The Inter-generational Impact of Financial Reparations: Evidence from the Cherokee Nation

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Motivation – Reparations in the US Context

The goal of reparations is to make an injured or harmed party whole.

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Motivation – Reparations in the US Context

The goal of reparations is to make an injured or harmed party whole.

▶ Reparations, for Black Americans and descendants of slavery in particular, has been the focus of political debate in the U.S. for centuries.

▶ Recently, support for reparations has moved into mainstream politics.
  ▶ Social movements such as BLM have put forth specific reparations demands.
  ▶ The majority of candidates in the 2020 Democratic presidential primary supported, at the very least, a commission to study reparations.
  ▶ Increasing awareness of historical instances of racial violence (e.g., 1921 Tulsa Race Massacre).
  ▶ Evanston, Il. reparation payments of $25,000 to Black residents as housing grants (Newton and Nelsen 2024).

▶ Many proponents of reparations focus on closing the racial wealth gap as a goal.
  ▶ Sandy Darity and Kirsten Mullen $15 trillion reparations program to eliminate the racial wealth gap for American Descendants of Slavery (Darity and Mullen 2020).

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Motivation – Reparations Policy Discussions

▶ Very little research has occurred on the impact of reparations as there are simply not many instances to investigate (esp. in the US).

    ▶ Some qualitative reports and essays on Japanese internment and reparations paid by the US Federal Government in the 1980s (e.g., Ome 2023).

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Motivation – Reparations Policy Discussions

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    ▶ Some qualitative reports and essays on Japanese internment and reparations paid by the US Federal Government in the 1980s (e.g., Ome 2023).

▶ Our goal is to examine the effect of historical reparations payments for a particular group, Cherokee Indians, on several short and long-run outcomes for direct recipients and their children (using data from historical US Censuses).

    ▶ Payments to members of the Cherokee Tribe were initiated under the Guion Miller Commission at the turn of the 20th century, in recompense for events surrounding the **Trail of Tears**.

    ▶ While far from making the Cherokee people whole, we consider these payments to be a notable (and rare) example of financial reparations in U.S. History.

Historical Context – Trail of Tears

The Trail of Tears, oil on canvas by Robert Lindneux, 1942.

▶ The forced displacement of 60,000 people of the "Five Tribes" between 1830 and 1850.

▶ Included 16,000 Cherokee, who were moved from their traditional land in the Southeastern U.S. to newly designated Indian Territory in Oklahoma.

▶ An estimated 4,000 Cherokee died along the way.

Historical Context – Guion Miller Commission

▶ The Treaty of New Echota, ratified in 1836, became the legal basis for the Cherokee removal.

▶ While the treaty established terms of monetary compensation to victims of the resettlement, outstanding claims to these funds were not settled for many years. . . .

▶ . . . Until 1905, when the U.S. Court of Claims decided in favor of the Cherokee Nation and ordered all outstanding funds to be paid out to surviving claimants and their descendants.

▶ The court put **Guion Miller**, agent of the Interior Dep't., in charge of the effort to identify all such claimants and distribute funds on a per-capita basis.

Research Question

▶ Though the political arguments for financial reparations are clear, the economic impacts have not been well studied.

▶ In this paper, we study the effects of a transfer of wealth made to a historically disadvantaged group.

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What are the short- and long-term impacts of reparations payments on both recipients and their children?

Research Question

▶ Though the political arguments for financial reparations are clear, the economic impacts have not been well studied.

▶ In this paper, we study the effects of a transfer of wealth made to a historically disadvantaged group.

What are the short- and long-term impacts of reparations payments on both recipients and their children?

▶ Using restricted, full-count historical U.S. Census data, we can track reparations recipients across 30 years, observing the following outcome categories:
- ▶ School Enrollment
- ▶ Employment Outcomes
- ▶ Home Ownership
- ▶ Migration

Preview of Findings

Short-Run

1. Payments induce direct recipients to switch from wage labor to self-employment (most strongly for female applicants).

2. For children of recipients, increase in school attendance and literacy, and decrease in labor force participation. The reduction in LFP is largest for male children.

Preview of Findings

Short-Run

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2. For children of recipients, increase in school attendance and literacy, and decrease in labor force participation. The reduction in LFP is largest for male children.

Long-Run

1. Payments increase home ownership rates in both the short and long-run. Higher home ownership among the children of recipients up to 30 years after the initial transfer.

2. Payment recipients move to more affluent areas, and their children stay there.

3. Meaningful heterogeneity in home ownership and migration outcomes based on sex of the original applicant.

Related Literature

▶ Related to a large literature on the impacts of cash transfers.
  ▶ Akresh et al. 2013; Akresh et al. 2023; Benhassine et al. 2015; Blattman et al. 2016; Haushofer and Shapiro 2016; Macours et al. 2012

▶ Evidence of long-term or intergenerational effects of cash/asset transfer programs is limited
  ▶ Some positive (Aizer et al. 2016; Aizer et al. 2020; Bailey et al. 2024; Balboni et al. 2022)
  ▶ Some findings of no effect (Blattman et al. 2020; Bleakley and Ferrie 2016)

▶ Reparations are a unique form of transfer in the sense that they are specifically targeted to historically disadvantaged groups (rather than means-tested).
  ▶ May play an important role in reducing structural inequalities.

▶ Very recent work shows reparations for conflict victims in Colombia has positive benefits for recipients and their children (Guarin et al. 2023).

▶ Some work has shown short term benefits on education due to casino income for Native Americans (Akee et al. 2010; Akee et al. 2018), but no evidence of long term effects.

