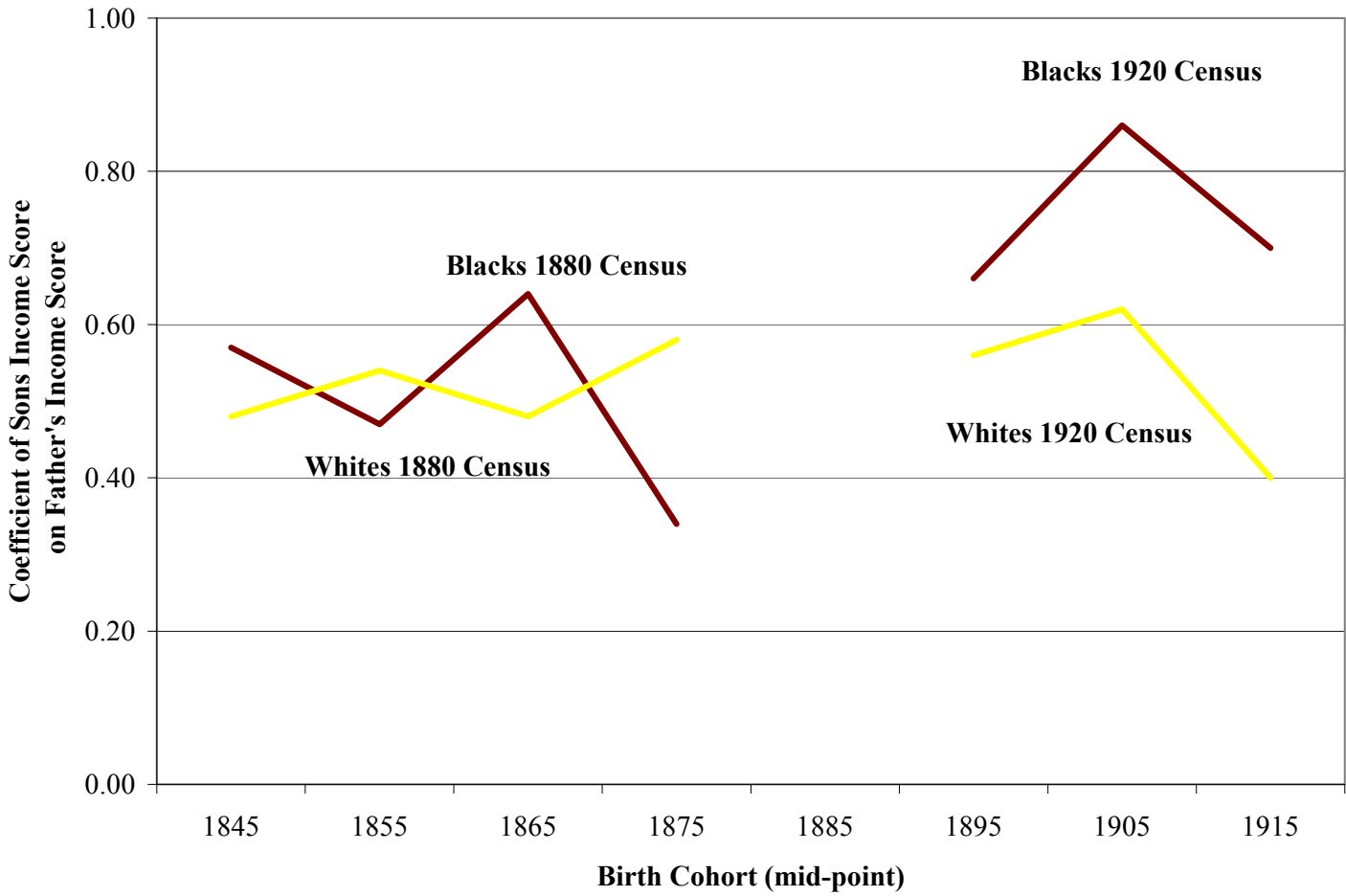
The figure shows average occupational score by birth cohort, race and born in South. The occupational income score is calculated by IPUMS as the median annual income by occupation in 1950 and is reported in hundreds of 1950 dollars. Data for the later two generations come from the 1920 Census. The 1895 and 1905 cohorts have lower scores primarily because younger people are more likely to work in lower wage occupations.

