Black Gold: The Effect of Wealth on Descendants of the Enslaved*

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Abstract

This paper examines how short-term wealth shocks affected the economic trajectories of descendants of the enslaved in the early twentieth-century United States. I exploit a natural experiment in which Creek Freedmen allottees—Black landholders in Oklahoma—received quasi-random windfalls when producing oil wells were drilled on their land allotments. Using linked microdata from the Dawes Rolls, allotment maps, oil drilling records, and U.S. censuses from 1910 to 1940, I show that oil discoveries were as-good-as-random with respect to pre-treatment characteristics. The wealth shocks had modest direct effects on asset accumulation, but large and persistent impacts on human capital. Treated youths were less likely to work, more likely to remain in school, and ultimately attained higher levels of education. Over subsequent decades, they shifted toward white-collar occupations, urban residence, and—by 1940—higher rates of homeownership. These findings provide the first causal evidence on the long-run effects of wealth shocks for descendants of the enslaved. They suggest that wealth enabled strategic investments in education and mobility, generating lasting socioeconomic gains despite ongoing racial barriers. *JEL* Codes: E21, N32, D31, I38, J15.

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1 Introduction

The gap in wealth held by Black and white Americans is one of the largest and most persistent racial disparities in the United States. Today, Black Americans own less than a sixth of the wealth held by white Americans, per capita. Derenoncourt et al. (2023) argue that, even though Black Americans have faced unambiguously worse access to capital, labor market opportunities, and financial markets than their white counterparts for over a century, the majority of this gap can still be traced back to the initial difference in wealth at the abolition of slavery in 1865. If that is the case, holding a greater level of wealth in the first few decades post-slavery may have allowed for descendants of the enslaved to experience a virtuous cycle of generational wealth accumulation. On the other hand, coupled with weak access to investment opportunities, poor financial education, and racial persecution, greater initial wealth holdings by emancipated people and their children may have dissipated within a generation. Unfortunately, it is difficult to evaluate the impact of greater wealth on the economic progress of the descendants of the enslaved empirically, as emancipated people who had greater endowments in the decades following slavery typically differed on other characteristics that may have predicted the socioeconomic success of their descendants, even in the absence of the money.

Ex-ante, it is unclear whether the long-term impacts of a positive wealth shock to descendants of the enslaved would be positive, neutral, or even negative. Positive wealth shocks could lead to lasting improvements in socioeconomic status if the money were invested in productive ends, such as education of the direct recipients or their children, establishment of a business, or funding migration to a location with stronger employment opportunities or civil rights protection. Such a dynamic could be viewed through the lens of a push out of a "poverty trap" as in the development economics literature (Balboni et al., 2022). The two main features of that model are that (a) a household's starting wealth holdings and (b) the size of the positive wealth shock are both important to whether the money "sticks," with poorer families needing larger shocks than wealthier families to land on a virtuous asset-accumulation trajectory. With respect to this project, finding that shock size is important to the treatment effect of finding oil, with households that receive a lot of money experiencing more persistent gains than similar households that only received a little money, would lend credibility to the idea that rural Black American people located in the Jim Crow South may have been stuck in a "poverty trap."

That said, much scholarly work is skeptical that transfers of land or wealth to emancipated people could have had any equalizing impact (Engerman, 1982; Foner, 1981; Higgs, 2008; Ransom, 2005; Woodman, 1977, 2001). These researchers contend that any material advantage offered by the land or money could not have been be meaningfully invested, given the civil rights constraints faced by Black Americans at this time. Lastly, it is possible that positive wealth shocks to Black Americans could have prompted anti-Black backlash that destroys physical capital, oppresses the civil rights of Black beneficiary communities or threatens their safety.[1] In this scenario, the Black Americans who received land or money would end up worse off than

[1] Chyn et al. (2024) find a geographic relationship between Freedmen allottee population's Bureau locations (and their resulting

those who never received transfers at all.

In this project, I leverage a natural experiment, whereby hundreds of emancipated people and their children received large and quasi-random windfalls via oil discoveries on their land. This unique historical event enables me to convincingly isolate the impact of greater wealth in the decades post-slavery on Black economic progress in the short and long-term. Due to federal Indian policy, which I describe in greater detail in Section 2, thousands of formerly enslaved people and their descendants became landowners in present-day Oklahoma during the early 1900s. Over the following two decades, a small fraction of these landholders profited from the unexpected and unprecedented discovery of oil on their land. I compile a database of a specific population of these landholders, Creek Freedmen, along with the exact locations of the more than one million acres of land that they owned.[2] I combine this with public records of the dates and exact locations of historic oil-producing activity in Oklahoma, in order to identify which Creek Freedmen received a wealth shock and which did not. I link the majority of my sample to various historical datasets, in particular the decennial censuses, in order to establish pre-treatment balance over observable characteristics and to measure causal impacts of the windfall to socioeconomic variables. Freedmen who found oil, and those who did not, are statistically indistinguishable on time-invariant characteristics as well as outcomes prior to the realization of the oil "treatment."

I find that oil wealth had a positive effect on human capital in the first two decades after its receipt: young landholders who find oil stay in school longer than those who do not, with some even graduating from college. In 1920, 1930 and 1940, allottees who found oil have higher status occupations. While oil recipients are more likely to live in urban areas in 1920 they are not not more likely to own their homes. By 1940, the oil recipients do own their homes at higher rates. So while the short-run effects on asset ownership are muted, the evidence suggests that treated families made a calculated decision to rent in urban areas—accessing better labor and educational opportunities. It's only in the following decades that we see these investments pay off in homeownership and college completion.

This paper is the first to measure the causal impact of wealth on descendants of the enslaved. A small number of studies have described the long-term outcomes of recently emancipated Black Americans with differing levels of resources shortly following emancipation. In her important work, Miller (2020) finds that, thirty-five years after emancipation, descendants of people who had been enslaved by Cherokee Indians,

positive impact on Black economic status) and racial violence perpetrated by white Southerners. Derenoncourt (2022) finds that negative reactions by Northern communities reduced social and economic gains of Black migrants from the South during the Great Migration (1940-1970). Logan (2023) finds a relationship between tax revenue and violence against Black politicians at the county level during Reconstruction.

[2] When capitalized, "Freedmen" refers to individuals once enslaved by a member of the Five Civilized Tribes and their descendants. When not capitalized, "freedmen" is an adjective that means formerly enslaved, but not necessarily by individuals connected to the Five Tribes (Oklahoma Historical Society, 2007). Furthermore, I use "Freedmen" as an adjective to refer to enrollment category or as a plural noun, but "*a* Freedman" as a noun to refer to an individual.

and thereby received land following emancipation, had higher literacy rates and owned more capital than the descendants of similar people who had been enslaved by white Americans and who never received the infamously promised "forty acres and a mule."[3] Collins et al. (2024) demonstrates that the adult sons of emancipated fathers who had owned land in 1880 had higher rates of literacy and homeownership in 1900, with more land being associated with more literacy/homeownership. In contrast, Hornbeck and Keniston (2024) find that descendants of emancipated people who were depositors in the Freedmen's Bank, and who suffered a large *negative* loss to their wealth upon the bank's closure in 1874, are statistically indistinguishable on a number of 1940 outcomes from descendants of similar emancipated people who did not suffer such a loss.

In studies of non-formerly-enslaved populations, wealth shocks are found to have had mixed impacts on the channels through which we might expect oil windfalls to operate. The effect of a wealth shock on *labor supply*, for example, seems to depend on the population. Cesarini et al. (2017) find modest effects on labor supply among Swedish lottery players. On the other hand, Golosov et al. (2021) find sizable negative impacts on labor supply–and positive impacts on consumption– among American lottery players. Notably, both studies examine the labor supply of middle-class individuals in high-income developed nations. Among poor populations in developing countries, Banerjee et al. (2017) find little evidence that cash transfer programs discourage work in a meta-analysis of seven different randomized controlled trials. Both Cesarini et al. (2016) and Bleakley and Ferrie (2016) find minimal impact on *children's education* resulting from wealth shocks in the context of Swedish lottery winners for the former, and in the context of white men in Georgia in 1850 in the latter. Ager et al. (2021) studies the impact of a large negative "wealth" shock to sons of Southern white men, the loss of enslaved people following the Civil War, and finds that the sons regress back to the status of their fathers reelatively quickly and experience no lasting consequences of the loss. Lastly, Haws et al. (2025) study white homesteaders who found oil in Oklahoma in the same time period as this study, but faced fewer legal and social barriers to accumulating and transferring wealth than Creek Freedmen. Their results show immediate jumps in children's schooling and home value. My results suggest a more delayed, strategic response, where treated Creek Freedmen families prioritized urban mobility and education over early asset accumulation—likely shaped by structural racial constraints. They find large, early increases in housing value; I find modest, later gains in homeownership, consistent with a longer investment horizon and potential discrimination in credit and housing markets.

The early Oklahoma oil boom was characterized by many of the advantages shared by the above lottery and randomized control trial (RCT) studies: discovery of oil meant an unexpected positive shock to allottee wealth that was orthogonal to the recipient's underlying characteristics. Windfalls could be large, and their

[3]While similar in spirit to Miller (2020), my paper does not compare landholders to non-landholders, who may differ for reasons other than land ownership. Importantly, the individuals that I compare *all* own land, and in the aggregate, differ *only* on whether they received a positive wealth shock or not.

usage was largely unrestricted for the Creek Freedmen population. However, this context offers several advantages that the lottery and RCT studies above do not have. First, at the time that Freedmen applied for an allotment and selected the land itself, allottees were mostly unaware of the possibility that their allotment might be associated with a bonus financial windfall. Studies over lottery players always must make the argument that results are externally valid to non-lottery players, and so it is a strength of this context that allottees did not seem to anticipate the risk and reward that might come their way. Second, I can follow the family of the treated allottees for fifty years, and possibly up to a century, after the original positive shock was received whereas the contemporary studies focus only on short-term impact. However, the biggest distinction of this context over most lottery and RCT studies is the population examined: American descendants of the enslaved. Results from this population are important to our understanding of continued racial disparities in the US today.

The remainder of the paper is organized as follows. Section 2 describes the historical events leading up to the natural experiment in this paper. Section 3 describes the construction of the novel datasets used in this study, provides summary statistics and establishes balance over many pertinent characteristics. Section 4 lays out my causal identification strategy and presents my primary results. Section 5 presents intergenerational results. Section 6 concludes.

2 A Brief History of the Creek Nation

2.1 The Creek Nation Prior to Allotment

During the seventeenth and eighteenth centuries, several indigenous villages in present-day Georgia and Alabama coalesced into the "Muscogee Confederacy" or the "Creeks." While they mostly practiced communal agriculture at first, by the second half of the eighteenth century, some Creek farmers adopted slavery and engaged in plantation agriculture, as practiced by their white neighbors. Because of this move toward assimilation with Anglo-American norms, as well as for other practices, the Creek and four other tribes earned the dubious distinction as the "Five Civilized Tribes," in contrast to the remainder of "...other so-called 'wild' Indians who continued to rely on hunting for survival" (Frank, 2007).

Unfortunately, the Creeks' efforts toward assimilation did not shield them from the Removal Act of 1830, federal law that forced all Indians living east of the Mississippi River to move to an "Indian Territory," west of the Mississippi. The Creek people were forcefully moved west over the ensuing decade, bringing their enslaved people with them. In Indian Territory, in the decades leading up to the Civil War, usage of private land and the practice of plantation slavery intensified among the Creeks. Following emancipation in 1865, the Creek Nation recognized the freedom and citizenship of the formerly enslaved, comprising 13% of the population at that time, and allowed them land-use rights commensurate with those held by Creek Indians (Chang, 2010, p.33).

In an effort to weaken tribal political power, and to open Indian reservation lands to white settlement, Congress passed the General Allotment Act of 1887, also known as the Dawes Act, which broke up communal tribal Indian lands into privately owned parcels known as allotments. The Five Civilized Tribes, including the Creek Nation, successfully resisted inclusion in the Dawes Act at that time, but eventually ceded under federal pressure, agreeing to undergo allotment under the Curtis Act of 1898 (Kidwell, 2007). The agreement with the Creeks stipulated that every Creek citizen was entitled to 160 acres of land, regardless of age, gender or former enslavement status.

2.2 The Creek Nation under Allotment

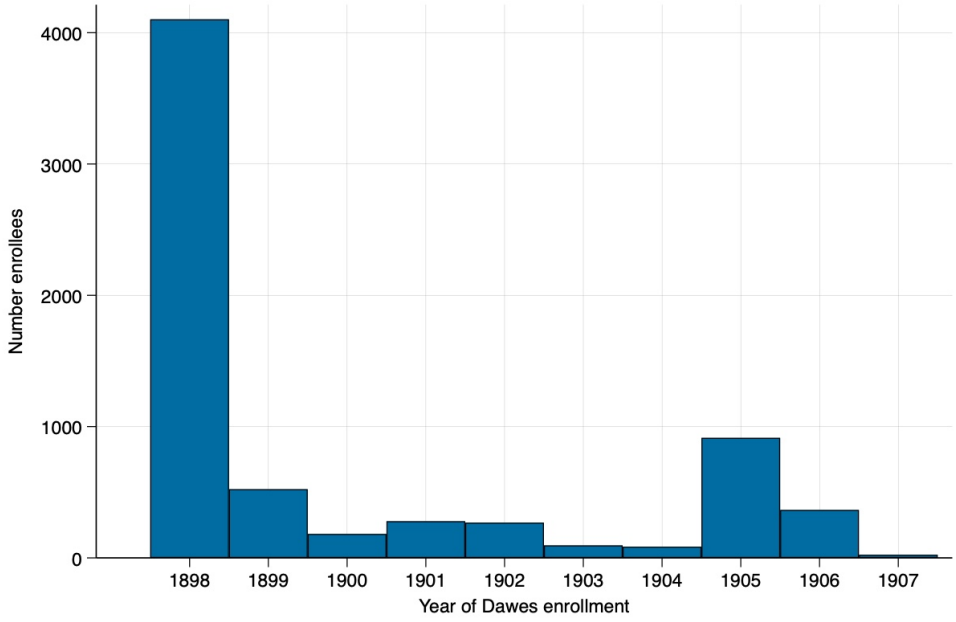
In April 1899, the Dawes Commission began to enroll applicants onto the "Dawes Rolls," formally designating them as members of the Creek Nation.[4] Successful applicants had to demonstrate either Creek lineage, to be enrolled as "Creek Indians," or that their ancestors were enslaved within the Creek Nation prior to the Civil War, to be enrolled as "Creek Freedmen." The Dawes Rolls closed for the first time in September 1904 but were reopened twice to enroll infants born after the original deadline, finally closing for

[4]In fact, that one's ancestors can be directly traced to the Dawes Rolls is required for citizenship in the Creek Nation even today (The Muscogee Nation, 2023). Whether or not descendants of Freedmen should be included was recently decided in court in favor if the descendants of Freedmen (Press, 2023).

good in March 1907. For more details, and excerpts of text from the agreements themselves, see Appendix Subsection F.2. Inclusion on the Dawes Rolls entitled individuals–or their parents or guardians–to choose an allotment of 160 acres of land from the Creek Nation.[5] Allottees typically selected land on which they and their family already lived or farmed (Chang, 2010, p. 76).[6] The vast majority of eventual allottees had selected their allotments by September 1901 and deeds began to be issued in December 1901 (Chang, 2010, p. 62).

At the turn of the twentieth century, sitting near the northern boundary of the Creek Nation, was the land that would become the city of Tulsa, Oklahoma, although the full extent of the original Creek territory was much larger (see Appendix **Figure H.2**). While federal government's intentions of privatization via allotment may have originally been to transform the Creek people into yeoman farmers, within a few years, the landscape was transformed into one of landlords and tenants (Chang, 2010, p. 72). I describe one of the primary reasons for this in the next subsection.

Figure 1: Freedmen Enrollment in the Creek Nation



Note: This figure plots the year that each Freedmen allottee was enrolled as a citizen in the Creek Nation by the Dawes Commission.

[5]Of the 160 acre allotment, 40 acres would be designated as their "homestead," and would be "nontaxable and inalienable and free from any encumbrance whatever for twenty-one years." The remaining 120 acres, known as the "surplus," were only covered by these restrictions for the first five years. Federal treatment toward Creek Freedmen soon began to diverge from treatment toward Creek Natives and, in April 1904, Congress removed restrictions on surpluses held by adult Freedmen. In 1908, it removed restrictions on their homesteads too, as well as all restrictions on homesteads and surpluses of Freedmen minors. See Appendix Subsection F.1.

[6]Qualitatively, there is little evidence of land selection with respect to future oil earnings. I work to address this concern quantitatively in Section 3.2.

2.3 Oil Discovery in the Creek Nation

In late summer 1913, 11-year-old Sarah Rector was on track to become "the Richest Black Girl in America." How the middle daughter of an Oklahoma farming family, descended from enslaved people, was reportedly bringing in $300– nearly $10,000 in 2025–a day was a matter of happenstance. As her grandparents were enslaved by Creek Indians, her parents Joe and Rose enrolled the family with the Dawes Commission, first themselves in 1899, then her older sister Rebecca in 1902, and lastly Sarah and her little brother Joe Jr. in 1905 as "Newborn Freedmen." The enrollment entitled each family member to select an allotment of 160 acres of land in the Creek Nation, and when Oklahoma became a state in 1907, the family was living on and farming Rose's allotment in Muskogee County. However, it was Sarah's allotment, over in Creek County, that would later change the direction of the family's fortunes.[7]

The first discovery of oil in the Tulsa-area occurred in 1901 on an allotment belonging to a Creek Native named Sue A. Bland. While the well itself produced minimal oil, this discovery is considered to have incited the Tulsa oil boom due to the attention that it brought to the area (Weaver, 2007). The first "gusher" oil well, nicknamed as such for its geyser-like appearance, was drilled in 1905 on the allotment of another Creek Native, Ida Glenn, after which the lucrative "Glenn Pool" was named. Appendix **Figure H.1** gives a 1912 map of Glenn Pool. Soon, investors and speculators flooded the area and made exploratory contracts with many landholders for the right to drill for oil on their land.[8]

Two of those exploratory contracts were the ones that a "landman" named Frank Barnes made with Sarah Rector's father in March 1912 for the exclusive right to drill on Sarah's and Joe Jr.'s land. Just for signing each exploratory contract, the Rectors received $80, or fifty cents an acre. Barnes soon sold the leases to a driller named B.B. Jones, who had the equipment and workers needed to drill holes, and the knowledge of and connections to sell crude oil, if the wells produced any, to a refinery. After some time, in August 1913, Jones finally drilled a well on Sarah's land and discovered a gusher that output 2,500 barrels of oil a day.

Over the next three decades, drillers found oil under many allotments owned by Creek Indians and Creek Freedmen (see Appendix **Figure H.3**).[9] **Figure 3** is a histogram showing the distribution of the date that drilling was reported as complete on each unique well located in the Creek Nation (oil-producing, dry, gas, or otherwise). Drilling ramped up precipitously between 1910 and 1920 and seems to have hit a peak in

[7]Details about the Rectors are from Bolden (2014).

[8]For more details on oil drilling contracts, including a sample notice of regulation changes at Appendix **Figure G.1**, see Appendix Section G.

[9]One might wonder whether Creek Freedmen differ from Creek Natives in likelihood of oil discovery. Such a disparity could occur in multiple plausible ways: if Indians and Freedmen faced different institutions, had different ownership rights and restrictions, or simply selected land of different quality due to tribal or federal government discrimination. While any or all of these stories could be true, I show in **Table A.1** that I do not observe differential rates of oil discovery over Dawes racial category (Freedmen versus Creek Natives).

Figure 2: Muskogee Times-Democrat, September 4, 1913

Little Sarah Will Soon Be In The Plute Class

To have an income larger than that of the president of the United States, or of a life insurance or railroad president, and all out of one oil well, is the good fortune of Sarah Rector, a little ten year old negro girl, living just west of Muskogee near Crekola.

