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SCHOOLING AND THE GREAT MIGRATION

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ABSTRACT

In 1900 90 percent of America's black population lived in the South and only 4.3 percent of those born in the region were living elsewhere. By 1950 the proportion of blacks living in the South had declined to 68 percent and 19.6 percent of those born in the region had left it. Using samples drawn from the public use tapes of the 1900, 1940, and 1950 censuses I show that better-educated blacks were far more likely to leave the South than less-educated ones. There was, as well, a feedback effect: black school enrollment increased in states that had previously experienced high rates of black out-migration. Econometric analysis of the determinants of black out-migration suggests that the better-educated were more likely to migrate because schooling lowered the costs of migrating, possibly by increasing awareness of distant labor market opportunities and the ability to assimilate into a different social and economic environment.

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In 1900 90 percent of America's black population lived in the South and only a tiny proportion (4.3 percent) of those born in the region had left it. By 1950 the proportion of blacks living in the South had declined to 68 percent, and 19.6 percent of those born in the region were living elsewhere (see Table 1).

Over the same period the average educational attainment of southern blacks increased dramatically. Despite setbacks in the quality of schooling during the disenfranchisement era and persistent discrimination in the allocation of school budgets in the first half of the twentieth century, the percentage of southern black children ages 5 to 20 enrolled in school rose more than 30 points between 1900 and 1950. The high levels of adult illiteracy that inhibited the economic advancement of southern blacks in the early twentieth century had virtually disappeared by World War Two, and racial differences in educational attainment among younger cohorts diminished sharply (see, for example, Robert Higgs, 1982; my 1984 paper; James Smith, 1984).

The movement of blacks out of the South, the so-called "Great Migration," and the rise in black schooling are widely believed to account for a significant fraction of the long-term increase in the black-white income ratio (Finis Welch and James Smith, 1979; United States Commission on Civil Rights, 1986). Because wages were far lower in the South, a black man could increase his lifetime earnings by moving out of the region. According to one calculation, racial differences in region and schooling explain roughly a third of racial differences in

earnings among males ages 25-34 at any point between 1940 and 1980 (United States Commission on Civil Rights, 1986, pp. 168, 194).

Research on the evolution of racial income differences has tended to treat the trends in migration and schooling as independent historical processes, for example, as independent variables in an earnings function. This paper argues that it is a mistake to do so, because the trends in migration and schooling were causally related. Using samples of individuals taken from the 1900, 1940, and 1950 census public use tapes, I show in section 1 of the paper that better educated blacks were more likely to leave the South than their less educated counterparts. Had the long-term increase in black schooling been smaller, fewer blacks would have left the South and the long-term rise in the black-white income ratio would have been reduced. Furthermore, not only were the better-schooled more likely to migrate, the existence of black out-migration helped to raise black schooling levels in the South. In section 2 I document this feedback effect of migration on schooling using state-level data on black school enrollment. Other things equal, black school enrollment was significantly higher in states that had previously experienced high rates of black out-migration.

Section 3 examines the migration-schooling relationship in the context of an econometric version of Larry Sjaastad's (1962) model of migration. The results are consistent with the hypothesis that better-educated blacks were more likely to leave

the South because schooling lowered the costs of migrating, possibly by increasing the blacks' awareness of distant labor market opportunities and their ability to assimilate into a different social and economic environment. Section 4 concludes by considering the implications of the findings for previous research on the Great Migration and the historical evolution of racial income differences.

1. Schooling and Great Migration

Historians of the Great Migration have documented quite adequately the scope of movement and its timing, but have provided relatively little evidence on the characteristics of the migrants (see, for example, William Vickery, 1969; Flora Gill, 1979; Daniel Johnson and Rex Campbell, 1981; and Peter Gottlieb, 1987). Lack of data is the primary reason. Prior to 1960 the published censuses are of little use. In most, the characteristics of migrants were never compiled separately from those of non-migrants, or the cross-classification of migrant status by characteristics is too limited for statistical analysis.[1] Here I surmount the problem by relying on samples of individuals drawn from the public use tapes of the 1900, 1940, and 1950 censuses.[2]

A measure of migration that is conceptually consistent across the samples can be constructed from information on state of birth and state of residence. A person is considered to have

migrated out of the South if the person was born in the South but resided outside the region when the census was taken.

