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**The Intergenerational Occupational Mobility  
of Native American Men in the Wake of Assimilation,  
1900-1940**

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## **Abstract**

In this paper, I examine the intergenerational occupational mobility of Native American men who entered the labor market toward the end of the Assimilation Era (1887-1934). I use historical census data to construct transition matrices that comparatively represent the occupational mobility dynamics of Native Americans based on a series of historical policy variables. I find that Native American men during this period experienced high levels of downward mobility and correspondingly low levels of upward mobility. I also find that those living in counties with reservations had worse mobility outcomes compared to those not living on reservations, and that individuals who lived in Oklahoma, which had unique political economic dynamics, had the highest relative rates of upward mobility and the lowest relative rates of downward mobility. These findings provide quantitative insight into the often neglected economic lives of Native Americans in the early twentieth century and raise further questions regarding the persistence of mobility and how to alter mobility processes.

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# 1 Introduction

By 1887, the vast majority of Native American tribes had been defeated in battle by the United States Army and forced onto reservations (Parman 1994). (The final campaign of the Indian Wars ended in 1891, following the Wounded Knee Massacre [Cozzens 2016].) The passage of the Dawes Act in that year marked the unofficial beginning of the Assimilation Era, which lasted until 1934. During these decades, federal policy toward Native American tribes was aimed at coercing the tribes to abandon traditional lifestyles and subsuming them into white American society; federal policy concentrated on transforming reservation life by promoting individual land ownership, small-scale agriculture, and cultural assimilation through residential schools (Hoxie 2001; Nichols 2014; Parman 1994). The Assimilation Era both delineated the parameters of peacetime relations between the tribes and the government and laid the foundations for the socioeconomic lives of Native Americans in the twentieth and twenty-first centuries.

Assimilationist policies, though undoubtedly successful in weakening the political power of tribes and eradicating indigenous cultural practices, did little to alleviate poverty and social immobility (Nichols 2014). The Meriam Report (1928), which compiled large amounts of data, found that especially on reservations, incomes were low, health outcomes poor, and education substandard. Despite its criticism of assimilationism, the Meriam Report nonetheless assumed a strongly paternalistic attitude toward the tribes and attributed their social immobility to a lack of will: “[Indians] are generally surrounded by Indian neighbors whose condition and manner of life are no better than their own, and so do not have that stimulation to effort common to most whites who see in the advancement of their associates a real reason why they should advance too, in order not to be left behind in the general progress of the community” (1928). Though flawed, the Meriam Report’s description of mobility processes suggests that immobility was a salient and persistent feature of Native economic life during the early twentieth century.

Nearly a century later, Native Americans continue to be one of the most socioeconomically disadvantaged demographic groups in America. Compared to other racial and ethnic minorities, Native Americans have, on average lower levels of educational attainment, occupational status, income, and higher levels of poverty and unemployment (Davis et al. 2016; Massey 2004; Sarche and Spicer 2008; Trosper 1996; Ward 1998). They also experience among the lowest levels of upward social mobility and the highest levels of downward mobility relative to other racial groups (Akee et al. 2017; Chetty et al. 2018; Chetty et al. 2020). Considering these facts, I endeavor to answer the following questions: To what extent did Native Americans who came of age during the end of the Assimilation Era experience low social mobility? And how did reservation policies shape these mobility regimes?

Despite the importance of the Assimilation Era in Native American history, empirical study of the mobility dynamics and labor market outcomes of Native Americans during and after this period has been scant. This lack of research is partly due to the relative scarcity of historical micro-level data for Native Americans in the first half of the twentieth century, which is a consequence of both their relatively small group size and the historically contentious relationship between the federal government and the tribes (Thornton and Young-Demarco 2021a). I aim to contribute to this area of research by using father-son dyads constructed from recently released linkages of full-count U.S. censuses between 1900 and 1940 to elaborate a systematic quantitative assessment of the occupational mobility dynamics of Native American men who entered the labor market toward the end of the Assimilation Era.

I use occupation as my main variable to examine social mobility processes for several reasons. On a practical level, occupation is consistently collected in early twentieth century censuses, unlike income, which economists' studies of mobility tend to emphasize, or educational attainment, which in the case of older Native American men, is inconstantly assessed and gathered (Thornton and Young-Demarco 2021b). More broadly, sociologists have typically favored occupation as a measure of mobility because it correlates strongly with other social and economic variables (such as income, wealth, educational attainment, etc.) and

its relative temporal stability (Hauser et al. 1996, Sakamoto and Wang 2020). (Especially with historical data, occupation can be a steady indicator of long-term income [Goldberger 1989; Zimmerman 1992].) Moreover, unlike many other socioeconomic indicators, occupation is publicly known, making it a strong gauge of class status. I elaborate on some of the challenges inherent to the study of occupation later in this paper, but occupational mobility is undoubtedly a valuable measure for exploring the socioeconomic processes that Native Americans underwent during the early twentieth century.

I model the mobility processes using Markov chains, which represent the occupational outcomes of sons as being solely dependent on those of their fathers. I identify several relevant variables that allow me to present comparative mobility matrices. My results demonstrate that Native American men who came of age during the Assimilation Era had low levels of upward occupational mobility and correspondingly high levels of downward occupational mobility in the absolute.

Given my chosen historical variables, I find that living in a county that houses a reservation is the strong differentiator of occupational mobility outcomes, in that both persistence of non-manual status, especially, is much lower in reservation counties than in non-reservation counties. Even more prominent are the mobility differences between those living in Oklahoma and outside it, whether on a reservation or not. The unique cultural and economic situation in the state helps explain some of the relative trend toward upward mobility. No reservation-specific variable (i.e. historical tribal centralization, forced coexistence with rival bands, displacement from ancestral homelands, enactment of a tribal constitution) results in significantly altered mobility dynamics or steady state outcomes. Despite limitations in the composition of the data, I also briefly look at the relationship between fathers' occupational status and sons' educational attainment and find that fathers with non-manual jobs have sons with much higher educational levels in non-reservation counties compared to reservation counties, suggesting education as a potential mechanism which allows non-manual status to be transmitted intergenerationally.

In the remainder of this thesis, I proceed by first providing a brief overview of the major shifts in federal Indian policy in the nineteenth and early twentieth centuries. I then survey the existing literature regarding occupational mobility and the socioeconomic impacts of policies targeted at Native Americans. I then introduce the data and methods I used to conduct my empirical analysis. In the results section, I present my findings regarding differences in occupational mobility and propose some possible explanations. I conclude the paper by discussing its implications for research on the social mobility of Native Americans and present-day policymaking.

## 2 Historical Background

The Native American reservation system has its roots in the Indian Removal Act of 1830, which authorized the president to make treaties that would grant land west of the Mississippi River to eastern tribes that assented to leave their ancestral homelands to open land for white settlement. When several tribes refused to relocate, the federal government began to forcibly displace the uncooperative tribes, coercing them into Indian Territory-present-day eastern Oklahoma. By the 1840s, save for some small pockets of resistance in Florida and North Carolina, the vast majority of Native Americans belonging to the ‘Five Civilized Tribes’ (i.e. Cherokee, Chickasaw, Choctaw, Creek, and Seminole) had been dispossessed (Nichols 2014; Saunt 2021). The Five Civilized Tribes, unlike other nations, would retain higher levels of self-government even after the treaties of 1866, which subjected other tribes to Bureau of Indian Affairs (BIA) policies that precluded tribal government and restricted common land title (Parman 1994).

As white settlement encroached further westward in mid-1840s, fueled by the annexations of Texas, Oregon, and California, the recently displaced tribes came into increasing contact with the settlers, often with violent ends. In response, Congress enacted the Indian Appropriations Act of 1851, which allowed the federal government to coerce tribes to move onto

reservations (Dippel 2014). From the 1860s to the 1880s, the United States Army fought several wars against non-reservation tribes throughout the West, forcing defeated groups onto reservations, often far from their ancestral homelands. The federal government invested considerable resources into confining tribes to reservations, largely for the purpose of making the conditions of settlement safer and more appealing for whites moving westward. Most of the battles of the Indian Wars, in fact, were fought against a tribe that had left its reservation, and even minor run-ins with whites could impel the Army to intervene (Nichols 2014). The era of open conflict between the United States and its Native populations came to an effective end in 1890, when the Seventh Cavalry Regiment killed three hundred Lakota that had attempted to flee the Pine Ridge in South Dakota in the Wounded Knee Massacre (Cozzens 2016).

By the end of the Indian Wars, most reservations had been established and they housed almost all Native Americans living in the West. During these decades, under the paternalistic pretense of civilizing Native American tribes, the federal bureaucrats who managed the reservations pushed them to abandon traditional hunter-warrior lifestyles centered around communal forms of property ownership, in favor of agricultural labor, private land ownership, and Christianity. Though assimilating Native populations had preoccupied federal officials since the nation's founding, what we call the Assimilation Era—that stretch of Native history when the West had been finally won, at great human cost, and federal Indian policy turned its attentions unreservedly toward subsuming Native individuals into white America and extirpating what remained of tribal ways of life—can be said to begin with the enactment of the Dawes Act (also known as the General Allotment Act) in 1887. The logic of allotment was rooted in the conceit that breaking indigenous community ties would allow Native Americans to be integrated into the mechanisms of the market-based society and could eventually result in their being granted political and legal equality as American citizens. To this end, the Dawes Act allowed the government to parcel out communal landholdings into allotments for individual Natives and their families, thereby systematically converting traditional forms

of tribal land ownership to conform to federal legal strictures that privileged arrangements based on private property (Koppes 1977). Allotment ended up reducing total Native land by half between 1887 and 1900, as the federal government elected to sell off any unallotted reservation land to white settlers (Parman 1994). The destabilizing nature of allotment resulted in the stagnation of Indian farming, which had been modernizing in the previous decades, especially when compared to the advancement of white farming and ranching during the same period, thus undermining much of the agricultural base of reservation economies (Carlson 1981).

