Forty Acres and (no) Mule:
Evaluating the Impact of Free Land on the Outcomes of Former Slaves

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Abstract: At the end of the Civil War, most recently freed slaves suffered from low levels of physical and human capital. Although some military and political leaders proposed easing the freedmen's needs for physical capital with free or low cost land, no comprehensive program to give freedmen their "forty acres and a mule" was ever enacted within the United States. Reconstruction played out quite differently in another, often forgotten member of the Confederate States of America. The Cherokee Nation, with fifteen percent of its population consisting of enslaved people of African descent, joined the Confederacy shortly after the start of the Civil War. During post-war negotiations, the United States forced the Cherokees to grant full citizenship to their former slaves. For freedmen, citizenship in the Cherokee Nation had a significant advantage over U.S. citizenship – any land in the public domain could be claimed and improved upon by any citizen. The Cherokee freedmen got their forty acres and (no) mule.

How did the availability of free land affect the Cherokee freedmen? I introduce a new data set, the 1880 Cherokee Census, and compare the conditions of the Cherokee freedmen to those of the Southern freedmen. While free land was not a panacea that cured all ills, it did provide the Cherokee freedmen with certain benefits. Compared to Southern Freedmen, Cherokee Freedmen enjoyed an advantage in relative farm size and crop income, and were more likely to own farms and achieve self-sufficiency.

* e-mail: millermc@umich.edu. This draft was prepared for the NBER Summer Institute 2006. I gratefully acknowledge support from the Economic History Association and the Sasakawa Young Leaders Fellowship Fund. I would like to thank Martha Bailey, Ben Chabot, Gary Solon, Gary Saxonhouse, and Warren Whatley for their advice and encouragement.

I. Introduction

What if slaves in the southern United States had received land during the process of emancipation? In the past, authors have addressed this question as a counterfactual. However, for one group of emancipated slaves, free land was an actual fact. Unlike most slaves in the Confederacy, the former slaves in the Cherokee Nation were granted access to free land as a consequence of their becoming Cherokee citizens after emancipation. A wealth of demographic and agricultural information about this "peculiar population" was well documented in an 1880 census of the Cherokee Nation. Until now, this census has sat—largely ignored by all but genealogy buffs—at the National Archives in Ft. Worth, Texas. I have recently collected this data and will employ a natural experiment framework to assess what happened when former slaves were given access to free land.

The variation in land policies of the United States and Cherokee Nation towards their freedmen allows the 1880 Cherokee Census information to be combined with preexisting data on the United States to explore the outcomes of formers slaves who were given land. When compared to black farm operators in the sample of southern farms collected by the Southern Economic History Project,[1] the freedmen in the Cherokee Nation seemed to hold several advantages. As expected, the Cherokee freedmen had much higher rates of land ownership than did blacks in the South. They also benefited from increased levels of relative income, as measured by the value of their agricultural output, over Southern black farm operators. The Cherokee freedmen also had certain advantages in the achievement of self-sufficiency and the size of their farms. While land access was not a panacea that cured all the ills that ailed blacks after the Civil War, the Cherokee freedmen

[1] This data set was most famously used by Ransom and Sutch in *One Kind of Freedom.*

experienced a lifestyle that many of their fellow former slaves in the southern United States could have only hoped to attain.

II. On a Peculiar Sample

During the last decade of the nineteenth century, Zack Foreman, a wealthy black cattleman in the Cherokee Nation, struck a deal with the Kansas City Southern Railroad. If Foreman would prepare the roadbed, they would lay the steel. He soon had his own train line, and was the "only Negro in the United States at the time who privately owned a railroad."[2] Foreman's wealth and property were exceptional during a time period when blacks lagged far behind whites in both income levels and wealth accumulation. For example, Higgs (1977) estimated that black income levels were only 35 percent of whites' in 1900. Black property holdings were similarly depressed relative to those of whites. An optimistic assessment of blacks' wealth accumulation asserts that they held only one-sixteenth that of whites by 1910 (Higgs, 1982).

While Foreman's success can be partially attributed to ability, hard work, and luck, his status as a Cherokee freedman offered him an advantage over Southern freedmen. In July of 1886, the Cherokee freedmen were declared citizens of the Cherokee Nation with "all the rights of native Cherokees."[3] As such, the Nation's freedmen and women were able to claim and improve any unused land in the public domain as their own.[4] The only costs a citizen incurred when claiming land were those associated with preparing the land for use, such as erecting a fence or tilling a field for seeding. This access to free land—and the

[2] J.J. Cape Interview, GFPHC, 88:56-58.
[3] http://www.firstpeople.us/FP-Html-Treaties/TreatyWithTheCherokee1866.html
[4] Once a Cherokee citizen claimed land, the citizen had ownership rights similar to those of typical fee simple ownership. As long as the land was not abandoned, for example, it could be sold, used as collateral for loans, bequeathed in wills, or improved upon.

accompanying stories about wealthy Cherokee freedmen like Zack Foreman—did not go unnoticed, and some blacks in the United States realized the significant advantage it offered the Cherokee freedmen. An editorial in the *Afro-American Advocate,* for example, noted that, "The opportunities for our people in that country far surpassed any of the kind possessed by our people in the U.S."[5] Contemporary accounts indicate that freedmen seized those opportunities, and Cherokee historians tend to agree with Daniel F. Littlefield, Jr., author of the seminal work on the Cherokee Freedmen, who wrote, "In the succeeding thirty years [after the Civil War], they developed a life-style that most blacks in the South would have envied."[6]

Freedmen in the United States had hoped for land after the Civil War, but the promise of "forty acres and a mule" went unfulfilled. Some military and political leaders, such as General William Tecumseh Sherman and Senator Charles Sumner, had proposed limited land distribution to the United State's freedmen, but their plans never came to fruition. The decision to preserve the antebellum distribution of Southern property was a contentious one, and many people concerned with the economic progress of blacks have lamented the squandered opportunity to improve the material lives of former slaves.[7] General O.O. Howard, Superintendent of the Freedmen's Bureau, wrote that,

> Probably much more might have been done to develop the industry and energy of the colored race if I had been able to furnish each family with a small tract of land to till for themselves.[8]

[5] Feb. 19, 1892, quoted in Littlefield, 69.
[6] Littlefield, 49.
[7] See, for example, Ransom and Sutch (1977), and Foner and Brown (2005).
[8] Quoted in Ransom and Sutch (1977), 80.

His beliefs were echoed over a hundred years later when Ransom and Sutch concluded that, "the failure to carry forward plans for land redistribution appears as a great tragedy of this era."[9]

III. The 1880 Cherokee Census

On December 3, 1879, the Cherokee National Council enacted, "An Act for taking a census of the Cherokee Nation, in the year 1880."[10] The census' purpose was to,

> Make an authentic schedule or enumeration of the owners of the Cherokee country embraced in the Patent from the United States Government. The persons so to be enrolled constitute the *"Cherokee People"* and the owners of the Cherokee soil, and none others.[11]

The Cherokee government wanted to establish who could legally use the nation's land. Two enumerators were appointed for each of the Nation's nine districts (the Cherokee Nation's equivalent to a state or county) and were tasked with taking the census between March 1, 1880 and May 1, 1880. They were required to make "full and complete returns of all persons residing or sojourning in their district," including their "chief productions of agriculture, including number of horses, cattle, hogs, sheep, etc., during the year ending in May 1st 1880."[12]

Although most of the instructions for and information collected in the census were typical for their time period, some aspects deserve additional clarification. The census enumerators were to divide people resident in the nation into different categories and create a separate schedule for each category. I have drawn my sample from the first schedule of

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[9] Ransom and Sutch (1977), 80
[10] Complete text of the Act appears in the *Cherokee Advocate,* 28 January 1880.
[11] *Cherokee Advocate,* 25 May 1881
[12] A copy of a census page, the complete text of the instructions given to the census makers, detailed data collection procedure, and other information about the 1880 Cherokee Census are in a Data Appendix that is

the census, which lists population and agricultural information for all citizens of the Cherokee Nation with the exception of orphans under sixteen, who were enumerated on a separate schedule. The remaining four schedules list non-citizens of the nation who were present at the time of the census. If an individual was inadvertently excluded from the census, he or she could submit a statement declaring citizenship to the Principle Chief, who would then submit a list of additional citizens to the National Council for inclusion on the official roles.

While the census recorded information that was typically found on the population and agricultural schedules of the United States' Censuses, this census is unique in that both the Cherokee population and agricultural information was recorded on the same schedule. This provides an advantage over U.S. Census information. When linking population and agricultural schedules, the match rate is inevitably lower than 100 percent. If the reasons that a match cannot be made are non-random, selection bias can be introduced into the data. This type of selection bias is not present in the Cherokee data.

To generate my 60 percent sample of the Census, I copied alternating pages of the census manuscripts with two exceptions. I included every page with a citizen listed as "col," an abbreviation for colored, because I was interested in analyzing the Cherokee freedman. I also sampled the entirety of the Canadian district—as the heart of the Cherokee cotton agriculture, its inclusion allows for more precise examination of cotton agriculture in the Cherokee Nation.

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available upon request. The information collected in the census and summary statistics are listed in Appendix 1.

To verify that my sample is representative, I compared my sample to the official, aggregate statistics of the 1880 Cherokee Census that were submitted to the U.S. Senate. Overall, as shown in Table 1, the sample is remarkably similar to the nations as whole.[13]

<Table 1 Here>

IV. The Validity of the Natural Experiment in Historical Context

The differences between former slaves of the Cherokee Nation and the southern United States present a valid natural experiment for three reasons. First, the southern United States appears to be an adequate control for the treatment of access to free land in the Cherokee Nation. The South and the Cherokee Nation shared many similarities. In antebellum times, both areas were mainly agricultural societies and shared similarities in government and economic structures. Their organization of slave labor was alike, and their slaves entered freedom with similar skill sets. Both areas received massive damage to property and life during the Civil War, and, during the initial phases of reconstruction, wage labor and share cropping were used to match former slaves to landowners. Second, the treatment policy is unrelated to any difference in each area's attitude towards freedmen. The Cherokee Nation adopted their freedmen and allowed them land access because the United States required them to do so after the Civil War. Finally, the introduction of the treatment does not seem to have altered the composition of either group. Below, I will develop the arguments for the validity of this natural experiment in more depth.

