The Effect of Land Allotment on Native American Households During the Assimilation Era[*]

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Abstract

In the early twentieth century, the U.S. government wanted to culturally assimilate the hundreds of thousands of Native Americans living on reservations. One of the primary mechanisms towards this aim was to break up tribally owned reservation lands and allot them to individual Native American households. Allotment was a *conditional* transfer program because households had to prove themselves culturally assimilated ("competent") to the local government agents before they could obtain full fee-simple property rights to their land. We study how Native American households responded to this program.

Keywords: Indigenous Economics, Conditional Transfer Programs, Assimilation, Property Rights

JEL Codes: N10, O1, Z1

"Kill the Indian in him, and save the man" — Capt. Richard Pratt, 1892

"The General Allotment Act is a mighty pulverizing engine to break up the tribal mass. It acts directly upon the family and the individual." — Theodore Roosevelt, 1901

"Each Indian who was to receive a [fee simple] patent stepped from a tepee and shot an arrow to signify that he was leaving behind his Indian way of life. He placed his hands on a plow to show that he had chosen to live the farming life of a white man" — description of allotments in 1916 (McDonnell, 1980, p26)

1   Introduction

In 1890, Native American military resistance ended with the Wounded Knee Massacre, and the U.S. government turned its attention to the cultural assimilation of Native Americans, ninety percent of whom were living on the reservations created in the previous decades. A major focus of these assimilation efforts was private property, as the government decided to sub-divide tribally owned reservation lands and to allot them into the private ownership of individual Native households (Carlson, 1981). After a period of holding the land in "allotted trust," local agents had the discretion to grant full (fee-simple) property rights to the allottees if they proved themselves "competent" (i.e. culturally assimilated). In program-evaluation language, allotment was a *conditional* transfer program aimed at cultural assimilation; with the program's conditional arm (fee-simple rights) worth around 20 times annual income in our data, orders of magnitude larger than modern-day conditional transfer programs (Schultz, 2004; Behrman, Parker, and Todd, 2011; Parker and Todd, 2017; Barrera-Osorio, Linden, and Saavedra, 2019). Allotment was the centerpiece of Indian policy during the Assimilation Era, which lasted from 1887 until it was suddenly and permanently ended with the 1934 Indian Reorganization Act (IRA).

To study how Native American households responded to the policy of allotment, we combine a number of data-sets. First, we glean reservation-aggregate data series from the 1912–1920 Annual Reports of the Bureau of Indian Affairs (BIA). In addition to schooling, these data include the number of "church-going Indians" and those "wearing civilized dress." Second, we use the five waves of Full Count Census (FCC) volumes from 1900–1940, each of which includes between

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250,000 and 300,000 Native Americans.[1] To move beyond the simple race-identifier included in the census, we assign each individual their correct reservation, using location information on enumeration districts and the methodology established in (Dippel and Frye, 2021). Third, we use the universe of Indian allotments from the Bureau of Land Management's (BLM) Government Land Office (GLO). These data include each allotment's geo-location, issuance year, and, if applicable, its year of conversion to fee simple, allowing us to construct reservation-aggregate time-series of the issuance of allotments and their conversion into fee-simple. Because the FCC volumes contains no information on allotment, our initial focus is to estimate the intent-to-treat (ITT) effect of allotment using these reservation-aggregate data. Fourth, we digitized the 1935/36 *Indian Census Rolls* (ICR), a separate Native American census that was enumerated by the BIA on reservations and that includes individuals' allotment numbers. We record-link the ICR to the 1940 FCC to attach allotment numbers to individuals, and then match to this the allotments' issuance- and conversion-year information in the GLO. Linking allotment information to the 1940 FCC is particularly useful because it was the first census wave to enumerate income, wealth and educational attainment.

We leverage Indian allotment's staggered phase-in to show in the BIA annual reports that school-attendance, the number of church-going Indians and the number of those wearing civilized dress all increased in lock-step with the expansion of a reservation's allotment, even after controlling for the changing supply of schools and churches associated with a BIA agency. In the FCC, the ITT estimates suggest that farming, the likelihood of living on a farm, and the likelihood of children attending school all increased with allotment. As well, we find that parents began choosing more anglicized names once their reservations were allotted. Both the panel-results in the reservation-aggregate BIA data and the pseudo-panel results in the individual-level FCC data are consistent with strong assimilation effects of allotment. We do, however, also find that all of these outcomes were reduced when allotments were converted to fee-simple, which is suggestive that households rationally reduced their assimilation-signalling once they attained the second treatment arm of the program.

This naturally raises the question whether households' assimilationist response to allotment had effects on other outcomes. We can answer this question in the 1940 FCC cross-section which

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[1] Before 1900, only he under ten percent of Native Americans living outside reservations were enumerated.

is the first wave where we can observe additional outcomes such as income, wealth and educational attainment. With the 1940 FCC linked to allotment information, we can compare households whose allotments had been converted to full fee-simple rights by 1934 to households on the same reservation whose allotments had not been converted by that date. We find that household-heads whose allotments had been converted to full fee-simple rights earned higher wages and worked in higher-ranking occupations, while their children attended school for longer. We argue that these differences may be explained by a mixture of two distinct causal relations: on the one hand, the higher degree of cultural assimilation implicitly revealed by obtaining fee-simple title may have caused households' to have better labor market opportunities and to send their kids to school longer; on the other hand, the wealth transfer that resulted from obtaining fee-simple title may have given households the ability to generate non-employment income as well as raising household members' shadow wage, allowing them to wait for higher-paying jobs and stay in school longer.

To separate these two stories, we employ an IV strategy to isolate the second causal channel, i.e. the causal effect of obtaining fee-simple title. We instrument fee-simple title with a combination of the allottees' age-requirements for competency and the conversion-to-fee propensity of their local BIA agents. The resulting IV estimates suggest large direct causal effects of fee-simple property rights on labor-market or education outcomes. If anything, the difference between OLS and IV estimates again suggests that households that endogenously obtained fee-simple title did so partly by assimilation-signalling which was reduced once the second treatment arm had been reached.

To further investigate the stickiness of the cultural-assimilation response to allotment, we use household-level educational attainment data to ask whether cultural assimilation(-signalling) dropped off after an allotment was converted to fee-simple, i.e. once the conditional transfer arm of the program was realized. Specifically, we perform a cohort analysis in the 1940 FCC to test whether households reduced their signals of cultural assimilation once their allotments were converted to fee simple. We find some evidence that this was indeed the case: both children's schooling choices and the anglicization-score of newborns' names dropped across birth-cohorts *within* the same household after its allotments were converted to fee simple. The evidence suggests that about one-quarter of the assimilation-effect of being allotted was rolled back after conversion to fee-simple. For another angle on stickiness, we record-link the 1940 FCC to the universe of World

War 2 enlistments (in which Native Americans are identified) to compare the likelihood of military service of the sons of allotted and unallotted Native households. We find that sons of allotted households were twenty percent more likely to serve in the military during the war.

We also ask whether households' response to the allotment policy was partly a function of tribes' ancestral traditions. We hypothesize that the incentives for assimilation(-signalling) in response to allotment were stronger for tribes that had cultural norms of individual-based (rather than collective) property rights. This would imply that the differences in measured outcomes between allotted and un-allotted reservations of the same tribe should be larger (or have diverged more over the course of the policy) in those tribes. We test this using the *Ethnographic Atlas*' (EA) measure for private property rights traditions. The resulting within-tribe cross-reservation analysis of the effect of allotment as a function of ancestral traditions of private property confirms our hypothesis.

Lastly, we look at the persistent effects of the allotment policy on outcomes today, using publicly available reservation-aggregate data from the Census. Again comparing allotted and unallotted reservations of the same tribe, we find that the historical allotment policy is associated with a lower proportion of reservation-members who speak their Native language, and with a higher proportion who live off the reservation.

Our paper speaks to a literature on the effects of cultural assimilation policies. Most such policies are designed to achieve cultural assimilation through education (Alesina, Giuliano, and Reich 2013; Sakalli 2017; Bandiera, Mohnen, Rasul, and Viarengo 2018; Fouka 2019).[2] In contrast, we study a policy that was designed to achieve cultural assimilation through the allocation of private property, designed as a conditional transfer program. We find that this program design provided powerful incentives for individuals to signal their assimilation in order to obtain full legal title to their allotments. Our paper also contributes to a growing literature emphasizing the importance of cultural norms as drivers of economic outcomes and decision making (Algan and Cahuc, 2010; Fernández, 2011; Nunn, 2012; Costa-Font, Giuliano, and Ozcan, 2018; Dohmen, Enke, Falk, Huffman, and Sunde, 2018; Enke, 2019). To the best of our knowledge, our paper is the first

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[2] Assimilation through education was also prominent on reservations, albeit mostly before the allotment era. Gregg (2018) shows that reservations that historically sent a higher share of children to boarding schools have more assimilated populations today. At a more micro level, Feir (2016b) shows that Native students of (Canadian) boarding schools were more likely in the long run to live off-reserve and not speak an indigenous language. Feir (2016a) finds evidence for a cultural "backlash" to boarding schools that is similar to findings in Fouka (2019).

that documents the importance of *cultural traditions* of private property in an economic setting.[3]

We also wish to acknowledge that the policy of Indian allotment is rightly viewed critically today. Criticisms of allotment fall into four broad categories: first, allotment was a colonial policy aimed at the assimilation of Native American cultures and at undermining tribes as polities.[4] Second, allotments were given to individual tribal members but taken from the tribe. In short, Indian allotment "robbed Peter to pay Paul." Third, allotments led to a substantial decrease in the overall land base of Native American tribes, primarily through the sale of 'surplus land' that was left over after all households had been allotted.[5] Prior to the 1887 Dawes Act, Indians controlled over 138 million acres of lands within their reservations; by 1934, Native land holdings had fallen to 52 million acres (Office of Indian Affairs, 1935). Part of the reason was that —regardless of the lawmakers' intentions—there was clearly corruption in the implementation of allotment, and land speculators (possibly in cahoots with Indian agents) almost surely influenced the allotment process for personal gain. Fourth, allotted land that had not transferred to fee simple would remain "trapped" in trust in perpetuity after 1934, denying the owners and their heirs the ability to freely chose its use and creating substantial economic inefficiencies that grew worse over time (Leonard and Parker, 2021; Dippel, Frye, and Leonard, 2020). None of the results in this paper should be interpreted as taking away from any of these criticisms. At the same time, none of these criticisms have a direct bearing on the questions we study in this paper.

2 Allotment and Assimilation

The Assimilation Era: Following the establishment of the reservation system, American Indian reformers considered land allotment as a requisite element in the assimilation of American Indians (Otis, 2014).[6] Early allotment efforts were negotiated into treaties, but legislation implementing a general allotment act stalled for many years before Henry Dawes introduced a modified allotment bill to the Senate in 1886. The bill quickly passed the Senate and the House, and on February

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[3] A related question that we do not explore is whether some tribes' (or even households') norms in relation to private property may have changed in response Indian allotment. Di Tella, Galiant, and Schargrodsky (2007) provide evidence for such a mechanism, and the seminal economics paper on 'property rights' uses Native American tribes as an illustration of how such rights may be endogenized (Demsetz, 1967).

[4] Appendix-Figure A1 shows one of the "before/after" pictures of assimilation one finds from this era.

[5] See Appendix-Figure A2 for a sales ad for such surplus land.

[6] The two most prominent reform organizations were the *Indian Rights Association*, founded in 1882, and the *National Indian Defense Association*, formed in 1885.

8, 1887, President Grover Cleveland signed the General Allotment (Dawes) Act into law. 1887 marked the beginning of the Assimilation Era, which lasted until the Indian Reorganization Act (IRA) of 1934, and land allotment was the center piece of federal Indian policy during this half-century (Carlson, 1981, p18).