Though the land belonging to the Five Civilized Tribes in Indian Territory had originally been exempt from the provisions of the Dawes Act, pressure from settlers and business interests in nearby states led Congress to pass the Curtis Act in 1898, which unilaterally terminated the treaties between the federal government and the Five Civilized Tribes, abrogated tribal government, and allowed the allotment of land in Indian Territory (Parman 1994). As land in eastern Oklahoma was significantly more valuable than that of the western reservations, the process of allotment was rife with malfeasance, as many whites fraudulently enrolled into tribes, squatted on allotted land, or conned Indians out of their land through specious contracts (Parman 1994). By the time Indian Territory was merged with Oklahoma Territory and became a state in 1907, a mass transfer of land wealth had already occurred under the pretense of hastening assimilation.

When the United States entered World War I in 1917, many Native American men were eligible for the draft because they had become citizens under the terms of the Dawes Act. More still enlisted of their volition, often seeking to glimpse life outside reservations (Nichols 2014). During the war, many Native individuals took off-reservation jobs related to the war effort; after the war ended, many of these men (as well as those who had served in the military) elected not to return to the reservations. In 1924, partly to acknowledge Native American contributions to the war effort, the Indian Citizenship Act was passed, granting citizenship to the roughly 125,000 of 300,000 Native Americans who were still legally understood to be

wards of the federal government (Nichols 2014; Parman 1994). In its official and universal recognition of Native Americans as members of the American body politic, the extension of citizenship represented an apotheosis of assimilationist policy.

The 1928 Meriam Report lent empirical support to sentiment critical of Assimilation Era policies and gave rise to a renewed push to reassess the relationship between the federal government and the tribes. Its release, combined with the congressional advocacy of sociologist John Collier, prompted a subcommittee of the Senate Committee on Indian Affairs to open a fifteen-year investigation regarding the state of Indians in the U.S. (Parman 1994). Soon after, the onset of the Depression devastated farm prices, particularly in the West, and revenues from resources such as land, timber, and oil fell dramatically. (Indians on reservations, already immiserated, actually experienced an improvement in their relative economic standing, though they were hit hard by the increase in off-reservation unemployment, which drove many back to the reservations, and the natural resource shock, which weakened reservation economies [Parman 1994].) The economic climate reduced the salience of Indian land and the political climate favored Indian policy reform, so upon his election, Franklin Delano Roosevelt selected the anti-assimilationist Collier as his Commissioner of Indian Affairs.

Collier, a consummate pluralist, pushed strongly for the enactment of an Indian New Deal which would devolve powers of self-government to tribes, promote tribal traditions, and reconstitute reservations checkerboarded by allotment (Kelly 1975; Koppes 1977). The bill that eventually passed, the Indian Reorganization Act of 1934 (IRA), did not rise to the level of Collier's ambitious original vision, largely due to the opposition of Western congressmen and the more assimilated tribes, but it nonetheless contained important provisions: it repealed the Dawes Act and provided some funds for tribes to repurchase allotted lands; it instituted preferential hiring for Native Americans in the Office of Indian Affairs; and it allowed tribes to form reservation-level governments and write tribal constitutions, many of which were modeled on a template provided by the BIA. As part of the compromise, tribes could choose to accept or reject the IRA, and if they accepted it, they could choose whether

to enact a constitution or not. Approximately one-third of tribes chose to enact constitutions in the following years, with the rest, especially the most assimilated ones, declining to adopt said strictures (Kelly 1975; Nichols 2014; Parman 1994). (The Oklahoma Indian Welfare Act of 1936 extended the IRA to the Oklahoma tribes, previously excluded.) The effects of the IRA, even on the reservations that did choose to write constitutions, were highly heterogeneous, particularly economically, but the end of allotment and the return of some measure of tribal governance undoubtedly transformed the political economies of the reservations in a direction that favored self-determination (Parman 1994).

### **3 Literature Review**

In this literature review, I first provide a brief overview of research on historical and contemporary intergenerational mobility and different measures of mobility. I then discuss studies regarding the impact of geography and race on mobility in the United States. I then describe the literature concerning the socioeconomic outcomes of Native Americans, particularly on reservations, and conclude with an exploration of empirical research about the impacts of assimilationist policy.

#### **3.1 Occupational Mobility**

Intergenerational mobility is a growing field of research with a vast literature behind it; thanks to a recent proliferation of reliable records and methodological advancements, recent studies, even among sociologists, have tended to focus on income as the main measure of social mobility (Sakamoto and Wang 2020), though several papers concerned with historical mobility have continued to use occupation to explore mobility trends (Ferrie 2005; Long and Ferrie 2013; Song et al. 2020; Song 2021). Existing research is ambiguous regarding the general shifts in mobility over the last several decades: some studies find a downward trends in mobility since the late nineteenth century (Ferrie 2005; Long and Ferrie 2013; Song et al.

2020) while others have been more equivocal about this tendency, particularly in the postwar era (Chetty et al. 2014a; Hauser et al. 1975a; Hauser et al. 1975b; Hout and Guest 2013; Lee and Solon 2009; Xie and Killewald 2013; Ward 2021).

Song et al. (2020) find that the relatively high mobility of sons from farm backgrounds born at the end of the nineteenth century explains much of the decline in mobility since 1850. Agricultural jobs are generally treated as separate from manual jobs in studies of occupational mobility because of the historical normativity of father-son occupational inheritance and the understanding of farmers as a class as well as an occupational category (Blau and Duncan 1967; Hauser et al. 1996; Xie and Killewald 2013). Laband and Lentz (1983) suggest that this is the product of childhood human capital accumulation from living on a farm, through which they acquire specific knowledge and abilities that sons from non-farm backgrounds lack. Eberharter (2012) also stresses that occupational transmission is mediated through the acquisition of human capital, suggesting that parental educational attainment promotes educational attainment in offspring and thereby improves their occupational mobility prospects. Hauser et al. (1996) further note that the occupational returns to post-secondary education have remained persistently high, while the effects of completing graded schooling have stayed low, adding that the transmission of educational status is much stronger than that of occupational status.

Both currently and historically, social mobility has varied geographically, region-by-region and state-by-state, but also city-by-city and even neighborhood-by-neighborhood. Using data from 1996 to 2012, Chetty et al. (2014b) observe that both absolute and relative mobility tends to be highest in the Plains states, the West, and the Northeast. They identify low residential segregation, low inequality, and high social capital as significant regional covariates of high upward mobility. Building on that work, Chetty et al. (2020) find that mobility outcomes vary significantly between census tracts and that the relationship between living in a city and mobility changes regionally; they also note that certain measures of economic success, such as income and job growth, are not necessarily predictive of higher mobility at

the neighborhood level. Tan (2023), examining the mobility of white men, notes that between 1910 and 1940, the West, the Upper Midwest, and the Northeast had the highest rates of upward mobility (Connor and Storper [2020] observe a similar regional trend). Abramitzky et al. (2019) similarly observe that European immigrants since 1880 have consistently exhibited higher rates of social mobility than native-born whites, partly because they tended to settle in areas with high levels of upward mobility (they also identify the West, the Upper Midwest, and the Northeast as such regions). Focusing on the Great Depression, Feigenbaum (2015) finds that sons from cities that suffered larger downturns had lower mobility, and that mobility returns to education were highest in the Plains and the mid-South.

Race has invariably been found to be a powerful differentiator of social mobility regimes—unsurprisingly, given its correlation with other socioeconomic variables. In their seminal study of the American occupational structure, Blau and Duncan (1967) find that factors such as geography and educational attainment could only partly account for the large discrepancies they observe in occupational status and mobility between whites and non-whites; they specifically identify “inheritance of race” as a key factor in differential mobility regimes. Historical studies of mobility have tended to focus on either whites (Feigenbaum 2015; Ferrie 2005; Long and Ferrie 2013; Song et al. 2020) or immigrants of European descent (Abramitzky et al. 2019), though Collins and Wanamaker (2021), in a paper comparing the mobility of white and black workers since 1880, find that the relative racial mobility gap has remained remarkably consistent throughout the last several decades and that the mobility gap was more explanatory of generational economic gaps than were the discrepancies in fathers’ statuses. The social mobility of black men in the post-World War II (and especially post-Civil Rights) has presented a richer vein of study (Davis 1995; Duncan 1968; Featherman and Hauser 1976; Hout 1984; McBrier and Wilson 2004). This literature agrees that black men had lower rates of occupational mobility than white men between 1950 and 1990. Some (Featherman and Hauser 1976; Hout 1984) note that racial differences in rates upward mobility attenuated during the 1960s, at least partly because of increased opportunities for schooling, the erec-

tion of legal barriers to discrimination, to access to public sector employment (though Collins and Wanamaker [2021] contradict this finding). Black men were especially likely to end up working manual jobs irrespective of their father’s occupation (i.e. they had much higher rates of downward mobility compared to whites).

Contemporary literature has touched on the social mobility of Native Americans only peripherally. Two recent studies focusing on the late twentieth and early twenty-first centuries—Akee et al. (2017) and Chetty et al. (2020) agree that Native Americans have significantly lower rates of upward mobility and higher rates of downward mobility compared to whites, and that their mobility patterns closely resemble those of black men. Akee et al. observe that the racial arrangement of the national income structure is strikingly rigid, with Native Americans being able to “move within their income distributions but still... stuck at the bottom overall.” Chetty et al. (2020) likewise note that Native Americans appear to be at a steady-state level of low income, and that said status has been persistent across multiple generations.