The defects of the measure are well-known. Location is identified at only two points in time and except for certain types of households (for example, families with children living at home), multiple or return migration cannot be determined. Nothing is known about the location of birth other than the state, and except for children living with their parents, almost nothing is known about family background.[3]

The measure of schooling differs across the samples. In 1900 literacy was reported for persons 10 and older. In 1940 and 1950 the measure is educational attainment, as indicated by the highest grade attended (1940) or completed (1950). No adjustment is made for various biases that have been identified in the 1940 educational attainment data.[4]

Table 2 reports basic evidence from the samples on schooling and black migration from the South. The analysis is restricted to persons who, in principle, could have entered the labor force: age 10 or or older in 1900 and age 14 or older in 1940 and 1950.[5]

The probability of migration rose sharply over time, but at any point in time, the chances of having left the South were higher among the better educated. In 1900, for example, literate blacks were 3.4 times as likely to have migrated than were illiterate blacks; in 1940, persons who had attended high school (9-12 years) were twice as likely to have migrated than persons

with no or very limited (1-4 years) schooling. In 1940 and 1950 relationship is U-shaped; that is, the migration rate first rises and then levels off or falls at the highest schooling levels.

How important were changes over time in schooling levels in raising the black out-migration rate? The answer is given in Table 3. Column 1 of Table 3 gives the changes in the migration rate between decades predicted by the changes in schooling levels that occurred, based on the migration probabilities in Table 1. Column 2 gives the actual change in the migration rate, and column 3 (= column 1/column 2) gives the percentage of the actual change that can be explained by the change in schooling levels.

The effect of schooling on migration was clearly enormous before 1910. Between 1900 and 1910 the migration rate was predicted to rise by 0.9 points, based on the increase in literacy rates that occurred in the decade. The actual change in the migration rate was 0.6 points. Hence the change in literacy rates can entirely explain the change in migration from 1900 to 1910.

Equally clear is that the effect of schooling on migration diminished sharply as the century progressed, presumably as a result of other factors that accelerated the rate of black migration after 1910 (see section 4). From 1910 to 1930 the predicted change in the migration rate was 0.8 points, or 9.7 percent of the actual change of 8.7 points. Between 1940 and 1950 the predicted change in the migration rate was 0.9 points, compared with an actual increase of 4.3 points. The change

in schooling explains 21 percent (0.9/4.3) of the increase in black migration between 1940 and 1950.

As compelling as this simple evidence is, there are a number of reasons why the schooling-migration relationship might be more apparent than real. The relationship could be confounded with age, gender, family structure, cohort and distance effects on migration. Older youths and young adults who had completed their schooling would be more likely to migrate than children living at home and still enrolled in school.[6] Persons in large families and females in general may have been less likely to migrate than persons in smaller families and males in general. On the other hand, older adult cohorts had less schooling than younger cohorts. That is, average schooling levels rose over time, but so did the probability of out-migration. Schooling levels were lower in the Deep South, but one might expect migration to the North to vary with distance.

The various points argue for a multivariate analysis of schooling and migration. Accordingly, column 1 of table 4 reports schooling coefficients derived from probit regressions of migration, with independent variables constructed from the information available in the samples.[7] For ease of comparison with the bivariate analysis in Table 2, column 2 of table 4 reports schooling coefficients from probit regressions in which schooling is the only independent variable. A more detailed analysis of the determinants of migration appears in section 3; here the issue is simply whether the effects of schooling are

robust when other factors affecting migration are controlled for.

In all the regressions the effects of schooling on migration are positive and statistically significant. Furthermore, the partial effects of schooling on migration (the dp/dX's) when other factors are controlled for, are larger than the partial effects when schooling is the only independent variable. Schooling was positively associated with the probability a southern black would migrate from the region, independent of other factors that affected the decision.

A subtler concern is that schooling is a proxy for some unobserved characteristic that positively influenced the probability of migration. In particular, schooling might be a proxy for urban residence prior to migration. Urban blacks had better access to information (for example, newspapers) about the North than rural blacks did, but urban school levels were higher than rural schooling levels. The appendix demonstrates, however, that even under the most favorable assumptions such a bias can explain only a small portion of the schooling-migration relationship.

