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Family structure, school attendance, and child labor in the American South in 1900 and 1910[☆]

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Abstract

Even in the early 20th century, black children were much more likely to be living apart from one or both parents than were white children. This paper examines the contribution of these racial differences in family structure to the racial differences in children's experiences in the American South. Living apart from one or both parents was associated with lower school attendance and greater labor market participation, particularly for blacks. However, racial differences in adult literacy, household resources, and school characteristics were much more important for explaining the racial gaps in children's activities than were racial differences in family structure.

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1. Introduction

The release of microdata samples of the pre-1940 US Censuses have finally brought concrete evidence to the debate over historical differences in white and black family structure. These data reveal that black and white families differed substantially even in the late 19th and early 20th centuries (Gordon and McLanahan,

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1991; McDaniel, 1994; Morgan et al., 1993; Ruggles, 1994). Just as today, black children were substantially more likely to live apart from one or both parents than were white children. The majority of children of both races lived in two-parent families, but the fractions of black children in other types of families were substantial. Ruggles (1994) estimates that in, 1910, 13% of black children lived in mother-only families and 10% lived apart from both parents. The respective fractions for white children were only 5% and 3% (p. 140).¹

These findings have clear implications for understanding the racial differences in family structure observed today. But they also have potential implications for understanding racial differences in child welfare and economic mobility at the turn of the century. Research conducted in the past 20 years has demonstrated that family structure has profound effects on children's welfare and outcomes today. The most documented of these effects are those of living in mother-only families. Children from mother-only families have been found to have, on average, worse school attendance records, lower test scores, and lower grades than children in two-parent families (McLanahan and Sandefur, 1994, 44). These disadvantages appear to extend into young adulthood. Several studies find that individuals raised in mother-only families are more likely to drop out of school, have children out-of-wedlock, and have difficulties in the labor market in their young-adult years (Haurin, 1992; Haveman and Wolfe, 1995; Kiernan, 1992; McLanahan, 1985; McLanahan and Bumpass, 1988; McLanahan and Sandefur, 1994). Family structure may have had similar effects in the early 20th century. If so, racial differences in family structure during this period could have been an important factor underlying the persistent racial inequality in children's experiences and the relatively slow economic progress of blacks in the first half of the century.

The objective of this paper is to examine the effects of family structure in the early 20th century and determine the impact of racial differences in family structure on racial differences in children's experiences during this period. The literature on the effects of family structure in the current period has focused primarily on single-mother families. But an important component of the racial disparities in family structure both today and in the past is the fraction of children living apart from both parents. Hence, I examine the effects of family structure more broadly and consider the experiences of children of living in foster care and in father-only families as well. The analysis takes place in a context in which racial differences have been studied previously: school attendance in the South. The gap between black and white school attendance in the South in the early 1900s was substantial. Previous research has focused on the effects of the separate-and-definitely-unequal school systems in the South during this period. Margo (1987, 1990) estimates models of children's school attendance using household level data from the 1900 census and county-level data on black and white school characteristics. He finds that differences in school characteristics can account for 44–77% of the racial gap in school attendance (1990, p. 78).

¹ These differences cannot be explained by the higher mortality rate of blacks in the late 19th and early 20th centuries. Morgan et al. (1993) and Ruggles (1994) calculate predicted orphanhood rates using data on mortality, age at first birth for mothers, and age differences between spouses and argue that many of the black children in single-parent families and foster care had *living* absent parents.

The remaining gap he attributes to the lower literacy and occupational status of black family heads (p. 79).²

I adopt the basic empirical model of Margo but include measures of family structure. This allows me to compare the effects of racial differences in family structure to the effects of racial differences in school characteristics, adult literacy, and other household characteristics. I also extend Margo's model by dividing the data by age and sex as well as race. I first examine the effects of family structure on white and black children and then use the estimated models to estimate the contributions of racial differences in family structure and other characteristics to the observed racial differences in school attendance. I then repeat this exercise for the labor force participation of older children, since the racial gap in child labor in the South was also substantial and was strongly related to the racial gap in school attendance. I use data from the 1900 and 1910 federal censuses to take advantage of the different strengths of the two censuses. The 1900 census asked a much more informative question about school attendance: how many months did a child attend school? The 1910 census, however, arguably produced better data on children's market work since enumerators were explicitly instructed to report the occupations of women and children.

2. The effects of family structure in the early 20th century

Theories in the current literature of the effects of living in a single-mother family fall into two general groups: resource-based theories that emphasize the low incomes and wealth-levels of single mother families, and developmental-based theories that emphasize the lack of a male role model and the stress involved in marital dissolution. Most of the studies in this literature do not attempt to distinguish between these models empirically, but those that do, find that the disadvantages of mother-only families come primarily from the limited resources of these families (see McLanahan, 1985; McLanahan and Sandefur, 1994). The hardships faced by mother-only families today are well known. In 2001, 26% of female-headed families had incomes below the poverty line compared to only to only 5% of the families headed by married couples (Proctor and Dalaker, 2002).³ In many respects, the circumstances faced by single mothers at the turn of the century were even more precarious than those faced by single mothers today. The gender gaps in occupations and earnings were even larger at the turn of the century than today.⁴ Moreover, single mothers received little

² Fishback and Baskin (1991) estimate models of children's literacy in Georgia in 1910 and find similar patterns.

³ Collins and Margo (2002) show that throughout the 20th century, children in mother-headed families were much less likely to be living in owner-occupied housing than children in father-headed families. They argue that this gap, besides being an indicator of the more limited resources of mother-headed families, may also have had behavioral consequences for the children in these households since neighborhood quality is often correlated with home ownership.

⁴ The estimated ratio of female to male earnings was only 0.46 in 1890 compared to 0.72 in 1994 (Goldin, 1990, 64; Blau, 1998, p. 129).

support from the state until 1911 when the first mothers' pensions laws were enacted by state legislatures. The hardships faced by these women led many to place their children in some form of substitute care, most often the care of relatives but also in non-kin foster care and orphanages (Moehling, 2002).⁵

In this environment, we would expect that children in single-mother families spent less time in school and more time working than children in two-parent families. The hours of work, though, may have been in household production rather than in labor market work, particularly for girls. Home economists in the 1920s estimated women spent more than 50 hours per week in household tasks (Vanek, 1974). Market substitutes were available for some of these tasks such as laundry and, to some extent, meal preparation, but usually at substantial cost. When a single mother entered the labor market, this likely meant that her children had to increase their contributions to household production.

Single-father families, both in the early 1900s and today, also suffer from the disadvantage of having one fewer adult to contribute to the family economy. The effect of this disadvantage on household resources, however, would be expected to be much smaller than that for single-mother families because of higher male earnings. But in the early 20th century when labor in household production had a more significant effect on family welfare, the disadvantages of single father families may have been substantial, particularly for girls. Teenage girls likely had to fill the void left by their mothers in the household and may have spent less time in school and perhaps even less time in the labor market.

But what about the effects of living apart from both parents? The experiences of children living with no parents have received relatively little attention in the literature on the effects of family structure in the current period.⁶ Yet throughout the 20th century, the proportion of children in such living arrangements has been larger than the proportion of children living with single fathers. Considering the experiences of this group is particularly important for the current study since the much higher fraction of black children living apart from both parents was, and is, an important component of the disparity between black and white family structure. This task, however, is complicated by the fact that these children are found in a variety of living arrangements. Most of these children, both today and in the past, live with relatives. The rest live in foster families, institutions, and a variety of other arrangements. In the 19th century, some older children lived apart from their parents as live-in domestic servants. However, the importance of this type of arrangement had declined substantially by 1900.

⁵ In the 1910 census, ever-married women were asked how many of their own children were alive on the census date. Many women had "missing children": they reported more surviving children than were living with them on the census date. For older women, these missing children were likely young adults who left to establish their own households. But for young women, missing children were likely young children in some form of substitute care. Moehling (2002) finds that nearly 25% of white single mothers and over 30% of black single mothers under the age of 35 had such missing children.

⁶ Haurin (1992) is one of the few exceptions. Haurin examines how being placed in the care of relatives or in foster care during childhood affects a variety of outcomes and behaviors in early adulthood.

The effects of living in institutions and in domestic service on the work and school attendance of children are straightforward. The effects of living with relatives or foster care, however, are not as obvious. These effects must be interpreted in the context of both the decisions of potential caregivers to bring children into their households and the decisions of parents and guardians to place children in these care arrangements. The decision to take in foster children at the turn of the century was clearly motivated to some degree by benevolence, particularly in the case of relative caregivers. But this decision was likely also influenced—at least on the margin—by what that child's labor could contribute to the household. In fact, during the Progressive era, critics of non-kin foster care argued that many families wanted foster children simply to serve as domestic servants or laborers. Such motives were even attributed to adoptive parents. One superintendent of a children's institution acknowledged, "We may always be afraid . . . of young married people who come and want a strong healthy girl to adopt. . . . They want that child to do the work for them" (as quoted in Tiffin, 1982, p. 98–99). Kin-fostering arrangements were much less likely to be motivated by such desires. But even in kin-fostering arrangements, we would expect that the kin most willing and able to take in a foster child were those that could benefit the most from the child's labor. Therefore, holding other factors constant, we would expect that children living with relatives or foster families would have spent fewer hours in school and more hours working than children in two-parent families. The expected effect on labor market participation is again uncertain since the greater number of hours worked may have been in household production.⁷

It is important to note that children living with relatives or in non-kin foster care may have spent more time in school and less time working than they would have if they had remained in their households of origin. The decision to place children in substitute care is usually a response to a crisis such as the death, illness, or unemployment of a parent. Children in substitute care, therefore, came predominantly from disadvantaged households. Had they remained in those households, they would have likely had lower than average school attendance and spent more hours than average working in- and outside the household. Being placed in the care of relatives or in foster care may have actually increased the school attendance and reduced the work of these children. But relative to children in two-parent families with the same household and personal characteristics, we would expect fostered children to spend less time in school and more time working.