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▶ *Can a one time, targeted wealth transfer reduce intergenerational inequality?*

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Data Sources

We use two data sources in this study:

1. Guion Miller Application Records

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Data Sources

We use two data sources in this study:

1. Guion Miller Application Records
2. Historical Census Data (1910–1940)

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Guion Miller Commission

- ▶ The Guion Miller Commission was responsible for processing all claims made to the Cherokee compensation fund.
- ▶ Between 1906 and 1909, his commission received over 45,000 applications representing over 90,000 individual claimants. See timeline: ↪ Link
- ▶ Approx. 1/3 of these individuals (30,000) were deemed eligible.
  - ▶ Eligible applicants were born on or before May 28, 1906, and were members of the Eastern Cherokee tribe at the time of the Treaty of New Echota (or a descendant thereof).
  - ▶ Each accepted claimant received a cash payment of $133 ($4,400 in 2024 USD), and the average household received $372 ($12,300 in 2024 USD) in total.
- ▶ In order to prove Eastern Cherokee ancestry, applicants were required to list all living relatives and recent ancestors.
  - ▶ The resulting "Guion Miller Roll" remains one of the most important documents for understanding Eastern Cherokee geneaology today.

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Application Geography

Figure: Map of Applicant Counties
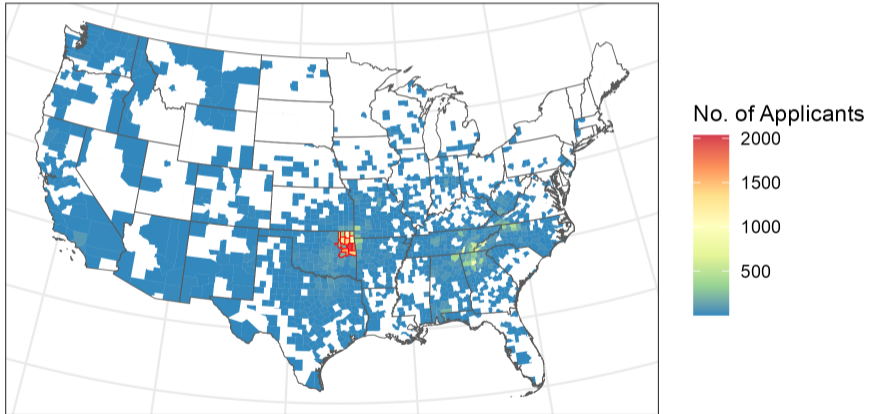
Notes: For each County, map displays the number of applicants listing it as their residence. No applications were received from counties with white fill. Counties outlined in red are those that make up the Cherokee reservation.

Application Records

Source: ancestry.com

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Application Records

We digitized the following information from all (45,000+) applications:

1 Full Name

2 State of Birth

3 Address (at time of application)

4 Age (at time of application)

5 Application Date (date submitted and received)

6 No. of Dependents claimed

7 Acceptance/Rejection Decision

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Census Data

▶ Through the Institute for Social Research at the University of Michigan, we have access to the IPUMS full count historical census data.

▶ We use the 1910, 1920, 1930, and 1940 censuses for this study.

▶ We match applicants directly with Census data. . .

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Matching Process

▶ Matching process is based on the Abramitzky, Boustan, and Eriksson (ABE) historical linking method (Abramitzky et al. 2021). ⟨ ↦ Link ⟩

▶ We use the ABE method to match application data with the 1910 census.
  ▶ For each matched observation, we also include all of the applicant's children as indicated in the census data.

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Matching Process

▶ Matching process is based on the Abramitzky, Boustan, and Eriksson (ABE) historical linking method (Abramitzky et al. 2021). (↪ Link)

▶ We use the ABE method to match application data with the 1910 census.
  ▶ For each matched observation, we also include all of the applicant's children as indicated in the census data.

▶ For census years before and after 1910, we do not match directly with application data.
  ▶ Instead, we use historical crosswalks from the IPUMS Multigenerational Longitudinal Panel.
  ▶ Wherever possible, these crosswalks provide a match for observations in the 1910 census with 1920, 1930, and 1940 censuses.

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Matching Results

Table: Census Matching Rates

Data Source	Applicants	Full Sample	ABE Match Rate	IPUMS Match Rate
Guion Miller Roll	42,746	-	-	-
1910 Census	16,590	59,987	38.81%	-
1920 Census	-	28,397	-	47.34%
1930 Census	-	12,243	-	20.41%
1940 Census	-	5,683	-	9.47%

Notes: The first row of the table shows the full number of applicants found in the final Guion Miller Roll. The second row shows the number of successful matches between the 1910 census data and the application data (second column), the match rate (fourth column), and the size of the 1910 census sample after adding additional household members (third column). Rows 3–5 show the number of successful matches between consecutive censuses (third column), as well as the overall match rates relative to the full 1910 sample (fifth column).

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Non-comparability of Accepted vs. Rejected Applicants

Table: Application Summary Statistics

▶ To understand the effects of payments, we would like to compare accepted with rejected applicants.

	Accepted	Rejected	Total
Age	37.30	40.00	39.12
	(14.94)	(15.78)	(15.56)
Lives on Reservation	0.77	0.09	0.31
	(0.42)	(0.28)	(0.46)
No. Dependents Claimed	1.17	1.61	1.46
	(1.79)	(2.18)	(2.07)
Application Date Rank	215.89	309.11	278.66
	(126.31)	(129.50)	(135.70)
Observations	13966	28780	42746

Notes: This table reports mean values and standard deviations (in parentheses) for the total sample of applicants and for accepted and rejected applicants separately. *Application Date Rank* is simply the rank order in which each applicant submitted their application form, with equal rank assigned to all applications submitted on the same day.

Non-comparability of Accepted vs. Rejected Applicants

Table: Application Summary Statistics

- ▶ To understand the effects of payments, we would like to compare accepted with rejected applicants.
- ▶ But due to the commission's selection process, accepted and rejected groups are not comparable. See map: (⟶ Link)

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Empirical Strategy: Variation in Transfer Size

Figure: Distribution of Claim Sizes

▶ Instead, we take advantage of variation in the amount of money received by each household.

▶ Recall that each accepted applicant received money not only for themselves, but also for each claimed dependent.

    ▶ e.g., a mother who claimed 2 dependent children would receive $4,400 for herself and each child for $13,200 total.

    ▶ If her spouse was also eligible (i.e. Cherokee), he could receive an additional $4,400, but would need to apply separately.

Notes: This histogram shows the frequency of the number of claims made on each application, which includes all dependent children listed on the form. The distribution is based on the full applicant sample.

