Growing Up Without Finance

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Abstract

Local financial development substantially increases financial inclusion and improves household financial health thereafter. To identify the effect of local financial development, we exploit externally imposed differences in court enforcement of debt contracts that led to significant, long-term differences in local financial institutions across Native American reservations in the United States. Using micro-level panel data on consumer credit, young borrowers who grow up on a reservation with stronger local credit markets more quickly develop a credit history, and as a result, receive significantly higher overall credit scores. We also find that growing up without finance has persistent negative effects on financial health: Although credit scores improve after moving from the reservation, it takes longer than a decade before the credit scores of individuals leaving areas with weak local financial development to fully converge with similar borrowers who grew up in areas with better local financial markets.

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Household finances have important implications for asset price fluctuations, business cycle dynamics, and entrepreneurial activity (e.g., Campbell and Hercowitz, 2009; Mian and Sufi, 2011; Iacoviello and Pavan, 2013; Corradin and Popov, 2015), as well as first-order effects on consumer welfare (e.g. Melzer, 2011). Yet, the wide variation in consumer financial health is puzzling. Even when the U.S. unemployment rate was as low as 4.5 percent (2006Q4), as many as 70 million people, or 32 percent of individuals over 18 with a credit score, had a credit history that would have been considered subprime. Because income shocks appear insufficient to explain the variation in credit market outcomes, recent research considers the influence of financial education (e.g., Brown et al. (2016)) or behavioral biases (e.g., Stango and Zinman, 2011; Keys and Wang, 2015) on financial well-being. However, even these individual attributes explain a small fraction of the wide variation in credit outcomes across households.

In this paper, we examine a potentially important and largely unexplored determinant of household financial health – early-life exposure to financial markets through local financial institutions. Although evidence from other settings suggests that experience with financial markets should have broad effects on household financial well-being (see Malmendier and Nagel, 2011; Anagol, Balasubramaniam, and Ramadorai, 2015), identifying the effect of financial development on household financial health is challenging because exogenous shocks to financial development are rare. Even regulatory changes that affect lending activity are themselves not random, and often coincide with other economic factors that influence the supply and demand for credit.[1] Furthermore, it is difficult to construct micro-level measures of financial health that are both geographically precise and comparable across households.

We confront these empirical challenges using micro-level consumer credit data from

[1]For example, the CARD Act of 2009 was enacted precisely because of problems with how individual consumers used credit cards, but nonetheless had sweeping effects on consumer financial health (see Agarwal et al. (2015) or Keys and Wang (2015)).

the FRBNY Consumer Credit Panel – a 5 percent sample of consumer credit records from Equifax – to examine how exposure to financial markets at a young age affects household financial health. Our tests utilize stark long-run differences in banking development that arose exogenously across Native American reservations in the United States. This variation in financial development can be attributed to Congressional legislation called Public Law 280 (PL280), passed in 1953. PL280 imposed state court enforcement of debt contracts on a subset of reservations, leaving tribal courts in place for the remaining (non-PL280) reservation areas (Anderson and Parker, 2008). After the law's passage, the development of local banking markets diverged sharply across reservations with state and tribal courts, owing to the greater predictability of debt contract enforcement under state courts. In particular, Brown, Cookson, and Heimer, 2016b find that banking density (bank branches per capita) is substantially higher in areas with state courts. As a result, young borrowers on PL280 reservations were exposed to much more robust local financial markets than were their counterparts on reservations with tribal courts.

Moreover, an important advantage of our setting is that PL280 did not change how most *consumer* credit contracts are enforced. This is because – in contrast to the debt contracts issued by local financial institutions, which are enforced by state or tribal courts – most consumer credit contracts fall under federal jurisdiction regardless of PL280 status. Thus, the factors that led to the stark differences in local banking and branching across reservations did not also directly affect how households access credit (e.g., credit cards or student loans). In other words, the setting affords us the opportunity to examine how greater local financial development affects the financial behaviors of households without the usual concern that local financial development was a response to those financial decisions.

In addition, the reservation setting has a number of other advantages for studying the connections between financial development and consumer credit outcomes. First, Congress imposed PL280 without the approval or consent from tribes, so tribes did not select into different institutional environments. Second, state court assignment under PL280 was unre-

lated to credit markets or economic activity on reservations at the time the law was passed, and indeed PL280 and non-PL280 reservations were almost identical in all important respects in the years immediately preceding the law's passage (e.g., Parker, 2012; Brown, Cookson, and Heimer, 2016b). Third, though cross-reservation variation in financial development is stark, reservations are similar on other potentially relevant dimensions, owing to their shared cultures and same exposure to the broader U.S. institutional environment.

We start by showing that the relative underdevelopment of local finance in tribal court areas leads to less financial inclusion, as measured by the use of formal accounts among individual consumers. Specifically, households located on reservations with weaker local banking markets (under tribal courts) are 10 percentage points more likely to have a thin or missing credit report, and consumers growing up on these reservations are significantly older when they first engage with formal credit markets. Moreover, young borrowers with low credit scores in tribal court areas are about 8 percentage points less likely to see their credit applications approved than young borrowers in state court areas, an effect that deepens during periods of expanded credit supply (pre-and post-Great Recession).

In addition, we provide evidence that the stark differences in financial inclusion among young borrowers are driven by less exposure to local financial institutions on reservations with tribal courts. In support of this interpretation, our findings are robust to controlling for local income, which proxies for the demand for credit. Relating to the financial channel more specifically, our results are strongest in states that are slow to deregulate the banking sector following the Interstate Bank Branching Efficiency Act (IBBEA). IBBEA expanded bank branching without significantly affecting demand conditions (Celerier and Matray (2015) and Rice and Strahan (2010)). Hence, if exposure to local finance is the source of the differences in finanical health we observe across reservations, we should expect to see stronger relative effects of IBBEA in tribal court areas, closing the gap in financial inclusion.

These differences in financial inclusion lead to persistent differences in consumer fi-

nancial health. Average credit scores among young borrowers located in tribal court areas are about 18 points lower than for young borrowers on state court reservations. To better disentangle the effect of growing up in an area with low financial development from unobservable differences in borrower quality, we examine how credit outcomes evolve over time as for young borrowers who move away from reservations. As expected, borrowers who move away from reservation areas see improvements to financial health, but the effect is greatest for those leaving the reservations with weaker local banking markets. Young borrowers leaving tribal court areas see a sharper increase in the likelihood of obtaining a credit line than young borrowers leaving state court areas, and their credit scores eventually improve by approximately 20 points. Because individuals leaving state and tribal court areas are almost identical in terms of indicators of credit demand (e.g., size and number of accounts, frequency of delinquencies), these results are best explained by the development of local financial markets rather than differences in borrower financing needs or quality across individuals with different reservation backgrounds.

Despite the large improvements in financial health for consumers who move away from areas with low financial development, the benefits are slow to accrue. Our estimates suggest that it takes more than a decade for the financial health of individuals from weak financial environments (under tribal courts) to fully converge to the financial health of consumers from stronger financial environments (under state courts). These findings show that consumer financial health is affected not only by the individual's current financial environment, but also by the strength of the financial markets they encountered growing up. In addition to providing novel evidence on the consumer-side effects of local financial development, the slow convergence we document for movers from tribal court areas rules out a number of potential alternative explanations for our findings. In particular, if only the best credit risks select out of reservation areas, improvements in credit outcomes should appear immediately.

These findings provide some of the first causal evidence linking the local provision

of finance across institutional environments with consumer financial health. This evidence offers a new perspective on the real consequences of financial development (e.g., King and Levine, 1993 and Levine, Loayaza, and Beck (2000)). Although a longstanding literature offers compelling evidence that financial development affects firm performance and aggregate economic growth (Levine, 2005 surveys the literature), there is much less evidence on the implications of financial development for household financial health and consumer-level outcomes.[2] Our work shows that credit outcomes benefit from financial market development, most notably via higher credit scores and more success turning credit applications into new loans. Moreover, our findings suggest these consumer-side benefits are not just the result of better direct access to local bank loans: Growing up around more finance appears to have a positive impact on the way consumers build and manage credit, a benefit of financial development not emphasized in prior work.

Our study is particularly relevant for the strand of the financial development literature that focuses on financial inclusion and the economic effects of stronger local financial markets (e.g., Javaratne and Strahan 1996; Guiso, Sapienza, and Zingales 2004; Krishnan, Nandy, and Puri 2014; Cortes 2014; Berger et al. 2015; Allen et al. 2016). Understanding the effects of local financial markets is particularly important given the shift toward consolidation and the nationalization of financial activity in recent years (e.g., Hakenes et al., 2015; Akkus, Cookson, and Hortacsu, 2015).[3] Several prior studies find that a more developed local financial market benefits young and small firms (Strahan and Rice, 2010), and our work shows that it also has long-term benefits for young individuals.

In this way, our paper adds to an important literature on the long-run effects of early exposure to particular economic and institutional environments. For example, studying the

[2]Much of the research on consumer credit focuses on the pros and cons of access to high interest rate loans, particularly for low-income borrowers (e.g., Karlan and Zinman (2010), Melzer (2011), and Morse (2011)). A related literature studies how access to finance influences how much consumers are willing to pay for loans in the first place (Butler, Cornaggia, and Gurun, 2015).

[3]The changing nature of local financial activity has also been widely discussed in the popular press. For example, see Minyoung Park, "America's brick-and-mortar banks are vanishing," Yahoo Finance, June 22, 2016 (article here).

financial behavior of immigrants to the United States, Osili and Paulson (2008) find that early exposure to institutions that protect private property has a persistent effect on their propensity to own stock, while Malmendier and Nagel (2011) show that macroeconomic experiences have long-term effects on stock market participation and willingness to take financial risk.[4] In a distinct but related vein, our work shows that the local financial environment in which a person grows up has long-term effects on their financial health, and these effects persist for many years even after the person moves to a different institutional setting.