[13] I did not locate 192, or just under 10 percent, of all freedmen in the Nation. Some of these freedmen I likely missed while looking through all of the census pages, and others may have been on damaged pages. Both

a. Control and treatment groups should display similar trends and conditions

Cherokee agriculture was thriving in the years before the Civil War. The eastern part of the Nation resembled the lands of northwestern Georgia that the Cherokees had previously occupied, while the western prairies were ideally suited for the grazing of cattle and other animals.[14] Surplus crops were sold in nearby states or shipped down river to New Orleans. A Commissioner of Indian Affairs Report testified that crop yields were reaching record highs. In 1859, estimated bushels produced per acre planted were 35 for corn, 12 for wheat, and 30 for oats. The nation overall closely resembled its neighboring states of Missouri, Arkansas, and Kansas.[15] As George Butler, a southerner and the Cherokee's representative from the Superintendency of Indian Affairs, reported in 1859, "From their general mode of living, the Cherokees will favorably compare to their neighbors in any of the states."[16]

Most Cherokees lived in double log cabins or clapboard homes. The richest had fine plantation houses. Incorporated towns, with public services like police and fire control, supported stores, dentists, saddlers, tailors, blacksmiths, hotels, and taverns. There was a weekly newspaper, a Masonic lodge, a debating society, a temperance group, and even a horseracing track.[17] Pupils in schools were taught in English from textbooks that were used in New England schools.[18] Furthermore, the types of dress, religion, customs, ceremonies, and medicine that people tend to associate with American Indians fell into almost total

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reasons are likely to be random, and it seems unlikely that these missing freedmen could introduce any bias in my sample.

[14] Holland, 309.

[15] Holland, 360-395.

[16] Butler, Report of the Commissioner of Indian Affairs (1859), 19.

[17] Holland, 360-396, provides a detailed account of antebellum life in the Cherokee Nation..

[18] Holland, 362.

disuse.[19] Cherokees dressed in western clothing, attended Christian churches, and bought patent medicines purported to be straight from New York.[20]

A census taken in 1860 reported that there were 13,821 Cherokees by blood, 716 adopted whites, and 2,511 slaves.[21] With roughly fifteen percent of its population enslaved, the Cherokee Nation's slave population was proportionate to that of states like Kentucky (19.51 percent enslaved), Maryland (12.69 percent), and its neighbor of Missouri (9.72 percent), but lagged behind the overall south (32.27 percent).[22] Cherokees procured their slaves from owners and traders in nearby areas or from slave auctions held with the Nation.[23] The slaves purchased were of African descent. The Cherokees did not enslave other American Indian tribes.

Cherokee slave laws resembled those of the southern states. The first slave laws, enacted in 1820, prohibited people from purchasing goods from slaves, and slaves from purchasing liquor. Slaves were later forbidden to own property or marry Cherokees or whites.[24] Owners were legally permitted to practice deadly levels "moderate correction" on their slaves.[25] Over time, slave laws became more restrictive. The Nation officially codified the Southern tradition of a mother's slave status determining that of her children. However, anyone of "negro or mulatto parentage" could not hold public office. A citizen could not marry a non-citizen "person of color." Free blacks without Cherokee blood could not hold any property or improvements. At the time of this law's passage in 1840, the few blacks who did own property had it seized and sold. Blacks could not sell liquor. Any slave who left his owner's property without a pass could be punished by special "patrol companies"

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[19] Littlefield, 7.
[20] Holland, 325.
[21] Littlefield, 7.
[22] Historical Statistics of the United States (1970).
[23] Perdue, 72.
[24] Perdue, 50-58.

that roamed the countryside looking for slaves. Slaves could not carry weapons or be taught to read or write. In 1842, all free blacks who had not been freed by a Cherokee citizen were forced to leave the nation. If a slave had been freed, his former owner was made personally responsible for his conduct. Free blacks were also prohibited from encouraging or helping slaves escape from their owners. In 1848, the prohibition against teaching slaves to read or write was expanded to include all blacks, and individuals with abolitionist sentiments were forbidden from teaching in the nation's schools.[26] These laws bear a striking similarity to those enacted by the strictest Southern states and are certainly more severe than laws in some slave states.

The organization of slave labor also resembled that in the South. Some of the elite Cherokees had large plantations of 600 to 1000 acres worked by large numbers of slaves.[27] They grew crops for sale and profit. There was a distinction between field hands and house servants, and overseers directed the field hands, often employing the gang labor system. While about half of slaves lived in groups of 10 or more, the rest lived on smaller farms.[28]

Not only did slave laws and organization suggest that slaveholding practices within the Cherokee Nation and the southern United States were similar, but so do the words of the slaves. When the Works Progress Administration gathered stories from former slaves during the Great Depression, they included former slaves from Indian Territory. Billington (1982) compared the narratives of Indian-owned and white-owned slaves by cataloging the slaves' experiences along a number of parameters, including incidences of physical punishment, care and food availability, and attitudes towards former owners. He concluded that there were few differences between white and Indian slave owners. His results support

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[25] Miles, 143.
[26] Littlefield, 19-20.
[27] Myles, 191.

the dominant belief that, "slavery in the Cherokee Nation was a microcosm of the 'peculiar institution' that existed in the United States."[29]

Their systems of slave labor made the Cherokee Nation and the South natural allies. When it became apparent that the North and South had entered into a protracted war, the Cherokees officially joined the Confederate States of America. However, like other border areas, popular support was divided into pro-Union and pro-Confederacy camps.

Cherokees of all loyalties faced wartime conditions and destruction on par with the most ravaged areas in the southern United States. Seven officially recognized battles were fought in the nation.[30] The fighting in Bloody Kansas and the guerilla warfare of Missouri also spilled over, making conditions dangerous throughout the entirety of the war. Communication was unreliable, food and clothing were scarce, and, with most men off at war, women, children, and the elderly were left to struggle on their own. Their situation was worsened by a lack of beasts of burden. Almost all of the nation's 20,000 horses were commandeered for military use by one side or the other.[31] 300,000 cattle, worth an estimated $2 to 4 million in 1860 dollars, were stolen.[32] Houses and barns were burnt by the opposition of the time, and fields and fences fell into disrepair. A prominent Cherokee, John Adair, recalled the devastation a decade later:

> All that was left us was our country, but the numerous and well cultivated farms in the four long years of blood were overgrown with shrubs and brambles, fences burned away, and nothing left to show that places [were] once inhabited except perhaps a chimney or ???, making the desolation more imposing.[33]

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[28] Calculated from information provided in Littlefield, 13.
[29] Halliburton, x.
[30] Perdue, 132-133.
[31] Confer, 150-164.
[32] Littlefield, 15.
[33] Cherokee Advocate, January 24, 1874, quoted in Holland, 546. '???' designated a word that was unreadable in the original document.

His lament described a devastation familiar to many people who survived the war in the South.

When the war ended, the Cherokee Nation had to negotiate a peace treat with the Union. While treaties were being drawn up, fought over, and re-written, the life of the Cherokee freedmen resembled that of freedmen in the southern states. Landless and without resources, many former freedmen went to work for their former owners as either sharecroppers or wage laborers.[34] Although the Freedmen's Bureau did not have jurisdiction within Indian Territory, the Interior Department appointed Brevet Major General John Sanborn to undertake some of the Bureau's tasks. He supervised the negotiation of labor contracts, ensured that all freedmen whose labor was contracted for over 1 month received a written contract, enforced the contracts, and provided destitute freedmen with rations and assistance.[35] In April of 1866, General Sanborn reported to his superiors that,

> The rights of the freedmen are acknowledged by all; fair compensation is paid; a fair proportion of crops to be raised on the old plantations is allowed; labor for freedmen to perform is abundant, and nearly all are self-supporting.[36]

The former slaves seemed to be settling into their lives as free people, and all initial signs indicated that they and their Southern brethren would be sharing similar post-emancipation lifestyles. Their expectations changed, however, in July of 1866. This provision had been included in the peace treaty with the United States:

> …All freedmen who have been liberated by voluntary act of their former owners or by law, as well as all free colored persons who were in the country at the commencement of the rebellion, and are now residents therein, or who may return within six months, and their descendants, shall have all the rights of native Cherokees.

[34] Wickett, 104.
[35] Littlefield, 20-21.

The freedmen were now officially citizens of the Cherokee Nation. They no longer had to spend long days plowing another's fields and could finally claim land as their own. Sanborn assisted the freedmen in becoming "reasonably well supplied with farming implements and seed,"[37] and next season many of the former slaves started working their own plots of land.

b. The policy should be unrelated to the treatment

Why did the Cherokees and the Southern states adopt different policies concerning land access for their freedmen? Quite simply, the United States forced the Cherokees to adopt their freedmen as citizens with rights to Cherokee land. Even the pro-Union, anti-slavery faction of the Cherokees opposed freedmen citizenship. During the Civil War, this group had passed its own emancipation proclamation freeing the slaves of the Confederate Cherokees. While this was more a symbolic gesture than a practical policy and was never enforced, the statute purposefully denied Cherokee citizenship to the newly freed slaves and ordered them to either leave the Nation immediately or obtain work permits. The records of the post-war treaty negotiations further demonstrated the Cherokees initial unwillingness to grant freedmen citizenship, and the citizenship issue became a sticking point in negotiations.[38]

However, the United States government was determined that the freedmen should be granted all the rights of native Cherokees. Its officials worried that the Cherokee freedmen might congregate at nearby military bases and become dependent on the U.S.

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[36] Wickett, 103.
[37] Littlefield, 23.
[38] Resistance to the Cherokee freedmen's citizenship actually continues to the present day, and the freedmen's citizenship was revoked in 1992. Only in May of 2006 did the Cherokee Supreme Court finally rule that the Cherokee Nation was legally and constitutionally obligated to grant their freedmen citizenship.

government for support. They wanted to avoid this, and some officials initially supported not informing the Cherokee freedom that they had been emancipated. Sanborn, however, thought that, if the former Indian slaves should have all the "rights, interests, and annuities of Indians," they would choose to stay in Indian Territory and would not become the problem of the United States.[39] Since the victor tends to have the bargaining power, the United States eventually did triumph on the issue. However, the Cherokees did win one curb on freedmen citizenship. Only former slaves who were in or had returned to the Nation by January of 1867 were eligible for citizenship. All others would be considered to have returned "too late." This was a small concession, however, and did not prevent many Cherokees from agreeing with William Wilson, a former member of the Cherokee National Council, who felt that,

> [The treaty] was dictated to us after the war, and we accepted it… It was forced upon us… I want them [the freedmen] all to go.[40]

Most Cherokees did not want to grant their former slaves citizenship, and the Cherokee's policy of land access for their freedmen was the result of outside political pressure.

c. Groups evaluated should be stable

The Southern freedmen, the control group in this study, were not affected by the political events in the Cherokee Nation in a meaningful manner. However, it is possible that that composition of the Cherokee freedmen citizenry may have been influenced by the availability of free land. Land access may have encouraged newly freed Southern slaves to flock to the Cherokee Nation to illegally claim both land and the possibility of a better future. However, the restrictions of the treaty prevented such a land rush. Only former

[39] Littlefield, 20.

slaves of the Cherokees who returned by January 1867 were eligible for citizenship. This provision was strictly enforced, and those freedmen who were listed on the 1880 Cherokee Census rolls were those who could prove they were eligible for citizenship. A potential problem with Cherokee freedmen group composition could arise if there was a systematic difference between those who became citizens and those who did not gain post-war citizenship. There were 2,511 slaves in 1860 and an estimated freedmen population of 2,000 to 2,500 in 1866. Population growth was likely limited during the war, and these numbers suggest that there was only small group of freedmen who were not in the Cherokee Nation at the war's close. Those who left and did not return by 1866 can be divided into two types: slaves who left the Cherokee Nation and settled elsewhere and former slaves who returned "too late."