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Identification

▶ We want to use no. of claims as a measure of treatment intensity, but there are two issues we need to address:

Identification

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  1. it is endogenous

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Identification

► We want to use no. of claims as a measure of treatment intensity, but there are two issues we need to address:
  1. it is endogenous
  2. in per-capita terms, treatment intensity is constant anyway

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Identification

▶ We want to use no. of claims as a measure of treatment intensity, but there are two issues we need to address:
   ① it is endogenous
   ② in per-capita terms, treatment intensity is constant anyway

▶ Since we also observe number of children in the 1910 census, we know when there is any disagreement between the no. of dependents claimed on the application and the no. of children observed in the census.

▶ This disagreement can be at least partially explained by *new children* born between application submission and census enumeration. See histogram: (⤷ Link)

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Identification

▶ The Guion Miller Commission acccepted applications during a one year period, from August 1906 to September 1907.

▶ Individuals born after May 28, 1906 could not be claimed on the application.

  ▶ Households with a child born just before the deadline were eligible for more money than households (of equal size) with a child born just after.

▶ We use this variation in birth timing around the application cutoff to identify the effect of payments on the *internal* margin.

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Regression Specification

$$Y_{ih} = \alpha \left(claims_h \right) + \beta \left(child1910_h \right) + \gamma \left(newchild_h \right) + \eta \left(diff_h \right) + \chi_h + \epsilon_{ih} \tag{1}$$

- ▶ Y_{ih}: outcome variable for individual i in household h
- ▶ $claims_h$: no. of claims made by household h on the application
- ▶ $child1910_h$: no. of children reported in 1910 census by household h
- ▶ $newchild_h$: no. of children born between 1902 and 1910 (as reported in 1910 census by household h)
- ▶ $diff_h$: mis-reporting of dependents by household h (no. of claims $-$ no. of children born before May 28, 1906)
- ▶ χ_h: Other household-level controls (age and sex of household head, median age of household, county of residence on application, linear trend for application submission date)

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$$Y_{ih} = \alpha\,(claims_h) + \beta\,(child1910_h) + \gamma\,(newchild_h) + \eta\,(diff_h) + \chi_h + \epsilon_{ih} \tag{1}$$

▶ *Conditional* on no. of children living in 1910, no. of claims made on the application depends on how many children were born before/after the May 28 cutoff, misreporting, or mortality.

▶ To account for misreporting and/or mortality, we control for the difference between the no. of claims and the *expected* no. children at application time ($diff_h$).

▶ We also control for the total number of children born in the 8 years before the 1910 census ($newchild_h$).

    ▶ Variation in number of claims now depend only on whether children were born in the four years before the application cutoff or the four years after.

    ▶ We add a few other covariates to control for household characteristics at the time of application.

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Regression Specification – Interaction

$$Y_{ih} = \delta \left(claims_h \times treat_h\right) + \lambda \left(treat_h\right) + \alpha \left(claims_h\right) + \beta \left(child1910_h\right)$$
$$+ \gamma \left(newchild_h\right) + \eta \left(diff_h\right) + \chi_h + \epsilon_{ih} \tag{2}$$

▶ Since we have both accepted and rejected applicants in our data, we can look at differential effects by application status ($treat_h$ is an indicator that $= 1$ if household h's application was accepted).

▶ δ represents the effect, on Y, of one additional application claim for treated households relative to control households.

▶ In other words, δ is the effect of one additional payment allocation of \$4,400.

[*Balance Check:* $\delta = 0$ *for a range of pre-treatment variables from 1900 and 1880 Censuses*] ↪ Link

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Relative Transfer Size

▶ Average monthly wage for farm labor in 1909 was approx. **$800** (in 2024 USD).
  ▶ Each transfer thus represented nearly **half a year's salary** for the average recipient.
▶ Median home value in 1910 was around **$65,000** (in 2024 USD).
  ▶ So average household award ($12,300) represented nearly **25%** of home value, enough for a cash down payment.

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Table: Transfer Size Comparison

Paper	Transfer Type	Average Household Amount (2024 USD)
Adhvaryu et al. (2024)	**One-time cash transfer**	**$12,300 Total**
Aizer et al. (2016)	Monthly cash transfer (over 3 years)	$13,500 Total
Bleakley and Ferrie (2016)	One-time land transfer	$22,000 Total
Akee et al. (2010)	Bi-annual cash transfer (in perpetuity)	$10,000 Annually

Notes: Compares transfer sizes from other historical studies of large household cash/wealth transfer programs in the U.S.

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Short-Term Outcomes

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No reduction in employment for Applicants. . .

Table: All Applicants

	(1) Is in the Labor Force	(2) Is Self-Employed	(3) Is Employed in Wage Labor	(4) Lives in Farming Household
1910				
Claims X Treat	0.000	-0.000	0.000	-0.009**
	(0.003)	(0.006)	(0.006)	(0.004)
Mean	0.566	0.569	0.431	0.562
HH Effect Size (% mean)	0.2	-0.1	0.1	-4.4
Observations	16020	8196	8196	15199

Notes: *** p<0.01, ** p<0.05, * p<0.10. We show the estimate of the coefficient δ on $claims_h \times treat_h$ from Equation 2, with robust standard errors (clustered at the household level) in parentheses. The coefficient is estimated separately for a range of dependent variables. For every estimate, the sample size and dependent variable mean is also given, as well as the relative size of the average household effect (which is simply the coefficient multiplied by the average number of payments per household, divided by the sample mean and multiplied by 100).