Our work is also part of a growing literature that uses quasi-natural experiments and within-country variation to evaluate the economic effects of institutions, financial markets, and legal rules (e.g., Barro and Sala-i Martin 1992; Berkowitz, Lin, and Ma 2014). Our paper is most directly related to the portion of this literature that studies differences in contracting, organizational forms, and economic outcomes on Native American reservations (e.g., Karpoff and Rice 1989; Anderson and Leuck 1992; Cookson 2014; Dimitrova-Grajzl et al. 2014; Dippel 2014). Though some of this research focuses specifically on the implications of PL280 for economic and financial development across reservations (e.g., Anderson and Parker 2008; Parker 2012; Brown, Cookson, and Heimer 2016b), our study is the first to exploit this setting to provide a comprehensive evaluation of the causal linkages between local financial markets and consumer financial health.

The rest of the paper proceeds as follows. Section 1 provides background details on Native American institutions, as context for the empirical analysis. Section 2 describes the data sources we employ and explains how we map consumer credit outcomes to reservation areas. Section 3 presents evidence on consumer credit coverage, while Section 4 studies the long-term consumer financial health effects of local financial development. Section 5

[4] A related literature studies how individual and professional experiences influence a wide array of behaviors, including investment and managerial decision making (e.g., Greenwood and Nagel 2009; Malmendier, Tate, and Yan 2011; Chiang et al. 2011; Cole, Paulson, and Shastry 2014; Dittmar and Duchin 2015; Bernile, Bhagwat, and Rau 2015) and political preferences (Giuliano and Spilimbergo 2014; Fuchs-Schudeln and Schundeln 2015).

summarizes our findings.

1 Reservation Economies

This section provides some background on the implementation and documented effects of Public Law 280. Our discussion of reservation institutions and PL280 borrows heavily from Brown, Cookson, and Heimer, 2016b.

1.1 Reservation Institutions and Public Law 280

Native American reservations are an ideal setting to study how financial development affects household financial health. Reservations have a limited form of sovereignty in that they are generally not subject to state laws or regulations, while still being subordinate to the rule of the U.S. federal government. Arising from a federal policy commitment to tribal sovereignty, the historical status quo is that each reservation runs its own tribal court to enforce the law on that reservation.[5] In addition, reservations are relatively homogenous on unmeasured dimensions due to similar culture and long-term exposure to American institutions, a stark contrast to the extensive heterogeneity in the cross-national setting.

Although reservations have considerable political autonomy, the U.S. Congress passed Public Law 280 in 1953, mandating that a subset of reservations in select states would be subject to jurisdiction by state courts.[6] Legal scholars have suggested that Congress passed PL280 because of a perceived need for stronger criminal enforcement on reservations. According to a 1953 Senate report on PL280:

"[... T]he enforcement of law and order among the Indians in Indian Country

[5] A series of three Supreme Court cases decided by the Marshall Court, called the Marshall Trilogy (between the years 1823 and 1832), formalized this relationship between the U.S. federal government, U.S. states, and tribes. Congress has used the authority from the Marshall Trilogy to justify policy interventions on Native American reservations.

[6] The law technically allowed for concurrent jurisdiction between state courts and tribal courts, but in effect, the introduction of state courts to reservations replaced tribal court activity on PL280 reservations (see Brown, Cookson, and Heimer, 2016a).

> has been left largely to the Indian groups themselves. In many States, tribes are not adequately organized to perform that function; consequently, there has been created a hiatus in law enforcement authority that could best be remedied by conferring criminal jurisdiction on the States indicating a willingness to accept such responsibility." (Anderson and Parker (2016, 2016, pg.5))

As an afterthought to extending criminal jurisdiction, state courts were also granted jurisdiction over civil contract enforcement, "because it comported with the pro-assimilationist drift of federal policy and because it was convenient and cheap [to add to the law] (Goldberg-Ambrose, 1997, pg. 50)."

PL280 was mandated in six states: California, Minnesota, Nebraska, Oregon, Wisconsin, and Alaska (upon statehood). In addition, PL280 gave state governments the option to assert PL280 authority after the 1953 law, allowing state courts to hear disputes on reservations within their borders. Between 1953 and 1968, 10 states asserted optional PL280 jurisdiction of one form or another, but most of these opt-in assertions of PL280 jurisdiction were limited in scope – e.g., applying only to pollution laws or jurisdiction over highways (Jimenez and Song, 1998; Getches, Wilkinson, and Williams, 1998; Melton and Gardiner, 2006). Florida and Iowa successfully asserted PL280 jurisdiction over contractual enforcement, and thus, we include reservations in these states in our measure of state courts. Anderson and Parker (2016) note that an important reason more states did not assume state jurisdiction under PL280 is that pre-existing disclaimers in many states' constitutions (established upon statehood) explicitly prohibit jurisdiction in reservation areas. Thus, although court assignment under PL280 was by no means random, the ultimate geographic pattern of PL280 reservations arose in large part from a series of historical accidents.[7]

In all cases where state courts were granted authority on reservations under PL280,

[7]Both Montana and North Dakota attempted to assert optional PL280 authority, but it did not come into force because it conflicted with their state constitutions. In separate legislation (Public Law 785 in 1950), New York reservations were subjected to the state court system. Because we want our measure to reflect whether state versus tribal courts have jurisdiction, we include New York reservations under our measure of state court jurisdiction, but exclude reservations in Montana and North Dakota. In addition, several reservations were exempted from the original law, or had court authority retroceded to them.

the authority was granted to state courts without tribal consent. In 1968, Congress passed the Indian Civil Rights Act, which contained a provision that required states obtain tribal approval before any additional assertions of PL280 authority. As tribes were unwilling to give up sovereign control of their court systems, there were no additional assertions of state court authority after the Indian Civil Rights Act.[8] Consequently, PL280 caused persistent differences in reservation institutions that were not chosen by the tribes themselves.

To maintain the broadest possible sample for our empirical tests, we classify a reservation as under tribal courts if state courts cannot hear civil disputes on the reservation either because the reservation's state never asserted court jurisdiction over native lands, or because PL280 jurisdiction was exempted or retroceded as outlined in the 1953 law or in the 1968 amendments to the law in the Indian Civil Rights Act. Otherwise, a reservation is considered to fall under state court jurisdiction. Although our results are robust to alternative categorizations of the law, our main approach is consistent with other studies that have used variation in PL280 civil jurisdiction to study economic outcomes (Anderson and Parker, 2008; Cookson, 2010; Parker, 2012; Cookson, 2014).

1.2 Financial Development on Reservations Before and After Public Law 280

The historical narrative suggests that assignment to state courts under PL280 was unrelated to a reservation's financial or economic development, and the evidence in Parker (2012)and Brown, Cookson, and Heimer (2016b) indicates that initial conditions on reservations with state and tribal courts were not different in ways that might confound our inferences on PL280's long-run impact. For example, Brown, Cookson, and Heimer (2016b) show that credit markets, economic development, and demographics were broadly similar across state

[8]The 1968 Indian Civil Rights Act also allowed for retrocession of PL280 authority, but the process for retrocession of state court authority to tribal courts is difficult to initiate by tribes. Thus, there were few instances where tribal court authority was regained. We account for retrocession in our main measure, as well as robustness to alternatives in related work (Brown, Cookson, and Heimer, 2016b).

and tribal court jurisdictions prior to PL280's passage (see Table 1 in their study). In particular, median family incomes in 1949 are almost identical across state and tribal court reservation areas, as are unemployment rates and levels of educational attainment.

Most notably for our study, Brown, Cookson, and Heimer (2016b) provide evidence on local banking markets prior to the 1953 law using hand-collected banking data from the 1952 edition of Polk's Bank Directory (Polks). Polks includes the name of the bank, the location of its headquarters and branches, as well as the bank's assets and loans. County-level measures of banking activity (bank assets, bank loans, and total number of branches for banks headquartered in the county) show that state and tribal court jurisdictions had similar levels of banking development before PL280. Specifically, per capita bank loans were not statistically different under state courts ($201) versus tribal courts ($192). Bank assets per resident were also similar across jurisdiction ($614 in state and $597 in tribal court counties), as were the number of bank branches per capita in 1952 (0.248 per thousand under state versus 0.313 per thousand under tribal court counties).[9]

These similar initial conditions stand in sharp contrast to the stark differences in local financial development across reservations that emerged in the decades following PL280's passage. Brown, Cookson, and Heimer (2016b) find that several key indicators of credit market development are significantly greater on reservations with state courts, including the level of small business lending and extent of bank branching activity. For example, their estimates suggest state court jurisdiction is associated with approximately 40 percent more business lending and 20 pecent more community bank branches per capita. Moreover, most consumer credit contracts are enforced outside of the state court versus tribal court distinction that has led to such stark differences in local banking development. Thus, the variation in local credit market activity arising from PL280 allows us our work to more

[9]Other research has also found that reservation areas have similar conditions across legal jurisdiction prior to PL280. For instance, the more aggregate evidence in Parker (2012, Table 2) also supports the conclusion that regions targeted by PL280 did not differ dramatically with respect to initial credit market conditions. He finds that total lending from customary (mostly private) lenders in the 1951-1952 period was marginally weaker in Bureau of Indian Affairs (BIA) regions that were predominantly assigned state courts under PL280.

credibly speak to the causal link between early exposure to local financial institutions and consumer financial health over the long run. In addition, the exogenous nature of local financial development under PL280 permits stronger inferences on the causal effects of financial developmentthan is possible in studies that rely on cross-country or cross-state differences in financial markets. Going forward we treat reservations with tribal courts as being "low financial development" areas, while the PL280 reservations with state courts are "high financial development."

2 Data and Measurement

2.1 Using Census Tract Data to Study Reservation Outcomes

To link to the Census-tract-level data, we compile a list of reservation area Census tracts from the Tiger/Line American Indian/Alaska Native/Native Hawaiian Census geographic shape files. The FRBNY Consumer Credit Panel (FRBNY - CCP) contains precise detail on the Census tract (and block) location of sampled individuals at the time of the credit record. This allows for precise geographic mapping to consumers who reside in reservation areas. Thus, we are confident that our measures of consumer credit activity correspond to consumers who live on reservation lands, and thus, are exposed to precisely the financial environments we document in Section 1. As Dimitrova-Grajzl et al. (2014) note when examining the FRBNY - CCP panel, this is an important advance in precision of data, given the data gaps in reservation areas described by Todd (2012).

