Slavery and Subsequent Intergenerational Mobility in the United States
Preliminary: Do not cite[*]

John T. Dalton[†]
Wake Forest University

Tin Cheuk Leung[‡]
Wake Forest University

December 2016

Abstract

Research has shown that historical levels of slavery have an adverse impact on contemporary economic development in the U.S., including income inequality and education. This paper assesses the relationship between slavery and intergenerational mobility, both in the past and at present. We first use the IPUMS Linked Representative Samples between 1860-1910 to show two things: 1) intergenerational mobility is lower in slave states versus free states and 2) the black-white difference in mobility is higher in slave states versus free states. We then merge historical data on slave density (slaves/population) with the contemporary intergenerational mobility data from Chetty, Hendren, Kline, and Saez (2014) to show that the two results still hold, even after controlling for income inequality, education, and a battery of other controls. Our results suggest the legacy of slavery continues to be felt in the U.S. today.

JEL Classification:
Keywords: slavery, intergenerational mobility

[*]We thank seminar participants at Lehigh University and the 2016 Southern Economic Association Conference for their many helpful suggestions and comments. The usual disclaimer applies.

[†]Contact: Department of Economics, Kirby Hall, Wake Forest University, Box 7505, Winston-Salem, NC 27109. Email: daltonjt@wfu.edu

[‡]Contact: Department of Economics, Kirby Hall, Wake Forest University, Box 7505, Winston-Salem, NC 27109. Email: leungtc@wfu.edu

1 Introduction

The legacy of slavery continues to affect the lives of people today, both in Africa and the Americas. In the U.S., for example, inequality persists between blacks and whites, in terms of income, job opportunities, incarceration rates, etc. Why are the effects of slavery still felt after so many years? This paper explores a possible answer by considering the relationship between slavery and intergenerational mobility. In particular, other things equal, such as their father's occupation and income ranking, do black children living in areas with higher slave intensity in the past have lower chances of moving up the social ladder than their white counterparts? Our results suggest yes.

To answer this question, we consider both historical and contemporary quantitative evidence on U.S. intergenerational mobility. We then link the variation in our measurement of intergenerational mobility, both historical and contemporary, with the variation in the historical level of slavery at the relevant unit of analysis. We find intergenerational mobility is negatively associated with slavery in both cases.

For the historical evidence, we construct our measure of intergenerational mobility by using IPUMS Linked Representative Samples between 1860-1910. Following Long and Ferrie (2013), we are able to construct a measure of occupational mobility between fathers and sons and use Altham statistics to rigorously analyze the transition matrices we consider. We find intergenerational mobility is lower in slave states versus free states, as defined by their status on the eve of the American Civil War. The black-white difference in mobility is also higher in slave states than in free states.

We confirm these results continue to hold in the present-day. Our data on contemporary intergenerational mobility come from Chetty, Hendren, Kline, and Saez (2014). We merge this mobility data with data on slave density (slaves/population) in 1860, which we take from Nunn (2008b). Our two main results, that both intergenerational mobility is lower and the black-white difference is higher in areas with higher historical slave density, hold even after including state fixed effects and a battery of other controls. We also exploit the only ban on slavery imposed by the Board of Trustees of the Province of Georgia, which applied to only 88 counties of Georgia, to analyze the effect of slavery on contemporary intergenerational mobility. Our results show that the 88 counties in which the ban was imposed have both higher intergenerational mobility and smaller black-white difference. Our results suggest the legacy of slavery continues to be felt through its impact on intergenerational mobility, which is consistent with the findings in the literature on the persistence of historical shocks, as reviewed by Nunn (2012).

Our paper contributes to the growing literature on the long term impact of slavery, both in Africa and the Americas. As for Africa, there are papers studying the impact of the slave trade on current development outcomes. Nunn (2008a) shows that countries with fewer slave exports in the past have a higher GDP per capita today in Africa. Nunn and Wantchekon (2011) argues that one of the possible channels explaining this result might be the lack of trust in countries/ethnic groups with higher slave exports. Dalton and Leung (2014) shows the slave trade helps explain the prevalence of polygyny in Western Africa.

Our paper is more closely related to studies on the impact of slavery on current development in the Americas. Nunn (2008b) shows that the use of slave labor is negatively correlated with subsequent economic development, including inequality, but finds no evidence this result is driven by large scale planation slavery. Bruhn and Gallego (2012) presents evidence that "bad" colonial activities (those that depended heavily on labor exploitation) led to lower economic development (e.g. GDP per capita) today than "good" colonial activities (those that did not rely on labor exploitation). Bertocchi and Dimico (2014) finds that counties with higher slave density in 1860 have higher levels of inequality and that the gap between races is also larger. Our paper contributes directly to this literature by showing slavery negatively impacts another economic indicator, namely intergenerational mobility.

Our paper also contributes to the literature on intergenerational mobility. Chetty, Hendren, Kline, and Saez (2014) uses comprehensive administrative records on incomes to describe several features of U.S. intergenerational mobility. Long and Ferrie (2013) uses 10,000 nationally-representative British and U.S. fathers and sons and finds that the U.S. was more mobile than Britain between 1850 and 1930. Our own data analysis of U.S. intergenerational mobility relies heavily on the methods introduced by these prior studies, but our emphasis is to focus on the differences arising from the legacy of slavery. To this end, we move beyond measurement, which, nevertheless, still occupies most of our time in this paper, towards a better understanding of what might be driving the results we observe.