But for women we observe a shift into self-employment

Table: Male vs. Female Applicants

	Is in the Labor Force		Is Self-Employed		Is Employed in Wage Labor		Lives in Farming Household	
	Male	Female	Male	Female	Male	Female	Male	Female
1910								
Claims X Treat	0.004	0.003	-0.008	0.045**	0.008	-0.045**	-0.013**	-0.000
	(0.003)	(0.005)	(0.006)	(0.020)	(0.006)	(0.020)	(0.006)	(0.006)
Mean	0.924	0.208	0.624	0.309	0.376	0.691	0.575	0.560
HH Effect Size (% mean)	1.3	4.3	-3.6	40.7	5.9	-18.2	-6.4	-0.2
Observations	8023	7997	6777	1419	6777	1419	8023	8009

Notes: *** p<0.01, ** p<0.05, * p<0.10. We show the estimate of the coefficient δ on $claims_h \times treat_h$ from Equation 2, with robust standard errors (clustered at the household level) in parentheses. The coefficient is estimated separately for a range of dependent variables. For every estimate, the sample size and dependent variable mean is also given, as well as the relative size of the average household effect (which is simply the coefficient multiplied by the average number of payments per household, divided by the sample mean and multiplied by 100).

Children of Applicants leave the labor force and enroll in School...

Table: All Dependents

	(1) Is Literate	(2) Is Currently in School	(3) Is in the Labor Force	(4) Is Self-Employed	(5) Is Employed in Wage Labor
1910					
Claims X Treat	0.011***	0.013***	-0.009**	-0.005	0.005
	(0.003)	(0.002)	(0.004)	(0.005)	(0.005)
Mean	0.869	0.349	0.558	0.346	0.654
HH Effect Size (% mean)	3.6	10.3	-4.6	-3.7	1.9
Observations	25394	43397	17390	11276	11276

Notes: *** p<0.01, ** p<0.05, * p<0.10. We show the estimate of the coefficient δ on $claims_h \times treat_h$ from Equation 2, with robust standard errors (clustered at the household level) in parentheses. The coefficient is estimated separately for a range of dependent variables. For every estimate, the sample size and dependent variable mean is also given, as well as the relative size of the average household effect (which is simply the coefficient multiplied by the average number of payments per household, divided by the sample mean and multiplied by 100).

School enrollment effect is the same for boys and girls, though labor force effect is stronger for boys

Table: Male vs. Female Dependents

	Is Literate		Is Currently in School		Is in the Labor Force		Is Self-Employed		Is Employed in Wage Labor	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1910										
Claims X Treat	0.010***	0.011***	0.013***	0.014***	-0.013***	-0.007*	-0.006	0.004	0.006	-0.004
	(0.003)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)	(0.012)	(0.005)	(0.012)
Mean	0.866	0.872	0.347	0.350	0.903	0.188	0.403	0.092	0.597	0.908
HH Effect Size (% mean)	3.3	3.6	10.2	10.8	-3.9	-10.6	-4.4	12.9	3.0	-1.3
Observations	13070	12324	22248	21149	8998	8392	9213	2063	9213	2063

Notes: *** $p<0.01$, ** $p<0.05$, * $p<0.10$. We show the estimate of the coefficient δ on $claims_h \times treat_h$ from Equation 2, with robust standard errors (clustered at the household level) in parentheses. The coefficient is estimated separately for a range of dependent variables. For every estimate, the sample size and dependent variable mean is also given, as well as the relative size of the average household effect (which is simply the coefficient multiplied by the average number of payments per household, divided by the sample mean and multiplied by 100).

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Long-Term Outcomes

Short-term increase in Home Ownership rates and County quality across all applicants

Table: Regression Estimates (All Applicants)

	Has Ownership of Home	Occupational Standing Index (County Average)	Lives in a Rural Area	Lives on Reservation
1910				
Claims X Treat	0.013***	0.006***	-0.007**	0.015***
	(0.004)	(0.002)	(0.003)	(0.003)
Mean	0.565	-0.256	0.824	0.252
HH Effect Size (% mean)	6.2		-2.5	16.9
Observations	14998	15196	15199	15199

Notes: *** p<0.01, ** p<0.05, * p<0.10. We show the estimate of the coefficient δ on $claims_h \times treat_h$ from Equation 2, with robust standard errors (clustered at the household level) in parentheses. The coefficient is estimated separately for a range of dependent variables. For every estimate, the sample size and dependent variable mean is also given, as well as the relative size of the average household effect (which is simply the coefficient multiplied by the average number of payments per household, divided by the sample mean and multiplied by 100).

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Home Ownership and Migration – All Applicants

▶ Payments have a positive effect on home ownership rates for applicants.

▶ We also see small increase in SEI status of the applicants' county of residence.

    ▶ Occupational Standing Index is a standardized index that indicates average income and education levels for a given occupation category.

    ▶ Suggests that payments allow applicants to move to more affluent areas.

▶ We also observe that payments increase likelihood that households remain on reservation land.

    ▶ This is notable given general pattern of out-migration from reservation land over the course of the 20th century. See map:

Home Ownership & Migration – All Dependents

	Has Ownership of Home	Moved County Since Previous Census	Occupational Standing Index (County Average)	Lives in a Rural Area	Lives on Reservation
1920					
Claims X Treat	0.015***	-0.003	0.006***	-0.007*	0.011***
	(0.005)	(0.005)	(0.002)	(0.004)	(0.004)
Mean	0.600	0.263	-0.254	0.817	0.247
HH Effect Size (% mean)	6.9	-2.8		-2.5	12.5
Observations	8018	20921	8029	8062	8062
1930					
Claims X Treat	0.020***	-0.007	0.006*	-0.002	0.004
	(0.007)	(0.007)	(0.003)	(0.006)	(0.006)
Mean	0.498	0.281	-0.214	0.735	0.190
HH Effect Size (% mean)	11.4	-7.2		-0.8	5.8
Observations	5808	8371	5820	5856	5856
1940					
Claims X Treat	0.007	0.009	0.004	0.001	-0.006
	(0.010)	(0.007)	(0.005)	(0.008)	(0.008)
Mean	0.552	0.187	-0.200	0.717	0.170
HH Effect Size (% mean)	3.6	13.6		0.4	-9.7
Observations	3485	3932	3475	3503	3503

Notes: *** p<0.01, ** p<0.05, * p<0.10.

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Home Ownership & Migration – All Dependents

▶ For dependents, positive effects on home ownership persist for at least **20 years**, through 1930.

▶ 20 years after the transfer, home ownership rates among children of reparations recipients are 11.4% higher than the mean.

  ▶ Since the average household received 2.8 individual payments, we multiply the coefficient by 2.8 to calculate this average effect size.