Building on the sample of large reservations (> 250 residents in 1989) studied in Brown, Cookson, and Heimer (2016b), our sample includes 105 reservation counties, 27 of which have state legal jurisdiction and 78 use tribal courts. Figure (1) presents the geography of these reservation counties across the U.S. Reservations under PL280 status are noticeably scattered across regions of the United States.

2.2 Data sources

2.2.1 Household Financial Health

Our main data source is the FRBNY - CCP. This longitudinal data set tracks household liabilities and repayment using a five percent randomized sample of individuals with a social security number and a credit report on file at Equifax.[10] The data start in 1999Q1 and are collected quarterly thereafter (our analysis ends in 2015Q2). The sample design of the Consumer Credit Panel alleviates concern over attrition: the panel re-samples at every quarter to incorporate new credit report holders, and thus, is representative at any quarter. Further, as Brown et al. (2016) illustrate, the FRBNY - CCP offers a comprehensive coverage of U.S. liabilities according to comparisons with other nationally representative surveys such as the the Flow of Funds Accounts and the Survey of Consumer Finances.

The FRBNY - CCP is particularly well-suited to studying household financial activity linked to reservations because of its scope of coverage (approximately one out of every 20 individuals who are 18 years or older is in the data) and the geographic precision assigned to the sampled consumers (Census block level). No other comprehensive data set on households (e.g., the Survey of Consumer Finances or the PSID) has the same geographic precision and coverage. The primary shortcoming of the FRBNY - CCP relative to other household surveys is that – aside from consumer age – there is no demographic information linked to the credit records primarily due to federal laws prohibiting the use of race, sex, or national origin in the decision to extend credit.

To study the effect of financial development on consumer financial health, we focus on the subsample of the FRBNY - CCP records whose first credit report corresponds to a residence on reservation lands, and we focus on young borrowers by retaining only records of individuals who are 18 years or younger at the start of the sample (1999). By focusing on young borrowers who start their credit history on the reservation, our tests capture effects

[10] Technically, the sample is randomized by using five pairs of arbitrarily selected digits at the end of an individual's social security number.

on consumer financial health precisely for the individuals who grew up on reservation land, and thus, were exposed to differential levels of financial development. Our full sample includes 17 birth-year cohorts, although some of our tests that focus on dynamics rely on the older birth cohorts who can be observed for a longer time horizon.

We join other papers, such as Dettling and Hsu (2014) and Dokko, Li, and Hayes (2015), that exploit the longitudinal features of the Consumer Credit Panel by providing separate tests for consumers who stay on reservations for the entire sample, and by studying the dynamics of consumer financial health for those who move away. Aside from speaking to dynamics, studying differences between consumers who stay on reservations and those who move away further helps isolate the impact of different institutional settings experienced during one's formative years on subsequent outcomes.

2.2.2 Outcome Variables from the Credit Bureau data

The analysis focuses on several key variables from the FRBNY - CCP, for which summary statistics are presented in Table 2. Our primary measure of consumer financial health is the Equifax riskscore, which varies between 280 and 840 and is similar to a consumer's FICO score. Riskscore is nationally standarized and reflects a history of borrowing and repayment with the intent of measuring the consumer's creditworthiness. Lenders use credit scores like the Equifax riskscore in the decision to extend credit, as well as the interest rates they charge. Thus, a higher riskscore can lead to significant cost savings on loans and increased consumer welfare.

We construct a measure of lending constraints (supply-ratio), which is equal to the number of new credit lines over the number of hard inquiries on the consumer's account. The measure, also used in Bhutta and Keys (2014), is best paired with subprime borrowers (riskscore less than 640), because it captures the segment of applicants for which lending suppliers have greater discretion. Bhutta and Keys (2014) show that the measure varies significantly over time and geographically, and in a manner that appears to reflect the tight-

ening and expansion of credit conditions. The measure's main limitation is that the FRBNY - CCP data does not specify the purpose of the loan for which the hard credit inquiry was obtained. Also, consumers can request a hard credit inquiry without subsequently applying for credit.

Finally, we measure delinquencies by calculating the fraction of credit accounts (tradelines) that are at least 90 days past due. The measure equals the number of credit accounts 90 days past due, 120 days past due or in collections, or severe derogatory divided by the total number of credit accounts in the current quarter. The variable captures how well borrowers – conditional on obtaining credit – manage their credit.

3 Credit Coverage Across Reservations

3.1 Empty Credit Records

Figure 2 provides initial evidence that there large differences in the use of consumer credit across state and tribal court jurisdictions. The figure presents estimates of the proportion of individuals without a credit report each year between 2002 and 2014. Estimates of the proportion of individuals with a credit record are equal to $20 \times \frac{\Sigma_{c=1}^{N} FRBNY-CCP_{c,t}}{\Sigma_{c=1}^{N} population_c}$, where $\#FRBNY-CCP_{c,t}$ is the number of people in Census tract c in year t in the FRBNY - CCP 5% randomized sample and $population_c$ is the tract's population according to the 2000 U.S. Census.[11] For presentation in the figure, we take the summation in the numerator using all N Census tracts in tribal (state) jurisdictions.

There are between seven and ten percentage points more individuals with a credit report under state court jurisdiction than under tribal courts. In 2002, around 80 percent of individuals have a credit report under state courts and 72 percent under tribal courts. By 2014, these numbers have grown to 92 percent and 82 percent, respectively. Because

[11] We do not include 2010 Census population, because the FRBNY - CCP is linked to the 2000 Census tracts. Because Census tracts change geography between decennial waves on the Census, updating the population would introduce the possibility of measurement error when mapping tracts to reservation lands.

the denominator, Census tract population in 2000, is held constant, the growth rates do not account for population growth or the general expansion of consumer credit in the 2000s. Regardless, the *difference* between state and tribal court credit coverage is stable over the sample period.

3.2 Time to Enter the Credit Market

This section explores how local area financial development affects how quickly young consumers establish a credit history.

3.2.1 Graphical Evidence

According to Figure 3, it takes longer for individuals to build a credit history under tribal court jurisdiction. The figure plots the proportion of the sample to enter the FRBNY - CCP sample at any given age. A smaller fraction of 18 and 19 year olds receive their first credit report under tribal courts. Roughly 47 (39) percent of consumers who eventually receive a credit report do so by 19 under state (tribal) courts. By age 20, a larger share of tribal court consumers receive their first credit report. The difference persists thereafter. In addition, the differences between young borrowers in tribal court areas versus state court areas are similar when we study the age at which consumers receive their first line of credit.

3.2.2 Hazard Estimates

To study the effect of financial development on the propensity to enter credit markets, we estimate the following Cox-proportional hazard model:

$$h_i(t) = h_0(t) exp\left(\beta_1 tribalcourt_i + X_i'\Gamma\right). \quad (1)$$

The baseline hazard function is given by $h_0(t)$, where t is the consumer i's age. The event of interest in the hazard model is the age at which i receives their first credit report (or in

an alternative specification, i's first tradeline). The variable $tribalcourt$ equals one if the consumer resides on a reservation using tribal courts as determined by Public Law 280. The matrix X_i' includes a set of control variables, namely geographic fixed effects. The baseline hazard function is stratified by calendar date (quarterly).

Table 3 presents estimates of equation 1 using the FRBNY - CCP credit records for consumers 25 years old or younger whose first credit report is on reservation lands. Panel 1 presents hazard model specifications for the time until i's first credit report. Column 1's estimate of β_1 implies an odds-ratio of 0.87 (statistically different from a null effect of 1 at the one percent level). Accordingly, the probability of developing a credit record at age t falls by roughly 13 percent for individuals in tribal court areas. The estimated odds-ratio is similar (0.88) after including fixed effects for the nine Census sampling regions (column 2). We start with this more aggregated set of geographic controls, because there is not much within state variation in $tribalcourt$. Regardless, replacing Census region fixed effects with state fixed effects (column 3) also suggests that consumers in tribal court reservations more slowly develop a credit record (odds-ratio equals 0.90).

Panel 2 provides evidence that residents of tribal court reservations also take longer to obtain a first credit account . Even though the coefficient estimate of β_1 is not statistically different from zero in the first specification (column 1), the estimates are negative and statistically significant after including geographic control variables. Column 2 uses Census region fixed effects, while column 3 uses state fixed effects. The implied odds-ratio is 0.94 with Census region effects and 0.89 with state effects, and across all specifications the estimate is statistically significant at at least the five percent level. Accordingly, the likelihood an individual in tribal court areas establishes a first credit account at age t is are around 6 percent to 11 percent lower than a corresponding individual located on a reservation with state courts.

We provide additional evidence that these differences in inclusion in formal credit markets are caused by differences in local financial development and not another omitted

factor. In particular, any exogenous factor that increases the supply of local banking would cut against the differences between tribal and state court institutions. Near the beginning of our sample period, states were gradually relaxing regulations against interstate bank branching in accordance with the Interstate Banking and Branching Efficiency Act of 1994 (IBBEA). IBBEA led to large increases in bank branch density, particularly in low-income and rural areas, but had little effect on economic growth (Celerier and Matray (2015)). Thus, we expect the increase in bank branch density associated with IBBEA to partially offset tribal court's effect on local financial development.

The reduced levels of financial inclusion brought about by tribal courts is partially negated by increased bank branching caused by IBBEA. This evidence comes from estimating equation 1, while interacting $tribalcourt$ with a measure of the extent of state level interstate branching deregulation. The measure $dereg.index$ is a time-varying index ranging from 0 to 4 in ascending order of how much deregulation policy has been enacted by the state (Rice and Strahan (2010)). The interaction coefficient on $tribalcourt$ and $dereg.index$ measures the effect of each level of deregulation relative to no deregulation in the state where the tribal court reservation is located. The interaction term is positive for all levels of the index, whether the Cox model measures the time to first credit report or time to first tradeline. The effect is often statistically significant and it tends to be most pronounced when the state is highly deregulated ($dereg.index \geq 3$). These results suggest that access to local financial institutions helps integrate consumers into formal credit markets.