⁷ Data on fostering arrangements in West Africa support these predictions. Child fostering is a common practice in West Africa. In some areas, 20% or more children live apart from their parents, usually in the households of kin (Ainsworth, 1996, 26; Isiugo-Abanihe, 1985, 61). Some of this fostering is "crisis fostering," but fostering also serves other roles such as strengthening kinship ties and establishing alliances. Ainsworth (1996) examined fostering arrangements in the Côte d'Ivoire in the 1980s and found that foster children were much less likely to be enrolled in school and much more likely participate in housework, household agricultural work, and market work than children living with their parents (pp. 30–31).

3. Data and empirical methodology

I examine the effects of family structure on children's school attendance and labor market participation using data from the 1900 and 1910 US Population Census contained in the Integrated Public Use Microdata Series (IPUMS). The IPUMS data contain a 1-in-200 random sample of households from the 1900 census, and both a 1-in-250 random sample of households and an over-sample of black households in the South from the 1910 census.⁸

These two censuses have different advantages for the analysis. The advantage of the 1900 census is that, unlike other federal censuses, it asked for the number of months a child attended school rather than just whether or not the child attended school within some given period of time. The benefits of this are twofold. Most importantly, it allows us to consider the variation in time spent in school among those who were enrolled in school. But it also inherently sets a minimum standard for the definition of school attendance: long enough to justify a report of one month.⁹ For the other censuses, there is some uncertainty about what it means for a child to have been reported as "attending school." The 1910 census asked only if a child had attended school "at any time since September 1, 1909." Does a "yes" to this question mean that a child attended school regularly or just that she attended at least occasionally? To consider this issue, I constructed attendance numbers from the census reports and compared them to the enrollment and average daily attendance numbers reported by the superintendents of public instruction for a sample of Southern states.

⁸ Information on the IPUMS data is available at www.ipums.umn.edu. The 1-in-200 sample for the 1900 sample is preliminary. The IPUMS team plans to release a 1-in-100 sample of this census in 2004.

⁹ One concern, raised by the Census Bureau itself, is that asking for "months of school attendance" rather than just whether a child attended school may have led to an underenumeration of children attending school. The enumerators' instructions did not give any guidance as to how to deal with cases in which the respondent knew a child had attended school but did not know *how many months* the child had attended school. For many school-aged children, the column for "months of schooling" was left blank. The fraction of blanks was particularly high for black children in the South. The question is, should those blanks be interpreted as zero months of school attendance or should they be interpreted as some schooling but for an unknown number of months? Margo (1990) examined this issue by exploiting the data on occupations collected in the 1900 census. Enumerators were instructed to report persons attending school as "at school" in the occupation data. Margo therefore estimates the rate of underenumeration as the fraction of children who were reported as "at school" but for whom the "months of schooling" column was left blank. He estimates that for Southern black children ages 5–20 the rate of underenumeration of school attendance was 1.2 percentage points. He argues that this estimate "is statistically significant but not economically so" (p. 32). He concludes that for the "vast majority of cases," a blank in the schooling data indicated that the child did not attend school. In the analysis presented in this paper, blanks in the 1900 data are interpreted as zero months of school attendance. However, I also estimated probit models of school attendance in 1900 in which school attendance was defined as either non-zero months of schooling or as being reported as "at school" in the occupation data. This alternative definition led to only slight increases in measured school attendance and almost no narrowing of the racial differences in school attendance. The estimated models were almost identical to those estimated using the narrower definition of school attendance.

The numbers constructed from the census data fall between the enrollment and average daily attendance numbers, but tend to be closer to the enrollment numbers.¹⁰ This suggests that the 1910 census attendance data should not be interpreted as *regular* school attendance, but rather as *occasional* school attendance.

	Census attendance		Enrollment		Average daily attendance	
	Black	White	Black	White	Black	White
Alabama	121,664	248,375	142,813	279,982	89,008	176,564
Florida	48,610	77,072	55,255	92,834	40,649	63,243
North Carolina	148,098	341,310	161,000	362,244	93,746	234,753
South Carolina	151,385	125,958	184,364	156,051	129,170	114,731

The 1910 census, however, provides arguably better data on children's labor force participation. As for all the pre-1940 censuses, labor market participation must be inferred from the data on occupations. Individuals reported as having occupations are classified as "gainfully occupied" or "gainful workers." The problem with such data for the study of child labor is that they impose a fairly high standard for labor force participation. Census enumerators likely did not report occupations for children who worked in the labor market only intermittently or engaged in a variety of work activities. Many children who worked on family farms were also reported as not having occupations. But changes in enumerators' instructions for the 1910 census reduced the undercount of child workers. First, enumerators were specifically instructed to report the occupations of women and children. Second, enumerators were given explicit instructions that women and children "working regularly" on family farms should be reported as "farm laborers."

Table 1 reports the school attendance, labor force participation rates, and family structure of Southern black and white children ages 5–16 calculated from the 1900 and 1910 IPUMS data. The 1910 data for blacks have been weighted to make them representative of the Southern black population in that year. Regardless of whether one uses the 1900 or 1910 data, however, the conclusion is the same: the racial gaps in school attendance and child labor in the South were substantial. Black children were much less likely to be in school and much more likely to be working in the labor market than their white counterparts. Reported school attendance increased for all groups between 1900 and 1910. These increases reflect, in part, the change in the school attendance question in 1910. But the substantial increases in the reported school attendance of young children of both races also indicates a change in behavior.

The effects of the changes in enumerator instructions for reporting occupations are most visible in the data for white girls. The fraction of this group with a reported occupation almost doubled, increasing from 9% in 1900 to 17% in 1910. The reported market participation rate for black girls also increased, although less

¹⁰ The census attendance rates were constructed using data on individuals age 18 and younger weighted by the person weights provided in the IPUMS dataset.

Table 1

School attendance, labor force participation, and family structure of Southern children ages 5–16

	Blacks		Whites	
	1900	1910	1900	1910
Months of school attendance				
Children, ages 5–9	0.25		1.82	
Boys, ages 10–16	1.86		3.41	
Girls, ages 10–16	2.31		3.88	
Attended school during census year				
Children, ages 5–9	24.8%	38.9%	38.0%	53.9%
Boys, ages 10–16	46.2	58.4	71.2	79.3
Girls, ages 10–16	54.9	64.5	76.3	80.6
Labor market participation				
Boys, ages 10–16	56.8	58.9	41.4	44.3
Girls, ages 10–16	35.2	43.9	8.6	16.8
Family structure				
Two parents	67.6	68.5	82.5	84.8
<i>Stepparent</i>	6.4	7.9	4.1	5.0
Single mother	16.2	15.2	8.6	7.0
<i>Widowed</i>	11.0	9.9	6.7	5.4
<i>Divorced and separated</i>	5.2	5.3	1.9	1.5
Single father	4.2	4.0	3.8	3.5
<i>Widowed</i>	3.2	3.0	3.3	3.0
<i>Divorced and separated</i>	1.0	1.1	0.5	0.5
No parents	12.0	12.3	5.0	4.7
<i>With relatives</i>	7.7	8.7	2.9	3.0
<i>As boarder or foster child</i>	2.8	2.5	1.3	1.1
<i>As employee</i>	1.4	0.7	0.5	0.3
<i>In an institution</i>	0.1	0.3	0.3	0.3
<i>Other arrangement</i>	0.2	0.2	0.05	0.1

Note. The 1910 data for blacks were weighted to take into account sampling procedures.

dramatically. Almost all of the increase, for both blacks and whites, came from the increase in the fraction of girls reported as farm laborers.

Table 1 also reveals the large racial differences in family structure. These data were constructed using the family interrelationship variables provided in the IPUMS data. These variables link family members living in the same household. The links between parents and children are based primarily on the data on relationship to household head reported in the census schedules. Ninety-seven percent of the parent–child links were based on these data alone. For the remaining cases, the data on relationship to household head were supplemented with data on age, marital status, the number of children women reported as surviving on the census date, the order in which individuals were listed on the census form, and surnames.¹¹ The linking variables identified whether a child was living with two parents, a single mother, a single father, or no parents.

¹¹ Ruggles and Sobek (1995) provide a detailed discussion of the rules used to assign parent–child links.

Although the majority of children of both races lived in two-parent families, black children were substantially more likely to be living apart from one or both of their parents. More than 15% of black children were living with single mothers in 1900 and 1910. This is twice as high as the percentage of white children in such families during the period and is only slightly smaller than the percentage of white children living in such families today. An additional 12% of black children were living apart from both parents in some form of substitute care. The fraction of white children not in the care of a parent was only 5%.