▶ Effects disappear by 1940...

  ▶ Could be due to diminishing sample size, or general disruption of economic progress caused by the Great Depression.

In the short term, home ownership effect is observed for female applicants, while relocation effect is observed for male applicants

Table: Regression Estimates (Male vs. Female Applicants)

	Has Ownership of Home		Occupational Standing Index (County Average)		Lives in a Rural Area		Lives on Reservation	
	Male	Female	Male	Female	Male	Female	Male	Female
1910								
Claims X Treat	0.008	0.018***	0.010***	0.002	-0.009**	-0.006	0.005	0.026***
	(0.006)	(0.006)	(0.002)	(0.003)	(0.004)	(0.005)	(0.004)	(0.004)
Mean	0.571	0.560	-0.262	-0.250	0.837	0.810	0.270	0.236
HH Effect Size (% mean)	4.0	9.0			-3.1	-2.1	5.3	31.3
Observations	7873	7169	8021	7220	8023	7221	8023	7221

Notes: *** p<0.01, ** p<0.05, * p<0.10. We show the estimate of the coefficient δ on $claims_h \times treat_h$ from Equation 2, with robust standard errors (clustered at the household level) in parentheses. The coefficient is estimated separately for a range of dependent variables. For every estimate, the sample size and dependent variable mean is also given, as well as the relative size of the average household effect (which is simply the coefficient multiplied by the average number of payments per household, divided by the sample mean and multiplied by 100).

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Home Ownership & Migration – Male vs. Female Applicants

▶ We notice interesting heterogeneity between male and female applicants in the short term.
  ▶ Home ownership effect is only observed for households in which the female head receives payment.
  ▶ County quality effect is only observed for households in which the male head receives payment.

▶ Suggests that male applicants are more likely to use payment for relocation, while female applicants are more likely to use payment for home purchase, in the **short-run**.

Home Ownership & Migration – Dependents (Male vs. Female Applicants)

	Has Ownership of Home		Moved County Since Previous Census		Occupational Standing Index (County Average)		Lives in a Rural Area		Lives on Reservation	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1920										
Claims X Treat	0.030***	-0.002	-0.013**	0.006	0.005	0.007**	-0.003	-0.013**	0.012**	0.011*
	(0.007)	(0.008)	(0.006)	(0.007)	(0.003)	(0.003)	(0.006)	(0.006)	(0.005)	(0.006)
Mean	0.595	0.605	0.261	0.265	-0.262	-0.245	0.820	0.814	0.256	0.237
HH Effect Size (% mean)	13.9	-1.0	-14.1	6.1			-1.2	-4.6	13.0	12.9
Observations	4194	3833	10616	10305	4198	3840	4215	3856	4215	3856
1930										
Claims X Treat	0.026***	0.012	-0.023***	0.009	0.004	0.010**	0.003	-0.011	0.011	-0.006
	(0.010)	(0.011)	(0.009)	(0.010)	(0.005)	(0.005)	(0.008)	(0.009)	(0.007)	(0.009)
Mean	0.494	0.504	0.270	0.294	-0.222	-0.205	0.737	0.733	0.196	0.184
HH Effect Size (% mean)	14.9	6.8	-23.6	8.2			1.1	-4.3	16.1	-9.8
Observations	3011	2800	4362	4009	3018	2805	3035	2824	3035	2824
1940										
Claims X Treat	0.012	-0.007	-0.005	0.023*	-0.003	0.014*	0.005	-0.001	0.008	-0.024*
	(0.014)	(0.015)	(0.010)	(0.012)	(0.006)	(0.007)	(0.012)	(0.013)	(0.010)	(0.013)
Mean	0.548	0.557	0.173	0.203	-0.211	-0.188	0.716	0.717	0.173	0.166
HH Effect Size (% mean)	5.9	-3.3	-8.7	32.0			1.8	-0.5	13.3	-39.7
Observations	1825	1661	2062	1870	1819	1657	1834	1670	1834	1670

Notes: *** p<0.01, ** p<0.05, * p<0.10.

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Home Ownership & Migration – Dependents (Male vs. Female Applicants)

Note that heterogeneity in the preceding table is NOT by gender of dependent, but gender of the applicant in each dependent's household.

▶ Short-term patterns are *reversed* for dependents in the long run.
  ▶ We observe positive home ownership effects only for children of male applicants.
  ▶ Between 1910–20 and 1920–30, we also see that payments induced the children of male applicants to move *less* frequently.
  ▶ For the children of female applicants, home ownership effects do not persist in the long-run.
▶ For households with male applicants, inter-generational wealth effects seem to be stronger than for households with female applicants.

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Summary of Findings

We have presented historical details of a rare instance in which the U.S. government paid damages compensation to descendants of victims.

- ▶ Using census data and detailed application records, we have estimated the short and long run impacts of these reparations payments.

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▶ **Short-Run**:
  1. No negative employment effects for Applicants.
  2. Female applicants switch into self-employment from wage labor.
  3. Dependent children work less and increase school enrollment.
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  1. In reversal from short-run, payments lead to higher home-ownership rates for *children* of male applicants up to 20 years after payments.
  2. Short-term increases in home ownership for female applicants do not persist for their children.

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▶ ***Our results show that even modestly sized reparations payments can have lasting inter-generational wealth effects.***

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Next Steps

There are two directions in which we'd like to expand the scope of the research question:

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Next Steps

There are two directions in which we'd like to expand the scope of the research question:

1. Additional Outcomes
   - **Social/Cultural Outcomes**
     - In the early 20$^{\text{th}}$ century, the U.S. Government adopted aggressive "assimilationist" policies towards indigenous populations.
     - Given that payments seem to encourage households to remain on reservation, they may have countered attempts at assimilation in other ways as well. . .
     - e.g., rates of **interracial marriage** and frequency of "white" **children's names**.

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   - ▶ **Mortality Outcomes**
     - ▶ IPUMS has just released historical death records from SSA, linked with 1910–40 Censuses.
     - ▶ Can be used to estimate the effects of reparations on mortality.