3.3 Evidence of Financial Supply Constraints

There are fewer individuals with credit reports on tribal court reservations than on state court reservations and those who eventually access credit take longer to develop a credit record. These findings can potentially be explained by consumers finding it difficult to access credit locally, as would be the case given the effects of PL280 on the development of financial institutions across reservations.

We evaluate this hypothesis via the following regression model:

$$supplyratio_{it} = \gamma_t + \gamma_r + \beta_1 tribalcourt_i + \beta_2 birthyear_i + \varepsilon_{it} \quad (2)$$

where date, Census region, and birth year fixed effects are γ_t, γ_r, and $birthyear_i$, respectively. The dependent variable, $supplyratio$, is equal to the number of new credit lines divided by the number of hard credit inquiries over the prior 12 months. The coefficient, β_1, thus measures the effect of low financial development on the propensity to receive credit conditional on a hard credit inquiry. Standard errors are clustered by date and consumer i's first Census tract.

The sample used to estimate equation 2 includes consumers under 25 years old and who have a riskscore of 640 or less. We focus on low credit score consumers, because they are the subset of credit applicants for which lenders have a greater degree of discretion in approving loans. Thus, the regression captures differences in how loose lenders are in extending credit to individuals with more credit risk.

Consumers on tribal court reservations are less likely to see their credit inquiries turn into a line of credit (Table 5). The coefficient estimate on $tribalcourt$ equals -0.084 and is statistically significant at the one percent level when the specification includes date and birth year fixed effects (column 1). The estimated coefficient implies that tribal court residents are approximately eight percent less likely to receive credit conditional on a credit inquiry. The coefficient estimate is similar with fixed effects for year-of-birth interacted with date (column 2) or Census region fixed effects (column 3). The magnitude of the estimate of β_1 falls slightly to -0.070 when the model includes fixed effects for Census region interacted with date (column 4). The interaction between geography and date accounts for any time-varying differences in economic activity across reservation areas.

Figure 4 shows that there is much variation in credit supply constraints over the sample period. The figure presents fitted estimates of equation 2 in which $tribalcourt$

is interacted with a set of yearly indicators. Notably, there is no statistical difference in $supplyratio$ across reservation jurisdictions between 2005 and 2010. On the other hand, $supplyratio$ is greater for state court reservations during the early 2000s and from 2010 onward, periods associated with a general expansion of credit in the U.S. Thus, the figure not only validates $supplyratio$ as a measure of financial constraints, but provides evidence that geographic differences in financial development matter most when credit is more widely available.

4 Growing up without Finance

4.1 Financial Health of Young Borrowers

Figure 5 plots the distribution of credit scores by reservation type across our entire sample. Notably, the tail of good riskscores is larger for state court reservations than for tribal court reservations. Likewise, there is a larger fraction of "subprime" borrowers under tribal courts. Clearly, exposure to more robust local financial markets is positively associated with better financial health.

Regression analysis confirms the effect of local financial development on consumer financial health. Table 6 presents estimates of the following empirical model,

$$riskscore_{it} = \gamma_t + \gamma_s + \beta_1 tribalcourt_i + \beta_2 birthyear_i + \varepsilon_{it} \tag{3}$$

estimated using the sample of borrowers who are 25 years old or younger in quarter t. We subject the relation between $riskscore$ and $tribalcourt$ to an increasingly rich set of geographic and time-varying fixed effects. Column 1 includes quarter and birth year fixed effects, while column 2 interacts birth year and quarter fixed effects to allow for time-variation in birth cohort economic outcomes. Column 3 adds Census region fixed effects and column 4 interacts these fixed effects with quarter fixed.

The coefficient estimate for β_1 is about equal to -18 riskscore points and statistically significant at the one percent level in all specifications. Eighteen riskscore points is approximately equal to one-fifth of a standard deviation in individual level financial health outcomes, which is large in comparison to other factors shown to affect consumer financial health. For example, studies of the impact of high school programs in economics, math, and finance on consumer financial health, such as Brown et al. (2016), find effects equal to at most 2 riskscore points.

4.2 Evidence from Movement away from Reservation Areas

To further evaluate the consequences of local financial development for consumer financial health, we study how financial health changes for consumers who move out of reservation areas. By examining changes in consumer financial health for those who move from reservation areas, we can separate the effect of the institutional environment from other consumer-specific unobservables that influence consumer financial health. To account for the possibility that consumers who leave reservation lands are unobservably different from those who stay, our tests focus on the difference-in-difference effect of consumers who leave tribal court reservations compared to those who stay, evaluated against the corresponding difference between movers and stayers on state court reservations. Under this approach, the primary identification assumption is that consumers who leave tribal court reservations are not systematically different from consumers who leave state court reservations.

Preliminary evidence on the effect of moving away from reservations is presented in Figure 6, which plots the average difference between movers from a reservation against those who stay on reservations, segmented into consumers from tribal and state court jurisdictions. The most striking difference is for *riskscore* and $supply ratio$. Riskscores increase by 18 points for movers from tribal court areas and 9 points for movers from state court reservations. Supply ratio increases by 8 percent for movers from areas with

tribal courts, compared to 4 percent for movers from state court reservations. These results provide evidence that moving away from reservations has a greater effect on the financial health of those growing up on tribal court reservations. Meanwhile, there is not much difference in credit limits or the number of accounts for individuals moving from tribal and state court reservations, suggesting little difference in the demand for credit for borrowers across reservation jurisdiction types.

We test the effects of moving away from reservation areas by estimating the following difference-in-difference regression:

$$Y_{it} = \gamma_t + \gamma_c + \gamma_{st} + \beta_1 offresvn_{it} + \beta_2 offresvn_{it} \times tribalcourt_i + \varepsilon_{it} \tag{4}$$

where Y_{it} measures consumer credit outcomes and $offresvn$ equals one if consumer i is no longer on reservation land in quarter t. Fixed effects for quarter t are γ_t, the Census tract of i's first credit record (birth tract) (γ_c), and i's current state of residence γ_{st}. The coefficient β_1 captures the baseline effect of moving away from reservation lands governed by state courts, whereas β_2 indicates the differential change in credit outcomes for individuals moving away from tribal court reservations. Standard errors are clustered by date and current Census tract.

An advantage of the specification in equation 4 is the richness of the fixed effects, which allows us to account flexibly for unobserved geographical variation in economic activity. For example, the model compares two consumers, one from a tribal court area and one from a state court reservation, both of whom move to the same state. Because the model has time-varying fixed effects for i's current state, it accounts for any differences in the broader economic activity of the area i moved to. Further, because there are at least two consumers who originate from the same Census tract (some of whom stay on reservations and others that leave), the model is able to establish a baseline effect for the economic conditions when i first establishes his or her credit report. The primary source of variation

that remains is the plausibly exogenous difference in financial development across state and tribal court jurisdictions.

4.2.1 Changes in Consumer Financial Health

The financial health benefits of moving away from a reservation are stronger for consumers who come from tribal court reservations. Table 7, Panel A, presents estimates of equation 4 using *riskscore* as the dependent variable. The coefficient of interest is β_2, which in this case indicates whether consumer credit scores change more for individuals who move from tribal court reservations compared to individuals who move from state court reservations. Consistent with low financial development stunting credit records of borrowers on tribal court reservations, the estimated coefficient on the interaction term is equal to 4.1 riskscore points and is statistically significant at the one percent level (column 1, using date and birth tract fixed effects). As columns 2 and 3 show, the effect is robust to including birth tract or destination tract fixed effects, and the estimated coefficient magnitudes are stable regardless of the specification. Beyond the interpretation on the interactions, the estimate of β_1 shows the effect of moving for individuals who move from state courts. Interestingly, throughout these tests, the estimated coefficient on $offresvn$ is not statistically different from zero. Thus, there is little financial health benefit for those individuals moving away from a state court reservation, after accounting for the fixed effects.

4.2.2 Changes in the Propensity to get a Loan

Consumers who move away from tribal court reservations also become more likely to receive loans. We estimate equation 4 using $supplyratio$ as the dependent variable (Table 7, Panel B). Using the same set of fixed effects as Panel A, the difference-in-differences estimate of β_2 is between 9 and 10 percent, and is statistically significant at the one percent level across specifications. The estimate implies that the effect of moving away from tribal court reservations increases the propensity to get a loan by 9 to 10 percent relative to

the effect of moving away from state court reservations. Moreover, the overall effect for movers from tribal court areas is positive: they are 2 to 4 percent more likely to see their loan inquires approved after they leave the reservation area.

Interestingly, the main effect on $offresvn$ is negative (between -0.06 and -0.08), implying that consumers who move away from state court reservations are less likely to have their credit inquiries result in new credit lines. There are a few possible explanations for this result. First, under state courts, local institutions are familiar with Native American borrowers, which has over time alleviated any credit frictions. Thus, when a Native American from state court reservations moves away they become exposed to discrimination in lending for the first time. Second, because loan applicants in state court reservations had not previously experienced much difficulty obtaining credit, upon leaving the reservation, applicants brought with them some amount of debt on their balance sheet. Consequently, any subsequent attempts to obtain credit would have been perceived as riskier to a lender.

4.2.3 Are Movers Different Across Reservations?

It would be a potential concern with our analysis if consumers who leave tribal court reservations and consumers who leave state court reservations are different quality borrowers. We examine this possibility directly by studying the debt repayment activity of borrowers who move away from reservations. If consumers exhibit different delinquency rates after leaving the reservation, they were plausibly of different underlying borrower quality.

To examine whether there are differences in borrower qualities, Table 8 presents estimates of the following regression specification for the fraction of past due credit accounts:

$$pastduecredit_{it} = \gamma_t + \gamma_c + \beta_1 tribalcourt_i + \varepsilon_{it} \tag{5}$$

where $pastduecredit$ is the the fraction of credit accounts (tradelines) that are at least 90 days past due. To estimate the regression model, we use the sample of borrowers who move

away from the reservation, have at least one credit line, and who are at least 28 years old in quarter t. We focus on these older cohorts in order to consider how consumers manage their credit in a manner that is relatively independent of the effects of obtaining credit.

