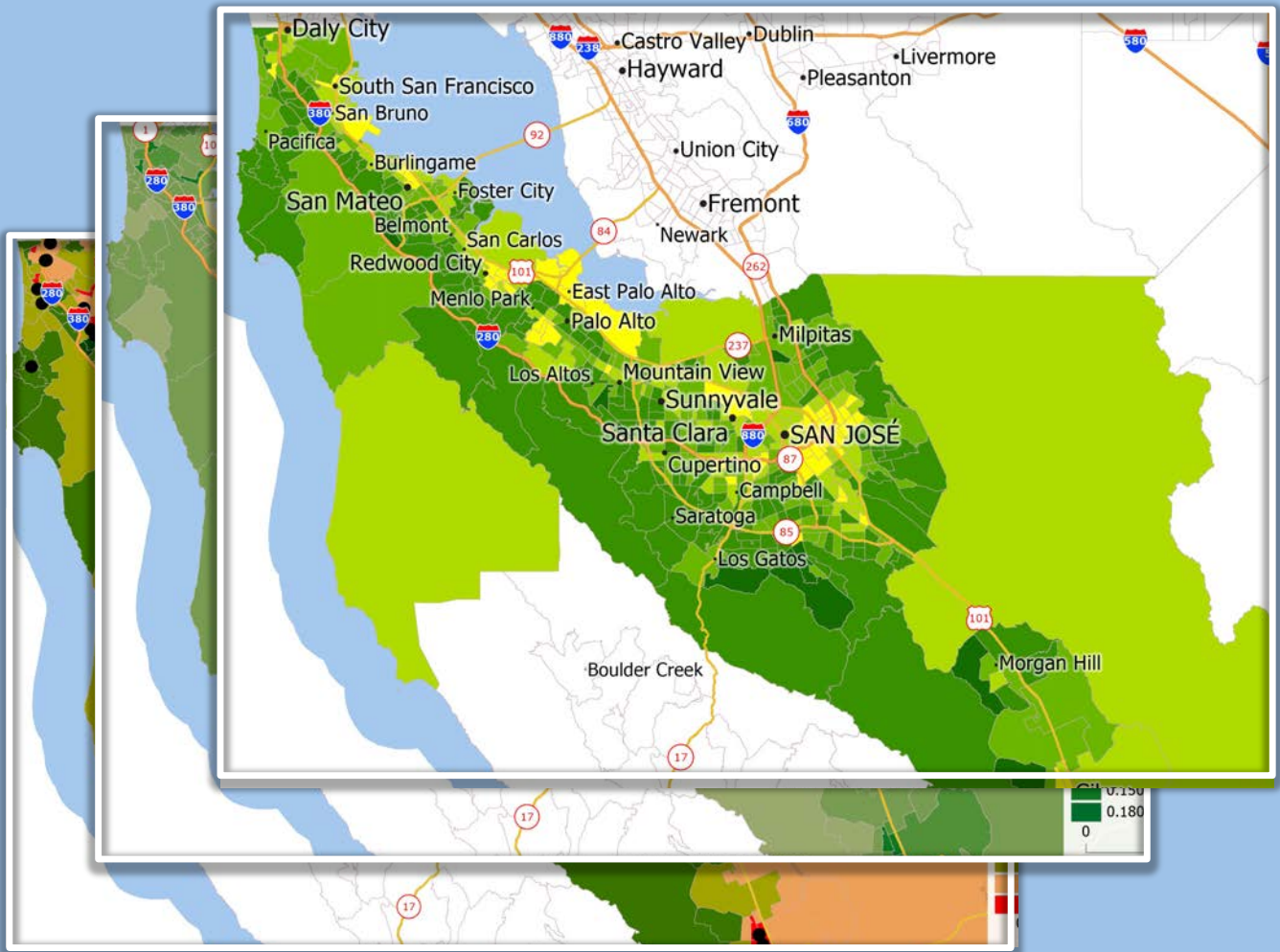# Changing the Lending Landscape:

Credit Deserts, the Credit Invisible, and Data Gaps in Silicon Valley

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PERC
RESULTS AND SOLUTIONS

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Acknowledgments

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Executive Summary

This report presents findings from the pilot effort of the Credit Deserts Project, which aims to map the incidence of *Credit Invisibility*, in which consumers have credit reports with no or insufficient data with which to generate a traditional credit score. Previous research suggests that Credit Invisibles disproportionately live in lower income areas of communities and help form what we call *Credit Deserts.*

Due to the insufficient credit information, the Credit Invisibles suffer from reduced access to lower-cost, mainstream credit and tend to utilize alternative financial service providers or "AFSPs" (such as payday lenders, pawn shops, check cashing, and rent to own) at higher than average rates.

This study maps credit profile and other data to visualize Credit Deserts within Silicon Valley (San Mateo and Santa Clara counties). The report further visualizes the census-tract level potential impacts of adding alternative data (such as energy utility, media, and rent payments) and using alternative credit scores in shrinking Credit Deserts by reducing credit invisibility and, thereby, making predictive credit data available to lenders. This could have the potential to alter the lending landscape so that AFSPs diminish and mainstream lenders expand. This should be a key aspect of the ongoing public policy debate regarding payday lenders and other higher-cost AFSPs (new CFPB rules restricting payday lending were introduced October 5th, 2017). Given that many users of higher-cost AFSPs have genuine credit needs, it is incumbent on policy makers and regulators to pursue ways in which lower-cost, mainstream credit can become more inclusive and not only focus on higher-cost AFSP use.

This pilot study found that pronounced Credit Deserts and Credit *Data* Deserts exist within Silicon Valley— ironically the epicenter of the information economy. Potential borrowers who are credit invisible and have limited mainstream (lower-cost) credit options are not necessarily high credit risks. This fact is what has enabled microlenders like the Mission Asset Fund (MAF) to extend meaningful credit to Credit Invisibles living in Silicon Valley's Credit Deserts. To do so, MAF works with a prospective borrower to manually gather their non-financial payment data to assess their credit risk. As this report shows, including alternative data in consumer credit reports can dramatically reduce Credit Invisibility, and could favorably change the ratio of lower-cost to higher-cost financial services providers.

Based upon findings from this report, a reasonable conclusion is until such time as alternative data is widely reported to national credit bureaus for use in credit risk assessment and lenders use newer credit scores that utilize this data and are designed to score a greater share of consumers, too much of the real credit needs of those in Credit Deserts will be met by higher-cost ASFPs and not by lower-cost, mainstream lenders. Unfortunately, the Credit Catch 22 —in order to qualify for credit you must already have credit—will continue to constrain tens of millions of Credit Invisibles, negatively impacting their life and life's chances.

Key Findings

In some senses, as with all scientific endeavors, the findings from this project confirm or are extensions of earlier research. For example, the following relationships have been identified by past research and seen in this pilot:

- Positive relationship between high concentrations of Credit Invisibles and (1) less than average credit scores, (2) less than average household income[i], and (3) high concentrations of alternative financial services providers[ii];
- Positive relationship between high concentration of alternative financial services providers (AFSPs) and (1) below average household income[iii] [iv], and (2) less than average credit scores[v];
- Positive relationship between below average household income and less than average credit score.[vi]

What is unique to this report compared to earlier generation analyses is the following:

- A visual rendering of the geographic location of Credit Deserts (geographic areas with high concentrations of Credit Invisibles and AFSPs and below average credit scores) in a large US community, Silicon Valley; and

- A visual rendering of how credit reporting "alternative data" and use of alternative credit scores can impact Credit Deserts and the lending landscape.

Perhaps the most compelling finding from this analysis is the dramatic impact from credit reporting even very modest amounts of alternative data and the use of alternative scores on the lending landscape across Silicon Valley. The share of consumers with credit scores needed for mainstream credit increases noticeably while Credit Invisibility is nearly stamped out. In short, this project demonstrates an effective solution to the real problem of Credit Invisibility that if successfully implemented should result in a reduction in use of high-cost AFSPs and greater access to lower cost credit in Credit Deserts.

Introduction

Credit Deserts: Social and Economic Policy Context

Here, a slight digression is of critical importance. Why do we care about access to credit? And why should consumer advocates and state and federal policymakers concern themselves with the obscure topics of "alternative data," "Credit Invisibles," and "Credit Deserts?"

Two reasons: economic opportunity and social justice. The two primary means by which a person in America can build assets and generate wealth are: (1) homeownership; and, (2) owning a small business. For most people, this requires convincing someone (usually a bank) to extend them credit.

Since the early 1990s, lenders have been using automated underwriting tools—credit scorecards and loan decisioning platforms—that rely largely if not entirely on the contents of one's credit report. Unscoreable consumers are either "no-file" persons lacking a credit file altogether or are "thin-file" persons have insufficient data in their credit file to generate a credit score. PERC refers to this unscoreable group as "Credit Invisibles". In many cases unscoreable consumers are assumed to be too high of a credit risk and by default are rejected whenever they apply for credit. [vii]

The lack of a sufficient credit history is further compounded as Credit Invisibles are excluded from preapproved credit solicitations that are frequently conducted by bank card issuers. Unknowingly excluded from these programs, Credit Invisibles are locked out from receiving offers of lower interest rates and more innovative credit products.

Compounding matters for Credit Invisibles is the fact that credit bureau data are being used in an increasing range of applications—from auto, property and casualty insurance underwriting, to employment and tenant screening. The federal government even mandates that applicants for some positions must meet threshold credit profile requirements to qualify for an open position.

In short, the primary avenues to economic opportunity—securing employment, securing safe shelter, securing credit to own a home or a small business, insuring your home, car and other assets—are all tied to some degree to the data contained in the repositories maintained by three nationwide consumer reporting agencies (the big three "CRAs" are Equifax, Experian, and Trans Union) commonly known as credit bureaus. What data is and is not collected and how it is used by lenders and others can be very impactful.

Credit Deserts and Credit Invisibility In Silicon Valley?

We are one generation into the Information Age. By most measures, the US ranks at or near the top of every meaningful metric—patents for IT innovations, leading IT firm

headquarters, rate of interconnectivity, Internet usage, value and volume of eCommerce—and the epicenter of IT in the United States is inarguably Silicon Valley.

Within an information economy, data is the key ingredient and knowledge is the primary source of value. Timely access to actionable intelligence is seen as critical to success and even survival in an information economy. The world is now awash in data—Big Data, Smart Data, Alternative Data—yet despite this, there are an estimated 35 to 54 million Americans about whom little or no credit data exists at the big three national credit bureaus—Trans Union, Experian, and Equifax. These are the "Credit Invisibles."[viii][ix]

Need

Excluded from mainstream lenders, Credit Invisibles must turn to high cost lenders—pawn shops, pay day lenders, check cashing services. Given that credit is necessary for homeownership and owning a small business—the two primary means by which people build assets and create wealth—Credit Invisibles confront a steep challenge in efforts to improve their lives and economic wellbeing.

Research on Alternative Financial Service Providers (AFSPs), such as pawnshops, payday lenders, and check cashing services, has shown that AFSPs are disproportionately located in lower-income areas and areas with a higher proportion of disadvantaged minority groups. A 2009 working paper by the Federal Reserve Board using found that counties with higher proportions of low-credit score (subprime) consumers had higher rates of AFSP outlets, controlling for other factors.[x] It also found that AFSPs were positively associated with the proportion of a county's population that had no credit score.

Other studies using data from Colorado and Virginia found that the presence of payday lenders tend to be concentrated in areas of moderate poverty (not too high and not too low).[xi] An August 2013 study using a dataset that merged Equifax consumer credit files with data from a large payday lender found that "consumers apply for payday loans when they have limited access to mainstream credit."[xii]

As such, while individual components have been examined, no holistic study comprising the following has been carried out:
    (1) traditional credit data gaps at the community level;
    (2) community access to credit/lenders (AFSPs v. more affordable traditional lenders);
    (3) the relationship between community level data gaps and community access to credit/lenders (AFSPs v. traditional lenders); and,
    (4) the potential to fill traditional data gaps with non-traditional data at the community level.

Research has found that these information gaps in credit underwriting systems could be partially filled by using payment data from non-traditional (non-financial) services, such as utility or telecom payment data, with the result being an increase in access to affordable credit (particularly for the lower-income/disadvantaged groups).[xiii]

No study has directly answered the following questions: will filling in data gaps with non-traditional data generate greater access to affordable lenders for credit underserved areas or will shifts from no scores to scores and other score shifts in lower income areas attract high-priced AFSP? Or put more simply, *would the reporting of non-traditional credit data shrink Credit Deserts?*

Research Question and Objectives

We seek to examine whether thickening a person's credit report by including fully reported (timely and late payment information) financial and non-financial payment data (energy utilities, rental, telecoms, cable) in consumer credit reports and use of alternative credit scores that utilize a broader range of data relative to traditional credit scores will affect the type of lenders to which borrowers have access in areas defined as Credit Deserts.

To complete this project, PERC conducted research examining, geographically, the incidence of credit data gaps (no credit file, no credit score, and low score due to lack of data) at the census tract level across two counties. This enabled the production of a spatial/geographic picture and understanding of traditional credit data gaps. For instance, we were able to measure whether and the extent to which low-income census tracts are more likely to have major data gaps in consumer credit reports than higher income areas.

This work identified geographic areas with large concentrations of Credit Invisibles and AFSPs and less than average credit scores ("Credit Deserts"). It adds to an emerging body of literature on Credit Invisibles and helps to increase the broader understanding of their demographic makeup. The research also examines, geographically, the availability of non-traditional data that can fill the identified traditional credit data gaps.

The second component of the research will examine the use of traditional lender services and AFSPs. This will enable a determination of whether there exists mainstream "credit deserts" and whether AFSPs are filling these "credit deserts," or whether AFSPs follow data to target geographic clusters of low-scoring communities.

Many studies suggest that the inclusion of non-financial data in credit files can drive large-scale access to affordable, mainstream finance.[xiv] Some consumer advocates worry that this data will instead drive AFSP to these communities. The research can help to assess whether filling in data deserts with non-financial data increases access to affordable financing or increases the reach of high-priced AFSP.

Data

Credit profiles and credit file data were generated by anonymous credit file records from Experian for all consumers 21 years old and older for Santa Clara and San Mateo Counties. Each record contained geographic identifiers including the consumer's census tract. The data was pulled in October 2016. This data includes a traditional credit score (PLUS score) and an alternative credit score that includes alternative data (Extended View Score). The Extended View score combines (1) Traditional credit file data from Experian with (2) Rental payment data (when available) from Experian's RentBureau along with (3) expanded public record data from LexisNexis Risk Solutions (similar to data used in its RiskView score).

Locations of AFSPs were gathered from the State of California (CA Dept. of Business Oversight) in a document published in 2016. The locations were as of March 22, 2016.[xv]

Estimates of AFSP usage rates come from a table produced by Clarity Services providing Clarity "hit" rates by credit score. Since clarity collects data from high cost lenders, such as payday lenders, this is used as a proxy for AFSP usage.

Estimates of the impact of utility and telecom data on credit scores come from unpublished results from PERC's June 2012 Report "A New Pathway to Financial Inclusion." The data used are the change in acceptance rates for a portfolio with a 3% default rate by median household income at the zip code level when utility and telecom payment information are added to a credit score. This data is used as a proxy to simulate what the change in acceptance rates would be at the census tract level of geography in the counties examined in this report.

Socio-demographic information (such as median household income) for Census Tracts comes from the U.S. Census Bureau.

Alt Data Score Example: *LexisNexis RiskView*

LexisNexis aimed to solve a very real problem facing lenders and applicants, namely that about one-fifth of the adult US population is unscoreable with traditional credit scores and traditional credit data (CFPB).

This unscoreability (or credit invisibility) hinders a big portion of the population. Without a "traditional" credit profile, many consumers cannot access the financial products they need to get and stay ahead. Many of these consumers have good income and are financially responsible:

- Upwardly mobile Millennials are often new to credit, and/or drawn to alternative "disruptive" financial services that bypass traditional institutions
- A growing percentage of the population is "voluntarily inactive," including retirees and those who have joined the "debt-free" movement
- Immigrant populations may be accustomed to a cash-based lifestyle — either due to cultural attitudes toward debt or inability to access traditional banking services.

LexisNexis's solution is the RiskView Scores and Attributes. RiskView collects and analyzes non-tradeline data and LexisNexis estimates that it can provide ~80% of previously unscorable consumers with a way to be assessed for risk in order to access needed financial products.

RiskView can be used by different types of lenders to generate scores and attributes on consumers. There are a number of data elements that can enter RiskView to be used to assess a borrower's propensity to pay. These include educational status, professional licenses, derogatory public record history, address stability, and assets owned.

Case Study of *RiskView* Use

Partnership: Kinecta Federal Credit Union partnered with LN Risk Solutions to use the RiskView score to underwrite loans for borrowers at Nix Neighborhood Lending (formerly Nix Check Cashing).

Product: Payday Payoff Loans designed to help borrowers get out of the cycle of debt by consolidating high-cost debts at more affordable rates.

Need: Kinecta understood that many applicants would not have a traditional credit profile but still needed a way to assess borrower risk.

Solution: RiskView scores were found to correspond to default risk on Payday Payoff products, meaning RiskView could be used to fill in data gaps for credit invisible applicants at Kinecta.

Alt Data and Score Example: *PRBC*

PRBC allows consumers to self report their own data that is not already reported to the primary credit bureaus. In this way, PRBC enables consumers to build their own alternative data credit history.