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   - ▶ **Mortality Outcomes**
     - ▶ IPUMS has just released historical death records from SSA, linked with 1910–40 Censuses.
     - ▶ Can be used to estimate the effects of reparations on mortality.

2. Second Generation Effects
   - ▶ Though we don't see significant effects for children of dependents in 1940, there may be impacts on grandchildren as they age into school and labor force.
   - ▶ Full-count census data for 1950 has recently become available.

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THANK YOU
For questions/comments, please email:

afertig@umich.edu

Additional Slides

Figure: Distribution of Applications
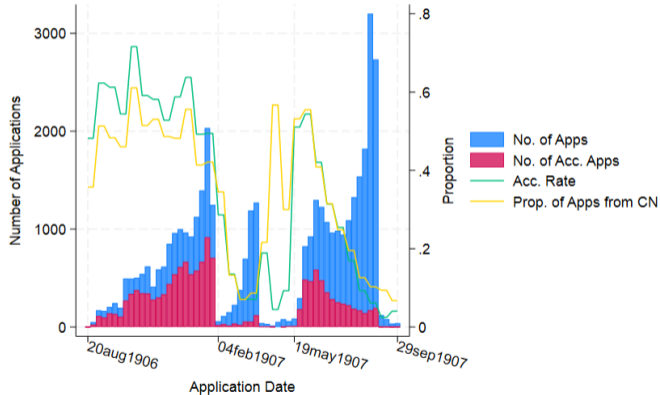
Notes: This histogram plots the no. of applications submitted each week from 8/1906 through 9/1907, as well as the weekly acceptance rate and the proportion of applications received each week from individuals living within the Cherokee Reservation.

Matching Details

▶ The ABE matching method consists of three basic steps:
  1. Clean names in both datasets to remove common misspellings and nicknames.
  2. Restrict dataset A to people that are unique in first and last name, birth year, and birthplace.
  3. For each remaining record in dataset A, search for records in dataset B that match on first name, last name, birth year, and place of birth.

▶ Instead of looking for exact matches, we consider a match to meet the following criteria:
  1. Records have the same state of birth.
  2. The year of birth recorded in the census is within plus/minus five years of the year of birth recorded on the application.
  3. The first letter of both the first and last name is the same in both datasets.
  4. The Jaro-Winkler string comparator score for both first and last names is ≤ 0.1.

▶ If we find more than one match in the Census data for any application record, we discard these matches unless the best match is "far enough" from the second best match (in terms of birth year).
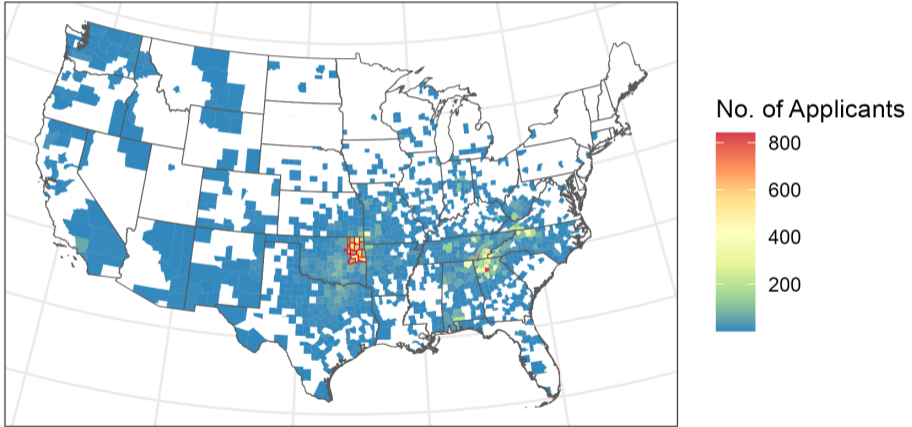
Accepted Applicants
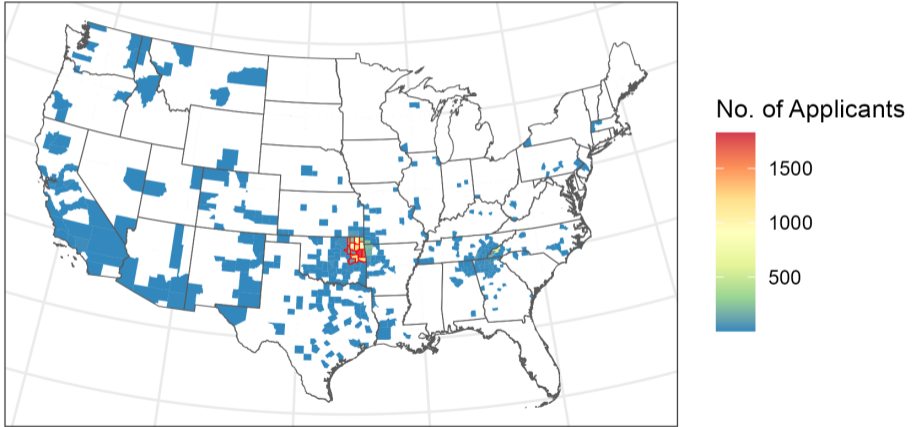
Notes: For each U.S. County, this map displays the number of applicants listing it as their residence. No applications were received from counties with white fill. Counties outlined in red are those that make up the Cherokee reservation.
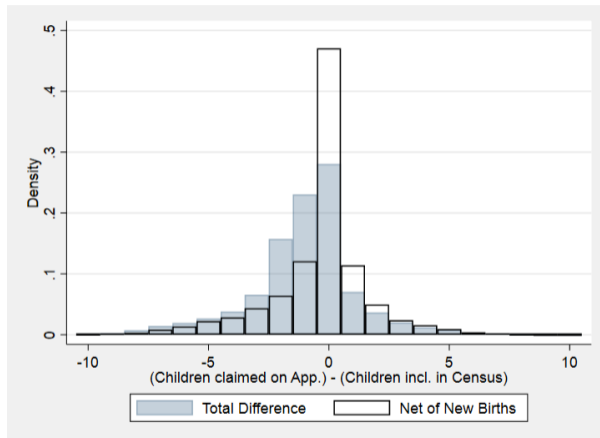
Rejected Applicants

Notes: For each U.S. County, this map displays the number of applicants listing it as their residence. No applications were received from counties with white fill. Counties outlined in red are those that make up the Cherokee reservation.