Family structure can be disaggregated even further using additional data from the census reports. For both races, most single mothers as well as single fathers were reported as widowed in the census. There are reasons, however, to question the accuracy of these reports. Preston et al. (1992) have shown that there were more black widows in the 1910 census than would be predicted given black marriage rates and the mortality of black men. The social stigma of being an unwed mother or a “deserted” wife or husband may have induced single parents to report themselves as widowed. The death of one’s spouse was the most common route into single parenthood in this period, but its prevalence is likely overstated in the census data.

Data on the relationship to the household head can be used to determine the living arrangements of children not in the care of either parent. Most of these children lived with relatives, but small fractions lived in non-kin foster care, institutions, or as employees.

The objective of this study is to determine the degree to which the racial differences in family structure contributed to the racial differences in school attendance and child labor. To do this, I estimate empirical models of school attendance and labor market participation similar to those estimated by Margo (1987, 1990) but include measures of family structure. In the main analysis, I consider four types of families: two parent, single mother, single father, and foster. But later I allow the effects of family structure to differ by parental marital status and the type of foster care.

Estimating the effects of family structure is complicated by two issues. The first is that family structure itself is endogenous. If unobservable factors that pre-disposed a family to experience marital dissolution were correlated with factors that influenced the decision to send a child to school or to work, the failure to take into account this endogeneity will lead to biased estimates. To see this more clearly, consider the simplified case in which there are only two family types: intact and non-intact. Suppose that family structure is determined by the model

$$\begin{aligned} \text{Non-intact}_i &= 1 \quad \text{if } \delta x_{1i} + u_i > 0 \\ &= 0 \quad \text{otherwise;} \end{aligned} \tag{1}$$

and child’s school attendance is determined by the model,

$$\begin{aligned} \text{School}_i &= 1 \quad \text{if } \beta x_{2i} + \gamma(\text{Non-intact}_i) + e_i > 0 \\ &= 0 \quad \text{otherwise.} \end{aligned} \tag{2}$$

If $\text{cov}(u, e)$ is non-zero, treating family structure as exogenous will lead to biased estimates. There are many reasons, of course, to think that $\text{cov}(u, e)$ would be non-zero. The seemingly straightforward solution to this problem would be to estimate

the full model specified by Eqs. (1) and (2). But this too is problematic. Identification of this model requires that at least one variable in x_1 not be contained in x_2 (Maddala, 1983, p. 122). In other words, estimating this model requires identifying a variable that affects family structure but not the decision to send a child to school.

Most of the studies of the effects of family structure in the current period have simply estimated models which treat family structure as exogenous. Only Manski et al. (1992) and McLanahan and Sandefur (1994) have attempted to estimate models similar to that specified by Eqs. (1) and (2). These studies use the same exclusion restrictions to identify their models. The key restrictions are that geographic location and the difference between mother's and father's education levels affect family structure but not the child outcome measure. Interestingly, the estimated models provide little evidence against the hypothesis that family structure is exogenous. The estimated correlations between the error terms are close to zero and the estimated effects of family structure are very similar to those obtained from models estimated assuming exogeneity. The value of these results, of course, hinges on the validity of the authors' exclusion restrictions, which are necessarily ad hoc. But Manski et al. go further to determine the degree of bias introduced by the exogeneity assumption by estimating non-parametric bounds on the effects of family structure. The authors find that the estimates obtained from models assuming exogeneity generally fall within the non-parametric bounds.

The results of Manski et al. and McLanahan and Sandefur clearly should not be interpreted as indicating that the potential endogeneity of family structure can be ignored. But they do suggest that the biases introduced by treating family structure as exogenous may not be large. These biases are perhaps even smaller in the context of this study because the most common route into single parenthood in the early 20th century was through the death of a spouse rather than marital dissolution.¹² Household characteristics that were correlated with lower school attendance and child labor may have also been correlated with higher mortality, but households certainly had less control over mortality than marital dissolution. Given the limitations of the historical data, the estimated models presented below treat family structure as exogenous.

The second issue complicating the estimation is that while family structure may affect children's welfare directly, it also affects children's welfare through its impact on other factors such as family income and wealth. This raises the issue as to what do we mean by the "effects of family structure"—only the direct effects or the sum of the direct effects and the effects working through other factors? Only a few studies in the current literature consider this issue (DeGraff and Bilsborrow, 1993; McLanahan, 1985; McLanahan and Bumpass, 1988; McLanahan and Sandefur, 1994). These studies interpret "family structure effects" as the sum of direct and indirect effects and estimate these effects using empirical models that do not include controls for intervening factors such as family income. McLanahan and her co-authors take the

¹² A recent paper by Lang and Zagorsky (2001) has even proposed that the death of the parent can be used as a type of "natural experiment" to identify the effects of the absence of a parent in recent data. They argue, as I do, that the death of a parent is more exogenous than divorce. They find no systematic pattern of differences between the effects of the death of a parent and the effects of parental divorce on young adult outcomes (p. 271).

next step and re-estimate the models including controls for family resources to determine the relative contributions of direct and indirect effects. These tests reveal that the effects of family structure on children's outcomes work primarily through the impact of family structure on family income. In many of these tests, the estimated disadvantages of living in a single-mother family fall by 50% or more when family income is included as a control variable.

In the current study, interpreting the effects of family structure as the sum of both direct and indirect effects is necessitated by the data. The early 20th century censuses did not collect information on family income and wealth. The only data on family resources are home ownership and the age, occupation, and unemployment of the household head. Despite these limited controls for family resources, I adopt a strategy analogous to McLanahan and her co-authors. I first estimate a stream-lined specification that includes the family structure variables, the characteristics of the child (age, age-squared, and sex, if appropriate),¹³ the literacy of the family head,¹⁴ family size, the presence of children under age 5, and geographic characteristics. Then I estimate a more complete specification that includes controls for home ownership, and the age, occupation, and unemployment of the family head to see if controlling for family resources affects the estimated family structure effects.¹⁵

¹³ I also estimated models using dummy variables for each year of age. This re-parameterization did not change the substance of the results and did not, in general, improve the fit of the models.

¹⁴ Research using data from developing countries and from the contemporary US have found that mother's literacy and schooling have stronger effects on human capital investment in children than father's literacy and schooling (Behrman et al., 1999; Haveman and Wolfe, 1995). This research suggests that mother's literacy, rather than the literacy of the family head, should be included in the estimated models. The problem is that not all of the children in the data live with their mothers and hence, information on mother's literacy for these children is missing.

The failure to use mother's literacy could affect the analysis of racial differences in children's experiences for two possible reasons: (1) if the racial gap between mother's literacy was greater than the racial gap in head's literacy; and (2) if the effect of mother's literacy varied by race. To consider these issues, I used the sub-samples of children living in two-parent families. For both blacks and whites, the literacy rates of mothers and fathers were almost identical. Hence, the racial differences in mother's and father's literacy rates were also nearly identical. To test for (2), I estimated models of children's school attendance and labor force participation including mother's and father's literacy using the two-parent sub-samples. I found that while, in general, both mother's and father's literacy had statistically significant effects of the expected sign, the effect of father's literacy was larger than that of mother's literacy.

¹⁵ The family head is defined as the child's father if he was present. For children living with single mothers, the family head is the mother if she was reported in the census as the head, mother of head, boarder, or employee and the oldest male sibling present was younger than age 18; if the oldest male sibling present was age 18 or older, he is designated the family head. If the mother was reported as the relative of the census-designated head, the family head is the census-designated head. For children living without both parents, the family head is also the census-designated head.

Since this system imposes rather strong assumptions about organization of families and also relies to some extent on the census-designation of headship, I also tried an alternative system in which the family head was designated as the oldest male over age 18, or, if none were present, the oldest female over age 18. This system led to the re-designation of the family head in fewer than 5% of families. For the most part, the changes involved re-assigning headship from a prime-aged male to an elderly male present in the household. Models estimated using the alternative headship system yielded almost identical results to those presented in the paper.

Margo (1987, 1990) found that a significant fraction of the black-white gap in school attendance in the South at the turn of the century could be explained by the large disparities between black and white schools. Margo's results pose an additional question for the current study: how large were the effects of differences in family structure compared to the effects of differences in school quality? I use the same measures of the characteristics of county schools used by Margo: the number of schools per 1000 children, the length of the school term in days, teachers per 100 students, and the average monthly teacher salary.¹⁶ Margo was able to collect these data for four states in 1900: Alabama, Florida, North Carolina, and South Carolina. I collected analogous data for these same four states for 1910. One difference in the school data for the two census years is the denominator for the number of schools per 1000 children. The published reports of the 1900 census provided county-level data on the numbers of black and white children ages 5–20, but the reports of the 1910 census provided county-level data on the numbers of black and white children ages 6–14.

In all the estimated models, I also include indicators for residence in a small (population 2500–24,999) or large (population 25,000 or more) urban area, an indicator for residence in a county where plantation agriculture was prevalent, and the value of farms (land and buildings) per acre in the county.¹⁷ These variables are intended to capture differences in local economic conditions, particularly local labor markets.