Payments for Rent, Internet, Phone, Utilities, Insurance, and many other such regular, everyday payments are typically not reported to the primary credit bureaus and as such, are not used to create a payment history that can be used by lenders. So, these payments are typically not included in the mainstream credit scores, and as a result, can not be used to build a traditional credit history in the traditional way. For consumers with little credit experience (no mortgage, no auto loan, etc.) the fact that they can't build a credit history with the more typical bills (utilities, phone, etc.) presents a problem that impacts their access to and cost of credit. Perversely, consumers typically need to go into to debt to build a payment history.

MicroBilt's PRBC (Payment Reporting Builds Credit) allows consumers to authorize PRBC to collect their utility, phone, rent and their other such payments and then to verify them (usually electronically). This empowers consumers to overcome their own credit invisibility and bypass the need for utility companies and the like to report to the credit bureaus. PRBC then produces a credit score with the alternative data and works with lenders to use the alt data score.

Alt Data and Score Example: *Experian's Extended View Score*

Experian's Extended View Score is the alternative data score used in this study. Beyond traditional credit data and scores, Experian also collects a number of alternative data elements such as rental data and utility and telecom payment data (in a relatively limited number of instances) and produces alternative data scores. The Extended View Score is one such score. It combines traditional Experian credit file data with available rental payment data from Experian's RentBureau, and through a collaboration with LexisNexis, an expanded set of public record data elements used in LexisNexis's RiskView.

Results

This study represents the first time that various strands of research have been synthesized into a coherent whole. This analysis integrates data on the geography of Credit Invisibility, average credit scores, median household income levels, and the location of alternative financial service providers as well as mainstream financial services use.

In addition to providing a comprehensive look at these critical variables, this study also displayed the impact upon Credit Invisibility, Credit Deserts, and access to financial services from including fully-reported (that is, timely and late payment data) non-financial payment information and other so-called "alternative data" not typically found in consumer credit reports nor used in traditional credit scores.

Examining the variation of family poverty rates within Silicon Valley, there appears to be the presence of two major areas with higher than average rates of poverty. As is evident in Figure 1 below, these areas are for the most part contiguous (although there are several smaller clusters of lower income households scattered elsewhere across the two counties) and are fairly significant in size.

Household Income Variation and Poverty in Silicon Valley

Figure 1: Family Poverty Rate by Census Tract
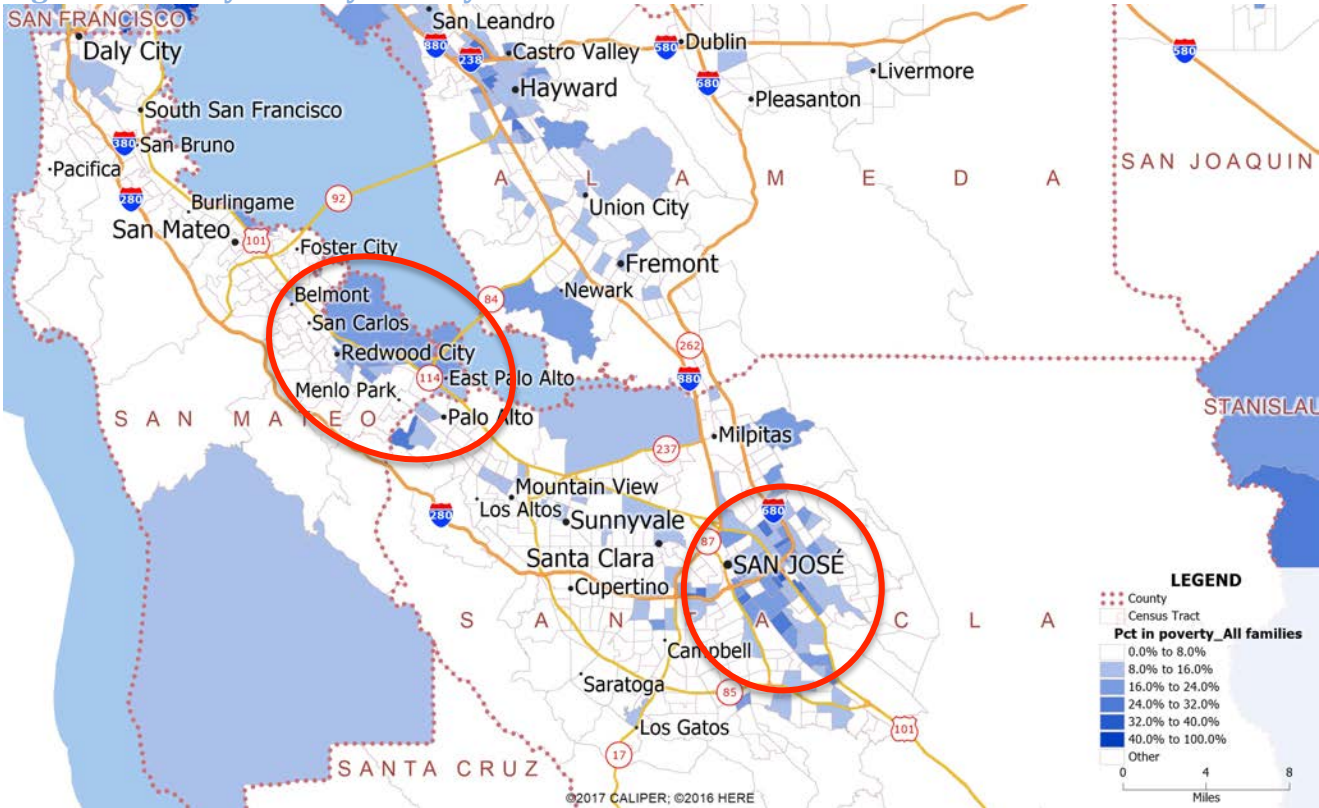
Figure 1a: Family Poverty Rate by Census Tract (San Jose)
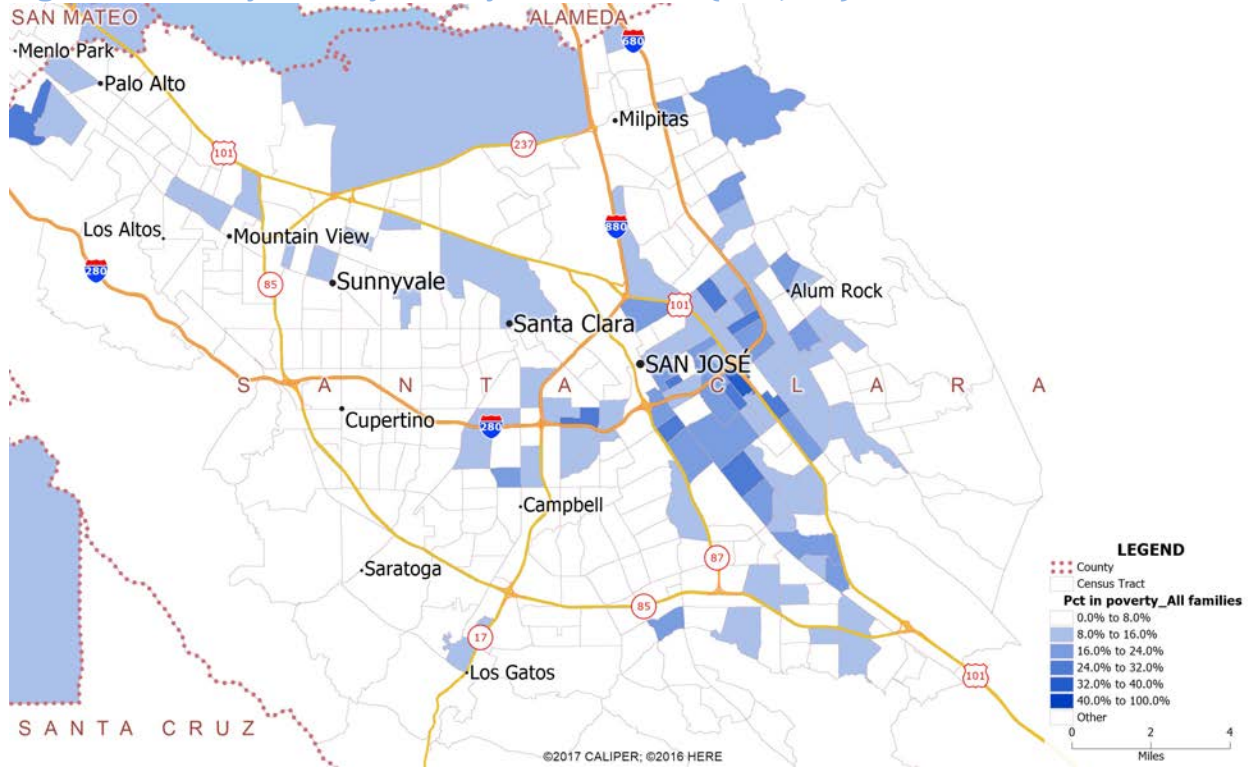
Figure 1b: Family Poverty Rate by Census Tract (South San Francisco)
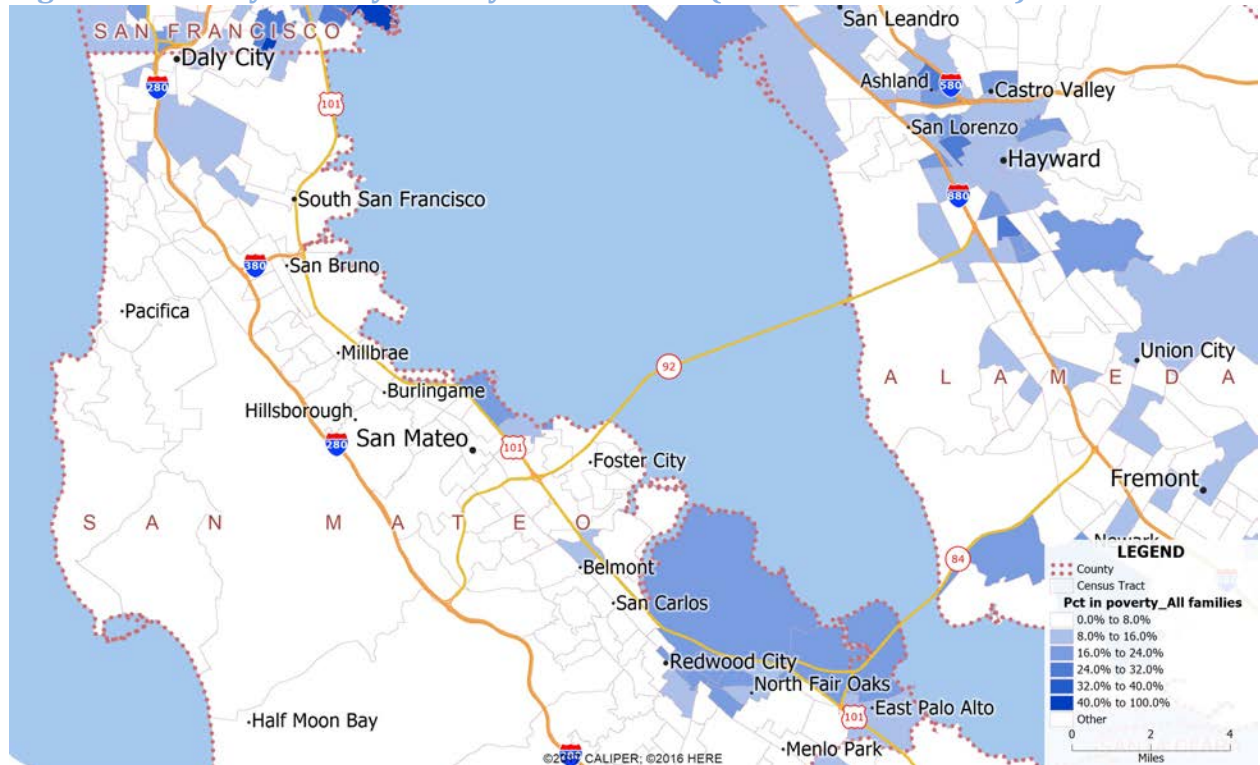
What is interesting about these concentrations of persons living below the poverty level is that the median household income for most census tracts (seen in the following figures) is above the national average. This suggests that there are clear pockets of wealth mixed with pockets of poverty in these counties. (It also points to the higher cost of living and higher income/wages in Bay Area relative to the national averages.) For those living in Silicon Valley this is a self-evident finding. One need only consider the clusters of apartments lining El Camino Real adjacent to million and multi-million dollar homes as one climbs up the hill and out of the valley.

Table 1: National and CA Poverty Rates

US Poverty Rate 2015	Supplemental US Poverty Rate 2015	CA Poverty Rate 2015	Supplemental CA Poverty Rate 2015
13.7%	14.3%	15%	20.6%

Source: US poverty rates from US Census Bureau.

Here, a few words on poverty estimates are helpful. The standard measurement of poverty that is still used by the US government for allocating federal funds for assistance programs, was designed in 1955 and was derived from a U.S. Department of Agriculture Household Food Consumption Survey.[xvi] The formula used by the Census Bureau to define poverty involves multiplying the subsistence food budget by three while factoring in income and cash assistance. This measure excludes the Supplemental Nutrition Assistance Program (SNAP—formerly known as Food Stamps), housing subsidies, and critically, it doesn't account for cost of living differences that are largely determined by the price of housing. Obviously, in an area such as Silicon Valley, where housing prices are among the highest in the country, the official measure of poverty likely inaccurately portrays the magnitude and contours of poverty in this region.

To account for these significant regional differences, the US Census Bureau developed a Supplemental Poverty Index in 1974. This measure has never been adopted for Federal policy purposes owing to the complicated politics associated with such a change. Namely, the results would shift federal funds away from conservative southern and Midwestern states to more liberal coastal states such as California and New York. Using the Supplemental measure of poverty, California ranks as the state with the highest rate of poverty in the country, at 20.6% or more than 1 in 5 Californians living at or below the poverty level.[xvii]

Evidence suggests that despite the booming economy and high average wages, the poverty rate within Silicon Valley is near an historic high and tracks with the state average. A recent study by the Joint Venture Silicon Valley Institute for Regional Studies found 829,547 people in the Bay Area living in poverty, citing a widening skills gap between employment opportunities and prospective area employees.[xviii]

According to the Joint Venture Silicon Valley Institute study, which used a household income-based definition of poverty, San Francisco had the highest poverty rate at 13.8%,

while Santa Clara County (10.5%) and San Mateo County (7.8) were considerably lower. Using the same definition for poverty, California has a poverty rate of 16.8% while the U.S. average is 15.8%.[xix]

Given the above considerations about the relative merits of the "official" US Census Bureau poverty measure, and the supplemental measure, there is good reason to believe that the findings by the Joint Venture Silicon Valley Institute dramatically undercount those living at or below the poverty threshold. In fact, the authors even estimate that if cost of living considerations were factored into their definition of poverty, the rate within Silicon Valley would likely increase an estimated 3 to 4 percentage points or more.[xx]

In light of the evidence about rental and housing prices, it is easy to imagine that the authors of the report are being very conservative about the extent to which they are underestimating actual poverty rates within Silicon Valley.