The initial allotment process: Heads of household received 160 acres, single persons over 18 received 80 acres, orphans under 18 received 80 acres. Once a reservation was surveyed for allotment, all families on the reservation were given allotments. Allotments were mandatory and anyone not selecting an allotment within the first four years, would be assigned a parcel by the Indian Agent. Implementing the Dawes Act on an individual reservation was a complicated process. First, the BIA agent in charge of the reservation was tasked with determining the list of eligible tribal members entitled to an allotment and the household structure for every household within the reservation (Banner, 2009). These agents were also tasked with managing the surveying of the reservation and its division into parcels. Allottees could select a parcel, but usually did not, in which case the local BIA agent determined the assignment of allotments (Banner, 2009; Otis, 2014; Carlson, 1981). The Meriam Report characterized the process as follows: "*The original allotments of land to the Indians were generally made more or less mechanically. Some Indians exercise their privilege of making their own selections; others failing to exercise this right where assigned land. Often Indians who exercise the privilege made selections on the basis of the utility of the land as a means of continuing their primitive mode of existence. Nearness to the customary domestic water supply, availability of firewood, or the presence of some native wild food were common motives. Few were sufficiently far sighted to select land on the basis of its productivity when used as the white man used it*" (Meriam, 1928, p470).[7] Each allotment was given an allotment number and a patent was filed with the *Government Land Office* (GLO) upon approval by the President. These patents—subsequently digitized by the *Bureau of Land Management* (BLM)—specified the trustee, the specific plot location, the date, and the unique allotment number. From 1887–1906, constraints over personnel and resources slowed surveying and the allocation of allotments. This changed with the introduction of the Burke Act, which dramatically increased the pace of allotting. This is clearly visible in the flow of allotments over time in Appendix-Figure A3, which we constructed from the BLM GLO data. Once selected, allotments

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[7] Unsurprisingly, there are also accounts of outside settlers influencing agents to set aside the highest quality land for surplus (Otis, 2014, p145).

were approved by the Secretary of Interior and each household or individual was issued a trust patent. This 'trust patent' held the allotted land in trust for a trust period, during which the allottee or their heirs were the beneficiary of the allotment. Land held in trust could not be alienated or sold (and therefore nor collateralized) and was not subject to state or local taxes.

Figure 1: Allotments, Church-Going and Civilized Dress
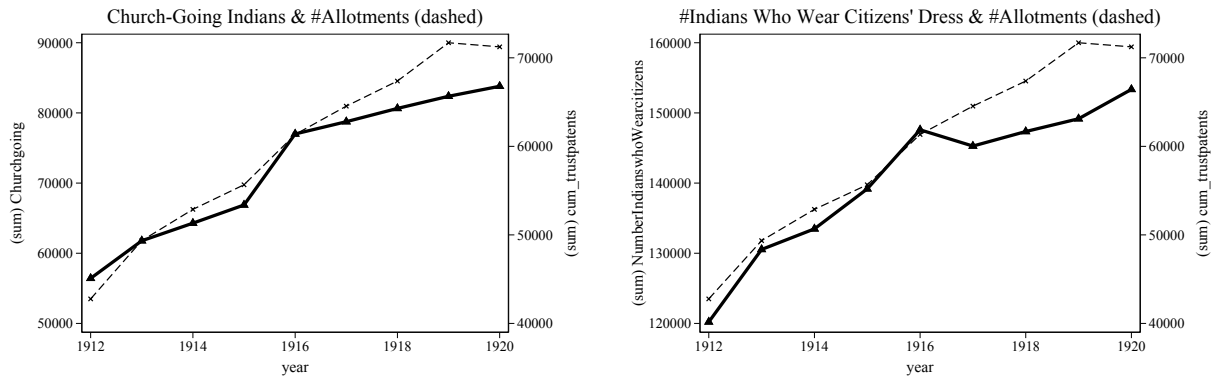
Notes: The left panel of this figure shows two time-series: the evolution of the aggregate number of "Church-going Indians," reported on the BIA's annual reports for 1911–1920, and the evolution of the aggregate number of allotments recorded in the BLM GLO database on the same set of reservations. The right panel of this figure shows the aggregated number of "Indians Wearing Civilized Dress", also reported on the BIA's annual reports for 1911–1920, and

Assimilation: In order to obtain full 'fee-simple' legal title for their allotment, allottees had to be declared "competent" by the local BIA agent (Carlson, 1981; Banner, 2009; Otis, 2014). Appearing sufficiently culturally assimilated was the key consideration in agents' determination of competency, because the aim of allotment was "*the enlightened self interest of the individual Indian. Freed from the binds of tribal customs and authoritarian chiefs, the individual would soon want to accumulate wealth and property and, as he progressed economically, would acquire the habits and customs of Christian society. The key was to be private property*" (Carlson, 1981, p80).

The activities that BIA agents looked on favorably in their decision to convert allottees' land to fee simple were (i) farming, (ii) sending children to school as well as anglicizing their names (iii) going to church (Carlson 1981, ch4, Golenko 2010). From the allottee's point of view, an allotment could be valuable even when held in trust. According to the 1920 Annual Report of the Commissioner of Indian Affairs, annual leasing from a typical 160-acre allotment would have generated 150 dollars of proceeds, around 50 percent of average household income. Yet, obtaining the land in fee-simple was significantly more valuable because the average sales value of a 160-

acre allotment in the same data was almost 20 times that at 2,800 dollars.

These numbers lead us to investigate how allotted American Indian households responded to this conditional cash program. One hypothesis is that households may have rationally tried to signal their cultural assimilation in order to improve their chances of being declared "competent" by the local BIA agent. In the next sections, we will study micro-data of Native American households in the Full Count Census. Unfortunately, the most direct measures of cultural assimilation, namely church-going and the wearing of "civilized dress," are not enumerated in the Census. Fortunately, those measures were reported in BIA annual reports from 1911 to 1920. Figure 1 shows how the totals of these measures co-evolved with allotment over that period. Both measures were reported by reservation, so that we have the panel structure needed to investigate the relationship between allotment and assimilation measures in a sharper way that parses out cross-sectional differences in a generalized difference-in-difference relationship.

This is done in Table 1: we find that the measured expansion of allotment in a reservation over time strongly correlated with these two measures of cultural assimilation. This remains true after conditioning on the time-varying supply of churches and missionaries on reservations over time.[8] We also find that school attendance increased over time with allotment. The results in Table 1 are important because the aggregate data is consistent with a "signalling of cultural assimilation" story, even after controlling for institutions that could have separately coerced or incentivized assimilation on reservations. In the following sections, we will investigate less direct measures of assimilation, but do so in the universe of on-reservation Native American households.

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[8] Appendix-Figure A4 shows the evolution of churches and the number of missionaries over time.

Table 1: Allotments and Measures of Assimilation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A, outcome:				# Church-going Indians, 1911-1920					
Total Alloted Acreage / 160	0.101*** [0.000]	0.084*** [0.002]	0.080*** [0.005]	0.099*** [0.000]	0.082*** [0.000]	0.078*** [0.001]	0.080*** [0.001]	0.065*** [0.010]	0.061** [0.019]
year		22.031*** [0.000]			21.427*** [0.000]			20.281*** [0.000]	
Missionaries				-6.128 [0.246]	-5.718 [0.303]	-5.684 [0.305]	-6.494 [0.173]	-6.089 [0.229]	-6.048 [0.233]
Churches							21.346* [0.066]	20.352* [0.084]	20.713* [0.069]
R-squared	0.963	0.964	0.964	0.963	0.964	0.964	0.964	0.965	0.965
Panel B, outcome:				# Indians Wearing Civilized Dress, 1911-1920					
Total Alloted Acreage / 160	0.145*** [0.003]	0.057 [0.110]	0.052 [0.127]	0.148*** [0.005]	0.059 [0.155]	0.055 [0.173]	0.105** [0.017]	0.033 [0.269]	0.029 [0.315]
year		40.850*** [0.006]			41.169*** [0.006]			37.788*** [0.009]	
Missionaries				8.706 [0.247]	9.299 [0.179]	8.931 [0.191]	8.002 [0.267]	8.690 [0.196]	8.383 [0.208]
Churches							39.430** [0.022]	31.380** [0.038]	30.740** [0.044]
R-squared	0.935	0.939	0.940	0.936	0.940	0.940	0.938	0.941	0.941
Year FE			✓			✓			✓
Observations	818	818	818	818	818	818	818	818	818
# Years	9	9	9	9	9	9	9	9	9
# Reservations	106	106	106	106	106	106	106	106	106
Panel C, outcome:	School-Attendance / Capacity					School-Attendance / Enrollment			
Total Alloted Acreage / 160	0.172 [0.176]	0.291** [0.033]	0.345*** [0.004]	0.294*** [0.001]		0.193* [0.084]	0.325** [0.011]	0.377*** [0.001]	0.312*** [0.001]
year	-0.656** [0.037]					-0.633** [0.021]			
# schools			-3.136*** [0.001]	-3.034*** [0.000]				-3.036*** [0.002]	-2.904*** [0.001]
$ government spending				-0.000 [0.537]					-0.000 [0.407]
R-squared	0.472	0.510	0.575	0.576		0.572	0.628	0.697	0.698
Year FE		✓	✓	✓			✓	✓	✓
Observations	1,088	1,088	1,088	1,088		1,088	1,088	1,088	1,088
# Years	27	27	27	27		27	27	27	27
# Agencies	44	44	44	44		44	44	44	44

Notes: The assimilation measures in Panels A–B were only reported in 1912–1920, whereas education in Panel C was reported from 1887, but by agency because many reservations attended schools under a shared agency umbrella. In Panels A–B, standard errors are clustered at the reservation-level, In Panels C at the agency level. *p-values* are reported in square brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

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Figure A1: Cultural Assimilation "Before/After Picture"
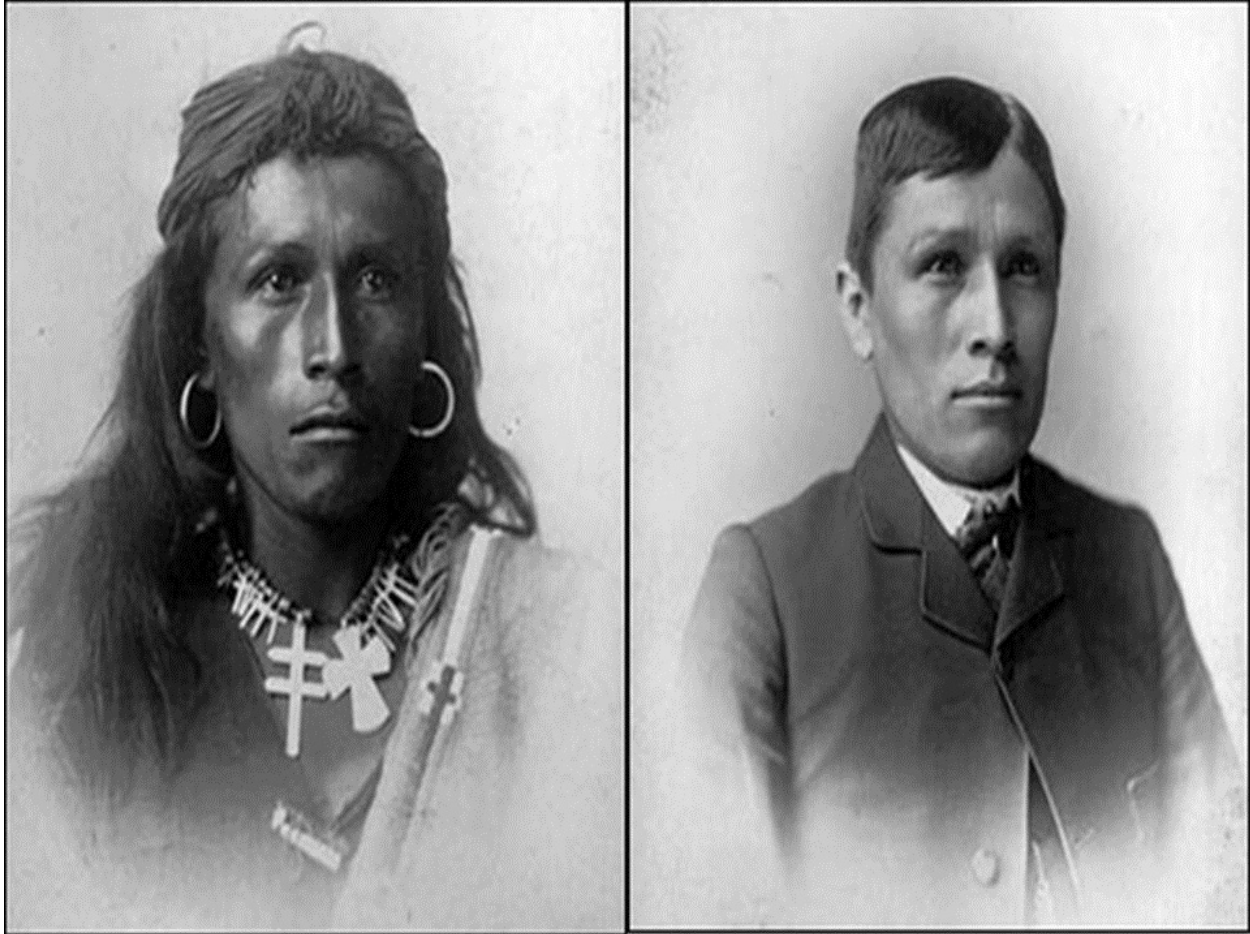
Appendix A   Online Data Appendix

Figure A1 shows one of the most common "before/after pictures" one finds on the internet in association with the Dawes Act. (We could not pin down the exact origin of the picture.)