Difference in Dependents ⟩⟩ Back

Notes: Shows distribution of reporting differences among full applicant sample. Dark bars represent total difference between children claimed on application and children appearing in 1910 census, while clear bars represent net difference after removing newly born children (born after May 28, 1906).

Pre-Treatment Outcomes

- ▶ This "balance" tables shows the estimate of the coefficient δ on $claims_h \times treat_h$ from Equation 2, with robust standard errors (clustered at the household level) in parentheses.

- ▶ Coefficients are estimated for pre-treatment dependent variables constructed from the 1880 and 1900 Censuses.

- ▶ The sample is composed of applicants that were successfully linked between our 1910 sample and the 1900/1880 Census data.
  - ▶ Poor coverage of our applicant pool since the Cherokee Reservation was not included in the 1900 or 1880 Censuses.

|	(1) 1880	(2) 1900
Is Currently in School	0.040 (0.026)	-0.021 (0.013)
Is in the Labor Force	0.013 (0.029)	-0.006 (0.009)
Occupational Standing Index	-0.028 (0.050)	0.013 (0.032)
Lives in Farming Household	0.017 (0.027)	-0.017 (0.013)
Has Ownership of Home		-0.002 (0.014)
Occupational Standing Index (County Average)	0.001 (0.014)	0.001 (0.006)
Lives in a Rural Area	0.002 (0.008)	-0.016* (0.008)
Identifies as Native American		0.010 (0.007)
Is Literate	-0.011 (0.026)	-0.013 (0.012)
Observations	984	4971

Notes: *** p<0.01, ** p<0.05, * p<0.10.
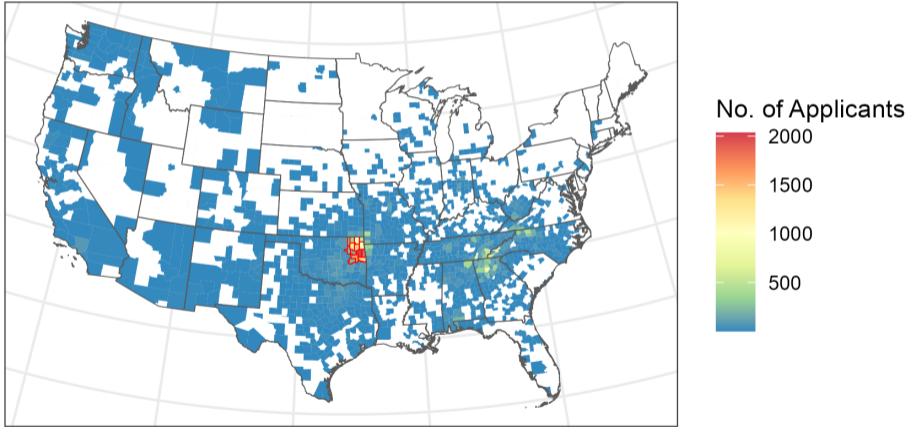
Full Applicant Sample

Notes: For each U.S. County, this map displays the number of applicants/households listing it as their residence. Counties outlined in red are those that make up the Cherokee reservation.
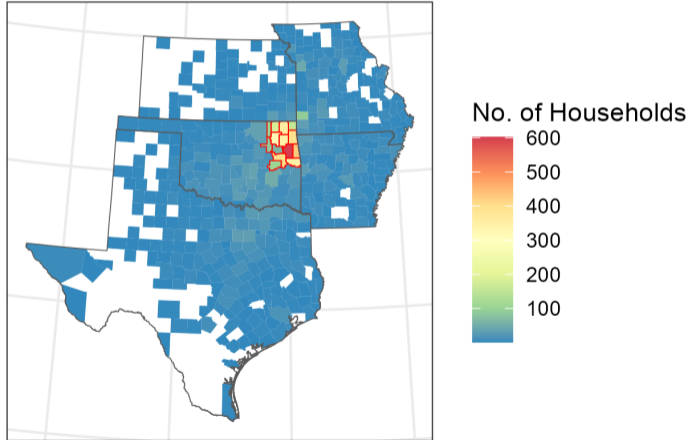
1900 Sample
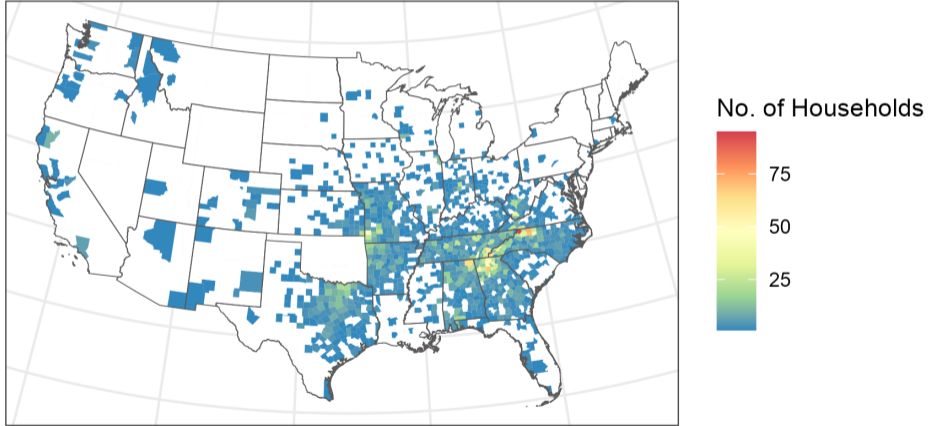
Notes: For each U.S. County, this map displays the number of applicants/households listing it as their residence. Counties outlined in red are those that make up the Cherokee reservation.
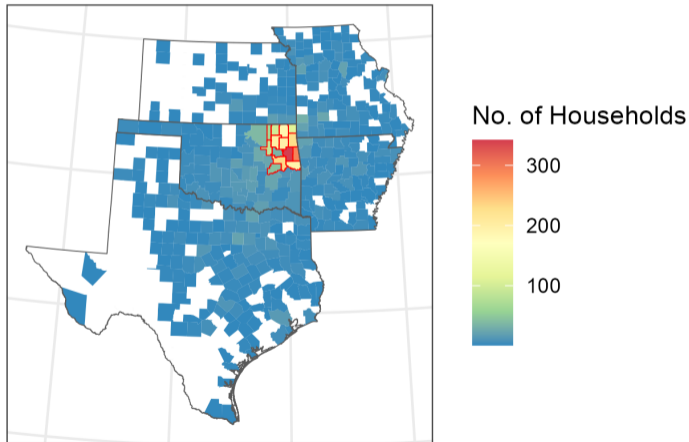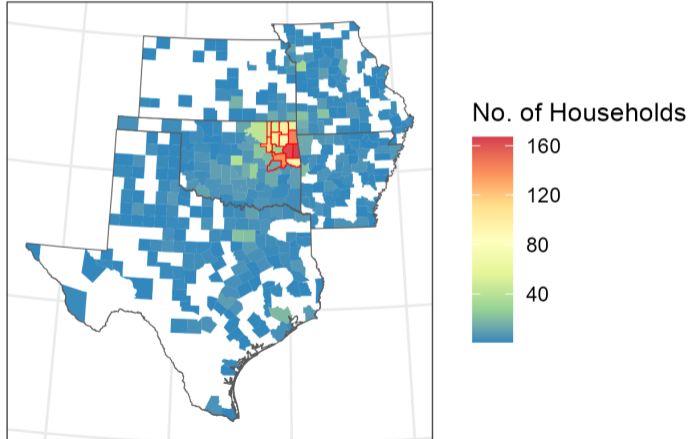
1910 Sample