When Sarah's parents applied for an allotment for her, as a descendant of a Creek freedman, she was allotted her portion near what is now the town of Cushing. Lately oil derricks began to spring up about her land, and finally a lease was made on Sarah's allotment.

A well was drilled, and a few days ago, the famous Jones yell, the largest ever tapped in the Mid-Continent oil field, was brought in on her land. The well is making 2,500 barrels of oil a day, and has been widely advertised as "the well that produces over $2,500 a day, or over $2 a minute."

Many miles from the property, however, little Sarah continues at her daily play, and plans what she is going to do with the $800 a day which she gets as royalty. Her family is well-fixed, but in a short time little Sarah will be the richest of them all. As other wells are drilled, her income will multiply by leaps and bounds, so that ultimately not even John D. or Vincent Astor will have anything on Sarah in the matter of ready cash for ice cream and such delights of the very young.

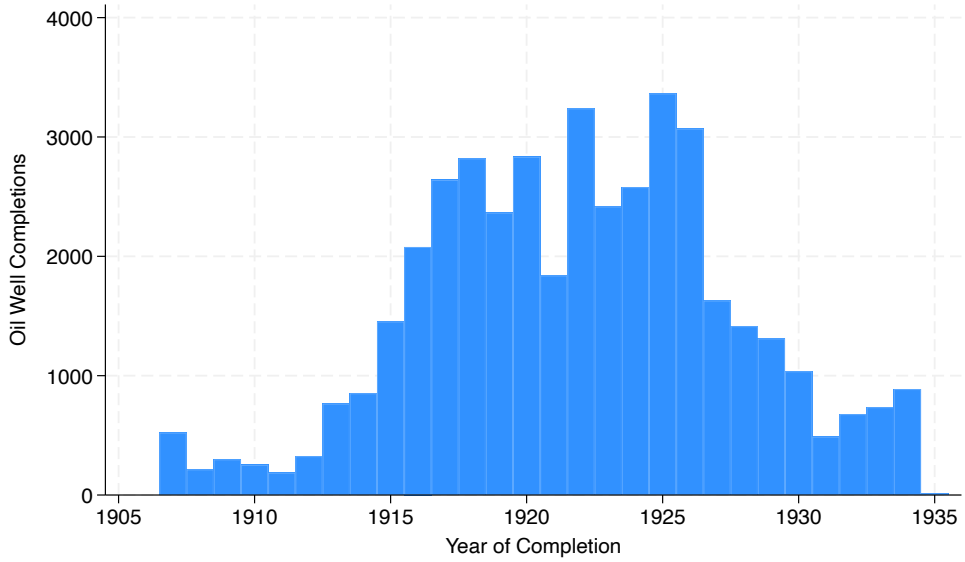
Note: This figure contains a news announcement from the week that the gusher was drilled onto Sarah Rector's allotment. "Plute" is short for plutorat.

this area in the mid 1920s. The owners of the allotments on which a producing oil well was drilled received payments, sometimes substantial payments, via royalties from the oil company that drilled.[10] I estimate that the average allottee who held a lease with an oil company by 1909 to have earned $257 that year. This represents a sizable windfall, considering that the typical American farm family is estimated to have only earned about $402 in 1909 (Goldenweiser, 1916).

Not much more is known about the later life of the most famous, but exceedingly private, Creek

[10] One might wonder whether the royalty, or "mineral rights owner's share," that oil companies paid Freedmen allottees, typically 1/8th (12.5%), is a lower rate than their white counterparts received at the time. However, this royalty was standard from 1900 through the 1980s (Oklahoma Mineral Rights and Royalty, nd). Given the degree of oversight that the Bureau of Indian affairs had over the business affairs of allottees at this time, it is not surprising that Indian and Freedmen received comparable or *better* agreements than their white counterparts.

Figure 3: Distribution of Drilling Activity within the Creek Nation



Note: This figure plots the date that each unique well was reported as completed within the Creek Nation between 1907 and 1935. The Oklahoma Corporation Commission (OCC) was established in 1907 to regulate the Fuel, Oil and Gas, Public Utilities, and Transportation Industries in the new state of Oklahoma. I restrict the wells included in this figure to later than 1907 because some wells drilled prior to OCC oversight may be missing, or their dates of completion may be incorrectly set to 1901. This figure is intended to communicate the timing of oil industry activity in the Creek Nation and thus includes all categories of wells that oil companies constructed, including oil-producing, dry, gas, injection, and others. For a histogram showing the distribution of "treatment arrival," see **Figure 6**.

Freedmen allottee, Sarah Rector, and her family, following the oil strike on Sarah's land. It is said that the daughters spent time at the Tuskegee Institute in Alabama during their childhood, and eventually, the family moved to St. Louis, Missouri.[11]

[11] Interesting newspaper accounts of the pursuits of other individuals who grew up in households treated with oil can be found at Appendix Section D.

3 Data

This study examines outcomes of descendants of the enslaved who received a wealth shock (oil) and those who did not. Toward this end, I compiled a dataset of individuals who were eligible for treatment and among them, who was treated by an oil shock. I try to find these people, their immediate family members, and their grandchildren in pre-shock and post-shock data sources in order to establish that treated individuals were comparable to untreated individuals and to analyze their later outcomes.

3.1 Data Sources and Construction

I built a database of allottees for the entire Creek Nation. My Creek allottee database contains some limited, time-invariant, microdata on all allottees, such as their age reported at date of enrollment, their gender, and the names and tribal affiliations of their mother and father. I also observe a number of reported dates of death. This amounts to 18,850 allottees in total, but for this paper I subset this to only Freedmen allottees, or 6,836 individuals. More information and a full list of the variables can be found in Appendix Subsection I.1.

Half of the Freedmen allottees were women (**Table I.14**). In 1910, Freedmen were 25.3 years old on average and half were aged 22 or younger. However, the population spanned all ages, from very young to very old, as shown in **Figure 4**. The maximum possible number of allottees living at any point in time between 1900 and 1915 is represented by the blue area in **Figure 5**. While the full Creek Freedmen population may have been 6,836, a smaller number was alive at any point in time, as, for example, 1,583 people (23%) were born between 1900 and 1907, and 855 (12.5%) are indicated to have died by 1910.

Second, I built a database of the exact location of every allotment in the Creek Nation.[12] A team of specially trained undergraduate research assistants manually converted each PDF allotment map in *Hastain's Township Plats of the Creek Nation* to computer-readable Public Land Survey System (PLSS) data (Hastain, 1910). I describe this process further in Appendix Subsection I.3.

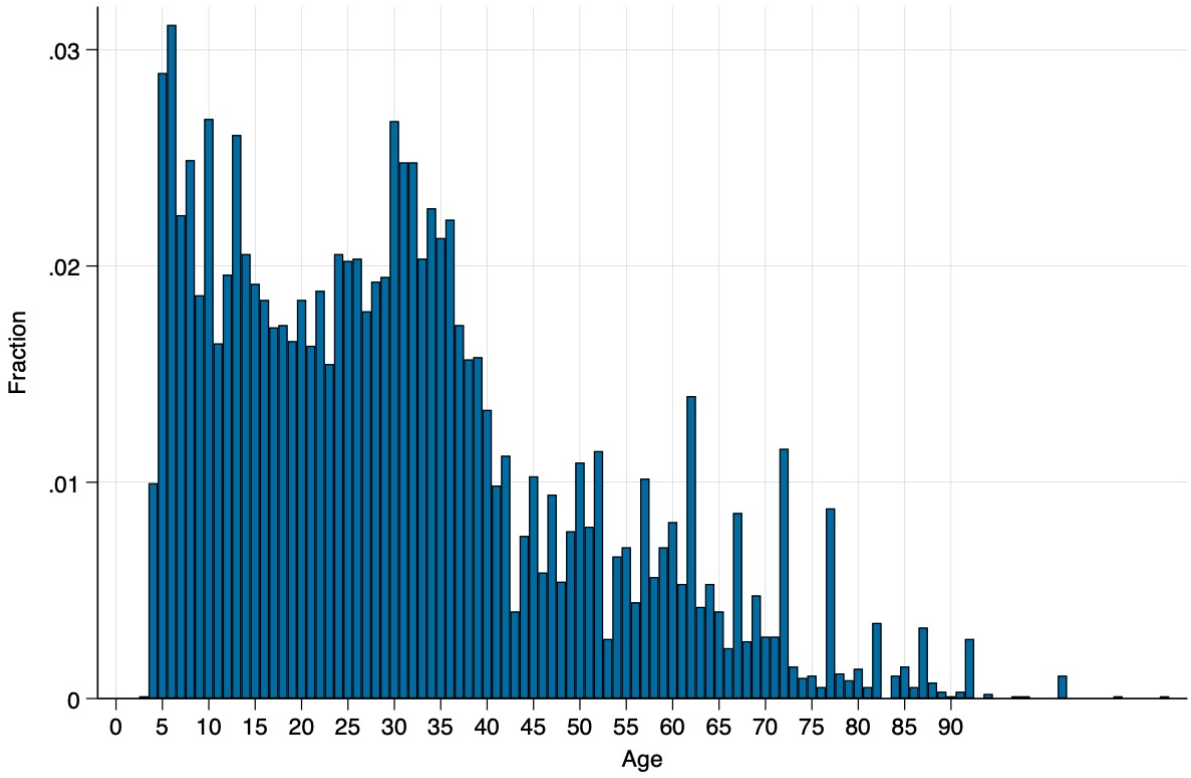
Lastly, I obtained a dataset of every "drilling action" taken in Oklahoma from the Oklahoma Corporation Commission (OCC). I subset this dataset to completion of oil-producing wells within the boundaries of the Creek Nation and in the pertinent time span I describe this data further in Appendix Subsection I.4.

Treatment Assignment

An allotment is considered to have been treated if any producing oil wells were built on top of the land within a specific window of time. As shown in **Figure I.8**, I assign treatment status by merging the three

[12] I use the word "allotment" to refer to the entire 160-acre entitlement of one individual. In the case where an individual's allotment is divided into multiple non-contiguous segments, I still refer to the sum of the land owned by that particular allottee as "allotment," singular.

Figure 4: Distribution of Creek Freedmen Allottee Ages in 1910



Note: Age is imputed based on "Dawes Census Card Number" and applicant "type." For a discussion on bunching in reported age, see Appendix Subsection I.1. This figure includes all 6,836 Creek Freedmen allottees, regardless of whether they are indicated to have died by 1910. An age histogram set in 1900 would be closer to the time that the Dawes Commission drew up the original Census Rolls and would thus not include quite as many deceased people, but it would exclude the many "Minor" and "New Born" children born between 1900 and 1907.

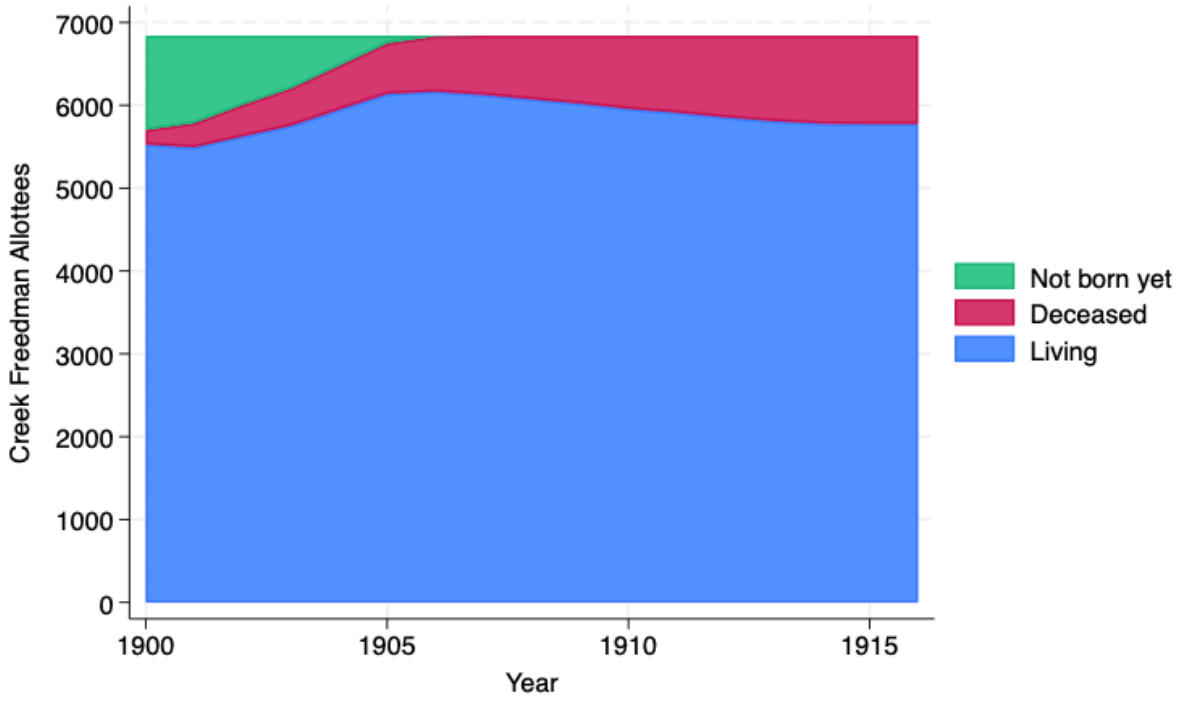
databases described above: I first link the allotment land with the oil well data by simply merging the PLSS codes of the well actions "many-to-one" to the PLSS codes of land allotments.[13] I then link each treated allotment with its allottee owner via the allottee's unique roll number.

Then, for each Freedmen allottee, I can observe whether their own allotment was "assigned" treatment (got oil before 1918) or control (no oil before 1918).[14] For Freedmen defined as treated under this definition,

[13] By taking advantage of the PLSS, I avoid needing a geographic information system (GIS) software.

[14] At this time, I define ever/never treated as "oil before 1918" or "oil after 1918 or never at all." Creek Freedmen originally were prohibited from selling the entirety of their allotment for twenty-one years after 1901, just the same as Creek Indians. However, those restrictions were lifted incrementally over the following three decades, with difficulty of land sale differing with respect to race, age and whether the land was designated as "homestead" or "surplus." See Appendix Section F.1. The unconfirmed narrative is that many Creek Freedmen sold or otherwise lost their land relatively quickly. I am working to confirm the validity of this statement and, in the future, I should be able to verify allottee realization of oil royalties through 1918.

Figure 5: Living sample size between 1900 and 1915



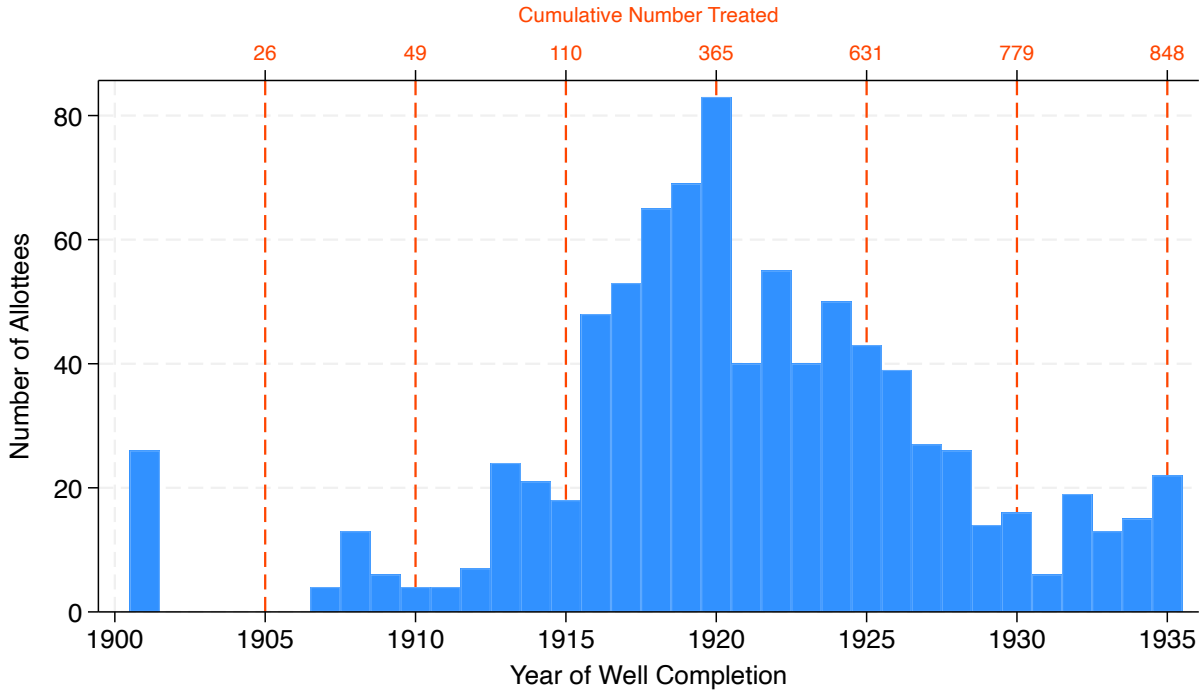
Note. Freedmen allottees in each group calculated from recorded birth and death dates. Dates are incomplete (see Appendix Section E).

the median first year of oil production is 1916. I plot allotments by the first year that oil was produced on them in **Figure 6**. This shows that the arrival of new oil-producing allotments peaks around 1920 and falls steadily afterward. Correspondingly, the progress of the treated and untreated sample sizes over five-year intervals can be seen in **Table 1**, with oil having been discovered under the allotments of 365 different people by 1920. Oil was discovered under the allotments of 293 different people by 1918, which I currently use as my conservative cutoff of treatment receipt. By this definition, the remaining 6,547 allottees make up the control group.

Lastly, because I observe familial relationships, I assign the positive treatment status of mothers and fathers to their allottee children.[15] At this time, I am conservative and only assign *parent treatment* to *children*, and only if the child was born in 1900 or later. This generation of allottees is likely to have been living at home during the entire treatment window (1900-1918).

[15]Future work will also extend treatment to spouses, parents siblings.

Figure 6: Distribution of Year of First Oil Production Under Each Allotment



Note: This figure plots the subset of allotments, originally owned by Creek Freedmen, on which a producing oil well was drilled between 1901 and 1935. I plot the allotments by the year that they first received a producing oil well. The red dashed lines occur at five-year individuals and give the sum of the preceding blue bars.

Record Linking

While, as described above, the Creek Freedmen database includes a small number of variables for all allottees, in order to speak to any other pre-treatment observables, it is necessary to link individuals to external records, in particular to the 1910 census.[16] Then, in order to study outcomes, I need to link my sample to records collected in the post-treatment years. This paper presents estimates from the 1920, 1930, and 1940 censuses. Future work will incorporate the 1950 census.

The empirical strategy that I describe in Section 4 does not strictly require a panel in order to draw causal inference. Given the unique characteristics of my data, I design my own linking methodology, and first conduct each record linkage *separately* from every other record linkage. I supplement the sample that I personally linked with pre-made links, made by various census-linking projects, keeping their various strengths and weaknesses in mind and choosing the conservative options when appropriate (Abramitzky et al., 2021; Bailey et al., 2020; Buckles et al., 2023). This process is depicted in **Figure E.3**. To be clear,

[16] While it would be ideal to observe this population in 1900, prior to the arrival of *any treatment whatsoever*, and though the Indian Territory was enumerated during the 1900 census, unfortunately the records have not been made available as computer-readable data.

Table 1: Treatment arrival

	Oil discovered by year	
	No	Yes
year		
1905	6,810	26
1910	6,787	49
1915	6,726	110
1920	6,471	365

Note: This table indicates whether oil was yet produced on allotment land originally owned by allottee over five-year intervals. The first and second columns sum to 6,836, the total population of Creek allottees, in all rows.

these projects link the decennial censuses *to each other* and my biggest challenge is linking an *external data source*–the Dawes Rolls–to any decennial census. See Appendix Section E for more details.

Table E.13 shows that there are differential linkage rates by observable characteristics, but they occur in predictable ways that we would not expect to be related to oil discovery.[17] The matched sample is younger and more male.