Lastly, our paper contributes to the literature on the racial differences in achievements and racial discriminations. Roland G. Fryer, Pager, and Spenkuch (2013) estimates that differential treatment accounts for at least one third of the black-white wage gap. While there is a huge literature on documenting the inferior IQ scores and academic achievement of blacks compared to whites.[1] Fryer and Levitt (2013) finds that the mental function differences between black and white children aged eight to twelve months are minor. And, black children lose ground by the age of two. Pager, Western, and Bonikowski (2009) conducts a field experiment and finds that black applicants were half as likely as equally qualified whites to receive a job offer.

2 Data

We collect our data from various sources.

For the historical intergenerational mobility, we obtain the data from IPUMS Linked Representative Samples, 1850-1930. The database links records from the 1880 complete-count database to 1% samples of the 1850 to 1930 U.S. censuses. To make sure we measure the fathers' and sons' income measures at their career peaks, we only use the 1860-1880, 1870-1880, 1880-1900, and 1880-1910 samples among all the linked samples. We then keep only the father-son pair if 1) the son appears in both censuses and 2) the father appears in the earlier census. We keep observations of only blacks and whites because of the small number of observations of other races. We limit the sample to sons aged 0 to 19 in the early sample. After the data selection process, we have 1,691 black father-son pairs and 32,728 white father-son pairs. Because pre-1940 censuses did not collect information on income, we use the *occscore* variable from IPUMS, which is based on occupation-specific earnings in 1950 (both men and women), as our measure of income.

For the contemporary intergenerational mobility, we obtain the data from Chetty, Hendren, Kline, and Saez (2014).[2] They collect income information of sons who were born between 1980 and 1982 for whom they were able to identify parents with strictly positive income between 1996 and 2000. We use their commuting zones (CZ) level absolute upward mobility,[3] which is

[1] See Shuey (1958), Jensen (1973, 1998), Scott and Sinclair (1997), and Rushton and Jensen (2005).

[2] The data is publicly available here: `http://equality-of-opportunity.org/`.

[3] Commuting zones are goegraphical aggregations of counties that are similar to metro areas.

the average rank of children with parents at the 25th percentile in the national distribution. To compare black and white mobility, we also use the corresponding absolute upward mobility constructed by including only ZIP codes with at least 80% of non-hispanic whites. We also obtain several CZ-level controls, such as segregation (which includes Racial Segregation Theil Index, Income Segregation Theil Index, segregation of poverty, segregation of affluence, and share with commute time less than 15 minutes), taxation (which includes local tax rate, local government expenditures per capita, state EITC exposure, and state income tax progressivity), education (which includes school expenditure per K-12 student, teacher-student ratio in K-12 education, test score percentile, high school dropout rate, number of colleges per capita, mean college tuition, and college graduation rate), and labor market controls (which includes labor force participation rate, fraction working in manufacturing growth in Chinese imports 1990-2000, and teenage labor force participation rate).

We obtain our slavery intensity and other historical data from various sources. The first is from Nunn (2008b), which has county-level data on the total number of slaves, ratio of slaves to total population, and land gini in 1860. The second is from Bruhn and Gallego (2012), which has a state-level dummy for good and bad colonial activities. The third is from Acharya, Blackwell, and Sen (2016), which has historical controls for county-level characteristics in 1860: the log of total population, the proportion of small farms (<50 acres), the log of total farm value per improved acre of farmland, the proportion of free blacks, indicators for railway access and access to steamboat-navigable rivers or canals, the log of acreage, the ruggedness of terrain, latitude, longitude, and latitude and longitude squared.[4]

3 Preliminary Results

3.1 Historical Intergenerational Mobility

We follow Long and Ferrie (2013) by grouping occupations into four categories (white collar, farmer, skilled and semiskilled, and unskilled).[5] We then use the four categories to construct the

[4]The data from Acharya, Blackwell, and Sen (2016) are freely available at *The Journal of Politics Dataverse*: `https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/CAEEG7`.

[5]Specifically, we use the codes for the variable *occ1950* in the IPUMS data: white collar (0-99, 200-299, 300-499), farmer (100-150), skilled and semiskilled (500-699), and unskilled (700-980). As Long and Ferrie (2013)

transition matrix from father to son occupations for both whites (**W**) and blacks (**B**) reported in Table 1. The rows in Table 1 represent the occupations of the fathers for both whites and blacks, whereas the columns show the occupations of the sons. Each entry represents the number of sons in an occupation conditional on the occupations of the fathers. Corresponding percentages are reported in parentheses.

The patterns in Table 1 provide evidence on the striking difference in historical integenerational mobility between whites and blacks. For example, 61% of the sons of white collar fathers also worked in white collar occupations for whites. For blacks, however, only 21% of the sons of white collar fathers remained in white collar occupations. 36% of the sons of unskilled white fathers remained unskilled compared to 67% for blacks. Blacks also experience much stronger downward mobility compared to whites, as the percentage of sons of white collar, farmer, and skilled and semiskilled fathers in unskilled occupations is significantly higher than whites, 53% versus 18% on average across the three categories of fathers.

Table 2 reports summary measures of mobility for whites (**W**) and blacks (**B**). M measures the percentage of sons with occupations appearing off the main diagonal, i.e. in occupations different from their father's occupation, which is a simple measure of total mobility. The results show total mobility was higher for whites than blacks, 53% versus 48%.