Information on the slaves who left and never returned is scarce. The 1880 United States Census does contain information about Cherokee freedmen living in the United States. Assuming that individuals listed as being of "colored" race and who indicated their birthplace as the Cherokee Nation were former Cherokee slaves, I identified the likely freedmen who did not return. This is not a perfect measure, of course, and freedmen who were born outside the nation or who identified themselves as a race other than "colored" were excluded. Using this measure, I identified 72 potential Cherokee freedmen. 22, or just under one-third, lived in Texas. This is consistent with historical accounts of Cherokee slave owners moving to Texas for safety during the war. One lived in Tennessee and another in California. The remaining were residents of the Cherokee Nation border-states of Kansas, Missouri, and Arkansas. These freedmen may have wished to live near their place of birth but were not eligible for citizenship. Most engaged in farm labor and, based on the limited

[40] Condition of Certain Indian Tribes (1886), 73.

information provided in the population schedules, do not seem to differ much from the freedmen in the Cherokee Nation in terms of the age or sex distribution.

Some limited information on the "too lates" is available. From the letters and writing of the politically active "too lates," we know that many of them were taken to Texas and the Creek Nation by their owners. The 1880 Census summary statistics provide limited information on the "too lates" that remained in the nation. There were 757 people listed as "colored intruders," meaning they were non-citizen blacks living in the Nation. Of these, 249 had their claims of citizenship rejected, 30 had work permits, and 44 had yet to go before a citizenship court.[41] 163 of the intruders were over 18, 125 of the rejected claimants were over 18, and 7 people over 18 still were awaiting decisions on their cases. This implies that over half of the intruders were the children of people claiming citizenship, had not lived during the Civil War, and presumably had little say over where they lived. The limited number of older people who had left the nation and returned too late indicates that their effect on any inference is small and a change in group composition is a concern.

Almost 75 percent, or 564, of these intruder freedmen lived in the Cooweescowee district, while that district represented just over 25 percent of the citizen freedmen population. This district was the largest in terms of land area and bordered Kansas. The Kansas border was a popular area for intruders of all races to settle, and an entire town of illegal intruders sprung up there.[42] The highest number of white intruders, 327, also lived in this district. The high percentage of freedmen declared intruders in this area suggests that some of these intruders may have actually not been Cherokee freedmen, but Southern

[41] These numbers do not sum to 757, because the family members of people were not included in these counts, but their family members were included in the count of total number of intruders.
[42] Holland, 478.

freedmen trying to gain citizenship illegally. This evidence further substantiates that the Cherokee freedmen are a stable treatment group.

Finally, the basic demographic characteristics of freedmen in the Cherokee Nation and the rest of the South are quite comparable (see Table 2). Each area has about the same proportion of women in the population, which suggests that large numbers of male slaves did not leave during the war to never return. The average age is also similar. Cherokee households are slightly smaller, but this is likely because the Cherokee Census enumerated people on the family, and not household, level. Adult, single people living with a family were listed separately. If the single people are evenly distributed among households, then the average family size increases to 4.8.[43] These similarities support that the group composition of the Cherokee freedmen did not alter due to the introduction of the treatment of free land access.

Table 2: Comparison of the Southern and Cherokee Nation Freedmen Populations

	Southern	**Cherokee Nation**
Percent Female	50.46	51.12
Mean Age	20.92 (17.72)	19.65 (17.62)
Mean Household Size	5.12 (10.98)	3.39 (2.54), 4.39 (2.39) **
Percent Married*	70.81	64.73
Percent Female Headed Households	18	33.96, 26.13**

** Percent married, spouse either absent or present, for people age 20 and over.*
*** First result is for all families, second result is for all families except people listed as single.*

[43] Fewer heads of households in the Cherokee Nation are married, and there are more female-headed households. There were large numbers of freedwomen who entered freedom with several children and no husbands (Littlefield, 22). While this also happened in the South, the Cherokee freedwomen had more opportunities as heads of households. 45 percent of Cherokee freedwomen who headed their own households (and had more than one person in that household) farmed land. The corresponding percentage in the South

V. Did the Cherokee Freedmen Take Advantage of Their Land Access?

Aside from the validity of the comparison, it is useful to know how the Cherokee freedmen were "treated" under the policy. The treatment was relevant for them, and they were allowed to claim their own land. As one freedman testified when asked about land access, "We have never been denied about that."[44] Citizen freedmen were secure in their property and improvements, and many took advantage of the opportunity to claim free land. Table 3 supports that the freedmen were fairly successful in obtaining land. 43.7 percent of freedmen households owned land. This is just slightly less that the corresponding percentage of Cherokee households of 45.2.[45]

Table 3: Landholding in the Cherokee Nation

	Freedmen	**Cherokee**	**White**
Household Heads	533	2689	390
Heads with Land	233	1216	270
Percent with land	43.7	45.2	69.2
Percent with land if exclude households with only 1 member	57.6	62.4	71.3
Mean Acres in Cultivation	18.00 *(21.85)*	29.02 *(46.09)*	64.50 *(84.33)*
Percent of all acres in cultivation owned	6.6	55.8	27.5
Percent of Population	10.00	77.6	5.2

was 6.2 percent. Therefore, this difference could be a result of women's increased land access in the Cherokee Nation and not a group selection problem.

[44] Condition of Certain Indian Tribes, 6.

[45] While households with white heads are the most likely to own land, any analysis of whites is subject to a selection bias. The white households consist of a white person married to a Cherokee citizen, usually a native Cherokee woman, or the widows and widowers of such marriages. Unless married to a Cherokee, whites could not become Cherokee citizens. Children of whites and Cherokees are considered Cherokees. Although one does not want to preclude genuine love matches, some white men came to Indian Territory with the expressed intention of marrying an Indian woman and starting a farm. Furthermore, when they did marry Cherokee women, many white men married into the wealthier Cherokee families. Hence, the high land ownership rates of white men are in part a result of their wife's family wealth and connections.

The Cherokee and freedmen land ownership rates increase if single-person households are excluded. As explained above, many of these singles were likely members of other households. Without singles, over fifty percent of all freedmen households owned land. In the southern United States, black farm operators owned just over 25 percent of the farms that they worked. The Cherokee freedmen are certainly notable for their high rates of land ownership relative to blacks in the South.

While the table suggests that racial differences in land ownership within the Cherokee Nation are limited, I can confirm this by estimating the marginal effect of race on land ownership as a probit:

$$\Pr(\text{Owning Land} = 1) = \Phi(\alpha + \mathbf{Z}'\beta) \qquad (1)$$

where Φ is the standard normal cumulative density, α is the constant term, and $\mathbf{Z}$ is a vector of characteristics of interest. Each observation is for the head of a family. The probability of owning land will be measured using a dummy variable equal to 1 if a family has non-zero acres enclosed. I will exclude households headed by individuals of less than 18 years of age. Besides race, covariates in the 1880 Cherokee Census that could influence land ownership rates include marital status, family size, age, literacy, sex, and employment in a non-farming occupation. District level fixed effects are included. Marginal effects are estimated at the sample means and reported in Table 4. The coefficients on the race variables suggest that, after controlling for other factors, both whites and freedmen do not significantly differ from native-born Cherokees in their land ownership rates. A Wald test also does not reject the hypothesis that the estimated coefficients for whites and freedmen are the same. Within the Cherokee Nation, there is no statistically significant difference in the ability of former slaves and the economically dominant racial groups to procure land.

Table 4: Probability of Owning Land in the Cherokee Nation

Own Land = 1	DP(Own=1)/dx	Standard Error
Married = 1	0.2012354	.0181318
Family Size	0.0453572	.0039149
Age	0.0288544	.0025512
Age*Age	-0.0002305	.0000284
Literate = 1	0.0661242	.0160293
Other Occupation = 1	-0.1157248	.0278896
Black = 1	-0.0325604	.0230055
White = 1	-0.0386071	.0245725
Adopted Cherokee = 1	-0.0019971	.0531979
Adopted Delaware = 1	0.1224087	.0415599
Adopted Shawnee = 1	0.0019038	.0504677
Other Race = 1	-0.0035631	.0994268
Male = 1	0.1346166	.0187729
Constant	-0.637186	.0535703

Probit regression for the probability of owning land. Sample includes all heads of households in the Cherokee Nation who are 18 years of age and older. Omitted race is native Cherokee. District level fixed effects included, but results not shown. The marginal effects are reported at the mean of each variable.

V. Empirical Strategy

To compare the outcomes of Cherokee and Southern freedmen, I will use the 1880 Cherokee Census and a sample drawn from the 1880 United States Census population and agricultural schedules. This U.S. data was collected by the Southern Economic History Project and used by Ransom and Sutch in *One Kind of Freedom.* The SEHP linked population and agricultural census schedules for 11,202 farming units in 11 southern states.[46] I have included 9,622 of these farms in my sample.[47] Information was

[46] Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, Arkansas, Louisiana, and Texas. Four border states of Delaware, Maryland, Kentucky, and Missouri were excluded.
[47] I exclude farms that grow rice and sugar as the cultivation of these crops had unique characteristics that I will not address here. I also exclude all farms in the Low Country and Sea Islands regions of South Carolina and Georgia. Limited amounts of land were distributed to freed slaves in the Sea Islands during the Civil War, but who those freed slaves were is unknown (Ransom and Sutch (2001). Furthermore, records of the Southern Claims Commission indicate that slaves in these areas may have controlled property before the Civil War (Morgan, 1983).

collected about crop yields and acreage, measures of farming inputs, household characteristics, and tenure status of the farming operator.[48]

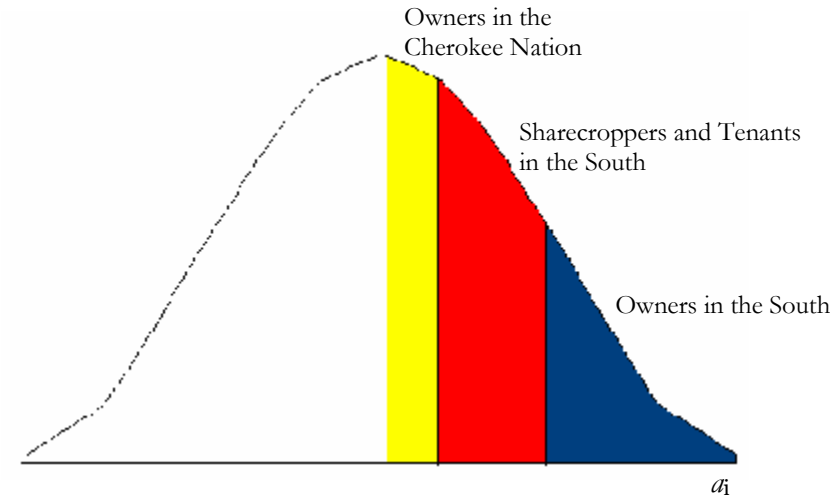
When using this information to examine how owning land influenced the lives and economic conditions of the Cherokee freedmen, I will compare Cherokee and Southern freedmen along several dimensions that are related to land ownership. These include farm size, crop mix, total value of output, and livestock ownership. A more detailed discussion of each outcome of interest will be developed below. Because of the nature of the data, only farm operators in the Cherokee Nation and farm operators in the South are included in the analysis. Because non-farm operators are excluded, the analysis will not speak to the economic circumstances of a large share of the population. In the Cherokee Nation, 53 percent of all families (37 percent if singles are excluded) are not farm operators, and 56 percent of all Cherokee freedman families (42 percent if singles are excluded) do not have farms. For the southern United States, a somewhat larger share of the population is excluded. 60 percent of all males over 15 were not farm operators, while the corresponding percentage was 71 for only blacks (Ransom and Sutch, 2001). Note, however, that an additional 34 percent of blacks and 19.8 percent of whites were part of the southern United States' agricultural labor force in the role of farm laborers. Since laborers tended to receive lower pay than farm operators of any tenure did, they would likely be worse off than farm operators in terms of most economic outcomes.