Figure 2: Median Household Income by Census Tract
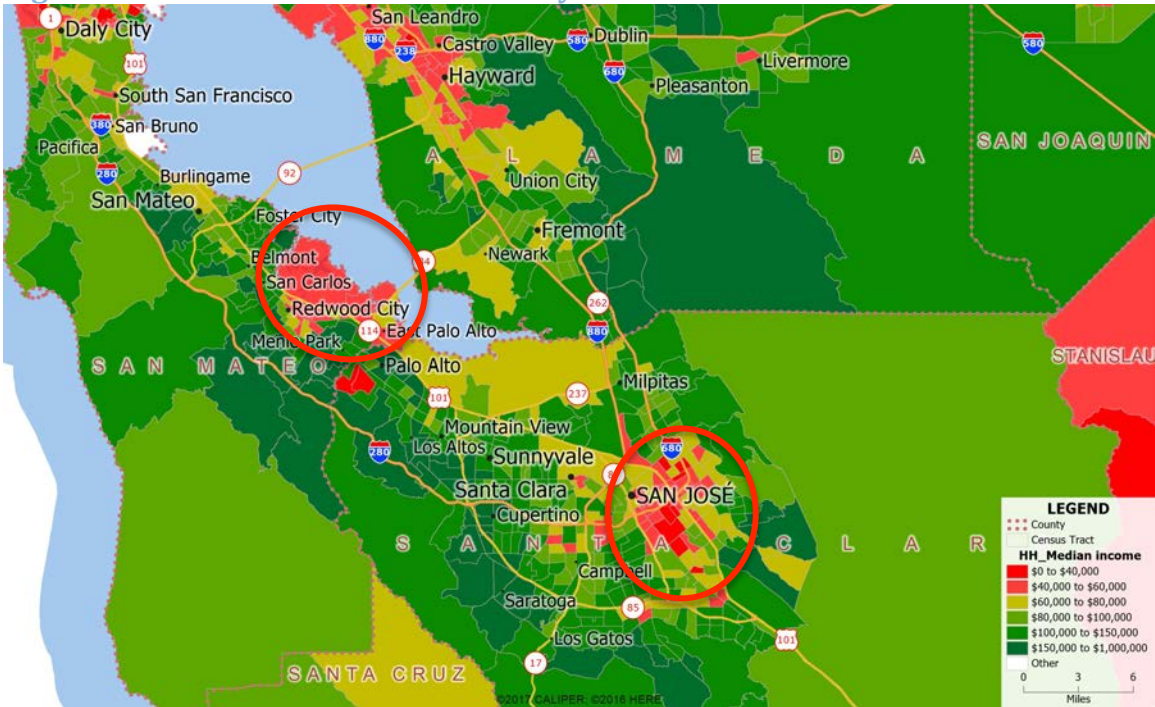
Figure 2a: Median Household Income by Census Tract (San Jose)
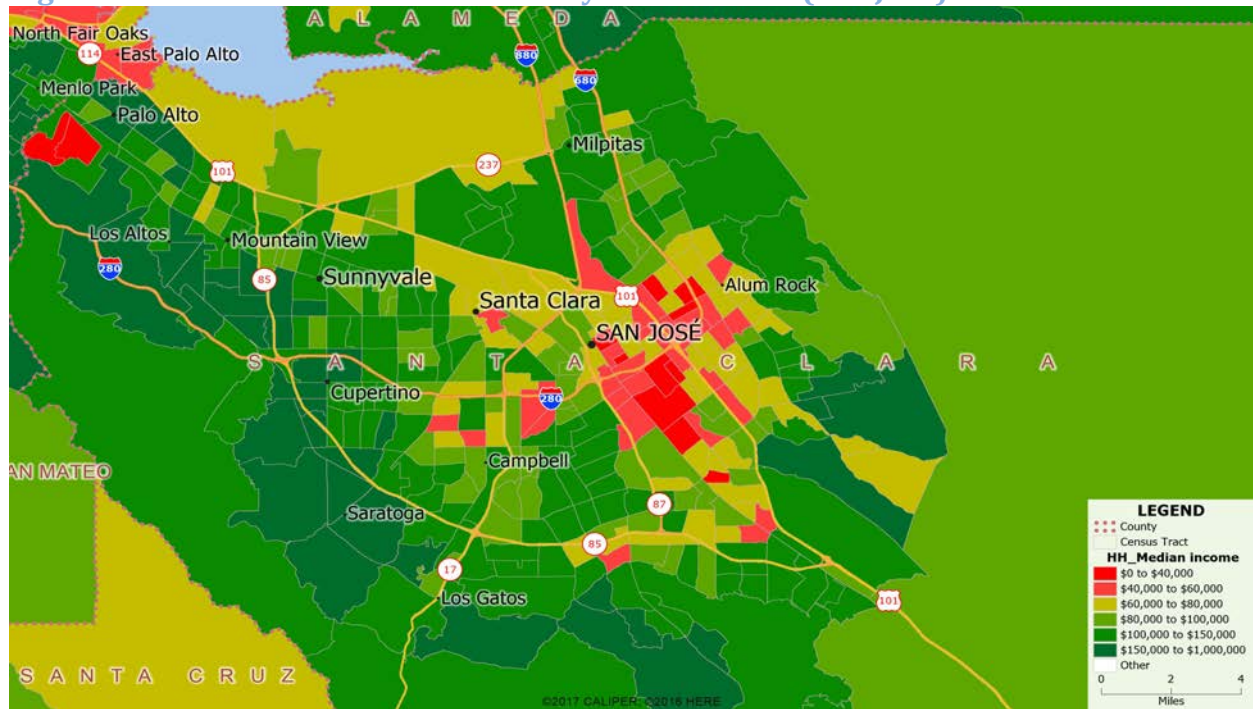
Figures 2 and 2a use median household income by census tract to highlight the geographic median household income disparities in Silicon Valley. In these we can see that there are census tracts with median household incomes under $40,000 next to census tracts with median household incomes over $150,000 a year. Figure 2a shows that there is a several square mile area to the south and west of the center of San Jose with relatively low median household incomes.

Figure 2b: Median Household Income by Census Tract (South San Francisco)

Figure 3: Average Traditional Credit Score by Census Tract

Figure 3 shows that as with poverty and household income, there is also a pronounced geographic variation in traditional credit scores (among the scoreable population) in Silicon Valley. While some census tracts have remarkable high average scores of over 800 (typically called super prime), some have average credit scores below 675. Hence, there are areas in San Mateo and Santa Clara counties that would have a sizeable share of individuals/households that would have difficulty accessing lower-cost, mainstream credit due to their credit histories and credit scores. It is important to note that credit histories and credit scores do not take into account a person's income, race, ethnicity, gender, or neighborhood. Credit scores and histories reflect objective factors that can be used to estimate credit risk, such as past on-time or late payments, number of accounts open and balances, past default, bankruptcies, liens, judgments, collection, etc. Of course, credit underwriting can then add (and should) income values (or estimates) to determine credit capacity and other relevant factors, such as, for instance, current employment status.

Figure 3a: Average Traditional Credit Score by Census Tract (San Jose)
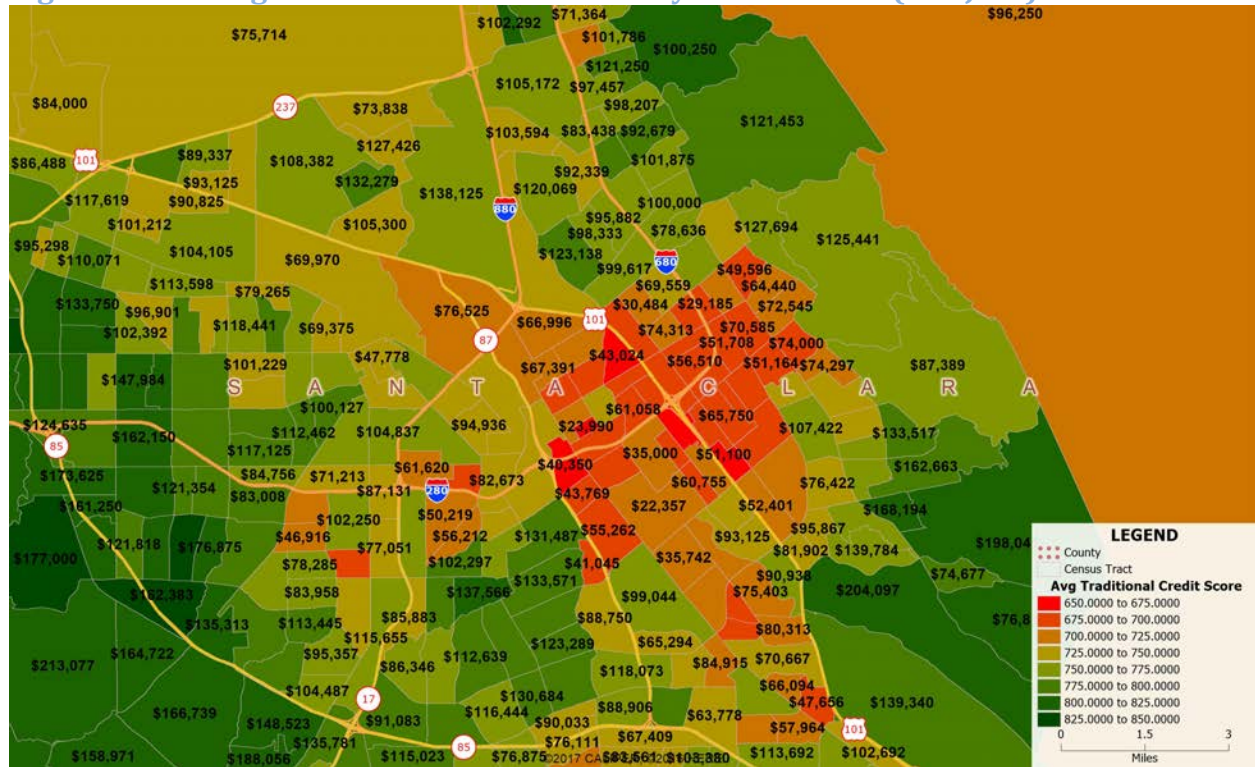
Figure 3b: Average Traditional Credit Score by Census Tract (South San Francisco)
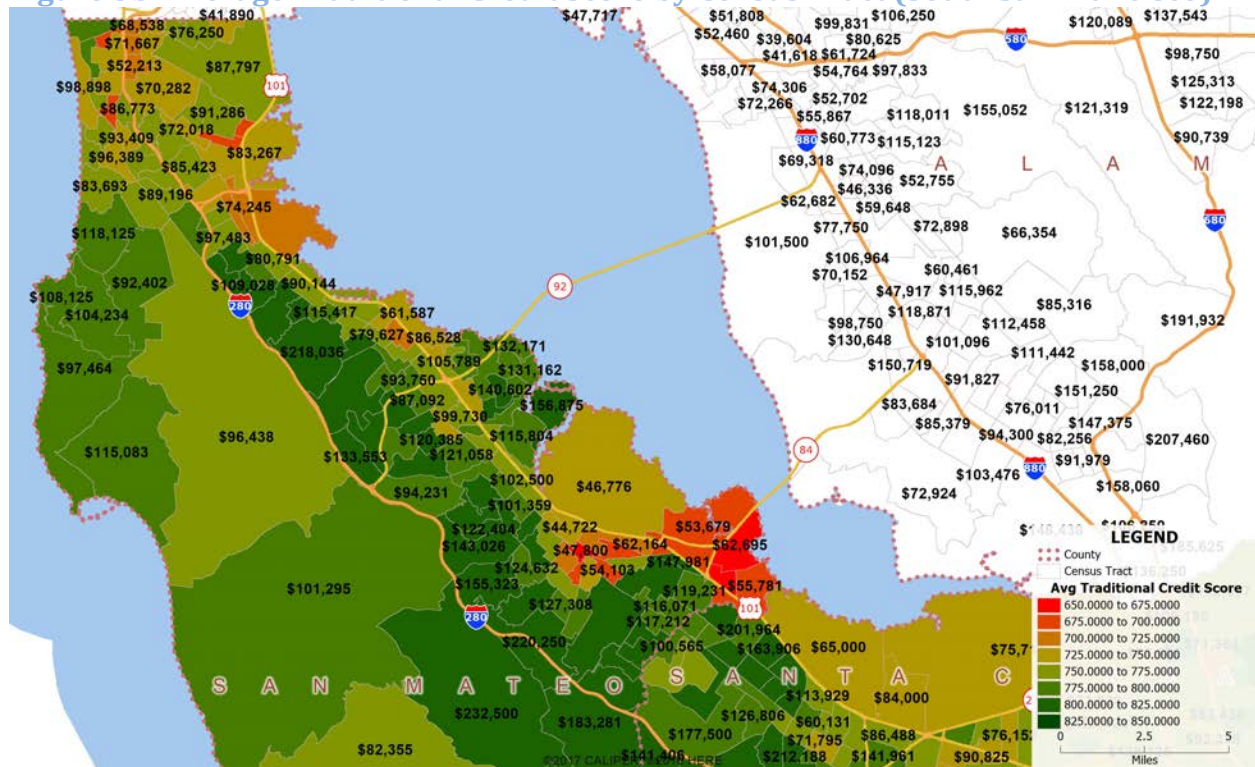
When we refer to a traditional credit score, we mean traditional, generic credit scores produced by the credit bureaus, FICO, and other score developers. These scores utilize traditional credit history data and have minimum data requirements to produce a score. Together this results in many consumers not having a credit score. These traditional credit scores account for the bulk of third-party credit scores used in the market place. This is the case despite the fact that the newest credit scores from FICO, VantageScore, LexisNexis, the CRAs, and others score developers do a better job of scoring more consumers (either by incorporating more data and/or relaxing traditional data requirements). Lenders, however, are often conservative and very slow to update the credit scores they use. It is not surprising to hear of lenders using credit scores created 10, 15, even 20 years ago.

Credit (Data) Deserts

Figure 4: Unscoreable Rate (Traditional Credit Score) for Census Tracts (San Mateo and Santa Clara Counties CA)
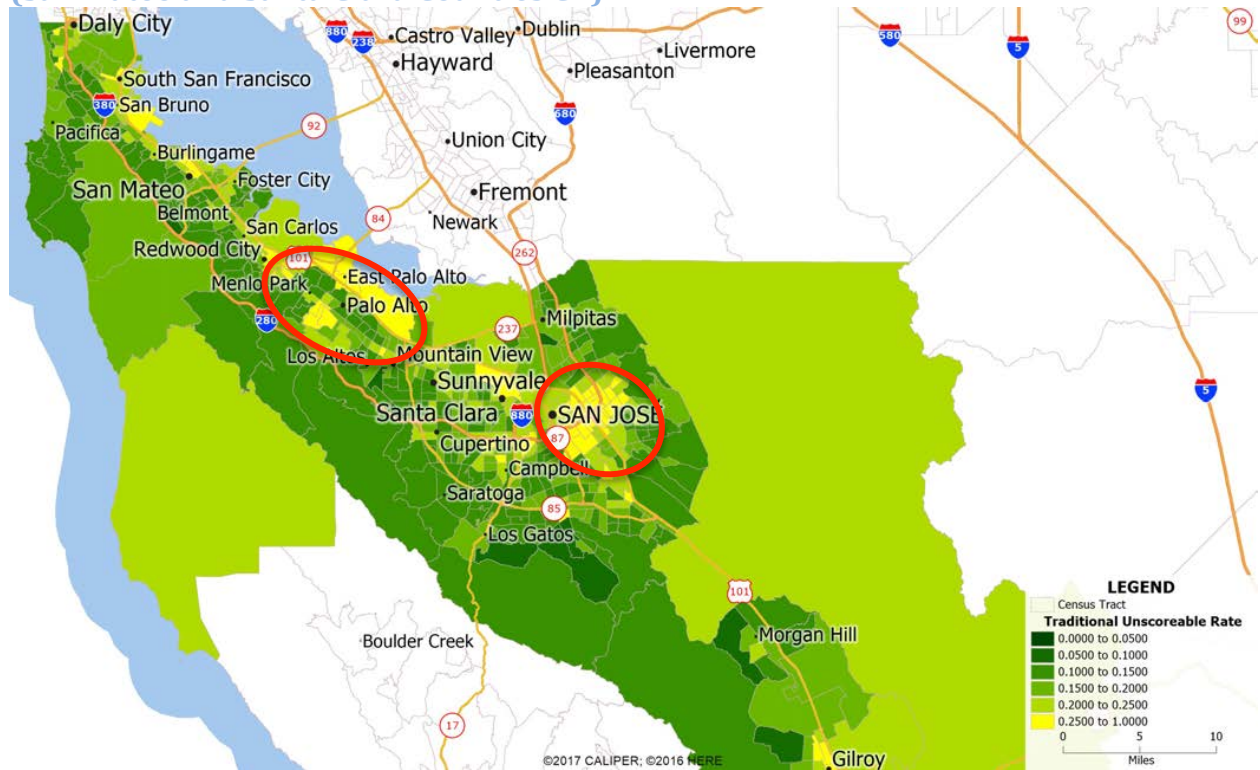
Figure 4a: Unscoreable Rate (Traditional Credit Score) for Census Tracts (San Jose)
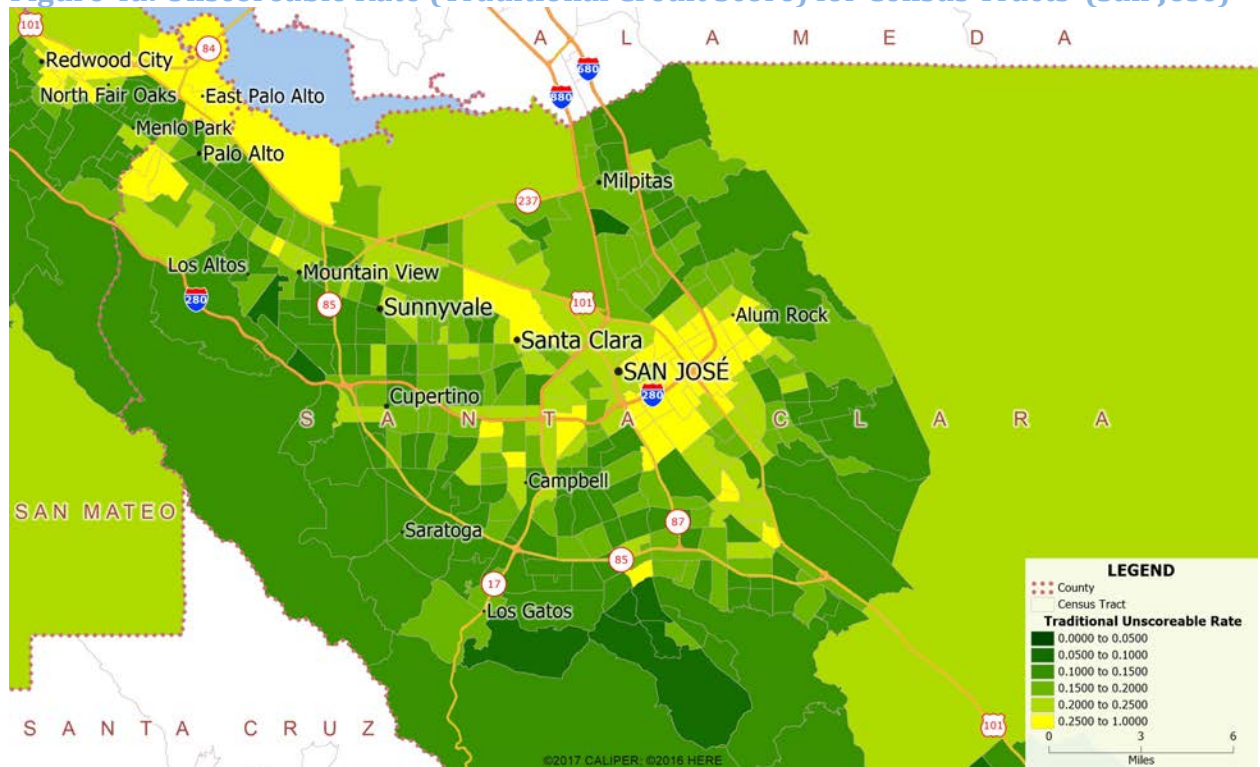
Figure 4b: Unscoreable Rate (Traditional Credit Score) for Census Tracts (South San Francisco)

As seen in Figure 4, the same areas of Silicon Valley with relatively lower credit scores, relatively lower median household incomes, and relatively higher poverty rates are the same areas with greatest share of credit records that are unscoreable with a traditional credit score (and traditional data). The census tracts in Figure 4 that are colored in yellow are those in which over a quarter of records are unscoreable. We chose to color these yellow to indicate that these are credit data deserts. These tracts stand in stark contrast to those tracts in dark green, which have a small share of unscoreable records (five percent and less). As can be seen when comparing Figures 4 and 2, unscoreability is a relatively minor issue for the higher income areas but a very real problem for the lower income areas.