### **3.2 Economic Lives of Native Americans**

In recent decades, studies have agreed that Native Americans suffer from consistent disadvantages over a broad set of socioeconomic indicators. Compared to whites, they tend to have higher rates of poverty, lower educational attainment, and higher rates of unemployment (Davis et al. 2016; Massey 2004; Sarche and Spicer 2008; Snipp 1992; Ward 1998). Native American workers tend to be overrepresented in low-skilled occupations and underrepresented in high-skilled occupations, and there is little evidence that there has been recent convergence between Natives and whites. In regions with a larger Native population, such as the Southwest and the Northern Plains, the degree of occupational dissimilarity between Natives and whites is especially high (Liebler 2018). Sandefur and Scott (1983) suggest that in labor market processes, Native Americans are disadvantaged compared to other racial groups because they must overcome low baseline levels of education, occupational status, and public health.

They also find that Native Americans are much more likely than whites to be employed in low-status and low-paying jobs. Huyser et al. (2009) find that the socioeconomic indicators for single-race Native Americans are worse compared to those for mixed-race Natives; they propose that these disparities, particularly those regarding employment and earnings, can be partially explained by the fact that single-race Natives are more likely to live on reservations, which tend to be less economically developed and boast less occupational opportunities.

The literature suggests that the economic environment on reservations offers lower wages and reduced labor force opportunities. The geographic immobility and decreased human capital investment associated with living on a reservation further serve as powerful explanatory factors regarding the lower relative earnings of Native American men (Hurst 1996). Gitter and Reagan (2002) find that Native men living in a county with a reservation were significantly less likely to be employed, but that the same effect did not hold for non-Native men living in the same counties; they propose that reservations preserve traditional non-market lifestyles that place less emphasis on occupational prestige. Croy et al. (2009), determine from a longitudinal study of Native youths that ambition was the strongest attitudinal determinant of off-reservation migration, followed by educational attainment, which they take as evidence that Native individuals understand reservations to be socioeconomically inhibiting. In contrast, Snipp and Sandefur (1988) find that while Natives who live in metropolitan areas have significantly higher wages than non-metropolitan natives (who disproportionately live on reservations), the short-term effect of non-metropolitan to metropolitan migration is negligible compared to those who remain in non-metropolitan areas, and the wage premium of living in a metropolitan area may be more associated with increases in human capital.

Scholarship has shown that Assimilation Era policy shaped the economic lives of Native Americans, particularly those living on reservations, through various channels. By upsetting existing land tenure systems and introducing bureaucratic strictures that made the process of allotment cumbersome and inefficient, the Dawes Act halted the growth of land under cultivation, which Carlson (1981) finds had been growing by ten percent until 1887. Anderson

and Lueck (1992) similarly find that the ambiguities of the allotment trust system inhibited agricultural output by raising the costs of organizing lands and making it more difficult to use the land in more productive ways. The discretionary role played by local Indian agents in distributing land titles documented by Dippel et al. (2022) shaped the land tenure dynamics of a given reservations by introducing the agents' idiosyncratic preferences into the allotment process, further destabilizing the growth of agricultural output.

The literature consistently finds that historical levels of indigenous assimilation are associated with improved socioeconomic outcomes, even decades later. Kuhn and Sweetman (2002), examining relative lack of the labor market success of Canadian indigenous peoples, propose a simple theoretical framework to explain the racial discrepancies that persist beyond traditional human capital factors (education, relative population age, etc.): they suggest that 'assimilation' processes, in allowing indigenous people to acquire labor skills and cultural traits from the 'majority culture', improve economic success by reducing employer discrimination and geographic remoteness. Feir (2016), who examined Canadian indigenous boarding schools, and Gregg (2018), who examined American boarding schools, both find that reservations with higher proportions of children attending off-reservations boarding schools perform more strongly on various present-day socioeconomic outcomes, including higher per capita income, lower poverty, and higher high-school graduation rates. Gregg proposes linguistic assimilation as a probable mechanism, and Feir suggests that residential schooling led to "increased economic connection at the expense of cultural connection." (This characterization of educational assimilation in boarding schools does not capture the often violent and traumatic measures employed by these schools to push forth assimilation, with scholars such as Lomawaima [1993], Smith [2004], and Surface-Evans [2016] documenting how abuses in residential schools engendered resistance and resulted in complicated relationships between students and the government.) Miller (2023) similarly finds that reservations with higher proportions of individuals with traditional indigenous first names in the 1900 United States census have higher levels of per capita income in recent decades; she proposes reduced

employer discrimination as a potential explanation.

Laws and political structures established on reservations are important determinants of the structure of the labor market and other economic outcomes. Anderson and Parker (2008) find that institutions that establish property rights structures and political institutions that are “perceived as stable and predictable to non-Indians” improve economic outcomes on reservations themselves, particularly in areas with less outward assimilation. Forced coexistence on reservations, a historical policy where in some cases the federal government forced distinct bands of the same tribe onto the same reservation to improve the ease of federal oversight and keep more land available for settlers, led to sizably lower per-capita incomes on the present-day reservations, likely by engendering a more divisive political climate and weaker governance, which in turn led to more precarious circumstances for business investment, even in the case of ethnic and linguistic homogeneity (Dippel 2014). Anderson (2016), following Dippel, finds that reservations with forced coexistence established constitutions earlier, possibly so that the different bands could constrain each other, whereas on single-band reservations social norms substituted written law. Regarding those tribal constitutions enacted in the wake of the IRA specifically, research finds that tribes that opted out of the IRA and did not adopt constitutions modeled after the BIA template benefited from increased self-governance and enjoy better economic conditions, although the worst-case outcomes were notably worse than those for tribes who did adopt constitutions (Frye and Parker 2021); those post-IRA constitutions introduced some federal bureaucratic strictures that stymied economic growth, but they also introduced consistent institutions and largely protected private property rights, which led to reduced downside risk with regard to economic outcomes (Piano and Rouanet 2022). Cornell and Kalt (2002) likewise find that self-government is more responsible for improved outcomes than human capital or resource endowments, and that, in particular, the establishment of political institutions that culturally ‘match’ traditional forms of legitimacy serve to impel economic development.

## 4 Data and Methods

### 4.1 Data

This paper draws principally on historical census data to gain a fuller understanding of the intergenerational occupational mobility of Native American men during the early twentieth century. The data is drawn from linkages between the full-count U.S. censuses between 1900 and 1940 in the IPUMS Multigenerational Longitudinal Panel (MLP) and the Census Linking Project (CLP) (Abramitzky et al. 2020). I also draw data from the University of Minnesota’s Integrated Public Use Microdata Series (IPUMS) (Ruggles et al.), which includes the full-count U.S. census from 1940, and the Annual Reports of the Bureau of Indian Affairs (1914-1932).

To link individuals across generations (instead of simply across censuses), the family reconstitution technique was used (Hammel 1993; Henry 1968). Well-established in the demographic literature, the method consists of extracting the offspring’s occupation in 1940, tracing his information back to previous censuses if available, and building out a multiyear linkage dataset using the MLP and CLP. Parental information was recovered by examining father-son co-residence in any census year between 1900 and 1940. When a male offspring appeared more than once in the dataset (due either to overlap between the MLP and CLP, or the fact that CLP offers multiple linkages when uncertainty exists), one record was randomly selected.

The analysis of this paper primarily concentrates on Native American males aged 15-44 in 1940 in the offspring generation. This analysis is restricted to father-son dyads because historical census linkages rely on surnames, which many women change upon marriage, leading to lower linkage rates. Moreover, intergenerational occupational transmission tends to be stronger between fathers and sons compared to between fathers and daughters because sons did not face sex-based occupational discrimination and because daughters were more likely to work inside the home (Olivetti and Paserman 2013). I elected to include workers as young

as 15 because a substantial portion of these individuals were employed, especially those not in school (which Native American youths disproportionately were not) (Census Historical Statistics 1789-1945; Goldin 1994; Lebergott 1966).

The historically fraught relationship between Native Americans and the Census Bureau introduces some analytical issues I'll address presently. From 1790 to 1880, the U.S. census did not enumerate Native Americans who lived on reservations or other communities with high concentrations of Native individuals. The 1890 census was the first that aimed to count all Native Americans; all censuses since have done the same (Thornton and Young-Demarco 2021a). The destruction of the 1890 individual-level manuscript census records, however, restricts possible analysis to the 1900-1940 census data.

The data I use in this paper is filtered by the census' racial categorization. Though the content of the racial categories changed between 1900 and 1940 (to include 'mulatto' and 'Mexican', for instance), the category of 'American Indian' remained consistent throughout (Thornton and Young-Demarco 2021a). Across these five censuses, however, the race of enumerated individuals was not self-reported, but rather determined by the enumerator based on a brief instructional pamphlet provided by the Census Bureau, which offered relatively scant information for identifying American Indians (Jobe 2004; Thornton and Young-Demarco 2021b). This circumstance, combined with the general distrust that Native Americans in the early twentieth century felt toward federal institutions, the cultural and linguistic differences between the census enumerators and the Native population, and the fact that censuses generally tend to undercount minorities, likely contributed to a substantial undercount of the Native American population during this period, particularly of those having Native ancestry but a mixed racial background and of those not living near reservations or other communities with high concentrations of Native individuals (Jobe 2004; Meister 1980; Snipp 2003; Thornton and Young-Demarco 2021a).

As I detailed above, contemporary research suggests that Native Americans who are more integrated into the non-Native population and live outside reservations tend to have higher

levels of attainment across various socioeconomic indicators. This tendency, combined with the fact that the early twentieth-century censuses almost certainly undercounted the most assimilated off-reservation Natives, means that the subset of the American Indian population included in my sample will be the one most integrated into reservation communities and will likely have lower levels of occupational and economic attainment than the overall Native population. Accordingly, the discrepancies in mobility I find between reservation and non-reservation Natives are likely underestimated. The part of the mobility analysis focusing on inter-reservation differences should not be biased because of this tendency, but the question of mixed-race Natives looms over discussions of Oklahoma, especially; I will endeavor to address these when exploring my results.