The remaining three columns in Table 2 report Altham statistics for **W** and **B**. We only briefly describe the idea of Altham statistics here and refer the reader to the detailed discussion in Long and Ferrie (2013). $d(\mathbf{W},\mathbf{B})$ measures how much the row-column association in **W** differs from that in **B**, which is interpreted as a measure of distance between the two transition matrices. The likelihood ratio χ^2 statistic G^2 can then be used to test whether the row-column associations in **W** and **B** are different. As column 4 reports, the row-column associations do in fact differ between **W** and **B**, which is to say that historical occupational mobility differs between whites and blacks in a statistically significant way. However, $d(\mathbf{W},\mathbf{B})$ does not tell us which matrix exhibits higher mobility. To answer this question, we measure the distance between the row-column associations in **W** and **B** with the row-column association in a matrix with independent rows and columns, i.e. we calculate $d(\mathbf{W},\mathbf{J})$ and $d(\mathbf{B},\mathbf{J})$, which measure the

note, white collar includes workers in professional, managerial, clerical, and sales positions; farmer includes farm owners and managers; skilled and semiskilled includes craftsmen and operatives; and unskilled includes service workers and laborers. Farm laborers are included in unskilled.

distances between $\mathbf{W}$ and $\mathbf{B}$ and a matrix $\mathbf{J}$, in which all elements are ones. In terms of intergenerational occupational mobility, $\mathbf{J}$ is a matrix where a father's occupation provides no information about a son's occupation. The closer $\mathbf{W}$ and $\mathbf{B}$ are to $\mathbf{J}$, the higher the mobility. Comparing the magnitudes of $d(\mathbf{W},\mathbf{J})$ and $d(\mathbf{B},\mathbf{J})$ shows which matrix has higher mobility. The results in columns 3 and 4 in Table 2 show whites experienced higher mobility than blacks, i.e. $d(\mathbf{B},\mathbf{J}) > d(\mathbf{W},\mathbf{J})$.

In order to test the effects of slavery on historical intergenerational mobility, we construct the transition matrices for whites and blacks in both slave states ($\mathbf{W^S}$ and $\mathbf{B^S}$) and free states ($\mathbf{W^F}$ and $\mathbf{B^F}$). The slave states include those in which slavery was legal on the eve of the American Civil War: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas, and Virginia. Comparing the transition matrices in table 3 shows a number of patterns suggesting differences in historical intergenerational mobility in slave states versus free states. For example, sons of white collar fathers were more likely to remain in white collar occupations in free states, both for whites and blacks. However, the difference between whites in slave states and free states, 60% versus 62%, was much smaller than the difference between blacks in slave states and free states, 11% versus 38%, when looking at sons of white collar fathers remaining in white collar occupations. On the other hand, the percentage of sons of unskilled fathers who remained unskilled was slightly higher for whites in slave states versus free states, 38% versus 36%, but lower for blacks in slave states versus free states, 65% versus 73%.

For both races in both the free states and slave states, an underlying association between fathers' and sons' occupations apart from that induced by the occupational distribution was present. That is, we cannot reject the null hypothesis that their association between rows and columns was the same as would be observed under independence (columns 2 and 3 in Table 4). The intergenerational mobility of whites was higher than that of blacks, as $d(\mathbf{B},\mathbf{J}) > d(\mathbf{W},\mathbf{J})$ in both free and slave states. We can reject the null hypothesis that the associations of black and white intergenerational mobility are identical in the slave states, while we cannot reject at any conventional significance level the null hypothesis in the free state (column 4 in Table 4)

In the first sub-table of Table 4, we identify the location of the father-son pair using the location of the father. However, there is concern that the sons might have moved to a different state than that of the father. If a son migrated in the hope of moving up the social ladder, it might bias our results. Table 5 shows sons migrated to a different state than that of their fathers in approximately 21% of the sample (21% for whites and 15% for blacks), and sons migrated from slave states to free states in approximately 3% of the sample (3% for whites and 6% for blacks). We re-do the analysis by 1) using the son's location to identify the location of the father-son pair and 2) using those samples in which fathers and sons were in the same state. As shown in sub-tables 2 and 3 of Table 4, the results are very similar.

In addition to measuring intergenerational mobility throught the changes in occupations, we also make use of a proxy of income in the census to measure the upward mobility. In our samples, respondents did not report their actual income. Instead, IPUMS develop the Occupational Score Index (*occscore*) as a measure of occupational reward that is available across decennial census datasets from 1850 to 2000. The occupational score is the median income (in hundreds of 1950 dollars) of the respondent's occupation.[6]

We follow Chetty, Hendren, Kline, and Saez (2014), Dahl and DeLeire (2008), and Mazumder (2011) to use a rank-based approach to measure the intergenerational mobility: the movement of sons up or down the percentiles of the national income distribution (of similarly aged men) relative to the position their fathers held in the distribution (of all fathers) two to three decades earlier. Let R_{ic} denote the national income (occupational score) rank (among children in his cohort) of child i growing up in county c. Let P_{ic} denote his father's rank in the income (occupational score) distribution of the father's cohort. We can then estimate the slope and intercept of the rank-rank relationship by estimating this equation:

$$R_{ic} = \alpha + \beta P_{ic} + \epsilon_{ic} \quad (1)$$

We follow the literature to define absolute mobility at percentile p as the expected rank of a