3.2 Summary Statistics and Balancing Tests

To confidently analyze later-life outcomes of oil discoverers as resulting from a natural experiment, I first establish that "treatment assignment" can be treated as random. That is, receiving a wealth shock was uncorrelated with pre-treatment observable characteristics.

As I describe in Subsection 3.1, I observe the age and gender of all units in the full Creek allottee sample. This microdata can be considered "ground truth." **Table 2**, Panel A, demonstrates that treatment and control units are statistically indistinguishable on these time-invariant characteristics: likelihood of receiving treatment does not vary by gender or age.[18] The average treatment and control allottee enrolled on the Dawes Rolls in late fall, 1899. Radically different enrollment dates among treatment and control allottees, in either direction, earlier or later, would be cause for concern: it would imply asymmetric oil distribution information between the treatment group and control group.

In addition, among those matched to the 1910 Census, treatment and control units were also similar

[17] See differential link rates by oil discovery at **Table E.12**.

[18] Likelihood of treatment also does not vary between Creek Indians and Creek Freedmen, as shown in Appendix **Table A.1**.

on time-invariant census observables, with the possible exception of mother's birthplace. This can be seen in Panel B.[19] It is unsurprising that matched individuals are not totally representative of the full population, whose true ages and genders we know from the Dawes Rolls. The people matched to the census may be slightly younger.

Lastly, **Table 2** demonstrates that in 1910, treatment and control units are also statistically indistinguishable over the variables that I will later analyze as outcomes during the post-treatment decades.[20]

[19] The treatment and control units that make it into the three post-treatment samples–those matched to the 1920, 1930, and/or 1940 censuses respectively–are also balanced on time-invariant characteristics, as demonstrated in **Table A.2**. The one exception is gender. Many more women in the treatment group were matched to the 1930 and 1940 censuses than women in the control group.

[20] This is also largely true of variables that I will analyze as mechanisms as shown in Appendix **Table A.3**, though allottees who find oil are 5 percentage points more likely to be the head of their household.

Table 2: Balance on characteristics in 1910

	No oil by 1918	Oil by 1918	p-value
A. Time-Invariant (from Dawe's Rolls)			
N	6,546 (95.7%)	293 (4.3%)	
Male	0.48 (0.50)	0.51 (0.50)	0.405
Age in 1910	25.33 (17.67)	25.19 (16.91)	0.895
Year of Dawes enrollment	1,899.96 (2.91)	1,899.87 (2.90)	0.611
C. Wealth and Expenditure, 1910			
N	2,741 (94.4%)	163 (5.6%)	
Family owns home	0.77 (0.42)	0.75 (0.43)	0.711
Family owns home: paid off	0.75 (0.43)	0.72 (0.45)	0.393
B. Time-Invariant (from 1910 Census)			
N	2,741 (94.4%)	163 (5.6%)	
Male	0.52 (0.50)	0.51 (0.50)	0.756
Age	22.60 (16.98)	25.10 (15.42)	0.067
Born in Oklahoma	0.92 (0.27)	0.90 (0.30)	0.337
Mother born in OK	0.75 (0.43)	0.82 (0.38)	0.034
Father born in OK	0.67 (0.47)	0.70 (0.46)	0.481
Literacy (Age 20+ in 1910)	0.72 (0.45)	0.79 (0.41)	0.188
D. Adult Occupation, 1910			
N	940 (94.1%)	59 (5.9%)	
White-Collar	0.03 (0.16)	0.03 (0.18)	0.696
Blue-Collar	0.54 (0.50)	0.47 (0.50)	0.310
Farming	0.43 (0.50)	0.49 (0.50)	0.371
E. Child Occupation, 1910			
N	1,291 (95.5%)	61 (4.5%)	
Child in school	0.85 (0.36)	0.90 (0.30)	0.271
Works	0.37 (0.48)	0.29 (0.47)	0.516

Note: Mean (Standard deviation). p-value from a pooled t-test. Allottees in this table grouped by whether oil produced under *own* allotment by 1918 or not. Summary statistics from Panel A include the entire Creek Freedmen population from the Dawes Rolls, including those indicated to have deceased by 1910. Adult occupation categories are mutually exclusive but for children, "in school" and "works" are not mutually exclusive. All allottees included in panels B, C, D and E have been linked to the 1910 Census, by construction.

4 Empirical Evidence: Human Capital and Wealth-Building

4.1 Effects on Individual Outcomes

The central challenge in estimating the effect of wealth on descendants of the enslaved is the endogeneity of wealth. Freedmen and their children who have greater wealth than others likely differ in other ways that make it difficult to interpret subsequent differences in other characteristics, such as educational attainment, as resulting directly from the wealth itself. In this paper, I overcome that challenge by demonstrating that the receipt of wealth shocks by some people but not for others is exogenous to other characteristics.

The treatment effect of finding oil to an individual can be calculated simply by comparing mean outcomes for finders to those of non-finders. This is equivalent to running a basic bivariate regression with an outcome on the left-hand side and a dummy variable for finding oil on the right-hand side. Random discovery of oil among allottees reduces the risk of omitted-variable bias. Therefore, I do not strictly need to introduce additional controls to recover the effect of treatment. However, most of my estimates do include controls for gender and age to improve the precision of my estimated treatment effect and to reduce residual variation. I estimate OLS regressions of the following form:

$$Y_{ij} = \gamma T_j + \delta_{ai} + \epsilon_{ij}, \tag{1}$$

where i is the individual, j indexes the allotment, T_j denotes treatment (oil discovery on allotment by 1918), which is a binary variable, and control variables are δ_{ai} (dummies for gender, age and a quadratic term for age). When an allottee's own allotment is treated $i = j$. As children and grandchildren are considered, i and j vary. Standard errors are clustered at the allotment (j) level.

In this section, I compare average outcomes for oil finders and non-finders. I rely on the reasonable assumption that oil distribution is orthogonal to underlying allottee characteristics in order to interpret cross-sectional differences as causal outcomes. Some of the effects are imprecisely estimated. However, taken together, the directions of the 1920-1940 metrics tell a consistent story: treated allottees– allottees with oil discovered under their own or their parents' allotment in or before 1918– seem to be doing better on a number of outcomes than those untreated. Immediate wealth effects– those in 1920– are muted. But by that year, young treated allottees have improved their human capital. This shows up in 1930 when they are more likely to be found in white-collar jobs and less likely to be farmers than their untreated counterparts, and by 1940, they own their homes more.

If the path to greater Black wealth long term is through higher earnings, which Derenoncourt et al. (2023) would frame as a "flow value," then investment into education would be prudent if it opens the door to professional, typically higher paying, jobs. In this section, I will consider the possibility that oil money allowed families to invest more in human capital–whether that investment was in the form of school fees and supplies or keeping teenagers in school rather than employing them on the family farm–and that human capital investment allowed allottees to enter higher-class, higher-paying occupations as adults.

Table 3 shows that teenage allottees, together with allottees in their twenties–i.e. the generation of Creek Freedmen who were younger than age 18 before the arrival of treatment–are significantly more likely to be literate in 1920, with a boost of 3.3 percentage points on top of an already high literacy rate of 96 percent. While the effect curiously disappears in 1930, the literacy boost among this treated generation appears a second time in 1940, twenty years later, when 3.2 percentage point more people in the treated group are literate than those in the untreated group, defined here as having completed second grade. 8.9 percentage points more may have completed high school, although this estimate is not statistically significant at conventional levels. Furthermore, treated people report actually having completed college at a 7 percentage point higher rate, compared to a college completion rate of only 3.1 percent among this now-middle-aged Freedmen allottee population generally.[21] This analysis shows clear, modest gains in basic literacy among youths exposed to oil money and suggestive gains when the windfall hits in time to affect school-leaving decisions.

I next investigate whether finding oil affected the probability that a worker's primary occupation could be characterized as white-collar, blue-collar or farming in the three decades post-treatment. In 1910, people who would be treated by 1918 had statistically similar employment characteristics as people who would "never" be treated (**Table 2**).

I estimate a multinomial logit of the choice of occupational class as a function of treatment status. Thus, defining P_o as the probability of being employed in either a white collar occupation or the farming sector, I estimate

$$\log\left(\frac{P_o}{P_{o=0}}\right) = \beta T_j + \delta_{ai} + \epsilon_i \tag{2}$$

for o = 1 to 2. I calculate robust standard errors, clustering at the individual level.

Table 4 shows the predicted probabilities of occupational choice; the base category is blue-collar occupation. Finding oil increases the probability of white-collar occupation relative to the probability of blue-collar occupation in 1920, 1930 and 1940. Pooling all decades, we see that a switch from nontreatment status to treatment status leads to a .822 increase in the relative log odds of being in white-collar employment versus blue-collar employment. This corresponds to the relative risk ratio for a switch from nontreatment status to treatment status of 2.275 (i.e. $e^{0.822}$), or more than twice as likely.

Household ownership is the main proxy for wealth during the censuses. **Table 5** shows that, while in 1920, treated and non-treated households have a similar propensity to own their homes, treated folks are much more likely to live in an urban area. By 1940, treated folks are more likely to own their home. House value was not collected in the 1920 census, and was only collected for non-farm homes in the 1930 census. Regressions of owner-occupied house value on treatment give large, positive, but imprecisely estimated effects to 1930, 1940, and pooled house value, and can be found at Appendix **Table B.4**.

[21] In comparison, nationwide in 1940, 12.3 and 1.6 percent of Black American adults held high school and college diplomas, respectively (National Center for Education Statistics, 2017).

A robust literature in the fields of urban and development explores the relationship between urbanicity and poverty, with respect to segregated Black Americans and people in developing nations respectively (Kain, 1968; Lagakos et al., 2023). While Creek Freedmen may have already owned farmland and homes in rural Oklahoma, perhaps movement to a city presented employment and education opportunities that were more lucrative in the long-term, despite the large upfront migration costs of travel, rent, higher consumer prices, and loss of community. For reference, Appendix **Table C.10** presents relevant summary statistics of all of the neighborhoods included in this study, split by urban and rural status. Urban neighborhoods have twice the rate of professional occupations among nonwhite people as rural neighborhoods, in all census decades. The children in urban neighborhoods were significantly more literate than the children in rural neighborhoods, perhaps as a result of higher quality schooling opportunities and fewer household responsibilities (i.e. farming). However, it seems that the availability of higher status jobs and greater educational opportunity in cities is accompanied with lower property ownership, descriptively. Taken together, **Table 5** and Appendix **Table C.10**, suggest that in the short term, upon receipt of oil, Freedmen chose to forego property owned in rural areas in order to make investments in migration to urban areas.

Table 3: The Effect of Oil Money on Allottee Education

	A. 1920	B. 1930	C. 1940	D. 1920-1940 Pooled
Literate				
Coefficient	0.033***	0.004	0.031***	0.022**
Std. error	(0.012)	(0.022)	(0.008)	(0.010)
Mean	0.96	0.96	0.97	0.96
Observations	1,045	648	512	2,205
High School				
Coefficient			0.088	
Std. error			(0.060)	
Mean			0.14	
Observations			555	
College				
Coefficient			0.062*	
Std. error			(0.037)	
Mean			0.03	
Observations			624	

Note: This table presents a series of regression estimates of the differences in post-treatment educational achievements between treated and untreated Creek Freedmen allottees in three different age brackets. Literacy and completion of second grade are estimated for allottees who were younger than age 18 in 1910. Completion of high school is estimated for allottees who were younger than age 20 in 1910. Completion of college is estimated for allottees who were younger than 25 in 1910. All regressions control for age, age squared, and gender and the pooled regression also controls for year. Means are computed over the entire treated and untreated Creek Freedmen allottee population in the relevant age bracket. Treatment is defined as presence of a producing oil well on allotment by the year 1918. For more information on data and variable definitions, see Data Appendix I. Standard errors are robust to heteroskedasticity and are shown in parentheses. $***p < 0.01$,$**p < 0.05$,$*p < 0.1$

Table 4: The Effect of Oil Money on Occupational Status

	A. 1920		B. 1930		C. 1940		D. 1920-1940 Pooled	
	White_Collar	Farming	White_Collar	Farming	White_Collar	Farming	White_Collar	Farming
Oil	0.869 *	-0.018	0.798 **	-0.364	0.741 *	0.296	0.822 ***	-0.063
	(0.516)	(0.319)	(0.352)	(0.321)	(0.428)	(0.314)	(0.270)	(0.211)
Number of observations	1,091		874		673		2,638	

*** p<.01, ** p<.05, * p<.1, p<1

Note: This table presents a series of multinomial logit regression estimates of the 1920, 1930 and 1940 probabilities of employment type for treated and untreated Creek Freedmen allottees, relative to blue collar employment. All regressions control for age, age squared, and gender. Occupation categories are mutually exclusive. Treatment is defined as presence of a producing oil well on allotment by the year 1918. For more information on data and variable definitions, see Data Appendix I. Standard errors are robust to heteroskedasticity and are shown in parentheses. Pooled estimates are clustered at the individual-level. $^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$

Table 5: The Effect of Oil Money on Homeownership

	A. 1920	B. 1930	C. 1940	D. 1920-1940 Pooled
Homeowner				
Coefficient	-0.001	0.070	0.095*	0.050
Std. error	(0.041)	(0.047)	(0.050)	(0.031)
Mean	0.64	0.45	0.37	0.52
Observations	2,001	1,228	997	4,226
Urban				
Coefficient	0.100***	0.017	-0.010	0.043
Std. error	(0.038)	(0.046)	(0.051)	(0.032)
Mean	0.22	0.35	0.44	0.31
Observations	2,001	1,228	997	4,226

Note: This table presents a series of regression estimates of the 1920, 1930, 1940 and pooled differences in homeownership between treated and untreated Creek Freedmen allottees. All regressions control for age, age squared, and gender and the pooled regression controls for year. Means are computed over the entire treated and untreated Creek Freedmen allottee population. Treatment is defined as presence of a producing oil well on own or parent allotment by the year 1918. For more information on data and variable definitions, see Data Appendix I. Standard errors are robust to heteroskedasticity and are shown in parentheses. $^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$

4.2 Effects to Children

The canonical quantity-quality tradeoff theory of fertility proposes that families face a tradeoff between the number of children to have (quantity) and the investment to make in each child's upbringing (quality) (Becker and Lewis, 1973). The theory suggests that as families have more children, the resources available to devote to each child decrease, potentially leading to a lower "quality" of upbringing per child. On the other hand, if a family has fewer children, they can allocate more resources per child, providing a better "quality" of upbringing. This model can be extended to include potential income from child labor, particularly in the context of agrarian societies, where the immediate economic benefits of an extra hand on the farm can outweigh the long-term benefits of investing heavily in each child's education and health (Barro and Becker, 1989; Boserup, 2013; Rosenzweig and Wolpin, 1980; Schultz, 1988).

If child quantity-quality tradeoff dynamics are at play in this context, we might expect that as Creek Freedmen move out of farming and into professional employment, that they would bear fewer children but increase their investment into the human capital of the children that they do have. In fact, the number of children living in each household declines by about a quarter-child per household over all decades pooled. Most notably, 0.22 fewer teenagers live in treated households than in untreated households in 1920.

Oil income does sharply reduce the rate of teenagers who work by 8 percentage points on average, or by around one in three children, shown in **Table 7**. This estimate is the most stark in 1920, when the rate of teenagers working was highest generally. While working and school are not mutually exclusive activities for teenagers, we can also see that the negative relationship between treatment and working seems to correspond with a positive impact to schooling in all decades. We do not see an impact to the already nearly-universal literacy rate. Together, the results point to a strong income effect on child work and a negative response on family size or coresidence.

5 Productive Investments as a Mechanism for Economic Mobility

We might expect that the effects of oil money on socioeconomic status of the first-generation and intergenerationally might have a long-term impact if the money is invested into productive means, such as entrepreneurship, capital, education, or migration. I find evidence of allottee investment in education, but no investments into migration, in response to finding oil.

Table 6: Children in Allottee Households

	A. 1920	B. 1930	C. 1940	D. 1920-1940 Pooled
Total Children (#)				
Coefficient	-0.274	-0.228	-0.125	-0.243*
Std. error	(0.196)	(0.194)	(0.187)	(0.135)
Mean	2.76	1.87	1.45	2.19
Observations	1,960	1,206	973	4,139
Teenagers (#)				
Coefficient	-0.224***	0.029	-0.047	-0.105**
Std. error	(0.078)	(0.079)	(0.083)	(0.047)
Mean	1.06	0.49	0.49	0.76
Observations	1,960	1,206	973	4,139

Note: This table presents a series of regression estimates of the differences in post-treatment quantity of children in the households where treated and untreated Creek Freedmen lived. All regressions control for age, age squared, and gender of the allottee and the pooled regression controls for year. Means are computed over the entire treated and untreated Creek Freedmen allottee population. Treatment is defined as presence of a producing oil well on allotment by the year 1918. For more information on data and variable definitions, see Data Appendix I. Standard errors are robust to heteroskedasticity and are shown in parentheses. $^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$

Table 7: Quality of Upbringing in Allottee Households

	A_1920	B_1930	C_1940	D. 1920-1940 Pooled
Teens Working (%)				
Coefficient	-0.101**	-0.071	-0.016	-0.076***
Std. error	(0.042)	(0.043)	(0.057)	(0.027)
Mean	0.28	0.17	0.15	0.22
Observations	850	445	428	1,723
Teens in School (%)				
Coefficient	0.084*	0.037	0.046	0.063**
Std. error	(0.046)	(0.056)	(0.062)	(0.031)
Mean	0.67	0.73	0.77	0.71
Observations	850	445	428	1,723
Teen Literacy (%)				
Coefficient	0.002	0.000	-0.011	-0.001
Std. error	(0.019)	(0.019)	(0.030)	(0.013)
Mean	0.97	0.98	0.98	0.97
Observations	850	445	379	1,674

Note: This table presents a series of regression estimates of the differences in post-treatment literacy and activities of children in the households where treated and untreated Creek Freedmen lived. For children, "in school" and "works" are not mutually exclusive activities. All regressions control for age, age squared, and gender of the child and the pooled regression controls for year. Means are computed over the entire treated and untreated Creek Freedmen offspring population. Treatment is defined as presence of a producing oil well on allotment by the year 1918. For more information on data and variable definitions, see Data Appendix I. Standard errors are robust to heteroskedasticity and are shown in parentheses. $^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$

In **Table 8**, I consider where Freedmen lived in the decades following the oil shock. Of the people that I observe in the 1940 census, roughly 94 percent had moved to a new populated place and roughly 78 percent had moved to a different county. However, only around 43 percent and 31 percent, respectively, had left the Creek Nation or moved out of Oklahoma entirely. I ran my main specification using these four measures as outcomes and found that finding oil led to no effect on changing populated places, which nearly everyone does, and no effect on leaving the Creek Nation or Oklahoma. However, in 1920, treated individuals remained in their original county 10.4 percentage points more often than untreated individuals.