Figure A2: 1910 Advertisement for Reservation Lands Left from Allotment

Notes:

Figure A2 shows an advertisement for the sale of surplus land, discussed in Section 2.

Figure A3: Flow of Allotments and Transfers into Fee Simple

Annual Acres Allotted and Fee-Simple

1887: Dawes Act; 1906: Burke Act; 1924: Citizenship; 1934: IRA
Dashed:Allotments; Solid: Fee-Simple
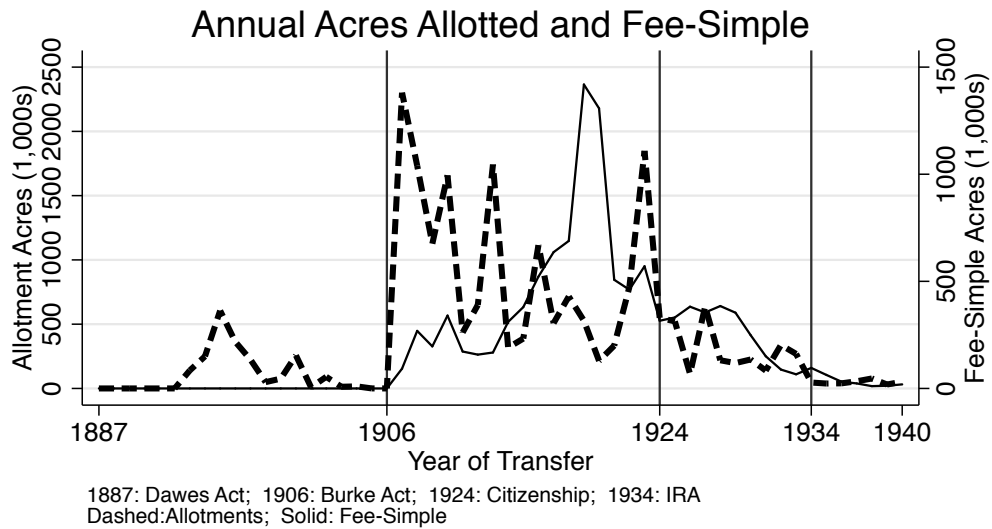
Notes: This figure tracks the flow of total acres that were allotted and the flow of acres subsequently transferred into fee simple in the BLM data.

Following approval from the President, each patent issued on the reservation was filed with the *Government Land Office* (GLO). These patents—subsequently digitized by the *Bureau of Land Management* (BLM)—record the transfer of land titles from the federal government to individuals. Each patent contains information regarding the patentee's name, the specific location of the parcel(s), the official signature date, total acreage, and the type of patent issued. These patents include cash sales, all homestead entries, and the universe of Indian allotments. An important feature of the GLO data is that we can see the exact date on which each allotment was issued and the date on which it was converted into fee-simple, if ever. This ability to follow the individual allotments and when they were converted to fee-simple allows us to identify them as either allotted-trust or fee-simple lands today. Appendix-Figure A3 depicts the aggregate process of the issuance of allotted-trust land and its conversion into fee simple.

Figure A4: Churches and Missions

Missionaries & Churches (dashed)

Notes: This figure shows the aggregated number of missionaries and churches reported in the BIA's annual reports for 1911–1920, for the same set of reservations as in Figure 1.

Aggregate Controls We compile additional county-level controls from two sources. First, we use data from the U.S. Decennial Census in 1940 constructed by Haines (2010). This series includes measures across four categories: population, agriculture, wealth and expenditures, and manufacturing. Our selected population measures include total population, urban population, native born white population, foreign born population, and population density per square mile. Within agriculture we include the total number of farms, the number of white farmers, and the total farm value. Our third category covers measures of durable good ownership, represented by the percent of the county that own radios and refrigerators, expenditures, represented by the total value of retail sales, and the wealth in housing, represented by the average value of owner occupied dwellings. The final category includes five measures of the manufacturing sector. We include controls for the number of establishments, the average number of wage earners, total wages paid, the cost of materials used in the production process, and the value of total output.

Our second county-level data series incorporates banking data from FDIC reports from 1936 (Federal Deposit Insurance Corporation, 1992). We include two measures of banking activity, the total number of deposits and the total number of banks in the county.

Table A1: Controls used in the micro-Census Regressions

Demographic Controls	County Controls continud..
Sex=2	Number of Manuf. Establishments
Agebin 1 by Sex	Avg. Number of Manuf. Wage Earners
Agebin 2 by Sex	Total Manuf. Wages
Agebin 3 by Sex	Cost of Materials in Manufacturing
race=black	Value of Manufacturing Output
race=white (Native=omitted)	Total Deposits (1936)
Female HH Head	Total Banks (1936)
Number in Nuclear Family	*Historic Controls*
Number Additional Family Members	Total Wars Associated with reservation
County Controls	Number Settler Trail Kilometers
Total Population	# Competency Commission Allotments
Total Urban Population	# Surplus Settler Allotments
Total Native White Pop.	*Leonard, Parker, Anderson Controls*
Total Foreign Born Pop.	Ruggedness
Population Density (per sq mi)	Stream-Density
Total Number of Farms	% Timber
Number of White Farmers	Value of Minerals
Total Farm Value	Reservation Longitude
Total Retail Sales	Reservation Latitude
Pct. HHs with Refrigerators	Distance Fort 1880
Pcts. HHs with Radios	Pct_Prime
Avg. Value of Owner Occ. Dwelling	Railway within 10 miles

Notes: These are the controls used in Table **??**.
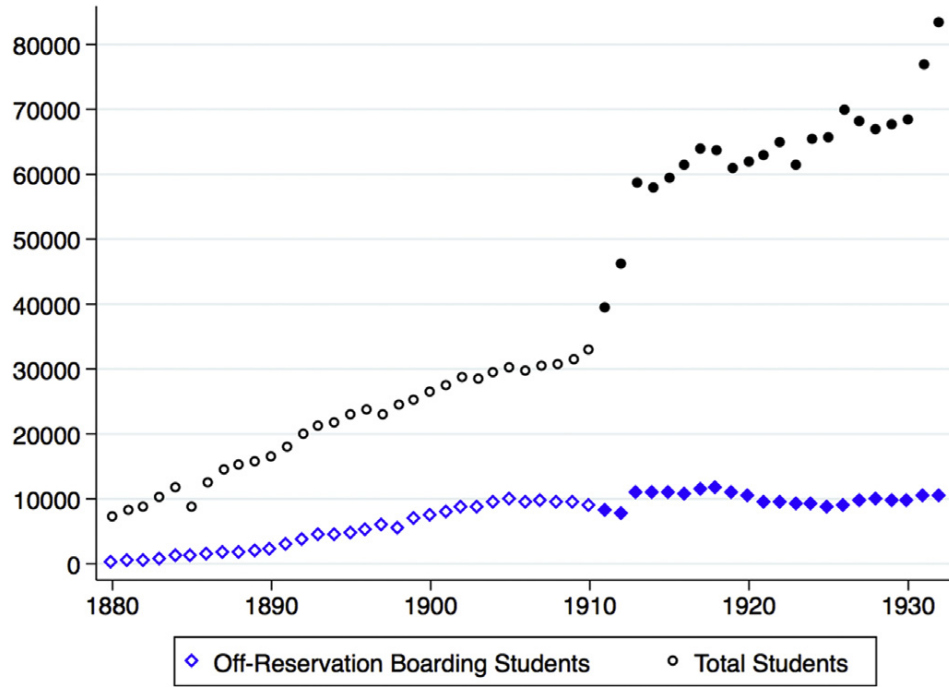
Fig. 1. Trends in School Enrollment of American Indian Children, 1880–1930. *Notes*: The black circles represent the total enrollment of school-age Indian children in all schools (i.e., off-reservation boarding schools, boarding schools, day schools, mission-run schools and public schools). The blue diamonds represent the enrollment in off-reservation boarding schools. For data availability reasons, the shaded data points reflect the years that are the focus of this paper. The calculations come from data in the Office of Indian Affairs' *Annual Reports*, 1880–1930. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

Notes:

Figure A5 shows Figure 1 in Gregg (2018).

Figure A6: Sample Page of the Indian Census Rolls

INDIAN CENSUS ROLL

Census of the _____ Crow Creek _____ reservation of the _____ Crow Creek _____ jurisdiction, as of _____ April 1, 1934, taken by James H. Hyde _____ Acting _____, Superintendent.

5

NUMBER	NAME Surname	NAME Given	SEX	AGE LAST BIRTH-DAY	TRIBE	DEGREE OF BLOOD	MARITAL STATUS	RELATIONSHIP TO HEAD / 1911 NO	AT SUCH JURISDICTION WHERE ENROLLED Yes/No	RESIDENCE Post office	RESIDENCE County	RESIDENCE State	WARD Yes/No	ALLOTMENT, ANNUITY, APPLICATION NUMBERS
1	2		4	5	6	7			10	12	13	14	15	16
38	Barry	Maude May	F	5-8-07 27	Sioux	1/4	S	Alone 40	No	Pierre	Hughes	S.D.	Yes	An. 38 Al. 1168
39	Bear	Jennie K.	F	3/27/15 19	"	F	S	Alone 44	Yes				"	An. 41 Al. 1554
40	Bear	Smith/K/	M	1881 53	"	F	S	Alone 45	"				"	An. 42 Al. 585
41	Big Eagle	Benjamin E.	M	5-11-09 24	"	F	Div	HH 44	"				"	An. 43 Al. 1370
42	Big Eagle	Henry	M	1891 43	"	F	M	HH 49	"				"	An. 44 Al. 1153
43	" (Fire-tail)	Julie	F	1895 39	"	F	M	Wf 50	"				"	An. 47 Al. 997
44	"	Marie	F	4-23-25 11	"	F	S	dau 51	"				"	An. 48
45	"	Henry M.	M	4-1-25 9	"	F	S	son 52	"				"	An. 49
46	"	Charlotte	F	7-2-28 6	"	F	S	dau 53	"				"	An. 50
47	"	Gerald Alvin	M	9-25-33 7/15	"	F	S	son ---	"				"	---
48	Big Eagle	John	M	7-9-03 31	"	3/4	M	HH 54	"				"	An. 53 Al. 1154

Notes:

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Appendix B   Record Linkage

The BLM data and the ICR data are straightforwardly linked by allotment number. Once treatment and instrument are attached, however, the ICR needs to be linked to the Full Count Census (FCC) data for the second-stage analysis, and this record-linkage is difficult. The main individual linkage variables at our disposal in both ICR and FCC are first and last name, birth-year, location, and gender. Fortunately for us, spatial mobility among Native Americans in this period of time was very low, with the vast majority of Native Americans living on reservations or former reservation lands in both 1930 and 1940.[9] We can therefore block the record linkage on location. In our case, because some reservations in the Southwest straddle state borders, we create 40 meta-states so that each reservation is uniquely contained in one, and then block on these. Secondly, we also block on gender.[10]

Within this blocking, individuals are linked by name and birth-year. The challenge in our data is that both of these linkage variables are recorded with a lot of noise. For names, this is partly driven by the fact that Census enumerators made more frequent errors in recording Native American names because they were unfamiliar with them. It is further driven by the fact that there was a strong trend of anglicization of names in this period so that names changed over time. For birth-years, noise is introduced into the records by the fact that most Native Americans at that time did not have birth certificates, and were thus more likely than other populations to revise their stated birth-year as time passed. These challenges make it impossible to obtain a large number of unambiguous individual record links in these data based on only individuals' information. To make progress in this direction, and ultimately enable us to perform the second stage analysis, we had to move beyond existing individual-based record linkage methods and develop a linkage scheme that incorporates the similarity of households' structure across data sets.

We begin with a quick discussion of the commonly used linkage methods. Older record linkage methods used a smaller number of variables for matching, and often used name only, often focusing on samples of people with unusual names in order to reduce false positive matches , e.g. Ferrie (1996). Matching on names is almost always fuzzy matching, i.e. a matching algorithm that

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[9] Substantial off-reservation mobility really took hold in the 1950s during the 'Termination Era', in which the federal government attempted to dissolve reservations.