[6]The index is based on 1950 occupational classifications. As a first step in constructing the index, occupation codes for each decennial census dataset were recategorized into the 1950 classification structure. This yielded one, common occupational classification across all decennial censuses. The IPUMS staff then quantified this common occupational structure using median total income for each occupation as reported in a 1956 Special Report published by the Census Bureau. The values for OCCSCORE are presented in hundreds of 1950 dollars.

child with parents who have a national income rank of p:

$$\bar{r}_p = \alpha + \beta p \tag{2}$$

Because the rank-rank relationship is linear, the average absolute mobility for children from families with below-median parent income in the national distribution is the same as the average rank of children with parents at the 25th percentile in the national distribution:

$$\begin{aligned} E[R_{ic}|P_{ic} < 50] &= \bar{r}_{25} \\ &= \alpha + 25\beta \end{aligned}$$

We estimate equation (1) separately for white and black father-son pairs. The average rank of children with white parents at the 25th percentile in the national distribution is 38.18, while the corresponding number for black children is 31.87. Table 6 reports the same absolute upward mobility estimates in different regions. As Table 6 shows, not only is the overall mobility in slave states lower than that in free states, the differential mobility between blacks and whites is also larger in slave states compared to that in free states. We observe the same pattern when we divide states based on 1) whether there were bad colonial activities present or 2) whether there were any colonial activities present at all.

3.2 Contemporary Intergenerational Mobility

To understand the relationship between historical slavery and long term intergenerational mobility at the county level, we estimate the following regression:

$$Y_c = \alpha + \beta S_c/L_c + X_c\delta + \epsilon_c, \tag{3}$$

where Y_c is the outcome variable of interest; S_c/L_c is the slave density at the county level in 1860; and X_c is a vector of county-level controls, including state fixed effects, historical controls (e.g. land gini in 1860), segregation controls, taxation controls, education controls, and labor market controls. Whenever our data are measured at the CZ level, we assume all counties within the CZ are measured the same as the CZ to construct county-level data.

To address possible endogeneity, we follow the strategy in Acharya, Blackwell, and Sen (2016) by instrumenting 1860 slave density with a county-level measure of environmental suitability for growing cotton. The cotton variable, which we take directly from Acharya, Blackwell, and Sen (2016), was constructed using data from the United Nations Food and Agriculture Organization. As Acharya, Blackwell, and Sen (2016) describe, the cotton variable represents the maximum potential cotton yield based on the soil, climate, and growing conditions in the county. The estimates are based on contemporary data from 1961 to 1990. Acharya, Blackwell, and Sen (2016) argue most changes to the suitability for growing cotton between 1860 and 1960 would be due to changes across the entire region due to climate change.[7]

Table 7 reports the regression results using absolute upward mobility as Y_c. The first six columns report specifications using OLS. The correlation between 1860 slave density and contemporary absolute upward mobility are negative and statistically significant in all OLS specifications. Even when we include all the state-level and county-level controls, a one standard deviation increase in the 1860 slave density is negatively associated with a decrease of 0.3 percentile in the income ranking of the children (of both blacks and whites). There are two more things to note. First, a significant portion of the "slavery" effect on intergenerational mobility seems to be captured by state institutions. The estimates are significantly higher when state fixed effects are not included (first row of Table 7) compared with when state fixed effects are included (third row of Table 7). Second, education also captures a significant part of the slavery effect on intergenerational mobility (column 4 of Table 7). When we instrument with the cotton suitability variable (column 7 in Table 7), the coefficient on slave density becomes slightly insignificant statistically, but its magnitude nearly doubles compared to the OLS specification with the same controls (column 7 versus column 6 in in Table 7).

Table 8 replaces the county-level absolute upward mobility with the differences of this absolute upward mobility between white and black children. The correlation between 1860 slave density and the white-black differential mobility are positive and significant. Even when we include all state-level and county-level controls, a one standard deviation increase in the 1860

[7]We still need to test the validity of our instrument using a falsification test like that in Nunn and Wantchekon (2011).

slave density is positively associated with an increase in 0.2 percentile difference in the income ranking of the children. However, once we instrument with cotton suitability, the correlation betweeen the white-black differential mobility and 1860 slave density disappears.

3.3 Georgia Experiment

To better identify how slavery affected long term intergenerational mobility, we exploit an institutional discontinuity within a single political entity. Our discussion and approach borrows heavily from Goodspeed (2015) but amended for our case of intergenerational mobility. Between 1735 and 1751, the Province of Georgia, which included 88 of the 159 counties which would eventually make up the current state of Georgia, prohibited slavery, both in terms of ownership and the buying and selling of slaves. At the same time, slavery was not prohibited in the other 71 counties that were later added to the colony in 1763.

The Province of Georgia was created in 1732 when King George II granted a charter including the following:

> "all those lands, countries and territories lying and being in that part of South Carolina, in America, which lies from the most northern part of a stream or river commonly called the Savannah, all along the sea coast to the southward, unto the most southern stream of a certain other great water or river called the Altamaha; and westerly from the heads of the said rivers respectively, in direct lines to the south seas, and all that shore, circuit and precinct of lands within the said boundaries" (Georgia Charter 1732)

Later, the Treaty of Augusta in 1763 extended the province's southern border from the Altamaha River to the St. Marys River. This expanded the number of modern day Georgian counties from 88 to 159.