Because people in the Cherokee Nation had access to free land, it is unsurprising that a larger proportion of the Cherokee population engaged in farm operation than in the South. The free land access lowered the barriers and costs to land acquisition, and, hence, more people became farmers. Even without free land access, however, some people in the Nation

[48] A complete list of variables in the data set can be found in Appendix 2.

would have purchased land and become farm operators. It is useful to think of each individual *i* as having a level of farming ability, potentially distributed $a_i \sim N(\mu, \sigma^2)$, such as shown in figure 1. With higher barriers to land acquisition in the South, only those with the highest levels of ability will be able to farm their own land (shown in blue on the figure). In the Cherokee Nation, the barriers to entry are much lower, and a correspondingly larger proportion of the population became farm operators (the yellow, red, and blue areas in the figure). Because more people with lower levels of farming ability are farm owners in the Cherokee Nation, this may introduce a bias in farming outcomes of Cherokee Nation farm owners relative to farm owners in the South if farming ability is correlated with any of the outcomes of interest. Since farming ability is likely correlated with some outcomes to be investigated, such as the value of crop output, there is likely a bias. One way to potentially combat this bias is including the farms of Southern individuals who rent for cash or share. These people may have lower ability levels than owners (represented in the yellow area of the figure). While their inclusion will not completely eliminate the bias introduced by differing levels of mean ability between Cherokee and southern farmers, it should, at least, decrease it. Any remaining bias will work against finding a beneficial effect of free land access, and, if a positive effect is found, it would have had to overcome the bias introduced by differing mean levels of farming ability in each sample.

Figure 1: A Potential Distribution of Farming Abilities



To empirically analyze the effect of land access, it is helpful to think of the census samples as being divided into four categories of people: former slaves with free land access, former slaves without free land access, non-slaves with free land access, and non-slaves without free land access. For any given outcome X, we can represent this situation in a matrix:

		Former Slave: No	Former Slave: Yes
Access to Free Land	Yes	X_{00}	X_{01}
	No	X_{10}	X_{11}

To evaluate the impact of free land on former slaves, one possible measure is simply the difference between the outcomes of former slaves with land access and those without land access, or, X_{01}-X_{11}. Using this difference would provide a consistent estimate of how the effect of being black on the outcome of interest changes when free land access is available if being in the Cherokee Nation had no additional impact on the outcome of interest. However, being in the Cherokee Nation might also have its own effect on the outcome of

interest. The complete impact of free land access on former slaves would be the sum of these two effects, or $(X_{01}-X_{11}) + (X_{00}-X_{10})$.

VI. Landless Freedmen and Landed Cheorkees: Testable Implications

Several strands of literature have developed to explain how the Southern freedmen's landless state affected their economic well being in the years following emancipation. Although the various strands are all interrelated, they can be divided into three broad categories. The first studies the great variety of tenancy arrangements that emerged to coordinate the large numbers of landless blacks and landed whites. Second, other literature acknowledges that, even absent any discrimination or ill treatment of the freedmen, their initial lack of wealth would have long term implications for both their income and wealth levels. Finally, the decline in Southern agricultural output and food production and the increase in the percentage of land devoted to cotton are sometimes tied to the poverty of the freedmen.

a. Complex Tenancy Arrangements

While sharecropping and wage labor initially emerged in the antebellum environment in both the Cherokee Nation and the southern United States to match land and labor, the system's short life span within the Cherokee Nation meant that it never developed the complexity found in tenancy arrangements throughout the South. There were four basic rungs on the ladder of Southern agricultural tenancy: wage worker, share cropper, tenant, and owner.[49] As an individual progressed up the ladder, responsibility, control of labor

[49] See, for example, Alston and Higgs (1982), Alston and Ferrie (2005), Reid (1979), Alston and Kaufman (1997) for discussions of the agricultural ladder.

and crop mix, and income all increased. A move up the ladder was almost certainly associated with an increase in welfare. In addition to these three basic rungs of the agricultural ladder, a myriad of hybrid arrangements also existed. This incredible variation in tenure persisted across time and space.

There is nothing in the historical record to support that sharecropping by the Cherokee freedmen persisted after they were granted land access. If this negative evidence is not convincing, the composition of the Cherokee's livestock capital further substantiates that a large amount of sharecropping did not occur in the nation. Using data from the 1910 U.S. Census, Kauffman (1995) calculated that a large share of the South's work stock consisted of mules instead of the horses used in the North. As mules were more expensive than horses, and the South had lower income levels than the North, this high mule to horse ratio could not be explained with relative prices or as an income effect. He theorized that mules were preferred in regions with a large number of sharecroppers and wage hands, because the hardier mules were easier to care for and more difficult to harm than horses. For this reason, landlords may have purchased mules to solve the principle-agent problem inherent when work stock is used by non-owners. The ratio of mules to horses in the Cherokee Nation is .0923, a level more on par with regions like the Pacific (0.090) or the West North Central (0.105) than any of the South's regions (0.548 to 0.877) and is consistent with low levels of sharecropping and wage labor. Furthermore, 83 percent of Cherokee freedmen farmers report owning 1 or more horses, suggesting that most freemen farmers owned their own work stock and did not lend it out or rent. In contrast, only 35 percent of black farm operators and 46 percent of black farm owners in the rest of the South report having access to at least one horse.

Despite the initial post-war use of sharecropping, could there be something about the soil or agricultural technology of the Cherokee Nation that precluded the further development of sharecropping? This seems unlikely. The areas of Arkansas that shared the Nation's eastern boundary did have sharecropping. The prevalence varied by county, but, according to Ransom and Sutch (1977, 93), the least sharecropped county had from 12.95 to 19.58 percent of all farms sharecropped, while the most sharecropped had between 34.30 to 80.05 percent of farms sharecropped. Even more compelling is that there eventually was some sharecropping within the Nation. During the mid-1880s, court records began to mention non-citizen whites being contracted as sharecroppers by native Cherokees.[50] There were plenty of poorer whites in the nearby states in need of employment, and many Cherokees had land, but insufficient labor to work it. There are no records of non-citizen blacks being hired as sharecroppers. The ample supply of white labor and the animosity towards blacks within the nation made whites the sharecroppers of choice.

b. Wealth and Income of the Freedmen

As mentioned in the introduction, both the wealth and income levels of the freedmen lagged behind those of whites. DeCanio (1979) attempted to decompose this Postbellum black-white income gap into two components—initial lack of wealth (e.g., land) and the effects of discrimination. He found that, "the freedmen's lack of tangible property at the time of emancipation was the overriding cause of their low income relative to Southern whites."[51] His result would hold, "even if all markets had operated perfectly and no discrimination had been practiced against the freedmen either in wage payments or in

[50] Bloom, 55
[51] DeCanio, 184

their access to occupations."[52] DeCanio also used the Stiglitz model to predict the dynamic path of the black-white wealth ratio. The actual gap in levels, estimated using data from Georgia, contracted at a slower rate than predicted, likely due to the effect of discrimination against blacks

Using his model, DeCanio extended his calculations to evaluate the hypothetical effect of giving each freedman head of household forty acres and a mule at emancipation. This would have increased the freedmen's starting per capita income to about half that of whites. Under the ideal conditions of the Stiglitz model, landless and mule-less freedmen would not have achieved this same level of relative income until between 1891 and 1905. Using more realistic conditions, the freedmen would not have reached the same relative wealth level until 1952.

DeCanio's model suggests that the Cherokee freedmen, with their access to free land, might have higher levels of income and wealth than Southern freedmen did. While the 1880 censuses for both the United States and Cherokee Nation did not collect direct measures of wealth and income, some proxies are available that allow comparisons between the South and the Cherokee Nation. They are crop value, livestock value, and farm size.

For most farm operators, their crops were likely a primary (and often only) source of income. Data on crop outputs can be used to calculate this form of income by constructing a sum of each farm's crop output weighted by crop price. This measure represents the amount of gross income a farmer had at the end of the planting season. Ideally, crops for each farm would be valued at local farm gate prices. While average 1879-1880 farm gate prices are available for most crops in most states in the *1927 USDA Statistical Bulletin*, number 16, the Cherokee Nation was not officially part of the United States at this

[52] DeCanio, 184

time. Data on the area does not appear until after it became part of Oklahoma. Information on the surrounding states is also sparse in nature until 1894. To abstract from this problem, the average price level for each crop from a selection of Southern states was used. Prices were not available for all crops produced on each farm. Only crops for which yields were recorded for the Cherokee Census and United States were included. However, the crops that were excluded were generally grown in small amounts and did not constitute a major source of income for the farm.

Table 5 reports the means of crop value for various groups. The average crop values are higher in the south than in the Cherokee Nation for every category except for white farm heads. The high crop value for white heads is likely due to the sample selection bias described previously. The lower literacy rates of the Cherokee freedmen may be partly to partly to blame for the lower levels of crop value. Furthermore, the Cherokee Nation was suffering from drought conditions in 1879. With the exception of Cooweescooee and Delaware, all districts of the nation were experiencing one of the driest seasons in memory.[53]

Table 5: Crop Values for the South and the Cherokee Nation

Mean	South	Cherokee Nation
Overall	495.007 (1367.067)	386.8431 (1045.895)
White	553.4437 (1624.904)	832.9735 (1833.488)
Cherokee	N/a	318.083 (728.447)
Black—All	369.2417 (430.0591)	269.4251 (1241.476)
Black—Owner	375.2646 (627.072)	"
Black—Rents for Cash/ Shares	358.8477 (286.5008)/ 371.9555 (371.3545)	n/a

Notes: Standard errors in parenthesis. Means reported only for those farms with positive crop values. Some Cherokee farms specialized in livestock production.