Notes: For each U.S. County, this map displays the number of households in our sample living there in the given census year.

Reservation Out-migration ⏩ Back

1920 Sample

No. of Households

300

200

100

Notes: For each U.S. County, this map displays the number of households in our sample living there in the given census year.

Reservation Out-migration ⟿ Back

1930 Sample

No. of Households

160
120
80
40

Notes: For each U.S. County, this map displays the number of households in our sample living there in the given census year.
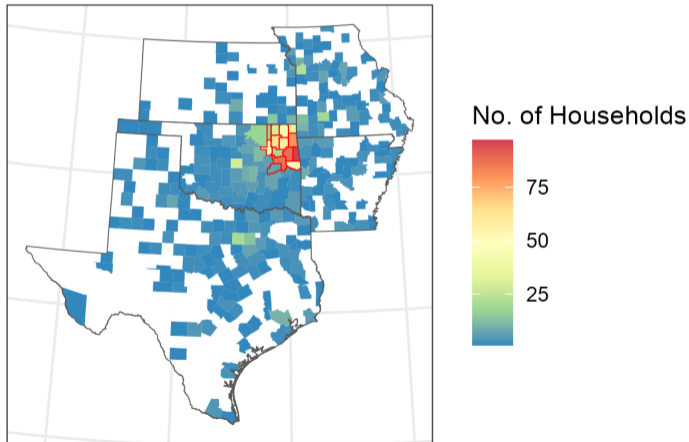
1940 Sample

Notes: For each U.S. County, this map displays the number of households in our sample living there in the given census year.

	1910		1920		1930		1940	
	Accepted	Rejected	Accepted	Rejected	Accepted	Rejected	Accepted	Rejected
Demographic								
Household Size	4.83	4.99	5.58	5.77	5.37	5.18	4.63	4.21
	(2.426)	(2.547)	(2.413)	(2.537)	(2.519)	(2.450)	(2.505)	(2.131)
Identifies as Native American	0.70	0.03	0.44	0.01	0.58	0.02	0.37	0.01
	(0.457)	(0.171)	(0.497)	(0.109)	(0.494)	(0.153)	(0.483)	(0.0816)
Average Age of Children	9.42	11.11	13.24	14.17	18.01	18.51	23.33	24.10
	(8.210)	(9.084)	(7.317)	(7.933)	(7.653)	(8.214)	(9.225)	(9.270)
Education/Employment								
Is Currently In School	0.05	0.04	0.01	0.02	0.01	0.01	0.00	0.01
	(0.223)	(0.188)	(0.0905)	(0.137)	(0.111)	(0.0842)	(0.0424)	(0.0997)
Is in the Labor Force	0.52	0.59	0.54	0.57	0.57	0.57	0.48	0.50
	(0.500)	(0.492)	(0.499)	(0.495)	(0.496)	(0.495)	(0.500)	(0.500)
Is Self-Employed	0.62	0.55	0.69	0.66	0.67	0.63	0.58	0.59
	(0.484)	(0.498)	(0.462)	(0.473)	(0.472)	(0.484)	(0.494)	(0.491)
Is Employed in Wage Labor	0.38	0.45	0.31	0.34	0.31	0.36	0.34	0.36
	(0.484)	(0.498)	(0.462)	(0.473)	(0.464)	(0.480)	(0.474)	(0.480)
Socioeconomic								
Has Ownership of Home	0.75	0.50	0.73	0.61	0.62	0.62	0.69	0.66
	(0.433)	(0.500)	(0.442)	(0.487)	(0.486)	(0.486)	(0.461)	(0.475)
Lives in a Rural Area	0.86	0.82	0.86	0.80	0.80	0.75	0.78	0.74
	(0.351)	(0.387)	(0.352)	(0.396)	(0.400)	(0.432)	(0.413)	(0.441)
Lives on Reservation	0.74	0.06	0.74	0.06	0.65	0.05	0.62	0.06
	(0.438)	(0.238)	(0.440)	(0.230)	(0.478)	(0.226)	(0.485)	(0.229)
Observations	5375	11215	2424	5052	1210	2662	556	1195

Notes: Table reports mean values and standard deviations (in parentheses) across a range of census variables for the sample of applicants successfully matched with census data. Sample includes primary applicants, but not their children or other household members.