These location-specific variables raise additional endogeneity problems. A household's preferences for children's schooling or work activities may influence its choice of residence. For instance, as Margo (1987) has pointed out, if parents who placed a high value on their children's education moved to areas with better schools, this would bias the estimated effects of the school characteristics (p. 664). Dealing with such issues would require some exogenous measure that determined household location but not children's activities. In the analysis here, a household's location is treated as exogenous, but care is taken in interpreting the estimated effects of the location-specific variables.

Finally, I also include variables indicating whether a child was covered by compulsory school attendance or child labor legislation. Studies of these laws have provided only limited support for their effectiveness in the early 20th century. Moehling (1999) found that legislated minimum age-limits for manufacturing employment had little impact on the occupation choices of children in 1900 and 1910. Margo and Finegan (1996) found that compulsory schooling laws had a positive but statistically insignificant effect on school attendance in 1900. But Margo and Finegan did find positive and statistically significant effects of compulsory schooling restrictions in

¹⁶ Robert Margo graciously shared his data on the characteristics of county schools in 1900. The 1910 data were collected from the reports of the state superintendents of public instruction (Alabama Department of Education, 1910; Florida Superintendent of Public Instruction, 1910; North Carolina Superintendent of Public Instruction, 1910; South Carolina State Superintendent of Education, 1911). Teacher-to-student ratios were constructed using data on average daily attendance rather than enrollment data since there is some suspicion that states and counties inflated reported enrollment rates.

¹⁷ The designation of plantation counties was based on a Census Bureau study of agriculture in the South in the 1910 (US Bureau of the Census, 1916).

states that combined these restrictions with child labor laws. The provisions of child labor laws during this period were many and varied. The child labor law measure used in the analysis is an indicator variable of whether a child was covered by a minimum age-limit for manufacturing employment. None of the states under study had compulsory school attendance or minimum age-limits for manufacturing employment by 1900. By 1910, North Carolina had enacted a compulsory schooling law covering children ages 8–14 and a child labor law establishing an age-minimum of 13 for manufacturing employment. The other three states still had no compulsory attendance laws but had legislated age-minima of 12 for manufacturing employment.¹⁸

I limit the sample to children ages 5–16 who were living in households. I exclude children living in institutions and as employees since those classifications generally determined school attendance and labor market participation. I also exclude those children reported as married or as head of households who were not living with at least one parent.¹⁹

Table 2 reports the sample means and standard deviations of the variables used in the empirical analysis.²⁰ These data reveal that black families were poorer on average than white families. Black families were about half as likely as white families to own their homes, and black family heads were much less likely than white family heads to have white collar (professional and clerical) or skilled occupations. In 1910, black children were more likely than white children to live in agricultural households. Most revealing, however, is the racial gap in the literacy of family heads. In 1900, less than half of black family heads were literate compared to over 80% of white family heads. The literacy of black family heads increased dramatically between 1900 and 1910, but the black–white gap was still 30 percentage points. Table 2 also reveals the substantial disparities in the quality of the black and white school systems in the South in this period. The number of schools per 1000 children reveals that black children simply had less access to schools than white children. In addition,

¹⁸ The compulsory schooling and child labor law indicator variables are included as controls and not intended to provide tests of the effectiveness of the laws. The variables may be interpreted as interactions between age and state of residence. These interactions will pick up any effects of the legislated restriction, but will also capture the effects of other factors which varied by age and state of residence. Much of what these variables appear to capture are state effects. When state dummy variables are included in the models, the size of the estimated effects of the law variables tends to decrease. Including state dummy variables does not affect the estimated effects of family structure, but does tend to decrease the estimated effects of the school characteristic variables. It also increases the standard errors on the school characteristic variables since the effects of those variables are now being identified only by the variation within states and not between states. State dummy variables were not included in the models presented in the paper to make these models more comparable to those presented in Margo (1987, 1990).

¹⁹ These restrictions lead to dropping 152, or 1.7%, of the observations in the 1900 sample, and 119, or 1.3%, of the observations in the 1910 sample. An additional 964 observations had to be dropped from the 1900 sample because of missing data on county school characteristics (954) or illegible data on months of schooling (10). In the 1910 sample, the 20 observations from Chesterfield county, South Carolina, had to be dropped due to missing data on school term length and average teacher's salary.

²⁰ The 1910 data for blacks have been weighted to take into account the oversampling of black households.

Table 2

Means and standard deviations for sample children ages 5–16

	Blacks		Whites	
	1900	1910	1900	1910
School attendance (1900—mos.; 1910—proportion)	1.269 (2.202)	0.524 (0.499)	2.306 (2.892)	0.674 (0.469)
Work	0.294 (0.456)	0.357 (0.479)	0.198 (0.398)	0.262 (0.440)
Family structure				
Single-mother	0.178 (0.383)	0.161 (0.367)	0.082 (0.275)	0.077 (0.267)
Single-father	0.036 (0.186)	0.035 (0.184)	0.037 (0.189)	0.034 (0.182)
No parents	0.104 (0.305)	0.098 (0.298)	0.036 (0.186)	0.034 (0.181)
Female	0.488 (0.500)	0.509 (0.500)	0.499 (0.500)	0.502 (0.500)
Age	10.224 (3.463)	10.142 (3.445)	10.146 (3.422)	10.231 (3.489)
Family head literate	0.450 (0.498)	0.586 (0.492)	0.855 (0.352)	0.887 (0.317)
Family head's age	42.976 (12.289)	42.798 (11.947)	43.104 (9.867)	42.808 (10.029)
Family head's occ.				
Professional or clerical	0.022 (0.147)	0.013 (0.113)	0.095 (0.293)	0.131 (0.338)
Skilled	0.022 (0.145)	0.034 (0.180)	0.042 (0.202)	0.073 (0.260)
Agricultural	0.667 (0.471)	0.751 (0.432)	0.679 (0.467)	0.637 (0.481)
No reported occupation	0.108 (0.310)	0.014 (0.119)	0.062 (0.241)	0.033 (0.178)
Family head's unemployment (1900—mos./ 1910—wks.)	0.463 (1.379)	0.643 (3.171)	0.267 (1.104)	0.613 (3.817)
Home ownership	0.238 (0.426)	0.277 (0.448)	0.588 (0.492)	0.550 (0.498)
Family size	7.169 (2.650)	7.189 (2.837)	7.389 (2.331)	6.972 (2.211)
Presence of child under age 5	0.685 (0.464)	0.580 (0.493)	0.691 (0.462)	0.593 (0.491)
Characteristics of county schools				
Schools per 1000 children (1900—ages 5–20; 1910—ages 6–14)	7.219 (3.894)	11.885 (4.303)	11.456 (5.093)	17.145 (6.537)
Length of term in days	80.516 (21.908)	89.080 (21.359)	89.414 (22.462)	115.656 (23.956)
Teachers per 100 pupils	2.718 (0.936)	2.656 (0.982)	3.726 (0.917)	3.798 (0.950)
Ave. monthly teacher's salary	22.516 (4.493)	27.904 (10.949)	29.078 (6.793)	45.760 (11.329)
Covered by comp. school att. law		0.169 (0.375)		0.194 (0.396)
Covered by child labor law		0.613 (0.487)		0.611 (0.488)

Table 2 (continued)

	Blacks		Whites	
	1900	1910	1900	1910
Urban (population 2500–24,999)	0.068 (0.252)	0.080 (0.272)	0.078 (0.268)	0.086 (0.280)
Urban (population \geq 25,000)	0.033 (0.178)	0.038 (0.192)	0.016 (0.124)	0.055 (0.228)
Plantation county	0.648 (0.478)	0.587 (0.492)	0.468 (0.499)	0.450 (0.497)
Value of farms per acre (\$)	8.920 (3.709)	22.697 (11.799)	9.415 (6.193)	23.215 (14.506)
Number of Observations	3708	4832	4081	4196

compared to white schools, black schools had shorter terms, lower teacher-to-student ratios, and lower teacher salaries. Black children were also more likely to live in plantation counties.

I estimate Tobit models for months of school attendance in 1900 and probit models for school attendance in 1910 and labor force participation in both census years. I disaggregate the data not only by race but also by age and, for older children, by sex, since school attendance and especially labor market participation varied greatly with these characteristics. Since the samples contain data on siblings, standard calculation methods which treat each observation as independent will underestimate the standard errors. Therefore, the standard errors have been estimated using a procedure which allows for correlations in the error terms for observations from the same household.

4. The effects of family structure on school attendance

Tables 3 and 4 present the predicted effects of family structure generated by the tobit and probit models of school attendance.²¹ For the 1900 data, these predictions represent the (unconditional) predicted months of schooling, and for the 1910 data, they represent the predicted probability of attending school.²²

Table 3 presents the results of this exercise for children ages 5 to 9. The results differ across the census years. In the 1900 data, family structure had no effect on the school attendance of young black children. For white children, the only statistically significant effect was for living with a single father: children in such families

²¹ A full set of coefficient estimates for these models and the models of the labor force participation of older children are available by request from the author.

²² The predictions from the tobit model are calculated using the following formula:

$$E[y_i] = \Phi(x_i'\beta/\sigma)x_i'\beta + \sigma\phi(x_i'\beta/\sigma)$$

where $\phi(\cdot)$ and $\Phi(\cdot)$ represent the density function and cumulative distribution function of the standard normal distribution. The standard errors presented in Tables 3–8 are calculated using the δ -method.