There is an additional problem with using crop value as a proxy for income. For sharecroppers and share tenants, a portion of the crop or earnings would have been given to the landlord as payment for use of the land and other farming supplies. These farm operators would not have received the full value of the crop as income. Because the terms of these cropping or tenancy contracts are not known, I will leave the crop values for tenants and croppers unadjusted. This will cause an upward bias in the income estimates for croppers and tenants in South, and, because a large proportion of black farm operators were croppers and tenants, introduce an upward bias in black income in the South. This will further stack the deck against finding a beneficial effect of the impact of land ownership on former slaves.

To estimate the effect of former slave status and free land access on crop value, the following regression was estimated:

$$\begin{aligned}\text{Crop Value} = {} & \beta_0 + \beta_1 * \text{Black} + \beta_2 * \text{Cherokee Nation} + \\ & \beta_3 * \text{Cherokee Freedmen} + \beta_4 * \text{Literate} + \beta_5 * \text{Household Size} \\ & + \beta_6 * \text{Age} + \beta_7 * \text{Age} * \text{Age} + \beta_8 * \text{Tilled Acres} + \Sigma_k \beta_k * \text{County} \\ & \text{Fixed Effects} + \varepsilon\end{aligned} \qquad (2)$$

This regression is conducted at the farm operator level. The baseline specification corresponds to a non-black, illiterate person living in the Southern United States. Tilled acres corresponds to the number of acres tilled in crops used to calculate crop vale. County-level fixed effects are included for both the South and the Cherokee Nation. I will repeat this estimation for both all farm operators and only owners. Results are in columns 1-4 of Table 6. Robust standard errors are reported because the Breusch-Pagen rejected homoskedastic error terms. Only farm operators with a positive level of crop income are included. This excludes farmers who specialize in livestock production. Furthermore, to

[53] *Cherokee Advocate,* September 1, 1880.

prevent a downward bias in crop income for farmers who have a large amount of acres planted in crops that were not included in calculation of crop income, I include only those farms who have 90 percent of more of all acres planed in income crops.[54]

[54] Eliminating this latter restriction changed neither the sign nor significance level of any variables.

	Crop Income in Dollars				Livestock Value in Dollars			
	Owners Only		All Farm Operators		Owners Only		All Farm Operators	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
Black = 1	-93.6326	49.11067	-55.5151	30.37101	-140.349	25.55165	-132.976	13.17452
Cherokee Nation = 1	300.2081	55.44734	-143.468	98.93397	-1580.69	797.028	-3709.75	1626.619
Black * Cherokee Nation	203.6982	96.41369	159.73	89.94449	-14.2456	57.80424	-39.9454	54.22001
Literate =1	72.05018	28.47239	40.55788	17.86975	189.765	22.31977	144.9001	14.39435
Number in Household	17.91149	16.70755	7.7774	9.777616	20.37233	3.5776	16.37053	2.468714
Age	4.650882	3.928906	2.834786	2.68374	20.2249	3.555774	16.66475	2.609631
Age * Age	-0.04637	0.038482	-0.03527	0.027042	-0.15806	0.040475	-0.13014	0.030472
Acres Planted in Crops	14.91348	1.326985	15.00976	1.188697				
Constant	-656.979	155.1338	-103.863	126.4051	1176.193	797.2772	3435.225	1621.54
β_3=0 p value	0.035		0.076		0.805		0.461	
$\beta_2 + \beta_3 = 0$ p value	0		0.9031		0.2064		0.0232	

OLS estimation of Crop Income and Livestock Value. Robust standard errors used. County fixed effects included. Sample includes only those farmers with positive values for the dependent variable.

To test the effect of free land access on former slaves, I will use the two tests discussed above. The first is simply to test if β3, the co-efficient on the interaction term, is different from 0. When only owners are evaluated, β_3 is positive and significantly different from 0, and having access to free land increased the crop income of blacks in the Cherokee Nation. When comparing if the total effect of being a black with free land access (β1 + β2 + β3) to the effect being black in the South with no free land access (β1), the total benefit for freedmen living in the Cherokee Nation remains positive. The p-value of the test β2 + β3=0 rejects this null. This pattern changes when the sample is expanded to include all farmers. The coefficient on β3 is still positive, but it is now only marginally significantly different from 0 at the 8 percent level. The effect of being in the Cherokee Nation is now negative, and when the two effects are added, the joint test suggests there is no difference in income levels of blacks in the Cherokee Nation relative to those in the South. The change in the effect of being in the Cherokee Nation on crop values when all farm operators are included likely reflects that the income level of southern blacks in artificially inflated by the inclusion of the entire value of crop as income for share croppers and tenants.

The value of a farmer's livestock can serve as proxy measure for both income and wealth. While some animals, like hogs, were raised each year for slaughter and consumption or sale, other animals, such as horses and mules, served as a form of capital and would have been carefully maintained and utilized for several years to increase production. The censuses collected data on cattle, hogs, sheep, horses, and mules. An aggregate livestock value was constructed using average state level prices from the *USDA Statistical Abstract.* Means are presented in table 7. Livestock values are much higher in the Cherokee Nation than in the

Table 7: Livestock values for the South and the Cherokee Nation

Mean	South	Cherokee Nation
Overall	244.7173 (514.8296)	553.7737 (1192.3)
White	300.745 (606.4053)	783.2921 (1179.554)
Cherokee	n/a	542.0282 (1311.029)
Black—All	125.9747 (163.356)	400.5851 (680.099)
Black—Owners	154.7291 (232.2924)	n/a
Black—Rents for shares or cash	115.0279 (126.0409)	

Standard errors in parenthesis.

South. The greater investment in livestock is likely due to cost factors. If a Cherokee farmer claimed an additional acre of land, he could either plant crops or let livestock graze on it. He and his family faced a limited labor supply (of both their own labor and labor for hire), and livestock could graze on pasture grasses with little supervision, providing the farmer with a low-cost method to build wealth and food.

To evaluate the potential effect of land access, I estimated:

$$\text{Livestock Value} = \beta_0 + \beta_1 * \text{Black} + \beta_2 * \text{Cherokee Nation} + \beta_3 * \text{Cherokee Freedmen} + \beta_4 * \text{Literate} + \beta_5 * \text{Household Size} + \beta_6 * \text{Age} + \beta_7 * \text{Age} * \text{Age} + \Sigma_k \beta_k * \text{County Fixed Effects} + \varepsilon \quad (3)$$

Variable meanings are the same as in the previous regression. Results are reported in columns 3 and 4 of Table 6.[55] Despite the larger mean livestock holding in the Cherokee Nation, any livestock advantage enjoyed by Cherokees disappears when county-level fixed effects are included. In the estimation for both owners and all farm operators, the coefficient on the Cherokee Nation indicator variable is negative and significantly different than zero. The interaction term, β_3, remains insignificant on both regressions. The total effect of living in the Cherokee Nation for the owners regression, $\beta 2 + \beta 3$, is negative.

However, the precision of the estimate is large and can not be determined to be different from 0. When the same test is conducted for the sample with all farm operators, the coefficient is still negative, but now is significantly different from 0. The interpretation of the all farm owners regression suffers from problems, however. Sharecroppers almost certainly did not own their work stock, and tenants may also have leased the work animals. The regression serves not as a measure of wealth, but more as a measure of available animals for use. Even this interpretation suffers problems, as some croppers' borrowed mules or horses may have been boarded on their landlords' property and not included on their census totals. I have included the result for completeness only.

For a final measure of wealth, I will examine relative levels of land ownership. Given that a former slave owned land, how did the size of his farm compare to that of other land owners? I will look at two forms of land use—total acres and acres devoted to crops. Total acres enclosed is the total size of an owner's farm.

$$\text{Total Acres Enclosed} = \beta_0 + \beta_1*\text{Black} + \beta_2*\text{Cherokee Nation} + \beta_3*\text{Cherokee Freedmen} + \beta_4*\text{Literate} + \beta_5*\text{Household Size} + \beta_6*\text{Age} + \beta_7*\text{Age}*\text{Age} + \Sigma_k\beta_k* \text{County Fixed Effects} + \varepsilon \quad (4)$$

The total acres tilled, however, only refers to those acres that are actually planted in crops. Pastures, forests, fallow fields, etc., are not included.

$$\text{Total Acres Tilled} = \beta_0 + \beta_1*\text{Black} + \beta_2*\text{Cherokee Nation} + \beta_3*\text{Cherokee Freedmen} + \beta_4*\text{Literate} + \beta_5*\text{Household Size} + \beta_6*\text{Age} + \beta_7*\text{Age}*\text{Age} + \Sigma_k\beta_k* \text{County Fixed Effects} + \varepsilon \quad (5)$$

[55] All farm operators are included in these regression results. However, if the sample is restricted to just those operators who own livestock, only 201 farm owners are excluded from the sample. The sign, significance levels, and magnitudes of the variables do not alter in any meaningful manner.

Results are reported in table 8. For both specifications, the coefficient on β_3 is positive and significantly different than 0, indicating an advantage in farm size and acres cultivated for blacks in the Cherokee Nation. However, results from the second test are split. Farms in the Cherokee Nation are overall smaller in size, controlling for all else. The complete effect

Table 8

	Total Acres Enclosed		Total Acres in Crop	
	Coefficient	Std. Error	Coefficient	Std. Error
Black Dummy = 1	-135.0087	10.73417	-10.7319	2.684259
Cherokee Nation = 1	-268.5976	106.4156	-14.5818	2.820098
Black * Cherokee Nation	135.8239	10.87293	5.983813	3.10106
Literate = 1	53.99453	5.671712	13.95299	1.345801
Number in Household	8.027752	1.586491	2.344	0.460145
Age	0.7200773	1.536073	1.043076	0.243864
Age * Age	0.0179734	0.017229	-0.00841	0.002577
Constant	164.7991	110.8209	-4.46496	5.783059
β_3=0 p value	0		0.054	
$\beta_2 + \beta_3 = 0$ p value	0.2104		0.0381	

OLS regression. Robust standard errors shown. County fixed effects included.

on total acreage of being a freedman in the Cherokee Nation is negative, but not significantly different from that of being a freedman in the South. With respect to total acreage in crops, the Cherokee freedmen have fewer acres, controlling for all else, than freedmen in the rest of the south. Why is there no significant difference in total acres of a farm, but a negative impact on acres cultivated? This result seems somewhat puzzling, but it could reflect that the lower cost of land within the Cherokee Nation allows farmers to devote more acreage to farm animals or leave fields fallow to preserve and restore nutrients in the soil.

c. Corn and Cotton

Following the Civil War, the South experienced a striking transformation in the composition of its agricultural output. While corn and cotton remained important crops and together comprised over 80 percent of the value of Southern agricultural output (Temin, 1983), the mix of the two crops' production changed. Southern farm operators devoted relatively less acreage to corn and relatively more acreage to cotton than they had before the Civil War. This change in crop mix has been tied to another development in the postbellum South—a marked decline in food production. As farmers grew more cotton and less corn, many were unable to maintain subsistence levels on their own farms. Both individual farmers and the South as a whole developed a food deficit and both became dependent on purchased food.