Following Eschbach (1992), I coded a regional variable for each son based on state of residence in 1940, drawing from the following twelve subdivisions: Basin and Mountain, California, Great Lakes, Midwest, North Carolina, Northeast, Northern Plains, Northwest, Oklahoma, Prairie, and Southwest. Eschbach justifies these divisions based on historical population levels, trends in population growth, and intra-regional cultural similarities. Appendix Figure 2 contains a full account of the states included in each region.

The restrictions result in a sample of 38,175 Native American father-son pairs; the male offspring in this sample represent approximately 56 percent of all enumerated Native American men aged 15-44 in 1940. Figures 3, 4, and 5 in Appendix A compare the occupational distributions and geographic information of those in the intergenerational sample and the full-count 1940 census by age group. Notably, younger offspring are much more likely to be linked than older offspring (the linkage rate is 86 percent for the 1920 birth cohort, i.e. those aged 15-24 in the sample, but only 39 and 19 percent for the 1910 and 1900 birth cohorts, respectively). Since the family reconstitution technique could only rely on parental information collected from the 1900 census onward, this tendency is unsurprising: older offspring will have older parents, and older parents are more likely to have died before the 1900 census or have not been counted due to the earlier censuses being less comprehensive in enumerating the

American Indian population. Likewise, since family reconstitution incorporates co-residence when determining linkages, it stands to reason that older individuals, being generally less likely to co-reside with their parents, would have lower probabilities of inclusion.

Nonetheless, concerns regarding representativeness are attenuated by the fact that, despite low linkage rates, the proportions of individuals living in reservation counties (described below) differ by very few percentage points in each birth cohort, hovering around 65 percent for each subset of the offspring. Likewise, the high-level occupational distributions (also described below) appear to be fairly representative; the proportions of non-manual workers are the same for both the full-count data and the sample data and the proportions of manual workers are slightly higher in the sample data for the 1900 and 1910 birth cohorts, but approximately the same for the 1920 cohort, which is the largest. Finally, the regional distributions appear to be generally quite representative, though offspring living in the Southwest states are slightly underrepresented (6 percentage point discrepancy) and those living in the Great Lakes and Northern Plains states are slightly overrepresented (discrepancies of 3 and 4 percentage points, respectively). The magnitudes of these discrepancies are relatively small, so I am skeptical that they would significantly bias mobility analysis, though I will take them into account when discussing the results.

Sons' occupations are based solely on the 1940 census. Ideally, they would be measured around mid-career (ages 35-44) (Abramitzky et al. 2019; Song et al. 2020), but the structure of the dataset precludes this option. I will discuss birth-cohort mobility discrepancies below. Fathers' occupations are drawn from the available census year in which they were closest to age forty (based on reported birth year). Mazumder and Acosta (2014) find that using a ten-year average of occupation based on mid-career is ideal for estimating mobility, but this is again impossible given the data. I instead implement a modified version of their main algorithm, wherein fathers' occupations were determined as follows: given reported birth years, if there is an available occupation from the census when they were 35-44 years old, I take that as occupation; if not, I take the occupation from when they were 25-34 years old; if

that is also not available, I take it from the census where they were 45-54 years old; if that is not available, I take the most recent census-recorded occupation. Sons and fathers without any recorded occupation were coded as NA.

I categorized the harmonized 1950 census occupation codes in two ways to account for potential sub-categorical differences. The broader categorization consisted of three groups: agricultural, manual, and non-manual. I separated agricultural and manual occupations because the occupational prestige of farm jobs is generally understood to be different from those of regular non-manual occupations and because the structural trend away from farm labor in the early twentieth century would otherwise be obscured in the mobility analysis (Blau and Duncan 1967; Hauser et al. 1996; Song et al. 2020). To ensure that these groupings do not mask intra-occupational heterogeneity, I further divided the data into six groups: upper non-manual (i.e. professionals and semi-professionals; and proprietors, managers, and officials); lower non-manual (i.e. clerical and salesmen); upper manual (craftsmen and government services); lower manual (semi-skilled and unskilled); farm owners and managers; and farm laborers.

Figure 6 gives a view of the initial occupational distributions of employed sons and fathers using the detailed categories. The three largest categories for both fathers and son are farmer, farmworker, and lower manual, though the distributions vary: whereas 54.5 percent of fathers are farm owners or managers, only 14.8 percent of sons are; in contrast, 8.5 percent of fathers and 32.7 percent of sons are farmworkers. (25.2 percent of fathers and 43 percent of sons hold lower manual jobs.) The generational discrepancies in the remaining categories are all around a single percentage point. The initial distributions illustrate the barriers that already existed for Native Americans in accessing higher-status jobs: less than seven percent of both fathers and sons worked non-manual jobs, and less than four percent worked higher non-manual jobs (i.e. the most prestigious available, such as professionals, managers, and proprietors).



Figure 1: Map of Indian Reservations in the United States, 1940

In addition to state, each son has a unique county of residence in 1940. Using this information, I coded reservation status (whether an individual lived in a county that contained a reservation) based on a map issued by the House Committee on Interior Affairs in 1940 (i.e. Figure 1) and encyclopedias of tribal history in Pritzker (2000) and Tiller (1996). Most reservation counties contained a single reservation (or part of one). A few counties, mainly in Arizona, California, and New Mexico, contained multiple reservations. I describe how I dealt with the attendant complications below.

I proceeded to code several variables for sons residing in reservation counties based on reservation and tribal-level characteristics. The underlying assumption is that Native individuals who lived in a reservation county is subject to the influence of the political and economic dynamics associated with that reservation. The Meriam Report (1928) found that

few natives lived near but not on reservations (they tended to live on camps on the outskirts of reservations), and that these individuals were generally economically integrated into the reservation community and subject to essentially the same social and economic dynamics as those on the reservation itself.

I coded reservation status based on the sons', rather than fathers', county of residence in the 1940 census. There are not many father-son pairs that have differing reservation status (which is probably a slight overestimate, due to the family reconstitution technique privileging the inclusion of father-son dyads with shared residences at some point between 1900 and 1940), but I felt that sons' status was more stable to base the analysis off of and because the residency data for sons was comprehensive, while some small gaps exist for fathers.

I also coded a variable denoting whether the reservation had approved a constitution under the Indian Reorganization Act by 1940. This information was drawn from several sources, including Pritzker's encyclopedia (2000), Theodore Haas' (1947) report on the IRA ten years after its enactment, and the websites of various tribes, many of which have detailed histories and copies of their constitutions as publicly available information. Few counties had reservations where some tribes had enacted a constitution by 1940 and others had not. For those where this discrepancy did exist, I used the Bureau of Indian Affairs reports to gauge tribal populations and centralization of power. For instance, the Navajo Nation spans many counties, and in New Mexico especially, takes up parts of counties that also house Pueblo communities, almost none of which have constitutions enacted. In these cases, I took the Navajo Nation's value (which had enacted a constitution) because of its large population and the strong political and economic presence it had relative to other tribes.

I follow Dippel (2014) in generating two variables: historical centralization and forced co-existence. Based on his dataset and sources, I coded a binary variable determining whether "a tribe's local bands were historically politically autonomous, or centrally governed" (Dippel 2014), and another denoting whether a county housed a reservation that was originally

formed from a single tribal band or integrated multiple bands. In the multi-reservation counties where there were discrepancies, I took the maximum value. I also coded a variable identifying counties with reservations housing tribes that had been displaced from their ancestral homelands. (A digitized map of ancestral homelands drawn from Feir et al. [2023] can be found in Appendix A, Figure 9.) In constructing this variable, I relied on historical maps of reservations, maps of homelands from encyclopedias, and, most importantly, historical accounts such as Cozzens' (2016) and McDonnell's (1991).

As discussed above, aside from the Osage Nation, none of the land in Oklahoma was organized under a reservation per se, even though Natives living in Oklahoma were subject to their tribes' laws. After Oklahoma gained statehood in 1907, any remaining sovereignty over borders was abrogated and the nations were forced to allow non-Natives to live within their borders (many non-Natives already did). Since these dynamics are different from those on rigidly geographically segregated reservations, I treat those living in Oklahoma counties separately, and do not attempt to impute tribe based on county of residence.

It bears emphasizing the nuance necessary to deal with and analyze historical census data, particularly that dealing with American Indians, given the structural issues that are inherent to such data collection. The likely under-representation of mixed-race and urban Indians, in particular, merits further attention, but such analysis is unfortunately beyond the scope of this dataset. With that said, I intend the ensuing analysis to be understood as a descriptive investigation into the nature of Native American occupational mobility in the early twentieth century, to be situated in the broader historical picture of Native history and the social mobility of minority groups in the United States.