According to Wood (2007), the trustees of the charter of the Province of Georgia aimed to promote a "Christian, moral, and industrious way of life," which would lead to "a simple and stable society made up of contented citizens." The trustees opposed plantation lifestyle, including the use of slave labor, because they believed it fostered "idleness" and "luxury" among the elite landowners of society. As a result, the trustees imposed the ban on slavery in the Province of

Georgia in 1735. However, slavery would later became legal in 1751 in all of the Province of Georgia after the province's colonists lobbied the trustees for a change in policy (Wood 2007).

In order to exploit the Georgia experiment, we consider the baseline regression

$$Y_c = \alpha + \beta Trustee + Z_c\delta + \epsilon_c, \tag{4}$$

where Y_c is the outcome variable of interest in county c; $Trustee$ is an indicator variable, which equals 1 if county c was part of the original Province of Georgia granted to the trustees, "Trustee Georgia" henceforth, and equals 0 otherwise, "non-Trustee Georgia" henceforth; Z_c is a vector of county-level controls, including land and water surface area, mean temperature and precipitation, and mean elevation; and ϵ_c is the unobserved factors of county c.

Using the variable $Trustee$, instead of slave density, as an independent variable helps us to identify the impact of initial technology adopted during the ban period. In Trustee Georgia, the cost of plantation agriculture was higher and created incentives to invest in other non-slave-intensive activities such as livestock and animal husbandry, which, just like plantation agriculture in non-Trustee Georgia, have substantial fixed cost that can lead to path dependence.

We also estimate a modification of equation (4) which includes the slave population density in 1860:

$$Y_c = \alpha + \beta Trustee + \gamma S_c/L_c + Z_c\delta + \epsilon_c. \tag{5}$$

One concern for identification is that county assignment to Trustee Georgia is correlated with unobservable variables (ϵ_c), which are in turn correlated with long-run intergenerational mobility. The geographic control variables should attenuate the problem of omitted variable bias. There are several historical reasons cited by Goodspeed (2015) for why omitted variable bias should not be a problem. First, the delineation of the border was exogenously set by Parliament and the trustees in England, not in Georgia. Second, both Trustee and non-Trustee Georgia were inhabited by the same Native American tribes and were, thus, formerly unsettled and un-administered. Other than the exogenous Trustee boundary, there was no other policy discontinuities that would correlate with differential long-run outcomes.

Table 9 reports the results for the Georgia experiment regression of equations (4) and (5). The top half of Table 9 reports the regression using absolute mobility as the dependent variable.

In both specifications (with and without slave density as an independent variable), being part of Trustee Georgia has a statistically significant positive correlation with absolute mobility in that county. When slave density is added to the regression as an independent variable (column 2 in Table 9), it has a negative and statistically significant correlation with the absolute mobility, consistent with the previous results in Table 7.

The bottom half of Table 9 reports the regression using the difference of absolute upward mobility between white and black children as the dependent variable. In both specifications, being part of Trustee Georgia has a negative and statistically significant correlation with the mobility difference. Slave density, when it is added as an independent variable, has a positive and statistically significant correlation with mobility difference, which is consistent with previous results in Table 8.

4 Conclusion

In this preliminary version of the paper, we have been able to show intergenerational mobility, both historical and contemporary, is negatively associated with slavery. By themselves, our results help us to better understand U.S. intergenerational mobility and represent a contribution in their own right. However, in future drafts of the paper, we hope to explain why slavery's affect persists to this day. We think the most obvious channels to test are the anti-black attitudes on the part of whites in areas most heavily affected by slavery, along with the institutions which emerged during the Jim Crow era. Recent work by Acharya, Blackwell, and Sen (2016) provides evidence for these mechanisms. The authors find Southern whites living in counties with higher historical slave density tend to oppose affirmative action more and express colder attitudes indicating racial resentment than whites living elsewhere in the South. Acharya, Blackwell, and Sen (2016) traces the origin of these attitudes to the late slave period and the time after slavery's collapse. The authors argue this period, coupled with existing racial hostility, represented a cataclysmic shock to Southern whites' political and economic power, which incentivized policy makers to further promote anti-black attitudes and policies. Cultural transmission from parents to children helps explain how these attitudes were passed down to the present day, which helps explain slavery's persistent effect. We plan to link the results in Acharya, Blackwell, and Sen

(2016) with our own work to test the mechanisms, e.g. present-day political attitudes, through which slavery affects intergenerational mobility today.

References

Acharya, A., M. Blackwell, and M. Sen (2016): "The Political Legacy of American Slavery," *Journal of Politics*, 78(3).

Bertocchi, G., and A. Dimico (2014): "Slavery, Education, and Inequality," *European Economic Review*, 70, 197–209.

Bruhn, M., and F. A. Gallego (2012): "Good, Bad, and Ugly Colonial Activities: Do They Matter for Economic Development?," *Review of Economics and Statistics*, 94(2), 433–461.

Chetty, R., N. Hendren, P. Kline, and E. Saez (2014): "Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States," *Quarterly Journal of Economics*, 129(4), 1553–1623.

Dahl, M., and T. DeLeire (2008): "The Association between Children's Earnings and Fathers' Lifetime Earnings: Estimates Using Administrative Data," Institute for Research on Poverty Discussion Paper 1342-08.