Table 3

Estimated effects of family structure on the school attendance of children ages 5–9

	1900: Mos. of schooling		1910: Prob. of school attendance	
	Base	Addl. resource controls	Base	Addl. resource controls
<i>Black children</i>				
Predicted att.: Two parents	0.50 (0.05)	0.48 (0.06)	41.9% (1.6)	41.6% (1.6)
Estimated effect of living with				
Single mother	–0.05 (0.10)	–0.00 (0.12)	–16.9 (3.2)	–15.9 (3.4)
Single father	–0.06 (0.21)	–0.07 (0.20)	–16.4 (7.1)	–16.6 (6.9)
No parents	+0.09 (0.14)	+0.12 (0.23)	–7.8 (4.7)	–8.3 (4.8)
<i>White children</i>				
Predicted att.: Two parents	1.00 (0.06)	0.93 (0.06)	52.8 (1.6)	52.6 (1.6)
Estimated effect of living with				
Single mother	+0.03 (0.23)	+0.18 (0.29)	–11.5 (5.9)	–6.8 (6.3)
Single father	–0.42 (0.22)	–0.35 (0.20)	+3.5 (9.3)	+4.6 (9.9)
No parents	+0.30 (0.36)	+0.83 (0.76)	–3.0 (10.1)	+4.6 (11.0)

Note. Numbers in parentheses are standard errors.

attended school on average less than a half a month compared to one month for children in two-parent families. In the 1910 data, school attendance varied much more by family type. One explanation of this difference could be that family structure had different effects on whether or not a child attended school at all and how many months a child attended school conditional on attending some school. The 1910 data reveal only the participation decision whereas the 1900 data reveal both the participation and quantity decisions. This does not seem to be driving the results, however. Probit models of whether a child was reported attending school at all in 1900 also produce no family structure effects except the negative impact of living with a single father for white children. A more plausible explanation seems to lie in the rise in school attendance of children under 10 between 1900 and 1910. In 1900, only a fairly select group of families of either race sent young children to school. But as school attendance of these children increased due to decreases in the costs of schooling or changes in attitudes toward schooling, family resources and hence, family structure, became a more important determinant of which children attended school.

By 1910, living with a single mother substantially reduced the likelihood a black or white child attended school. According to the base model estimates, black children in single-mother families were 17 percentage points, or 40%, less likely to have attended school than black children in two-parent families. For whites, living with a single mother negated the advantage of race: the predicted probability a white child with a single mother attended school was slightly lower than that for a black child in a two-parent family. For whites, living with a single father or in foster care had no effect on the a child's school attendance. But for blacks, living in such families reduced the likelihood of attending school. The disadvantage of living with a single father was as large as that of living with a single mother.

Table 4

Estimated effects of family structure on the school attendance of children ages 10–16

	1900: Mos. of schooling		1910: Prob. of school attendance	
	Base	Addl. resource controls	Base	Addl. resource controls
<i>Black boys</i>				
Predicted att.: Two parents	1.52 (0.11)	1.54 (0.11)	64.5% (2.0)	64.0% (2.0)
Estimated effect of living with				
Single mother	−0.60 (0.19)	−0.67 (0.21)	−20.1 (4.7)	−16.0 (5.5)
Single father	−0.25 (0.38)	−0.17 (0.39)	−17.4 (9.8)	−17.9 (9.8)
No parents	−0.64 (0.22)	−0.90 (0.21)	−9.1 (5.1)	−9.3 (5.3)
<i>Black girls</i>				
Predicted att.: Two parents	1.76 (0.11)	1.88 (0.12)	71.9 (1.9)	71.8 (1.9)
Estimated effect of living with				
Single mother	−0.61 (0.22)	−0.90 (0.23)	−12.2 (4.3)	−10.1 (4.8)
Single father	−0.23 (0.51)	−0.36 (0.51)	−5.1 (6.9)	−5.3 (7.0)
No parents	−0.77 (0.25)	−1.26 (0.23)	−7.6 (4.9)	−7.1 (5.0)
<i>White boys</i>				
Predicted att.: Two parents	2.57 (0.11)	2.40 (0.11)	81.9 (1.5)	82.1 (1.6)
Estimated effect of living with				
Single mother	−0.68 (0.28)	−0.28 (0.36)	−9.3 (5.5)	−3.4 (5.5)
Single father	−0.85 (0.38)	−0.54 (0.38)	−8.6 (8.4)	−8.9 (8.7)
No parents	−0.72 (0.38)	−0.33 (0.48)	−18.1 (7.7)	−13.6 (8.4)
<i>White girls</i>				
Predicted att.: Two parents	3.29 (0.12)	3.12 (0.13)	83.9 (1.5)	84.1 (1.6)
Estimated effect of living with				
Single mother	−0.66 (0.38)	−0.02 (0.46)	−6.2 (5.2)	−1.0 (5.4)
Single father	−1.08 (0.48)	−0.97 (0.46)	−16.0 (7.3)	−14.9 (7.3)
No parents	−0.75 (0.48)	+0.58 (0.88)	−5.2 (6.8)	+2.4 (5.5)

Note. Numbers in parentheses are standard errors.

The base model does not include controls for home ownership and the family head's age, occupation, and unemployment, so the family structure effects estimated from this model can be interpreted as the direct effects of family structure plus the indirect effects working through these other family characteristics. For whites, adding these other family characteristics to the model causes the estimated negative effect of living in a single-mother family to diminish in size and become statistically insignificant. This suggests that at least for whites, the disadvantage of living with a single mother was due to the more limited resources of those households. What is interesting, though, is that the estimated family structure effects for blacks do not differ between the two models.

Table 4 presents the family structure effects on the predicted school attendance for boys and girls, ages 10 to 16. In both census years, school attendance differed greatly across children in different family types. In 1900, regardless of race or sex, living with a single mother or in foster care reduced school attendance. For blacks, the children in these families spent approximately 40% less time in school than children in

two-parent families. For whites, living with a single mother or in foster care reduced school attendance by over 25% for boys and 20% for girls. The estimated effect of living with a single mother for white girls, however, has a large standard error and is not statistically different from zero. For whites, there were also significant disadvantages of living with a single father. White girls living with single fathers attended school a third less than those living with two parents.

The results for 1910 are less precisely estimated, but some of the same patterns emerge. Black children in single mother families once again had much lower school attendance than their counterparts in two-parent families. The estimated effects of living with a single mother are also negative for white children but not statistically significant. For white boys, school attendance was the lowest for those living in foster care, and for white girls, it was lowest for those in single-father families.

As for young children, adding controls for household resources tends to reduce the effects of family structure for whites but not for blacks. For white boys and girls, adding resource controls wipes out the negative effects of living with single mothers and in foster care. Interestingly though, the negative effects of living with a single father remain for white girls, suggesting that they were due not to financial disadvantages but other factors such as the need for labor within the household. The fact that the estimated effects fall so much even when using such limited controls provides compelling evidence that, at least for whites, family structure affected children's welfare primarily through its effects on family resources.

The fact that adding resource controls has no effect on the estimated family structure effects for blacks is intriguing. This may be just an indication that the data available in the census are just not as useful in capturing the differences in resources across black households as they are for capturing these differences across white households. Alternatively, the direct effects of family structure may have simply have been more important for blacks than for whites.

The evidence in Tables 3 and 4 clearly indicates that living apart from one or both parents had significant effects on the school attendance of children in the South. However, it is also clear that racial differences in family structure can account for only a relatively small fraction of the racial gap in school attendance. The differences in the school attendance for black and white children in two-parent families were only slightly smaller than the racial differences in the overall sample means. Moreover, for children ages 10–16, the school attendance of black children in two-parent families was lower than the school attendance of white children in single-mother families and foster care.

To assess the relative impact of racial differences in family structure on racial differences in school attendance, I use the estimated models to calculate the predicted racial difference in school attendance at the sample means and then examine how this difference changes as the values of different subsets of variables are equalized across racial groups. I perform this exercise in both directions: I consider the effects of giving black children the means of the white children sample and giving white children the means of the black children sample. This technique is similar to that used by Margo (1987, 1990) to assess the role of racial differences in school quality on racial differences in school attendance in 1900.

I calculate the estimated effects of family structure in three ways. First, I use the estimates from the baseline and then the fully specified model and calculate the effects of only changing the values of the family structure variables. But changes in the distribution of family types within a population will also affect the distributions of other family and household characteristics. For instance, if single mother families are less likely than two-parent families to own their homes, then an increase in the fraction of single mother families in the population will lower home ownership. Therefore, using the results of the fully specified model, I also estimate the effects of family structure taking into account these additional effects.²³ The estimated effects of the other sets of variables are calculated using the coefficients from the fully specified model.