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2. Black School Enrollment and Lagged Migration

Section 1 established that a positive association existed between schooling and black migration from the South, and that changes in schooling explain a significant portion of decadal changes in black migration. One problem with the latter

calculation, however, is the implicit assumption that the changes in schooling were exogenous to the changes in migration. Here I examine the assumption, showing that there was a positive feedback between lagged migration rates and black school enrollment in the South. Other things equal, black school enrollment rates was higher in southern states that had previously experienced high rates of black out-migration. South. Had black out-migration been smaller, the increase in black schooling levels over time would have smaller as well.

The rationale for a feedback effect involves the distinction between general and specific human capital. Other things equal, persons expecting to migrate should invest more heavily in types of human capital, such as schooling, which enable the person to adapt more readily to a different social and economic environment, than in types of human capital whose returns are specific to the region of origin (such as growing cotton).[8] As more blacks migrated from the South, migration became a more common and feasible life-cycle choice, and black school enrollment rose in response.

An ideal test for a feedback effect is to examine the determinants of schooling at the individual level, including in the analysis variables measuring the degree of contact between the individual and others who had previously migrated from the South--for example, friends, relatives, and so on. Although information on school attendance is reported in the public use samples, no information is available on the migration decisions

of friends and relatives.

As a substitute for an appropriate sample of individuals, I use state-level data on southern black school enrollment (ages 5 to 20) for the census years 1910 to 1930. The dependent variable is the age and gender-specific enrollment rate in state j in year t. The migration variable is the proportion of blacks born in the state residing outside the South, lagged ten years. The other independent variables are dummy variables for age, gender, state, year, and whether the state had a compulsory schooling law in effect; the proportion of males ages 35 to 44 who were literate; the proportion of homeowners; the proportion urban; the number of teachers per 1000 children of school age; and the length of the school year.[9]

The results appear in Table 5. The coefficient of lagged out-migration is positive and statistically significant. Other things equal, enrollment rates were higher in states in which larger proportions of blacks had previously left for the North or West. The remaining coefficients are broadly consistent with previous findings on the determinants of black school attendance in the early twentieth century South (see my 1987 paper). Attendance varied with age, first rising, and then falling among those aged 15 to 19, while females had slightly higher enrollment rates than males. The availability of schooling, as measured the teacher-child ratio and the length of the school, was positively and significantly related to school attendance. States with compulsory schooling laws had higher enrollment rates, although

the size of the effect was relatively small. An increase in the adult literacy rate or the proportion urban was associated with higher enrollment, although neither coefficient was significant at conventional levels.

The positive coefficient of lagged migration suggests that some of the increase over time in black schooling was endogenous to the changes in black out-migration. How large was this endogeneity effect? Between 1900 and 1920 the migration rate rose 3.8 percentage points (see Table 1). Using the coefficient from the regression (0.28), the change in lagged migration alone would have resulted in an increase of 1.1 (= 0.28 x 3.8) points in the black enrollment rate between 1910 and 1930, compared with an actual increase of 14.9 points. Hence the increase in migration explains 7.4 percent (= 1.1/14.9) of the increase in the black enrollment rate between 1910 and 1930.

Although not trivial, the effect of lagged migration on schooling is small enough so as not to change the substantive conclusions of section 1. The results, however, raise the question of why the schooling-migration relationship existed, to which I now turn.

3. Explaining the Schooling-Migration Relationship

Most economic models of migration begin with Larry Sjaastad's (1962) formulation. In Sjaastad's model an individual migrates from one area to another if the expected benefits of

doing so exceed the costs. The benefits and costs are pecuniary--for example, the present value of gains in income or wealth--and non-pecuniary--for example, the pyschic costs of leaving family, friends, and a familiar environment.

Within the context of the Sjaastad model the schooling-migration relationship among southern blacks can be explained in two ways. The first hypothesis is that the economic benefits of migrating were simply greater for the better educated. The second hypothesis is that the costs of migrating were lower for the better educated. According to many scholars, schooling is that it enhances a person's ability to find out about opportunities that are far away in social and economic distance, and to adapt quickly to a new and unfamiliar environment (Aba Schwartz, 1973; Michael Greenwood, 1975; Axel Borsh-Supan, 1987).[10]

Here I develop and estimate an econometric model that can determine the relative significance of the second hypothesis. The model consists of three equations:

$$\ln w_m = X\beta_m + e_m \qquad (3.1)$$

$$\ln w_n = X\beta_n + e_n \qquad (3.2)$$

$$I^* = S\alpha + Z\delta + \mu(\ln w_m - \ln w_n) + v \qquad (3.3)$$

Equation 3.1 is an earnings function for migrants and equation 3.2 is an earnings function for non-migrants. The X's are factors that determine earnings and are assumed to be the same for both

equations, the ß's are coefficients to be estimated, and the e's are error terms that represent unmeasured factors that influence a person's earnings were the person to choose to be a migrant (m) or a non-migrant (n). I assume that the error terms (e_m, e_n, v) are joint normally distributed with covariance matrix C.