Consumers who move away from tribal court reservations are no more or less likely than borrowers from state court reservations to have difficulties managing their credit. Whether we include fixed effects for i's birth Census tract, birth cohort, or current state (columns 1, 2, and 3, respectively), the coefficient estimate of β_1 is not statistically different from zero. These findings suggest that our tests focusing on moving consumers do not suffer from a selection bias caused by differences in borrower quality across reservation jurisdiction.

4.3 Persistent Effects of Growing up Without Finance

4.3.1 Quantifying the Long-Run Effects

There are persistent consequences to growing up in areas with lower financial development, and these persistent effects arise from more slowly entering formal credit markets. To examine these persistent effects, Table 9 presents OLS estimates of the following regression

$$riskcore_{it} = \gamma_t + \gamma_c + \beta_1 age\,at\,first_i + \beta_2 age\,at\,first_i \times tribalcourt_i + \varepsilon_{it} \tag{6}$$

using the sample of borrowers born between 1981 and 1987 who are currently at least 28 years old (birth cohorts between 1981 and 1987). We focus on these cohorts in order to allow consumers to grow old enoughenough time within the sample to observe the long-run effects. For these tests, we also restrict the analysis to consumers who stay on reservation lands during the entirety of the sample. In columns 1 through 3, $age\,at\,first$ is i's first credit report. In columns 4 through 6, it is i's first line of credit.

Being older at first credit report (i.e., greater $ageat first_i$) is associated with significantly worse credit scores later in life. For each additional year before first seeking credit,

an individual's credit score is Each additional year until receiving a credit report results in between 1.5 and 2 less riskscore points lower (columns 1 through 3). For example, a borrower who received a credit report at 18 would have as much 14 additional riskscore points than someone receiving their first credit report at 25. The interaction between $age\,at\,first$ and $tribalcourt$ is also negative, which suggests the effect is larger for borrowers in areas of low financial development. This result is consistent with there being continued difficulties obtaining credit on tribal court reservations.

The effect of local financial development on consumer financial health ceases to persist once a consumer obtains credit for the first time. The coefficient estimate of β_1 is about equal to -4.5 riskscore points and is statistically significant at the one percent level in columns 4 through 6. However, the coefficient on the interaction term, β_2, is not statistically different from zero. These results imply that any pair of consumers – one from tribal and the other from state court reservations – who receive their first line of credit at the same age have equally good financial health in subsequent years. In other words, the long-term effects of growing up in low financial development regions are almost entirely captured by the date at which the consumer first obtains credit.

We further verify that the quality of borrowers from tribal and state court reservations is not fundamentally different. Rather, the difference in subsequent financial health stems from delayed entry into formal credit markets. Table 10 estimates equation 6 using $past\,due\,credit$ credit as the dependent variable. Delayed entry into formal credit markets increases the propensity to have financial distress, presumably because it results in worse loan terms, but the interaction effect with $tribalcourt$ is not statistically different from zero, indicating no difference across quality of consumers after accounting for when they enter formal credit markets.

Moreover, these differences in later-life financial health are unlikely to be explained by differences in the demand for credit. The demand for credit presumably rises with increases in economic opportunity, which we measure by including census tract income and

employment rates on the right-hand side of the regressions. Even after controlling for economic opportunity, growing up in finance-poor regions remains strongly negatively related to later-life financial health with effects between four and eight riskscore points (Table 11, Panel A). Because these tests focus on the subsample of individuals who remain on the reservations, these results suggest that the persistent effects on consumer financial outcomes we document are not due to exposure to areas with greater economic opportunity, further enhancing our interpretation that the long-run effects are due to exposure to local financial development. Further, in Panel B, we directly measure the demand for new credit by regressing the number of hard credit inquiries over the past 12 months on $tribalcourt$. Inconsistent with unobserved differences in opportunities to use consumer credit, the coefficient estimate on $tribalcourt$ is not statistically different from zero across specifications indicating no discernible differences in the demand for credit across reservation jurisdictions.

4.3.2 How Long Does it Take for Movers to Fully Recover?

As a final consideration, we examine whether eventual exposure to financial institutions can overcome early-life experiences for consumers who grew up in areas with low financial development. The exercise is useful because it helps determine the potential effectiveness of policies that extend credit to less developed areas. To test the persistence of growing up without finance, we estimate the following regression

$$riskscore_{it} = \gamma_t + \beta_1 quarters away_{it} + \beta_2 birthyear_i + \varepsilon_{it} \tag{7}$$

for the sample of consumers who move away from reservations, separately by jurisdiction type.

Exposure to areas with greater financial development partially offsets the effect of early exposure to areas with less financial development, but the effect takes a long time

to overcome. Figure 7 presents fitted estimates of equation 7. The slope coefficient β_1 is steeper for consumers from tribal court reservations, but these consumers have worse financial health when they leave the reservation (riskscore equal to 634 versus 646 when $quarters away_{it} = 0$ for tribal and state court, respectively). It takes approximately 68 quarters, or 17 years, for the average financial health of tribal court and state court reservation movers to no longer be statistically different from each other. These results are a strong indication that early experiences with financial markets are a critical determinant of consumer financial health that is not easily trasnformed by later experiences.

5 Conclusion

This paper shows that financial market development has a large, persistent effect on consumer financial health. Our approach marries location-specific micro-level data on consumer financial health with exogenous variation in local financial development on Native American reservations arising from U.S. Congressional action in the early 1950s. We find that individuals growing up in areas with relatively strong financial markets establish a credit history sooner, have higher credit ratings, and are more successful obtaining credit. Moreover, although individuals who leave areas with weak financial markets see significant improvements in consumer financial health, it takes many years to overcome the negative effects of growing up without finance. These findings provide new insights on the consumer-side effects of financial development, and in particular highlight unappreciated consequences of local financial market development for household well-being over the long run.

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Table 1: **Reservation Economies Prior to Public Law 280's 1953 passage**

Note: This table presents statistics from prior to the passage of the 1953 law, Public Law 280, which gave state courts authority to adjudicate contracts on a subset of Native American reservations. All observations are at the county-level. We classify a county as state (tribal) court if Public Law 280 applies (does not apply) to the reservation that has a headquarters in the county. All data come from the 1950 U.S. Census, except for bank branches, bank loans, and bank assets, which come from the 1952 edition of Polk's Bank Directory. The data from Polk's is a county-level aggregate of loans, assets, or branches for banks that are headquartered in that county. These variables are converted to per capita using the county's population according to the 1950 Census. The *family incomes* measure is the county's median income expressed in terms of income buckets running from zero (lowest income range) to nine (highest). Statistical significance at the one, five, and ten percent levels ***, **, and *, respectively.

Credit and Incomes

	State Courts	Tribal Courts	Difference	p-value
bank branches per capita ($\times$1000)	0.0248	0.0313	-0.0065	*0.579*
bank loans per capita	201.1	191.8	9.29	*0.909*
bank assets per capita	614.2	596.7	17.51	*0.942*
family incomes	5.85	5.81	0.04	*0.887*

Economic Conditions and Demographics

	State Courts	Tribal Courts	Difference	p-value
non-white population (% pop.)	0.0582	0.132	-0.074	*0.001****
high school educated (% pop.)	0.108	0.104	0.0047	*0.535*
college educated (% pop.)	0.0245	0.0270	-0.0026	*0.283*
unemployment rate	0.0596	0.0601	-0.00053	*0.948*
fraction urban	0.299	0.301	-0.0011	*0.987*
fraction incarcerated ($\times$100)	0.583	0.666	-0.083	*0.690*
N	27	75		

Table 2: **Summary Statistics for Regression Analysis**

Note: This table presents summary statistics of data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly between 1999Q1 and 2015Q2 for consumers who would have turned 18 in 1999 or younger and whose first credit report was on reservation lands as defined by the Bureau of Indian Affairs. The variable *tribalcourt* equals one if the consumer resides on a reservation using tribal courts as determined by Public Law 280. The variable $offresvn$ equials one if the observation comes from a quarter in which the consumer resides off reservation lands.

	obs.	mean	median	std dev	10th %ile	90th %ile	level
Equifax riskscore	340,573	635.4	644	93.0	512	753	consumer - quarter
supply ratio (# new acct / # inquiries)	218,608	0.67	0.43	0.89	0	2	consumer - quarter
fraction delinquent (# > 90 days past due / # acct)	277,260	0.14	0	0.33	0	1	consumer - quarter
tribalcourt	340,573	0.77					consumer - quarter
off resvn	340,573	0.51					consumer - quarter

Table 3: **How Long Does it Take to Enter Credit Markets?**

Note: This table presents estimation results of the following Cox-proportional hazard model

$$h_i(t) = h_0(t)\, exp\left(\beta_1 tribalcourt_i + X_i'\Gamma\right)$$

using data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly between 1999Q1 and 2015Q2 for borrowers 25 years old or younger whose first credit report is associated with a Census tract on reservation lands as defined by the Bureau of Indian Affairs. The baseline hazard function is given by $h_0(t)$, where t is the consumer's age. The variable *tribalcourt* equals one if the consumer resides on a reservation using tribal courts as determined by Public Law 280. The hazard functions are stratified by date (quarterly). Standard errors clustered by census tract and date are in parentheses. ***, **, and * indicate statistical significance at the one, five, and ten percent levels.