Dalton, J. T., and T. C. Leung (2014): "Why is Polygyny More Prevalent in Western Africa? An African Slave Trade Perspective," *Economic Development and Cultural Change*, 62(4), 599–632.

Fryer, R., and S. Levitt (2013): "Testing for Racial Differences in the Mental Ability of Young Children," *American Economic Review*, 103(2), 981–1005.

Goodspeed, T. B. (2015): "Slavery, Path Dependence, and Development: Evidence from the Georgia Experiment," working paper.

Jensen, A. R. (1973): *Educability and Group Differences*. New York: Free Press.

——— (1998): *The G Factor: The Science of Mental Ability*. Westport, CT: Praeger.

Long, J., and J. Ferrie (2013): "Intergenerational Occupational Mobility in Great Britain and the United States Since 1850," *American Economic Review*, 103(4), 1109–1137.

MAZUMDER, B. (2011): "Black-white Differences in Intergenerational Economic Mobility in the US," Working Paper Series WP-2011-10, Federal Reserve Bank of Chicago.

NUNN, N. (2008a): "The Long-Term Effects of Africa's Slave Trades," *Quarterly Journal of Economics*, 128(1), 139–176.

——— (2008b): "Slavery, Inequality, and Economic Development in the Americas: An Examination of the Engerman-Sokoloff Hypothesis," in E. Helpman, editor, Institutions and Economic Performance, Cambridge, MA: Harvard University Press, 148-180.

——— (2012): "Culture and the Historical Process," *Economic History of Developing Regions*, 27(S1), S108–S126.

NUNN, N., AND L. WANTCHEKON (2011): "The Slave Trade and the Origins of Mistrust in Africa," *American Economic Review*, 101(7), 3221–3252.

PAGER, D., B. WESTERN, AND B. BONIKOWSKI (2009): "Discrimination in a Low-Wage Labor Market: A Field Experiment," *American Sociological Review*, 74(5), 777–799.

ROLAND G. FRYER, J., D. PAGER, AND J. L. SPENKUCH (2013): "Racial Disparities in Job Finding and Offered Wages," *Journal of Law and Economics*, 56(August), 633–689.

RUSHTON, J. P., AND A. JENSEN (2005): "Thirty Years of Research on Race Differnces in Cognitive Ability," *Psychology, Public Policy and Law*, 11(2), 239–294.

SCOTT, R., AND D. SINCLAIR (1997): "Ethnic-related Cognitive Profiles of Black and White Preschool Children," *Homo-Journal of Comparative Human Biology*, 28, 116–120.

SHUEY, A. M. (1958): *The Testing of Negro Intelligence*. Lynchburg, VA: J.P. Bell Company.

WOOD, B. (2007): *Slavery in Colonial Georgia*. Athens: University of Georgia Press.

Table 1: Intergenerational Occupational Mobility in the U.S., 1860-1910

	Son's Occupation				
Father's Occupation	White Collar	Farmer	Skilled/Semiskilled	Unskilled	Row Sum
Whites (W)					
White Collar	2,705	346	940	417	4,408
	(61.37)	(7.85)	(21.32)	(9.46)	(100)
Farmer	2,600	7,993	2,362	5,070	18,025
	(14.42)	(44.34)	(13.10)	(28.13)	(100)
Skilled/Semiskilled	1,880	569	3,377	1,101	6,927
	(27.14)	(8.21)	(48.75)	(15.89)	(100)
Unskilled	527	523	1,092	1,226	3,368
	(15.65)	(15.53)	(32.42)	(36.40)	(100)
Column Sum	7,712	9,431	7,771	7,814	32,728
	(23.56)	(28.82)	(23.74)	(23.88)	(100)
Blacks (B)					
White Collar	6	0	7	15	28
	(21.43)	(0.00)	(25.00)	(53.57)	(100)
Farmer	25	284	43	351	703
	(3.56)	(40.40)	(6.12)	(49.93)	(100)
Skilled/Semiskilled	14	8	39	72	133
	(10.53)	(6.02)	(29.32)	(54.14)	(100)
Unskilled	25	162	85	554	826
	(3.03)	(19.61)	(10.29)	(67.07)	(100)
Column Sum	70	454	174	992	1,690
	(4.14)	(26.86)	(10.30)	(58.70)	(100)

Note: Each entry in the transition matrix represents the number of sons in an occupation conditional on the father's occupation. Percentages appear in parentheses.

Table 2: Summary Measures of Mobility of Whites and Blacks in the U.S., 1860-1910

	M	$d(\mathbf{W},\mathbf{J})$	$d(\mathbf{B},\mathbf{J})$	$d(\mathbf{W},\mathbf{B})$
Whites (**W**)	53.25	18.16***		11.74***
versus Blacks (**B**)	47.75		22.53***	

Note: ***, **, and * indicate significance at the 1%, 5% and 10% levels. Significance levels are for the likelihood ratio χ^2 statistic G^2 (d.f. 9 for $d(\mathbf{W},\mathbf{J})$, $d(\mathbf{B},\mathbf{J})$, and $d(\mathbf{W},\mathbf{B})$)

Table 3: Intergenerational Occupational Mobility in Slave vs. Free States, 1860-1910