Equation 3.3 determines whether the person migrates ($I^*>0$) or not ($I^*<0$). Following Sjaastad, the earnings differential ($\ln w_m - \ln w_n$) enters into the migration decision. If the differential mattered in the decision to migrate, then $\mu>0$. The variable S is schooling; a positive and significant value of δ is consistent with the hypothesis that schooling lowered the costs of migration. The Z's are factors other than the earnings differential or schooling that influenced the decision to migrate, and e_m is the error term specific to the migration decision.[11]

Estimation of equation 3.3 is complicated by the fact that the dependent variable in equation 3.1 ($\ln w_m$) is observed for migrants but not for non-migrants. Similarly, the dependent variable in equation 3.2. ($\ln w_n$) is observed for non-migrants but not for migrants. The problem cannot be solved by applying ordinary least squares separately to samples of migrants and non-migrants, because such a procedure would ignore the possibility of selectivity bias (see, for example, Robert A. Nakosteen and Michael Zimmer, 1980; Chris Robinson and Nigel Tomes, 1982). Equation 3.3 can, however, be estimated in a multi-step procedure (see G.S. Madalla, 1983, pp. 236-240).[12] In step one, a reduced-

form probit on migration is estimated. Next, the reduced-form probit coefficients are used to construct variables that correct for selectivity bias. Equations 3.1 and 3.2 are then estimated, including the selectivity-bias variables as independent variables. The estimated ß's are then used to predict ln w_m and ln w_s for all persons in the sample. Finally, equation 3.3 is re-estimated, including the predicted earnings differential (ln w_m -ln w_s) as an independent variable.

Equation 3.3 was estimated in this manner, using a sample of 1,147 southern-born black males ages 14 and over drawn from the 1940 census tape, 284 of whom were migrants.[13] Because income refers to wage and salary income in 1939, the sample is necessarily restricted to persons with positive wage and salary incomes. The dependent variable in the earnings functions (equations 3.1. and 3.2) is the logarithm of the person's weekly wage.[14] The independent variables in the earnings function (the X's) are a proxy for labor market experience (experience = age-schooling-6), experience squared, years of schooling, dummy variables for broad occupational group (white collar, blue collar, unskilled), a dummy variable indicating the person worked in manufacturing, and interaction terms between experience, experience squared, schooling, and the occupation and manufacturing dummy variables.[15]

The results of the structural probit estimation, shown in Table 6, are consistent with the Sjaastad model.[16] The probability of migrating out of the South was positively and

significantly affected by the difference in earnings between the South and the non-South.[17] Controlling for the difference in earnings, however, the better-schooled were significantly more likely to be migrants, consistent with the hypothesis that schooling reduced the costs of migrating.

The coefficients of the other independent variables correspond well with prior expectations. The probability of migrating rose with age, suggesting that the costs of migrating fell with age. Persons who were widowed or divorced, or living in small households (for example, single males) were more likely to have left the South. Distance appears to have mattered, even as late as 1940. Persons born in the West South Central states or the Deep South in general, were less likely to have migrated from the region than persons born in the South Atlantic, East South Central, or the upper South in general.

5. Conclusion

There are few events in modern American history whose social and economic repercussions are as profound as the Great Migration. What factors explain the scope and timing of the movement of blacks out of the South? Although acknowledging the importance of information flows between the South and other regions--letters from migrants, Northern labor agents, and black newspapers like the Chicago Defender--historians have tended to emphasize short-run factors, against a backdrop of the long-term

equalization of regional income differences and the development of national labor markets. In the late nineteenth and early twentieth century incomes in the South were far below the national average. But southern blacks did not migrate to the North in large numbers until the supply of immigrants was diminished by nativist legislation, and the insatiable demands of a wartime economy allowed them to "get a foot in the door." Southern blacks also sought to escape the virulent and state-sanctioned white supremacy of the ex-Confederacy, a discriminatory environment that worsened after the turn of the century (C. Vann Woodward, 1954; Morgan Kousser, 1974; my 1985 book; Robert Higgs, 1989).