[10] The FCC does not report reservation or tribe, but county of residence, which is sufficient to uniquely place most individuals in a reservation.

allows for typos and mis-spellings. A common approach involves splitting first and last names into substrings ('bigrams'), and to construct a similarity index over all bigrams. A commonly used similarity index is to calculate the 'Jaro Winkler index' between two names. Newer iterations of fuzzy matching have increased the flexibility to include matching on a set of numeric as well as string variables, including distance calipers on numeric variables, e.g. giving a higher match probability when two records' birth-years are one year rather than three years apart. See Abramitzky, Boustan, and Eriksson (2012, 2016) for more recent applications. More recently, the emergence of machine learning algorithm has given a real boost to the precision of record linkage methods, as it allows for training an algorithm. See for example the method outlined in Feigenbaum (2016). There is an active and ongoing debate on the choice of methods. Bailey, Cole, Henderson, and Massey (2017) review several of these methods and show that all algorithm may produce samples that are not fully representative of the underlying population. This includes linking records by hand, although this method is favored by Bailey et al. (2017). By contrast, Abramitzky, Boustan, Eriksson, Feigenbaum, and Pérez (2019) show that a range of automated linkage methods on a range of standard linkage sample perform as well as manual linkage can be expected to.[11] Methods of historical record linkage are fast evolving, driven by advances in the access to historical individual level data, computational power needed for linkage algorithms, the ability to scale up manual linkage through online job platforms, and machine learning capabilities. However, existing linkage methods are still almost entirely focused on individual linkage. The one exception that uses household structure for record linkage that we are aware of is Price, Buckles, Riley, and Van Leeuwen (2019).

Table A2 provides an example for the potential power of using household information in data like these. The table shows two four-person families (one in the ICR, and one in the 1940 FCC). The noteworthy feature of the table is that not a single person is a perfect match on age and name. The shared last name is different in the two data-sets, all birth-years are off by one year, and only one of four first names is an exact match. Nonetheless, viewing the four records in combination gives a high degree of confidence in this being the same household in the two data sets. This example illustrates the potential usefulness of household structure in determining individual links, when

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[11] For another summary, Ran Abramitzky's website at `https://people.stanford.edu/ranabr/matching-codes`.

Table A2: Household-Based Linkage Example

		ICR [master dataset]							FCC [using dataset]		
hhid	birthyr	namelast	namefrst	relate	links	score	hhid	birthyr	namelast	namefrst	relate
35545638	1908	SESSPOOCH	WAUN	Head	2	6.3	79055	1907	CESSPOOCH	JUAN	Head
35545638	1901	SESSPOOCH	ELLEN	Wife	2	11.9	79055	1902	CESSPOOCH	ELLEN	Wife
35545638	1934	SESSPOOCH	LOUIS	Son	5	11.2	79055	1933	CESSPOOCH	LEWIS	Son
35545638	1937	SESSPOOCH	DEBOIA	Daughter	3	6.3	79055	1936	CESSPOOCH	DOVELIA	Daughter

Notes: This table shows how household-information can increase the confidence of individual level record linkages. No individual link looks very compelling as not a single person is a perfect match on age and name. Yet, viewed in combination, these two households are clearly the same.

individual linkage variables are measured with a lot of noise. In the following we describe our step-by-step approach to record-linkage:

1) We first use standard individual record linkage methods to establish for each individual in a master data-set (say, the ICR), the set of all potentially linked individuals in a using data-set (say, the 1930 FCC). This can be any of the commonly used approaches discussed in Bailey et al. (2017), Abramitzky et al. (2019), and **??**. We pursue a two-step approach: we first apply bigram-indexation to first and last name to define the set of individuals in the using data with similar names.[12] We are 'generous' in this set, in the sense that we set the string-similarity cutoff low enough that each person in the master data has an average of 8 links in the using data.

   We then trim that set to include only potential matches that deviate by at most 4 years in birth-year for master records born after 1910, and by at most 6 years for master records born before 1910.

2) Each individual in the master data and each individual in the using data is associated with a unique household id. Consider a pair of households ICR-HH A in master and FCC-HH B in using. Our approach is to calculate the number of individuals in ICR-HH A who are linked to FCC-HH B in stage 1. This gives a metric of household similarity. We can then upward-adjust the similarity-scores of individual links between individuals in ICR-HH A and FCC-HH B by a percentage for each marginal increase in our metric of household sim-

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[12] We use the `stringsim()` function in R's `RecordLinkage`, and block on gender and on 'meta-state' and gender. (A 'meta-state' is a set of two states whose boundaries are straddled by reservations. This occurs, e.g. in New Mexico and Arizona. We formed 40 meta-states.

ilarity. We also re-generate adjusted similarity-scores between all non-linked individuals in ICR-HH A and FCC-HH B to potentially find new links. The idea is that these new links did not meet the match-threshold in the individual-level linkage in stage 1, but do meet the threshold with the upward-adjusting. Household similarity therefore brings new individual links into the fold.

The researcher has three levers to control the adjustment process in stage 2: One, household similarity can be calculated in different ways. For example, we use the absolute number of stage 1 individual links as our metric. This inherently creates more adjustments in larger households than in smaller ones. One could alternatively use the share of household members who are linked. As another alternative, one could also create a series of household-pair-specific dummies for binary measures such as whether there is both a male and female head of household, whether a household is a nuclear or an extended family, etc.

Two, the gradient of how individual similarity is adjusted to household similarity can be controlled. With more aggressive upward-adjusting, the researcher puts more weight on household-similarity. With less aggressive upward-adjusting, the researcher puts more weight on individual similarity.

Three, one could define a series of explicit rules based on household types in a pair. For example, if the only individual that is linked across ICR-HH A and FCC-HH B, is a 'son' in the ICR, and a 'head' in the FCC, then two households are likely to be otherwise completely disjoint sets, and the researcher might want to prevent the one exiting individual link's similarity score to be downward-adjusted (in relative terms) for the lack of household-similarity. To what extent these levers are used will be dictated by the structure of the specific dataset as well as by computational concerns.

3) Then a "best-off" gridsearch is applied on the adjusted similarity scores created in stage 2. The grid-search maximizes the sum of similarity-scores of all links, with the constraint that each individual record in the master data is linked to at most one record in the using data, and each record in the using data is linked to at most one record in the master data.

4) Relative to individual linkage methods, steps 2 and 3 above have the potential to create additional links to the extent that household similarity can lead individual similarity scores

to be scaled up. This is evident in Table A2 where no individual link looks particularly compelling when viewed in isolation, but the links look very compelling when viewed in combination.

More importantly, the household structure also suggests a range of criteria to generate flags for potentially problematic links, based on reported family relations. For example, while it is reasonable for the husband and the wife in a household in the (later) master data to be linked to records in the (earlier) using data where they are recorded as a son and a daughter, they should then not share a household in the using data, lest they be brother and sister.[13] The final linked data-set will invariably be improved by adding a fourth stage of manually checking links that that throw up flags for family relations that are either logically consistent or unlikely.

Manual linkage after stage 4 is greatly aided by the fact that stages 2–3 have identified the most likely individual link for each member of a given "anchor household" in the master data, so that one can view all members in the anchor household together with all person records belonging to households with any links to that anchor household. In other words, manual links can at this stage be confirmed or changed with all relevant household relations in view. Table A3 shows two examples of how our research assistants manually check flagged households in practice. The flagged household is the "anchor household," and associated with it is "network" of direct and indirect links to person-records in other datasets. In the top-panel, that anchor household has id 15426032 in the 1930 Full Count Census. In the bottom-panel, that anchor household has id 10 in the ICR. A network consists of all individuals that belong to any household linked to the anchor household. For instance, in the top-network, 1930-household 15426032 has one link to an individual in 1940-household 19002788, so that all five members of that household are included in the bloc. Household id, the number of people in a household, and individual id's are reported

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[13] Of course, if master and using data are collected in the same year, we should expect family relations to be exactly identical in the two datasets. Any time gaps between the years in which master and using data were recorded will imply some differences in household structure between the data-sets. For example, the ICR was collected between 1930 and 1937 and is therefore likely to contain more households whose nucleus is unchanged. By contrast, when linking two decadal Census waves like the 1930 and 1940 FCC, a sizeable share of 1930 children will have formed new households in 1940, and become heads or spouses. As well, more 1930 household heads and spouses will have passed away, and two-parent households will thus have turned into single-head households.

by data-source; columns 1–3 report on the 1940 FCC, columns 4–6 report on the 1930 FCC, and columns 7–9 report on the ICR. One observations is one person-record. If a person in a 1930-household is individually linked to persons in the 1940 Census and the ICR after stage 2, then there are entries in columns 1–3, 4–6, and 7–9 of that person record.

Columns 16–33 report on six variables that represent the relevant person- and household-information, again separately for each of three data sources. These variables are a person's first and last name, birth-year, gender, their marital status, and their relation to the household head. Based on this information, we can assess whether existing links are correct, and make manual adjustments in columns 10–15, which then get hardcoded into the data before re-running stages 2–3 of the program above. Columns 10-12 are 'true positive' links. A 'true positive' link can confirm an existing link, or it can over-ride an existing link. Columns 13-15 are 'true negative' un-links, which declare that an existing link is wrong. To avoid clutter for illustrative purposes, Table A3 omits entries in column 10–15 that merely confirm existing links, and only includes entries for records where at least one link gets manually over-ridden. In the top-record for example, columns 11-12 confirm the existing link between the 1930 FCC and the ICR, but column 13 unlinks these from their link to a person-record in 1940. In the fourth row, columns 11-12 establish a new link between a 1930-record called Josephine Rose and an ICR-record called Josephine Rose who differs by 11 years in birth-year but shares an ICR household with three others who are linked to 1930-records in Josephine Rose's 1930 household. Column 15 in the same row lists the unlinked previous link.[14] In the bottom-bloc, columns 11-12 link four previously unlinked individuals in the 1930 census to four previously unlinked individuals in the ICR. The records were not linked by the algorithm because of unstable last names ('Big' in the ICR and 'Big Knife' in the 1930 FCC) and first names ('Dorothy Ann' in the ICR, and 'Pretty Woman' in the 1930 FCC).

5) Manual changes made in stage 4 are the 'true positives' and 'true negatives' in columns 10–15 of Table A3.

   Hard-coded 'true positives pairs' mean that any other individual links with either record in a pair get deleted. Hard-coded 'true negative pairs' mean that this particular link gets deleted from the stage 1 output.[15] These become hard-coded and are fed into the data-output

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[14] This particular column 15 entry is redundant because columns 11-12 already hard-code a unique 'true positive' link between these records, thus precluding any other possible links.

[15] These need to get deleted a second time at the end of stage 2 in case that any are re-introduced during stage 2 by