It is important to note that the unscoreable consumers identified are those who have at least *some* credit profile with Experian, but are nonetheless unscoreable. That is, we are not including the *no-hits*. Accounting for the no-hits would result in higher unscoreablity rates. In the Appendix, use of adult population estimates by census tract (produced by the US Census Bureau) is explored as way to incorporate the no-hit population, as was done in the CFPB's *Data Point: Credit Invisibles* report.[xxi]

This relationship between income level and the rate of unscoreability have been seen in the previous work by PERC and the CFPB's Credit Invisibles Data Point report. The following table shows these results from the CFPB report.[xxii]

Upper Income	Middle Income	Moderate Income	Low Income
8.5%	18.9%	29.9%	45.2%

Alternative Financial Service Providers (AFSPs)

The FDIC defines alternative financial services as a term that describes *"...the array of financial services offered by providers that operate outside of federally insured banks and thrifts (hereafter referred to as "banks"). Check-cashing outlets, money transmitters, car title lenders, payday loan stores, pawnshops, and rent-to-own stores are all considered AFS providers."*[xxiii] AFSPs would also include many of the new FinTech firms—those that operate outside of the world of brick-and-mortar locations and instead offer their services online. The FDIC estimates that the transaction value of the AFS sector is roughly $320 billion annually.[xxiv]

It is important to understand that many of the services offered by AFSPs are traditional financial services. Indeed many are services offered by regulated traditional banks. The FDIC provides the following breakdown of alternative financial services and the associated annual value of those services:

- Buy Here, Pay Here Auto Loans = $80 billion
- Check Cashing = $58 billion
- Pay Day Loans = $48 billion
- Remittances – $46 billion
- Open Loop Prepaid Cards = $39 billion
- Refund Anticipation Loans = $26 billion
- Money Order = $17 billion
- Rent-To-Own Transactions = $7 billion

While this study does not focus on the relative merits of all types of alternative financial services, it does offer up a tool that if implemented could provide a pathway away from higher cost AFSPs—especially pay day lenders and check cashing services—toward less expensive mainstream and regulated financial services providers. PERC is not opposed to all AFSPs and actually supports the development of FinTech innovations that could increase access to affordable credit and reliable financial services to currently underserved communities.

Who is using payday lenders and check cashing services? The obvious answer are people with without better options. According to a study by the Pew Center there are about 12 million such people each year in the United States.[xxv] On average, a borrower takes 8 loans of $375 and pays $520 in interest per year.[xxvi] Payday lenders in the US generate an estimated $46 billion in annual revenues though there exists considerable variance in estimates for annual revenue.[xxvii]

Table 3: Reported Trades by Borrower Characteristics

	Consumers w/Utility			Consumers w/Telecoms		
	>3 traditional trades (%)	Mean # of trades	Utilities as % of total trades	>3 traditional trades (%)	Mean # of trades	Utilities as % of total trades
All	17	17.32	9	23	15.04	7
Race						
Asian	20	17.02	8	18	17.54	6
Black	28	12.46	11	48	7.91	13
Hispanic	32	13.24	11	40	10.16	11
Other	16	18.12	9	20	16.21	7
White	14	18.35	9	19	16.21	
Gender						
F	14	18.19	9	22	15.33	7
M	12	18.44	9	16	16.74	7
Age						
18-25	24	11.11	13	36	8.88	12
26-35	10	19,19	9	18	16.29	7
36-45	9	21.57	8	13	18.85	6
46-55	9	20.81	8	12	19.21	6
56-65	8	20.19	8	10	19.39	6
66+	18	13.43	11	18	13.25	8
Income						
<$20,000	31	11.01	14	38	9.13	12
$20,000-$29,999	20	13.92	11	24	12.49	9
$30,000-$49,999	13	16.88	9	16	15.51	7
$50,000-$99,999	7	20.89	8	8	20.54	5
$100,000+	4	24.22	7	4	24.24	5

Source: Brookings Institution and PERC. *Give Credit Where Credit Is Due.* (2006).

According to the Pew report, five groups are most likely to take out a payday loan: less educated persons (those lacking a four-year college degree); home renters; African Americans; lower income persons (those earning less than $40,000 per annum); and those who are separated or divorced.[xxviii]

These groups overlap considerably with Credit Invisibles in the US. Earlier research by PERC and the CFPB—conducted nearly a decade apart—drew the same conclusions. The Credit Invisible population is comprised largely of lower income persons, members of minority communities, younger Americans, and elderly Americans. As discussed earlier, the CFPB found that within lower income census tracts, 30% had no credit file, and another 15% were unscoreable. By comparison, the same figures in higher income areas were 4% no file, and 5% unscoreable.[xxix]

The same CFPB report also found that Black and Hispanic consumers are considerably more likely to be credit invisible than Whites or Asians. The CFPB estimates that about 15% of Black and Hispanic consumers have no credit files compared to 9% of White consumers. An additional 13% of Black consumers and 12% of Hispanic consumers have unscoreable records (thin-files) compared to 7% of White consumers.[xxx]

While PERC did not formally use the term Credit Invisibles until 2007, it did measure both the no-file population (what the CFPB now refers to as Credit Invisibles) and the unscoreable thin-file population (PERC defines the Credit Invisibles as no-files plus unscoreables). As is shown in Table 3, a full decade ago the populations with the highest rate of unscoreability were lower income persons, members of minority communities, younger and elderly Americans, and immigrants. These are the very same groups identified in the CFPB study as most likely to be Credit Invisible.

From the perspective of public policy, the fact that these numbers, that this reality, have not changed noticeably in more than a decade is inexcusable. The problem of Credit Invisibility has been known by federal and state policymakers and other stakeholders, as has the solution of credit reporting alternative data. In fact, various bills encouraging greater use of alternative data have been sitting before Congress—with bipartisan support—since 2005.

Evidence also suggests that use of high-cost lenders could be a growing phenomenon. For instance, new figures that show 42 per cent of Millennials, the generation born between 1980 and the mid-1990s, have turned to alternative finance including payday lenders and pawnshops in the past five years.[xxxi]

According to a recent study by the Center for Financial Services Innovation (CFSI), in 2015 consumers paid $141 billion in fees and interest on $1.61 trillion in alternative financial services.[xxxii] Many of these fees and payments could be avoided or dramatically reduced simply by opening a depository bank account and having access to a low-limit credit card. For instance, according to the CFSI report, the average full-time worker without a bank account can spend $40,000 over the course of his or her lifetime just to cash paychecks.[xxxiii]

Table 4: Fees and Interest Paid on Select Alternative Financial Services (2015)

Financial Service	Fees Paid by Users in 2015 (US$ billions)
Money Order	0.8
Check Cashing	2
Remittance	3
Buy Here Pay Here Auto	18.8
Title Loan	2.9
Rent to Own	4.4
Online Payday	3.1
Storefront Payday	3.6
Pawn	4.9
Total	43.5

Source: CFSI. 2016 Financially Underserved Market Size Study

Calculating the savings from migrating people from financially excluded and Credit Invisible to financially included with access to mainstream credit is a tricky proposition. For instance, while using a low limit credit card at 29.99% APR will yield net savings for most qualified users, some may elect to roll over large balances, may pay late and incur fees, and may have additional fees associated with administering the card account.

Similarly with check cashing. While a bank will cash an account holder's check for free, there are fees associated with opening and maintaining a checking account, as well as fees if a minimum balance is not maintained, not to mention fees for bouncing a check and overdraft protection fees. In short, while some savings are highly likely, the extent to which an individual saves is intrinsically tied to their behavior (e.g. whether they pay on time, as agreed, and in what amount etc.).

Table 5: Unscoreable Rates (CFPB)

US Unscoreable Rate	SF MSA Unscoreable Rate
19.3%	17.9%

Source: CFPB. "Data Point: Credit Invisibility" (2015); CFPB. "Who are the Credit Invisibles?" (2016).

Figure 5 maps two characteristics of the census tracts that have been shown previously to be associated with high rates of payday lenders, check cashers, and pawn shops locations.[xxxiv] They are the unscoreable population *plus* the low score population (in this example, those with a traditional credit score under 600). The highest concentration of unscoreable plus low score consumers is shown in yellow (again indicating a credit desert). Actual AFSP locations have also been mapped and are shown with red dots. The dollar figures in black font represent the median income of the census tract.

Figure 5: Unscoreable or under 600 Credit Score Rate (Traditional Credit Score) and AFSP Locations
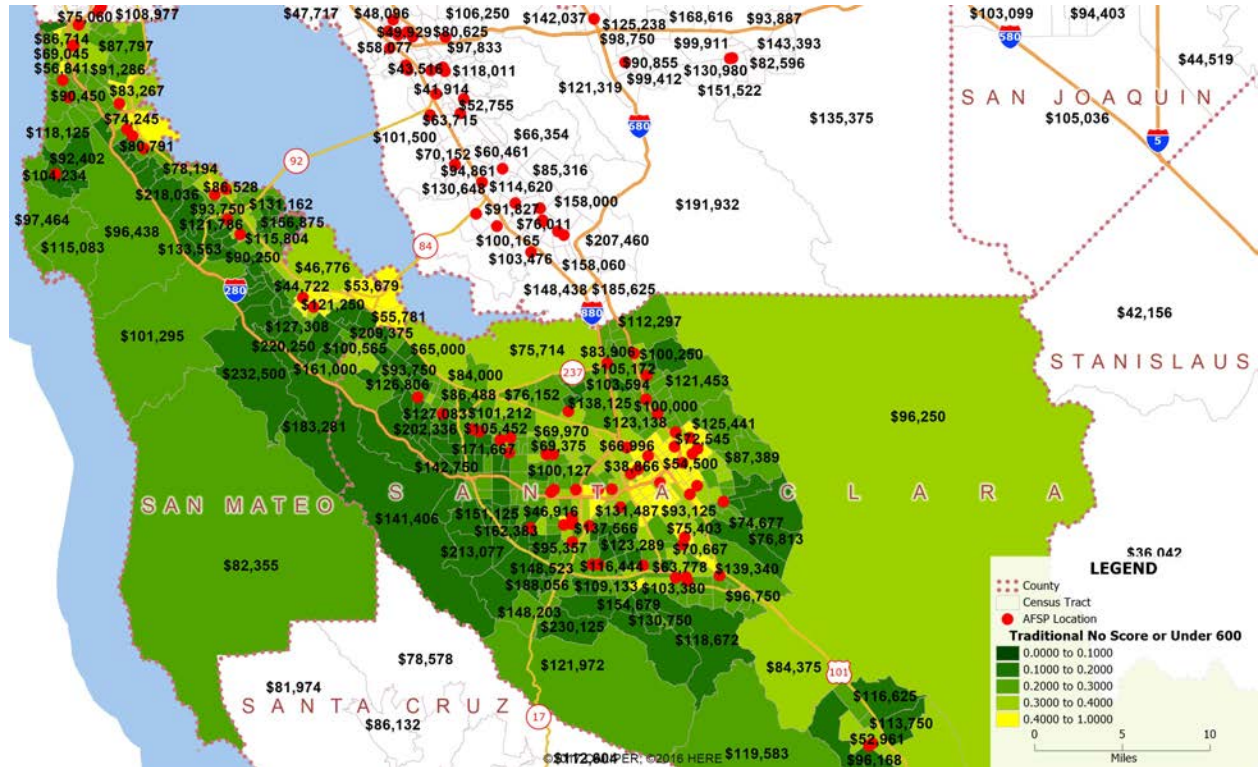
Figure 5a: Unscoreable or under 600 Credit Score Rate (Traditional Credit Score) and AFSP Locations (San Jose)
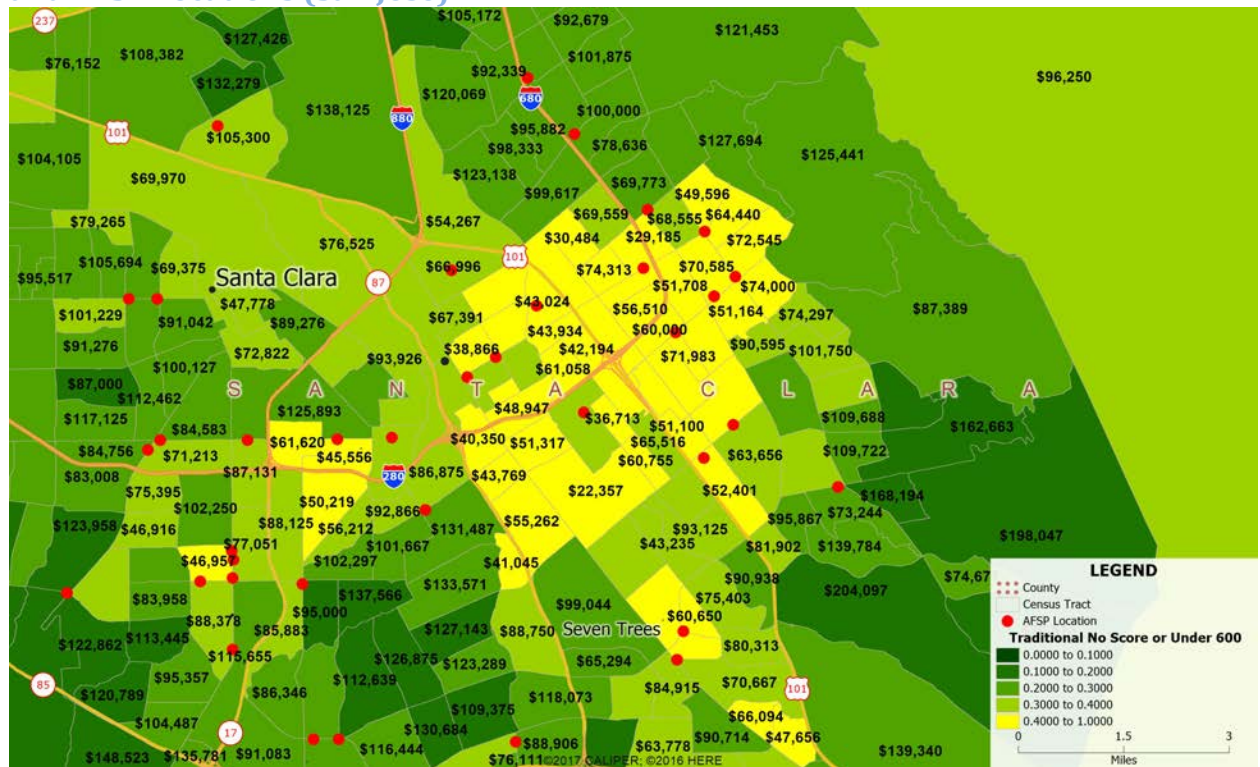
Figure 5b: Unscoreable or under 600 Credit Score Rate (Traditional Credit Score) and AFSP Locations (South San Francisco)
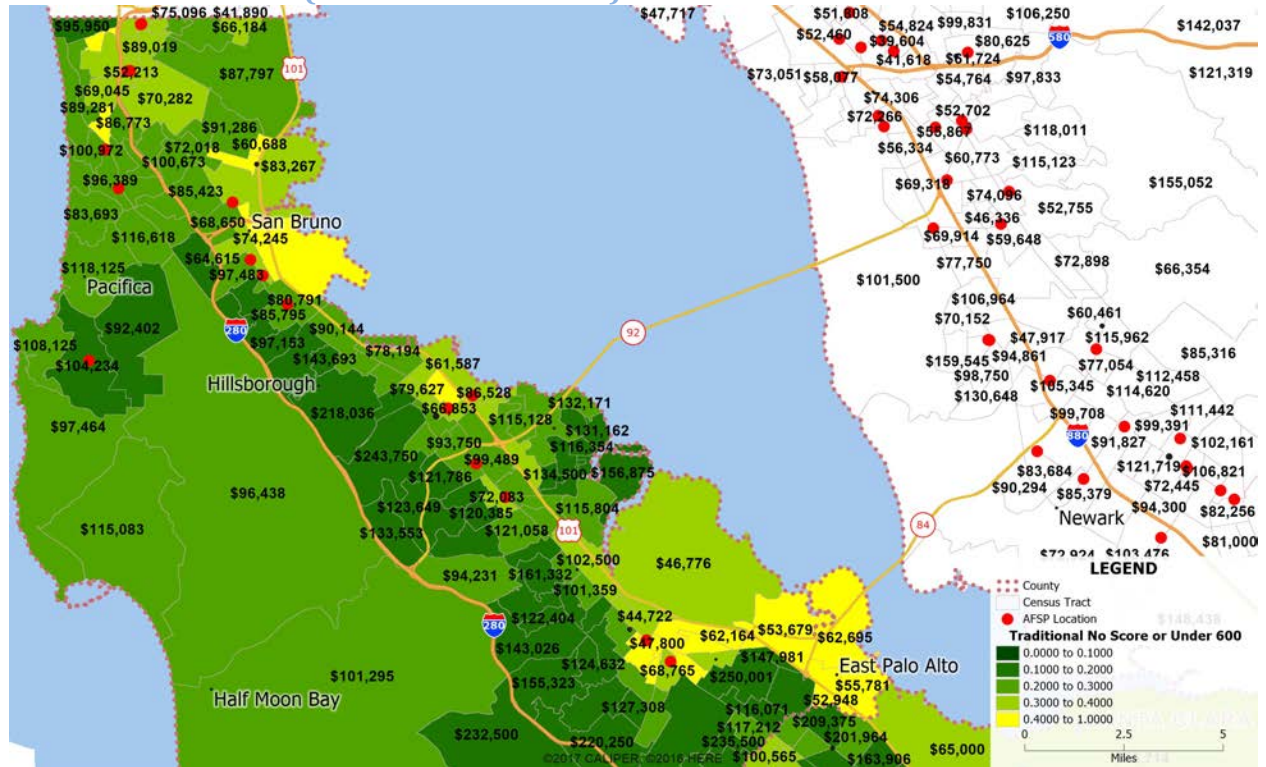
Figure 5 appears to show that, indeed, AFSP tend to be located near or in census tracts with higher rates of unscoreable and lower-scoring consumers. In these maps, census tracts in yellow are those in which 40% or more of credit files were unscoreable or produced a low traditional credit score. Such consumers may have reduced options to access low-cost mainstream credit and few better choices than to utilize high-cost credit products for their borrowing needs.