There is no doubt that short-run factors were central to the Great Migration, although the relative importance of particular events may be over-rated.[18] What this paper has shown is that a rising rate of black out-migration was inevitable, driven by the steady increase over time in southern black schooling. Furthermore, as average black schooling levels rose, so too did the aggregate responsiveness of southern labor markets to inter-regional differences in factor prices and to national economic trends (Gavin Wright, 1986; Robert Higgs, 1989).

The results of this paper would come as no surprise to white southerners of the Jim Crow era. Fond of the saying that "education spoils a good field hand," white-dominated school boards willfully and flagrantly violated the doctrine of "separate-but-equal" in allocating school budgets between the

races. Keenly aware that an education was a ticket out of the county, and eventually the region, white planters and employers were largely successful in restricting educational opportunities for black children, thereby maintaining their traditional supply of low-wage labor well into the twentieth century (Gavin Wright, 1986). Their inability to completely eliminate such opportunities is partly explained by the ability of black families to vote with their feet, if not at the ballot box (see my 1988 paper) I have shown elsewhere (1986b, 1987) that lack of enforcement of Plessy vrs. Ferguson in southern schools slowed the eradication of black illiteracy and lowered the rate of black school attendance. Had the separate-but-equal decision been enforced the Great Migration would have been greater still.[17]

APPENDIX

The appendix evaluates the hypothesis that the schooling-migration relationship is a proxy for a relationship between migration and prior urban residence. That is, urban blacks were more likely to leave the South than rural blacks, but urban literacy rates were higher than rural literacy rates. In this case the effect of schooling on migration would be over-stated, because the probit regressions (Table 4) do not control for prior urban residence.

I begin by examining the possible bias in 1900. Suppose that (a) the true effect of literacy on the probability of out-migration were zero (b) the out-migration rate of rural blacks were zero (c) urban residence prior to migration is unobserved. What would then be the observed difference in out-migration rates between literate and illiterate blacks?

The following two equations can be used to answer this question:

$$m(L)\alpha + m(IL)(1-\alpha) = m \qquad (1)$$

$$m(L)/[m(L) + (\alpha/1-\alpha)m(IL)] = \beta \qquad (2)$$

where $m(L)$ = observed migration rate of literates, $m(IL)$ = observed migration rate of illiterates, m = overall migration rate, α = proportion literate, and β = observed proportion of migrants who were literate. Note that the observed effect of

literacy on migration is simply m(L) - m(IL). The parameter α and the out-migration rate m can be calculated from the 1900 census sample: $\alpha = 0.47$ and $m = 0.053$ (see Table 2). From assumptions (a) and (b), above, it follows that β is the literacy rate of urban residents at risk of out-migration prior to 1900. An estimate of β (calculated from the 1900 census tape) is the proportion of urban blacks in the South in 1900 who were literate: $\beta = 0.61$. Inserting the values of α,β, and m into equations (1) and (2) gives m(L) - m(IL) = 0.03, or 50 percent of the difference in the out-migration rates of literates and illiterates (0.06) reported in Table 2. Furthermore, it is clear that 50 percent must be an upper bound of the bias: the true value of β was less than assumed in the calculation (because black literacy rates were rising over time the literacy rate of the population at risk of migrating must have been lower than 0.61) and black migration from rural areas was non-zero.

The procedure can be repeated for 1940 and 1950, and the results (available on request) indicate that the bias in those years is at most equal to 25 percent of the effect of schooling on migration reported in Table 2. Hence the conclusion in the text: the schooling-migration relationship among southern blacks cannot merely be a proxy for an unobserved relationship between migration and prior urban residence.

FOOTNOTES

1. See William Vickery (1969), pp. 144-147. Samuel Bowles (1970) used aggregate census data on migration between 1955 and 1960 to demonstrate that better educated blacks were more likely to leave the South. The results of this paper complement Bowles' analysis for the earlier period.

2. The 1900, 1940, and 1950 public use tapes are representative samples of the United States population. The tapes were made available to me by the Inter-University Consortium for Political and Social Research at the University of Michigan, Ann Arbor. The 1940 and 1950 tapes are arranged into 20 independent random samples. The analysis in the paper is based on the first random samples on both tapes. Stanley Leiberson (1978) applied forward survival techniques to aggregate census data from 1890 to 1950 to show that net migration rates of southern blacks were higher among literates than illiterates. My analysis differs from Leiberson's in two ways: the measure of migration is gross and the data refer to individuals. The latter difference is most important, because I can control simultaneously for factors other than schooling influencing migration (see Tables 4 and 6), which cannot be done with aggregate data.