## 4.2 Methods

Sociologists have long used the Markov chain model to represent mobility as a time-dependent probability problem (Prais 1955; Matras 1960). A Markov chain is a stochastic model wherein

the probability of an event is solely dependent on the event that immediately preceded it. Transition matrices allow us to represent the transition probabilities of a Markov chain. In a discrete-time Markov chain, the sets with the number of fathers and sons in each occupational categories can be represented as vectors  $\mathbf{F} = [f_1, f_2, \dots, f_n]$  and  $\mathbf{S} = [s_1, s_2, \dots, s_n]$ , both of which have dimensions  $1 \times n$ . The transition matrix  $\mathbf{P}$  has dimensions  $n \times n$  (i.e. it is a square matrix) and each element of the matrix  $p_{ij}$  represents the probability that a father in occupational category  $i$  will have a son in occupational category  $j$ . To construct a transition matrix, we start with a mobility table where the rows  $I$  represent fathers' occupations and the columns  $J$  represent sons' occupations (e.g. agricultural, manual, non-manual) (Song 2021). (I will use the mathematical notation from Song [2021] throughout this section.) The transition probabilities can be calculated from the mobility table by normalizing sons' mobility rates:

$$\sum_{j=1}^J p_{Y_2=j|Y_1=i} = \sum_{j=1}^J \frac{n_{ij}}{n_{i+}} = 1$$

Here,  $n_{ij}$  represents how many sons in occupational category  $j$  whose fathers occupied occupational category  $i$  and  $n_{i+}$  represents the total number of sons whose fathers occupied occupational category  $i$ .  $p_{Y_2=j|Y_1=i}$  represents the probability that a son occupies occupational category  $j$  given that his father occupied occupational category  $i$ . The row probabilities will always sum to 1. The number of sons  $s_j$  who occupy a given occupational category  $j$  is equivalent to the sum from  $i = 1$  to  $I$  of the number of fathers who occupy occupational category  $i$  times the transition probability  $p_{Y_2=j|Y_1=i}$  for all  $j$ :

$$s_j = \sum_{i=1}^I f_i \times p_{Y_2=j|Y_1=i} \quad (j = 1, 2, \dots, J)$$

The number of sons in each occupational category in vector  $\mathbf{S}$  is equal to the number of fathers in each occupational category in vector  $\mathbf{F}$  times the transition matrix  $\mathbf{P}$ :

$$\mathbf{S}_{1 \times n} = \mathbf{F}_{1 \times n} \mathbf{P}_{n \times n}$$

If mobility rates are time-invariant, we can use the initial distribution of fathers' occupations  $\mathbf{F}^{(0)}$  to find the distribution of sons' occupations after  $t$  generations  $S^t$  by multiplying  $\mathbf{F}^{(0)}$  times  $\mathbf{P}$  to the  $t$ -th power. Markov processes are memoryless, which means that the outcomes in the sons' generation are entirely dependent on the distribution in the fathers' generation; in the context of the model, this means that previous ancestors can only impact descendants' outcomes through their impact on their own offspring's outcomes (Song 2021). The time-invariance assumption allows us to model predicted occupational distributions several generations down the line, though in reality transition probabilities change (often significantly) over time:

$$\mathbf{S}^{(t)} = \mathbf{S}^{(t-1)} \times \mathbf{P} = (\mathbf{F}^{(t-2)} \times \mathbf{P}) \times \mathbf{P} = \mathbf{F}^{(0)} \times \mathbf{P}^t$$

If we assume that the conditional probabilities that link parents and children are fixed and communicable over time, given an initial condition, given an initial condition  $\mathbf{F}^{(0)}$  we can identify a long-run equilibrium vector for the occupational distribution under a given mobility regime; while not especially valuable in terms of predictive power, this steady state vector is indicative of how a mobility regime would stabilize over time and can be helpful in identifying potential absorbing states (i.e. states that cannot be left once entered) and mobility bottlenecks given the data:

$$\lim_{t \rightarrow \infty} \mathbf{F}^{(0)} \times \mathbf{P}^t = \pi$$

In order to understand the impact of historical policy factors on intergenerational occupational mobility dynamics in my data, I will estimate and compare regime-specific transition matrices  $\mathbf{P}_i$  based on my chosen analytic variables. These regime-specific matrices will help

distinguish differences in mobility by birth cohort, whether one lives on a reservation, and so forth. I implemented this procedure using the `markovchain` package in R and calculated the standard errors via parametric bootstrap.

It is worth emphasizing the limitations of the Markov chain model of social mobility: I have already noted that it does not allow for satisfying modeling of multigenerational processes (though this concern is not especially salient for this dataset) and long-run modeling requires the unrealistic time-invariance assumption that holds transition probabilities constant over long durations. Another common criticism is that when looking at transition probabilities for large populations, the Markov chain model assumes that the transition probabilities for all the individuals in the population are captured by a single mobility regime  $\mathbf{P}$ , which would suggest that said population is highly homogeneous over a set of non-mobility characteristics (Song 2021). I aim to partially allay this concern by estimating regime-specific transition matrices, but within each matrix the same homogeneity assumption does hold. Nonetheless, the differences between the calculated transition matrices do provide important information regarding how policy and historical contingency shaped mobility dynamics for the selected subgroups.

## 5 Results

In this section, I will begin by taking a brief look at the overall and birth-cohort separated transition matrices before analyzing the differential mobility rates for individuals living in reservation counties and not in reservation counties. Using the variables described above, I then probe potential inter-reservation differences in mobility regimes. I conclude the section by examining educational attainment as a potential source of mobility regime discrepancies.

Table 1: Transition Probabilities, Overall (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	60.1 (0.4)	36.9 (0.4)	3.0 (0.2)	68.5
<b>Manual</b>	23.5 (0.6)	70.9 (0.6)	5.6 (0.3)	27.2
<b>Non-Manual</b>	23.9 (1.4)	51.3 (1.7)	24.8 (1.5)	4.4
<b>% (sons)</b>	48.6	46.8	4.7	n = 19,470
<b>Steady State</b>	37.1	57.1	5.7	

The results in Table 1, using three occupational categories for young workers, illustrate the broad mobility trends in the sample. Commensurate with studies about contemporary Native American mobility and historical studies about black mobility, it is immediately obvious that the general tendency toward low upward mobility and high downward mobility is present. Only 24.8 percent of sons whose fathers had non-manual jobs also had non-manual jobs, a low absolute percentage (with caveats about sample restrictions, studies of white occupational mobility in this time tend to find that non-manual persistence is around 60 percent, and that the probabilities of upward mobility are between 6 and 45 percent [Song 2021]). Of the sons of fathers with non-manual jobs, 23.9 and 51.3 percent ended up in agricultural and manual jobs, respectively, indicating a significant downward shift in intergenerational occupational status. In contrast, the intergenerational persistence of agricultural and manual jobs was 60.1 and 70.9 percent, respectively, numbers which more closely approximate white mobility. Moreover, only 3 and 5.6 percent of sons of fathers who worked agricultural and manual jobs, respectively, attained non-manual status, signaling an extremely low level of upward occupational mobility. The steady state occupational distribution reflects these trends: the limit of the transition matrix results in 37.1 percent of offspring working agricultural jobs, 57.1 percent working manual jobs, and just 5.7 percent working non-manual jobs. The overall trend toward manual labor may reflect the broader structural shift away from agriculture

during the early twentieth century (Song et al. 2020).

Table 2: Transition Probabilities, 1900 Birth Cohort (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	54.9 (1.3)	40.8 (1.2)	4.4 (0.5)	72.1
<b>Manual</b>	20.7 (1.9)	75.6 (2.0)	3.8 (0.9)	21.9
<b>Non-Manual</b>	25.8 (3.9)	38.7 (4.4)	35.5 (4.2)	6.0
<b>% (sons)</b>	45.6	48.2	6.1	n = 2,056
<b>Steady State</b>	31.9	62.3	5.8	

Table 3: Transition Probabilities, 1910 Birth Cohort (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	53.7 (0.8)	42.6 (0.8)	3.8 (0.3)	70.1
<b>Manual</b>	20.4 (1.0)	73.5 (1.1)	6.2 (0.6)	25.7
<b>Non-Manual</b>	19.7 (2.5)	53.0 (3.2)	27.3 (2.8)	4.2
<b>% (sons)</b>	43.7	50.9	5.4	n = 5,953
<b>Steady State</b>	30.5	62.7	6.9	

Table 4: Transition Probabilities, 1920 Birth Cohort (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	64.6 (0.5)	33.0 (0.5)	2.3 (0.2)	66.9
<b>Manual</b>	25.3 (0.7)	69.1 (0.8)	5.5 (0.4)	28.9
<b>Non-Manual</b>	25.6 (2.0)	53.6 (2.3)	20.8 (1.9)	4.2
<b>% (sons)</b>	51.7	44.3	4.0	n = 11,461
<b>Steady State</b>	41.8	53.5	5.0	

The transition matrices in Tables 2, 3, and 4 represent the mobility regimes for the 1900, 1910, and 1920 birth cohorts, respectively. While the high-level trends are the same (low upward mobility, high downward mobility, sorting into manual rather than agricultural jobs), the degree of persistence of non-manual status differs: 35.5 percent of sons in the 1900 birth cohort whose father worked a non-manual job did likewise; 27.3 percent of those in 1910 birth cohort did; and just 20.8 percent of those in the 1920 birth cohort did. As non-manual jobs tend to require more education and time to reach, it is unsurprising that fewer of the sons in their late teens and mid-twenties should have achieved this status. Nonetheless, even in the ‘ideal’ filial age range of 35-44 (per Mazumder and Acosta [2014]), persistence of non-manual status tends to be quite low relative to numbers for whites; also striking is the fact that less than five percent of sons of fathers in either of the other two occupational categories were able to achieve non-manual status, pointing to low upward mobility as an salient characteristic of Native mobility during this period.

## 5.1 Reservations and Mobility

Table 5: Transition Probabilities, Reservation Counties (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	56.0 (0.5)	41.6 (0.5)	2.5 (0.2)	67.1
<b>Manual</b>	22.7 (0.7)	73.1 (0.7)	4.1 (0.3)	29.0
<b>Non-Manual</b>	22.7 (2.0)	55.1 (2.2)	17.2 (1.7)	3.9
<b>% (sons)</b>	45.2	51.3	3.5	n = 12,622
<b>Steady State</b>	34.4	61.5	4.1	

Table 6: Transition Probabilities, Non-Reservation Counties (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	67.4 (0.7)	28.7 (0.6)	3.9 (0.3)	71.0
<b>Manual</b>	25.2 (1.1)	66.0 (1.2)	8.8 (0.7)	23.7
<b>Non-Manual</b>	18.6 (2.0)	46.1 (2.7)	35.3 (2.5)	5.3
<b>% (sons)</b>	54.8	38.5	6.7	n = 6,848
<b>Steady State</b>	42.5	48.3	9.2	

Tables 5 and 6 present the mobility regimes separated by whether the son lived in a reservation county or not. The observed trends are attenuated in non-reservation counties and exacerbated in reservation counties: in reservation counties, just 17.2 percent of sons maintained non-manual status, while 35.3 percent of sons in non-reservation counties, a proportion more than twice as large. The proportional difference is similar for sons of fathers who worked manual jobs: 4.1 percent achieved non-manual status in non-reservation counties, while 8.8 percent of those in non-reservation counties did. These discrepancies are reflected

in the steady state distributions, which end up with 4.1 percent in non-manual occupations in reservation counties and 9.2 percent in non-reservation counties. The structural trend away from agriculture appears to be more prominent in reservation counties.