Use of Mainstream Credit and AFSPs

Figure 6 maps the incidence of consumers having an open revolving bankcard account (mainstream credit use). This sort of credit could act as a substitute for the use of higher-cost AFSP services. As before, AFSP locations are shown with a red dot. It appears that AFSPs tend to be located where consumers are less likely to have open revolving mainstream credit. It is interesting to see such a large variation across census tracts in terms of incidence of having an open revolving account. The lowest rate was a census tract with a 35% rate and the highest was a census tract with an 87% rate.

Figure 6: AFSP Locations and Rates of Open Revolving Accounts
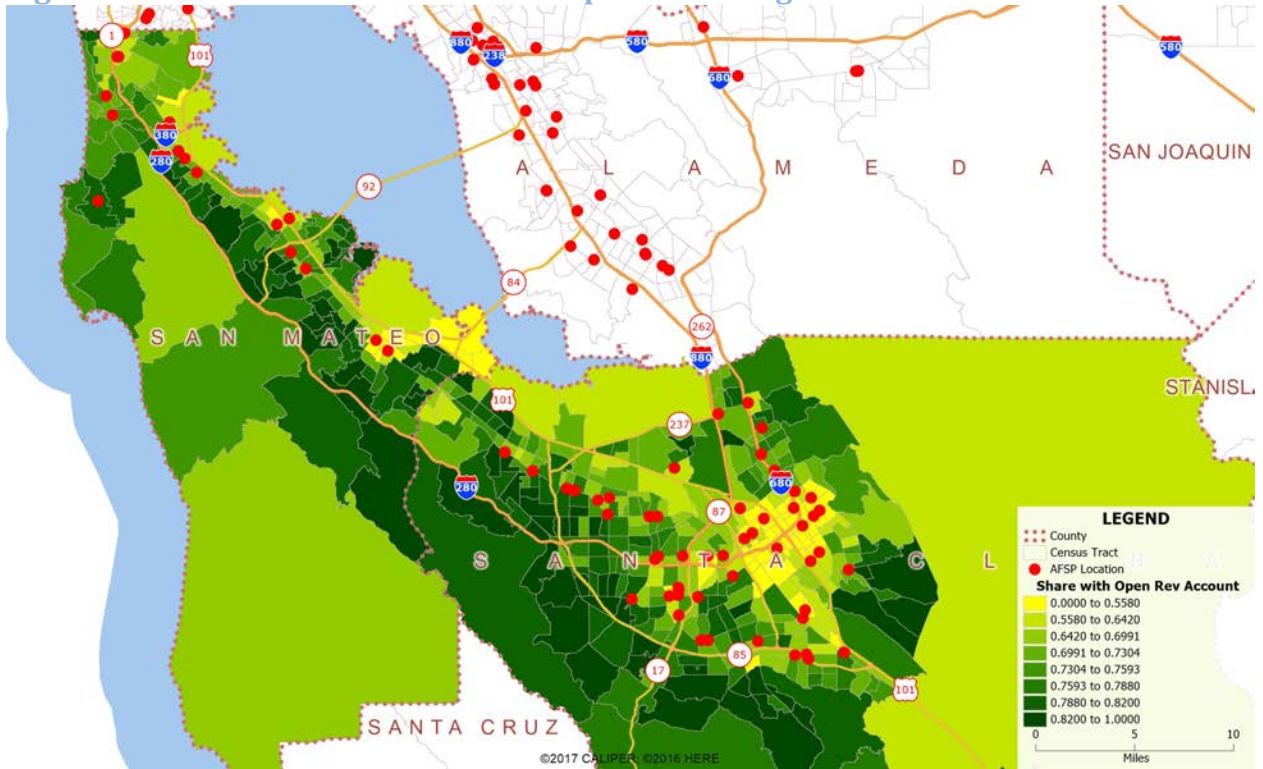
Figure 6a: AFSP Locations and Rates of Open Revolving Accts (San Jose)
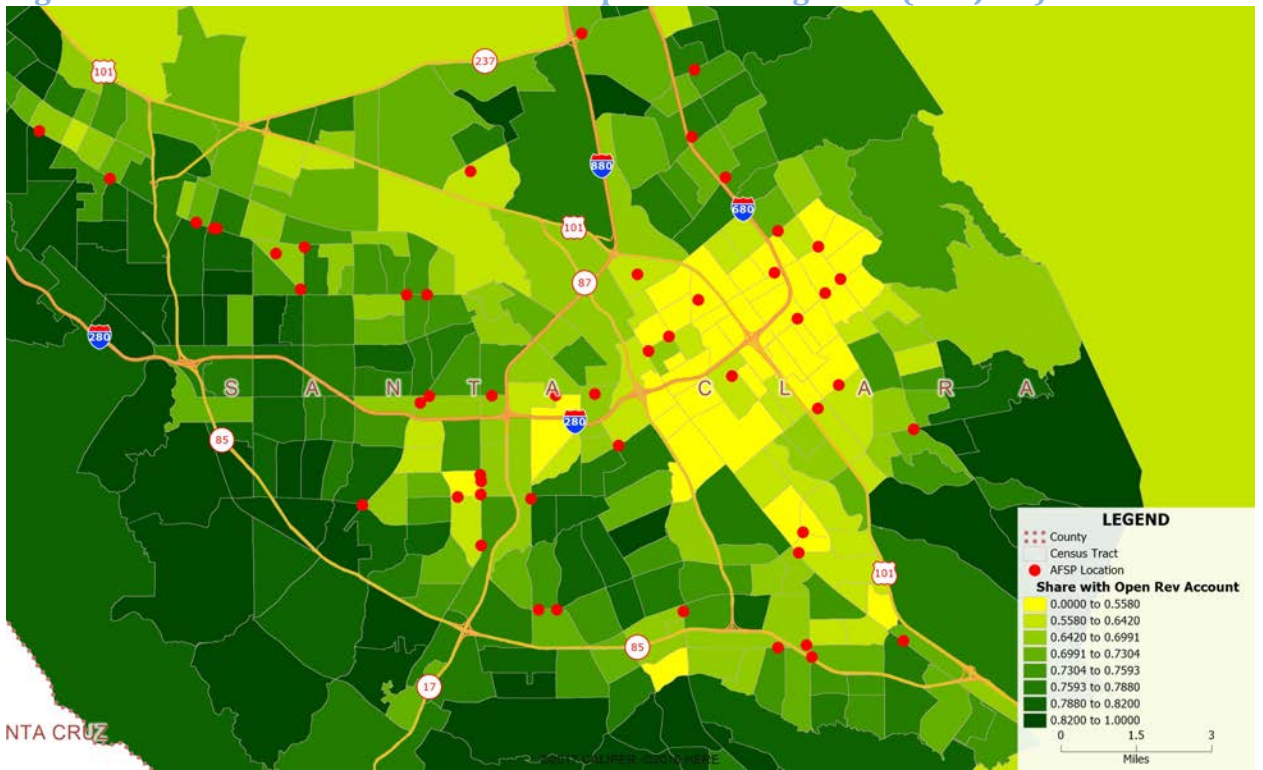
Figure 6b: AFSP Locations and Share of Census Tract with Open Revolving Accts (South San Francisco)
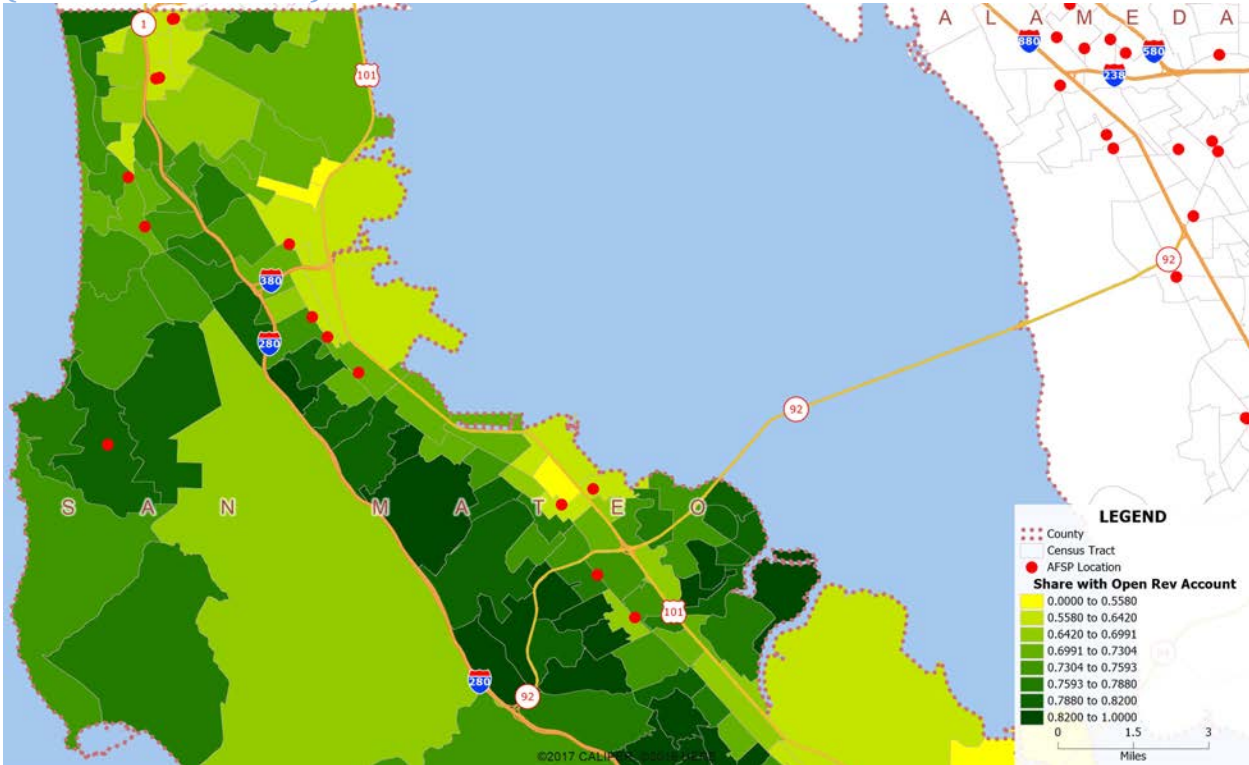
Figure 7: Estimated AFSP Use Rates
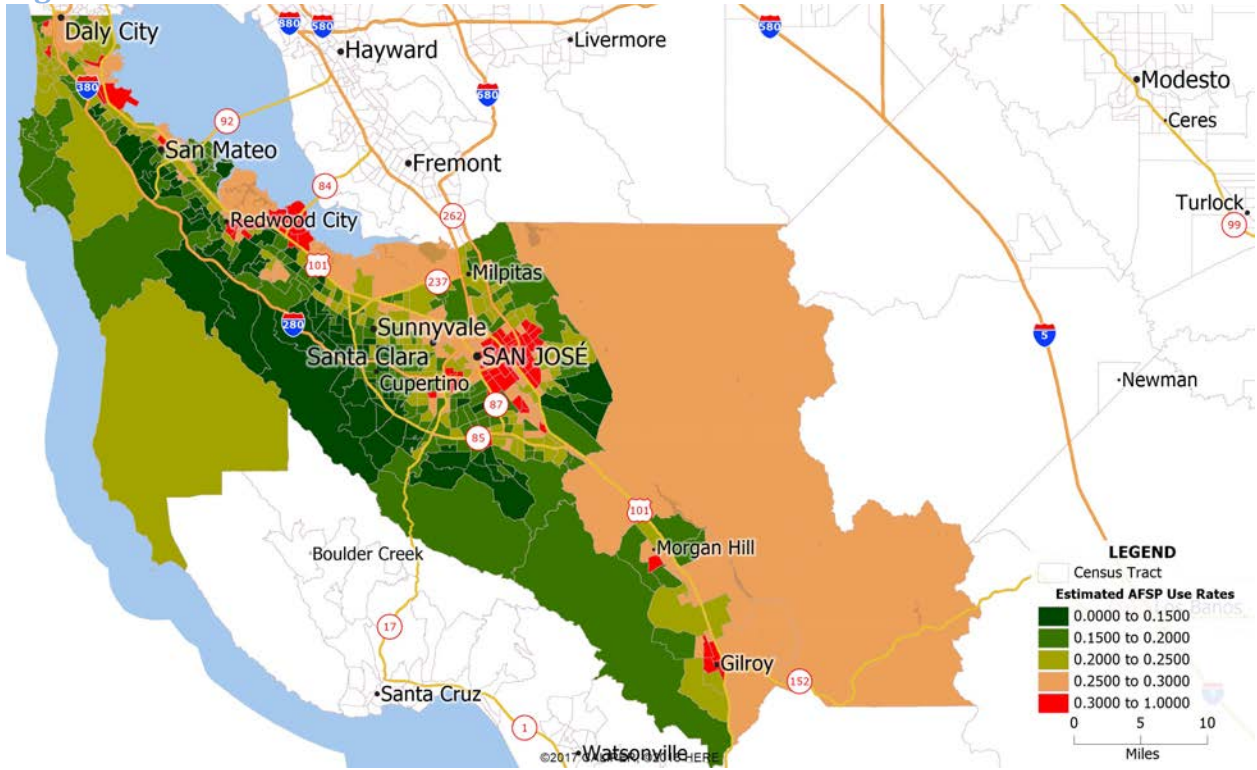
Figure 8: Estimated AFSP Use Rates and AFSP Locations
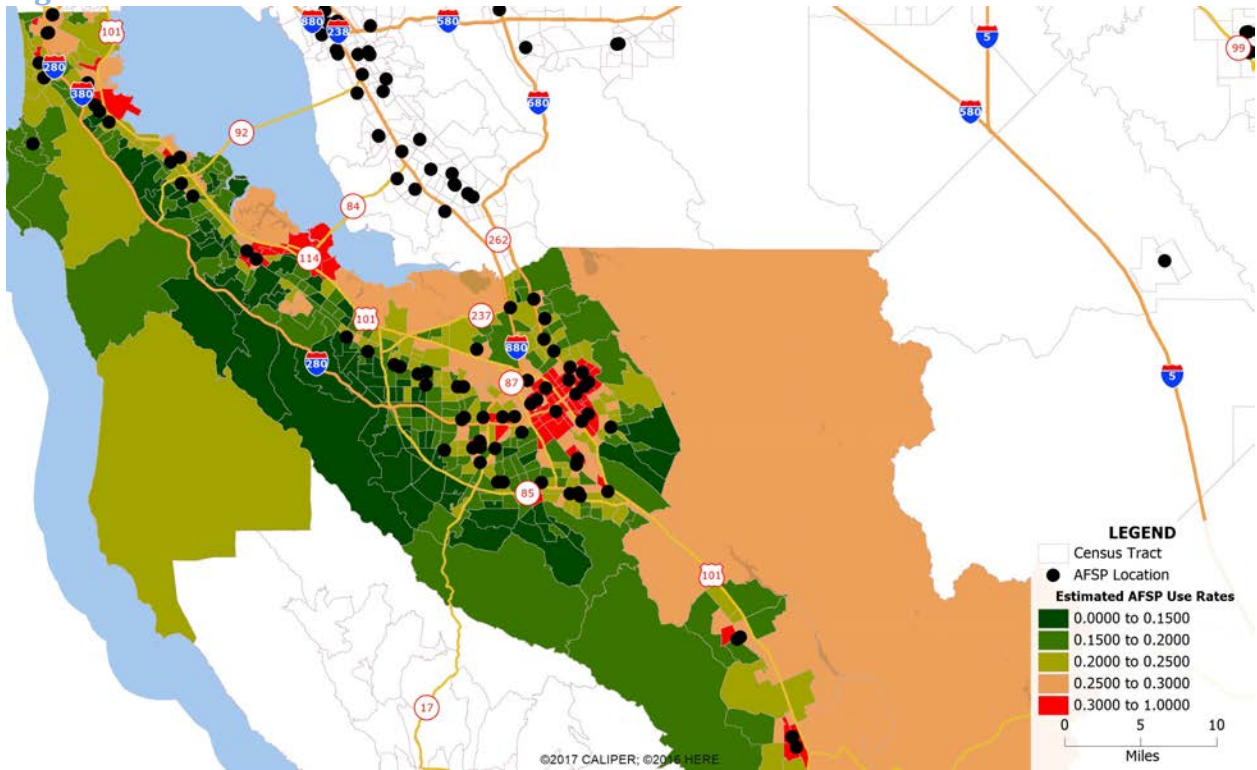
Figure 7 maps estimated incidence of *usage* of AFSPs. These estimated usage rates come from data in a table produced by Clarity Services providing Clarity "hit" rates by credit score. The table is provided in a brochure entitled, "Clarity: The Competitive Advantage." Since Clarity collects data from higher cost, subprime lenders, such as payday lenders, this hit rate is used as a proxy for AFSP usage. For instance, it is shown that for those with credit scores in the range 811-850 the corresponding hit rate is 2.5%, while those with credit scores in the 300-450 range the hit rate is 64%. Since the brochure does not include the hit rate for the unscoreable population we assume a 60% hit rate, since this roughly corresponds to the median consumer/score in the in the subprime population for the Silicon Valley data used in this report. Given that Prager, et al. found that AFSP locations were even more highly related to the presence of an unscoreable population than a low-score population, we felt assuming a median hit rate would err on the conservative side.[xxxv]

For each of the 2 million+ records in the sample for Silicon Valley, a probability that the consumer would have used an AFSP was generated based on their traditional credit score (if they were scoreable) or the fact that they were unscoreable. These probabilities were then aggregated at the census tract level.