The South is large area, and there was regional variation in the increase of relative cotton production and the decline in subsistence. Temin (1983) found that, within the Deep South (South Carolina, Georgia, Mississippi, Louisiana, and Alabama) the shift in cotton production occurred mainly in the Piedmont region of northern Georgia and Alabama and western South Carolina. Ransom and Sutch (1977 and 2001) found that the sacrifice of food crops for cotton production to be a widespread Southern phenomenon. With the exception of a few areas, such as western Virginia, western North Carolina, and eastern Tennessee, they argue that many southern farms could have profited from growing less cotton, growing more corn, and relying less on purchased food. Harris (1994) studied the upper and lower Piedmont and found additional variation within the region's cotton production. While his sample of Piedmont counties all demonstrated increased postbellum cotton production at the expense of food crops, the type of farmers responsible for the increase varied. In the upper Piedmont, there was a mainly universal increase in cotton production, while the lower

Piedmont's cotton growers tended to be tenants who farmed former plantation lands. Furthermore, in both regions, new farming entrants were more likely to grow cotton than farmers who had been working the same land since antebellum times. He also found a significant relation between poverty and the concentration of cotton.

A consensus has not yet been reached on possible explanations for the South's (or part of the South's) wholeheartedly embracing King Cotton at the expense of corn. Some economic historians have argued that the southerners were rationally responding to market incentives.[56] Alternate theories have been proposed that tie the change to the poverty of Southern farm operators, particularly the southern blacks who entered freedom with no land and a desire to farm.

Ransom and Sutch (1977) believe that the disorganized nature of the postbellum credit system trapped freedmen in a system of debt peonage. With no access to banks and no assets of their own, many former slaves suffered from a shortage of credit. In small towns throughout the South, a new form of banking arose to help fill the credit gap. Local merchants would purchase supplies from northern companies with short-term credit. At the beginning of the farming season, the merchants would sell supplies to farmers on credit, with the expectation of being paid from the earnings on that season's crop harvest. These merchants, who, according to Ransom and Sutch, enjoyed a territorial monopoly, would charge exorbitant interests rates and force farmers to plant large quantities of cotton and insufficient supplies of corn. The farmer could not eat cotton, and, faced with a large debt and insufficient food supplies, the poor farmer was forced to purchase food from the merchant and perhaps borrow even more money. He became trapped in a system of debt peonage and endless dependence on the merchant.

Faced with borrowing at high interest rates or starving, he was never able to accumulate the necessary savings to purchase food or land.

Wright and Kunreuther (1975, 1977) suggest that cash poor farmers may have faced a difficult decision. They could opt for a safety-first strategy by growing enough corn to guarantee to self-sufficiency, then planting the remainder of their land in cotton. However, if the farmer needed to generate a certain amount of cash in order to repay his debts, he was forced to first allocate land enough to cotton to guarantee a minimum cash flow, and only then could land be devoted to corn. If he could not grow enough food to eat, even more borrowed money would be required to feed his family. The cycle then continued.

The Cherokee Nation did not escape the increased cotton production present in other areas of South. Although statistics on pre-war crop acreage are unavailable, contemporary accounts indicate that cotton production experienced something of a U-shaped pattern. Cotton was grown before the war, then its production was interrupted by the war and initial reconstruction. Something during the 1870s, farmers began to have a renewed interest in the crop. In 1879, 25 percent of crop farmers in my sample devoted some acreage to cotton. The increase in cotton was accompanied by some concern, and local agricultural leaders advised taking a "safety-first" approach to cotton production. The Nation's newspaper warned that,

> The only danger to be apprehended [of increased cotton production], growing out of the fine yields and the remunerating farms returns, is the possibility of over-doing the thing; of turning all attention to it, to the exclusion of other products that contribute more immediately to the table. Such has been done, and much suffering and deprivation have been the consequence, when there has been a failure of

[56] See DeCanio (1974), for example.

> crop. Cultivating it as a surplus over and above the necessary crops of corn, wheat, oats, cotton is undoubtedly the best paying farm industry of the country; but when to the detriment or exclusion of these, there is a danger of misfortune and suffering.[57]

If the phenomenon of increased cotton production and a lack of food self-sufficiency was a result of the poor, landless state of freedmen, then it might be expected that the Cherokee Nation and their freedmen escaped this problem. Tables 9 and 10 report results for regressions on corn and cotton production.

[57] *Cherokee Advocate,* October 13, 1880

Table 9

	Pr (Corn =1)				Pr (Cotton=1)			
	Owners Only		All Farm Operators		Owners		All Farm Operators	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
Black = 1	-0.17436	0.1141805	-0.12255	0.0742103	0.226936	0.091485	0.402047	0.059922
Cherokee Nation = 1	0.9320127	0.5163385	0.149315	0.3555901	-0.663	0.575065	-0.80965	0.377421
Black * Cherokee Nation	0.0610181	0.1951559	0.025035	0.176049	0.042106	0.14779	-0.13378	0.132903
Literate = 1	0.0467231	0.0795243	0.062897	0.0627638	0.193931	0.056943	0.181848	0.04645
Number in Household	0.0147947	0.0133961	0.020082	0.0101598	0.033001	0.008672	0.02723	0.007236
Age	-0.003581	0.0130404	-0.00444	0.0098751	0.018645	0.008295	0.006074	0.007161
Age x Age	0.0000987	0.0001452	7.54E-05	0.0001088	-0.00021	0.000088	-0.0001	0.000077
Constant	0.4959659	0.5595466	1.534055	0.3688656	0.477268	0.587165	0.959403	0.384466
β_3=0 p value	0.755		0.887		0.776		0.314	
$\beta_2 + \beta_3 = 0$ p value	0.0692				0.2879		0.0162	

Probit regression. Marginal effects reported at the sample means. Robust standard errors reported. County fix effects included.

Table 10

	Percent Acreage in Corn				Percentage Acreage in Cotton			
	All Farm Operators		Owners		All Farm Operators		Owners	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
Black = 1	0.0783894	0.0099537	0.028048	0.0155421	0.216552	0.010808	0.120228	0.012049
Cherokee Nation = 1	0.3522245	0.0600107	0.206372	0.0330426	0.364328	0.190907	0.416343	0.109814
Black * Cherokee Nation	-0.067395	0.0583911	-0.02445	0.0591679	-0.24136	0.04193	-0.13236	0.043209
Literate = 1	-0.087722	0.0122466	-0.09683	0.0188783	-0.04434	0.010369	-0.01516	0.009339
Number in Household	-0.004563	0.0011869	-0.00269	0.0015732	-0.00425	0.001235	-3.9E-05	0.001207
Age	-0.007106	0.0015337	-0.00589	0.0021178	-0.00452	0.001181	-0.00261	0.001137
Age * Age	0.0000551	0.0000154	0.000048	0.0000204	2.44E-05	1.22E-05	1.48E-05	1.14E-05
Constant	0.6569894	0.0435635	0.615325	0.0638977	0.26126	0.091533	0.093032	0.027226
β_3=0 p value	0.248		0.679		0		0.002	
$\beta_2 + \beta_3 = 0$ p value	0.0006		0.0037		0.519		0.162	

OLS regression. Robust standard errors are reported. County level fixed effects included.

The first set of regressions, reported in Table 9, investigate the extensive margin, that is, the decision to plant any corn or cotton at all:

$$\Pr(\text{Corn is Grown} = 1) = \Phi(\beta_0 + \beta_1 * \text{Black} + \beta_2 * \text{Cherokee Nation} + \beta_3 * \text{Cherokee Freedmen} + \beta_4 * \text{Literate} + \beta_5 * \text{Household Size} + \beta_6 * \text{Age} + \beta_7 * \text{Age} * \text{Age} + \Sigma_k \beta_k * \text{County Fixed Effects}) \quad (6)$$

and

$$\Pr(\text{Cotton is Grown} = 1) = \Phi(\beta_0 + \beta_1 * \text{Black} + \beta_2 * \text{Cherokee Nation} + \beta_3 * \text{Cherokee Freedmen} + \beta_4 * \text{Literate} + \beta_5 * \text{Household Size} + \beta_6 * \text{Age} + \beta_7 * \text{Age} * \text{Age} + \Sigma_k \beta_k * \text{County Fixed Effects}) \quad (7)$$

The decision to grow corn seems unaffected by race or location in the Cherokee Nation—the coefficients on the black and Cherokee Nation indicator variables are both not significantly different from 0 in both the owner and all farm operator specifications. The same is true of the estimated coefficient of the interaction term, β_3. The decision to grow cotton does seem to be influenced by race, and blacks have an increased propensity to grow cotton. The coefficient estimates for the Cherokee Nation variable and the interaction term of β_3 are not significant in the owners regression, and the test of $\beta_2 + \beta_3 = 0$ cannot be rejected. The results are slightly different when all farm operators are considered. Farmers in the Cherokee Nation are significantly less likely to grow cotton. The estimate on the interaction term also suggests that freedmen in the nation are also less likely to grow cotton. However, this result is not significant. The test of the joint hypothesis of $\beta_2 + \beta_3 = 0$ rejects the null, suggesting that, overall, Cherokee freedmen are less likely to grow cotton than black southern farm operators.

I next investigate the intensive margin, with results shown in Table 10. Given that a farmer chose to plant either corn or cotton, how much of his acreage did he devote to the crop? This can be estimated as:

$$\text{Acres in Corn/Total Tilled Acres} = \beta_0 + \beta_1 * \text{Black} + \beta_2 * \text{Cherokee Nation} + \beta_3 * \text{Cherokee Freedmen} + \beta_4 * \text{Literate} + \beta_5 * \text{Household Size} + \beta_6 * \text{Age} + \beta_7 * \text{Age} * \text{Age} + \Sigma_k \beta_k * \text{County Fixed Effects} + \varepsilon \quad (8)$$

and

$$\text{Acres in Cotton/Total Tilled Acres} = \beta_0 + \beta_1 * \text{Black} + \beta_2 * \text{Cherokee Nation} + \beta_3 * \text{Cherokee Freedmen} + \beta_4 * \text{Literate} + \beta_5 * \text{Household Size} + \beta_6 * \text{Age} + \beta_7 * \text{Age} * \text{Age} + \Sigma_k \beta_k * \text{County Fixed Effects} + \varepsilon \quad (9)$$

As Table 10 demonstrates, it is here that the Cherokee freedmen are significantly different from both the rest of their nation and other freedmen in terms of cotton production. Both black owners and farm operators are significantly more likely to devote a greater percentage of their acreage to cotton production. Relative to white owners in the South, farmers in the Cherokee Nation are also likely to devote a greater proportion of their land to cotton given that they decided to grow any cotton. In both regressions, however, β_3 is negative and significant. The Cherokee freedmen are less likely to devote a large part of their acreage to cotton. This suggests that the Cherokee freedmen's cotton decisions may have more closely resemble a "safety first" philosophy than a revenue maximization strategy. When the effect of being in the Cherokee Nation is included, the Cherokee freedmen's cotton acreage is not significantly different from blacks in the rest of the south, however.