Table 7: Transition Probabilities, Reservation Counties (Detailed) (%)

<b>Job Type</b>	<b>Farmer</b>	<b>Farm-worker</b>	<b>Lower Manual</b>	<b>Upper Manual</b>	<b>Lower Non-Man.</b>	<b>Upper Non-Man.</b>	<b>% (fathers)</b>
<b>Farmer</b>	19.2 (0.5)	38.5 (0.6)	35.7 (0.6)	4.1 (0.2)	1.2 (0.1)	1.3 (0.1)	56.9
<b>Farm-worker</b>	9.7 (0.8)	36.7 (1.3)	46.6 (1.4)	4.5 (0.6)	1.2 (0.3)	1.2 (0.3)	10.2
<b>Lower Manual</b>	4.2 (0.4)	17.5 (0.7)	69.6 (0.8)	5.1 (0.4)	1.6 (0.2)	2.0 (0.2)	23.7
<b>Upper Manual</b>	8.8 (1.1)	18.6 (1.5)	53.6 (1.9)	12.6 (1.3)	3.3 (0.7)	3.1 (0.7)	1.1
<b>Lower Non-Man.</b>	11.9 (2.8)	12.7 (2.9)	48.5 (4.3)	9.0 (2.6)	9.7 (2.6)	8.2 (2.4)	5.3
<b>Upper Non-Man</b>	8.3 (1.5)	20.6 (2.1)	44.7 (2.6)	9.4 (1.5)	8.9 (1.5)	8.1 (1.4)	2.9
<b>% (sons)</b>	13.7	31.5	46.2	1.7	5.0	1.8	n = 12,622
<b>Steady State</b>	7.0	23.5	60.0	5.4	1.9	2.1	

Tables 7 and 8 divide the occupational categories into farm owner or manager, farmworker, lower manual, upper manual, lower non-manual, and upper non-manual. This decomposition allows us to take a closer look at the mechanism of upward mobility. Specifically, 10.8 percent of sons in non-reservation counties whose fathers worked upper manual jobs (i.e. craftsmen, government services) managed to achieve lower non-manual status (i.e. clerical and sales jobs), whereas only 3.3 percent of sons in reservation counties did. (The respective numbers for sons whose fathers worked lower non-manual jobs are 4.2 and 1.6 percent, a similar threefold difference.) The magnitude of this discrepancy is not paralleled among upper non-manual jobs, suggesting that much of the relative upward mobility in non-reservation counties can be attributed to greater permeability between upper manual and lower non-manual jobs. (Also worth noting, given the large proportions of fathers who were farm owners or managers,

Table 8: Transition Probabilities, Non-Reservation Counties (Detailed) (%)

<b>Job Type</b>	<b>Farmer</b>	<b>Farm-worker</b>	<b>Lower Manual</b>	<b>Upper Manual</b>	<b>Lower Non-Man.</b>	<b>Upper Non-Man.</b>	<b>% (fathers)</b>
<b>Farmer</b>	21.4 (0.6)	47.4 (0.8)	23.9 (0.7)	3.0 (0.3)	1.3 (0.2)	2.9 (0.3)	62.3
<b>Farm-worker</b>	9.4 (1.2)	47.7 (2.0)	38.4 (1.9)	2.5 (0.7)	0.5 (0.4)	1.5 (0.5)	8.7
<b>Lower Manual</b>	4.7 (0.6)	21.8 (1.1)	61.4 (1.3)	4.8 (0.6)	4.2 (0.6)	3.2 (0.5)	19.1
<b>Upper Manual</b>	4.1 (1.2)	15.9 (2.1)	50.8 (2.9)	14.6 (2.0)	10.8 (1.8)	3.8 (1.1)	1.7
<b>Lower Non-Man.</b>	4.3 (2.2)	14.7 (3.3)	39.7 (4.6)	8.6 (2.7)	25.0 (4.0)	7.8 (2.6)	4.6
<b>Upper Non-Man</b>	8.6 (1.9)	9.8 (1.9)	36.1 (3.1)	9.0 (1.9)	11.5 (2.0)	25.0 (2.8)	3.6
<b>% (sons)</b>	15.6	39.2	34.3	3.0	4.2	3.7	n = 6,848
<b>Steady State</b>	7.5	30.6	49.2	4.8	4.3	3.7	

is that 2.9 percent of their sons in non-reservation counties achieved upper non-manual status, compared to 1.3 percent in reservation counties) As for downward mobility, the principal difference between reservation and non-reservation counties is that in reservation counties, the probability of a son working a lower or upper non-manual jobs appears to be independent of which occupational category their father fell into, while in non-reservation counties, the persistence of lower non-manual and upper non-manual is quite pronounced: 25 percent for each category, while the probabilities of moving from lower to upper or upper to lower are 7.8 percent and 11.5 percent, respectively.

What could account for these discrepancies in mobility? Given the birth cohort regime differences, we might suspect that the age composition of the reservation and non-reservation samples differ. Figure 8, however, demonstrates that the average age in non-reservation counties ( $\mu = 24.2$ ,  $SD = 6.7$ ) is actually slightly lower than the average in reservation counties ( $\mu = 24.7$ ,  $SD = 6.7$ ), ruling out the possibility of age-biased sampling. Gitter and Reagan's (2002) hypothesis of reservations promoting non-market lifestyles is potentially

relevant, but not fully explanatory considering this sample only includes fathers and sons who reported jobs to the census. The literature and the Meriam Report (1928) suggest that the geographic isolation and depressed economic activity characteristic of reservation life in the early twentieth century, as well as lower levels of cultural and linguistic assimilation on reservations, might explain some of the difference. Separating the non-reservation sample based on whether they lived in Oklahoma, however, complicates this line of reasoning.

### 5.1.1 The Case of Oklahoma

As I discussed above, the tribes living in Oklahoma occupied a unique historical and economic position relative to those living on reservations. They were not geographically confined (and tended to live near whites), their land was more fertile, they tended to be wealthier and more assimilated, they were generally treated separately by congressional legislation, and until 1907, they had a high level of political jurisdiction over their (large) territory (and they maintained more political autonomy than reservation tribes even after 1907). Considering these distinctive circumstances, it stands to reason that they might have experienced different mobility regimes compared to other non-reservation Indians.

Table 9: Transition Probabilities, Oklahoma excl. Osage County, (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	58.9 (0.9)	36.4 (0.9)	4.7 (0.4)	77.2
<b>Manual</b>	29.8 (1.9)	57.1 (2.0)	13.1 (1.4)	16.5
<b>Non-Manual</b>	20.5 (2.8)	40.2 (3.4)	39.3 (3.4)	6.3
<b>% (sons)</b>	51.6	40.1	8.3	n = 3,493
<b>Steady State</b>	40.3	46.5	13.2	

Table 10: Transition Probabilities, Non-Oklahoma Non-Reservation Counties (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	77.9 (0.9)	19.1 (0.9)	3.0 (0.4)	64.6
<b>Manual</b>	22.6 (1.3)	71.0 (1.4)	6.4 (0.8)	31.2
<b>Non-Manual</b>	15.6 (3.1)	55.3 (4.2)	29.1 (3.9)	4.2
<b>% (sons)</b>	58.1	36.8	5.1	n = 3,355
<b>Steady State</b>	49.7	44.2	6.1	

Indeed, Tables 9 and 10, which separate the non-reservation sample based on whether the sons lived in Oklahoma, reflect significantly different patterns of mobility: the individuals living in Oklahoma, compared to both reservation and non-reservation offspring, had lower rates of downward mobility and higher rates of upward mobility. Not only was the rate of intergenerational non-manual persistence higher (39.3 for Oklahoma non-reservation counties versus 29.1 for non-Oklahoma non-reservation counties), but the rates of upward mobility were significantly elevated: 13.1 percent of sons from manual backgrounds and 4.7 sons from agricultural backgrounds achieved non-manual status, compared to 6.4 and 3.0 in non-Oklahoma non-reservation counties. Interestingly, the persistence of agricultural status was much lower in Oklahoma than outside it (58.9 percent versus 77.9 percent), as was the persistence of manual status (57.1 percent versus 71.0 percent), suggesting generally higher rates of occupational mobility. The equilibrium occupational distributions further illustrate the higher rates of upward mobility: 13.2 percent in Oklahoma end up in non-manual jobs, compared to 6.1 percent in non-Oklahoma counties.

When non-Oklahoma non-reservation counties and non-Oklahoma reservation counties are compared, the putative differences are much smaller than those between the overall reservation/non-reservation county regimes. The persistence of non-manual status is still significantly higher in non-reservation counties (29.1 percent versus 17.2 percent), but the differences in upward mobility are negligible (3.0 percent versus 2.5 percent for sons from

agricultural backgrounds, 6.4 percent versus 4.1 percent for sons from manual backgrounds). The steady state distribution of non-manual jobs, as a result, is 6.1 percent in non-Oklahoma non-reservation counties, and 4.1 percent in reservation counties; it seems that this discrepancy is likely the product of lower downward mobility in non-Oklahoma non-reservation counties. This might indicate that the relative social immobility of Native Americans was not necessarily a function of the socioeconomic characteristics of reservations. Recall that the individuals coded as ‘American Indian’ in the 1940 census were probably more likely to be single-race Natives and tendentially less assimilated (Thornton and Young-Demarco, 2021a). Those not living in reservation counties were likely more ‘visibly’ Native. In light of this, a possible explanation, especially given the similarly low levels of upward mobility, is that labor market discrimination in non-reservation counties led to few opportunities for achieving non-manual status. Since the non-reservation individuals in this sample were likely less assimilated and more likely to be single- rather than mixed-race, it is plausible that the racial prejudice they suffered from employers reduced their mobility opportunities, despite the higher levels of economic activity in non-reservation counties.