Table 8: The Effect of Oil Money on Migration

	Left OK	Left Cr Nation	Left county	Left PP
	Mean: 0.15	Mean: 0.26	Mean: 0.53	Mean: 0.74
year=1920 X Oil by 1918	0.016	-0.037	-0.104***	-0.022
	(0.025)	(0.029)	(0.039)	(0.041)
year=1930 X Oil by 1918	-0.020	-0.059	0.027	-0.011
	(0.039)	(0.044)	(0.049)	(0.053)
year=1940 X Oil by 1918	-0.054	-0.053	0.012	-0.011
	(0.042)	(0.048)	(0.053)	(0.048)
Controls (age, age^2, gender)	Yes	Yes	Yes	Yes
Decade fixed-effects	Yes	Yes	Yes	Yes
Adjusted R-squared	0.04	0.05	0.05	0.06
Observations	4,404	4,402	4,394	4,123

Note: This table presents a series of regression estimates of the difference in likelihood of being observed out of Oklahoma, out of the Creek Nation, out of "original county" or out of "original populated place," respectively, between treated and untreated Creek Freedmen allottees in 1920, 1930 and 1940. I define original county as the Oklahoma county in which the allottee's Dawes Enrollment took place, sometime between 1898 and 1907. I define original populated place as the populated place in which an allottee was living in 1910, if I observe them in the 1910 Census. All regressions control for age, age squared, and gender and include fixed effects for census decade. Means are computed over the entire treated and untreated Creek Freedmen allottee population allottee population in 1920. Treatment is defined as presence of a producing oil well on own or parent allotment by the year 1918. For more information on data and variable definitions, see Data Appendix I. Standard errors are clustered at the individual level and are shown in parentheses. $^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$

There were few statistically robust or economically meaningful differences in the qualities of the places where people lived in 1940, save for possibly the rate of white neighbors which is 7.4 percentage points lower. Most notably, **Table 9** shows that, not only were the adults living near treated Creek Freedmen not more educated, but their children did not attend school at higher rates and the schools seem to be of the same quality, as proxied by teacher salary. No other statistically significant differences seem to exist between the

places that treated and nontreated folks ended up, over the selected variables that I explored. **Table 10** shows that male Creek Freedmen treated with oil did not seem to live longer than those who were not treated, and were not statistically more likely to die in Oklahoma.

Table 9: Neighborhood Quality, 1940

	Estimate	Mean	Observations
A. Education			
Share graduated college	0.009	0.139	993
	(0.030)		
Share graduated high school	-0.002	0.278	993
	(0.028)		
School attendance	0.007	0.827	993
	(0.010)		
Teacher Salary	-24.754	936.422	925
	(38.175)		
B. Labor Markets			
Employment to population ratio	-0.006	0.809	993
	(0.015)		
Unemployment rate	-0.001	0.128	992
	(0.012)		
Racial earnings gap	-27.397	490.816	814
	(41.141)		
C. Families			
Share of families single-parent	0.009	0.174	991
	(0.011)		
Poverty rate	0.016	0.703	993
	(0.021)		
D. Segregation			
Proportion of neighbors white	-0.074**	0.583	993
	(0.035)		
E. Other			
Urban	-0.010	0.443	997
	(0.051)		

Note: This table presents a series of regression estimates of selected neighborhood characteristics of the places where treated and untreated Creek Freedmen allottees lived in 1940. All regressions control for age, age squared, and gender. Means are computed over the entire treated and untreated Creek Freedmen allottee population allottee population. Treatment is defined as presence of a producing oil well on allotment by the year 1918. For more information on data and variable definitions, see Data Appendix I. Standard errors are robust to heteroskedasticity and are shown in parentheses. $^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$

Table 10: Death Outcomes

	Died in OK	Age at Death
	Mean: 0.52	Mean: 69.32
oil on own or parent allotment	0.119	0.247
	(0.077)	(2.659)
Controls (age, age^2, gender)	No	No
Adjusted R-squared	0.00	-0.00
Observations	381	412

Note: This table presents a series of regression estimates of the differences in death age and location between treated and untreated Creek Freedmen allottees who were born after 1898 but died after age 17. The regressions do not control for any covariates. Treatment is defined as presence of a producing oil well on own or parent allotment by the year 1918. Death information hand-collected as described in Online Appendix. ***$p < 0.01$,**$p < 0.05$,*$p < 0.1$ Standard errors are robust to heteroskedasticity and are shown in parentheses.

6 Conclusion

The 1899 transfer of land to nearly seven thousand Black people in Oklahoma, and the subsequent discovery of lucrative oil deposits under a quasi-random subset of those pieces of land, provides a unique natural experiment. This episode gives me the opportunity to assess the role that post-emancipation stock of wealth played in the economic progress of Black Americans, providing insight into what types of post-emancipation policies may have been effective at reducing long-term racial inequalities, had they been successfully implemented in the decades following the abolition of slavery.

This is the first study to causally estimate the long-run effects of a wealth shock on the socioeconomic outcomes of descendants of the enslaved, addressing a major gap in our understanding of racial wealth disparities. I find that receiving a windfall in the decades following emancipation had positive economic effects that persisted over time and even across generations. In the short run, oil wealth led to urbanization: by 1920, treated Creek Freedmen were more likely to live in areas with greater educational and economic opportunity. Over time, treated individuals and their children attained higher levels of education and were more likely to enter professional occupations. These patterns suggest that human capital investments were a key channel through which wealth translated into lasting gains. By 1940, treated families also appear to have accumulated more physical wealth, as proxied by higher rates of homeownership.

While this study provides valuable causal evidence, further research is needed on longer-term and intergenerational effects, as well as potential policy implications. In ongoing work, I aim to provide evidence on the economic statuses of the children and grandchildren of Creek Freedmen at the end of their lives. I am also working to characterize the size, cadence and duration of the wealth shocks. Understanding what types of monetary shocks were most effective in reducing racial disparities in the past is key to designing future policy that is targeted to reduce inequality.

My research demonstrates that access to wealth can be transformative for disadvantaged groups, underscoring both the persistent impacts of historical injustices and the potential for targeted interventions to promote economic mobility.

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A Additional Balance Tests

In this section, I present a series of supplementary tests that demonstrate further that the discovery of oil was not associated with many characteristics that we might consider important.

In **Table A.1**, I establish that oil-producing wells are built on the allotments of Creek Freedmen and Creek Indians at statistically identical rates.

Table A.1: Oil Discovery by Allottee Race

	Creek Indian N=[12,014]	Freedman N=[6,836]	p-value
Oil well 1900-1930	0.118 (0.323)	0.116 (0.320)	0.654

Note: Mean (Standard deviation), p-value from a pooled t-test. Allottees in this table grouped by whether they were enrolled on the Dawes Roll as "Indian" or "Freedmen."

In **Table A.2**, I establish balance over time-invariant characteristics among treated and untreated allottees for the different samples used in this paper for outcome analysis.

Table A.2: Balance on time-invariant characteristics among samples matched to the 1920, 1930 or 1940 Census

	No oil by 1918	Oil by 1918	p-value
A. Sample Matched to 1920 Census			
N	1,890 (94.5%)	111 (5.5%)	
Male	0.58 (0.49)	0.53 (0.50)	0.355
Age from 1920 census	31.27 (16.09)	32.95 (15.66)	0.282
Born in Oklahoma	0.92 (0.28)	0.91 (0.29)	0.842
Mother born in OK	0.71 (0.46)	0.77 (0.42)	0.117
Father born in OK	0.64 (0.48)	0.67 (0.47)	0.572
Speaks English	0.94 (0.24)	0.97 (0.16)	0.136
Literate (Adult in 1910)	0.76 (0.43)	0.86 (0.35)	0.073
B. Sample Matched to 1930 Census			
N	1,142 (93.0%)	86 (7.0%)	
Male	0.68 (0.47)	0.52 (0.50)	0.004
Age from 1930 census	39.79 (14.00)	41.48 (14.81)	0.283
Born in Oklahoma	0.92 (0.28)	0.90 (0.31)	0.531
Mother born in OK	0.69 (0.46)	0.64 (0.48)	0.322
Father born in OK	0.62 (0.49)	0.62 (0.49)	0.920
Speaks English	1.00 (0.05)	1.00 (0.00)	0.632
Literate (Adult in 1910)	0.77 (0.42)	0.79 (0.41)	0.721
C. Sample Matched to 1940 Census			
N	927 (93.0%)	70 (7.0%)	
Male	0.72 (0.45)	0.54 (0.50)	0.001
Age from 1940 census	47.86 (12.64)	50.66 (11.88)	0.074
Born in Oklahoma	0.86 (0.34)	0.86 (0.35)	0.871
Mother born in OK	0.63 (0.49)	0.80 (0.45)	0.436
Father born in OK	0.48 (0.50)	0.67 (0.52)	0.386
Speaks English	. (.)	. (.)	
Completed 2nd grade (Adult in 1910)	0.81 (0.39)	0.92 (0.28)	0.112

Note: Mean (Standard deviation), p-value from a pooled t-test. Allottees in this table grouped by whether oil produced under *own* allotment by 1918 or not. In 1940, mother and father's birthplace were only asked of the 5 percent of the population selected as "sample-line respondents," which may be why the estimates are so large and imprecise for these years. Ability to speak English or literacy were not collected in 1940 but I proxy for the latter with whether the individual reports completing second grade or not.

Table A.3: Balance on individual-level and household-level pre-treatment characteristics

	No oil by 1918	Oil by 1918	p-value
A. Location, 1910			
N	2,741 (94.4%)	163 (5.6%)	
Urban	0.10 (0.30)	0.13 (0.34)	0.217
Living in Oklahoma	0.99 (0.09)	0.99 (0.08)	0.827
Farm	0.71 (0.46)	0.71 (0.45)	0.908
B. Family Status, 1910			
N	2,741 (94.4%)	163 (5.6%)	
Household head	0.18 (0.39)	0.25 (0.44)	0.035
Never married/single (Under age 25)	0.92 (0.27)	0.85 (0.36)	0.011
Separated or divorced if ever married	0.08 (0.27)	0.04 (0.19)	0.154
Duration of current marriage, years	14.37 (11.26)	11.41 (10.69)	0.039
Children ever born	5.83 (3.79)	5.73 (3.93)	0.863
Children still living	3.93 (2.65)	4.32 (3.06)	0.358
C. Household Characteristics, 1910			
N	2,726 (94.4%)	161 (5.6%)	
Household members	6.34 (2.65)	5.85 (2.54)	0.021
Household members under 18	3.64 (2.27)	3.16 (2.05)	0.009
Household members over 18	2.70 (1.25)	2.69 (1.20)	0.903
Child in school	0.85 (0.36)	0.90 (0.30)	0.269

Note: Mean (Standard deviation), p-value from a pooled t-test. Allottees in this table grouped by whether oil produced under own or parent allotment by 1918 or not.

B Additional Outcomes

Table B.4: The Effect of Oil Money on Home Value

	A. 1930	B. 1940	C. 1930-1940 Pooled
House Value			
Coefficient	1607.434	567.448	954.557
Std. error	(1327.044)	(504.025)	(695.047)
Mean	1942.17	966.53	1315.36
Observations	192	345	537

Note: This table presents a series of regression estimates of the 1930, 1940 and pooled differences in home value between treated and untreated Creek Freedmen allottees. All regressions control for age, age squared, and gender and the pooled regression controls for year. Means are computed over the entire treated and untreated Creek Freedmen allottee population. Treatment is defined as presence of a producing oil well on own or parent allotment by the year 1918. For more information on data and variable definitions, see Data Appendix I. Standard errors are robust to heteroskedasticity and are shown in parentheses. $^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$

Table B.5: Transitions into and out of Homeownership

	Homeowner to Non-homeowner	Non-homeowner to homeowner
	Mean: 0.44	Mean: 0.42
year=1920 X Oil by 1918	0.042	0.127
	(0.049)	(0.092)
year=1930 X Oil by 1918	-0.127*	-0.110
	(0.072)	(0.107)
year=1940 X Oil by 1918	-0.087	0.055
	(0.074)	(0.145)
Controls (age, age^2, gender)	Yes	Yes
Decade fixed-effects	Yes	Yes
Adjusted R-squared	0.10	0.02
Observations	2,844	835

Note: This table presents a series of regression estimates of the difference in likelihood of transitioning into or out of home ownership, respectively, between treated and untreated Creek Freedmen allottees in 1920, 1930 and 1940. I define original homeownership status as homeownership status in 1910, if I observe them in the 1910 census. All regressions control for age, age squared, and gender and include fixed effects for census decade. Means are computed over the entire treated and untreated Creek Freedmen allottee population allottee population in 1920. Treatment is defined as presence of a producing oil well on own or parent allotment by the year 1918. For more information on data and variable definitions, see Data Appendix I. Standard errors are clustered at the individual level and are shown in parentheses. $^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$

C Additional Descriptive Statistics

Table C.6: White-Collar Jobs in 1910

	Percent
Occupation, 1950 basis	
Clergymen	3.85
Nurses, professional	3.85
Teachers (n.e.c.)	15.38
Managers, officials, and proprietors (n.e.c.)	53.85
Collectors, bill and account	3.85
Mail carriers	3.85
Messengers and office boys	3.85
Real estate agents and brokers	3.85
Salesmen and sales clerks (n.e.c.)	7.69
Total	100.00

Table C.7: White-Collar Jobs in 1920

	Percent
Occupation, 1950 basis	
Clergymen	8.11
Lawyers and judges	8.11
Nurses, professional	2.70
Social and welfare workers, except group	2.70
Teachers (n.e.c.)	10.81
Managers, officials, and proprietors (n.e.c.)	18.92
Bookkeepers	5.41
Cashiers	2.70
Mail carriers	2.70
Shipping and receiving clerks	2.70
Telephone operators	2.70
Clerical and kindred workers (n.e.c.)	2.70
Demonstrators	2.70
Newsboys	2.70
Real estate agents and brokers	13.51
Salesmen and sales clerks (n.e.c.)	10.81
Total	100.00

Table C.8: White-Collar Jobs in 1930

	Percent
Occupation, 1950 basis	
Athletes	1.72
Clergymen	3.45
Lawyers and judges	1.72
Librarians	1.72
Pharmacists	1.72
Teachers (n.e.c.)	17.24
Postmasters	1.72
Managers, officials, and proprietors (n.e.c.)	32.76
Messengers and office boys	1.72
Shipping and receiving clerks	1.72
Stenographers, typists, and secretaries	5.17
Clerical and kindred workers (n.e.c.)	5.17
Advertising agents and salesmen	1.72
Insurance agents and brokers	1.72
Real estate agents and brokers	12.07
Salesmen and sales clerks (n.e.c.)	8.62
Total	100.00

Table C.9: White-Collar Jobs in 1940

	Percent
Occupation, 1950 basis	
Clergymen	4.26
Librarians	2.13
Musicians and music teachers	6.38
Nurses, professional	2.13
Pharmacists	4.26
Social and welfare workers, except group	2.13
Surveyors	2.13
Teachers (n.e.c.)	12.77
Therapists and healers (n.e.c.)	2.13
Inspectors, public administration	2.13
Managers, officials, and proprietors (n.e.c.)	21.28
Clerical and kindred workers (n.e.c.)	12.77
Insurance agents and brokers	2.13
Real estate agents and brokers	8.51
Salesmen and sales clerks (n.e.c.)	14.89
Total	100.00

Table C.10: Characteristics of Rural and Urban Enumeration Districts

	Rural	Urban	p-value
A. 1920 Census			
N	343 (54.4%)	288 (45.6%)	
Nonwhite home ownership rate	0.40 (0.24)	0.25 (0.23)	<0.001
Nonwhite white-collar occupation rate	0.04 (0.08)	0.08 (0.06)	<0.001
Nonwhite child school attendance	0.61 (0.23)	0.75 (0.16)	<0.001
Literacy among nonwhite children/teenagers	0.91 (0.12)	0.98 (0.03)	<0.001
B. 1930 Census			
N	317 (53.0%)	281 (47.0%)	
Nonwhite home ownership rate	0.31 (0.20)	0.29 (0.23)	0.194
Nonwhite white-collar occupation rate	0.04 (0.07)	0.09 (0.08)	<0.001
Nonwhite child school attendance	0.72 (0.20)	0.79 (0.16)	<0.001
Literacy among nonwhite children/teenagers	0.92 (0.14)	0.98 (0.05)	<0.001
C. 1940 Census			
N	295 (46.2%)	344 (53.8%)	
Nonwhite home ownership rate	0.36 (0.23)	0.23 (0.20)	<0.001
Nonwhite white-collar occupation rate	0.05 (0.07)	0.11 (0.10)	<0.001
Nonwhite child school attendance	0.77 (0.22)	0.84 (0.16)	<0.001
Literacy among nonwhite children/teenagers	0.87 (0.25)	0.92 (0.22)	0.034

Note: The table presents descriptive statistics over the enumeration districts in which at least one allottee was found living in each Census year, split by whether the ED was classified as "urban" or "rural" (see Section I). Mean (Standard deviation): p-value from a pooled t-test. To be clear, these statistics consider *all* nonwhite households, not only Creek Freedmen households.

D News Items

MISS BAYONNE AVONNE DAVIS

Miss Davis is the beautiful and accomplished daughter of Mr. and Mrs. George Davis, Boynton, Oklahoma. The little Miss is a graduate of Wilberforce, Class of '28, and is also a member of the Alpha Kappa Alpha Chapter.

Whether to teach school this year or go to work as cashier for the Security Life Insurance Co., is what is puzzling the head of Miss Davis these days. Her father is general manager of Oklahoma's wide awake insurance company, the Security Life.

"I may work for Dad," said Miss Davis when urged to announce her decision about the two jobs.

Figure D.1

E Census Linking

For each match decade, I first subset my Creek Freedmen database to people who are likely to have been living in the relevant year, although this information is by no means complete.[22] Importantly, there is considerable bunching within reported age for small children in particular. See **Figure I.5** and **Figure I.6**.

- **Cleaned Name.** I standardize names via the *abeclean* Stata command which converts nicknames into likely given names by gender, such that "Sam" would become "Samuel" for a man, and "Samantha" for a woman (Curtis and Eriksson, 2020). I also output NYSIIS names.

[22] My information on deaths is incomplete and in particular, would only include deaths by 1914 at the latest.

WESTERN UNIVERSITY.

Last Friday evening a mock trial was the program of the James A. Handy literary society.

Miss Eva Jones of Denver gave the fourth of the series of six recitals by the advance piano students under Prof. Robert Jackson. Miss Jones has made wonderful advancement, as interpreted by the many difficult high class numbers rendered with such ease and beauty on this occasion.

Miss Anna Rentie, a student of the Business department, returned Friday from a two weeks sight seeing visit to Denver, Colorado Springs and Salt Lake City, Utah, with her father, Mr. Ireland Rentie of Muskogee, Okla., and her sister, Miss Mattie Rentie. Mr. Rentie is a very wealty negro land leasor, receiving a large income monthly from the Standard Oil company of New York. On this entire journey Mr. Rentie and his daughters occupied a private Pullman car specially chartered for this trip. He will return for our commencement.

Mr. Eugene Vaughan of last year's class in stenography, who was recently sent to fill a lucrative position in the office of superintendent of insurance at

Figure D.2

- **Enumeration District, 1900 (census).** To assist in linking, I manually classified all post-office locations into 1900 Census enumeration districts (EDs).

I link Creek Freedmen allottees to the 1910-1920 Censuses separately and iteratively, using a combination of automated and manual methods.[23]

1. In Stage 1, I employ a novel household-linking strategy.[24] Taking the other members of the household into account allows me to approve, with near certainty, many candidates in whom I would not otherwise have felt confident.
   (a) Using the Stata commands *matchit* and *reclink2*, I search broadly for each individual by standardized and unstandardized first and last name over all Black and Native American people living in Indian Territory within a cell defined only by sex. I keep those matches within a generous band

[23] Indian Territory was enumertaed in the 1900 Census but is unavailable on IPUMs.

[24] My strategy differs from Helgertz et al. (2022).

Table E.11: Method with which census-link made

	Census Decade			
	1910	1920	1930	1940
Matched by Hand	279	208	173	143
Semiautomated: Family	2,040	974		
Semiautomated: Unique name	326	364		
Census Tree (implied)	245	438	1,049	848
Confirmed deceased	894	1,114	1,121	1,130
Unmatched	3,055	3,741	4,496	4,718
Total	6,839	6,839	6,839	6,839

Note: Creek Freedmen allottees were linked to the various censuses in rounds using various methods. This table breaks down the method with which each link was made separately, as well as the deceased and unmatched people. In cases where the same link was made through multiple methods, they are grouped with the most reliable linking method. Observations of deaths are incomplete, particularly after 1920.

around reported age such that each allottee has many candidates.

(b) I identify *census households* for which multiple individuals from the same *household in the Creek Freedmen database* match.[25] I reshape the linked file to be at the household level, rather than the individual level.

(c) I review household-level candidates by hand using the Stata command *clrevmatch*.

(d) I subset the expansive data from 1a to only those individual candidates from matched households identified in 1c. I check the matched dataset for duplicates over *Roll_Number* + *Type* and over *histid*.