The results from the corn analysis do not reveal any significant difference in the behavior of the Cherokee freedmen in terms of β_3. However, the farmers in the Cherokee

Nation are likely to devote more acreage to corn than whites or blacks in the South. This effect is large, and the joint test of $\beta_2 + \beta_3 = 0$ indicates dedicated a larger percentage of their acreage to corn than did Southern blacks.

Even though the Cherokee Nation was, to a certain extent, embracing cotton production, its continued emphasis on corn may have assisted its residents in maintaining self-sufficiency. Following the procedure outlined by Ransom and Sutch (1977), the net amount of food produced per farm was estimated and then compared to amount required support the members of the household. Because most of the nation was in a severe draught for the 1879 crop year, these estimates of self-sufficiency will certainly be a lower bound for the Cherokee Nation. Indeed, the government had anticipated that many people would not be able to achieve self-sufficiency due to crop failures and authorized funding to supply food to the starving.

The major feed crops included in the calculations are corn, wheat, oats, sweet potato, irish potato, rye, barley, buckwheat, cowpeas, and dried beans. Information on the last five crops was not collected in the Cherokee Census. Therefore, if any farmers grew these crops, their estimated food yield will be biased downward. Since these crops were not included on the census because they were not the principle products of the Nation, the possible bias will likely be small.

Before food yields can be estimated, the amount of seed required to plant next season's crops must be subtracted from the current year's crop yield. It was assumed that acreage planted in each crop would remain constant. To standardize the amount of nutritional value provided by each crop, they were each converted into corn equivalent units. After the crops are converted into their corn equivalents, they can simply be summed to determine the total amount of nutritional value produced by a farm. Before this food can be

allocated to the members of the household, however, the animals of the farm must be fed. Ransom and Sutch assume that average corn equivalent food consumption was 35 bushels for horses and oxen, 30 for mules, 5 for milch cows, 0 for other cattle, and .25 for sheep. Their estimates account for variation in feeding practices, presence of younger animals, and the possibility that animals graze elsewhere. Because the Cherokee Nation had ample pastureland and areas of open range, the feed requirements for Cherokee livestock may have been slightly lower than those for livestock in the South. This is particularly true for cattle. The Nation's vast open prairies were perfect for cattle. Within the nation, cattle were traditionally branded and allowed to roam and feed on prairie grasses in the spring and summer, and hay in the winter months. This great ease of care influenced many Cherokees to raise cattle.[58] For this reason, cattle feed will not be subtracted from farms' total nutritional output in the Cherokee Nation.

After the food residuals are calculated, the number of people the food must support needs to be determined. Each family must feed its members. Ransom and Sutch estimate a working adult requires 20 bushels of corn each year. Because children and non-working adults require less food, they assumed that each family member would use 15 bushels a year. I will do the same. As I did when calculating crop value, I will not subtract a portion of the output of Southern sharecroppers and tenants farms. This will, again, potentially overestimate their rate of self-sufficiency. Overall, 31 percent of Cherokee farms reached a level of subsistence while 47 percent of farms in the South did. See Table 11. The Cherokee freedmen, whose crops were hit by the draught, had a subsistence rate that was half that of the southern freedmen.

[58] Holland, 540

Table 11: Percent of Farms Obtaining Self-Sufficiency

	South	Cherokee Nation
Whites	52.7	55.6
Cherokee	29.9	n/a
Blacks	32.1	16.9

Table 12 reports results from the following probit regression on the probability of being self-sufficient:

$$\begin{aligned}\Pr(\text{Self-Sufficient} = 1) = \Phi(&\beta_0 + \beta_1 * \text{Black} + \beta_2 * \text{Cherokee Nation} + \beta_3 * \text{Cherokee Freedmen} + \beta_4 * \text{Literate} + \\ &\beta_5 * \text{Household Size} + \beta_6 * \text{Age} + \beta_7 * \text{Age} * \text{Age} + \beta_{7*} \text{Tilled Acres} + \Sigma_k \beta_k * \text{County Fixed Effects})\end{aligned} \quad (10)$$

While being black significantly reduces the chance a farmer will be self-sufficient for both the owners and all operators samples, the probability is not affected by living in the Cherokee Nation or being a Cherokee freedman when all farm operators are included. When only owners are considered, $\beta_{3,}$ takes on a positive and significant coefficient, indicating an advantage for Cherokee freedmen in achieving self-sufficiency. The total effect of living in the Cherokee Nation, $\beta_{2+}\beta_{3,}$ is also positive and significantly different from 0. Because this effect is not present when all operators are considered, it could be a result of the artificially high food residuals for croppers and tenants. If the Cherokee freedmen have a slight advantage over owners, then they might also have one over all farm operators if the payments to landlords were subtracted from their food residuals.

Table 12

	Pr(Self-Sufficiency=1)			
	All Farm Operators		Owners	
	Coefficient	Std. Error	Coefficient	Std. Error
Black = 1	-0.097497	0.015663	-0.1534235	0.024402
Cherokee Nation = 1	0.0296096	0.131593	0.5485873	0.102039
Black * Cherokee Nation	0.0283366	0.047979	0.099106	0.049918
Literate = 1	0.0811535	0.013519	0.1124135	0.017678
Number in Household	-0.0386406	0.002279	-0.0350192	0.002851
Acres in Crops	0.001639	0.000198	0.001631	0.000222
Age	0.0075299	0.002178	0.0078317	0.002718
Age * Age	-0.0000859	2.33E-05	-0.0000835	2.87E-05
β_3=0 p value	0.555		0.052	
$\beta_2 + \beta_3 = 0$ p value	.6756		0	

Probit regression. Margial effects reported at the mean. Robust std. Errors reported.
County fixed effects included.

Furthermore, Cherokee freedmen had the advantage of higher levels of alternate food sources than southern freedmen had. Table 13 shows the mean livestock holdings of freedmen with food deficits. The Cherokee freedmen's higher livestock holdings could serve as a form of food savings that could be tapped into during troubled times.

Table 13: Mean Livestock Holdings of Black Farmers with Food Deficits

	South	**Cherokee Nation**
Cattle	1.47	8.98
Hogs	4.73	18.2
Sheep	.26	1.09

VII: Extension 1: The Indirect Effects of Land Access

Above, I examined the effect of land access for former slaves on various agricultural outcomes. The impact of ownership on farming variables is a fairly direct one, but land access may have also influenced the behavior and outcomes of the Cherokee freedmen by

more complicated channels, such as their levels of educational attainment. One of the universal problems faced by blacks in the South was a lack of quality educational opportunities. The Cherokee freedmen, despite their access to free land, faced great hurdles in obtaining an education. Schools were primarily funded in the Cherokee Nation at the national level. While any area could apply for a school, the government's policy was to only funds schools with at least 25 students. When a large number of young people lived in an area, this number could be easily attained. However, in rural areas with widely dispersed populations, 25 children might not live within easy travel distance of the same location. This was particularly a problem for the Cherokee freedmen, who were not allowed to attend Cherokee schools, because many lived in far-flung rural areas without the requisite 25 children minimum. The first freedmen school did not open until 1869.

In light of the barriers freedmen faced in obtaining an education, what was a concerned parent to do? They may have followed in the footsteps of one Cherokee freedman, who complained before a Senate committee

> There is a public school where I live which is run by the Cherokee government. I had to send my children to Kansas to be educated. They would not admit them to the Cherokee school. We have no school for colored people. There are twenty or twenty-five colored children there, and I, for one, could not afford to let mine roam around there in ignorance.[59]

His testimony suggests that Cherokee freedmen might have used any additional resources they acquired from having access to free land to purchase education opportunities for themselves and their children. To investigate this theory of the potential wealth effects of free land access, I estimated a probit regression of literacy ability:

(11)

[59] Condition of Certain Indian Tribes (1886), 22

$$\Pr(\text{literate}=1) = \Phi(\beta_{o+}\beta_o + \beta_1*\text{Black} + \beta_2*\text{Cherokee Nation} + \beta_3*\text{Black}*\text{Cherokee} + \beta_4*\text{Household Size} + \beta_5*\text{Age} + \beta_5*\text{Age}*\text{Age} + \Sigma_k\beta_k*\text{ County Fixed Effects})$$

Ideally, I would estimate this regression only for two groups of blacks. First, those who would have attended school after emancipation, that is, those of around 20 to 25 years old, and whose parents, if in the Cherokee Nation, would have had access to the treatment of free land access and were in their own households by 1880. Second, I could examine the literacy rates of the children of freedmen in the 1880 Censuses. Unfortunately, restricting my sample to household heads under age 25 reduces the its size dramatically. Also, while I have information on the literacy rates of the children in the 1880 Cherokee Census, the sources of this information that I have access to for the United States do not also contain agricultural data.

Bearing in mind these problems with estimation, I estimated a probit regression for my entire sample. The results are somewhat surprising. While both the black and Cherokee Nation coefficients are negative and very significant, β_3, the interaction term, is positive and significant. This is true for both the owner and all farm operators sample. I then repeated this estimation, but included the additional regressors of number of people in household, total acres, and crop income to determine if income levels or land wealth levels might be influencing the outcome. This latter specification certainly has its problems, such as literacy influencing crop income while crop income is simultaneously affecting literacy. This specification does not seem to alter the pattern found in the first set of regressions: the coefficient on being a black in the Cherokee Nation remains positive. Despite their low literacy rates and restricted access to education, the Cherokee freedmen do seem to enjoy a slight advantage in literacy over

the blacks in the rest of the South. This is an interesting result, and suggests that a more in depth investigation into education within the Cherokee Nation may be warranted.