Table 5 reports the results of this exercise for the 1910 models for children 5–9 and the 1900 models for children 10–16. The 1900 models are preferred given the more informative data on school attendance. But as shown in Table 3, family structure had little effect on the school attendance of young children in 1900. Therefore, for this group, we consider the 1910 models to derive an upper bound estimate of the effects of family structure. Racial differences in family structure account for only a small portion of the racial differences in school attendance in the early 20th century. According to the estimates calculated from the baseline models, making the distribution of family types the same for blacks and whites would have reduced the racial gap in school attendance in 1910 for children under age 10 from 15 percentage points to between 12 and 13 percentage points. The gap in months of schooling in 1900 would remain over one month for boys ages 10 to 16 and over one-and-a-half months for girls ages 10–16. As could be anticipated from the data in Tables 3 and 4, adding controls for household resources reduces the explanatory power of family structure using the white models but not the black models. Taking into account the impact of family structure on the distributions of other household characteristics increases the estimated effects from the white models but still leaves most of the racial gap unaccounted for. These estimates indicate that differences in family structure could account for at most 16% of the racial gap in school attendance for children ages 5–9, and at most 10% of the racial gaps in school attendance for boys and girls ages 10–16.

Racial differences in other factors were much more important for explaining the gap in black and white school attendance in this period. For all three groups, the difference in the literacy of black and white family heads alone accounts for a larger fraction of the racial gap in schooling than do differences in black and white family structure. For older children, the differences in adult literacy account for 18% of the schooling differences when using the black models and over 40% of these differences when using the white models. These estimates are consistent with the findings of Margo (1987, 1990) and Fishback and Baskin (1991). Illiteracy in one generation

²³ The aggregate mean of any variable is the weighted sum of the means by family type where the weights represent the family-type population shares. In these calculations, I simply change the weights to those corresponding to the other race and calculate hypothetical aggregate means.

Table 5

Impact of racial differences in independent variables on racial differences in school attendance

	Children, ages 5–9 (probability of attendance 1910)		Boys, ages 10–16 (months of school 1900)		Girls, ages 10–16 (months of school 1900)	
	Black	White	Black	White	Black	White
Difference at sample means	14.7% (2.0)		1.059 (0.118)		1.598 (0.133)	
<i>Set of variables equalized</i>						
Family structure (baseline)	12.0% (2.1)	13.1% (2.2)	1.011 (0.125)	1.005 (0.125)	1.487 (0.140)	1.499 (0.147)
Family structure (full spec.)	12.5 (2.1)	14.3 (2.2)	0.937 (0.123)	1.018 (0.127)	1.408 (0.141)	1.644 (0.157)
Family structure, adjusting other family char.	12.4 (2.1)	13.1 (2.2)	0.954 (0.121)	0.982 (0.122)	1.464 (0.137)	1.532 (0.143)
Literacy of family head	11.8 (2.2)	11.1 (2.5)	0.866 (0.141)	0.619 (0.148)	1.311 (0.156)	0.817 (0.179)
All family char. except family structure	10.2 (2.6)	5.1 (2.7)	0.648 (0.164)	0.046 (0.141)	1.262 (0.177)	0.391 (0.172)
School characteristics	11.7 (5.4)	23.3 (3.7)	0.654 (0.291)	0.925 (0.181)	1.352 (0.270)	0.998 (0.195)
School characteristics except teachers' salaries	11.9 (4.3)	19.9 (3.4)	0.931 (0.193)	0.699 (0.159)	1.466 (0.192)	1.062 (0.191)
Geographic indicators	13.9 (2.0)	14.0 (2.1)	1.076 (0.120)	1.056 (0.123)	1.492 (0.142)	1.572 (0.144)
All variables	5.0 (5.5)	13.7 (4.3)	0.052 (0.335)	−0.063 (0.167)	0.579 (0.316)	−0.060 (0.188)
All variables except teachers' salaries	5.2 (4.4)	10.3 (4.0)	0.390 (0.240)	−0.217 (0.146)	0.721 (0.239)	−0.013 (0.187)

Notes. Racial gap defined as (predicted attendance for whites—predicted attendance for blacks). In the columns labeled “Black,” black children are assigned the means of the white children sample; in columns labeled “White,” white children are assigned the means of the black children sample. Numbers in parentheses are standard errors.

appears to have led to illiteracy in the next. The lower school attendance of black children was also strongly related to the more limited resources of black households. Resource effects were particularly strong in the models estimated for white children. In these models, eliminating the racial differences in home ownership and the occupations, unemployment, and literacy of family heads reduces the predicted racial gap in schooling for young children to only 5 percentage points, reduces the gap for older girls to only 0.4 months, and all but eliminates the gap for older boys. The estimated effects of household characteristics calculated using the black models were smaller but still substantial: differences in household characteristics account for 20% of the gap for older girls and over 30% the gaps for younger children and older boys.

In the 1900 data, racial differences in school characteristics also account for a greater share of the schooling gap than do racial differences in family structure. Eliminating the differences in school characteristics reduces the racial gap for boys by

13% (white model) and 38% (black model) and reduces the racial gap for girls by 38% (white model) and 15% (black model). Margo (1987, 1990) argues that equalizing the salaries of white and black teachers likely overstates the effect of equalizing the quality of white and black schools due to wage discrimination against black teachers. Excluding teacher salaries reduces the explanatory power of school characteristics for girls to only 8% using the black model and 33% using the white model. For boys, the sign of the effect depends on the model used. Using the black model, excluding teacher salaries reduces the explanatory power of school characteristics from 38% to 12%. But average teacher's salary has a negative and statistically significant effect in the estimated model for white boys, so excluding this variable actually increases the explanatory power of school characteristics from 13% to 24%. While this negative effect may seem counterintuitive at first, one interpretation could be that in counties with highly skilled teachers, children had to attend school less time to achieve desired levels of education.

In contrast to the findings for the 1900 data, the four measures of school characteristics explain very little of the variation in reported school attendance in the 1910 data: the coefficient estimates on these variables tend to be small and have large standard errors. This most likely reflects the nature of the 1910 school attendance data. As argued above, the 1910 school attendance measure is best interpreted as whether a child at least *occasionally* attended school. Occasional school attendance may have been very insensitive to school characteristics.²⁴

An important finding of Margo (1987, 1990) was that racial differences in household and school characteristics could explain all of the racial gap in school attendance in the 1900 census data. This was significant in that it implied that the relatively low school attendance of blacks was not due to different "tastes" for schooling among black and white families nor to the lower returns to schooling blacks received in the labor market. I confirm this finding for children under age 10 and boys ages 10–16. For these groups, differences in observable characteristics can account for almost 90% or more of the racial gap in school attendance. For older girls, the explanatory power depends on whether the white or black model is used. Using the white models, racial differences in household, school and county characteristics could explain essentially all of the racial gap in school attendance. But using the black model, these differences can only explain 64% of the gap. This indicates that the determinants of school attendance for older girls did differ between blacks and whites. Even conditioning on observable characteristics, black girls had lower school attendance than white girls.

²⁴ There are however some statistically significant relationships between the school characteristic measures and school attendance in the 1910 data. For older black boys and girls, school attendance was negatively related to the number of teachers per 100 pupils. Orazem (1987) found a negative relationship between attendance and the teacher-to-pupil ratio for white students in Maryland between 1924 and 1938 (p. 719). This negative relationship may reflect the relationship between the dependent variable and the denominator of the teacher-to-pupil ratio rather than between the dependent variable and the number of teachers in a county's school system.

For all groups, the 1910 models leave much of the racial gap unexplained. Most likely, this again reflects the difference in the census questions on school attendance. The problem with the 1910 model lies in the lack of the explanatory power of the school characteristics. The other sets of variables have similar explanatory power in the two census years.

5. The effects of family structure on labor force participation

Table 6 presents the estimated effects of family structure on the predicted probability of labor market participation for boys and girls ages 10–16. Once again we find that family structure had significant and substantial effects on children's experiences in the early 20th century. Here, though, adding controls for home ownership, and head's occupation and unemployment amplifies the effect of family structure for all groups except white girls. This happens because one of the strongest determinants

Table 6
Estimated effects of family structure on the labor market participation of children ages 10–16

	1900		1910	
	Base	Addl. resource controls	Base	Addl. resource controls
<i>Black boys</i>				
Predicted att.: Two parents	62.5% (2.4)	57.6% (2.6)	69.0% (2.0)	68.1% (2.2)
Estimated effect of living with				
Single mother	+7.9 (4.7)	+18.1 (5.0)	+5.1 (4.2)	+10.7 (4.6)
Single father	−13.0 (10.4)	−15.5 (10.3)	+15.8 (6.2)	+17.1 (6.2)
No parents	−1.7 (6.1)	+23.5 (5.3)	+4.3 (4.9)	+8.0 (4.9)
<i>Black girls</i>				
Predicted att.: Two parents	39.2 (2.4)	28.2 (2.9)	50.4 (2.2)	49.6 (2.3)
Estimated effect of living with				
Single mother	+9.1 (5.4)	+23.5 (6.6)	+10.5 (5.0)	+13.9 (5.5)
Single father	+4.6 (10.5)	+5.4 (10.1)	+9.6 (8.5)	+6.1 (8.3)
No parents	+10.0 (6.6)	+56.0 (7.9)	+13.1 (5.2)	+13.6 (5.5)
<i>White boys</i>				
Predicted att.: Two parents	54.7 (2.1)	53.0 (2.3)	55.8 (2.1)	55.2 (2.1)
Estimated effect of living with				
Single mother	+2.2 (6.0)	+12.2 (8.0)	+8.7 (6.8)	+9.2 (8.1)
Single father	−3.1 (9.4)	−8.4 (9.6)	+16.2 (8.0)	+14.4 (7.9)
No parents	−1.9 (7.9)	+8.8 (8.9)	+11.7 (8.7)	+15.1 (8.8)
<i>White girls</i>				
Predicted att.: Two parents	15.0 (1.6)	13.5 (1.6)	26.3 (1.8)	23.7 (1.9)
Estimated effect of living with				
Single mother	+8.7 (5.7)	−0.3 (5.7)	+15.7 (6.4)	+12.0 (6.7)
Single father	−2.3 (7.2)	−3.1 (6.8)	+2.5 (8.4)	+0.2 (8.2)
No parents	+4.7 (6.6)	−2.6 (6.5)	−1.5 (7.6)	−0.1 (8.0)

Note. Numbers in parentheses are standard errors.

that a child was working was having a family head working in agriculture, and children in two-parent families were more likely than children in other family types to have family heads working in agriculture.