3. A further issue is caused by the cross-sectional nature of the census samples: the migration data are censored. What is observed for non-migrants is an estimate of what could be called an incomplete spell of "years living in the South." What is

observed for migrants is that they lived outside the region, not when they migrated. Duration methods could be used to analyze the data, but because such methods are likely to be sensitive to the fact that return migration cannot be identified (that is, the apparent length of the incomplete residence spell may be much greater than the true length) I rely instead on simpler techniques (probit analysis).

4. See my 1986a paper. It is likely that the 1940 and 1950 educational attainment data overstate true schooling levels among southern blacks born in the late nineteenth century, which would bias downward the measured effects of schooling on migration in a multivariate analysis. The bias is probably small, however, because migrants were disproportionately young.

5. These were the ages used by the census to determine labor force status.

6. Some persons in the sample presumably migrated from the South at an early age and attended school elsewhere. But it is unlikely that such a pattern was typical because the migration rate of young children in school was far below the average in all the samples. For example, in 1940 the migration rate of children in school was 8 percent, less than a third of the overall rate (see Table 2).

7. The variables in 1900 are age, age squared, sex, literacy, family size, relationship to head of household, marital status, region of birth within the South, and whether the person's parents were interstate migrants. The variables in 1940 and 1950

are the same, except for the following differences. In 1940 and 1950 the schooling variables are years of schooling and years squared, and parent's interstate migration is excluded. In 1950, the person's veteran status is added. The substantive results are not affected if family size, relationship to head of household, and marital status (which, for migrants, are observed after migration took place) are excluded.

8. See Farley Grubb (1987, p. 71) for a similar argument in the context of European migration to colonial America.

9. One can think of the relationship between the enrollment rate and its determinants as an aggregate approximation to outcomes at the household level; see my 1987 paper.

10. A probit regression on interstate migration within the South (available on request) produced an insignificant schooling coefficient. Thus the positive effect of schooling on black migration was apparently confined to long-distance migration, consistent with Schwartz's (1973) argument.

11. For applications of this model to modern data see Robert A. Nakosteen and Michael Zimmer (1980), Chris Robinson and Nigel Tomes (1982), and George Bjoras (1987).

12. Although the multi-stage procedure produces unbiased estimates of the structural coefficients, the standard errors are biased. Asymptotic corrections to the standard errors are derived in G.S. Madalla (1983, pp. 252-256).

13. The sample was restricted to males to avoid considering a second selectivity bias due to labor force participation

decisions of females. The substantive results are not affected if the sample is restricted to somewhat older males (for example, ages 18 and over).

14. The ideal variable is the present value of the person's lifetime earnings from the point of migration, but such a variable cannot be calculated from the census samples. The substantive results are not affected if annual earnings are substituted for weekly earnings.

15. Identification of equation 4.3 requires that at least one of the variables included in X not be included in Z. Variables included in Z are age, family size, relationship to head of household, and region of birth in the South. In principle the inclusion of experience squared in X would identify equation 4.3, but it proved necessary in practice to include the interaction terms as well.

16. The earnings functions displayed evidence of positive selection bias. Positive selection bias is consistent with e_m and e_n being positively correlated; that is, unobserved factors that caused a black male to have higher (or lower) than average earnings if he migrated also caused higher (or lower) than average earnings if he did not migrate. Exploratory estimations revealed that the positive selection bias lessened as schooling increased. Since the unschooled were more likely to be unskilled, an appealing interpretation of the result is that schooling reduced the importance of an unobserved factor like physical strength that influenced unskilled wages regardless of

region.

17. Similar results were obtained by Vickery (1969), Bowles (1970), and Gill (1979), all of whom, however, used aggregate data and did not correct for selectivity bias.

18. For example, Vickery (1969) argues that increases in labor demand in the North during the two world wars have been overrated compared with the underlying differences in income between the South and Non-South.