What explains the higher upward mobility and lower downward mobility of Native American men living in Oklahoma? The state’s political economic idiosyncrasies likely account for at least some of the difference. Relative to other non-reservation counties, the higher levels of political control, economic integration with the white community, and cultural assimilation may have all played a role in attenuating negative mobility trends. It is a possibility that census enumerators working in Oklahoma were more apt at identifying mixed-race Natives, given the state’s large Native population, and that such a tendency in the data may have contributed to the improved mobility. Considering evidence suggesting that assimilated individuals tend to have better socioeconomic outcomes because they face less labor market discrimination on the basis of prejudice or stereotypes (Kuhn and Sweetman 2002; Miller 2023), it is likewise plausible that the historical assimilation and integration of Native Americans in Oklahoma may have led to weaker negative preconceptions of Native workers

and thus less direct occupational discrimination leaving open more channels for upward mobility. (The transition matrix for Oklahoma’s only reservation county, Osage County, can be found in Table 22 in Appendix B. The small sample size makes it difficult to extract meaningful information, but the transition probabilities seem more similar to non-Oklahoma reservation counties than Oklahoma non-reservation counties. The Osage Nation, whose reservation boundaries are coterminous with Osage County, constitutes an especially unique case because of the discovery of oil on their lands in 1920s, briefly making them one of the wealthiest socio-demographic groups in the country. Their relative immobility in the sample is a surprising result which merits further inquiry.)

## 5.2 Inter-Reservation Differences

Table 11: Transition Probabilities, Reservations with Forced Coexistence (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	59.4 (0.6)	38.3 (0.6)	2.3 (0.2)	70.8
<b>Manual</b>	24.0 (0.9)	71.6 (0.9)	4.4 (0.4)	25.3
<b>Non-Manual</b>	27.6 (2.3)	54.7 (2.5)	17.6 (2.0)	3.9
<b>% (sons)</b>	49.2	47.4	3.4	n = 9,508
<b>Steady State</b>	37.4	58.4	4.2	

Table 12: Transition Probabilities, Reservations without Forced Coexistence (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	32.2 (1.8)	64.3 (1.9)	3.5 (0.7)	48.7
<b>Manual</b>	15.4 (1.4)	81.3 (1.5)	3.2 (0.7)	48.4
<b>Non-Manual</b>	15.0 (5.7)	67.5 (7.3)	17.5 (6.0)	3.0
<b>% (sons)</b>	23.6	72.6	3.8	n = 1,352
<b>Steady State</b>	18.5	77.7	3.8	

Within the subsample of individuals living in reservation counties, none of the identified historical variables produced significantly different mobility regimes. Tables 11 and 12 separate the sample based on whether the reservation had been formed by blending multiple sub-tribal bands (i.e. forced coexistence). The transition probabilities for sons who achieved non-manual status are nearly identical: in both samples, the rate of intergenerational non-manual persistence was around 18 percent, and the rates of upward mobility were likewise in the low single digits for sons of both agricultural and manual backgrounds. The most significant difference between the two transition matrices is the degree to which sons of all backgrounds ended up as manual workers in non-forced-coexistence reservation counties; in these counties, manual labor seems to function as a quasi-absorbing state that is difficult to leave once entered—indeed, the steady-state distribution of manual labor is 77.7 percent, compared to 58.4 percent in forced-coexistence reservations counties. (Tables 20 and 21 in Appendix B illustrate the mobility regimes under Dippel’s [2014] historical centralization variable: the differences are similarly small.)

Table 13: Transition Probabilities, Reservations with Displaced Tribes (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	53.6 (1.3)	43.6 (1.3)	2.8 (0.4)	76.1
<b>Manual</b>	30.1 (2.2)	65.6 (2.3)	4.3 (1.0)	20.9
<b>Non-Manual</b>	24.6 (5.5)	55.7 (6.4)	19.7 (5.1)	3.0
<b>% (sons)</b>	47.8	48.5	3.6	n = 2,009
<b>Steady State</b>	39.0	56.6	4.4	

Table 14: Transition Probabilities, Reservations without Displaced Tribes (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	56.5 (0.6)	41.1 (0.6)	2.4 (0.2)	65.3
<b>Manual</b>	21.8 (0.7)	74.1 (0.8)	4.1 (0.4)	30.6
<b>Non-Manual</b>	28.2 (2.2)	55.0 (2.4)	16.9 (1.8)	4.1
<b>% (sons)</b>	44.7	51.8	3.5	n = 10,613
<b>Steady State</b>	33.8	62.2	4.0	

Tables 13 and 14 show the transition matrices of individuals who lived in reservation counties where tribes were displaced and not displaced from their ancestral homelands. Here, too, the rates of downward and upward mobility are nearly identical. In reservation counties with displacement, the persistence of non-manual status was 19.7 percent, while in reservation counties without displacement, it was 16.9 percent (the difference is well within the error bounds). The trauma of displacement does not appear to have come to bear significantly on mobility trends.

Table 15: Transition Probabilities, Reservations with IRA Constitutions (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	60.1 (0.6)	37.5 (0.6)	2.4 (0.2)	72.4
<b>Manual</b>	26.1 (1.0)	69.7 (1.0)	4.2 (0.5)	23.7
<b>Non-Manual</b>	32.2 (2.6)	49.5 (2.8)	18.3 (2.2)	3.9
<b>% (sons)</b>	51.0	45.6	3.5	n = 8,090
<b>Steady State</b>	39.9	56	4.1	

Table 16: Transition Probabilities, Reservations without IRA Constitutions (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	46.6 (1.0)	50.8 (1.0)	2.6 (0.3)	57.6
<b>Manual</b>	19.3 (0.9)	76.7 (1.0)	4.1 (0.5)	38.4
<b>Non-Manual</b>	19.8 (2.9)	65.0 (3.5)	15.3 (2.8)	4.0
<b>% (sons)</b>	35.0	61.3	3.7	n = 4,532
<b>Steady State</b>	26.6	69.3	4.1	

Finally, living in county with a reservation that had enacted an IRA constitution does not seem to be indicative of distinct transition probabilities (Tables 15 and 16. The proportions of sons from agricultural and manual backgrounds who achieved non-manual status is almost exactly the same in both sub-samples (2.4 and 4.2 percent in constitution counties versus 2.6 and 4.1 percent in non-constitution counties), as is the rate of persistence of non-manual status (18.3 percent in constitution counties versus 15.3 percent in non-constitution counties).

The lack of inter-reservation mobility differences based on the chosen variables suggests that, with respect to mobility, the impacts of historical contingencies and policy choices that otherwise exerted some considerable impacts on the socioeconomic outcomes of individuals, even decades later, are mostly negligible. With respect to the IRA specifically, it is possible

that long-run mobility outcomes may have been more influenced by constitutions, compared to outcomes in the years immediately following the IRA, but it is evident that constitutions did not have an immediate impact on mobility, nor did the tribes that chose to enact a constitution systematically differ, mobility-wise, from tribes that chose not to do so. These tables, combined with the significantly higher rate of non-manual persistence even in non-Oklahoma non-reservation counties, is suggestive of the idea that reservations themselves acted as a sort of mobility trap that resulted in individuals from all backgrounds ending up as agricultural, but especially manual, workers.

### 5.3 Education and Occupation

Table 17: Fathers' Occupation and Sons' Education, Reservation Counties

<b>Years of Schooling</b>	<b>0-4</b>	<b>5-8</b>	<b>9+</b>
<b>Agricultural</b>	24.7	47.3	28.0
<b>Manual</b>	12.9	51.7	35.4
<b>Non-Manual</b>	12.7	37.5	49.7
<b>% (sons)</b>	20.4	48.4	31.2

Table 18: Fathers' Occupation and Sons' Education, Non-Reservation, Non-OK Counties

<b>Years of Schooling</b>	<b>0-4</b>	<b>5-8</b>	<b>9+</b>
<b>Agricultural</b>	29.7	48.7	21.6
<b>Manual</b>	16.6	45.2	38.2
<b>Non-Manual</b>	9.0	24.0	67.0
<b>% (sons)</b>	24.2	46.4	29.4

Table 19: Fathers' Occupation and Sons' Education, Non-Reservation, OK Counties

<b>Years of Schooling</b>	<b>0-4</b>	<b>5-8</b>	<b>9+</b>
<b>Agricultural</b>	18.7	46.9	34.4
<b>Manual</b>	13.9	39.6	46.5
<b>Non-Manual</b>	5.6	24.2	70.2
<b>% (sons)</b>	16.9	43.9	39.2

The importance of education in mediating occupational choice is well-documented (e.g. Hauser et al. 1996, Eberhart 2012). In the case of post-Assimilation Era Native Americans, this occupational sorting may have been influenced not only by acquiring human capital, but also by the linguistic and cultural assimilation that schooling brought about (Feir 2016; Gregg 2018). Though the absence of reliable occupational data for the parent generation precludes the possibility of calculating educational mobility in the sample, I take a brief look at the association between fathers' jobs and sons' educational attainment in the reservation, non-reservation non-Oklahoma, and Oklahoma sub-samples in Tables 17, 18, and 19. The most obvious difference between the former table and the latter two is the proportion of sons from non-manual backgrounds who completed at least some secondary schooling. In reservation counties, 49.7 percent of sons whose fathers worked non-manual jobs reported nine or more years of education, whereas in the non-reservation non-Oklahoma and non-reservation Oklahoma counties, 67.0 and 70.2 percent of said sons did. Given that non-manual jobs tend to require more education, it seems possible that some of the reservation/non-reservation discrepancy in persistence of non-manual status is the result of fathers with non-manual jobs in non-reservation counties being more able to push their sons to gain more schooling.