Table A3: Household-Based Linkage Example

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
1940			1930			ICR			true positives			true negatives			1940						1930						ICR					
hhid	#	pid	hhid	#	pid	hhid	#	pid	pid 1940	pid 1930	pid ICR	pid 1940	pid 1930	pid ICR	LN	FN	Birth Y	Sex	Mar ried	Rel	LN	FN	Birth Y	Sex	Mar ried	Rel	LN	FN	Birth Y	Sex	Mar ried	Rel
Anchor-HH1 : hhid=15426032 in 1930																																
19002788	4	19002788-1	15426032	4	15426032-1	68934	5	9-806-11	15426032-1	9-806-11			19002788-1		RACE	WILLIAM	1891	M	M	Head	ROSE	WILLIAM	1891	M	M	Head	ROSE	WILLIAM	1890	M	M	Head
19051844	5	19051844-2	15426032	4	15426032-2	68934	5	9-807-2							ROCE	FORREST	1925	M		gr-ch	ROSE	FORREST	1925	M		child	ROSE IAM	FORREST	1924	M		child
19051844	5	19051844-3	15426032	4	15426032-3	68934	5	9-807-1							ROCE	JAUNITA	1922	F		gr-ch	ROSE	WANETA	1923	F		child	ROSE	JUANITA	1922	F		child
		19051844-1	15426032	4	15426032-2	67409	3	86-10-2	15426032-2	9-806-12				86-10-2	ROSE	JOSEPHINE	1890	F	M	Head	ROSE	JOSEPHINE	1890	F	M	Sp	SHANE	JOSEPHINE	1891	F	M	step-ch
19051844	5	19051844-5	15463552	5	15463552-7	68452	16	9-674-17							REDFOX	CYNTHA	1922	F		gr-ch	RED FOX	CYNTHIA	1922	F		step-ch	RED FOX	CYNTHIA	1921	F		step-ch
19051844	5	19051844-1	15463565	2	15463565-2	68933	2	9-806-10							ROCE	AGNES	1861	F	W	Head	ROSE	AGNES	1862	F		Sp	ROSE	AGNES	1860	F	M	Sp
19066701	9	19066701-5	15477934	7	15477934-6	67409	7	86-10-3							BEAS CUB	ARCHIE	1929	M		child	BEARCUB	ARCHIE	1928	M		child:	ARGROUND	ARCHIBALD	1930	M		child:
19002788	4	19002788-4				68258	12	9-627-12							BEARDEAU	MELVIN	1928	M		step-ch							BURDEAU	MELVIN JOE	1927			child
19002788	4	19002788-3				68258	12	9-627-11							BEARDEAU	JAMES	1926	M		step-ch							BURDEAU AMES ADAMS		1924	M		child
19062368	11	19062368-5													RACE	MAGGIE	1890	F	M	Sp												
			68934	5	9-807-3									ROSE	DOROTHY	1930	F		child
			67409	3	86-10-1									GROUND		1870	M	M	Head
			68934	5	9-806-12									ROSE OSEPHINE N S		1901	F	M	Sp
Anchor-HH1 : hhid=10 in ICR																																
19009442	3	19009442-1	15429377	8	15429377-6	10	9	426-617-4							BIG DOY	OLD WOMAN RUTHY	1890	F	W	Head	BIG DOG	OLD WOMAN PRETTY	1868	F	W	Parent	BIG DOG OLD WOMAN PRETTY		1868	F	W	Head
19009442	3	19009442-2	15429377	8	15429377-7	10	9	426-617-5							BIG DOY	LODGE	1910	F		child	BIG DOG	LODGE	1909	F		Sibling	BIG DOG	LODGE	1908	F		child
			15429377	8	15429377-8	10	9	426-617-6													BIG DOG	ALBERT	1912	M		adop-ch	BIG DOG	ALBERT	1913	M		neph
						10	9	426-617-10																				JOHN	1928	M		child
			15429377	8	15429377-1	10	9	426-617-9	15429377-1	426-617-7																	BIG KNIFE	DOROTHY ANN	1926	F		child
			15429377	8	15429377-4	10	9	426-617-11													BIG	KINFE LEVEL	1901	M	M	Head	BIG KNIFE	JOSEPH	1933	M		child
			15429377	8	15429377-3	10	9	426-617-8	15429377-3	426-617-9											BIG KNIFE	WALING PRETTY	1928	F		child	BIG KNIFE	FLORA	1907	F		Sp
			15429377	8	15429377-2	10	9	426-617-7	15429377-2	426-617-8											BIG	WOMAN HAD	1926	F		child	BIG KNIFE		1900	M	M	Head
19009442	3	19009442-3	15429377	8	15429377-5	10	9	426-617-12	15429377-5	426-617-10					FOUR GAESTOTHE	COLORE	1887	F	W	child	BIG	FLORA S LIGHTENI	1908	F	M	Sp	BIG KNIFE	DOROTHY	1935	F		child
																					BIG KNIFE	NG	1929	M		child

Notes: (*a*) Columns 20, 26, 31: M=married, W=widowed. Columns 21, 27, 32: SP=spouse, step-ch=step-child, adop-child=adopted child, gr-child=grand-child. (*b*) This table reports on two "household networks" Each household network has one "anchor household." In the top-panel, that anchor household has id 15426032 in the 1930 Full Count Census. In the bottom-panel, that anchor household has id 10 in the ICR. Household id, the number of people in a household, and individual id's are reported by data-source; columns 1–3 report on the 1940 FCC, columns 4–6 report on the 1930 FCC, and columns 7–9 report on the ICR. One observations is one person-record. If a person in a 1930-household is individually linked to persons in the 1940 Census and the ICR after stage 2, then there are entries in columns 1–3, 4–6, and 7–9 of that person record. Columns 10–12 are 'true positive' links. A 'true positive' link can confirm an existing link, or it can over-ride an existing link. Columns 13–15 are 'true negative' un-links, which declare that an existing link is wrong. To avoid clutter for illustrative purposes, Table A3 omits entries in column 10–15 that merely confirm existing links, and only includes entries for records where at least one link gets manually over-ridden.

generated at the end of stage 1.

Table A4: Possible Household Links, Grouped by Internal Consistency

		(1)	(2)	(3)	(4)	(5)
1940		Possible Links to ICR Households				

Acceptable Matches :

Nuclear Family	H ⇨ Sp ⇨	H / Sp	non-H / non-Sp	non-H / non-Sp	• / non-Sp	non-H / •

Single Head	H ⇨	H + widowed / •		• / Sp + widowed		H

Disregard until Manually Checked:

Nuclear Family	H ⇨ Sp ⇨	H / non-Sp	non-H / Sp	H / Sp	• / Sp	H / •

Notes: (*a*) The side of the table content to the left of the arrow ⇒ depicts the 1940 households for which we can study outcomes. Across columns 1–5, the right side of the table content depicts possible ways in which a 1940 household can be linked to ICR households. (*b*) The top-two panels depict linkages that are logically consistent, firstly for nuclear households with a head and a spouse, and secondly for single-head households. The bottom panel depicts linkages that appear logically inconsistent and should be checked before using these observations. (*c*) In the top panel: Column 1 indicates that both head and spouse in a 1940 FCC household are linked to a head and spouse who are in the same household in the ICR. Column 2 indicates that both 1940 head and spouse are linked to persons in the same household, and that neither of these is head or spouse in the ICR. This captures the relatively common occurrence of young couples living with one spouse's parents. Column 3 indicates that 1940 head and the spouse are linked to persons in the ICR who live in different households and are neither head nor spouse in the ICR. This captures the most common occurrence of new households being formed by young adults. Columns 4–5 capture the case where only one of 1940 head or spouse is linked to a person record in the ICR, and that record is not a head or spouse in the ICR. Column 5 is common because young wives in 1940 who were living with their parents in the ICR are less likely to be linked because of their different last names. The middle panel depicts single-head households in which the head is linked to person-record in the ICR. Such links are consistent if the ICR person-record was also a single head or was neither head nor spouse (e.g. an adolescent living with parents); they are also consistent if the ICR person-record was part of a nuclear head-spouse pair, but the 1940 person-record is widowed or divorced. In the bottom panel: Columns 1–2 indicate that both head and spouse in a 1940 FCC household are linked to person-records in the same ICR-household but that these person-records had a relation to each other that is inconsistent with their 1940 relation. Column 3 indicates that 1940 head and spouse are both linked to person-records of the same relation but in different households. Columns 4–5 indicate that only of head or spouse are linked to person-records in the ICR, but that they are already a head/spouse.

The researcher can choose the decision rules that determine which records to manually check and link by hand. In our case, we defined a number of different flags for households with inconsistent linkages between the 1940 FCC and the ICR. Possible linkages and their consistency are visualized in Table A4. The side of the table content to the left of the arrow ⇒ depicts the 1940 households for which we can study outcomes. Across columns 1–5, the right side of the table

the similarity-score adjustment.

content depicts possible ways in which a 1940 household can be linked to ICR households. The top-two panels depict linkages that are logically consistent, firstly for nuclear households with a head and a spouse, and secondly for single-head households. In the top panel, column 1 indicates that both head and spouse in a 1940 FCC household are linked to a head and spouse who are in the same household in the ICR. Column 2 indicates that both 1940 head and spouse are linked to persons in the same household, and that neither of these is head or spouse in the ICR. This captures the relatively common occurrence of young couples living with one spouse's parents. Column 3 indicates that 1940 head and the spouse are linked to persons in the ICR who live in different households and are neither head nor spouse in the ICR. This captures the most common occurrence of new households being formed by young adults. Columns 4–5 capture the case where only one of 1940 head or spouse is linked to a person record in the ICR, and that record is not a head or spouse in the ICR. Column 5 is common because young wives in 1940 who were living with their parents in the ICR are less likely to be linked because of their different last names. The middle panel depicts single-head households in which the head is linked to person-record in the ICR. Such links are consistent if the ICR person-record was also a single head or was neither head nor spouse (e.g. an adolescent living with parents); they are also consistent if the ICR person-record was part of a nuclear head-spouse pair, but the 1940 person-record is widowed or divorced. The bottom panel depicts linkages that appear logically inconsistent. In the bottom panel, columns 1–2 indicate that both head and spouse in a 1940 FCC household are linked to person-records in the same ICR-household but that these person-records had a relation to each other that is inconsistent with their 1940 relation. Column 3 indicates that 1940 head and spouse are both linked to person-records of the same relation but in different households. Columns 4–5 indicate that only of head or spouse are linked to person-records in the ICR, but that they are already a head/spouse.

Links depicted in the bottom panel are "flagged" for potential logical inconsistency, and should be omitted from the statistical analysis until they have been manually checked and linked (or de-linked).

Previous to stages 4–5 described above, we have roughly 7,000 Native American households from the Census to the ICR that are "un-flagged", i.e. that belong to the top-two panels in Table A4.

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Appendix C   Mapping from Individuals to Reservations in Data

Here we list all reservations in our data, together with their state in (·), their allotment status according to [Office of Indian Affairs](#) ([1935](#)), and the number of households in 1940 with at least one Native American member, the total population in these households, and the total tribal population in these households, with the difference between the two coming from non-Native spouses.

Alabama-Coushatta Reservation and Off-Reservation Trust Land (TX) *Alloted: N, Number of Households 1940: 67, Total Population 1940: 323, Native Population 1940: 321.* •

Allen Canyon Pah-Ute (CO, UT) *Alloted: Y, Number of Households 1940: 85, Total Population 1940: 305, Native Population 1940: 304.* •

Alturas Indian Rancheria (CA) *Alloted: N, Number of Households 1940: 39, Total Population 1940: 146, Native Population 1940: 140.* •

Auburn Rancheria and Off-Reservation Trust Land (CA) *Alloted: N, Number of Households 1940: 122, Total Population 1940: 474, Native Population 1940: 440.* •

Augustine Reservation (CA) *Alloted: Y, Number of Households 1940: 17, Total Population 1940: 62, Native Population 1940: 61.* •

Bad River Reservation (WI) *Alloted: Y, Number of Households 1940: 183, Total Population 1940: 867, Native Population 1940: 846.* •

Barona Reservation (CA) *Alloted: N, Number of Households 1940: 85, Total Population 1940: 375, Native Population 1940: 364.* •

Battle Mountain Reservation (NV) *Alloted: N, Number of Households 1940: 53, Total Population 1940: 223, Native Population 1940: 215.* •

Bay Mills Reservation and Off-Reservation Trust Land (MI) *Alloted: N, Number of Households 1940: 34, Total Population 1940: 147, Native Population 1940: 140.* •

Bear River Rancheria (CA) *Alloted: Y, Number of Households 1940: 44, Total Population 1940: 168, Native Population 1940: 154.* •

Berry Creek Rancheria and Off-Reservation Trust Land (CA) *Alloted: N, Number of Households 1940: 29, Total Population 1940: 109, Native Population 1940: 103.* •

Big Pine Reservation (CA) *Alloted: N, Number of Households 1940: 59, Total Population 1940: 200, Native Population 1940: 195.* •

Big Valley Rancheria (CA) *Alloted: N, Number of Households 1940: 26, Total Population 1940: 118, Native Population 1940: 116.* •

Bishop (CA) *Alloted: N, Number of Households 1940: 11, Total Population 1940: 40, Native Population 1940: 37.* •

Blackfeet Reservation (MT) *Alloted: Y, Number of Households 1940: 888, Total Population*

1940: 4042, Native Population 1940: 3873. •

Blue Lake Rancheria (CA) *Alloted: Y, Number of Households 1940: 31, Total Population 1940: 107, Native Population 1940: 88.* •

Bois Forte Reservation (MN) *Alloted: Y, Number of Households 1940: 108, Total Population 1940: 478, Native Population 1940: 465.* •

Bridgeport Reservation (CA) *Alloted: N, Number of Households 1940: 13, Total Population 1940: 41, Native Population 1940: 40.* •

Brighton Reservation (FL) *Alloted: N, Number of Households 1940: 33, Total Population 1940: 143, Native Population 1940: 142.* •

Cabazon Reservation (CA) *Alloted: Y, Number of Households 1940: 35, Total Population 1940: 126, Native Population 1940: 120.* •

Caddo-Wichita-Delaware OTSA (OK) *Alloted: Y, Number of Households 1940: 133, Total Population 1940: 640, Native Population 1940: 622.* •

Camp Verde (AZ) *Alloted: N, Number of Households 1940: 58, Total Population 1940: 223, Native Population 1940: 220.* •