These estimates/simulations capture all manner of AFSP usage, including online providers.

Figure 8 then layers the actual AFSP physical locations (black dots are used here). The physical AFSPs appear to be located on major transportation corridors and near locations of highest estimated AFSP demand.

Filling Credit Data Gaps and Shrinking Credit Deserts

Figure 9a is the same as Figure 4, showing unscoreability rates of census tracts. This is displayed again to show a comparison with Figure 9b. Figure 9b shows the unscoreability rates using an alternative score, the Extended View credit score. The Extended View score uses traditional data plus rental data (where available) and expanded public record data from LexisNexis Risk Solutions. Extended View was specifically designed to enable more consumers to be scoreable. As can be seen, unscoreability is virtually eliminated with the added data and new credit scoring model. That is, the Credit (Data) Deserts are eliminated. Note, again, that these figures only include those with at least some data at Experian and do not factor in the *no-hit* population.

**Figure 9a: Unscoreable Rate with Traditional Credit Score and Data**
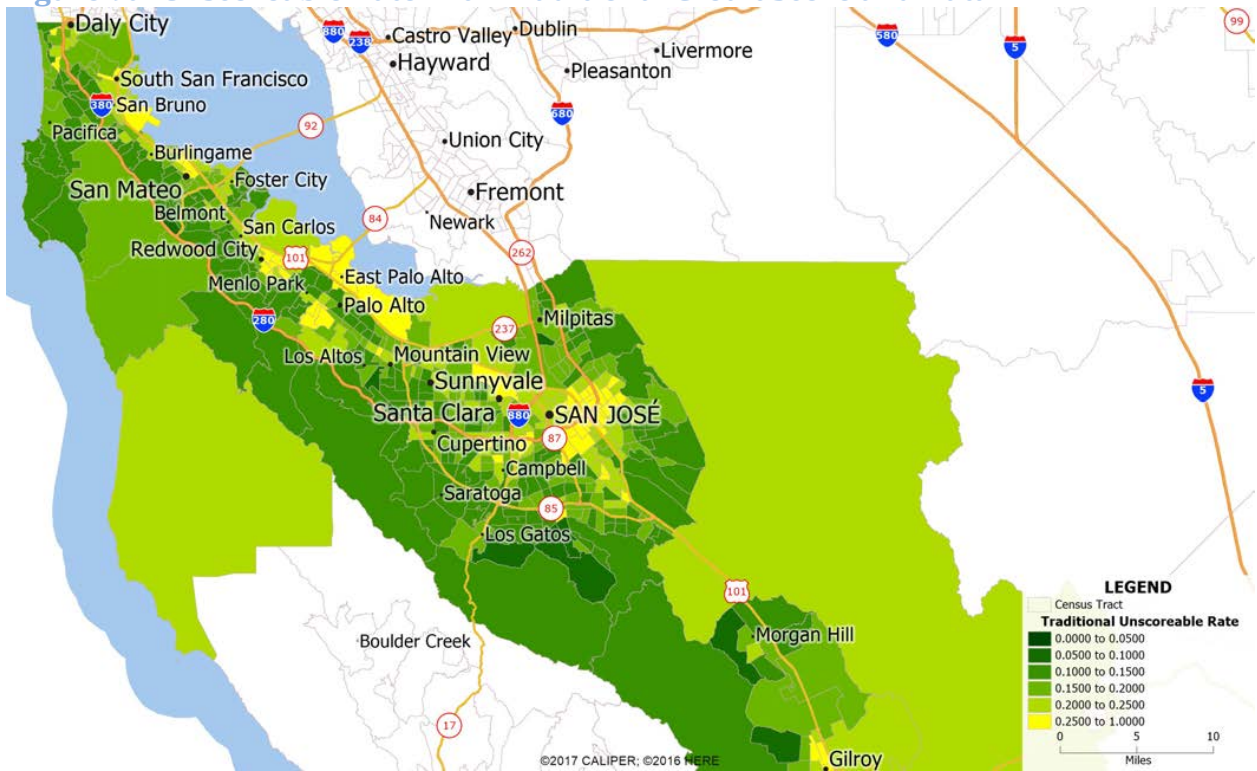
Figure 9b: Unscoreable Rate with Alternative Credit Score and Data
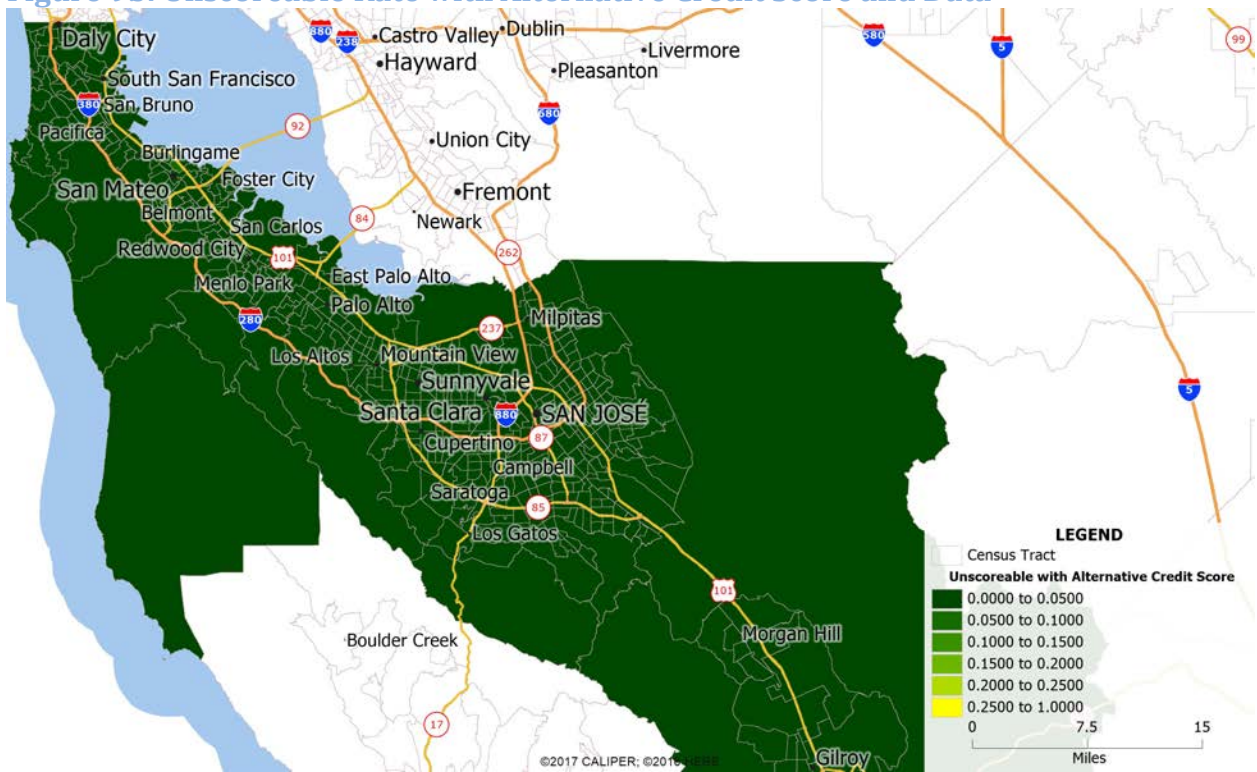
As has been shown by FICO, LexisNexis, VantageScore, PERC and others, new solutions and added data that reduces the unscoreable population tends not to *just* shift consumers from an unscoreable status to deep subprime, but instead moves consumers to various score tiers, including to near prime and prime tiers.[xxxvi] As a demonstration of this, Figures 10a and 10b show how census tract rates of 640+ credit scores differ between the traditional and alternative credit score (640 is traditionally a common minimum credit score for standard mortgages, which will range above and below this depending on the organization).

Since the alternative credit score (Extended View) does not use the same scale as the traditional credit score, an equivalent alternative credit score cutoff was used. Second, as the alternative credit score model does not produce credit scores for thicker file consumers, we used the alternative credit score for the thin file consumers unscoreable with the traditional credit score and then used the traditional score in cases where that was available. Additionally, there was some overlap with the two scores in which some consumers had both the alternative *and* traditional credit score. We used this overlap to estimate that the equivalent score for the Extended View (for the 640 traditional score) would roughly be 700.

The rates of 640+ credit scores can rise for two reasons (as seen in this work and past PERC research). First, many consumers shift from unscoreable to having 640+ credit scores. Second, many thin-file consumers (only just scoreable with traditional data) are able to migrate to higher scores with new data added.

Comparing figures 10a and 10b show that most areas benefit with the Alt data and Alt credit score, at least to some degree, but the benefits appear most pronounced in the credit desert areas. While there remains differences in the rate of 640+ credit score consumers across census tracts, the disparity appears diminished.

Figure 10c shows the percent increase in rates of 640+ credit scores in census tracts. The dark green coloring represents tracts where the 640+ rate increases by ten percent or more, such as increasing from 0.50 to 0.55. Note that some of the greatest increases in rates of 640+ credit scores occur in the Credit Desert area around San Jose. This figure confirms that most if not all areas benefit from the use of the alternative credit score, at least to some degree.

Figure 10a: Share of Consumers with a 640+ Traditional Credit Score
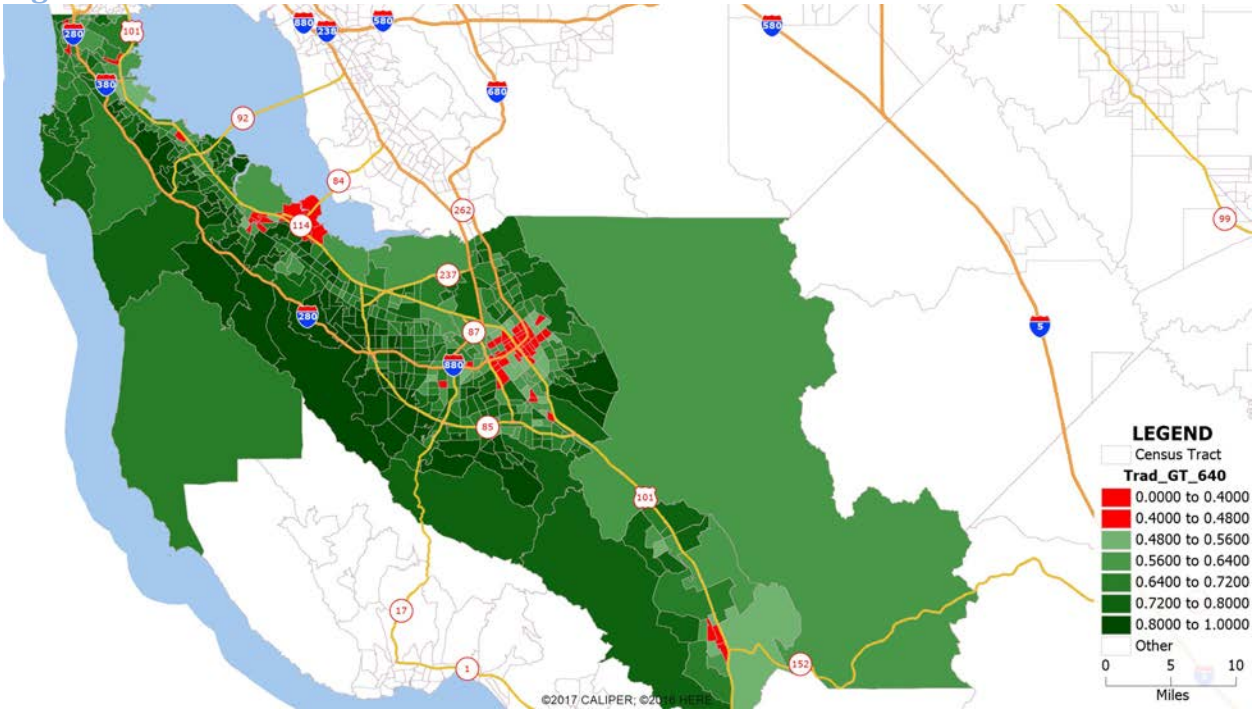
Figure 10b: Share of Consumers with a "640+" Alternative Credit Score and Data

Figure 10c: Percent Increase in "640+" Consumers with an Alternative Data Score

LEGEND

Census Tract

Percent Increase in 640+ Consumers
- 0.0000 to 0.0500
- 0.0500 to 0.0750
- 0.0750 to 0.1000
- 0.1000 to 1.0000
- Other