19. For a similar conclusion see Higgs (1989).

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Table 1

The Great Migration, 1900-1950

	Percentage of Blacks Residing in the South	Percentage of Blacks Born in the South, Residing Outside the Region
1900	89.7%	4.3%
1910	89.0	4.9
1920	85.2	8.1
1930	78.7	13.3
1940	77.0	16.2
1950	68.0	19.6

Sources: Percent residing in the South, calculated from U.S. Bureau of Census (1975), series A-172, A-176; Born in South, residing outside region: 1900, 1910: U.S. Bureau of the Census (1918), p. 65; 1920: U.S. Bureau of the Census (1922), p. 636; 1930: U.S. Bureau of Census (1935), p. 27: 1940, 1950: calculated from census public use samples.

Table 2

Black Migration and Schooling

	N	% x 100	% outmigrant x 100
1900 (age 10 or older):			
Illiterate	4,135	53.4	2.5
Literate	3,603	46.6	8.5
Total	7,738		5.3
1940 (age 14 or older):			
Years of schooling			
0	342	8.4	14.3
1-4	1,164	28.4	14.0
5-8	1,811	44.2	24.4
9-12	652	15.9	28.4
13<=	124	3.0	27.4
Total	4,093		21.3
1950 (age 14 or older):			
Years of schooling			
0	95	5.9	14.7
1-4	417	25.7	16.5
5-8	659	40.6	25.7
9-12	388	23.9	37.1
13<=	64	3.9	29.7
Total	1,623		25.6

Calculated from 1900, 1940, and 1950 census public use samples. 1940 and 1950 figures are derived from the first random subsamples on the tapes. Samples include persons attending school in the census year.

Table 3

Explaining Changes in Black Migration:
The Role of Schooling

	Predicted Change in Migration Rate	Actual Change in Migration Rate	Percent explained by schooling
1900-10	0.9	0.6	150.0%
1910-20	0.4	3.2	12.5
1920-30	0.4	5.2	7.7
1910-30	0.8	8.4	9.7
1940-50	0.9	4.3	20.9

Column 1 gives change in proportion of outmigrants between decades predicted by the change in schooling; column 2 gives actual change in migration rate (from Table 1); column 3 = column 1/column 2.

Table 4

Coefficients of Schooling:
Probit Analysis of Migration

	Other variables included	No other variables
1900:		
Literate	0.795	0.589
	(11.585)	(11.376)
dP/dX	0.072	0.053
1940:		
Schooling	0.179	0.114
	(7.922)	(5.725)
Schooling^{2}x10^{-2}	-0.619	-0.344
	(4.233)	(2.560)
dP/dX		
1950:		
Schooling	0.153	0.116
	(4.404)	(3.670)
Schooling^{2}x10^{-2}	-0.509	-0.331
	(2.274)	(1.572)
dP/dX		

Absolute value of asymptotic t-statistics in parentheses. dP/dX's are evaluated at sample means.

Table 5

Black School Enrollment and Lagged Out-Migration:
1910-1930

Variable	ß	T-statistic
Constant	0.35	7.31
Age		
10-14	0.27	26.44
15-20	-0.23	22.28
Female	0.03	4.33
Teachers per 1000 children ages 5 to 20 x 10^{-2}	-0.04	0.14
Length of school year in days x 10^{-3}	0.15	0.35
Compulsory schooling law	0.04	2.86
Adult illiteracy rate, ages 35-44	-0.08	1.73
Percent urban	0.02	1.45
Percent out-migrants, lagged 10 years	0.28	3.04
N	306	
R^2	0.94	

Dependent variable is the age-sex specific school enrollment rate of black children in state j in year t, t=1910-30. Regression includes state and year dummies. Data set is available on floppy disk from the author on request.

Table 6

Structural Probit Estimates:
Black Migration to the North

Variable	ß	T-stat
Constant	-2.452	6.322
Age	0.022	5.161
DWage	0.906	2.785
Years schooling	0.102	7.699
Relationship to household head:		
Immediate family living at home	-0.249	-1.239
Other relative	-0.001	-0.007
Unrelated	0.253	1.843
Family size	-0.038	-1.965
Marital status:		
Married	0.075	0.536
Widowed or divorced	0.339	1.569
Region of birth:		
East South Central	0.150	1.435
West South Central	-0.683	-5.595
Deep South	-0.264	-2.818
N	1,147	

DWage: predicted difference in weekly wage, between Non-South and South, corrected for selectivity bias; see text. Left-out place of birth dummy is South Atlantic. Deep South: South Carolina, Florida, Georgia, Alabama, Mississippi, Louisiana, Texas. The regression is significant at the 0.01 level.