Table 14

Pr (literate =1)	All		Owners		All		Owners	
	Coefficient	Std. Errors	Coefficient	Std. Errors	Coefficient	Std. Errors	Coefficient	Std. Errors
Black = 1	-0.6602139	0.0093331	-0.6643915	0.0156216	-0.6431927	0.017602	-0.64319	0.0176015
Cherokee Nation =1	-0.0711859	0.2816233	-0.2912065	0.0951737	-0.0988519	0.22658	-0.09885	0.2265801
Black * Cherokee Nation	0.16285	0.0245348	0.1304718	0.0191862	0.1173646	0.018936	0.117365	0.0189361
Age	-0.0007187	0.001831	0.0016215	0.0018382	-0.0014756	0.001881	-1.2E-05	0.0018805
Age*age	-0.0000221	0.0000195	-0.0000395	0.0000193	-0.0000115	1.98E-05	-0.00148	0.0000198
Number in Household					-0.0000232	0.002075	-2.3E-05	0.002075
Total Acres					0.0007304	0.000139	0.00073	0.0001393
Crop Income					0.0000886	1.81E-05	8.86E-05	0.0000181
β_3=0 p value	0		0		0		0	
$\beta_2 + \beta_3 = 0$ p value	0.6527		0.2431		0.8421		0.7976	

Probit regression. Margial effects reported at the mean. Robust std. Errors reported. County fixed effects included.

VIII. Whites in the Cherokee Nation

Despite including both county-level fixed effects and a Cherokee Nation indictor variable, perhaps any advantage the Cherokee freedmen have is due to some unknown, yet beneficial, aspect of living in the Cherokee Nation that is not fully accounted for with the fixed effects estimation. If such a thing exists, it could influence both blacks and whites in the Cherokee Nation and would be apparent in tests of statistical difference between white in the South and whites in the Cherokee Nation.

I re-estimated the crop value equation (2) from above, but restricted my sample to whites. Results are in Table 15. The coefficient on the Cherokee Nation indicator variable is significant and negative, supporting that there was not an unmeasured positive effect of being in the Cherokee Nation. I then re-estimated equation (3), which was for livestock value. Like the earlier regression that found a negative and significant impact of being in the Cherokee Nation on livestock value, whites in the Nation are have significantly lower levels of livestock value than Southern whites. Finally, I examine self-sufficiency rates as in (10) above. There is no significant impact of being in the Cherokee Nation in self-sufficiency rates for whites.

These results all suggest that there was not some unmeasured positive effect of being in the Cherokee Nation influencing the estimated benefits of being black in the Cherokee Nation.

IX. Conclusions

Unlike most former slaves, the Cherokee freedmen received access to free land after emancipation. This access to free land was not theoretical, and many Cherokee freedmen took advantage of the opportunity. Fourteen years after they were granted this

access, the Cherokee freedmen already seemed to have gained certain advantages over freedmen in the southern United States. They did better by some measures of income and wealth. They had an advantage in crop income, while their livestock holdings did not set them apart from southern freedmen. They also had larger farms than Southern freedmen landowners, although some of this effect was counteracted by the smaller farming units in the Cherokee Nation. They also demonstrated a decreased likelihood to grow cotton. Initial results also suggest that the Cherokee freedmen might have had a relative advantage in literacy rates despite their restricted access to education opportunities. To verify that any benefits the Cherokee freedmen had were not an artifact of their being in the Cherokee Nation, I restricted my sample to white farm operators and found that Cherokee whites did not exhibit the same positive effects as Cherokee freedmen.

These results suggest that Cherokee freedmen did benefit from having access to free land after emancipation. Because I look only at one year, 1880, I can only estimate the effects of land access on freedmen 14 years after the policy was enacted. While this static study does provide insight into the effect of free land access, information on additional years would add depth to the analysis and offer a better understanding of the dynamics of the Cherokee freedmen's accumulation of wealth and income growth. It could also be used to further study the indirect effects of free land access, such as literacy rates, family formation, occupational choice, and fertility. With these goals in mind, I am currently working to link my entire sample of the 1880 Cherokee Nation Census to the 1900 United States Census. These additional data should allow for a more detailed study of the impact of free land access on former slaves.

Table 15

	Crop Value OLS		Livestock Value OLS		Self-Sufficiency Probit	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
Cherokee Nation	-3777.96	1057.303	-1394.773	695.8717	-0.2546515	0.231366
Age	-0.6826	3.21904	5.505476	2.527483	0.0073277	0.00293
age*age	0.00359	0.032961	-0.0315481	0.026216	-0.000082	3.09E-05
Number in Household	18.33459	12.69255	13.93628	2.752035	-0.03876	0.003819
Tilled Acres	15.6353	0.894069	3.116132	0.2462252	0.0046558	0.000626
Literate	63.9675	20.59862	51.63581	17.26411	0.0491377	0.019739

Results are reported for the all farm operators regressions. Due to the high level of white land ownership, restricting the sample to owners only changes niether the signs nor significance of the variables and has only limited effects on their magnitudes.

Table 1: Entire Cherokee Nation vs. Sample

Variable	Entire Nation	Sample
Total Population	19,735*	11,899
Cherokee	15,307	8790
White	1,032	564
Colored	1,976	1784
Other	1,420	761
Number of Families	4,262	3,982 (2,674 without singles)
Occupations		
Farmers	3,549	1273 (2260 uk farm)
Mechanics	133	31 (88 skilled trades)
Clerks	12	4
Teachers	82	42
Millers	5	4
Traders	36	9
Attorneys	11	10 (inc. judges)
Trappers	2	3
Hunters	16	9
Preachers	24	12
Physicians	20	13
Fishermen	5	3
Stockmen	13	6
Various	8	102
Livestock		
Cattle	67,405	42,706
Hogs	108,552	66,434
Sheep	14,574	9,210
Mules	1,259	829
Horses	13,643	8,395
Crop Yields		
Corn	731,601	428,490
Wheat	59,118	36,237
Oats	53,893	31,728
Irish Potatoes	16,286.5	10,201.25
Sweet Potatoes	10,489.5	6,589.75
Turnips	9,041	5,079
Seed Cotton	2,449,830	1,839,513
Hay	10,222.25	6,064.25

Acres in Cultivation		
	84,821	
Total	59,486	32,151.5
	9,899	4,715.5
Corn	5,420	2,804.75
Wheat	6,307.5	5,138
Oats	529.375	408.667
Cotton	438.375	357.37
Irish Potatoes		
Sweet Potatoes		
Improvements		
Dwellings	5,506	3,308
Other Structures	7,103	4,162
Number of Farms	4,104	2,434
Acres Enclosed	110,955	63,238

** These summary statistics do not include orphans under 16 years. There were 351 such citizen orphans who were enumerated on a separate orphan schedule. The 601 people that the National Council later added as citizens are also not included.*

Appendix 1: Information in the 1880 Cherokee Census

Information Collected

Demographic Information	Name Native or Adopted Race or Prior Nationality Age Occupation Can Read Can Write Married—Yes or No
Farm Information	Dwellings Other Structures Number of Farms Total Numbers of Acres Enclosed
Acres in Cultivation	Corn Wheat Oats Cotton Fruit Trees Irish Potatoes Sweet Potatoes
Crop Yields	Corn *(bushels)* Wheat *(bushels)* Oats *(bushels)* Irish Potatoes *(bushels)* Sweet Potatoes *(bushels)* Turnips *(bushels)* Seed Cotton *(pounds)* Hay *(tons)*
Livestock	Cattle Hogs Sheep Mules Horses
Misc.	Remarks
Added Later	Dawes Enrollment Status

Summary Statistics for the 1880 Cherokee Census Sample

Variable	Observations	Mean	Std. Deviation	Min	Max
Age	11780	20.76027	16.8564	0	115
Dead at Dawes Enrollment **	11899	0.3982688	0.4990834	0	2
Family Size	11899	4.527859	2.503679	1	15
Literate **, ***	11899	0.3970082	0.4892983	0	1
Male **	11873	0.5050114	0.4999959	0	1
Married **	11899	0.3318766	0.4709068	0	1
Adopted Cherokee **	11899	0.0177326	0.1319833	0	1
Colored*, **	11899	0.1499286	0.3570164	0	1
Adopted Delaware **	11899	0.0315153	0.1747129	0	1
Adopted Shawnee **	11899	0.0224389	0.1481121	0	1
Adopted White **	11899	0.0473989	0.2124996	0	1
Native Cherokee **	11899	0.720985	0.4485338	0	1
Other Race **	11899	0.0100008	0.0995071	0	1
Dwellings	11899	0.2780066	0.7095602	0	16
Number of Farms	11899	0.2032524	0.5260634	0	7
Other Structures	11899	0.3475502	1.132244	0	25
Total Acres Enclosed	11899	5.314564	24.48342	0	600
Corn Acres	11899	2.702034	11.27587	0	400
Corn Bushels	11899	34.27093	245.1561	0	18000
Cotton Acres	11899	0.4318178	9.556869	0	1000
Cotton Seed Pounds	11899	154.5939	2266.795	0	140000
Fruit Tree Acres	11899	4.26533	37.55546	0	1500
Hay Tons	11899	0.5096437	6.543112	0	400
Oats Acres	11899	0.2357131	2.508168	0	140
Oats Bushels	11899	2.666443	29.54732	0	1000
Irish Potato Acres	11899	0.034347	0.2793733	0	17
Irish Potato Bushels	11899	0.8573241	6.962091	0	200
Sweet Potato Acres	11899	.030034	.4767619	0	40
Sweet Potato Bushels	11899	0.5538028	4.960602	0	300
Turnip Bushels	11899	0.4268426	8.467528	0	700
Cattle	11899	3.589041	25.55472	0	1800
Hogs	11899	5.583158	19.48303	0	625
Horses	11899	.7055215	2.463588	0	100
Mules	11899	0.0696697	0.6634595	0	32
Sheep	11899	0.7740146	7.520484	0	350

** Of the 1784 people denoted as colored in my sample, there are 21 classified as native. I have combined the adopted and native colored people into one category, because there are not enough native colored to provide any useful inference. The "native colored" are likely blacks who were freed by Cherokees before the Civil War.*
*** Dummy Variable, which equals 1 if the variable name is true. E.g., married=1 if the person is married.*
**** Literate is defined as being able to read and/or write English.*

Appendix 2: Information Collected from the 1880 United States Census Agricultural and Population Schedule by the SEHP

Variable
State
County
Enumeration district number
Agricultural census page number
Agricultural Census line number
Population census page number
Population census line number
Race of farm operator
Literacy
Age of farm operator
Number of people in the house including operator
Number of people at work including operator
Birthplace of farm operator
Tenure
Acres of meadow
Acres of woodland
Other acres
Value of farm
Value of farm implements
Value of livestock
Cost of fence
Cost of fertilizer
Value of farm products
Number of horses
Number of mules
Total wage bill
Man-weeks of White labor
Man-weeks of Colored labor
Number of oxen
Number of milch cows
Number of other cattle
Number of sheep
Number of swine
Acres of corn
Bushels of corn
Acres of cotton
Bales of cotton
Bushels of Irish potatoes
Bushels of sweet potatoes
Numbers of acres in other crops
Number of other crops
Acres and Production of up to 4 other crops

Source: SEHP Codebook

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