	Son's Occupation				
Father's Occupation	White Collar	Farmer	Skilled/Semiskilled	Unskilled	Row Sum
			Slave States		
Whites ($\mathbf{W^S}$)					
White Collar	666	153	177	122	1,118
	(59.57)	(13.69)	(15.83)	(10.91)	(100)
Farmer	845	3,193	557	1,750	6,345
	(13.32)	(50.32)	(8.78)	(27.58)	(100)
Skilled/Semiskilled	275	181	473	226	1,155
	(23.81)	(15.67)	(40.95)	(19.57)	(100)
Unskilled	105	214	152	292	763
	(13.76)	(28.05)	(19.92)	(38.27)	(100)
Column Sum	1,891	3,741	1,359	2,390	9,381
	(20.16)	(39.88)	(14.49)	(25.48)	(100)
Blacks ($\mathbf{B^S}$)					
White Collar	2	0	7	10	19
	(10.53)	(0.00)	(36.84)	(52.63)	(100)
Farmer	22	268	38	327	655
	(3.36)	(40.92)	(5.80)	(49.92)	(100)
Skilled/Semiskilled	7	8	28	44	87
	(8.05)	(9.20)	(32.18)	(50.57)	(100)
Unskilled	17	158	54	432	661
	(2.57)	(23.90)	(8.17)	(65.36)	(100)
Column Sum	48	434	127	813	1,422
	(3.38)	(30.52)	(8.93)	(57.17)	(100)
			Free States		
Whites ($\mathbf{W^F}$)					
White Collar	1,994	193	755	292	3,234
	(61.66)	(5.97)	(23.35)	(9.03)	(100)
Farmer	1,752	4,800	1,804	3,319	11,675
	(15.01)	(41.11)	(15.45)	(28.43)	(100)
Skilled/Semiskilled	1,585	388	2,869	871	5,713
	(27.74)	(6.79)	(50.22)	(15.25)	(100)
Unskilled	421	308	934	931	2,594
	(16.23)	(11.87)	(36.01)	(35.89)	(100)
Column Sum	5,752	5,689	6,362	5,413	23,216
	(24.78)	(24.50)	(27.40)	(23.32)	(100)
Blacks ($\mathbf{B^F}$)					
White Collar	3	0	0	5	8
	(37.50)	(0.00)	(0.00)	(62.50)	(100)
Farmer	3	16	5	24	48
	(6.25)	(33.33)	(10.42)	(50.00)	(100)
Skilled/Semiskilled	4	0	10	26	40
	(10.00)	(0.00)	(25.00)	(65.00)	(100)
Unskilled	8	4	29	112	153
	(5.23)	(2.61)	(18.95)	(73.20)	(100)
Column Sum	18	20	44	167	249
	(7.23)	(8.03)	(17.67)	(67.07)	(100)

Note: Each entry in the transition matrix represents the number of sons in an occupation conditional on the father's occupation. Percentages appear in parentheses.

Table 4: Summary Measures of Mobility in Slave vs. Free States, 1860-1910

	Whole Sample (Father's Location)			
	M	$d(\mathbf{W^S},\mathbf{J})$	$d(\mathbf{B^S},\mathbf{J})$	$d(\mathbf{W^S},\mathbf{B^S})$
Whites ($\mathbf{W^S}$)	50.71	16.92***		12.55**
versus Blacks ($\mathbf{B^S}$)	48.66		20.90***	
	M	$d(\mathbf{W^F},\mathbf{J})$	$d(\mathbf{B^F},\mathbf{J})$	$d(\mathbf{W^F},\mathbf{B^F})$
Whites ($\mathbf{W^F}$)	54.37	18.41***		11.73
versus Blacks ($\mathbf{B^F}$)	43.37		20.21***	
	Whole Sample (Son's Location)			
	M	$d(\mathbf{W^S},\mathbf{J})$	$d(\mathbf{B^S},\mathbf{J})$	$d(\mathbf{W^S},\mathbf{B^S})$
Whites ($\mathbf{W^S}$)	50.22	17.41***		11.73**
versus Blacks ($\mathbf{B^S}$)	48.45		20.27***	
	M	$d(\mathbf{W^F},\mathbf{J})$	$d(\mathbf{B^F},\mathbf{J})$	$d(\mathbf{W^F},\mathbf{B^F})$
Whites ($\mathbf{W^F}$)	54.40	18.32***		8.44
versus Blacks ($\mathbf{B^F}$)	44.58		19.50***	
	Sample (Father's Location = Son's Location)			
	M	$d(\mathbf{W^S},\mathbf{J})$	$d(\mathbf{B^S},\mathbf{J})$	$d(\mathbf{W^S},\mathbf{B^S})$
Whites ($\mathbf{W^S}$)	49.33	17.74***		11.38*
versus Blacks ($\mathbf{B^S}$)	47.42		20.71***	
	M	$d(\mathbf{W^F},\mathbf{J})$	$d(\mathbf{B^F},\mathbf{J})$	$d(\mathbf{W^F},\mathbf{B^F})$
Whites ($\mathbf{W^F}$)	53.12	19.73***		11.21
versus Blacks ($\mathbf{B^F}$)	41.98		19.75***	

Note: ***, **, and * indicate significance at the 1%, 5% and 10% levels. Significance levels are for the likelihood ratio χ^2 statistic G^2 (d.f. 9 for $d(\mathbf{W^S},\mathbf{J})$, $d(\mathbf{B^S},\mathbf{J})$, $d(\mathbf{W^S},\mathbf{B^S})$, $d(\mathbf{W^F},\mathbf{J})$, $d(\mathbf{B^F},\mathbf{J})$, and $d(\mathbf{W^F},\mathbf{B^F})$)