Panel 1: *time to first credit report*

	(1)		(2)		(3)	
$t = age$	coef	[*odds-ratio*]	coef	[*odds-ratio*]	coef	[*odds-ratio*]
tribalcourt	-0.138***	[*0.871*]	-0.130***	[*0.878*]	-0.101*	[*0.904*]
	(0.019)		(0.021)		(0.059)	
quarter strata	x		x		x	
census region FE			x			
state FE					x	
N (consumer-quarter)	151,394		151,394		151,394	
N (consumers)	14,380		14,380		14,380	

Panel 2: *time to first tradeline*

	(1)		(2)		(3)	
$t = age$	coef	[*odds-ratio*]	coef	[*odds-ratio*]	coef	[*odds-ratio*]
tribalcourt	0.00309	[*1.003*]	-0.0664**	[*0.936*]	-0.121***	[*0.886*]
	(0.024)		(0.027)		(0.040)	
quarter strata	x		x		x	
census region FE			x			
state FE					x	
N (consumer-quarter)	126,047		126,047		126,047	
N (consumers)	11,298		11,298		11,298	

Table 4: **Credit Market Entry and Bank Branching Expansion**

Note: This table presents estimation results of the following Cox-proportional hazard model

$$h_i(t) = h_0(t)\, exp\left(\beta_1 tribalcourt_i + \sum_{l=0}^{4} \beta_{2l} dereg.index_{it} + \sum_{l=0}^{4} \beta_{3l} tribalcourt_i \times dereg.index_{it} + X_i^{'}\Gamma\right)$$

using data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly between 1999Q1 and 2004Q4 for borrowers 25 years old or younger whose first credit report is associated with a Census tract on reservation lands as defined by the Bureau of Indian Affairs. The baseline hazard function is given by $h_0(t)$, where t is the consumer's age. The variable *tribalcourt* equals one if the consumer resides on a reservation using tribal courts as determined by Public Law 280. The variable *dereg.index* is from Rice and Strahan (2010). On an ascending scale from 0 to 4, it measures the extent to which the state has deregulated the banking sector following the Interstate Banking and Branching Efficiency Act of 1994. Standard errors clustered by census tract and date are in parentheses. ***, **, and * indicate statistical significance at the one, five, and ten percent levels.

		odds-ratios (t-stats)			
t =age at first report		index = 1	index = 2	index = 3	index = 4
tribalcourt	0.724***				
	(-3.23)				
dereg.index†		0.924	1.123	1.285**	0.987
		(-0.89)	(1.12)	(2.51)	(-0.13)
tribalcourt × dereg.index†		1.223	1.009	1.016	1.329**
		(1.61)	(0.065)	(0.12)	(2.16)
N (consumer-quarter)	46,753				
N (consumers)	6,166				

		odds-ratios (t-stats)			
t =age at first tradeline		index = 1	index = 2	index = 3	index = 4
tribalcourt	0.690*				
	(-1.89)				
dereg.index†		1.072	1.041	0.645**	0.793
		(0.38)	(0.15)	(-2.36)	(-1.12)
tribalcourt × dereg.index†		1.320	1.734*	2.106***	1.761**
		(1.10)	(1.72)	(3.04)	(2.15)
N (consumer-quarter)	75,105				
N (consumers)	5,086				

† omitted category is index = 0

Table 5: **The Propensity for Young Borrowers on Reservations to Get a Loan**

Note: This table presents OLS estimation results of the following specification

$$supply\,ratio_{it} \quad = \quad \gamma_t + \gamma_r + \beta_1 tribalcourt_i + \beta_2 birthyear_i + \varepsilon_{it}$$

using data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly between 1999Q1 and 2015Q2 for borrowers 25 years old or younger with a riskscore less than 640 (subprime borrower). The sample is confined to consumers who only appear on reservation lands in the data at all points in the FRBNY - CCP sample. The variable *supply ratio* is the number of new credit lines over the number of hard credit inquiries (last 12 months), while *tribalcourt* equals one if the consumer resides on a reservation using tribal courts as determined by Public Law 280. Fixed effects for date (quarterly) and *i*'s current Census region are γ_t and γ_r, respectively. Standard errors are clustered by current census tract and date. Stars ***, **, and * indicate statistical significance at the one, five, and ten percent levels.

supply ratio	(1)	(2)	(3)	(4)
tribalcourt	-0.0836***	-0.0802***	-0.0844***	-0.0697***
	(0.015)	(0.015)	(0.018)	(0.018)
quarter FE	x		x	
birth year FE	x		x	x
birth year - quarter FE		x		
census region FE			x	
census region - quarter FE				x
N	21,726	21,726	21,726	21,726
R^2	0.040	0.060	0.059	0.085

Table 6: **The Financial Health of Young Borrowers on Reservations**

Note: This table presents OLS estimation results of the following specification

$$riskscore_{it} \quad = \quad \gamma_t + \gamma_s + \beta_1 tribalcourt_i + \beta_2 birthyear_i + \varepsilon_{it}$$

using data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly between 1999Q1 and 2015Q2 for borrowers 25 years old or younger. The sample is confined to consumers who only appear on reservation lands in the data at all points in the FRBNY - CCP sample. The dependent variable *riskscore* is similar to a consumer's FICO score, it varies between 280 and 840, and offers an assessment of consumer *i*'s credit-worthiness, while *tribalcourt* equals one if the consumer resides on a reservation using tribal courts as determined by Public Law 280. Fixed effects for date (quarterly) and *i*'s current state are γ_t and γ_s, respectively. Standard errors are clustered by current census tract and date. Stars ***, **, and * indicate statistical significance at the one, five, and ten percent levels.

riskscore	(1)	(2)	(3)	(4)
tribalcourt	-18.60***	-18.53***	-18.16***	-17.81***
	(0.99)	(1.00)	(1.01)	(1.00)
quarter FE	x		x	
birth year FE	x		x	x
birth year - quarter FE		x		
census region FE			x	
census region - quarter FE				x
N	66,027	66,027	66,027	66,027
R^2	0.037	0.041	0.051	0.061

Table 7: **Moving Away From Reservations and Consumer Creditworthiness**

Note: This table presents OLS estimation results of the following specification

$$Y_{it} \quad = \quad \gamma_t + \gamma_c + \beta_1 offresvn_{it} + \beta_2 offresvn_{it} \times tribalcourt_i + \varepsilon_{it}$$

using data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly (t) between 1999Q1 and 2015Q2 for consumers who would have turned 18 in 1999 or younger and whose first credit report was on reservation lands as defined by the Bureau of Indian Affairs. The dependent variable *riskscore* is similar to a consumer's FICO score, it varies between 280 and 840, and offers an assessment of consumer i's credit-worthiness. The variable *supply ratio* is the number of new credit lines over the number of hard credit inquiries (last 12 months). *tribalcourt* equals one if the consumer's first credit report is on a reservation using tribal courts as determined by Public Law 280. *offresvn* equals one when i's location is not on reservation lands. Fixed effects for date (quarterly) and i's first Census tract are γ_t and γ_c, respectively. Standard errors are clustered by current census tract and date. Stars ***, **, and * indicate statistical significance at the one, five, and ten percent levels.

Panel A:			
riskscore	(1a)	(2a)	(3a)
off resvn	0.144	0.953	-0.217
	(0.91)	(0.92)	(0.88)
tribalcourt × off resvn	4.069***	3.538***	3.982***
	(0.54)	(0.61)	(0.61)
date quarter FE	x		x
birth tract FE	x		x
birth tract × date FE		x	
current state FE			x
N	340,385	340,385	340,385
R^2	0.12	0.15	0.15

Panel B:			
supply ratio	(1b)	(2b)	(3b)
off resvn	-0.0812***	-0.0735***	-0.0595***
	(0.0066)	(0.0074)	(0.0076)
tribalcourt × off resvn	0.108***	0.104***	0.0938***
	(0.0077)	(0.0082)	(0.0079)
date quarter FE	x		x
birth tract FE	x		x
birth tract × date FE		x	
current state FE			x
N	218,492	218,492	218,492
R^2	0.056	0.13	0.14

Table 8: **Borrowing Behavior and Moving Away from Reservations**

Note: This table presents estimates of the following regression estimated using OLS

$$past\,due\,credit_{it} = \gamma_t + \gamma_c + \beta_1 tribalcourt_i + \varepsilon_{it}.$$

The sample includes consumers i whose first observation was on a reservation Census tract, but are no longer located on a reservation. The sample includes consumers born between 1981 and 1987, inclusive. The observations are credit records occurring after the consumer is at least 28 years old. The dependent variable is the fraction of tradelines > 90 days past due, which equals the number of credit accounts 90 days past due, 120 days past due or in collections, or severe derogatory divided by the total number of credit accounts in the current quarter. The variable *tribalcourt* equals one if the consumer resides on a reservation using tribal courts as determined by Public Law 280. Fixed effects for date (quarterly) and Census tract for i's first credit report are γ_t and γ_c, respectively. Standard errors are clustered by date and current Census tract. The stars***, **, and * indicate statistical significance at the one, five, and ten percent levels.

frac tradelines > 90 days past due	(1)	(2)	(3)
tribalcourt	0.0200	0.0165	-0.103
	(0.16)	(0.16)	(0.16)
date FE	x	x	x
birth tract FE	x	x	x
birth cohort FE		x	x
current state FE			x
N	31,803	31,803	31,803
R^2	0.14	0.14	0.15

Table 9: **The Persistent Effect of Lack of Access to Credit - Financial Health**

Note: This table presents estimates of the following regression estimated using OLS

$$riskcore_{it} = \gamma_t + \gamma_c + \beta_1 age\,at\,first_i + \beta_2 age\,at\,first_i \times tribalcourt_i + \varepsilon_{it}.$$

The sample includes consumers i who are only observed on a reservation Census tract. The sample includes consumers born between 1981 and 1987, inclusive. The observations are credit records occurring after the consumer is at least 28 years old. The dependent variable *riskscore* is similar to a consumer's FICO score, it varies between 280 and 840, and offers an assessment of the i's credit-worthiness. The variable *tribalcourt* equals one if the consumer resides on a reservation using tribal courts as determined by Public Law 280. "Age at first credit report" is the consumer's age when they first enter the FRBNY-CCP sample, while "age at first trade line" is the consumer's age when they receive their first credit account. Fixed effects for date (quarterly) and Census tract for i's first credit report are γ_t and γ_c, respectively. Standard errors are clustered by date and current Census tract. The stars***, **, and * indicate statistical significance at the one, five, and ten percent levels.