2. In Stage 2, I take advantage of location data that was collected by the Dawes Commission: the nearest post office to where the application took place.

(a) I start with the expansive data from 1a and drop all candidates identified by *Roll_Number* + *Type* and *histid* for whom matches have already been identified.

(b) Using the Stata command *abematch*, I search for each individual by age and unedited first and last name among individuals in that ED.[26] See subsection **??** for how I defined EDs in this data.

(c) I return the remainder of matches to the common pool.

[25] I define a "household" in the Creek Freedmen database as individuals listed on the same Dawes Census Card, inclusive of parents listed on different cards than their children.

[26] Because *abematch* only identifies unique matches, there can be large sample size gains from matching within covariate groups defined as precisely as possible, as long as the groups are credible.

Table E.12: Census-linkage rates, by treatment status

	No oil by 1918 [6,547]	Oil by 1918 [293]	p-value
Link result, 1910	0.583 (0.493)	0.709 (0.455)	<0.001
Link result, 1920	0.451 (0.498)	0.564 (0.497)	<0.001
Link result, 1930	0.258 (0.438)	0.408 (0.493)	<0.001
Link result, 1940	0.209 (0.406)	0.329 (0.471)	<0.001

Note: Mean (Standard deviation), p-value from a pooled t-test. Allottees in this table grouped by whether oil produced under own or parent allotment by 1918 or not. The Ns at the top of the columns represent the entire Creek Freedmen population but the denominators with which the linkage rates are calculated exclude individuals found to be deceased by the respective census year.

3. I next search for each individual by age and standardized first and last name among individuals in that enumeration district. See Appendix Subsection **??** for how I standardized names in this data.
   (a) I append the near certain matches from Stage 1 to this.
   (b) I identify *census households* for which multiple individuals from the same *household in the Creek Freedmen database* match, now taking these as near-certain.
4. I generate a set of more ambiguous matches to be reviewed by hand by a group of research assistants and myself.
5. **Automated Links**: In the short term, I supplement my hand links with automated links. Using the Stata command *abematch*, I search for each individual by sex, age, race and NYSIIS-standardized first and last name among individuals born in Oklahoma. I allow for age to be up to five years incorrect on either end but matches with smaller errors will take priority over those with larger errors. In the standard version, which I utilize here, this command discards Freedmen that match to multiple individuals in the Census, thereby preserving only Freedmen who match to a single individual in the Census. I keep matches for which variable output "uniquefile1" is equal to 1, meaning that, IN EACH FILE, individuals are unique by NYSIIS name within a year above and below their reported age.

Table E.13: Census-linked sample characteristics

	Unlinked	Linked	p-value
1910 Census			
N	2,458 (41.2%)	3,505 (58.8%)	
Male	0.432 (0.495)	0.519 (0.500)	<0.001
Age in 1910	26.102 (17.346)	23.223 (16.216)	<0.001
1920 Census			
N	3,095 (54.4%)	2,591 (45.6%)	
Male	0.425 (0.494)	0.557 (0.497)	<0.001
Age in 1910	25.429 (17.230)	22.084 (15.012)	<0.001
1930 Census			
N	4,180 (73.6%)	1,502 (26.4%)	
Male	0.420 (0.494)	0.667 (0.471)	<0.001
Age in 1910	24.800 (17.186)	21.398 (13.427)	<0.001
1940 Census			
N	4,462 (78.7%)	1,210 (21.3%)	
Male	0.424 (0.494)	0.708 (0.455)	<0.001
Age in 1910	25.016 (17.169)	19.655 (11.797)	<0.001

Note: Mean (Standard deviation), p-value from a pooled t-test. Allottees in this table grouped by whether linked to each census or not. The linked and unlinked units in this table include both treated and untreated individuals who are not indicated to have deceased by each census year.

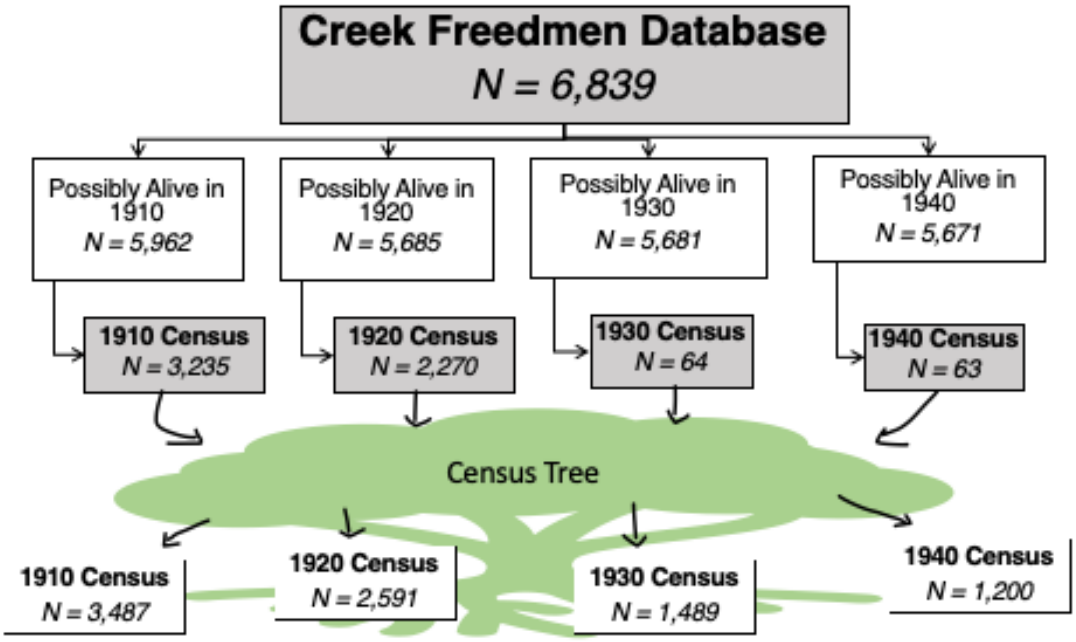


Figure E.3: Creek Freedmen Allottee Data Linking

F Laws of Descent and Distribution

F.1 Restrictions on the Sale of Allotments

Original

Sec. 7. "Lands allotted to citizens hereunder shall not in any manner whatsoever or at any time be incumbered taken or sold to secure or satisfy any debt or obligation contracted or incurred prior to the date of the deed to allottee therefor and such lands shall not be alienable by the allottee or his heirs at any time before the expiration of five years from the ratification of this agreement, except with the approval of the Secretary of the Interior.

Each citizen shall select from his allotment forty acres of land as a homestead which shall be nontaxable and inalienable and free from any incumbrance whatever for twenty-one years, for which he shall have a separate deed, conditioned as above: *Provided,* That selections for minors, prisoners, convicts, incompetents, aged and infirm persons who can not select for them may be made in the manner herein provided selection of their allotments; and if for any reason selection be not made for any citizen it shall be of said commission to make selection for him.

The homestead of each citizen shall remain, after the death of the allottee, for the use and support of children born to him after the ratification of this agreement but if he have no such issue then he may dispose of his homestead by will free from limitation herein imposed, and if this be not done, the land shall descend to his heirs according to the laws of descent and distribution of Creek Nation, free from such limitation."

Original Creek Agreement (31 Stat. L. 861) as given in Kappler (1904), page 730.

First Removal of Restrictions

"And all the restrictions upon the alienation of all land of allottees of either of the Five Civilized Tribes of Indians who are not of Indian blood, except minors, and except as to homesteads, hereby removed, and all restrictions upon the alienation of all other allottees of said tribes, except minors, and except as to homesteads, may, with the approval of the Secretary of the Interior, be removed under such rules and regulations as the Secretary of the Interior may prescribe, upon application to the United States Indian agent at the Union Agency in charge of the Five Civilized Tribes, if said agent is satisfied upon a full investigation of each individual case that such removal of restrictions is for the best interest of said allottee."

Act of April 21, 1904 (33 Stat. 189.) as given in Kappler (1913), page 50.

Sale Upon Death of Allottee

Sec. 2. "That the adult heirs of any deceased Indian of either of the Five Civilized Tribes... may sell and convey the lands inherited from such a decadent; and if there be both adult and minor heirs of such

decadent, then such minors may join in a sale of such lands by a guardian..."

Act of April 26, 1906 (34 Stat. L. 137) as given in Kappler (1913), page 178.

Second Removal of Restrictions

"All lands, including homesteads, of said allottees enrolled as intermarried whites, as freedmen, and as mixed-blood Indians having less than half Indian blood including minors shall be free from all restrictions."

Act of May 27, 1908 (35 Stat. 312.) as given in Kappler (1913), page 351.

F.2 Birthdate of Inclusion on the Dawes Rolls

"Citizen" Rolls

Sec. 28. "No person, except as herein provided shall be added to the roles of citizenship of said tribe after the date of this agreement and no person whomsoever shall be added to said rolls after the ratification of this agreement.

All citizens who were living on the first day of April, eighteen hundred and ninety-nine, entitled to be enrolled under section twenty-one of the Act of Congress approved June twenty-eight, eighteen hundred and ninety-eight, entitled "An Act for the protection of the people of Indian Territory, and for other purposes," shall be placed upon the rolls to be made by said commission under said Act of Congress, and if any such citizen has died since that time, or may hereafter die, before receiving his allotment of lands and distributive share of all the funds of the tribe, the lands and money to which he would be entitled, if living, shall descend to his heirs, according to the law of descent and distribution of the Creek Nation, and be allotted and distributed to them accordingly.

All children born to citizens so entitled to enrollment, up to and including the first day of July, nineteen hundred, and then living, shall be placed on the rolls made by said commission; and if any such child die after said date, the lands and moneys to which it would be entitled, if living shall descend to its heirs according to the laws of descent and distribution of the Creek Nation, and be allotted and distributed to them accordingly."

Original Creek Agreement (31 Stat. L. 861) as given in Kappler (1904), page 736.

New Born Rolls

"That the commission to the Five Civilized Tribes is authorized for sixty days after the date of approval of this act to receive and consider applications for enrollment of children born subsequent to May twenty-five, nineteen hundred and one, and prior to March fourth, nineteen hundred and five, and living on said latter date, to citizens of the Creek Tribe of Indians whose enrollment has been approved by the Secretary of the Interior prior to the date of the approval of this act; and to enroll and make allotments to such children."

Act of March 3, 1905 (33 Stat. L. 1048) as given in Kappler (1913), page 148.

Minor Rolls

Sec. 2. "That for ninety days after approval hereof applications shall be received for enrollment of children who were minors living March fourth, nineteen hundred and six, whose parents have been enrolled as members of the [Five Civilized Tribes], or have applications for enrollment pending at the approval hereof, and for the purposes of enrollment under this section illegitimate children shall take the status of the mother, and allotments shall be made to children so enrolled."

Act of April 26, 1906 (34 Stat. L. 137) as given in Kappler (1913), page 170.

Determination of Race and Age of Majority

"That the rolls of citizenship and of freedmen of the Five Civilized Tribes approved by the Secretary of the Interior shall be conclusive evidence as to the quantum of Indian blood of any enrolled citizen or freedman of said tribes... and the enrollment record... hereafter be conclusive evidence as to the age of said citizen or freedman."

Act of May 27, 1908 (35 Stat. 312.) as given in Kappler (1913), page 352.

F.3 Heirship

District Courts and Arkansas Law

"That there shall be appointed... four additional judges of the United States court in the Indian Territory... And said judges shall have all the authority and exercise all the powers, perform like duties, and receive the same salary as other judges of said court...

Sec. 2. All the laws of Arkansas heretofore put in force in the Indian Territory are hereby continued and extended in their operation, so as to embrace all persons and estates, whether Indian, freedman or otherwise, and full and complete jurisdiction is hereby conferred upon the district courts in said Territory in the settlements of all estates of decadents, the guardianships of minors and incompetents, whether Indians, freedmen or otherwise."

Act of April 28, 1904 (33 Stat. 573.) as given in Kappler (1913), page 109.

Wills

Sec. 23. "Every person of lawful age and sound mind may by last will and testament devise and bequeath all of his estate, real and personal, and all interest therein."

Act of April 26, 1906 (34 Stat. L. 137) as given in Kappler (1913), page 178.

F.4 Taxes

"That all the lands upon which restrictions are removed shall be subject to taxation, and the other lands shall be exempt from taxation as long as the title remains in the original allottee."

Act of April 26, 1906 (34 Stat. L. 137) as given in Kappler (1913), page 177.

G Oil Leases

1. Oil companies hire "lease men" to make "advanced royalty" leases with small landholders for right to dig exploratory holes in their land
   (a) Lease man identifies land that they might like to bet on.
   (b) Lease man contacts the landholder and leases land for a signing bonus, plus $24-48 annually ($830-1600) regardless of the drilling status of the land.
2. If land is "restricted Indian" land, the lease man must follow terms of the Bureau of Indian Affairs (BIA) and must seek approval of the BIA before it goes into effect. While the exact regulations changed with time, they included stipulations like minimum royalty shares (i.e. 12.5%) and maximum lengths of time that the leaseholder was allowed to hold lease without drilling. A sample of a notice of oil lease regulation changes, made by the Acting Commissioner of the Indian Affairs at the Department of Interior, dated June 1907, can be found at **Figure G.1**.
3. Within next few months, driller drills hole(s)
4. If well "produces" oil, landholder gets stipulated royalty share of profit.

Figure G.1: The New Oil Lease Regulations, *The Tulsa Weekly Democrat*, Jan 28, 1907

FAT MAN'S TOBACCO
1ST PRIZE
"STAR" PLUG

"The Plug for the Prize"

The greatest prize any man can get is a good chew of "Star."

In the race for public favor "Star" has always led in quality—and in value. The ripe, substantial leaf in "Star" is elastic and lasts longer than the light weight, mild, flimsy leaf in some cheaper kinds.

STAR
PLUG CHEWING TOBACCO

is made of ripest, sweetest, choicest leaves of the best tobacco grown. Every plug weighs the full 16 ozs. For forty years the quality, the weight and the price have been the same—but its popularity and sale have been *increasing* every year.

150,000,000 10c. pieces sold annually.

In All Stores

THE NEW OIL LEASE REGULATION CHANGES

THE FOLLOWING ARE THE NEW LEASE REGULATIONS MADE EFFECTIVE BY THE DEPARTMENT OF TH INTERIOR. THERE ARE MANY IMPORTANT CHANGES. THIS SET EMBRACES ALL PREVIOUS REGULATIONS THAT WERE NOT CHANGED, AND A LESSEE MUST FOLLOW THE NEW ONES TO THE LETTER ON ALL LEASES THAT ARE TO BE APPROVED BY THE SECRETARY OF INTERIOR. LEASE MEN, PRODUCERS, ALLOTTEES AND ATTORNEYS WILL FIND MANY IMPORTANT CHANGES IN THE NEW REGULATIONS THAT ARE OF VITAL IMPORTANCE TO THEM. THIS IS THE FIRST AND ONLY PUBLICATION IN THE TERRITORY AND THE REGULATIONS ARE OFFICIALLY GIVEN OUT BY INDIAN AGENT KELSEY.

1. Oil and gas and other mineral leases requiring the approval of the secretary of the interior shall be made for a period not longer than fifteen years for adults; in cases of minors, leases shall expire at majority of lessor; all leases shall be executed upon forms prescribed herein.

2. All leases shall be in quadruplicate, and, with the papers required, shall be filed within sixty days from and after the date of execution by the lessor with the United States Indian agent at Union Agency, Muskogee, Indian Territory.

3. The act of congress approved March 1, 1907, (33 Stat. L., 1015), provides:

"The filing heretofore or hereafter of any lease in the office of the United States Indian agent, Union Agency, Muskogee, Indian Territory, shall be deemed constructive notice."

4. Allottees are permitted to execute leases after formal application for allotment has been accepted.

5. No person, firm or corporation will be allowed to lease, within the territory occupied by the Five Civilized Tribes, for the purpose of producing oil or gas, more than 4,480 acres of land in the aggregate.

6. Oil and gas leases shall be accompanied, when filed, with application, made under oath on blank prescribed—Form "F"; leases for other mineral purposes shall be accompanied by application on Form "H"; those applications shall state specifically with what other persons, firms or corporations the lessee is interested, either directly or indirectly, in oil and gas or other mining leases or lands in the Five Civilized Tribes.

7. Lessees shall satisfy the department that the leases are taken in good faith for operation and not for speculation, and that they have the business capacity and financial ability to carry out all of the terms of such leases.

Certificates showing a certain amount of cash in bank — heretofore known as Form "C"—is no longer required. Instead, lessees shall embody a statement of their financial condition and their experience in oil, gas or other business in the application — Form "F." The standing of the lessee must be vouched for upon such application either by two officers of separate national banks or by one national bank officer and the manager of an oil well supply company, or some other commercial enterprise with which the applicant has had extensive business relations.

The department in every case reserves the right at any time to make further inquiry as to the standing and business ability of any prospective lessee.

Where the lessee is a corporation, its first application must be accompanied by a sworn statement of its proper officer showing:

The total number of shares of the capital stock actually issued and specifying the amount of cash paid into the treasury on each share sold; or, if paid in property, state kind, quantity, and value of the same per share.

Of the stock sold, how much per share remains unpaid and subject to assessment.

How much cash the company has in its treasury and elsewhere, and from what sources it is received.

What property exclusive of cash, is owned by the company, and its value.

What the total indebtedness of the company is, and specifically the nature of its obligations.

Subsequent applications of corporations should show, briefly, the aggregate amounts of assets and liabilities.

8. Corporations, with their first application, shall file one certified copy of articles of incorporation, and if a foreign corporation, evidence showing compliance with local corporation laws also a list showing officers and stockholders with postoffice addresses and number of shares held by each. Statements of any changes in or additions of stockholders shall be furnished to the Indian agent on January 1 and July 1 of each year, and any other time when requested; affidavits are required of individual stockholders setting forth in what companies or with what persons or firms they are interested in oil or gas mining lease or lands in the Five Civilized Tribes, and whether they hold such stock for themselves or in trust. Evidence shall also be given in a single affidavit (see Form "E") by the secretary of the company, or by the president, showing authority of officers to execute lease, bond and other papers.

9. Where lessor is a minor, there must be filed—

Certified copies of letters of guardianship.

Certified copy of court orders authorizing and confirming lease.

Proof of age of minor, preferable affidavit of parent or parents.

10. Lessees must procure and file with each lease one affidavit of the Indian lessors, made before a United States commissioner or Indian agent, showing that lease is understood, what the bonus agreements are, etc. (see Form "D" prescribed, which also covers lessee's affidavit of bonus and no development).

11. Leases of undivided interests in lands allotted to minors, or in cases where all the heirs join in the lease, and must be accompanied by satisfactory proof that the lessors are the only heirs of the deceased allottee. Minor heirs can lease, or join adult heirs in leasing, only through guardian under order of court. Proof of heirship shall be given upon Form "F," prescribed.

If probate or other court proceedings have established the heirship in any case, or the land has been partitioned, certified copy of final order, judgment or decree of the court will be accepted in lieu of Form "F" mentioned above.

12. Hereafter lessees are required to furnish with each lease, to be filed at the time the lease is presented, a bond upon Form "C," with two or more sufficient sureties, or with a surety company duly authorized to execute bonds, guaranteeing the payment of all royalties and rents at the time and in the manner specified in the lease and the regulations applicable and performance of all covenants and agreements named in the lease to be paid and performed by the lessee. Such bond for oil and gas leases shall be in amount as follows: For leases covering 40 acres and less than 80, $1,000; for those covering 80 acres and less than 120 acres, $1,500; for those covering 120 acres and not more than 160 acres, $2,000; and for each 40 acres or tract, or fractional part thereof, above 160 acres, an additional amount of $500 but the right is specifically reserved to increase the amount of such bond above the sums named in any particular case where the secretary of the interior deems it proper to do so. Bonds covering any other mineral leases shall be in such sum as may be fixed by the secretary of the interior. In leases heretofore presented for which bonds have not been furnished, bond must be filed within thirty days from receipt of notice calling therefor.