Campo (CA) *Alloted: N, Number of Households 1940: 32, Total Population 1940: 123, Native Population 1940: 118.* •

Catawba Reservation (SC) *Alloted: N, Number of Households 1940: 35, Total Population 1940: 182, Native Population 1940: 177.* •

Cayuga Indians at Cattaraugus Reserva- **tion** (NY) *Alloted: N, Number of Households 1940: 158, Total Population 1940: 654, Native Population 1940: 646.* •

Cayuga Indians at Tonawanda Reservation (NY) *Alloted: N, Number of Households 1940: 119, Total Population 1940: 472, Native Population 1940: 470.* •

Cedar City Band (UT) *Alloted: Y, Number of Households 1940: 32, Total Population 1940: 133, Native Population 1940: 133.* •

Chehalis Reservation and Off-Reservation Trust Land (WA) *Alloted: Y, Number of Households 1940: 47, Total Population 1940: 186, Native Population 1940: 174.* •

Cherokee OTSA (AR, OK, KS) *Alloted: Y, Number of Households 1940: 3460, Total Population 1940: 13786, Native Population 1940: 12250.* •

Cheyenne River Reservation and Off-Reservation Trust Land (SD) *Alloted: Y, Number of Households 1940: 522, Total Population 1940: 2323, Native Population 1940: 2248.* •

Cheyenne-Arapaho OTSA (OK) *Alloted: Y, Number of Households 1940: 698, Total Population 1940: 3243, Native Population 1940: 3009.* •

Chickahominy SDTSA (VA) *Alloted: N, Number of Households 1940: 17, Total Population 1940: 112, Native Population 1940: 110.* •

Chickasaw OTSA (OK) *Alloted: Y, Number of Households 1940: 1109, Total Population 1940:*

4363, Native Population 1940: 3786. •

Chicken Ranch Rancheria and Off-Reservation Trust Land (CA) *Alloted: N, Number of Households 1940: 29, Total Population 1940: 119, Native Population 1940: 111.* •

Choctaw OTSA (AR, TX, OK) *Alloted: Y, Number of Households 1940: 2385, Total Population 1940: 9185, Native Population 1940: 7885.* •

Citizen Potawatomi Nation-Absentee Shawnee OTSA (OK) *Alloted: Y, Number of Households 1940: 1111, Total Population 1940: 4943, Native Population 1940: 4533.* •

Cochiti Pueblo (NM) *Alloted: N, Number of Households 1940: 62, Total Population 1940: 310, Native Population 1940: 310.* •

Cocopah (AZ) *Alloted: N, Number of Households 1940: 59, Total Population 1940: 252, Native Population 1940: 249.* •

Coeur d'Alene Reservation (ID) *Alloted: Y, Number of Households 1940: 84, Total Population 1940: 331, Native Population 1940: 321.* •

Coharie SDTSA (NC) *Alloted: N, Number of Households 1940: 110, Total Population 1940: 631, Native Population 1940: 630.* •

Colorado River Indian Reservation (AZ, CA) *Alloted: Y, Number of Households 1940: 150, Total Population 1940: 734, Native Population 1940: 719.* •

Colusa Rancheria (CA) *Alloted: N, Number of Households 1940: 38, Total Population 1940: 145,*

Native Population 1940: 138. •

Colville Reservation and Off-Reservation Trust Land (WA) *Alloted: Y, Number of Households 1940: 579, Total Population 1940: 2217, Native Population 1940: 2063.* •

"Coos, Lower Umpqua, and Siuslaw Reservation and Off-Reservation Trust Land (OR) *Alloted: N, Number of Households 1940: 26, Total Population 1940: 119, Native Population 1940: 109.* • "

Coquille Reservation (OR) *Alloted: N, Number of Households 1940: 11, Total Population 1940: 36, Native Population 1940: 30.* •

Coushatta Reservation and Off-Reservation Trust Land (LA) *Alloted: N, Number of Households 1940: 26, Total Population 1940: 116, Native Population 1940: 116.* •

Cow Creek Reservation and Off-Reservation Trust Land (OR) *Alloted: N, Number of Households 1940: 21, Total Population 1940: 84, Native Population 1940: 66.* •

Crandon Sub-Agency (WI) *Alloted: N, Number of Households 1940: 64, Total Population 1940: 275, Native Population 1940: 253.* •

Creek OTSA (OK) *Alloted: Y, Number of Households 1940: 1254, Total Population 1940: 5111, Native Population 1940: 4631.* •

Crow Reservation (MT) *Alloted: Y, Number of Households 1940: 255, Total Population 1940: 1326, Native Population 1940: 1278.* •

Dresslerville Colony (NV) *Alloted: N, Number of Households 1940: 66, Total Population 1940: 215, Native Population 1940: 213.* ●

Dry Creek Rancheria (CA) *Alloted: N, Number of Households 1940: 29, Total Population 1940: 122, Native Population 1940: 114.* ●

Eastern Cherokee (NC) *Alloted: N, Number of Households 1940: 406, Total Population 1940: 2079, Native Population 1940: 2009.* ●

Elk Valley Rancheria and Off-Reservation Trust Land (CA) *Alloted: Y, Number of Households 1940: 40, Total Population 1940: 145, Native Population 1940: 134.* ●

Elko Colony (NV) *Alloted: N, Number of Households 1940: 34, Total Population 1940: 123, Native Population 1940: 114.* ●

Ely Reservation (NV) *Alloted: N, Number of Households 1940: 17, Total Population 1940: 63, Native Population 1940: 62.* ●

Fallon Paiute-Shoshone Reservation and Off-Reservation Trust Land (NV) *Alloted: Y, Number of Households 1940: 77, Total Population 1940: 293, Native Population 1940: 290.* ●

Flandreau (SD, MN) *Alloted: N, Number of Households 1940: 61, Total Population 1940: 197, Native Population 1940: 190.* ●

Flathead Reservation (MT) *Alloted: Y, Number of Households 1940: 556, Total Population 1940: 2233, Native Population 1940: 2038.* ●

Fond du Lac Reservation and Off-Reservation Trust Land (WI, MN) *Alloted: Y, Number of Households 1940: 187, Total Population 1940: 875, Native Population 1940: 821.* ●

Fort Apache Reservation (AZ) *Alloted: N, Number of Households 1940: 774, Total Population 1940: 3043, Native Population 1940: 3030.* ●

Fort Belknap Reservation and Off-Reservation Trust Land (MT) *Alloted: Y, Number of Households 1940: 422, Total Population 1940: 2026, Native Population 1940: 1976.* ●

Fort Berthold Reservation (ND) *Alloted: Y, Number of Households 1940: 309, Total Population 1940: 1666, Native Population 1940: 1634.* ●

Fort Bidwell Reservation and Off-Reservation Trust Land (OR, CA) *Alloted: N, Number of Households 1940: 22, Total Population 1940: 85, Native Population 1940: 85.* ●

Fort Hall Reservation and Off-Reservation Trust Land (ID) *Alloted: Y, Number of Households 1940: 344, Total Population 1940: 1471, Native Population 1940: 1423.* ●

Fort Independence Reservation (CA) *Alloted: Y, Number of Households 1940: 19, Total Population 1940: 70, Native Population 1940: 68.* ●

Fort McDermitt Indian Reservation (OR, NV) *Alloted: Y, Number of Households 1940: 58, Total Population 1940: 242, Native Population 1940: 241.* ●

Fort McDowell Yavapai Nation Reservation (AZ) *Alloted: N, Number of Households 1940:*

60, Total Population 1940: 199, Native Population 1940: 199. ●

Fort Mojave (CA, NV, AZ) *Alloted: N, Number of Households 1940: 82, Total Population 1940: 301, Native Population 1940: 298.* ●

Fort Peck Reservation (MT) *Alloted: Y, Number of Households 1940: 562, Total Population 1940: 2586, Native Population 1940: 2520.* ●

Fort Yuma Indian Reservation (CA, AZ) *Alloted: Y, Number of Households 1940: 108, Total Population 1940: 537, Native Population 1940: 534.* ●

Gila River Indian Reservation (AZ) *Alloted: Y, Number of Households 1940: 727, Total Population 1940: 3276, Native Population 1940: 3265.* ●

Goshute (UT, NV) *Alloted: N, Number of Households 1940: 31, Total Population 1940: 130, Native Population 1940: 129.* ●

Grand Portage Reservation and Off-Reservation Trust Land (MN) *Alloted: Y, Number of Households 1940: 59, Total Population 1940: 245, Native Population 1940: 225.* ●

Grand Ronde Community and Off-Reservation Trust Land (OR) *Alloted: Y, Number of Households 1940: 51, Total Population 1940: 202, Native Population 1940: 192.* ●

Grand Traverse Reservation and Off-Reservation Trust Land (MI) *Alloted: N, Number of Households 1940: 87, Total Population 1940: 374, Native Population 1940: 364.* ●

Greenville Rancheria (CA) *Alloted: Y, Number of Households 1940: 58, Total Population 1940: 235, Native Population 1940: 221.* ●

Grindstone Indian Rancheria (CA) *Alloted: N, Number of Households 1940: 10, Total Population 1940: 31, Native Population 1940: 31.* ●

Hannahville Indian Community and Off-Reservation Trust Land (MI) *Alloted: N, Number of Households 1940: 22, Total Population 1940: 94, Native Population 1940: 94.* ●

Havasupai Reservation (AZ) *Alloted: N, Number of Households 1940: 65, Total Population 1940: 205, Native Population 1940: 204.* ●

Ho-Chunk Nation Reservation and Off-Reservation Trust Land (WI) *Alloted: Y, Number of Households 1940: 153, Total Population 1940: 783, Native Population 1940: 769.* ●

Hoopa Valley Reservation (CA) *Alloted: Y, Number of Households 1940: 366, Total Population 1940: 1383, Native Population 1940: 1328.* ●

Hopi Reservation and Off-Reservation Trust Land (AZ) *Alloted: N, Number of Households 1940: 2068, Total Population 1940: 10428, Native Population 1940: 10417.* ●

Hopland Rancheria and Off-Reservation Trust Land (CA) *Alloted: N, Number of Households 1940: 28, Total Population 1940: 87, Native Population 1940: 86.* ●

Houlton Maliseet Reservation and Off-

Reservation Trust Land (ME) *Alloted: N, Number of Households 1940: 19, Total Population 1940: 82, Native Population 1940: 73.* •

Huron Potawatomi Reservation and Off-Reservation Trust Land (MI) *Alloted: N, Number of Households 1940: 10, Total Population 1940: 46, Native Population 1940: 43.* •

Ione Band of Miwok TDSA (CA) *Alloted: N, Number of Households 1940: 19, Total Population 1940: 68, Native Population 1940: 60.* •

Iowa (KS-NE) Reservation and Off-Reservation Trust Land (KS) *Alloted: Y, Number of Households 1940: 34, Total Population 1940: 141, Native Population 1940: 126.* •

Iowa OTSA (OK) *Alloted: Y, Number of Households 1940: 64, Total Population 1940: 282, Native Population 1940: 262.* •

Isabella Reservation (MI) *Alloted: Y, Number of Households 1940: 58, Total Population 1940: 245, Native Population 1940: 231.* •

Isleta Pueblo (NM) *Alloted: N, Number of Households 1940: 206, Total Population 1940: 806, Native Population 1940: 800.* •

Jackson Rancheria (CA) *Alloted: N, Number of Households 1940: 11, Total Population 1940: 30, Native Population 1940: 28.* •

Jamestown S'Klallam Reservation and Off-Reservation Trust Land (WA) *Alloted: N, Number of Households 1940: 31, Total Population 1940: 98, Native Population 1940: 90.* •

Jamul Indian Village (CA) *Alloted: N, Number of Households 1940: 34, Total Population 1940: 87, Native Population 1940: 71.* •

Jemez Pueblo (NM) *Alloted: N, Number of Households 1940: 151, Total Population 1940: 732, Native Population 1940: 731.* •

Jena Band of Choctaw Reservation (LA) *Alloted: N, Number of Households 1940: 5, Total Population 1940: 30, Native Population 1940: 29.* •

Jicarilla Apache Nation Reservation and Off-Reservation Trust Land (NM) *Alloted: Y, Number of Households 1940: 246, Total Population 1940: 1148, Native Population 1940: 1141.* •

Kaibib (AZ) *Alloted: N, Number of Households 1940: 20, Total Population 1940: 76, Native Population 1940: 76.* •

Kalispel Reservation and Off-Reservation Trust Land (WA) *Alloted: Y, Number of Households 1940: 29, Total Population 1940: 114, Native Population 1940: 112.* •