riskscore	(1)	(2)	(3)	(4)	(5)	(6)
age at first credit report	-1.968***	-1.508**	-1.727***			
	(0.37)	(0.59)	(0.57)			
tribalcourt × age at first credit report	-1.710***	-1.200	-1.920**			
	(0.48)	(0.74)	(0.73)			
age at first trade line				-4.415***	-4.389***	-4.794***
				(0.45)	(0.65)	(0.59)
tribalcourt × age at first trade line				0.559	0.497	0.0789
				(0.61)	(0.69)	(0.65)
date quarter FE	x			x		
birth tract FE	x			x		
birth tract × date FE		x	x		x	x
birth year FE			x			x
N	11,455	11,455	11,455	11,124	11,124	11,124
R^2	0.32	0.45	0.45	0.33	0.46	0.47

Table 10: **The Persistent Effect of Lack of Access to Credit - Financial Distress**

Note: This table presents estimates of the following regression estimated using OLS

$$past\,due\,credit_{it} = \gamma_t + \gamma_c + \beta_1 age\,at\,first_i + \beta_2 age\,at\,first_i \times tribalcourt_i + \varepsilon_{it}.$$

The sample includes consumers i who are only observed on a reservation Census tract. The sample includes consumers born between 1981 and 1987, inclusive. The observations are credit records occurring after the consumer is at least 28 years old. The dependent variable is the fraction of tradelines > 90 days past due, which equals the number of credit accounts 90 days past due, 120 days past due or in collections, or severe derogatory divided by the total number of credit accounts in the current quarter. The variable *tribalcourt* equals one if the consumer resides on a reservation using tribal courts as determined by Public Law 280. "Age at first credit report" is the consumer's age when they first enter the FRBNY-CCP sample, while "age at first trade line" is the consumer's age when they receive their first credit account. Fixed effects for date (quarterly) and Census tract for i's first credit report are γ_t and γ_c, respectively. Standard errors are clustered by date and current Census tract. The stars***, **, and * indicate statistical significance at the one, five, and ten percent levels.

frac tradelines > 90 days past due	(1)	(2)	(3)	(4)	(5)	(6)
age at first credit report	0.0185**	0.0136	0.0125			
	(0.0083)	(0.011)	(0.011)			
tribalcourt × age at first credit report	-0.00353	0.000605	0.00220			
	(0.0078)	(0.011)	(0.012)			
age at first trade line				0.0152***	0.0150**	0.0149**
				(0.0041)	(0.0065)	(0.0068)
tribalcourt × age at first trade line				0.0000525	-0.000527	0.000275
				(0.0043)	(0.0071)	(0.0074)
date quarter FE	x			x		
birth tract FE	x			x		
birth tract × date FE		x	x		x	x
birth year FE			x			x
N	8,454	8,454	8,454	8,454	8,454	8,454
R^2	0.34	0.53	0.54	0.34	0.53	0.54

Table 11: **The Demand for Consumer Credit**

Note: This table presents OLS estimation results of the following specification

$$Y_{it} \quad = \quad \gamma_t + \gamma_s + \beta_1 tribalcourt_i + \beta_2 birthyear_i + \varepsilon_{it}$$

using data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly between 1999Q1 and 2015Q2 for borrowers 25 years old or younger. The sample is confined to consumers who only appear on reservation lands in the data at all points in the FRBNY - CCP sample. In Panel A, the dependent variable *riskscore* is similar to a consumer's FICO score, it varies between 280 and 840, and offers an assessment of consumer *i*'s credit-worthiness. In Panel B, the dependent variable is the number of hard credit inquiries made in the past twelve months. The independent variable *tribalcourt* equals one if the consumer resides on a reservation using tribal courts as determined by Public Law 280. Median Census tract income and employment rates come from the 2000 U.S. Census. Fixed effects for date (quarterly) and *i*'s current state are γ_t and γ_s, respectively. Standard errors are clustered by current census tract and date. Stars ***, **, and * indicate statistical significance at the one, five, and ten percent levels.

Panel A:

	dep var = riskscore			
	(1a)	(2a)	(3a)	(4a)
tribalcourt	-4.550*	-4.560*	-7.908***	-7.601***
	(2.72)	(2.73)	(2.87)	(2.89)

Panel B:

	dep var = # credit inquiries past 12mo			
	(1b)	(2b)	(3b)	(4b)
tribalcourt	-0.0335	-0.0331	0.0867	0.0792
	(0.054)	(0.054)	(0.057)	(0.057)
median tract income	x	x	x	x
tract employment rate	x	x	x	x
quarter FE	x		x	
birth year FE	x		x	x
birth year - quarter FE		x		
census region FE			x	
census region - quarter FE				x
N	12,285	12,285	12,285	12,285

Figure 1: **Reservation Counties Across the United States**

Note: This figure illustrates U.S. counties that contain a headquarters to a Native American reservation. State court reservations are reservations for which civil contracts are adjudicated in the state's court system, as prescribed according to Congressional legislation titled Public Law 280. When state court equals zero, the tribe's court system adjudicates and enforces civil contracts.

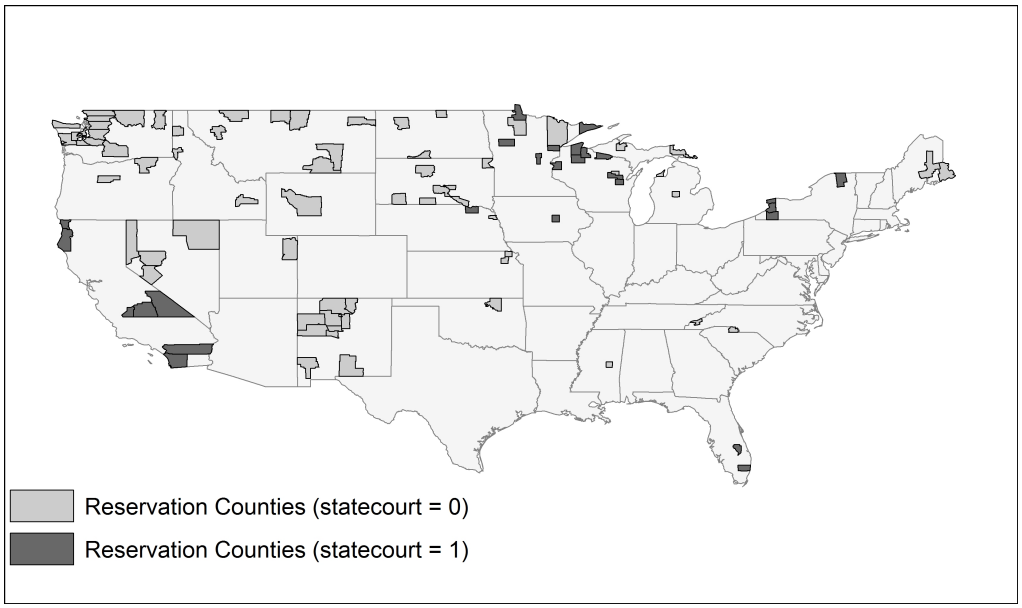

Figure 2: **Credit Undercoverage Across Reservations**

Note: This figure demonstrates the extent of credit undercoverage on reservations. The proportion of coverage is equal to $20 \times \frac{\sum_{c=1}^{N} FRBNY-CCP_{c,t}}{\sum_{c=1}^{N} population_c}$, where $\#FRBNY-CCP_{c,t}$ is the number of people in a Census tract c in year t in the FRBNY-CCP 5% randomized sample and $population_c$ is the population in c according to the 2000 U.S. Census.

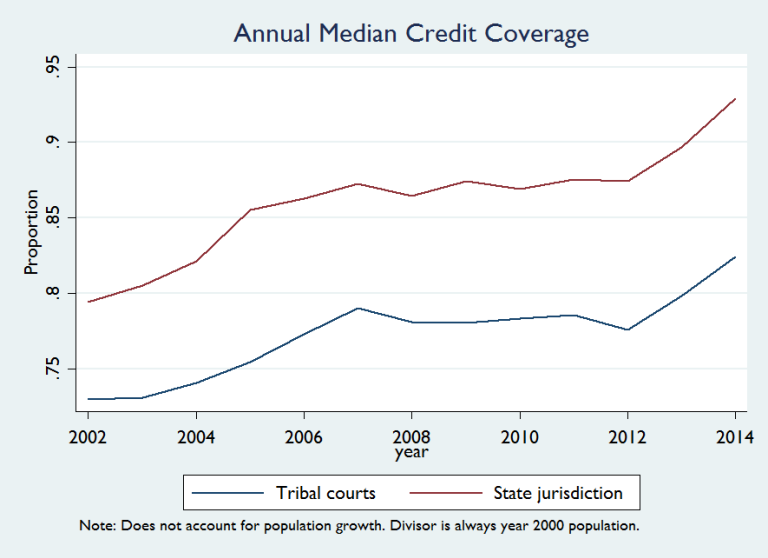

Figure 3: **Delayed Access to Credit**

Note: This figure uses data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly between 1999Q1 and 2015Q2 for borrowers who were 18 years old or younger in 1999 and whose first credit report is associated with an address on Native American reservation lands as defined by the Bureau of Indian Affairs. State jurisdiction reservations are reservations for which civil contracts are adjudicated in the state's court system, as prescribed according to Congressional legislation titled Public Law 280. In tribal court reservations, the tribe's court system adjudicates and enforces civil contracts. Age at start of the sample is the age in which consumer *i* first appears with a riskscore in the FRBNY - CCP sample. Age at first tradeline is the age in which *i* receives their first line of credit.