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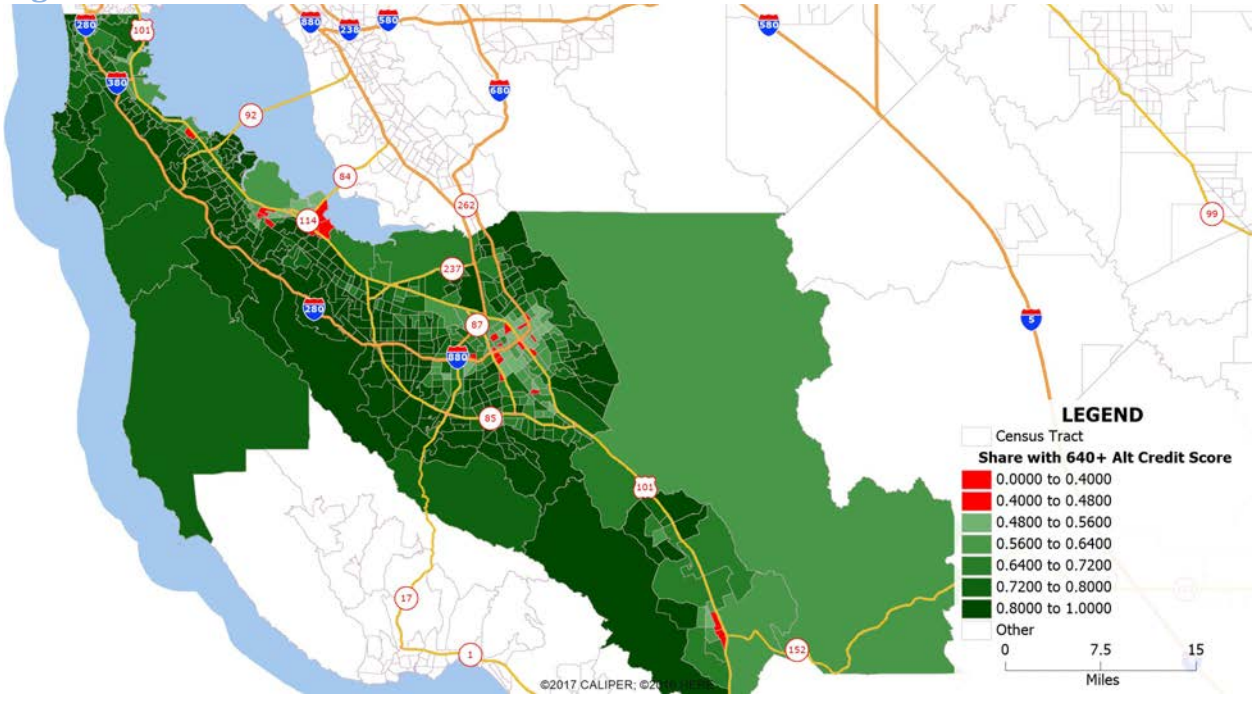
Figure 11: Estimated Percent Increase in Low-cost Credit Eligible Population if Utility and Telecom Payment Data were Reported to CRAs and Factored in to Credit Scores
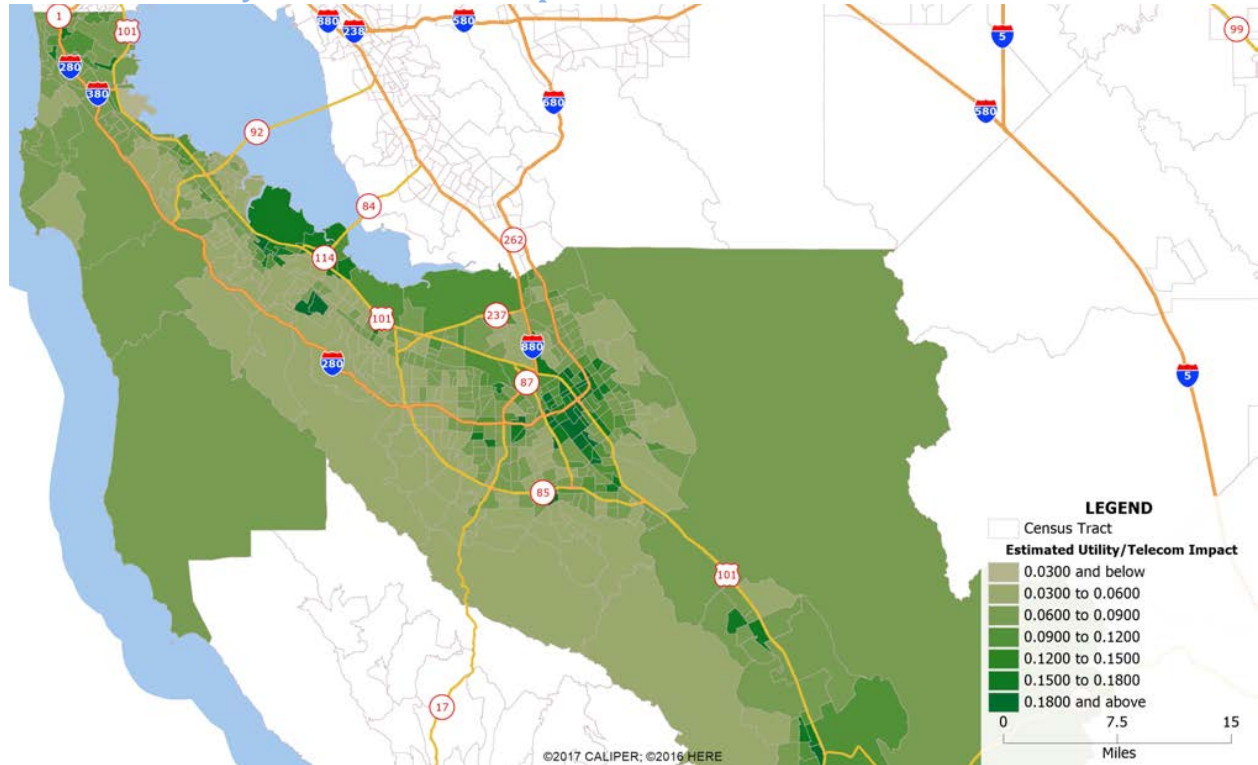
Unfortunately, we did not have access to utility and telecom payment data in San Mateo and Santa Clara counties to directly test the impact on credit scores and access to credit. This is because the energy utilities and the telecom companies servicing that area are not full-file credit reporting to the main CRA consumer databases (such as Experian's). However, using results from other states in past PERC work (A New Pathway to Financial Inclusion), we simulated how access to mainstream credit might increase in utility and telecom payment data were added to credit files and included in traditional credit scores.[xxxvii] This could *roughly* be seen as how the 640+ credit score population might change if utility and telecom data were reported to the credit bureaus and included in credit scores. Specifically, the underlying data represent how much a portfolio with a 3% delinquency rate would increase when utility/telecom data were included in the credit scoring. Importantly, the results were similar whether the delinquency rate was 2%, 3% or 4%, so it is likely safe to say that this approximates how the 640+ population may change. This data used for this come from unpublished results of such acceptance rate changes at the zip code level of aggregation by median zip code income (we assume these would hold for the census level tract level)[xxxviii]. Finally, given the difference in price level between the bay area and the average for the nation we adjusted for the cost/wage differences (from GSA) and inflation since 2011 (CPI).

The results in figure 11 show that there could be very large increases in the 640+ credit score rates in the lowest income census tracts with pervasive reporting of full-file utility and telecom data. The fact that these results show larger increases in some cases than seen in figure 10b may be the fact that the previous PERC work also included the scoreabilty impact on the no-hit population.

It should also be noted that different types of alternative data, such as utility and telecom versus rental data and expanded pubic record data should not be seen as strict substitutes. Ideally, this data should be layered on to produce (potentially) thick credit files for the credit invisible. It may also be the case that some people only have a telecom payment, but no rent or utility payment. And some people may have only a rental payment, but no utility or telecom payment. By layering on many types of alternative data, coverage and file thickness increases. In turn, this increases the ability to assess risk and, in turn, overall credit access.

Figure 11 shows that areas in the simulations that see the greatest increases in access to lower cost mainstream credit with utility/telecom data added to credit score would be the credit desert areas of Silicon Valley. This increased mainstream credit access, in turn, should lower demand for AFSP services.

Figure 12: Simulated Percent Decrease in AFSP use with Shift to an Alternative Credit Score that Shrinks Credit Deserts
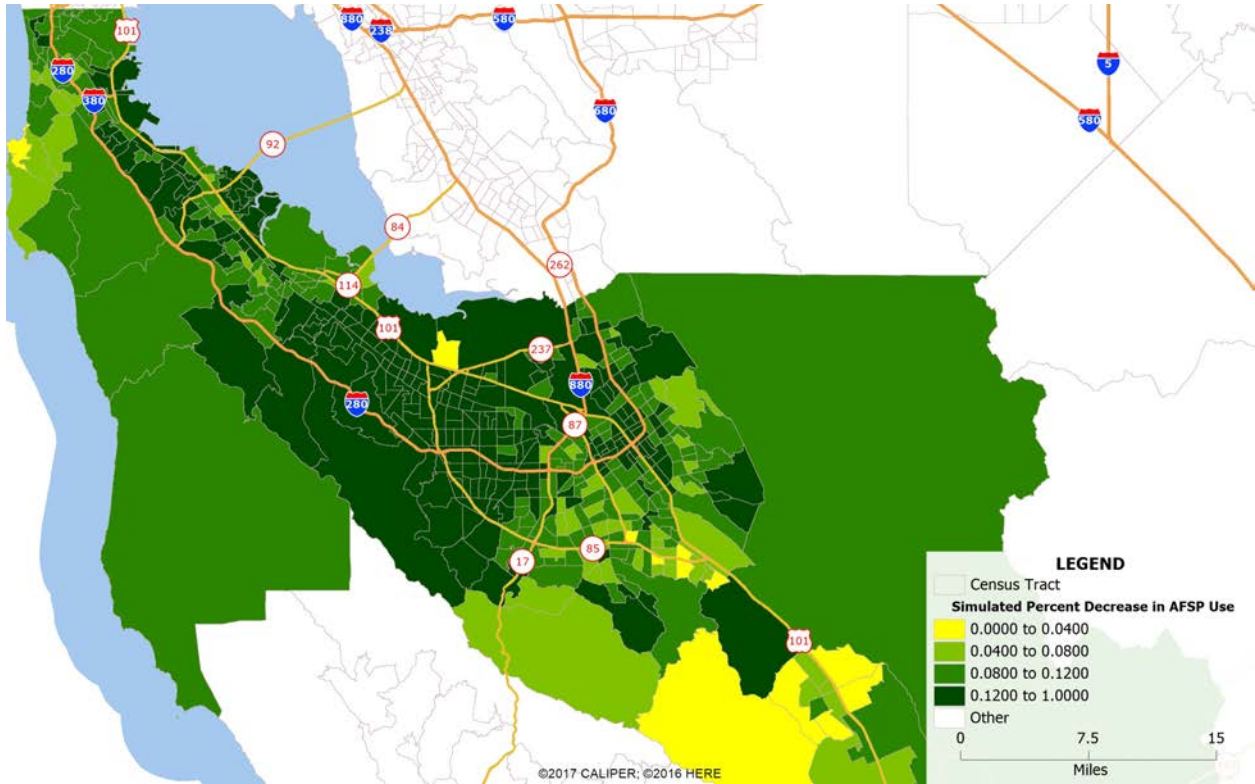
Figure 12 maps how AFSP demand might decrease if credit scores drove AFSP demand and credit scores shifted from a traditional credit score with many unscoreables to an alternative credit score with far fewer unscoreables. This essentially looks at the estimated demand for AFSPs shown in Figures 7 and 8 and sees how these rates would change if alternative data and scores were used instead of a traditional score with only traditional data. These estimates show that many census tracts, including lower income and credit desert census tracts, could see a 8-12% or 12% + decrease in demand for AFSP services. It is important to note that the score used in this simulation does not add utility or telecom payment data shown in figure 11 (or numerous other potential datasets). We would expect that adding layers of new data should further improve risk assessment and access to mainstream credit. We should also note that we do not believe that credit scores and scoreability alone drive and are deterministic of AFSP use. But we do believe it is reasonable to assume that credit scores influence access to lower-cost mainstream credit and that such access, in turn, is an important factor in determining AFSP demand.

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The Story of Mission Asset Fund (MAF)

MAF Founder Jose Quinonez argues that poverty is a human construct. Driven in large part by his own experience growing up in poverty—in his white paper "Making the Invisible Visible: A Strategy for Inclusion" Quinonez attributes personal tragedies to poverty and has focused on financial empowerment as a tool to combat the complexities of travails of having a low income.

Quinonez told The Atlantic, "I didn't go to school to become a credit builder. I wanted to change the world. I didn't think I was going to do that by being a loan servicer. But that's real. Without access to credit people's dreams go unfulfilled."

Toward that end, he founded Mission Asset Fund (MAF) in 2007. In the Mission neighborhood in San Francisco, "a large amount of the population doesn't have a credit history or credit score. We needed to address the huge barriers that creates," Quiñonez said. "We wanted to do something tangible and real."

MAF focuses on helping primarily recent immigrants and their families build a credit history through participation in a circle loan. This interest free loan is reported to one or more nationwide credit bureaus, helping establish a credit history so that the borrower can qualify for affordable mainstream credit and move away from high cost credit including payday loans.

"By reporting to the credit bureaus," Quinonez says, "we're helping people establish or improve their credit scores so that they then have the ability to do whatever they need to do in their lives, whether it's rent an apartment, or buy a house, or buy a car, get a loan to start a business, or whatever it is they want to do. Now they have the tool to actually become economic actors in our system."

In short, MAF have focused upon helping make visible the erstwhile credit invisible in the Bay Area. However, before they could help build a credit history for a borrower downstream, MAF had to be able to assess a borrower's credit risk in order to qualify them for participation in a circle loan.

To do this, MAF loan officers request a prospective borrower to provide evidence of payment history on credit or credit-like transactions—including cell phone service, cable TV, broadband, wireline telephone service, gas, water,

and electric utility payments, and even rent. MAF considers all of this payment data, together with the application data and references in making a credit decision.

Since launching, MAF has extended credit valued at just over $5 million to 5,455 borrowers. While this is an impressive feat, Quinonez would be the first to confess that current solutions fall far short of current needs. "There are as many as 54 million Credit Invisibles in the United States. There would need to be tens of thousands of MAFs to put a dent in that number."

Mainstream lenders have the scale and resources to meet the currently unmet credit needs of the Credit Invisibles in the US. What is lacking is the data—the same data used by MAF to qualify borrowers for circle loans.

"We can solve the scalability challenge through pervasive reporting of alternative data to national credit bureaus," argues Quinonez. "The coverage among the Credit Invisibles is fantastic. Nearly everyone has a cell phone, and most people pay rent, utility bills, and Cable TV and broadband. If these payments are credit reported, many millions of invisibles will be seen by mainstream lenders and can access affordable credit," he added.

For the past 5 years, PERC and MAF have partnered to promote federal legislation clarifying that fully-reporting energy utility and media payments—that is, reporting both timely and late payment data—to national credit bureaus is permitted under existing law—specifically the Fair Credit Reporting Act (FCRA). This law is designed to eliminate regulatory uncertainty that exists among state public utility commissions, which have a very low level of understanding of the FCRA.

"By making formal the previously informal—giving people credit for the payments they are making—we can make a tangible difference in the lives of millions of lower-income Credit Invisibles in the Bay area and around the country," said Quinonez. "We can foster new growth, prosperity, and economic hope in Credit Deserts."

To learn more about the thousands of formerly Credit Invisible persons who have been helped through the use of alternative data, see:

http://missionassetfund.org/stories/

Conclusions and Policy Prescriptions

Trapped by the Credit Catch 22, the tens of millions of Credit Invisibles must turn to high cost lenders—pawn shops, payday lenders, check cashing services, rent to own, and buy-here-pay-here auto lenders—to have their credit needs met. High cost credit access has negative consequences for borrowers. For example, the use of payday loans increases hardship measures by an estimated 25%—meaning that payday loan borrowers were 25% more likely to have difficulty in paying mortgage, rent and utilities bill and having medical and dental care postponed.[xxxix] Further, lower-income Americans pay an estimated $3.4 billion in excess fees annually to access storefront payday loans—this excludes check cashing, pawn shops, and a range of other high-cost alternative financial services.[xl]

This report represents the pilot of a larger effort to map and demonstrate the local area geographic impacts of credit invisibly and utilizing alternative data and newer scores. Ultimately, this effort can be extended nationwide, allowing individuals to explore their own communities, zooming in to their own neighborhoods. We hope to also expand project partners and to include additional data elements in future efforts. That said, this current pilot report has produced several strong outcomes that has not been shown previously.

Prior PERC work had shown that lower income individuals were most harmed by credit data gaps and would most benefit from those gaps being filled in with alternative data.[xli] As suspected, the prior findings at the individual level translate to entire communities and neighborhoods suffering from credit data gaps and credit invisibility. This report shows that for counties or large metropolitan areas (Silicon Valley is used as an example), there is very much a geographic character to the problem of credit invisibility. While some communities and neighborhoods have few consumers that are unscoreable, typically areas with higher median household income, other areas have large concentrations of unscoreable consumers, typically areas with lower median household income. Since credit invisibility inhibits access to lower cost, mainstream credit, the negative impacts of credit invisibility likely not only impacts individuals but also local communities and neighborhoods. The clusters of invisibility or credit deserts may act to attract high-cost lenders to certain areas of a community and stifle development of these areas. As was shown in this report, when alternative data and scores are utilized, it is precisely the areas of high concentrations of credit invisibles (credit deserts) that benefit the most. This was also seen in simulations of pervasive full-file credit reporting of utility/telecom payment data. Further, the simulated impacts on the demand for AFSPs by increased use and reporting of alternative data also showed that the credit desert areas and lower income areas would see the greatest reductions in AFSP use with increased alt data reporting. So, while credit invisibility is a problem for many consumers, and contributes to AFSP use, reduces access to lower-cost mainstream credit, and clearly impacts local areas and neighborhoods, it is a problem with an obtainable solution.

Currently, the vast majority of payments that Americans make to energy utility and media firms are not fully reported to the main consumer databases of the three national credit bureaus unless they are late (or very late) payments. This means that people are being

penalized for their payment transgressions, but not rewarded for their good behavior. For credit invisibles, reporting only negative data makes a credit report a tool for financial exclusion as it acts as a black list. FICO estimates that by including this and other alternative data more than one-third of the currently Credit Invisible that can be scored with its FICO Score XD will be scored above 620—that is near prime or prime credit.[xlii]

There is a diverse and growing coalition of organizations that support the reporting of alternative data, and there are legislative proposals that would encourage its reporting, such as H.R. 435. - The Credit Access and Inclusion Act of 2017. The problem of credit data gaps and the ability of alternative data to fill these gaps is supported by a research consensus achieved over the last decade through studies from groups like PERC, the Brookings Institution, Lexis-Nexis, the Federal Reserve Bank of Boston, FICO, and the Center for Financial Services Inclusion.[xliii] The World Bank's Guideline for Credit Reporting includes a provision endorsing the practice.[xliv] And there are at least 27 countries that allow credit reports to include fully reported utility data. These countries, which include Germany, Britain, China, Mexico, and Colombia—have benefitted from this practice for years.[xlv] In this instance, the US is the laggard, not the leader, as some countries have permitted and encouraged alternative data in credit reporting for the past half-century.