Karuk Reservation and Off-Reservation Trust Land (CA) *Alloted: N, Number of Households 1940: 110, Total Population 1940: 403, Native Population 1940: 375.* •

Kaw OTSA (OK, KS) *Alloted: Y, Number of Households 1940: 56, Total Population 1940: 202, Native Population 1940: 168.* •

Kaw/Ponca joint-use OTSA (OK) *Alloted: Y, Number of Households 1940: 29, Total Population 1940: 92, Native Population 1940: 74.* •

Kickapoo OTSA (OK) *Alloted: Y, Number of Households 1940: 35, Total Population 1940: 150, Native Population 1940: 148.* •

Kiowa-Comanche-Apache-Fort Sill Apache OTSA (TX, OK) *Alloted: Y, Number of Households 1940: 372, Total Population 1940: 2030, Native Population 1940: 1974.* •

Kiowa-Comanche-Apache-Ft Sill Apache/Caddo-Wichita-Delaware joint-use OTSA (OK) *Alloted: Y, Number of Households 1940: 182, Total Population 1940: 846, Native Population 1940: 805.* •

Klamath Reservation (OR) *Alloted: Y, Number of Households 1940: 343, Total Population 1940: 1236, Native Population 1940: 1163.* •

Kootenai Reservation and Off-Reservation Trust Land (ID) *Alloted: Y, Number of Households 1940: 25, Total Population 1940: 93, Native Population 1940: 92.* •

L'Anse Reservation and Off-Reservation Trust Land (MI) *Alloted: Y, Number of Households 1940: 123, Total Population 1940: 478, Native Population 1940: 454.* •

Lac Courte Oreilles Reservation and Off-Reservation Trust Land (WI) *Alloted: Y, Number of Households 1940: 269, Total Population 1940: 1237, Native Population 1940: 1209.* •

Lac Vieux Desert Reservation (WI, MI) *Alloted: N, Number of Households 1940: 8, Total Population 1940: 28, Native Population 1940: 24.* •

Lac du Flambeau Reservation (WI) *Alloted: Y, Number of Households 1940: 207, Total Population 1940: 941, Native Population 1940: 917.* •

Lake Traverse Reservation and Off-Reservation Trust Land (MN, ND, SD) *Alloted: Y, Number of Households 1940: 348, Total Population 1940: 1681, Native Population 1940: 1638.* •

Las Vegas Colony (NV) *Alloted: N, Number of Households 1940: 14, Total Population 1940: 48, Native Population 1940: 47.* •

Leech Lake Reservation and Off-Reservation Trust Land (MN) *Alloted: Y, Number of Households 1940: 579, Total Population 1940: 2716, Native Population 1940: 2612.* •

Little River Reservation and Off-Reservation Trust Land (MI) *Alloted: N, Number of Households 1940: 59, Total Population 1940: 235, Native Population 1940: 218.* •

Little Traverse Bay Reservation and Off-Reservation Trust Land (MI) *Alloted: N, Number of Households 1940: 140, Total Population 1940: 593, Native Population 1940: 568.* •

Lookout Rancheria (CA) *Alloted: N, Number of Households 1940: 19, Total Population 1940: 69, Native Population 1940: 69.* •

Lower Brule Reservation and Off-Reservation Trust Land (SD) *Alloted: Y, Number of Households 1940: 319, Total Population 1940: 1422, Native Population 1940: 1398.* •

Lower Elwha Reservation and Off-Reservation Trust Land (WA) *Alloted: N, Number of Households 1940: 9, Total Population 1940: 45, Native Population 1940: 41.* •

Lower Sioux Indian Community (MN) *Alloted: N, Number of Households 1940: 36, Total Population 1940: 186, Native Population 1940: 177.* •

Lumbee SDTSA (SC, NC) *Alloted: N, Number of Households 1940: 2657, Total Population 1940: 14964, Native Population 1940: 14872.* •

Lummi Reservation (WA) *Alloted: Y, Number of Households 1940: 126, Total Population 1940: 554, Native Population 1940: 540.* •

Lytton Rancheria (CA) *Alloted: N, Number of Households 1940: 61, Total Population 1940: 151, Native Population 1940: 119.* •

Makah Indian Reservation (WA) *Alloted: Y, Number of Households 1940: 103, Total Population 1940: 451, Native Population 1940: 445.* •

Match-e-be-nash-she-wish Band of Pottawatomi Reservation (MI) *Alloted: N, Number of Households 1940: 17, Total Population 1940: 104, Native Population 1940: 101.* •

Mdewakanton Sioux Indians (MN) *Alloted: N, Number of Households 1940: 22, Total Population 1940: 67, Native Population 1940: 59.* •

Mechoopda TDSA (CA) *Alloted: N, Number of Households 1940: 11, Total Population 1940: 49, Native Population 1940: 48.* •

Menominee Reservation and Off-Reservation Trust Land (WI) *Alloted: N, Number of Households 1940: 491, Total Population 1940: 2373, Native Population 1940: 2284.* •

Mescalero Reservation (NM) *Alloted: N, Number of Households 1940: 206, Total Population 1940: 841, Native Population 1940: 831.* •

Mille Lacs Reservation and Off-Reservation Trust Land (WI, MN) *Alloted: Y, Number of Households 1940: 118, Total Population 1940: 497, Native Population 1940: 488.* •

Mississippi Choctaw (MS) *Alloted: N, Number of Households 1940: 293, Total Population 1940: 1482, Native Population 1940: 1476.* •

Moapa River Indian Reservation (NV) *Alloted: N, Number of Households 1940: 34, Total Population 1940: 138, Native Population 1940: 138.* •

Mono County (CA) *Alloted: Y, Number of Households 1940: 19, Total Population 1940: 58, Native Population 1940: 52.* •

Morongo Reservation and Off-Reservation Trust Land (CA) *Alloted: Y, Number of Households 1940: 29, Total Population 1940: 100, Native Population 1940: 91.* •

Muckleshoot Reservation and Off-Reservation Trust Land (WA) *Alloted: Y, Number of Households 1940: 112, Total Population 1940: 380, Native Population 1940: 349.* •

Namba (NM) *Alloted: N, Number of House-

holds 1940: 30, Total Population 1940: 121, Native Population 1940: 120. •

Navajo Nation Reservation and Off-Reservation Trust Land (UT, AZ, NM) *Alloted: Y, Number of Households 1940: 8187, Total Population 1940: 40226, Native Population 1940: 40142.* •

Nez Perce Reservation (ID) *Alloted: Y, Number of Households 1940: 211, Total Population 1940: 908, Native Population 1940: 887.* •

Nisqually Reservation (WA) *Alloted: Y, Number of Households 1940: 27, Total Population 1940: 120, Native Population 1940: 116.* •

Nooksack Reservation and Off-Reservation Trust Land (WA) *Alloted: Y, Number of Households 1940: 29, Total Population 1940: 130, Native Population 1940: 128.* •

North Fork Rancheria and Off-Reservation Trust Land (CA) *Alloted: Y, Number of Households 1940: 66, Total Population 1940: 277, Native Population 1940: 265.* •

Northern Cheyenne Indian Reservation and Off-Reservation Trust Land (MT, SD) *Alloted: Y, Number of Households 1940: 365, Total Population 1940: 1679, Native Population 1940: 1647.* •

Ohkay Owingeh (NM) *Alloted: N, Number of Households 1940: 106, Total Population 1940: 555, Native Population 1940: 545.* •

Omaha Reservation (NE) *Alloted: Y, Number of Households 1940: 210, Total Population 1940: 1076, Native Population 1940: 1052.* •

Oneida (WI) Reservation and Off-Reservation Trust Land (WI) *Alloted: Y, Number of Households 1940: 324, Total Population 1940: 1433, Native Population 1940: 1392.* •

Oneidas at Onondaga (NY) *Alloted: N, Number of Households 1940: 212, Total Population 1940: 922, Native Population 1940: 894.* •

Onondagas at Allegany (NY, PA) *Alloted: N, Number of Households 1940: 217, Total Population 1940: 843, Native Population 1940: 815.* •

Onondagas at Tuscarora (NY) *Alloted: N, Number of Households 1940: 76, Total Population 1940: 291, Native Population 1940: 256.* •

Osage Reservation (KS, OK) *Alloted: Y, Number of Households 1940: 678, Total Population 1940: 2471, Native Population 1940: 2082.* •

Otoe-Missouria OTSA (OK) *Alloted: Y, Number of Households 1940: 63, Total Population 1940: 329, Native Population 1940: 325.* •

Ottawa OTSA (OK) *Alloted: Y, Number of Households 1940: 144, Total Population 1940: 473, Native Population 1940: 366.* •

Pamunkey (state) Reservation (VA) *Alloted: N, Number of Households 1940: 24, Total Population 1940: 99, Native Population 1940: 99.* •

Paskenta Rancheria (CA) *Alloted: N, Number of Households 1940: 15, Total Population 1940: 58, Native Population 1940: 52.* •

Passamaquoddy Trust Land (ME) *Alloted: N, Number of Households 1940: 42, Total Population 1940: 181, Native Population 1940: 178.* •

Pawnee OTSA (OK) *Alloted: Y, Number of Households 1940: 99, Total Population 1940: 439, Native Population 1940: 418.* •

Pechanga Reservation (CA) *Alloted: Y, Number of Households 1940: 23, Total Population 1940: 76, Native Population 1940: 73.* •

Penobscot Reservation and Off-Reservation Trust Land (ME) *Alloted: N, Number of Households 1940: 82, Total Population 1940: 361, Native Population 1940: 353.* •

Peoria OTSA (OK) *Alloted: Y, Number of Households 1940: 43, Total Population 1940: 182, Native Population 1940: 164.* •

Pine Ridge Reservation (NE, SD) *Alloted: Y, Number of Households 1940: 1641, Total Population 1940: 7703, Native Population 1940: 7531.* •

Pinoleville Rancheria (CA) *Alloted: Y, Number of Households 1940: 72, Total Population 1940: 325, Native Population 1940: 316.* •

Pleasant Point Reservation (ME) *Alloted: N, Number of Households 1940: 31, Total Population 1940: 124, Native Population 1940: 124.* •

Poarch Creek Reservation and Off-Reservation Trust Land (FL, AL) *Alloted: N, Number of Households 1940: 49, Total Population 1940: 244, Native Population 1940: 241.* •

Pokagon Reservation and Off-Reservation Trust Land (IN, MI) *Alloted: N, Number of Households 1940: 24, Total Population 1940: 94, Native Population 1940: 87.* •

Ponca (NE) Trust Land (IA, SD, NE) *Alloted: Y, Number of Households 1940: 47, Total Population 1940: 185, Native Population 1940: 167.* •

Ponca OTSA (OK) *Alloted: Y, Number of Households 1940: 114, Total Population 1940: 733, Native Population 1940: 723.* •

Port Gamble Reservation (WA) *Alloted: N, Number of Households 1940: 22, Total Population 1940: 97, Native Population 1940: 90.* •

Port Madison Reservation (WA) *Alloted: N, Number of Households 1940: 50, Total Population 1940: 191, Native Population 1940: 181.* •

Prairie Band of Potawatomi Nation Reservation (KS) *Alloted: Y, Number of Households 1940: 16, Total Population 1940: 55, Native Population 1940: 51.* •

Prairie Island Indian Community and Off-Reservation Trust Land (MN) *Alloted: N, Number of Households 1940: 21, Total Population 1940: 93, Native Population 1940: 93.* •

Puyallup (WA) *Alloted: N, Number of Households 1940: 100, Total Population 1940: 417, Native Population 1940: 396.* •

Pyramid Lake (NV) *Alloted: N, Number of Households 1940: 117, Total Population 1940: 506, Native Population 1940: 501.* •

Quapaw OTSA (MO, OK) *Alloted: N, Num-*

ber of Households 1940: 55, Total Population 1940: 190, Native Population 1940: 157. ●

Quartz Valley Reservation and Off-Reservation Trust Land (CA) *Alloted: Y, Number of Households 1940: 39, Total Population 1940: 136, Native Population 1940: 114.* ●

Quileute Reservation (WA) *Alloted: Y, Number of Households 1940: 30, Total Population 1940: 98, Native Population 1940: 97.* ●

Quinault Reservation (WA) *Alloted: Y, Number of Households 1940: 60, Total Population 1940: 254, Native Population 1940: 245.* ●

Red Cliff Reservation and Off-Reservation Trust Land (WI) *Alloted: Y, Number of Households 1940: 131, Total Population 1940: 655, Native Population 1940: 630.* ●