13. The Indian agent at Union Agency, or other government officer having the matter in charge or under investigation, may at any time, either before or after approval of a lease, call for and secure any additional information desired to carry out the purpose of these regulations, and such information shall be furnished within the time specified in the request therefor.

14. When a lessee fails to furnish within the time specified papers necessary to put his lease and bond in proper form for consideration, the Indian agent at Union Agency is directed to forward such lease immediately for disapproval.

Royalties.

15. The royalty on oil shall not be less than ten per cent of the gross proceeds of all oil produced from the leased premises, payment to be made at the time of sale or disposition of the oil.

16. From and after July 1, 1907, the royalty on gas producing wells, irrespective of whether the leases were heretofore or shall hereafter be approved, shall be as follows:

Where the capacity of a well is tested at 3,000,000 cubic feet or less per day of twenty-four hours, $150 per annum, and where the capacity is more than 3,000,000 cubic feet per day, $300 for each additional 1,000,000 cubic feet or fraction thereof.

The capacity of wells shall be determined, under the supervision of the secretary of the interior, before utilized and annually thereafter the amount of royalty to be based on such determination.

Where the lessee desires to retain the gas producing privileges of any well, but not to utilize the gas for commercial purposes, he shall pay an annual rental of $50 in advance, beginning from the date of discovery of gas, and to be paid within thirty days therefrom.

Except in cases of emergency, which shall not exceed ten days not more than seventy-five per cent of the capacity of any gas well shall be utilized.

Evidence of the date of discovery of gas wells and the beginning of utilization must be properly furnished in the form of a sworn statement.

Where wells produce both oil and gas, or gas alone in limited quantities, lessees may dispose of the gas for drilling at a rate of not less than five cents per foot of drilling done, and for pumping at a rate not less than one dollar per month for each well pumped. The gas so used shall be included in the regular reports of production.

17. The royalty on coal shall not be less than eight cents per ton of two thousand pounds on mine run, or coal as it is taken from the mines, including what is commonly called "slack."

18. The royalty on asphaltum shall not be less than ten cents per ton of two thousand pounds on crude asphalt, or sixty cents per ton on refined asphalt.

19. Application for leasing of gold, silver, iron, shale, limestone, or other mineral not specified in these regulations, may be submitted, and the royalty thereon shall be fixed after a special investigation in each particular case by the secretary of the interior.

20. All royalties, rents or payments due under leases which have been or may be approved by the secretary of the interior shall be paid to the United States Indian agent at Union Agency, Muskogee, Indian Territory, or to such other person as may be designated by the secretary of the interior, for the benefit of the various lessors, or, in case of minors and incompetents shall be deposited as hereinafter specified. No royalties on such leases shall be paid by the lessee direct to the lessors or their representatives.

All remittances to the United States Indian agent at Union Agency shall be made in St. Louis exchange, except that where this cannot be procured postoffice or express money orders will be accepted.

Royalty on oil, coal or other minerals produced in each month (except royalty payments on gas wells as herein mentioned) shall be paid on or before the 25th day of the month next succeeding.

21. With the consent of the United States Indian agent, lessees may enter into arrangements with the purchasers of oil for the payment of the royalty to the United States Indian agent by such purchasers, but such arrangement, if made, shall not operate to relieve lessees from the responsibility for the payment of the royalty should such purchaser fail, neglect, or refuse to pay the royalty when it becomes due.

Where lessees avail themselves of this privilege division orders, permitting the pipe line companies or other purchasers of the oil to withhold the royalty interest, shall be executed and forwarded to the Indian agent for approval before wells are brought in, as pipe line companies are not permitted to accept or run oil from Indian leases until after the approval of division orders showing that lessee has a lease regularly approved and in effect.

22. Advance royalty shall be paid annually from the date of the lease in sums of not less than fifteen cents per acre per annum for the first and second years; thirty cents per acre per annum for the third and fourth years, and seventy-five cents per acre per annum for the fifth and each succeeding year thereafter for the term for which the lease shall run, the sum thus paid to be credited on the stipulated royalties on actual production.

On and after July 1, 1907, the first year's annual advance royalty, calculated from the date of the lease, shall be tendered at the time of the filing of the lease in the office of the United States Indian agent at Union Agency, and on all leases pending in the office of the agent on that date, the annual advance royalty due under the terms thereof shall be paid on or before July 31, 1907, or such leases may be disapproved.

When the annual advance royalty becomes due on a leased tract from which oil, gas or other minerals are being produced, the lessee will not be required to pay that item until the royalty on the production during the month within which the advance royalty falls due is accounted for; and if the royalty on production equals or exceeds the advance royalty, it will be accepted as covering both items; but if it does not equal the advance royalty due, the lessee shall include the difference with his payment on production.

23. An oil and gas lessee shall drill at least one well on each leasehold within twelve months from the date of the approval of bond, or, may make the delay operations by paying, within twenty-five days after the end of the year, one dollar per acre per annum for each leasehold. Operations only will be so delayed upon making the annual payments required for a period not exceeding five years from May 22, 1906, except where bonds are approved subsequent to that date, in which event the period of delay shall run from date of the approval of the bond. A failure to drill within one year or to make the payment required within twenty-five days after the end of the year shall subject the lease to forfeiture without further notice to the lessee.

The secretary of the interior may at any time require any lessee immediately to develop a leased tract or offset wells on adjacent tracts, should he determine that the interests of the lessor demand such action.

25. Monthly sworn reports accompanying royalty remittances shall be made by each lessee within twenty-five days from the close of each month for the month preceding, covering all operations whether there has been production or not, except that where division orders have been approved and the royalty paid by the pipe line company or other purchasers of oil, lessees need not make monthly reports direct.

A lessee may include within one sworn statement all leases upon which there is no production or upon which dry holes have been drilled.

Quarterly reports, whether or not oil royalty is paid by pipe line company or other purchasers, shall be made by each lessee within twenty-five days after December 31, March 31, June 30, and September 30 of each year, on forms provided, showing manner of operations and total production during each quarter.

Sworn reports of gas wells shall be made both when discovered and when utilized.

25. All royalties, rents or payments accruing under any lease made for or on behalf of any minor or incompetent shall be deposited by the Indian agent in the local government office or to such party to the credit of the guardian or curator of such minor or incompetent in some national bank or banks designated by the commissioner of Indian affairs, and may be withdrawn therefrom by such guardian or curator with the consent of the United States Indian agent, in sums not exceeding $50 per month, unless otherwise ordered by the court. Sums in excess of $50 per month may be withdrawn on order of the proper court and not otherwise. Such designated banks shall furnish satisfactory surety bonds, to be approved by the secretary of the interior, guaranteeing the safe care and custody of the funds so deposited.

Operations.

26. Operations upon land covered by any lease requiring the approval of the secretary of the interior are not permitted until after such lease and satisfactory bond are regularly approved by the proper officers thereof.

27. Lessees must drill at least one well upon land covered by each lease within twelve months from the date of the approval of bond; failing to do drill subjects the lease to cancellation, unless the time for drilling shall be extended upon the payment of an annual rental. (See section 23.) Should the interest of the lessor so demand, the department reserves the right to require any lessee to develop a leased tract immediately.

28. Lessees shall not be allowed to within 200 feet of the division lines between lands covered by their leases and adjoining lands, except in cases where adjoining tracts or lands are drilled at a less distance, in which case lessees may offset such wells by drilling at an equal distance from the line, and provided further that in cases where the dimensions of leased tracts do not permit drilling 200 feet from the line, as near as may be to such points half way between lines which are 400 feet or less apart.

29. Lessees shall agree to allow the lessors and their agents, or any authorized representative of the interior department to enter from time to time upon and into all parts of the leased premises for the purpose of inspection and shall further agree to keep a full and correct account of all operations and make reports thereof as directed and their books and records showing the manner of operations and persons interested shall be open at all times for the examination of such officers of the department as shall be instructed in writing by the secretary of the interior to make such examination.

30. Lessees or operators using natural gas for outside illumination, or in connection with the operations carried on thereunder, and gas lessees covering lands within the territory of the Five Civilized Tribes, are required to use the device known as a "Storm burner," or other burner consuming not more than fifteen cubic feet of gas per hour. Such lamps shall not be lighted earlier than five o'clock in the afternoon, and shall be extinguished not later than 8 o'clock each morning, and not more than four such lights shall be used in drilling one well. Such cocks shall be placed on all pipes used for conveying gas to burners devised of any character, and the gas shall be shut off at all times when not in use. Boilers using gas for fuel shall have smokestacks or chimneys not less than twelve feet in height.

31. Operators upon approved leases within the territory of the Five Civilized Tribes are required to use all diligence to prevent any unnecessary waste of natural gas. Operators in possession of any gas well shall, within five days after the gas bearing sand or rock is penetrated, shut in and confine such gas in the well except so much of the product as can be utilized. Lessees or operators shall pay to the United States Indian agent at Union Agency, Muskogee, Indian Territory, the sum of $10 per day for each well during the time such well or wells are allowed to go uncontrolled or uncared for, unavoidable accidents excepted, and a failure on the part of the lessees or operators to prevent a waste of gas will further subject the lease to cancellation by the secretary of the interior after due notice.

In cases where oil bearing strata are found at a greater depth than gas bearing sand, packers and two strings of casing shall be used, so that waste of the gas from the first sand shall be prevented, thereby securely shutting in and preserving the gas.

32. All lessees or operators producing crude oil and natural gas within the territory of the Five Civilized Tribes shall, as a practical and workmanlike matter, plug all of their dry and abandoned oil and gas wells at a proper depth with wood or sediment so as to exclude all water from the oil or gas bearing rock or sand, before the casing is drawn from the said well in a manner satisfactory to the secretary of the interior or his authorized representative. With respect to wells in which no oil or gas bearing strata are encountered, the operator or person having charge or control of said well as well at the time it is abandoned shall fill the bottom of the hole solidly for at least twenty-five feet with sand dumplings, gravel and pulverized rock. Immediately on top of such filling shall be seated a dried pine plug of not less than two feet in length and of a diameter of not less than 1-4 inch less than the inside diameter of the casing. Upon this plug another filling of at least twenty-five feet of sand pumpings or other mineral substance shall be made, upon which there shall be seated a second seasoned wooden plug and the well again filled for at least twenty-five feet with similar filling material. After the casing has been drawn from such well, there shall be immediately seated at the point where such casing was seated a cast iron ball or the top of which plug shall be solidly filled with the aforesaid filling material for at least a distance of fifty feet. The hole should then be closed or marked. Every lessee or operator shall pay to the United States Indian agent at Union Agency, Muskogee, Indian Territory, for the use of the lessor, the sum of ten ($10) dollars per day for each well during the time well or wells remain uncapped or unplugged.

33. Lessees shall provide proper tankage, of suitable shape for accurate measurement, into which all production of crude oil shall be conducted direct from the wells through pipes or other closed connections. Where a lease covers a homestead and surplus lands and such surplus lands are sold, separate tankage must be applied for the homestead tracts and oil extracted therefrom reported separately. If the contents of such tanks are disposed of in any manner other than to a purchaser to whom a division order has been approved, or removed from the leased premises, accurate measurement shall first be made and the proper royalty and royalty thereon paid to the United States Indian agent in the usual manner.

34. In cases of emergency where the capacity of new wells is such that lessees are unable immediately to provide proper tankage, production may be conducted to open ponds, or earthen tanks, but in no case shall any embank ment exceed fifteen feet in height. Such ponds or tanks shall be so constructed as to minimize the danger of overflow, or collapse, or damage to crops or adjacent property.

Crude oil run into earthen tanks in cases of emergency, as indicated above, shall not be allowed to remain in such earthen tankage for a longer period than fifteen days, except where lessees desire to so store their oil, and after it has been properly gauged and tanks, thereon, such tankage may be used when so conducted as to prevent all reasonable danger of loss by overflow and damage to other property. The right is reserved to supervise the construction of earthen tanks where deemed necessary.

35. Lessees shall properly hold, or stored in earthen tanks, must be run from the wells into receiving tanks as required of accurate measurement, and then disposed of before being turned into earthen tankage.

36. Oil shall not be sold to a regular purchasing company until a division order is approved by the United States Indian agent at Union Agency. Should the lessee desire to sell oil or remove it from the leased premises in any other manner, such sale or removal shall not be made until first authorized by the Indian agent.

Oil operators or their authorized representatives shall actually be present when oil taken under division orders is run by pipe line companies, and shall be responsible for the correct measurement and report of oil so run; and a complete log made of each order may be revoked.

37. Whenever operators desire to secure from allottee lands timber for rigs, transmission of power, boarding houses, or for any other purpose, they must first obtain the consent of the allottee and the proper representative of the owner of the timber therefor.

38. Lessees shall keep a true and correct record of each well drilled, including a complete log made of the time of drilling, and, whenever required by proper authorized officers of the interior department, shall furnish a copy of such record and log, duly verified.

39. Lessees are required, when so requested, to file a plat of their leases showing exact locations of all producing oil or gas wells, dry wells, pumping stations, etc. Such plats, when desired, should also show locations of dry or producing wells upon adjoining tracts.

40. Lessees are not permitted to drill tanks or wells within 200 feet of any building used as a dwelling, granary, or shelter for stock, except where actually necessary to offset wells upon adjoining tracts.

41. All "B. S." or refuse from tanks or wells shall be drained off into proper receptacles, at a safe distance from the tanks, wells or buildings, to the end that it may be burned or transported from the premises but in no case shall it be permitted to flow over the surface of the land to the injury of any surrounding property or to the pollution of any stream. Salt water or any other product from any oil or gas well, not marketable, shall not be permitted to run into any tanks or ponds used for watering stock.

Assignments.

42. No lease or any interest therein by working or drilling contract or otherwise, or the use thereof, directly or indirectly, shall be sublet, assigned, or transferred without the consent of the secretary of the interior, and if at any time the secretary of the interior is satisfied that the provisions of any lease, or that any of the regulations heretofore or that may be hereafter prescribed, have been violated, he reserves authority, after ten days' notice to the parties, to cancel and annul such lease, without resorting to the courts and without further proceedings, and the lessor shall be entitled to immediate possession of the land.

Any lessee desiring to transfer or assign his lease, or any interest therein, shall make application to the Indian agent, stating the reasons therefor, and when such application is approved by him, formal assignment papers in quadruplicate may be entered into the field with the Indian agent for transmission to the secretary of the interior. The acceptance by the prospective assignee and consent of the surety company shall be filed on the form prescribed herein—"G."

Financial showing and other papers as required of original lessees must be furnished by the assignee, and the parts of the lease distributed to the lessee and lessor should be returned for endorsement. No assignment shall be allowed without notice first having been given the lessor of the application.

Cancellations.

43. Where a lessee makes an application for the cancellation of an approved lease, all royalties or rentals up to the date of the application for cancellation must be paid before such cancellation will be considered, and the parts of the lease delivered to the lessor and the lessee should be surrendered.

44. For the failure on the part of the lessee to comply with any rule or regulation or any obligation in the or interest wooden plug at least two feet in length, the diameter of which shall or the top of which plug shall be solidly filled with the aforesaid filling material for at least a distance of fifty feet. The hole should then be closed or marked. Every lessee or operator shall pay to the United States Indian agent at Union Agency, Muskogee, Indian Territory, for the use of the lessor, the sum of ten ($10) dollars per day for each well during the time well or wells remain uncapped or unplugged.

Forms.

45. Applications, leases and other papers must be upon forms prepared by the department and upon application the Indian agent at Muskogee, Indian Territory, will furnish proper prospective lessees with such forms at a cost of one dollar per set. Copies of such forms are printed herewith:

Set 1.

Form "A"—Oil and gas lease, separate forms for Creek, Cherokee and full-bloods.

Form "B"—Application for oil and gas lease, including financial showing.

Form "C"—Bond.

Form "D"—Affidavit of Indian lessor, proof of bonus, etc.

Form "E"—Authority of officers to execute papers.

Form "F"—Proof of heirship.

Form "G"—Assignment.

Set 2.

Form "H"—Application for mineral lease, other than oil and gas.

Form "I"—Coal and asphalt lease.

Form "J"—Lease for minerals other than oil and gas or coal and asphalt.

Form "K"—Agricultural lease.

Form "L"—Grazing lease.

Form "M"—Affidavit of personal surety to accompany bond.

46. These regulations shall be applicable to leases heretofore made and approved as well as those hereafter entered into.

Agricultural and Grazing Leases.

47. Allottees other than of full-blood of the Creek and Cherokee nations who desire to lease for terms longer than five years for agricultural purposes and one year for grazing purposes are required under existing law to have their leases approved by the secretary of the interior. Agricultural and grazing leases for shorter terms made by citizens other than full bloods do not require approval.

Allottees enrolled as full-blood members of the Choctaw, Chickasaw, Creek Cherokee and Seminole tribes can lease their allotments for a period longer than one year only with the approval of the secretary of the interior and their homelessness only in case of their inability, on account of infirmity or age, to work or farm them, and where leases are submitted for approval covering the homestead land, the affidavit or physician of some satisfactory evidence must be furnished showing the inability of the allottee to work or farm his homestead and the reasons therefor.

Agricultural leases of full-bloods will not be made for a longer period than five years. Agricultural and grazing leases made under these regulations shall be upon the forms prescribed herein.

In case it is desired to lease both the homestead and the surplus land of the full-blood allottee separate leases shall be submitted.

48. All leases shall be in quadruplicate and with the papers required, shall be filed within thirty days from and after the date of execution with the United States Indian agent at Union Agency, Muskogee, Indian Territory.

The Indian Agent will make a full investigation to ascertain whether an allottee comes within the purview of the law, and in case of a lease upon homestead lands, whether it will be to the best interests of the allottee to lease such homestead, and whether the consideration named in the lease is a fair one. He will also ascertain the character and responsibility of the prospective lessee.

49. Lessees shall be required to furnish a bond executed by two or more sufficient sureties, each of whom must justify under oath to an amount equal to the entire rental, guaranteeing the payment of all rents at the time and in the manner specified in the lease, and the performance of all covenants named in the lease.

50. The lessee, when requested, shall furnish any additional information required by the department. The general rules herein prescribed for oil and gas leases will be followed as far as applicable to agricultural and grazing leases, particularly as to corporations.