Above, I found that a major factor in the significantly higher steady-state proportion of descendants with non-manual jobs in Oklahoma non-reservation counties was due not just to the higher rate of persistence, but also to the increased probability of upward mobility for sons whose fathers worked agricultural or manual jobs. The leftmost column of Table 19 provides some suggestive evidence that educational attainment explains part of why up-

ward mobility is higher. In Oklahoma non-reservation counties, the proportion of sons of agricultural and manual fathers who received at least nine years of education is significantly higher than the corresponding figures in reservation and non-Oklahoma non-reservation counties: in Oklahoma 34.4 percent of sons from agricultural backgrounds and 46.5 percent of sons from manual backgrounds completed at least some high school, while in reservation and non-Oklahoma non-reservation counties, these numbers were 28.0 and 35.4 percent, and 21.6 and 38.2 percent, respectively. The higher baseline rates of educational attainment for sons of these backgrounds in Oklahoma may have served as a mechanism for them to attain non-manual status despite not having fathers who worked such jobs.

## **6 Discussion and Conclusion**

### **6.1 Policy Implications**

The historical nature of this study means that the findings do not easily lend themselves to interpretation in the context of contemporary policymaking; despite that, broader policy implications are evident. The fact that the occupational mobility patterns I discern in this sample (i.e. low upward mobility and high downward mobility) broadly reflect the income mobility dynamics identified in contemporary studies (Akee et al. 2017; Chetty et al. 2020) suggests that social immobility is a historically persistent reality for Native Americans in the United States. This dynamic is not easily resolved, as evidenced by the fact that the only decade, if any, of black-white mobility convergence occurred during the legislative frenzy of the 1960s which encompassed both Civil Rights and the Great Society (Featherman and Hauser 1976; Hout 1984). Nonetheless, some potential avenues for improving mobility outcomes can be identified.

Considering that the higher level of intergenerational persistence in non-reservation counties, and the higher level of upward mobility in Oklahoma, appear to have some connection

with higher educational attainment (particularly among the sons of fathers who worked non-manual jobs), one possible channel for increasing the chances for upward mobility runs through improved opportunities for schooling, particularly on and near reservations. The inadequacy of the residential schools persists in the inadequate schooling provided by the Bureau of Indian Education today (Woods 2020). Better, more accessible schools for Native American youths, as well as efforts to expand opportunities for post-secondary education, may represent important steps in improving the still-stagnant social mobility of Native Americans.

A related means of promoting mobility concerns increased economic integration of reservations with surrounding areas—undoubtedly a challenge, given the relative geographic isolation in which reservations tend to be stuck—and development programs which promote more sustainable economic bases on reservations themselves. One potential outcome, partially stemming from the mobility data from Oklahoma, suggests that improved economic integration may reduce employer discrimination by attenuating negative preconceptions of Native American workers as lazy or unconcerned with work, and provide opportunities for individuals to move up and attain non-manual status in the future.

These implications are largely unfocused because improving upward mobility for demographic groups is a complicated matter. I hope that this more general study may provide some background for future inquiries into educational mobility among Native Americans (and the direct mobility effects of boarding schools specifically) and more concentrated research regarding the specific mobility effects of policies such as the Dawes Act.

## **6.2 Conclusion**

This paper has examined the intergenerational occupational mobility of Native American men in the early twentieth century, and constructed subgroup-specific transition matrices to illustrate how federal policy choices and historical and cultural contingencies shaped the abil-

ity of Native American fathers to pass their jobs down to their sons. The results emphasize that the reservation system led to worsened mobility outcomes, and that individuals living not on reservations, but especially in the more integrated and relatively prosperous environment of Oklahoma, experienced higher upward mobility and lower downward mobility as the Assimilation Era ended and the period of renewed Native self-governance began. Education appears to have been a potentially powerful mediator of intergenerational mobility, but further study is necessary to uncover the specifics of how impactful education was in improving mobility outcomes.

This paper offers evidence for the difficulty of Native American men to experience upward mobility (or even persistence of high-status occupations) and the general occupational trend, also seen among intergenerational studies of black men, that privileges manual labor no matter the occupational background of one's father. In terms of policy implications, this paper provides a quantitative perspective of the historical mobility dynamics experienced by Native Americans and the impact of federal Indian policy on reservations especially, which holds important policy ramifications and allows for a more nuanced understanding of present-day challenges faced by Native Americans in the labor market and with respect to occupational mobility. Future studies may examine the experiences of mixed-race Native Americans and those living in urban areas, as well as the impacts of post-assimilationist policy on occupational mobility.

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## 8 Appendix

### 8.1 Appendix A - Descriptive Tables and Maps

Occupation Groups (3)	Occupation Groups (7)	Census Occupation Codes (1950)
Non-manual	Professionals, Semi-Professionals	0-99
	Proprietors, Managers, Officials	200-290
	Clerical	300-390
	Sales	400-490
Manual	Semi-skilled, Unskilled	595, 600-690, 700-790, 810-840, 910-970
	Craftsmen, Government Services	500-594, 762, 773, 781, 782
Agricultural	Farmers	100, 123

Figure 2: Occupational Groupings

<b>Region</b>	<b>States Included</b>
Basin and Mountain	CO, ID, NV, UT, WY
California	CA
Great Lakes	MN, WI
Midwest	IL, IN, MI, OH
North Carolina	NC
Northeast	CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT, DC
Northern Plains	MT, ND, SD
Northwest	OR, WA
Oklahoma	OK
Prairie	IA, KS, MO, NE
South	AL, AR, FL, GA, KY, LA, MS, SC, TN, TX, VA, WV
Southwest	AZ, NM

Figure 3: Regional Subdivisions

<b>Cohort</b>	<b>Census N</b>	<b>Sample N</b>	<b>Prop. Linked</b>	<b>Res. Census</b>	<b>Res. Sample</b>
1900	16805	3150	0.19	0.64	0.68
1910	21369	8326	0.39	0.65	0.66
1920	30920	26699	0.86	0.65	0.64

Figure 4: Data Representativeness (Reservations)

<b>Cohort</b>	<b>Manual Prop.</b>		<b>Non-Manual Prop.</b>		<b>Agricultural Prop.</b>	
	<b>Census</b>	<b>Sample</b>	<b>Census</b>	<b>Sample</b>	<b>Census</b>	<b>Sample</b>
1900	0.412	0.434	0.053	0.052	0.43	0.401
1910	0.442	0.458	0.054	0.046	0.396	0.376
1920	0.245	0.222	0.023	0.02	0.274	0.247

Figure 5: Data Representativeness (Occupations)

<b>Region</b>	<b>Sample N</b>	<b>Sample Prop.</b>	<b>Census N</b>	<b>Census Prop.</b>
"Basin and Mountain"	1400	0.037	2845	0.041
"California"	2047	0.054	4085	0.059
"Great Lakes"	3729	0.098	5063	0.07
"Northern Plains"	6965	0.182	9952	0.144
"Midwest"	885	0.023	1452	0.021
"North Carolina"	2352	0.062	4050	0.059
"Northeast"	1222	0.032	2505	0.036
"Northwest"	2200	0.058	3772	0.055
"Oklahoma"	8001	0.21	14093	0.204
"Prairie"	739	0.019	1217	0.018
"South"	1143	0.03	2276	0.033
"Southwest"	7492	0.196	17784	0.257

Figure 6: Data Representativeness (Regions)

<b>Job Type (Detailed)</b>	<b>Father Prop.</b>	<b>Son Prop.</b>
"Farmer"	0.545	0.148
"Farmworker"	0.085	0.327
"Lower Manual"	0.252	0.43
"Lower Non-Manual"	0.017	0.022
"Upper Manual"	0.065	0.049
"Upper Non-Manual"	0.037	0.024

Figure 7: Occupational Distributions

<b>Status</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Median</b>	<b>Max</b>
Reservation	24.72	6.67	15	23	44
Non-Reservation	24.17	6.68	15	22	44

Figure 8: Age Distributions



Figure 9: Map of Ancestral Homelands from Feir et al. (2022)

## 8.2 Appendix B - Additional Transition Matrices

Table 20: Transition Probabilities, Reservations of Historically Centralized Tribes (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	50.0 (1.4)	48.0 (1.4)	2.0 (0.4)	61.2
<b>Manual</b>	18.8 (1.4)	75.8 (1.5)	5.4 (0.8)	35.9
<b>Non-Manual</b>	22.6 (5.3)	64.5 (6.1)	12.9 (4.5)	2.9
<b>% (sons)</b>	38.0	58.5	3.5	n = 2,121
<b>Steady State</b>	27.6	67.6	4.8	

Table 21: Transition Probabilities, Reservations of Historically Non-Centralized Tribes (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	57.7 (0.6)	39.8 (0.6)	2.6 (0.2)	68.4
<b>Manual</b>	22.7 (0.8)	73.2 (0.9)	4.1 (0.4)	27.5
<b>Non-Manual</b>	27.4 (2.3)	54.9 (2.5)	17.7 (2.0)	4.1
<b>% (sons)</b>	46.8	49.6	3.6	n = 9,470
<b>Steady State</b>	35.2	60.7	4.1	

Table 22: Transition Probabilities, Osage County, OK (%)

<b>Job Type</b>	<b>Agricultural</b>	<b>Manual</b>	<b>Non-Manual</b>	<b>% (fathers)</b>
<b>Agricultural</b>	54.0 (6.3)	42.9 (6.2)	3.2 (3.1)	69.2
<b>Manual</b>	40.0 (10.6)	55.0 (11.1)	5.0 (7.1)	22.0
<b>Non-Manual</b>	12.5 (13.9)	62.5 (16.9)	25.0 (14.7)	8.8
<b>% (sons)</b>	47.3	47.3	5.5	n = 91
<b>Steady State</b>	44.8	49.9	5.2	