Red Lake Reservation (MN) *Alloted: N, Number of Households 1940: 484, Total Population 1940: 2370, Native Population 1940: 2328.* ●

Redding Rancheria (CA) *Alloted: N, Number of Households 1940: 178, Total Population 1940: 627, Native Population 1940: 580.* ●

Reno-Sparks Indian Colony (NV, CA) *Alloted: N, Number of Households 1940: 76, Total Population 1940: 281, Native Population 1940: 272.* ●

Rocky Boy's Reservation and Off-Reservation Trust Land (MT) *Alloted: N, Number of Households 1940: 179, Total Population 1940: 847, Native Population 1940: 826.* ●

Rosebud Reservation (NE, SD) *Alloted: Y, Number of Households 1940: 1006, Total Population 1940: 4775, Native Population 1940: 4649.* ●

Round Valley Reservation and Off-Reservation Trust Land (CA) *Alloted: N, Number of Households 1940: 133, Total Population 1940: 551, Native Population 1940: 525.* ●

Rumsey Indian Rancheria (CA) *Alloted: N, Number of Households 1940: 44, Total Population 1940: 206, Native Population 1940: 195.* ●

Sac and Fox of Iowa (IA) *Alloted: N, Number of Households 1940: 85, Total Population 1940: 419, Native Population 1940: 417.* ●

Sac and Fox Nation Reservation and Off-Reservation Trust Land (KS, NE) *Alloted: Y, Number of Households 1940: 14, Total Population 1940: 55, Native Population 1940: 50.* ●

Sac and Fox OTSA (OK) *Alloted: Y, Number of Households 1940: 38, Total Population 1940: 186, Native Population 1940: 175.* ●

Salt River Reservation (AZ) *Alloted: Y, Number of Households 1940: 248, Total Population 1940: 1121, Native Population 1940: 1096.* ●

Samish TDSA (WA) *Alloted: N, Number of Households 1940: 48, Total Population 1940: 131, Native Population 1940: 103.* ●

San Carlos (AZ) *Alloted: N, Number of Households 1940: 703, Total Population 1940: 2791, Native Population 1940: 2784.* ●

San Felipe Pueblo (NM) *Alloted: N, Num-*

ber of Households 1940: 112, Total Population 1940: 627, Native Population 1940: 627. •

San Ildefonso Pueblo and Off-Reservation Trust Land (NM) *Alloted: N, Number of Households 1940: 29, Total Population 1940: 132, Native Population 1940: 132.* •

San Manuel (CA) *Alloted: N, Number of Households 1940: 52, Total Population 1940: 198, Native Population 1940: 183.* •

San Pasqual (CA) *Alloted: N, Number of Households 1940: 60, Total Population 1940: 239, Native Population 1940: 222.* •

Sandia Pueblo (NM) *Alloted: N, Number of Households 1940: 93, Total Population 1940: 299, Native Population 1940: 274.* •

Santa Clara Pueblo (NM) *Alloted: N, Number of Households 1940: 87, Total Population 1940: 429, Native Population 1940: 426.* •

Santa Rosa Rancheria (CA) *Alloted: N, Number of Households 1940: 26, Total Population 1940: 123, Native Population 1940: 118.* •

Santa Ynez (CA) *Alloted: N, Number of Households 1940: 30, Total Population 1940: 100, Native Population 1940: 89.* •

Santee Reservation (SD, NE) *Alloted: Y, Number of Households 1940: 93, Total Population 1940: 355, Native Population 1940: 346.* •

Santo Domingo Pueblo (NM) *Alloted: N, Number of Households 1940: 199, Total Population 1940: 961, Native Population 1940: 961.* •

Sappony SDTSA (NC) *Alloted: N, Number of Households 1940: 32, Total Population 1940: 211, Native Population 1940: 211.* •

Sauk-Suiattle Reservation (WA) *Alloted: N, Number of Households 1940: 20, Total Population 1940: 72, Native Population 1940: 70.* •

Sault Sainte Marie Reservation and Off-Reservation Trust Land (MI) *Alloted: N, Number of Households 1940: 78, Total Population 1940: 326, Native Population 1940: 302.* •

Seminole OTSA (OK) *Alloted: Y, Number of Households 1940: 36, Total Population 1940: 195, Native Population 1940: 195.* •

Sherwood Valley Rancheria and Off-Reservation Trust Land (CA) *Alloted: N, Number of Households 1940: 11, Total Population 1940: 50, Native Population 1940: 46.* •

Shingle Springs Rancheria (CA) *Alloted: N, Number of Households 1940: 26, Total Population 1940: 78, Native Population 1940: 63.* •

Shoalwater Bay Indian Reservation and Off-Reservation Trust Land (WA) *Alloted: Y, Number of Households 1940: 32, Total Population 1940: 102, Native Population 1940: 87.* •

Sia Pueblo (NM) *Alloted: N, Number of Households 1940: 45, Total Population 1940: 223, Native Population 1940: 222.* •

Siletz Reservation and Off-Reservation Trust Land (OR) *Alloted: Y, Number of Households 1940: 92, Total Population 1940: 350, Native*

Population 1940: 318. •

Skokomish Reservation (WA) *Alloted: Y, Number of Households 1940: 47, Total Population 1940: 229, Native Population 1940: 225.* •

Smith River Rancheria and Off-Reservation Trust Land (OR, CA) *Alloted: Y, Number of Households 1940: 32, Total Population 1940: 110, Native Population 1940: 105.* •

Soboba (CA) *Alloted: N, Number of Households 1940: 92, Total Population 1940: 295, Native Population 1940: 288.* •

Sokaogon Chippewa Community and Off-Reservation Trust Land (WI) *Alloted: N, Number of Households 1940: 24, Total Population 1940: 104, Native Population 1940: 101.* •

Southern Ute Reservation (CO) *Alloted: Y, Number of Households 1940: 69, Total Population 1940: 317, Native Population 1940: 311.* •

Spirit Lake Reservation (ND) *Alloted: Y, Number of Households 1940: 255, Total Population 1940: 1165, Native Population 1940: 1133.* •

Spokane Reservation and Off-Reservation Trust Land (WA) *Alloted: Y, Number of Households 1940: 113, Total Population 1940: 535, Native Population 1940: 513.* •

Squaxin Island (WA) *Alloted: Y, Number of Households 1940: 24, Total Population 1940: 67, Native Population 1940: 66.* •

St. Croix Reservation and Off-Reservation Trust Land (WI) *Alloted: N, Number of House-holds 1940: 33, Total Population 1940: 136, Native Population 1940: 129.* •

St. Regis Mohawk Reservation (NY) *Alloted: N, Number of Households 1940: 337, Total Population 1940: 1411, Native Population 1940: 1383.* •

Standing Rock Reservation (ND, SD) *Alloted: Y, Number of Households 1940: 737, Total Population 1940: 3302, Native Population 1940: 3241.* •

Stockbridge Munsee Community (WI) *Alloted: Y, Number of Households 1940: 167, Total Population 1940: 713, Native Population 1940: 668.* •

Susanville Indian Rancheria and Off-Reservation Trust Land (CA) *Alloted: N, Number of Households 1940: 41, Total Population 1940: 146, Native Population 1940: 136.* •

Swinomish Reservation and Off-Reservation Trust Land (WA) *Alloted: N, Number of Households 1940: 69, Total Population 1940: 283, Native Population 1940: 282.* •

Sycuan Reservation (CA) *Alloted: Y, Number of Households 1940: 26, Total Population 1940: 98, Native Population 1940: 90.* •

Table Bluff Reservation (CA) *Alloted: Y, Number of Households 1940: 82, Total Population 1940: 235, Native Population 1940: 193.* •

Tesuque Pueblo and Off-Reservation Trust Land (NM) *Alloted: N, Number of Households*

1940: 38, Total Population 1940: 177, Native Population 1940: 174. •

Timbi-Sha Shoshone Reservation and Off-Reservation Trust Land (NV) *Alloted: N, Number of Households 1940: 9, Total Population 1940: 30, Native Population 1940: 27.* •

Tohono O'odham Nation Reservation and Off-Reservation Trust Land (AZ) *Alloted: Y, Number of Households 1940: 1457, Total Population 1940: 7401, Native Population 1940: 7356.* •

Tonkawa OTSA (OK) *Alloted: Y, Number of Households 1940: 158, Total Population 1940: 673, Native Population 1940: 617.* •

Trinidad Rancheria and Off-Reservation Trust Land (CA) *Alloted: N, Number of Households 1940: 37, Total Population 1940: 138, Native Population 1940: 128.* •

Tulalip Reservation and Off-Reservation Trust Land (WA) *Alloted: Y, Number of Households 1940: 123, Total Population 1940: 494, Native Population 1940: 472.* •

Tule River (CA) *Alloted: N, Number of Households 1940: 39, Total Population 1940: 163, Native Population 1940: 151.* •

Turtle Mountain Reservation and Off-Reservation Trust Land (MT, ND) *Alloted: Y, Number of Households 1940: 758, Total Population 1940: 3898, Native Population 1940: 3814.* •

Uintah and Ouray Reservation and Off-Reservation Trust Land (UT) *Alloted: Y, Num-ber of Households 1940: 235, Total Population 1940: 1032, Native Population 1940: 999.* •

Umatilla Reservation (OR) *Alloted: Y, Number of Households 1940: 144, Total Population 1940: 595, Native Population 1940: 566.* •

United Houma Nation SDTSA (LA) *Alloted: N, Number of Households 1940: 213, Total Population 1940: 1045, Native Population 1940: 1024.* •

Upper Lake Rancheria (CA) *Alloted: N, Number of Households 1940: 54, Total Population 1940: 194, Native Population 1940: 194.* •

Upper Sioux Community and Off-Reservation Trust Land (MN) *Alloted: N, Number of Households 1940: 22, Total Population 1940: 103, Native Population 1940: 102.* •

Upper South Carolina Pee Dee SDTSA (SC) *Alloted: N, Number of Households 1940: 28, Total Population 1940: 166, Native Population 1940: 165.* •

Waccamaw Siouan SDTSA (NC) *Alloted: N, Number of Households 1940: 63, Total Population 1940: 305, Native Population 1940: 305.* •

Walapai (AZ) *Alloted: N, Number of Households 1940: 92, Total Population 1940: 370, Native Population 1940: 366.* •

Wampanoag-Aquinnah Trust Land (MA) *Alloted: N, Number of Households 1940: 35, Total Population 1940: 113, Native Population 1940: 106.* •

Warm Springs Reservation and Off-Reservation Trust Land (WA, OR) *Alloted: Y, Number of Households 1940: 199, Total Population 1940: 834, Native Population 1940: 796.* •

Wells Colony (NV) *Alloted: N, Number of Households 1940: 28, Total Population 1940: 123, Native Population 1940: 122.* •

Western Shoshone (ID, NV) *Alloted: N, Number of Households 1940: 147, Total Population 1940: 650, Native Population 1940: 640.* •

White Earth Reservation and Off-Reservation Trust Land (MN) *Alloted: Y, Number of Households 1940: 637, Total Population 1940: 3186, Native Population 1940: 3038.* •

Wind River Reservation and Off-Reservation Trust Land (WY) *Alloted: Y, Number of Households 1940: 455, Total Population 1940: 2044, Native Population 1940: 1997.* •

Winnebago Reservation and Off-Reservation Trust Land (NE, IA) *Alloted: Y, Number of Households 1940: 276, Total Population 1940: 1164, Native Population 1940: 1129.* •

Winnemucca Indian Colony (NV) *Alloted: N, Number of Households 1940: 10, Total Population 1940: 36, Native Population 1940: 33.* •

Wyandotte OTSA (OK) *Alloted: Y, Number of Households 1940: 95, Total Population 1940: 390, Native Population 1940: 339.* •

Yakama Nation Reservation and Off-Reservation Trust Land (WA, OR) *Alloted: Y, Number of Households 1940: 576, Total Population 1940: 2502, Native Population 1940: 2400.* •

Yankton Reservation (NE, SD) *Alloted: Y, Number of Households 1940: 292, Total Population 1940: 1339, Native Population 1940: 1306.* •

Yavapai-Prescott Reservation (AZ) *Alloted: N, Number of Households 1940: 21, Total Population 1940: 71, Native Population 1940: 69.* •

Ysleta del Sur Pueblo and Off-Reservation Trust Land (TX) *Alloted: N, Number of Households 1940: 9, Total Population 1940: 31, Native Population 1940: 28.* •

Zuni Reservation and Off-Reservation Trust Land (NM) *Alloted: N, Number of Households 1940: 457, Total Population 1940: 2352, Native Population 1940: 2350.* •