**Figure VI**  
**Transmission of Literacy From Parents to Children**  
**By Cohort and Race**



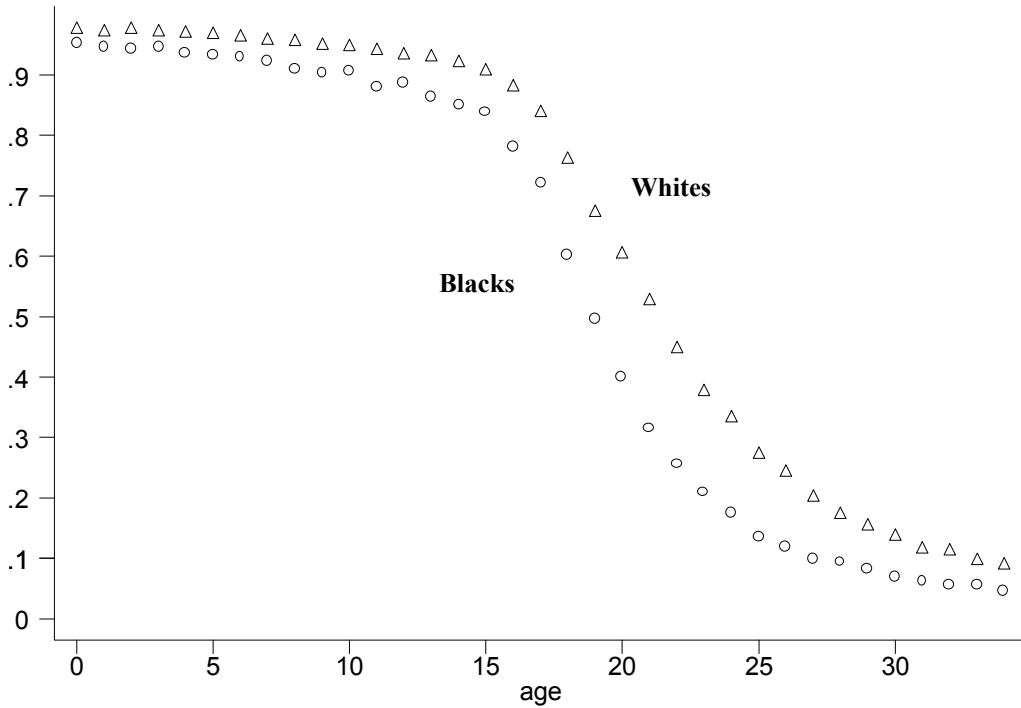
The transmission rate is defined as the child's literacy status (0-1) regressed on mother's literacy status (0-1) by cohort of child's birth. This is calculated for 1880 and 1920 households in which there were children of the householder present.

**Figure VII**  
**Transmission of Occupational Income Score From Fathers to Sons**



The transmission rate is the coefficient obtained from regressing son's occupational score on the father's occupational score. Data are from 1880 and 1920 IPUMS. Sample includes those households with sons of household head present.