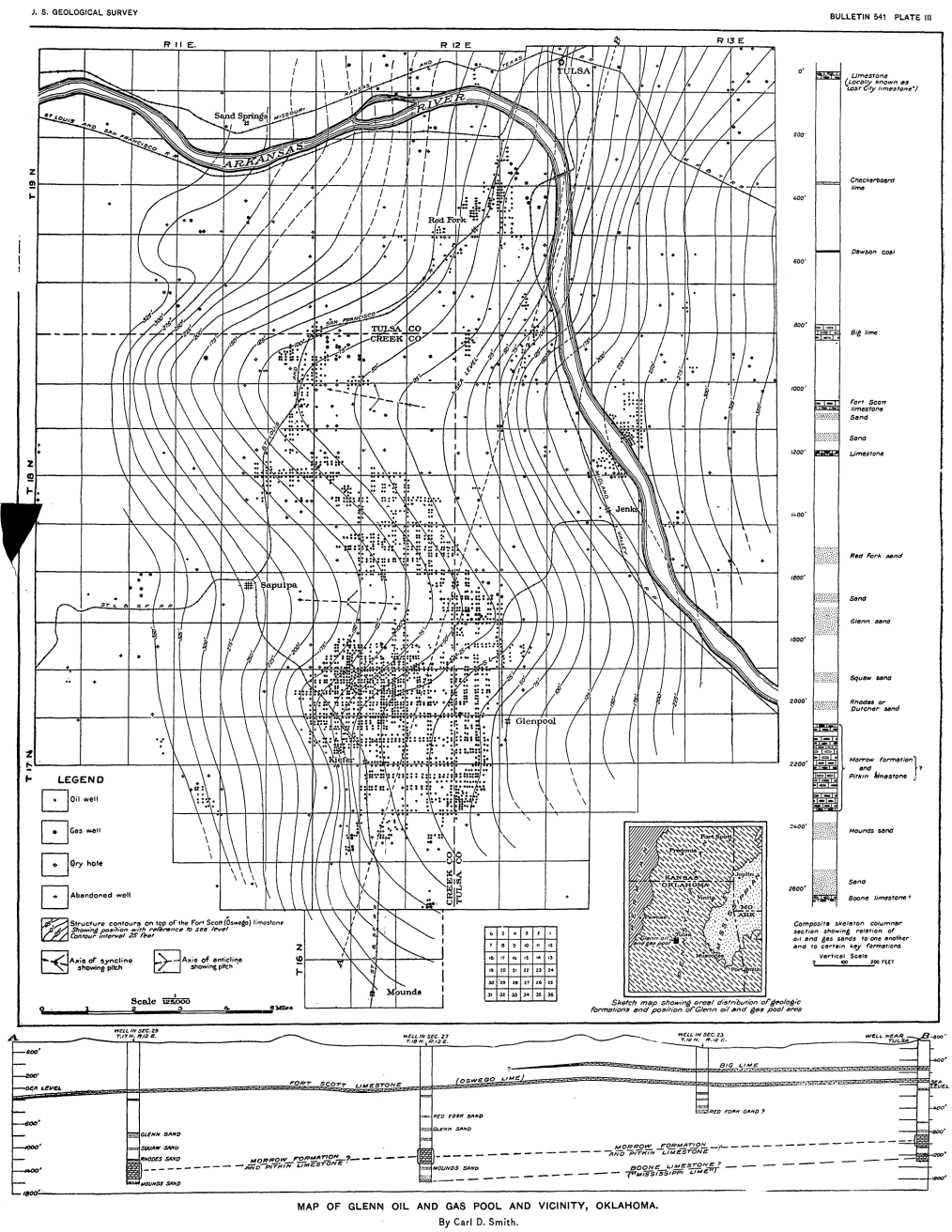
51. The enforcement of these regulations in the field is under the general supervision of oil and gas operations thereunder shall be under the direction of the commissioner to the Five Civilized Tribes in the Indian Territory after July 1, 1907.

(Signed) C. F. LARRABEE,
Acting Commissioner of the Indian Affairs.

Department of the Interior, Washington, D. C., June 18, 1907.
Approved:
JAMES RUDOLPH GARFIELD,
Secretary.

H Maps

Figure H.1: The Glenn Oil and Gas Pool and Vicinity, Oklahoma, Contributions to Economic Geology, 1912, Part II



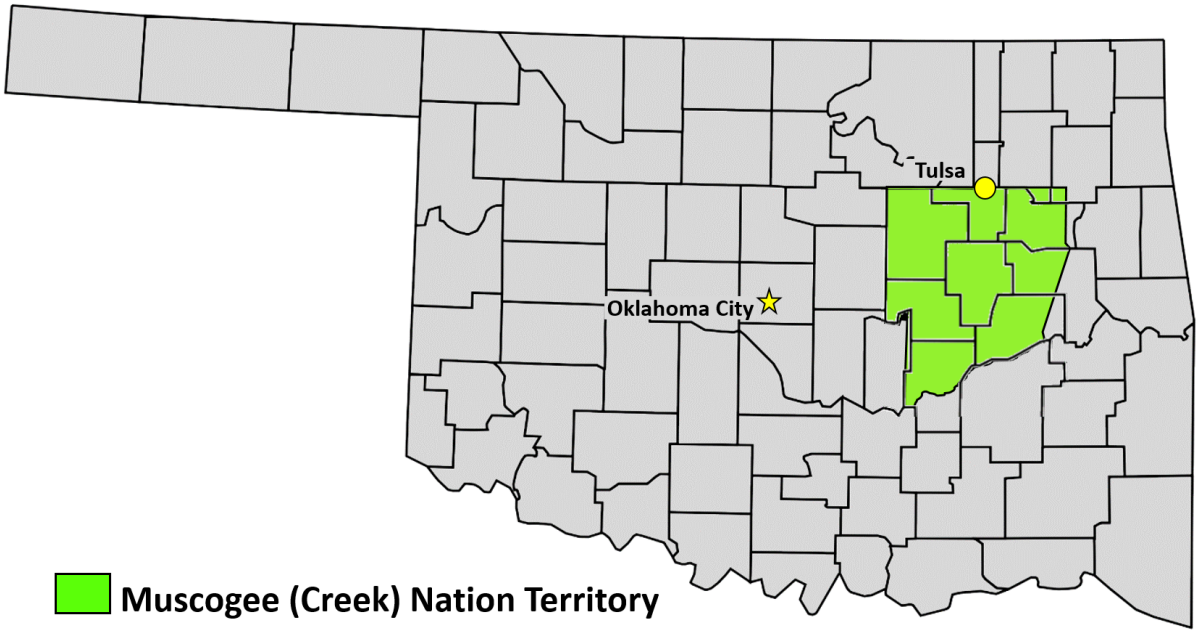


Figure H.2: Muscogee Creek Nation Territory within an Oklahoma county map

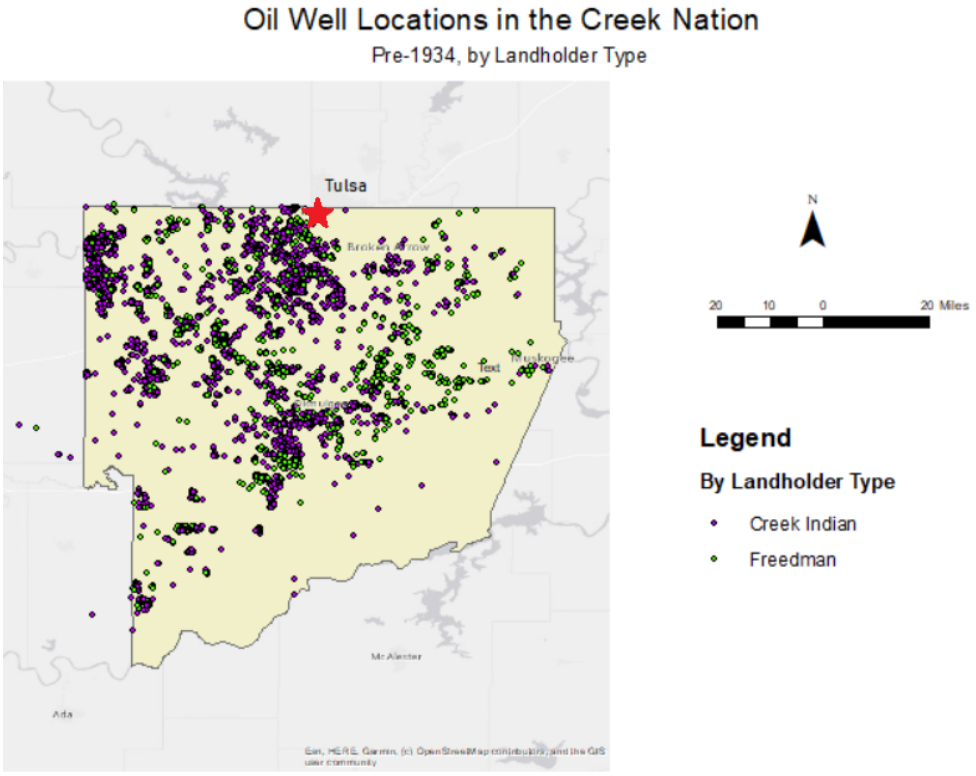


Figure H.3: Oil Well Locations in the Creek Nation

Note. This figure displays a map of the Creek Nation with producing oil wells plotted by the race of the landholder.

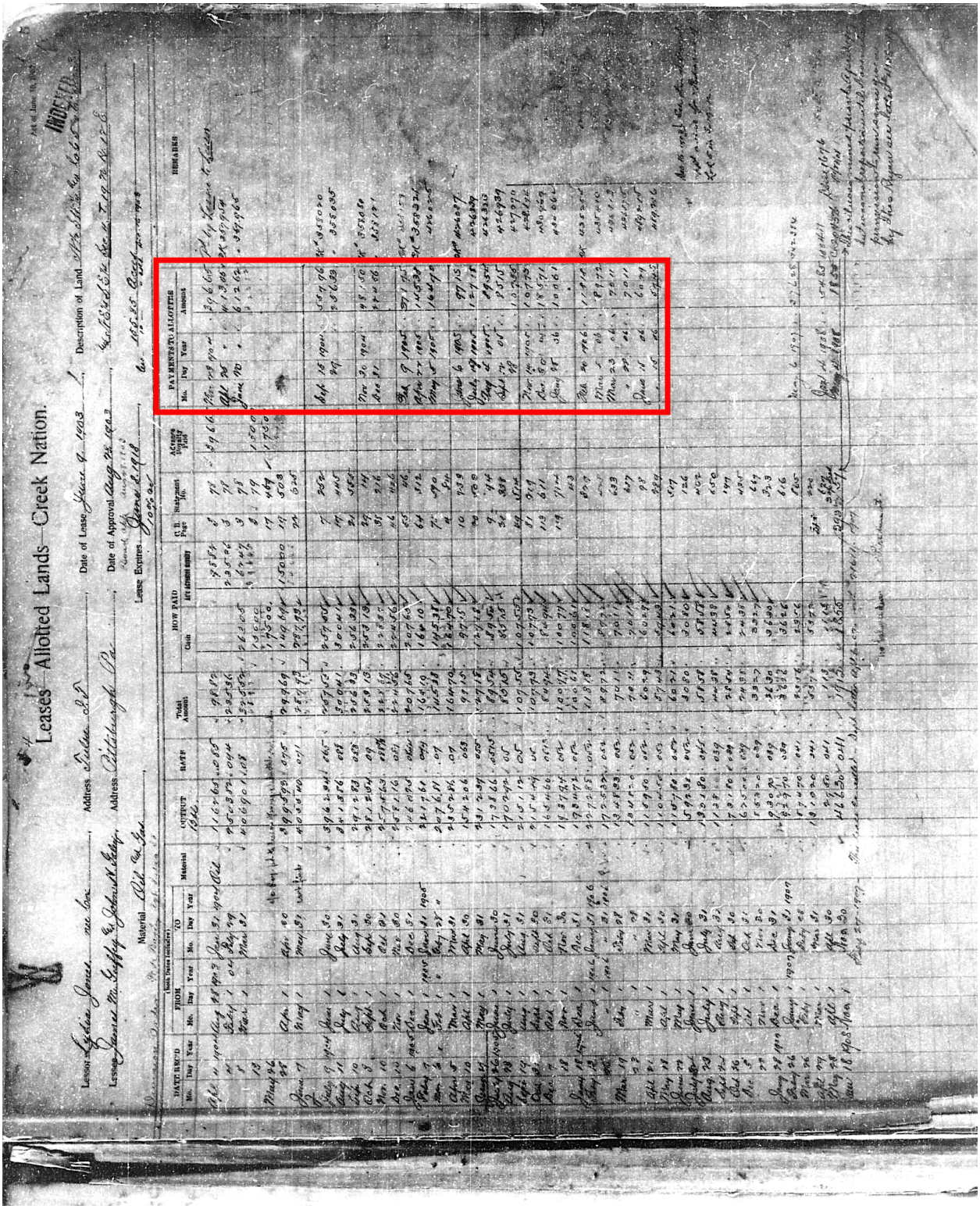


Figure H.4: Oil Lease, 1904

Note. We can see from this lease that, between March 1904 and May 1908, Creek Native Lydia Jones nee Cox received a total of $5,440.65 in royalty payments from James M. Guffey and John N. Galey of Pittsburgh, PA.

I Data Appendix

I.1 Allottees: Dawes Census Cards

I digitized *Campbell's Abstract of Creek Freedman Census Cards and Index*, a typed and published volume of every Creek Freedman Dawes Census Card (Campbell, 1915). I am fortunate that this typed and published volume exists, as the Dawes Rolls for some tribes still only exist as handwritten cards. These cards provide a small number of variables:

- **Post Office.** Allottees usually applied for Creek enrollment with the traveling Bureau of Indian Affairs (BIA). The post office nearest to where the enrollment took place is generally listed as the location.
- **Dawes Roll Number.** Each allottee was assigned a persistent "Dawes roll number" or just "roll number," unique within his or her enrollment category: Creek Indian, Freedmen, Minor, or New Born. Minor and New Born are additionally split into Creek Indian or Freedman, for a total of six enrollment categories within the Creek Nation.
- **Name.**
- **Age.** I assume that the age listed on the Dawes Census Cards is the age reported at the date of enrollment and not, for example, age at the date of application.[27] There was considerable bunching within reported age, particularly for infants (**Figure I.5** and **Figure I.6**). If we assume that the census links are correct, then it seems that many of the parents reported their children to have been born earlier to the Dawes Commission than they did to the census enumerators. This behavior may have been strategic, in response to the three successive enrollment birthdate cutoffs.
- **Sex.**

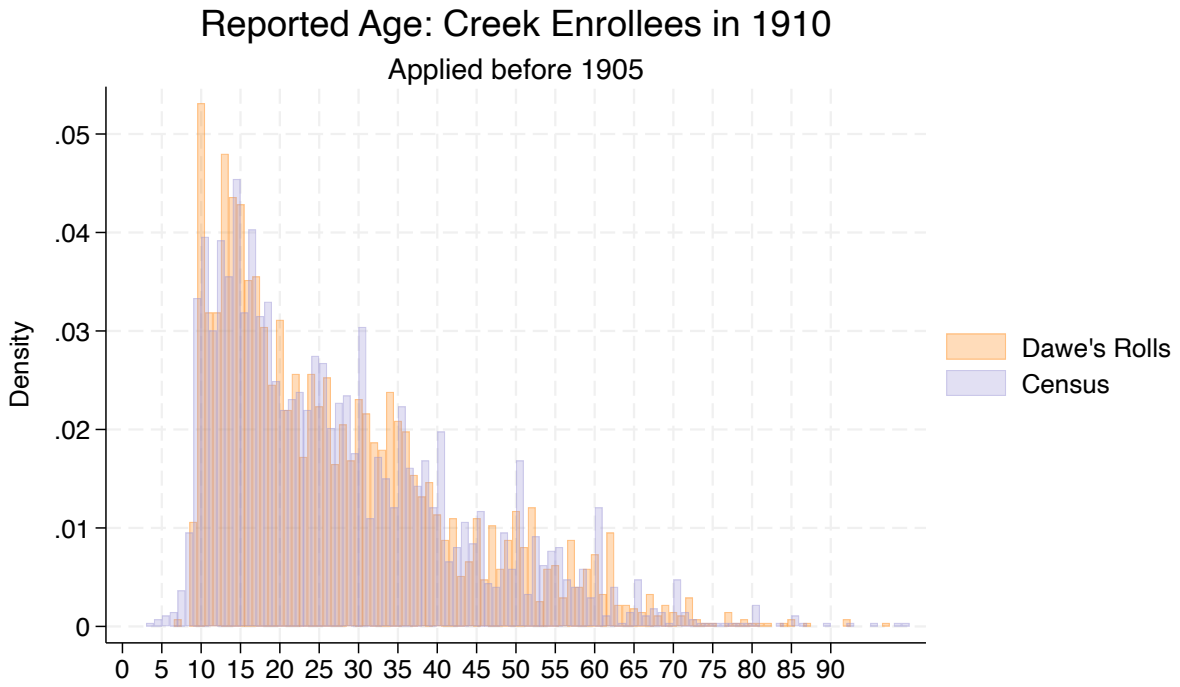
Table I.14: Creek Allottee Summary Statistics

	Enrollment Category			
	Indian		Freedman	
	12,014	63.7%	6,836	36.3%
Age in 1910	26.8	(17.8)	25.3	(17.5)
Male	0.5	(0.5)	0.5	(0.5)

Note: Table provides counts (percents) and means (standard deviations) for variables from the Dawes Rolls (**?**).

[27] Unfortunately, even contemporary experts were not entirely confident in this interpretation. On page 4, **?** writes that "many believe that the date of enrollment is the date from which you calculate to determine the age of the allottee. In a great many instances this is true, but in many cases this is not true. The law says, that the enrollment record shall govern as to age. The enrollment record may include the testimony taken at the time of enrollment, affidavits, birth certificates, etc. Everyone ought before purchasing, or leasing lands, to secure from the Commissioner a certified copy of the enrollment testimony, if there be any question as to age."

Figure I.5: Bunching in Creek Freedmen database versus 1910 Census.



Note: Laws regarding dates of birth and death to qualify for enrollment as a Creek Freedman are detailed in Subsection F.2.

I.2 Intergenerational Sample

I begin with the intersection of enrolled Creek Freedmen and the 1910 Census ($N = x, xxx$).[28] I subset this linked dataset to census households where one or both is true:

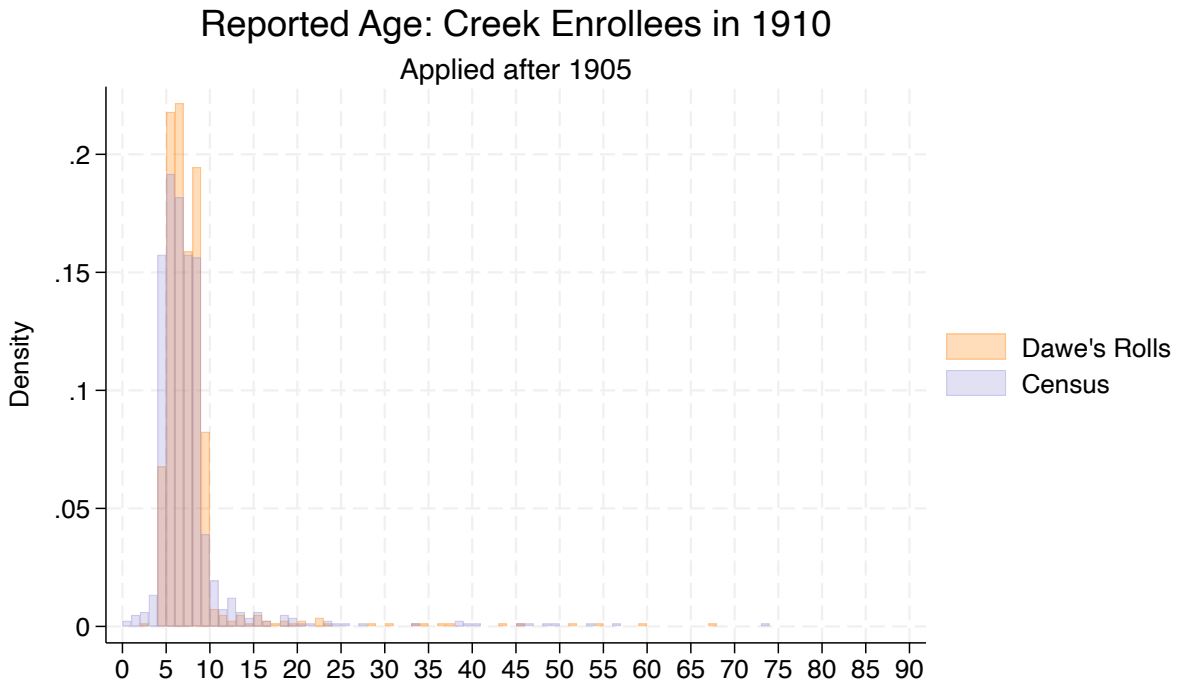
1. A male Creek Freedman is listed as the "head" (101) ("relate" in IPUMS extract).
2. A female Creek Freedman is listed as the "head" (101) or the "spouse" (201).

I return to the full 1910 Census and, within each of the above households, I extract all children born between 1900 and 1920 and labeled as "child" (301), "adopted child" (302) or "stepchild" (303). I repeat the above process with the intersection of enrolled Creek Freedmen and the 1920 Census ($N = y, yyy$).

I link these three sets of children to the 1940 Census with a combination of pre-made Census Tree links and my own handlinks. Children that appeared in both 1910 and 1920 are linked to the same 1940 Census histid and thus appear only once in the final intergenerational sample, following deduplication over histid. In 1940, this group will be between ages 20 and 40.