Table 5: Summary Statistics on Migration

	White	Black	Total
Total	32,728	1690	34,418
	(100%)	(100%)	(100%)
Different States	6,824	261	7,085
	(20.85%)	(15.44%)	(20.59%)
From Slave to	893	95	988
Free States	(2.73%)	(5.62%)	(2.87%)

Table 6: Absolute Upward Mobility 1860-1910

	Son's Location		Father's Location		Son's = Father's Location	
	Black	White	Black	White	Black	White
Slave States	30.05	34.06	30.80	34.47	29.36	33.01
	(1.64)	(0.85)	(1.59)	(0.84)	(1.70)	(0.93)
Free States	40.87	40.09	40.34	40.05	40.98	37.87
	(3.72)	(0.55)	(4.46)	(0.55)	(4.80)	(0.62)
Bad Colonial States	29.07	34.50	28.87	34.59	28.18	33.09
	(2.15)	(1.28)	(2.15)	(1.26)	(2.25)	(1.40)
Others	34.07	38.68	34.37	38.79	32.87	36.72
	(2.07)	(0.50)	(2.05)	(0.50)	(2.25)	(0.55)
Colonial States	31.25	39.06	31.19	39.19	30.04	37.25
	(1.63)	(0.55)	(1.63)	(0.55)	(1.73)	(0.60)
Non-Colonial States	34.27	36.28	35.36	36.02	33.89	33.84
	(3.71)	(0.85)	(3.63)	(0.87)	(4.08)	(0.99)

Note: Standard deviations are reported in parentheses.

Table 7: Absolute Upward Mobility and Slave Density

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Slaves/Population 1860	-7.904***	-7.433***	-6.829***	-4.580***	-4.521***	-4.175***	-9.833
without state fixed effects	(0.339)	(0.309)	(0.978)	(0.422)	(0.176)	(0.219)	(6.623)
	[0.406]	[0.560]	[0.487]	[0.661]	[0.572]	[0.788]	[0.740]
Cotton Suitability							0.107**
(First Stage)							(0.033)
Slaves/Population 1860	-3.028***	-4.003***	-3.007***	-0.752***	-2.768***	-1.477*	-10.698
with state fixed effects	(0.605)	(0.468)	(0.547)	(0.004)	(0.484)	(0.766)	(7.647)
	[0.746]	[0.814]	[0.761]	[0.845]	[0.778]	[0.889]	[0.841]
Cotton Suitability							0.071*
(First Stage)							(0.041)
Historical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Segregation Controls	No	Yes	No	No	No	Yes	Yes
Taxation Controls	No	No	Yes	No	No	Yes	Yes
Education Controls	No	No	No	Yes	No	Yes	Yes
Labor Market Controls	No	No	No	No	Yes	Yes	Yes
Model	OLS	OLS	OLS	OLS	OLS	OLS	2SLS
N	1656	1656	1656	1161	1656	1266	889

Note: Standard errors are reported in parentheses and clustered at the state level. Adjusted R^2s are reported in square brackets. ***, **, and * indicate significance at the 1%, 5% and 10% levels.

Table 8: White-Black Mobility Difference and Slave Density)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Slaves/Population 1860	4.848***	3.892***	3.925***	2.809***	2.760***	1.078*	1.050
without state fixed effects	(0.954)	(0.595)	(0.134)	(0.776)	(0.909)	(0.568)	(5.359)
	[0.271]	[0.706]	[0.421]	[0.492]	[0.453]	[0.732]	[0.741]
Cotton Suitability							0.092**
(First Stage)							(0.032)
Slaves/Population 1860	2.756***	2.913***	2.263***	0.437	2.484***	0.048	-6.591
with state fixed effects	(0.522)	(0.031)	(0.337)	(0.915)	(0.225)	(0.558)	(12.343)
	[0.387]	[0.747]	[0.536]	[0.696]	[0.535]	[0.801]	[0.766]
Cotton Suitability							0.048
(First Stage)							(0.035)
Historical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Segregation Controls	No	Yes	No	No	No	Yes	Yes
Taxation Controls	No	No	Yes	No	No	Yes	Yes
Education Controls	No	No	No	Yes	No	Yes	Yes
Labor Market Controls	No	No	No	No	Yes	Yes	Yes
Model	OLS	OLS	OLS	OLS	OLS	OLS	2SLS
N	1553	1553	1553	1086	1553	1086	814

Note: Standard errors are reported in parentheses and clustered at the state level. Adjusted R^2s are reported in square brackets. ***, **, and * indicate significance at the 1%, 5% and 10% levels.

Table 9: Slavery and Intergenerational Mobility by Trustee Status

Absolute Mobility		
Trustee	0.582**	0.533**
	(0.233)	(0.234)
Slave Density		-4.072***
		(0.568)
N	147	113
R^2	0.035	0.345
Mobility Difference		
Trustee	-1.102***	-1.123***
	(0.393)	(0.469)
Slave Density		0.387***
		(0.096)
N	110	87
R^2	0.059	0.115

Note: Standard errors are reported in parentheses. ***, **, and * indicate significance at the 1%, 5% and 10% levels.