**Figure VIII**  
**Probability of Living With One's Parents By Age and Race**  
**1920 Census**

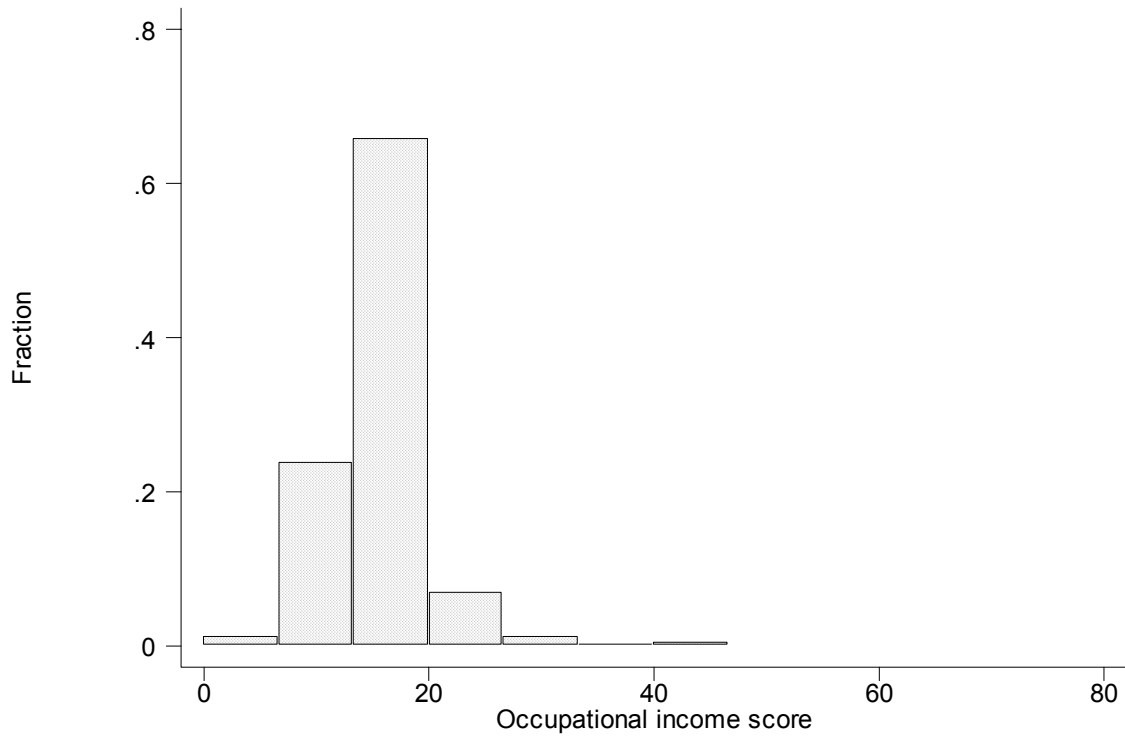


This show the fraction of children who live with one or both parents (and the parents are the householders). Data are from 1920 households. The transmission coefficients elsewhere in the paper are calculated for households with both parents and children.