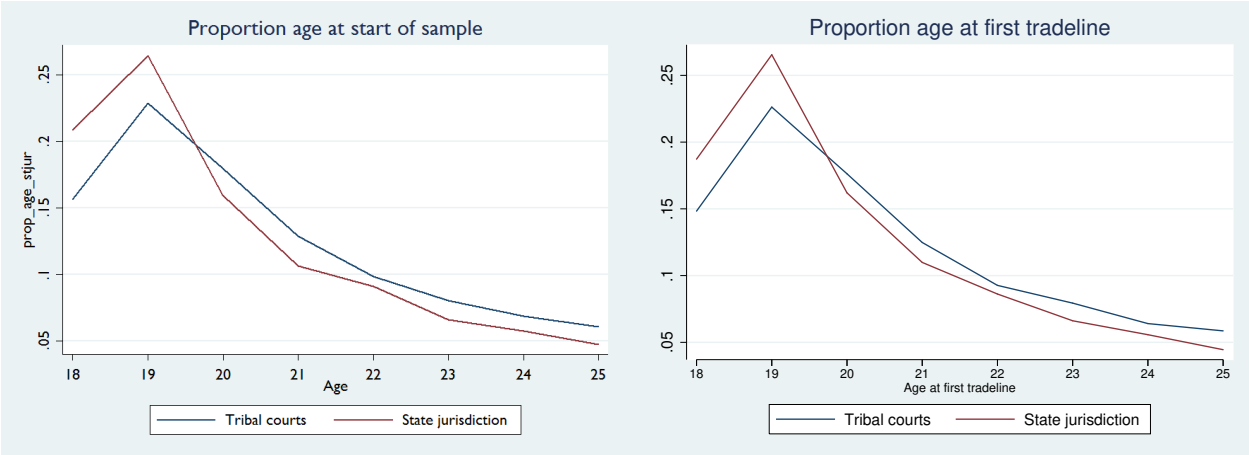

Figure 4: **Borrowing Constraints Across Reservations**

Note: This figure uses data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly between 1999Q1 and 2015Q2 for borrowers who were 18 years old or younger in 1999, are 25 years or younger in year t, and whose credit report is associated with an address on Native American reservation lands as defined by the Bureau of Indian Affairs during the entirety of the sample. The figure plots fitted estimates of the following regression $supplyratio = \beta_0 + \sum_{t=2000+l}^{2015} \beta_l tribalcourt \times year(t) + \varepsilon$, where $tribalcourt$ equals one if the reservation adjudicates and enforces civil contracts in their own tribal courts and *year* is a set of dummies for each year from 2000 to 2015. The dashed lines are 95% confidence intervals.

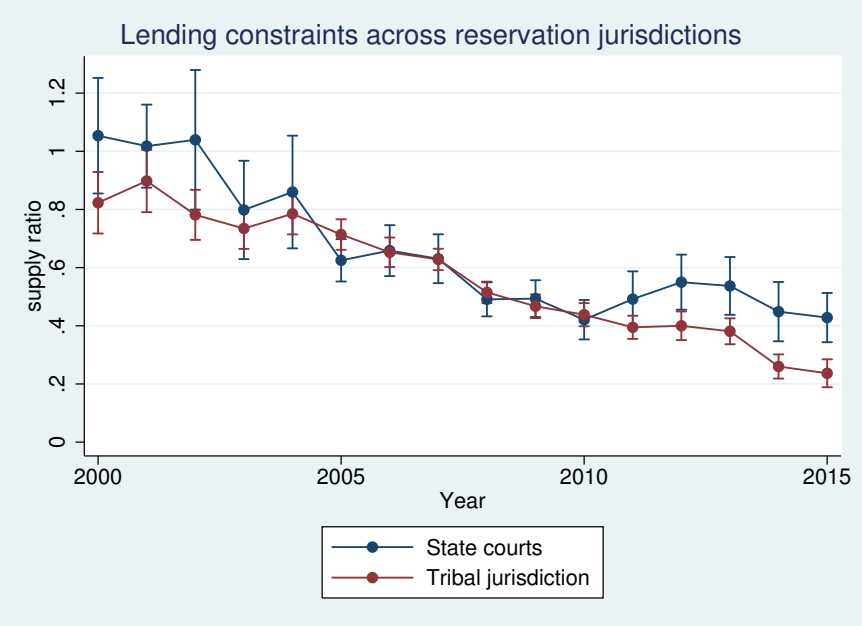

Figure 5: **Credit Scores Across Reservations**

Note: This figure uses data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly between 1999Q1 and 2015Q2 for borrowers who were 18 years old or younger in 1999. State court reservations are reservations for which civil contracts are adjudicated in the state's court system, as prescribed according to Congressional legislation titled Public Law 280. Tribal court reservations are the tribe's court system adjudicates and enforces civil contracts. The dependent variable *riskscore* is similar to a consumer's FICO score, it varies between 280 and 840, and offers an assessment of the *i*'s credit-worthiness.

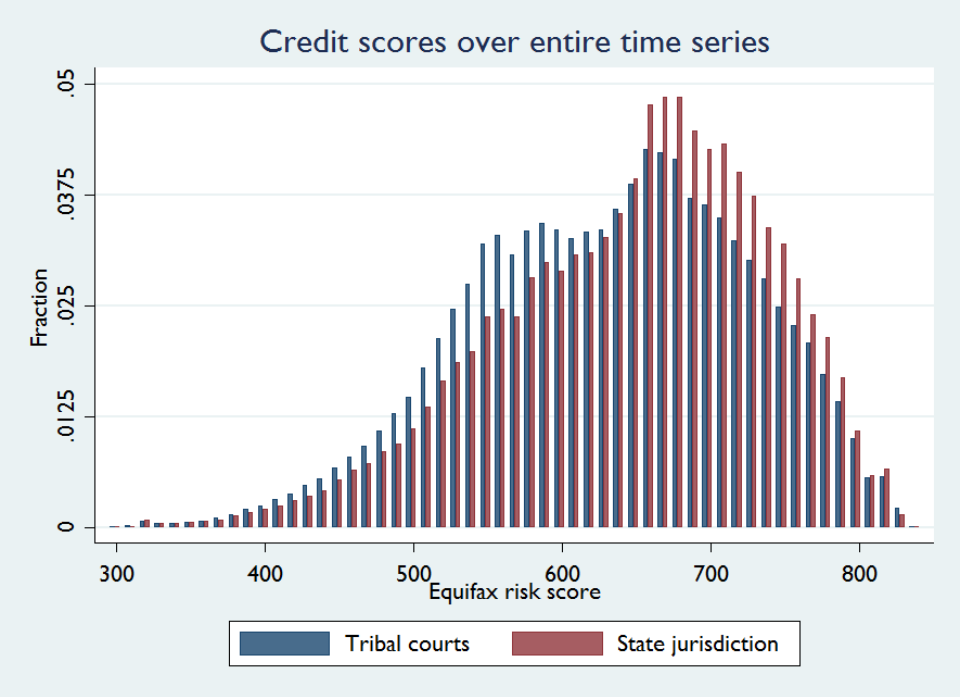

Figure 6: **Moving Away From a Reservation**

Note: This figure uses data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly between 1999Q1 and 2015Q2 for borrowers who were 18 years old or younger in 1999 and whose first credit report is associated with an address on Native American reservation lands as defined by the Bureau of Indian Affairs. State jurisdiction reservations are reservations for which civil contracts are adjudicated in the state's court system, as prescribed according to Congressional legislation titled Public Law 280. Tribal court reservations are the tribe's court system adjudicates and enforces civil contracts. The bars are equal to the average outcome belonging to consumers who are no longer on reservation lands minus the average for consumers on reservation lands. The samples include consumers whose first credit report was on tribal or state court reservations. The variable *riskscore* is similar to a consumer's FICO score, it varies between 280 and 840, and offers an assessment of the *i*'s credit-worthiness. High credit is maximum credit limit on *i*'s revolving credit accounts. Number of (open) accounts is the number of (open) credit lines on the consumer's report. The variable *supply ratio* is the number of new credit lines over the number of hard credit inquiries (last 12 months).

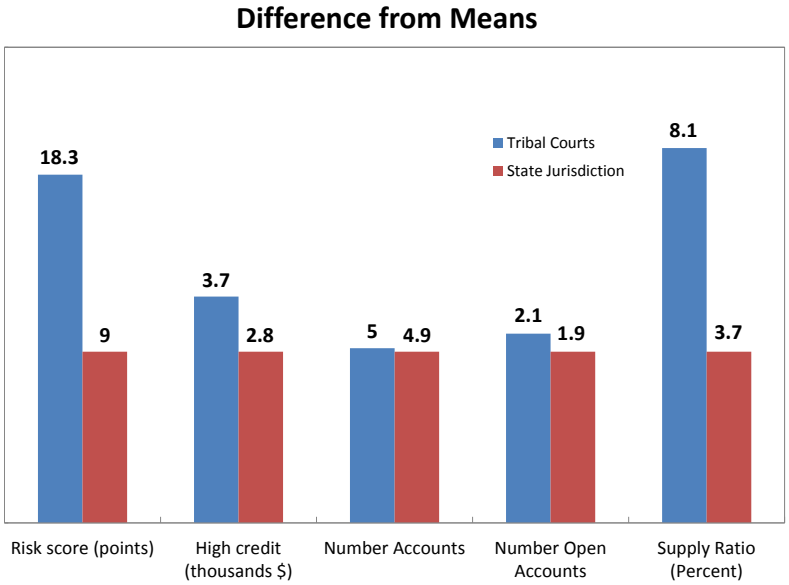

Figure 7: **How Long Does it Take to Catch Up?**

Note: This figure uses data from FRBNY - CCP, a 5% random panel of consumer credit reports from Equifax. The sample includes credit records sampled quarterly between 1999Q1 and 2015Q2 for borrowers who were 18 years old or younger in 1999 and whose first credit report is associated with an address on Native American reservation lands as defined by the Bureau of Indian Affairs. The sample is further restricted to consumers who eventually leave the reservation lands. The figure illustrates the fitted model

$$riskscore_{it} = \gamma_t + \beta_1 quarters away_{it} + \beta_2 birthyear_i + \varepsilon_{it}$$

where *quarters away* is the number of quarters that have passed since *i* has moved off of the reservation lands. *birhyear* is a set of dummy variables for *i*'s year of birth. State jurisdiction reservations are reservations for which civil contracts are adjudicated in the state's court system, as prescribed according to Congressional legislation titled Public Law 280. Tribal court reservations are the tribe's court system adjudicates and enforces civil contracts. The dotted bands represent 95% confidence intervals calculated using standard errors clustered by date and the Census tract of *i*'s first credit report.