The effects of family structure were much more pronounced for blacks than for whites. For blacks, children living with single mothers or in foster care were much more likely to be working than children living in two-parent families. For black boys in 1910, living with a single father also increased labor force participation. For whites, living with a single mother increased the likelihood of market work for girls in both years and boys in 1910. For white girls, this effect shows up in the base model, however, but not the fully specified model, indicating that this is primarily a resource constraint effect.

While the estimated effects of family structure are fairly large, it is again clear that racial differences in family structure can account only partly for the racial gap in children's activities. Table 7 reports the results of the decompositions of the racial gap in 1910 using the estimated models and the sample characteristics. Regardless of the model or method used, eliminating racial differences in family structure reduces the racial gap in market work by no more than a few percentage points and leaves

Table 7

Impact of racial differences in independent variables on racial differences in labor market participation in 1910

	Boys, ages 10–16		Girls, ages 10–16	
	Black	White	Black	White
Difference at sample means	-14.3% (2.6)		-29.1% (2.5)	
<i>Set of variables equalized:</i>				
Family structure (baseline)	-12.6% (2.6)	-11.8% (2.7)	-24.7% (2.6)	-25.6% (2.6)
Family structure (full spec.)	-13.0 (2.6)	-12.6 (2.8)	-27.1 (2.6)	-28.3 (2.7)
Family structure, adjusting other family char.	-14.2 (2.6)	-13.6 (2.7)	-28.3 (2.6)	-28.6 (2.6)
Literacy of family head	-15.7 (2.8)	-10.4 (3.4)	-28.1 (2.8)	-25.4 (3.2)
All family char. except family structure	-10.4 (3.4)	-1.3 (3.2)	-15.9 (4.0)	-12.0 (3.5)
School characteristics	-6.7 (6.1)	-3.6 (5.1)	-4.9 (6.1)	-10.1 (6.0)
School characteristics except teachers' salaries	-9.8 (4.8)	-1.4 (4.0)	-12.6 (5.3)	-16.8 (4.7)
Geographic indicators	-12.9 (2.6)	-13.1 (2.6)	-26.1 (2.6)	-28.0 (2.6)
All variables	-0.2 (6.3)	9.3 (4.5)	8.6 (4.7)	10.9 (6.3)
All variables except teachers' salaries	-3.5 (5.2)	11.1 (3.7)	2.8 (4.7)	4.3 (5.5)

Notes. Racial gap defined as (predicted probability for whites–predicted probability for blacks). In the columns labeled “Black,” black children are assigned the means of the white children sample; in columns labeled “White,” white children are assigned the means of the black children sample. Numbers in parentheses are standard errors.

most of the gap unexplained. The predicted racial differences remain 12 percentage points or higher for boys and 25 percentage points or higher for girls.

Interestingly, the variables with the biggest impact on the racial gap in labor market participation are the county-level school characteristics. Racial differences in school characteristics account for two-thirds to four-fifths of the racial gap in labor market participation for girls and for one-half to three-quarters of the gap for boys. These estimates clearly overstate the direct effects of school characteristics. The availability of schools, the length of the school term, and teacher salaries were undoubtedly related to characteristics of the local labor market that are not adequately controlled for in the estimated models. For instance, in areas where children's labor was more important in agriculture, the length of the school term was likely shorter. The estimated school characteristic effects in Table 7, therefore, capture more than just the direct relationship between school quality and child labor. They do attest, however, to the strong link between the two in the South during this period and provide further evidence that segregated and unequal schools contributed to the racial differences in childhood experiences.

Regardless of whether one uses the white or the black models, the racial gaps in child labor can be explained by the racial gaps in household and school characteristics. But again there is evidence that the determinants of children's activities differed between blacks and whites. Both models for girls and the white model for boys "over-explain" racial differences in labor market participation. That is, they predict that had there been no racial differences in household and school characteristics, white children would have had higher rates of market participation than black children.

6. Additional effects of family structure on children's school attendance and market work

The examination of the effects of family structure presented above allowed children's experiences to vary only by whether they lived with two parents, a single mother, a single father, or no parents. This classification scheme may be too simple. Research on the effects of living arrangements in the current period finds the effects of living with a single parent varies by the parent's marital status. This research also finds that children living in step-families face disadvantages similar to those of children in single-parent homes (Kiernan, 1992; McLanahan, 1985; McLanahan and Bumpass, 1988; McLanahan and Sandefur, 1994). Another potential problem with the simple classification scheme used above is that it does not allow the experiences of children living in the care of relatives to differ from the experiences of children in non-kin foster care. As noted above, critics of non-kin foster care in this period feared that many families took in foster children only to use them as servants or laborers.

To examine these issues, I re-estimate the empirical models of school attendance and labor force participation allowing for the effects of living with a single parent to vary by parent's marital status and allowing the effects of living with no parents to

vary across children living with relatives and children living in non-kin foster care. I also include an indicator variable for whether a child was identified as probably living with a stepparent in the IPUMS data.²⁵

In general, disaggregating children's living arrangements contributes little to the explanatory power of the models. In almost all of the models, the null hypothesis that the additional family structure variables had no effect cannot be rejected at standard significance levels. This is perhaps not surprising given the problems of misreporting in the census as well as the small numbers of children in some of the family types. The disaggregation also increases only slightly the degree to which racial differences in family structure could explain the racial gaps in children's activities. However, some interesting results emerge in the models for older children.

Table 8 presents the family structure effects on school attendance and labor market participation of children ages 10–16 in 1910. In general, the standard errors on the estimates are quite large, reflecting the small numbers of children in some of the family types. Nonetheless, some of the differences across family types are statistically significant. First, there is some evidence that family structure effects varied by parents' marital status. For both races, boys living in stepfamilies were less likely to attend school than boys living with both their parents. Also, for blacks, the effects of living with a single mother seem to have varied with her marital status. The sons of widows were less likely to be in school than the sons of divorced or separated women, and the daughters of widows were more likely to be working than the daughters of divorced or separated women. Studies of the effects of family structure in the current period generally find the opposite pattern: the disadvantages of living with a widowed mother tend to be less severe than those of living with a divorced or unwed mother. The contrast here may be due to the misreports of marital status in the census. According to Preston et al. (1992), some of the black women reported as "widows" likely were never-married or deserted. Women reported as divorced or separated in the census may have had more contact and hence, more support, from the fathers of their children. For white girls, the marital status of single fathers was significant. The daughters of divorced or separated men were much more likely to participate in market work than the daughters of widowers.

The second set of interesting results is the differential effect of relative- and non-kin-foster care on boys of both races. Here, the fears of the contemporary critics of foster care seem to be borne out. Black boys in non-kin foster care had much lower school attendance than those living with relatives, and white boys in non-kin foster care were much more likely to work in the market than those living with relatives.

²⁵ The family inter-relationship variables in the IPUMS data include variables indicating whether the individuals identified as a child's parents by the linking variables were likely step-parents. This determination was based on such information as the difference in the ages of the child and the parent, the difference in the parents' years of marriage and the age of the child, and a comparison of the number of own children a woman reported as surviving and the number of children in the household.

Table 8

Additional effects of family structure on school attendance and labor force participation, boys and girls 10–16, 1910