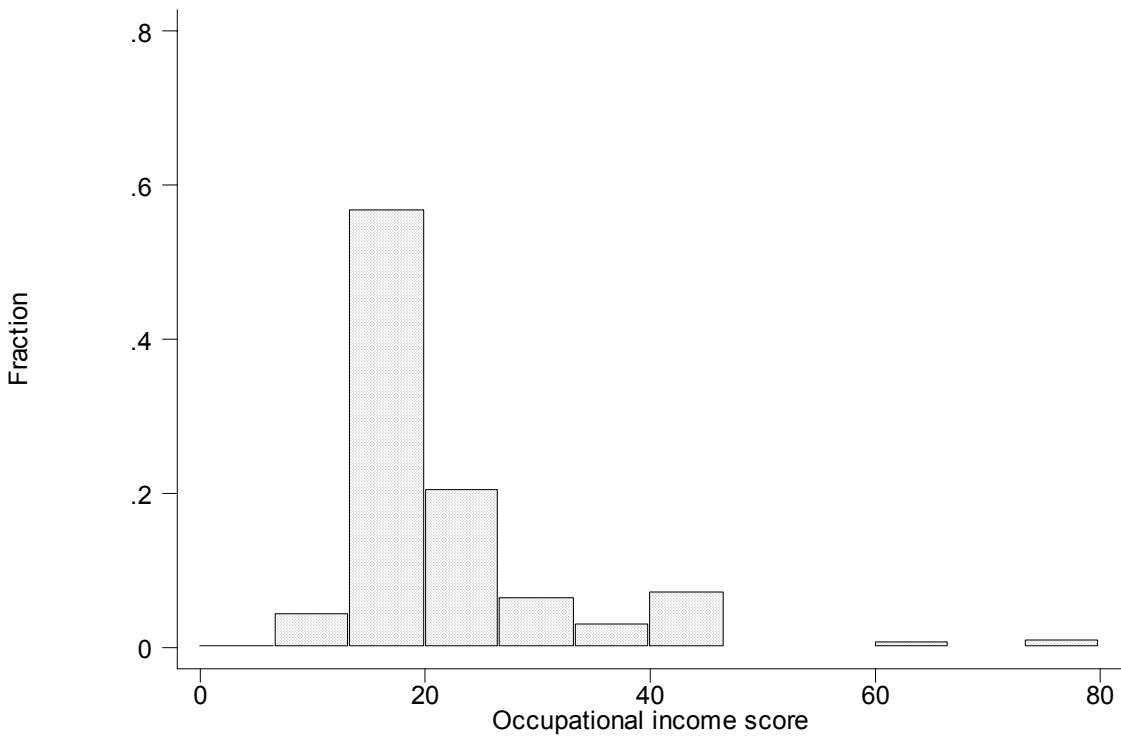
**Figure IX**

**Distributions of Occupational Score in 1880 For Heads of Household**

**Black Heads of Household**

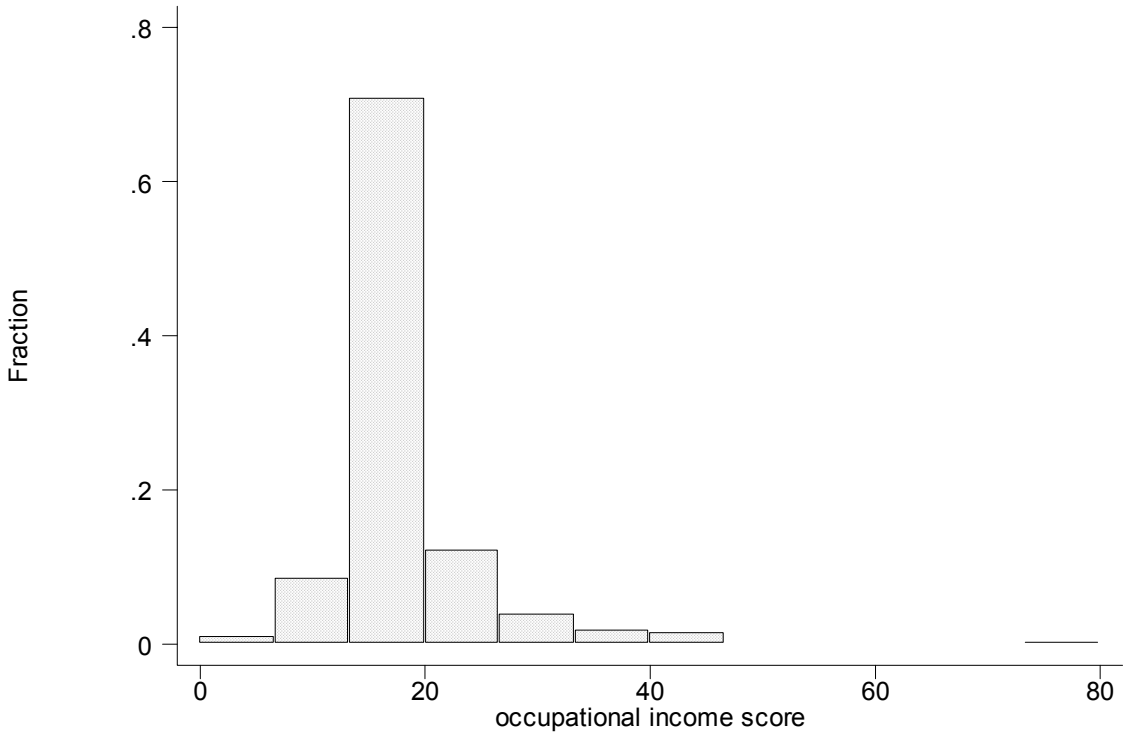


**White Heads of Household**



**Figure X**  
**Distributions of Occupational Score in 1920 For Heads of Household**

**Occscore for black HH 1920**



**White HH**