[28] 75% of individuals in this intersection are either heads, spouses or children. A further 2% are adopted children or stepchildren.

Figure I.6: Bunching in Creek Freedmen database (Minors and Newborns) versus 1910 Census



Note: Laws regarding dates of birth and death to qualify for enrollment as a Creek Freedman Minor or Newborn are detailed in Subsection F.2.

I.3 Allotments: Plat Maps

Edward Hastain was a member of the Dawes Commission. He drew up and published maps of the full allotted Creek Nation in Hastain (1910). There is one map per "township," or six-mile by six-mile area of land, for a total of 149 maps. I hired and trained undergraduate research assistants to convert all maps, such as the one in **Figure I.7**, into PLSS data. Each allotment can be coded into a unique polygon within the United States. Each plot of land on each map is labeled with the owner's name and his or her unique Dawes roll number. Thus, this dataset contains the variables:

- **Dawes Roll Number.** Described in Subsection I.1
- **Name.**
- **Public Land Survey System (PLSS) Code.**

I.4 Oil Well Data

By 1905, as the Oklahoma oil boom exploded, in their fervor to discover oil first and to stake claim, independent drillers and nascent oil companies drilled in an uncontrolled manner. There was a growing sense that regulation and oversight was needed to temper the "external damage caused by the uncontrolled

production of crude oil overflowing into fields and streams and certain apparent waste of natural gas" (Clark, 1977, p.376). And thus in 1907, during the first year of Oklahoma's statehood, the Oklahoma Corporation Commission (OCC) was established to regulate public utilities. My primary source of oil well data is the "W27 Well Completion List" from the OCC, which has an entry for all well actions taken since 1907, what the action was, the date and the location in both Public Land Survey System (PLSS) format and latitude/longitude. Most of the well actions are not construction of a producing oil well and most take place after my time period of study, into the present day. For this project, I subset the well actions to construction of producing oil wells that were completed before the early 1930s.

- **Public Land Survey System (PLSS) Code.**
-

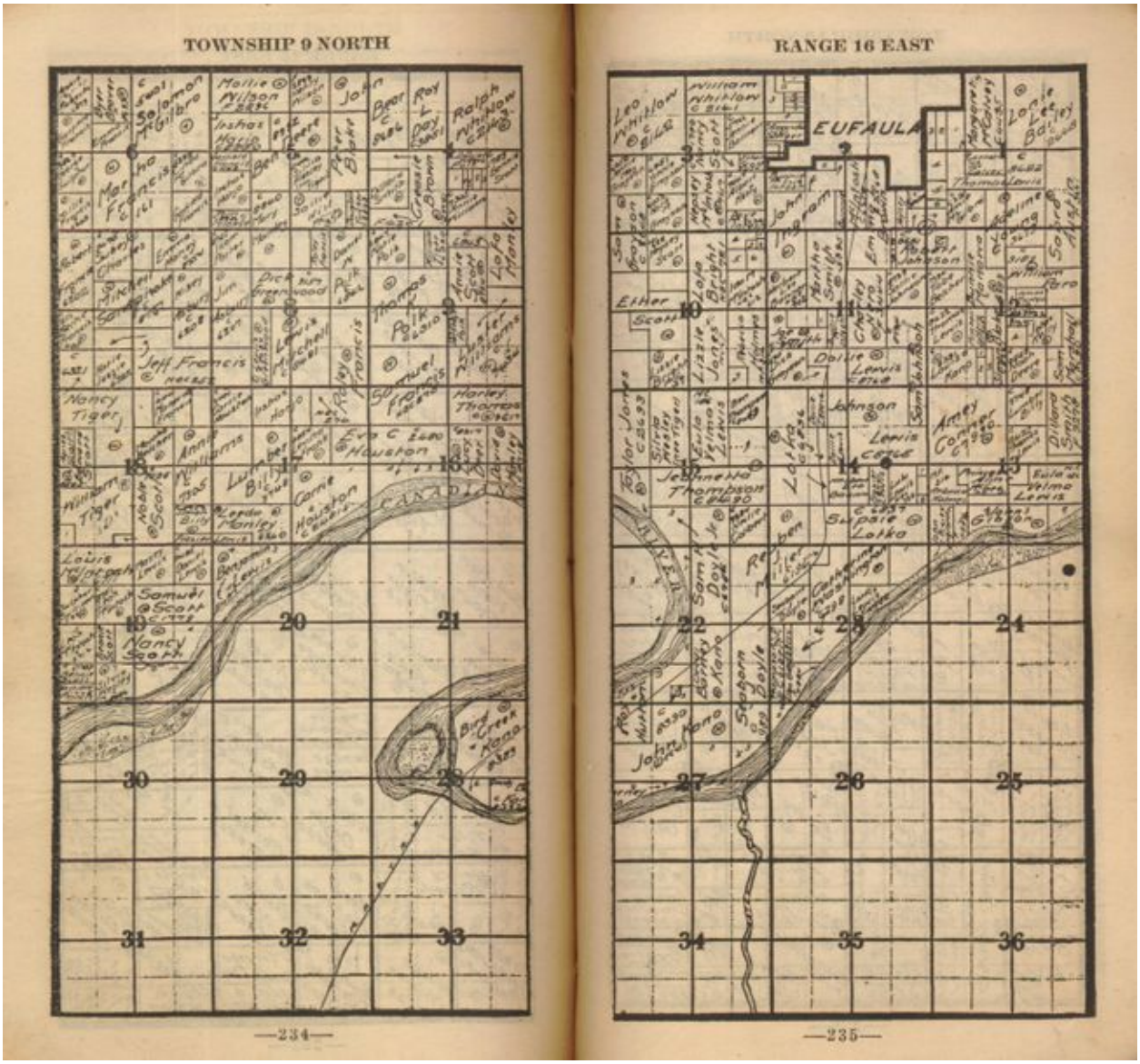


Figure I.7: Township 9 North, Range 16 East

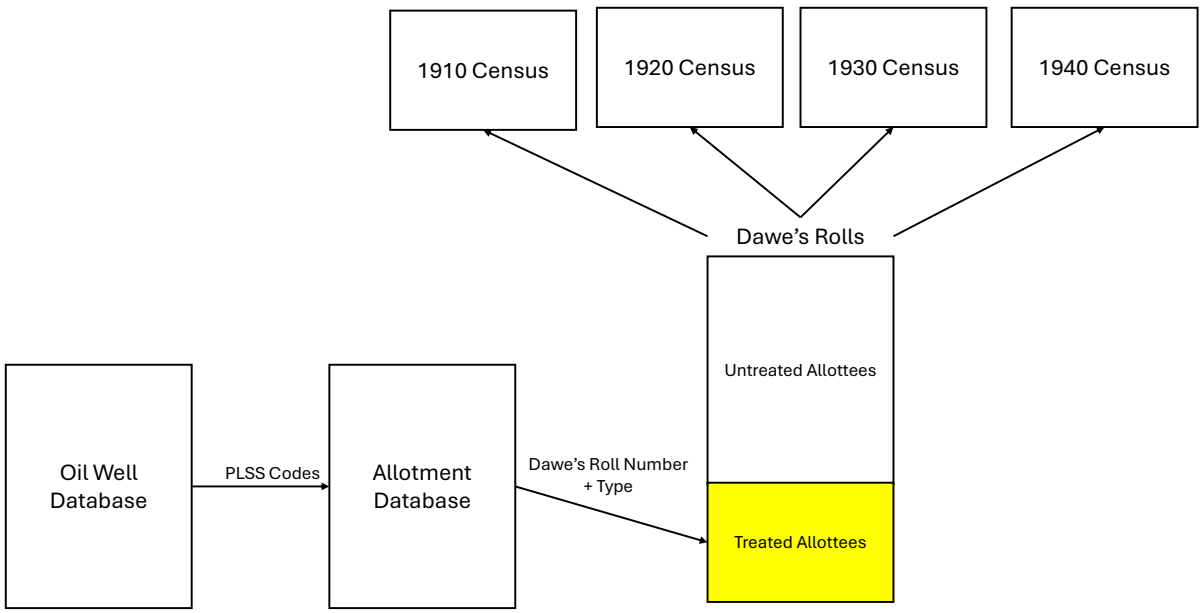


Figure I.8: Treatment Assignment

I.5 Treatment

Primary Treatment

Only enrolled Creek Freedmen have a value for this variable.

- **Treated, 1910-1940 (census).** Variable has a value of 1 if a producing oil well was built on top of individual's Dawes allotment before the year 1918 and a value of 0 if one was built later or never built.

Parent Treatment

Children, as defined in Subsection I.2, can have values for these variables. Children may be enrolled or unenrolled.[29]

- **Father Treated, 1940 (census).** Individual has a value (0/1) for this variable if he or she was labeled as "child" (301), "adopted child" (302) or "stepchild" (303) in a census household where a male Creek Freedman is listed as the "head" (101) in the 1910 or 1920 census ("relate" in IPUMS extract).
- **Mother Treated, 1940 (census).** Individual has a value (0/1) for this variable if he or she was labeled as "child" (301), "adopted child" (302) or "stepchild" (303) in a census household where a female

[29] Some of the children from the 1920 Census, and most of the children from the 1910 Census were born prior to March 4, 1906. They were enrolled in the Creek Nation by their parents and thus received an allotment of their own. Subsection 2.2 describes the enrollment process and Subsection F.2 gives the full text of the laws.

Creek Freedman is listed as the "head" (101) or the "spouse" (201) in the 1910 or 1920 census ("relate" in IPUMS extract).

Children are given the maximum treatment status of their parents that occurs during the first 18 years of their life, when they may have been living at home.

I.6 Individual-Level Outcome Variables

Most of my individual-level outcome variables are derived from cleaned and harmonized census records provided by IPUMS (Ruggles et al., 2024a,b).

Occupational Status

Using "occ1950" in IPUMs extracts, I define occupational classes consistent with the codes delineated in Durlauf et al. (2024), Table B.1.

- **White-Collar, 1910-1940 (census).** Professionals, Semi-professionals, Proprietors, Managers, Officials, Clerical and Sales.
- **Blue-Collar, 1910-1940 (census).** Craftmen, Government Services, Semi-Skilled and Unskilled.
- **Farming, 1910-1940 (census).** Farmers: Owners, Tenants and Managers. I follow Durlauf et al. (2024) and classify Farm Laborers as Unskilled or Semiskilled and therefore Blue-Collar.
- **Unemployed in labor force, 1940 (census)**
- **Employment wages/salary, 1939 (1940 census).** respondent's total pre-tax wage and salary income - that is, money received as an employee - in 1939 ("incwage" in IPUMS extract).

Wealth and Assets

- **House Value, 1930-1940 (census).** Value of home in contemporary dollars, conditional on household home ownership. In 1930, house value was collected only for *non-farm* owner-occupied units and includes the value of the land. In contrast, in 1940, house value was collected for *all* owner-occupied units, including single-family farmhouses, but excludes the value of the land.
- **Has Live-In Domestic Servant, 1910-1940 (census).** Definition adapted from Kalsi and Ward (2025). Unless the household head is a clergyman ("occ1950" equal to 9) or the operator of a boarding house (752), members of a main family connected to a household head get a 1 for this variable if the household contains an individual fitting one of the following criteria:
  - Listed as one of the following relations to household head ("relate"): housekeeper (1212), maid (1213), cook (1214), nurse (1215), or other probable domestic employee (1216).
  - Listed as a servant ("relate" equal to 1211) or domestic employee (1251) AND give their occupation as teacher ("occ1950" equal to 93), private dressmaker (633), taxi cab driver/chauffeur

(682), private household service worker (700-720), attendant (731), charwomen and cleaner (753), cook (754), practical nurse (781) waiter/waitress (784) or gardener (930).
  - Listed as a servant ("relate" equal to 1211) or domestic employee (1251) AND give their industry as private household ("ind1950" equal to 826).
- **Has Live-In Non-Domestic Employee, 1910-1940 (census).** Members of a main family connected to a household head get a 1 for this variable if the household contains an individual fitting one of the following criteria:
  - Listed as other employee to household head ("relate" equal to 1217).
  - Listed as a servant ("relate" equal to 1211) or non-domestic employee (1252) AND give their occupation as farmer ("occ1950" equal to 100, 123), boarding and lodging housekeeper (764), elevator operator (761), porter (780), farm laborer (810-840), or laborer (970).
  - Listed as a servant ("relate" equal to 1211) or non-domestic employee (1252) AND give their industry as agriculture ("ind1950" equal to 105), hotels and lodging places ("ind1950" equal to 836).

Education

- **Literacy, 1910-1940 (census).** Individual 10 years or older can read and write in any language ("lit" in IPUMS extract). This question was not asked during the 1940 Census and thus I define all individuals who report having completed second grade or above as literate ("educd" in IPUMS extract).
- **"Young" literacy, 1910-1940 (census).** Literacy as defined above, but restricted only to individuals whose literacy was not asked during the last census enumeration (i.e. individuals between the ages of 10 and 20).
- **School attendance, 1910-1940 (census)** Individual between the ages of 5 and 17 who attended school or college any time between March 1, 1940 and the time of enumeration ("school" in IPUMS extract).
- **Children working, 1910-1940 (census)** Individual between the ages of 14 and 18 that works for pay (not missing "occ1950" in IPUMS extract).
- **Years of education, 1940 (census).** Calculated from highest year of school or degree completed ("educd" in IPUMS extract)
- **High-school, 1940 (census).** Individual reports completing 12 or more years of education ("educd").
- **College, 1940 (census).** Individual reports completing 16 or more years of education("educd").

Migration

- **Urban, 1910-1940 (census).** Whether household was located in an urban or rural enumeration district ("Urban" in IPUMS extract). In these census decades, the Census defined as urban "cities and places with more than 2,500 inhabitants... Also includes townships and other political subdivisions (not

incorporated municipalities) with a total population of 10,000 or more and a population density of 1,000 or more per square mile."

- **Moved states.** This variable is equal to 1 if there is evidence that this individual moved outside of Oklahoma by 1942 or earlier. I code this outcome variable according to the following sequence:
    1. If the individual was observed in the 1940 census, then this variable is equal to 1 if they lived outside of Oklahoma, and 0 if they lived inside Oklahoma ("stateicp" is equal to 53 in IPUMS data).
    2. If a registration card for this individual for the World War II draft is observed, then this variable is recoded as 1 if the registration took place outside of Oklahoma. This variable is recoded as 0 if the registration took place in Oklahoma only if the individual was not observed in the 1940 census.
    3. If a post-1940 death record is observed, then this variable is recoded as 1 if the death took place outside of Oklahoma. This variable is recoded as 0 if the death took place in Oklahoma only if the individual was not observed in the 1940 census or World War II draft.
    4. If the individual was not observed in the 1940 census, the WWII draft or a death record, but they were observed in the 1930 census, this variable is recoded as 1 if they lived outside of Oklahoma ("stateicp" is not equal to 53 in IPUMS data). I do not recode this variable as 0 based on 1930 census location because I do not know if the individual moved after 1930.
- **Moved counties.** This variable is equal to 1 if there is evidence that this individual moved out of the county in which their Dawes enrollment took place. To generate this variable, I first placed all historic Creek Nation post office locations into one of the eight counties inside the Creek Nation: Creek. Tulsa, Wagoner, Muskogee, Okmulgee, McIntosh, Okfuskee and Hughes.[30] I treat county of enrollment post office as as sort of "home county," where this individual was likely to be living at the time of their own enrollment (1898-1906). I then code this outcome variable in a fashion analogous to the "moved states" variable.
- **Moved populated places, 1940 (census).** Enumeration districts, the geographical units over which US censuses of population were taken from 1880 through 1940 ("enumdist" in IPUMS extract), were generally not consistent between decades. As such, in order to quantify movements within counties, I created a geographically consistent crosswalk of "populated places" within the Creek Nation boundaries (PPs).
    1. I began with the set of roughly 114 different populated places, as defined by Ancestry.com, into which all of the 1940 enumeration districts within the Creek Nation can be classified.
    2. I worked backward, and collapsed all of the 1930, 1920 and 1930 enumeration districts into the 1940 PPs. I was guided by the populated places delineated by Ancestry.com for those decades.

[30] Rogers, Mayes and Seminole counties are also partially in the Creek Nation ad I treat their post offices accordingly.

With these smaller units, I am able to quantify migrations smaller than cross-county, like moving from a rural area of Tulsa county, to Tulsa city proper, for example. This outcome variable is equal to 1 if an individual's PP in 1940 differs from the PP they lived in, in 1910. Less than six percent of people lived outside of the Creek Nation by 1910 and I do not attempt to generate PPs outside of the Creek Nation. As such, this variable is also equal to 1 if, in 1940, the individual lives outside of the Creek Nation boundaries, as this person has left their 1910 PP by construction.

Fertility & Household Size

- **Number of household members, 1910-1940 (census).** Number of people recorded living in household (defined by "serial" in IPUMS extract). Households labeled as group quarters ("gq" in IPUMS extract) are excluded, but other non-family living situations, such as boarding-houses, are included.
- **Number children ever born, 1910 and 1940 (census).** Number of children ever born to each woman ("chborn" in IPUMS extract). In 1910, the question was asked of ever woman over age 15 who has ever been married. In 1940, this question was asked of sample-line respondents.
- **Number children surviving, 1910 (census).** Number of children surviving to each woman over age 15 who has ever been married ("chsurv" in IPUMS extract)

I.7 Neighborhood-Level Outcome Variables

For the following variables, I only consider individuals living in households; I exclude individuals living in group quarters ("gq" not equal to 1 in IPUMS extract).

Education

- **High-school graduation rate, 1940 (census).** The share of the population, over age 24, who report having completed 12 or more years of education ("educd").
- **College graduation rate, 1940 (census).** The share of the population, over age 24, who report having completed 16 or more years of education ("educd").
- **School attendance, 1940 (census).** Proportion of children between the ages of 5 and 17 who attended school or college any time between March 1, 1940 and the time of enumeration ("school" in IPUMS extract).
- **Teacher education, 1940 (census).** Calculated from highest year of school or degree completed ("educd" in IPUMS extract) for teachers (individuals aged 17– 65, "occ1950" equal to 93 in IPUMS extract) living in enumdist.
- **Teacher relative salary income, 1939 (1940 census).** County-average of earnings ("incwage") for all individuals aged 17–65 with occ1950 value 93, divided by the county average of earnings for all individuals aged 17 -65 with positive earnings.

Labor Markets

- **Employment-to-population ratio, 1940 (census).** Share of men ages 25 to 64 who are employed ("sex" equal to 1, "age" between 25 and 64, and "empstat" equal to 1 in IPUMS extract).
- **Unemployment rate, 1940 (census).**
- **Racial wage gap, 1940 (census).** Mean earnings of Black adult men subtracted from mean earnings of white adult men ("incwage" in IPUMS extract).

Families

- **Rate of single-parent households, 1940 (census).**The share of families ("serial" + "famunit") with children that are single-headed.
- **Poverty rate, 1940 (census)** Following Barrington (1997), each member of a family is assigned an earnings poverty threshold according to gender of household head, number of members, number of children, and whether household is a farm or not.[31] All members of the same family receive the same threshold but different families have different thresholds based on the stated characteristics. This rate represents the share of people whose total family earnings ("fwage1") was below their designated poverty threshold. I exclude families with more than nine members as no poverty threshold was defined for these people.

Segregation and Racial Animus

- **Proportion of neighbors white, 1940 (census).** The percent of people living in enumdist with race equal to white ("race" equal to 100 in IPUMS extract).
- **Segregation, 1940 (census).** Will use formula from Logan paper.
- **Jim Crow** County-level Jim Crow database from Althoff paper.
- **Sundown Towns** County-level Jim Crow database from Althoff paper.

Other

- **Local Amenities** County-level amenities from Derenoncourt paper.

[31] I define members of a family using the combination of "serial" and "famunit" in IPUMS, recoding children under 15 "living alone" to he primary family in the household.