	School attendance		Labor force participation	
	Base	Addl. resource controls	Base	Addl. resource controls
<i>Black boys</i>				
Predicted prob.: two parents	66.0 (2.1)	65.6 (2.2)	68.1 (2.2)	67.2 (2.3)
Estimated effect of living with				
Stepparent	–10.4 (5.6)	–10.0 (5.7)	+6.4 (5.5)	+6.0 (6.0)
Widowed single mother	–26.9 (5.2)	–24.4 (6.0)	+7.2 (4.8)	+13.4 (5.3)
Divorced single mother	–10.7 (8.3)	–7.1 (8.5)	+3.4 (7.0)	+8.4 (6.8)
Widowed single father	–14.6 (10.9)	–14.3 (10.9)	+19.1 (6.6)	+20.8 (6.6)
Divorced single father	–40.8 (8.9)	–41.9 (8.5)	+3.7 (10.4)	+2.7 (10.9)
Kin foster family	–6.0 (5.7)	–6.0 (6.0)	+3.5 (6.1)	+8.4 (6.1)
Non-kin foster family	–23.2 (9.3)	–23.7 (9.4)	+10.0 (7.2)	+10.7 (6.9)
<i>Black girls</i>				
Predicted prob.: two parents	73.0 (2.0)	72.9 (2.1)	49.8 (2.4)	49.1 (2.5)
Estimated effect of living with				
Stepparent	–7.7 (5.3)	–8.0 (5.4)	+3.1 (5.9)	+2.5 (6.0)
Widowed single mother	–11.2 (5.1)	–9.7 (5.6)	+16.2 (5.8)	+20.3 (6.5)
Divorced single mother	–17.3 (6.8)	–14.8 (7.0)	+1.0 (8.2)	+3.7 (7.8)
Widowed single father	–7.8 (8.2)	–8.8 (8.4)	+8.0 (9.5)	+4.9 (9.4)
Divorced single father	–1.3 (7.5)	+0.5 (7.4)	+17.0 (8.8)	+11.9 (9.1)
Kin foster family	–5.9 (5.4)	–5.5 (5.5)	+11.6 (5.8)	+12.4 (6.2)
Non-kin foster family	–19.6 (9.4)	–20.1 (9.6)	+20.9 (9.5)	+20.6 (9.9)
<i>White boys</i>				
Predicted prob.: two parents	83.4 (1.5)	83.4 (1.6)	54.9 (2.1)	54.2 (2.2)
Estimated effect of living with				
Stepparent	–18.8 (7.4)	–15.6 (7.4)	+11.4 (8.4)	+11.8 (9.0)
Widowed single mother	–11.5 (6.1)	–5.9 (6.2)	+8.6 (7.6)	+6.5 (9.2)
Divorced single mother	–7.0 (9.8)	–1.2 (8.7)	+13.3 (13.2)	+21.2 (12.0)
Widowed single father	–8.2 (8.4)	–8.4 (8.8)	+17.3 (8.6)	+15.8 (8.4)
Divorced single father	–29.8 (10.5)	–27.3 (10.9)	+14.4 (9.0)	+10.3 (8.9)
Kin foster family	–21.3 (8.6)	–15.5 (9.3)	+5.6 (10.0)	+6.8 (10.1)
Non-kin foster family	–13.1 (16.7)	–16.0 (18.0)	+34.3 (8.0)	+39.0 (6.1)
<i>White girls</i>				
Predicted prob.: two parents	84.2 (1.5)	84.3 (1.6)	27.0 (1.9)	24.5 (2.0)
Estimated effect of living with				
Stepparent	–3.9 (5.7)	–3.2 (5.6)	–10.1 (5.4)	–9.9 (5.2)
Widowed single mother	–4.6 (5.1)	+0.4 (5.0)	+19.1 (7.6)	+13.4 (7.9)
Divorced single mother	–12.4 (12.6)	–6.8 (12.0)	+2.3 (9.8)	+3.5 (9.2)
Widowed single father	–16.2 (7.9)	–14.8 (7.7)	–2.5 (8.8)	–4.5 (8.3)
Divorced single father	–15.3 (7.8)	–15.1 (7.7)	+35.0 (10.6)	+30.8 (11.6)
Kin foster family	–6.1 (8.4)	+1.6 (6.8)	–5.0 (8.7)	–3.1 (9.3)
Non-kin foster family	–3.0 (10.6)	+4.0 (7.3)	+7.0 (13.5)	+6.0 (12.2)

Note. Numbers in parentheses are standard errors.

7. Conclusions

Family structure was an important determinant of children's school attendance and labor force participation in the South. In general, living apart from one or both parents lowered the school attendance and increased the labor market participation of boys and girls of both races. The patterns and relative magnitudes of these effects did vary by race, gender, and age, but within all of the groups examined, the effects of family structure contributed greatly to the inequality in childhood experiences.

The differences in black and white family structure in the early 20th century, therefore, did contribute to the persistence of racial inequality. However, much more important for explaining the racial gaps in children's experiences were racial differences in adult literacy and other measures of household resources. Poverty and illiteracy in one generation bred poverty and illiteracy in the next. The state's role in the perpetuation of racial inequality was also larger than that of racial differences in family structure. The lack of enforcement of the "equal" clause in the "separate-but-equal" doctrine widened the gap between black and white school attendance and child labor more than did the prevalence of single parenthood and foster care in the black population.

References

- Ainsworth, M., 1996. Economic aspects of child fostering in Côte d'Ivoire. *Research in Population Economics* 8, 25–62.
- Alabama Department of Education, 1910. Annual report. The Brown Printing Co., State Printers and Binders, Montgomery.
- Behrman, J.R., Foster, A.D., Rosenzweig, M.R., Vashishtha, P., 1999. Women's schooling, home teaching, and economic growth. *Journal of Political Economy* 107, 682–714.
- Blau, F.D., 1998. Trends in the well-being of American women, 1970–1995. *Journal of Economic Literature* 36, 112–165.
- Collins, W.J., Margo, R.A., 2002. Race, home ownership, and family structure in twentieth century America. Working paper, Vanderbilt University.
- DeGraff, D.S., Bilsborrow, R.E., 1993. Female-headed households and family welfare in rural Ecuador. *Journal of Population Economics* 6, 317–336.
- Fishback, P.V., Baskin, J.H., 1991. Narrowing the black-white gap in child literacy in 1910: the roles of school inputs and family inputs. *Review of Economics and Statistics* 73, 725–728.
- Florida Superintendent of Public Instruction, 1910. Biennial report. T.J. Appleyard, State Printer, Tallahassee.
- Goldin, C., 1990. *Understanding the gender gap: An Economic History of American Women*. Oxford University Press, New York.
- Gordon, L., McLanahan, S., 1991. Single parenthood in 1900. *Journal of Family History* 16 (Spring), 97–116.
- Haurin, R.J., 1992. Patterns of Childhood Residence and the Relationship to Young Adult Outcomes. *Journal of Marriage and the Family* 54, 846–860.
- Haveman, R., Wolfe, B., 1995. The determinants of children's attainments: a review of methods and findings. *Journal of Economic Literature* 33, 1829–1878.
- Isiugo-Abanihe, U.C., 1985. Child fosterage in West Africa. *Population and Development Review* 11, 53–73.
- Kiernan, K.E., 1992. The impact of family disruption in childhood on transitions made in young adult life. *Population Studies* 46, 213–234.

- Lang, K., Zagorsky, J.L., 2001. Does growing with a parent absent really hurt? *Journal of Human Resources* 36, 253–273.
- Maddala, G.S., 1983. *Limited-dependent and qualitative variables in econometrics*. Cambridge University Press, Cambridge.
- Manski, C.F., Sandefur, G.D., McLanahan, S., Powers, D., 1992. Alternative estimates of the effect of family structure during adolescence on high school graduation. *Journal of the American Statistical Association* 87, 25–37.
- Margo, R.A., 1987. Accounting for racial differences in school attendance in the American South, 1900: the role of separate-but equal. *Review of Economics and Statistics* 69, 661–666.
- Margo, R.A., 1990. *Race and Schooling in the South, 1880-1950*. The University of Chicago Press, Chicago.
- Margo, R.A., Finegan, T.A., 1996. Compulsory schooling legislation and school attendance in turn-of-the century America: A 'natural experiment' approach. *Economics Letters* 53, 103–110.
- McLanahan, S., 1985. Family structure and the reproduction of poverty. *American Journal of Sociology* 90, 873–901.
- McLanahan, S., Bumpass, L., 1988. Intergenerational consequences of family disruption. *American Journal of Sociology* 94, 130–152.
- McLanahan, S., Sandefur, G., 1994. *Growing up with a single parent: what hurts and what helps*. Harvard University Press, Cambridge.
- McDaniel, A., 1994. Historical racial differences in living arrangements of children. *Journal of Family History* 19, 57–77.
- Moehling, C.M., 1999. State child labor laws and the decline of child labor. *Explorations in Economic History* 36, 72–106.
- Moehling, C.M., 2002. Broken homes: the "missing" children of single mothers in the 1910 census. *Journal of Interdisciplinary History* 33, 205–233.
- Morgan, S.P., McDaniel, A., Miller, A.T., Preston, S.H., 1993. Racial differences in household and family structure at the turn of the century. *American Journal of Sociology* 98, 798–828.
- North Carolina Superintendent of Public Instruction, 1910. *Biennial report*. E.M. Uzzell & Co., State Printers and Binders, Raleigh.
- Orazem, P.F., 1987. Black-white differences in schooling investment and human capital production in segregated schools. *American Economic Review* 77, 714–723.
- Preston, S.H., Lim, S., Morgan, S.P., 1992. African-American marriage in 1910: beneath the surface of census data. *Demography* 29, 1–15.
- Proctor, B.D., Dalaker, J., 2002. U.S. Census Bureau, Current Population Reports P60-219. *Poverty in the United States: 2001*. Government Printing Office, Washington, DC.
- Ruggles, S., 1994. The origins of African-American family structure. *American Sociological Review* 59, 136–151.
- Ruggles, S., Sobek, M., 1995. Family interrelationships. *Historical Methods* 28, 52–58.
- South Carolina State Superintendent of Education, 1911. *Annual report*. Gonzales and Bryant, State Printers, Columbia.
- Tiffin, S., 1982. *In whose best interest. Child welfare reform in the Progressive era*. Greenwood Press, Westport, Connecticut.
- Vanek, J., 1974. Time spent in housework. *Scientific American* 231, 116–120.
- US Bureau of the Census, 1916. *Plantation farming in the United States*. Government Printing Office, Washington, DC.