Our recommendations are as follows:
1. Policymakers and regulators should support greater reporting and use of alternative data (utility, telecom, rental, and other alternative data) and greater use of newer credit scoring solutions. An example of such supportive policy is H.R.435 - The Credit Access and Inclusion Act of 2017.
2. Utilities, telecoms, pay-tv, and other large non-financial service providers should full-file report to CRAs (or at the very least report on-time payments and other account data to the main consumer repositories of credit bureaus) just as they typically do the late payments, very late payments, or accounts in collections.
3. Lenders should more swiftly shift to newer credit scoring solutions, some of which currently improve greatly the scoreabilty of the credit invisible. These include newer credit scores from FICO (such as FICO Score XD), LexisNexis (such as RiskView), VantageScore, TransUnion, Experian, Equifax, and others. Lenders can often be very slow moving in updating the credit scores they utilize. Ultimately, even if alternative data is widely available and multiple solutions exist to utilize it, unless mainstream lenders actual *use* the alt data and new solutions, the Credit Invisible and thin-file consumers will not benefit.

Eliminating Credit Invisibility and improving risk assessment for thin-file consumers will not act as a silver bullet that rids the nation of all demand for AFSP services and solves all credit access problems. There will, for instance, remain individuals that are high credit risks that data indicate *are* high credit risks. But, in the information-rich world in which we now live, reduced mainstream credit access for tens of millions *because* of data gaps is a very solvable problem that can be tackled now. In this sense, the location of Silicon Valley for this pilot, the epicenter of new data services, FinTech, and disruptive ventures, is very appropriate.

Appendix

There are a few methodological issues with estimating the size of the credit invisible population. One is that the data used in this report does not capture those who do not have any data reported to Experian. That is, we do not see the "no-hit" population. To estimate this, we took the difference between the number of credit files observed for a census tract and the estimated adult (21+) population of the census tract produced by the US census. This was also done by the CFPB in their *Credit Invisible* report. The second major issue, also addressed by the CFPB in their report, is the fact that the CRAs may have duplicate or fragmented credit files. So, for instance, while a certain geography may have a million credit records it may be the case that there are only, really, 900,000 underlying consumers. The data we had available for this pilot did not allow us to replicate all the steps taken by the CFPB to account for this, but we were able to exclude records that did not have a date of birth (as the CFPB did). Figure C shows the rate of scoreability when the no-hit population is estimated via census data and the assumed duplicate records are removed (records with no DOB).
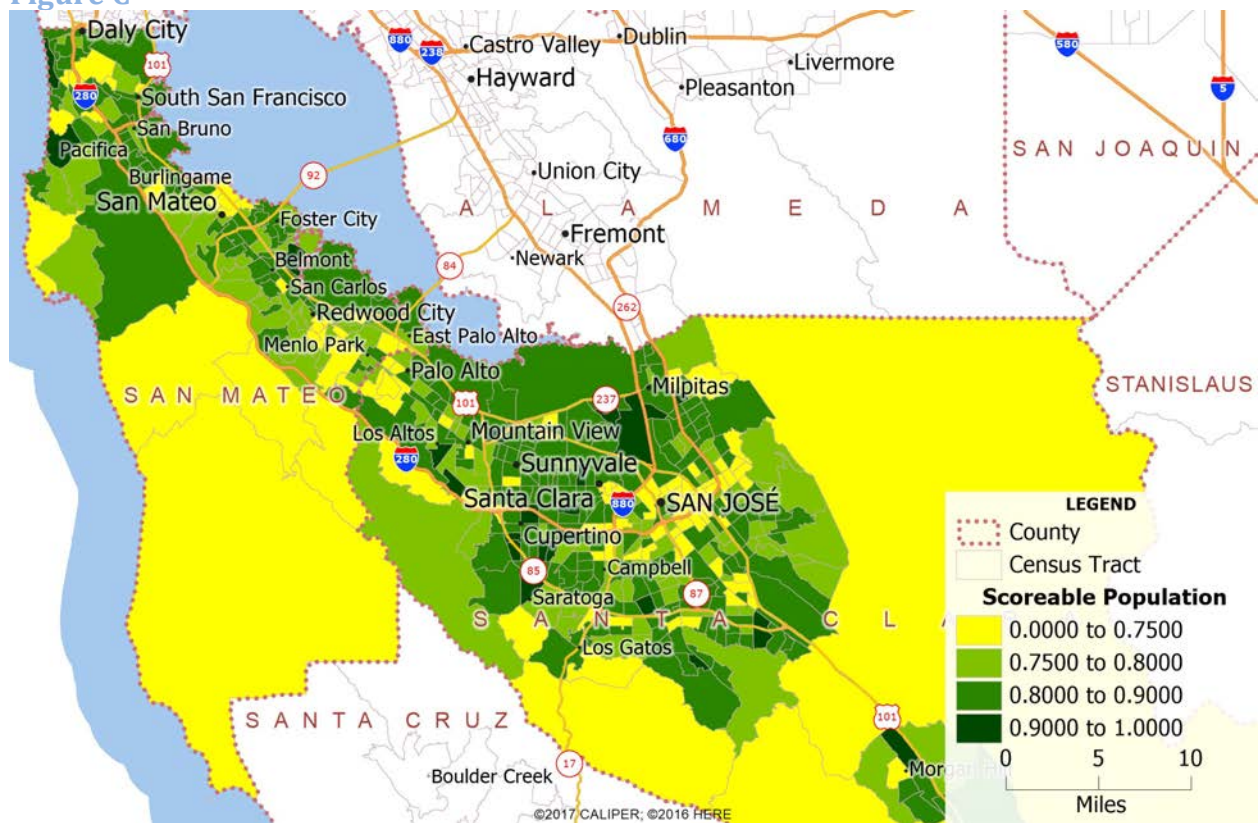
Figure C

Figure C shows that there are differences in the scoreability rates with the revised measure (compare Figure C to Figure 9a). While the revised measure produces different results, a distinct area with high rates of unscoreble consumers can be seen around San Jose, previously identified as a credit desert. Such an approach to capture the no-hit population

will be further explored and likely implemented in the next iteration of this research. This will require additional data and a refinement of the methodology.

[i] CFPB. "Who Are the Credit Invisibles?: How to help people with limited credit histories." December 2016. Downloaded at https://s3.amazonaws.com/files.consumerfinance.gov/f/documents/201612_cfpb_credit_invisible_policy_report.pdf. Also see CFPB. "Data Point: Credit Invisibles" and PERC "Give Credit Where Credit is Due" 2006. Available at: http://www.perc.net/wp-content/uploads/2013/09/alt_data.pdf.

[ii] Prager, R.A. "Determinants of Locations of Payday Lenders, Pawnshops and Check Cashing Outlets." Finance and Economic Discussion Series, Division of Research & Statistics and Monetary Affairs, Federal Reserve Board. 2009

[iii] Prager, R.A. "Determinants of Locations of Payday Lenders, Pawnshops and Check Cashing Outlets." Finance and Economic Discussion Series, Division of Research & Statistics and Monetary Affairs, Federal Reserve Board. 2009. See also: Gallmeyer, A. and Roberts, W.T. 2009. Also see CFPB. "Data Point: Credit Invisibles."

[iv] An analysis in Virginia found that those zip codes with below average household incomes had 7 to 10 times as many payday lenders as were found in zip codes with above average household incomes. "Do Payday Lenders Target the Poor?" Griffith, S. and Varnier, J. 2009. Available at: http://vcuinsight.wordpress.com/2009/05/04/do-payday-lenders-target-the-poor/

[v] *Op. Cit.* Prager, R.A.

[vi] See https://www.federalreserve.gov/boarddocs/rptcongress/creditscore/creditscore.pdf

[vii] See for example "Give Credit Where Credit is Due: Increasing Access to Affordable Credit using Alternative Data." Political and Economic Research Council, The Brookings Institutions Urban Markets Initiative. 2006; "The National credit Reporting Association and PRBC join forces to help Consumers to Build Alternative Credit histories." Washington DC. October, 2005; and "Millions without credit scores not so risky after all." Blake Ellis. August 2013. Available at: http://money.cnn.com/2013/08/14/pf/credit-scores/index.html

[viii] The concept of "Credit Invisibles" was pioneered by PERC. It was used by PERC as early as 2004 internally, and in 2005 in research reports as a shorthand term for those persons lacking a credit report or with too little information to generate a credit score (at the time, most commercial grade generic models required at least three tradelines with at least 6 months of data that were no older than 2 years). PERC began routine public use of this term in 2008 starting with Congressional testimony before the House Financial Services Committee.
See also: "Determinants of Locations of Payday Lenders, Pawnshops and Check Cashing Outlets." Finance and Economic Discussion Series, Division of Research & Statistics and Monetary Affairs, Federal Reserve Board. Prager, R.A. 2009.

[ix] Attribution for the concept of Credit Deserts goes to Jose Quinonez of MAF. Jose and Dr. Turner had been collaborating on alternative data solutions to Credit Invisibility, and Jose shared the idea of Credit Deserts with PERC in 2014. From this conversation, the basis for our joint-proposal to the SVCF was born. The first public reference to Credit Deserts that we found for purposes of this study comes from a British publication on October 26, 2015. A group of organizations undertook data mapping and found Credit Deserts in Birmingham, England. There core findings are consistent with our own, and earlier studies including Prager (2009) and Gallmeyer and Roberts (2009). To read summary of ACORN research on Credit Deserts in Birmingham, England, see: http://chieforganizer.org/2015/10/26/banks-are-building-credit-deserts-in-birmingham-and-elsewhere/

[x] Prager, R.A. 2009.

[xi] Gallmeyer, A. and Roberts, W.T. Their 2009 study using data from Colorado finds the presence of payday lenders highest in an area of moderate poverty (not too high and not too low). "Payday lenders and economically distressed communities: A spatial analysis of financial predation." *The Social Science Journal*, 2009.

[xii] Griffith, S. and Varnier, J. "Do Payday Lenders Target the Poor?" 2009. Available at: http://vcuinsight.wordpress.com/2009/05/04/do-payday-lenders-target-the-poor

[xiii] See for example "Give Credit Where Credit is Due: Increasing Access to Affordable Credit using Alternative Data." Political and Economic Research Council, The Brookings Institutions Urban Markets Initiative. 2006

xiv See: Turner, Michael A., Robin Varghese, Patrick Walker. *Give Credit Where Credit Is Due.* Brookings Institution. Washington, DC. December 2006; Jeffrey Feinstein "Alternative Data and Fair Lending." Lexis Nexis. 2013. Downloaded at http://www.lexisnexis.com/risk/downloads/whitepaper/fair_lending.pdf; CFSI Webinar "Uncovering Opportunity: The True Potential of the Underserved Market." September 18th, 2013; Experian RentBureau. "Credit for renting: The impact of positive rent reporting on subsidized housing residents." Downloaded at
http://www.experian.com/assets/rentbureau/whiteUpapers/experianUrentbureauUcreditUforUrentUanalysis.pdf; TransUnion. "TransUnion Analysis Finds Reporting of Rental Payments Could Benefit Renters in Just One Month," June 19, 2014. Downloaded at
http://wwww.transunion.mwnewsroom.com/pressUreleases/transunionUanalysisUfindsUreportingUofUrentalUpaym-1125077 and see http://transunioninsights.com/rentalreporting/; FICO. "Secret to Scoring More Consumers? Alternative Data—With A Catch," November 11, 2013. Downloaded at:
http://www.fico.com/en/blogs/riskUcompliance/secretUtoUscoringUmoreUconsumersUalternativeUdatawithUaUcatch/.

xv See www.dbo.ca.gov/Press/press_releases/2016/Address list of cddtl active licensed locations as of 03-22-16.pdf

xvi Devore, Chuck. "Why Does California Have the Nation's Highest Poverty Rate?" *Forbes*. 28 September 2016. Downloaded at http://www.forbes.com/sites/chuckdevore/2016/09/28/why-does-california-have-the-nations-highest-poverty-rate/#1cc0184c3e89

xvii Op. Cit.

xviii Hall, Gina. "Poverty rate still near all-time high in Bay area." 2 April 2015. *Silicon Valley Business Journal*. Downloaded at http://www.bizjournals.com/sanjose/news/2015/04/02/poverty-rate-still-near-all-time-high-in-bay-area.html

xix Op. Cit.

xx Op. Cit. "With rents in some parts of the Bay Area 185 percent higher, home prices up to 250 percent higher, and the cost of goods and services 6 percent higher than in the United States as a whole ... the 'cost of living' in the Bay Area is undoubtedly different," the report stated. "As such, the poverty rate in the Bay Area could be as much as three or four percentage points higher, putting poverty in the Bay Area on par with the state and nation."

xxi CFPB. "Data Point: Credit Invisibles." CFPB Office of Research. May 2015. Downloaded at http://files.consumerfinance.gov/f/201505_cfpb_data-point-credit-invisibles.pdf

xxii CFPB. "Data Point: Credit Invisibles." CFPB Office of Research. May 2015. Downloaded at http://files.consumerfinance.gov/f/201505_cfpb_data-point-credit-invisibles.pdf

xxiii FDIC. "Alternative Financial Services: A Primer." 27 April 2009. Downloaded at https://www.fdic.gov/bank/analytical/quarterly/2009_vol3_1/AltFinServicesprimer.html

xxiv Op. Cit.

xxv Bourke, Nick. Alex Horowitz and Tara Roche. *Payday Lending in America: Who borrows, Where they borrow, and Why.* The Pew Charitable Trusts. Safe Small-Dollar Loans Research Project. 19 July 2012. Downloaded at http://www.pewtrusts.org/~/media/legacy/uploadedfiles/pcs_assets/2012/pewpaydaylendingreportpdf.pdf

xxvi Op. Cit. Pg. 4.

xxvii Woodruff, Mandi. "The $46 billion pay day lending industry is in for a big blow," Yahoo Finance. 10 February 2015. Downloaded at http://finance.yahoo.com/news/CFPB-payday-lending-rules-explained-192558796.html It should be noted that other reports vary wildly in terms of annual revenues for pay day lending and check cashing combined. For instance, IBIS estimates that total annual revenue in 2014 was $12 billion for the 4,131 firms operating as pay day lenders and/or check cashing service providers. Downloaded at https://www.ibisworld.com/industry/check-cashing-payday-loan-services.html

xxviii Bourke (2012). Pg. 4.

xxix CFPB. "Who are the Credit Invisible?" (2016). Pg. 3.

xxx Op. Cit. Pg. 4.

xxxi Sheffield, Hazel. "More than 40% of young people use pay day loans or pawn shops." Independent. 8 January 2016. The numbers come from a survey of more than 5,000 Millennials in the US by PriceWaterhouseCoopers and the Global Financial Literacy Excellence Center at George Washington

University. Downloaded at http://www.independent.co.uk/news/business/news/more-than-40-of-yoing-people-millennials-use-payday-loans-or-pawnshops-a6802206.html

xxxii Schmall, Theresa and Eva Wolkowitz. 2016 Financially Underserved Market Size Study. November, 2016. Pg. 5. Downloaded from http://www.cfsinnovation.com/CMSPages/GetFile.aspx?guid=b072ca69-4f59-4097-b104-9983f716c9c9

xxxiii Op. Cit. Pg.

xxxiv Prager, R.A. "Determinants of Locations of Payday Lenders, Pawnshops and Check Cashing Outlets." Finance and Economic Discussion Series, Division of Research & Statistics and Monetary Affairs, Federal Reserve Board. 2009. See also: Gallmeyer, A. and Roberts, W.T. 2009.

xxxv Prager, R.A. "Determinants of Locations of Payday Lenders, Pawnshops and Check Cashing Outlets." Finance and Economic Discussion Series, Division of Research & Statistics and Monetary Affairs, Federal Reserve Board. 2009. See also: Gallmeyer, A. and Roberts, W.T. 2009.

xxxvi For further discussion see Turner, et. al. "Research Consensus Confirms Benefits of Alternative Data." PERC. 2015. Available at: http://www.perc.net/wp-content/uploads/2015/03/ResearchConsensus.pdf

xxxvii Turner, et. al. "A New Pathway to Financial Inclusion." June 2012. Available at: http://www.perc.net/wp-content/uploads/2013/09/WEB-file-ADI5-layout1.pdf

xxxviii Specifically, the rates from the 2012 report were: 19% for $0-$30K median household income Zip Codes, 16% for $30-$40K Zip Codes, 11% for $40-$50K Zip Codes, 9% for $50-$60K Zip Codes, 7% for $60-$75K Zip Codes, 5% for $75-$90K Zip Codes, and 4% for $90K+ Zip Codes.

xxxix Melzer, Brian T. "The Real Cost of Credit Access: Evidence from the Payday Lending Market." *The Quarterly Journal of Economics*. Oxford Journals of Oxford University Press. (2011) Volume 126, Issue 1. Pgs. 517-555.

xl "Profiting from Poverty: How Payday Lenders Strip Wealth from the Working Poor for Record Profits." A report by National People's Action. January, 2012. See also Schmall and Wolkowitz. CFSI (2016).

xli Turner, et. al. "A New Pathway to Financial Inclusion." June 2012. Available at: http://www.perc.net/wp-content/uploads/2013/09/WEB-file-ADI5-layout1.pdf

xlii Presentation by David Shellenberger of FICO. Expanding Access to Credit: Realizing the Promise of Alternative Data. 15 September, 2016. Washington, DC. National Press Club.

xliii For a discussion of recent analysis of the credit market impacts from including fully reported non-financial payment data in the origination process, see Turner et al., "Research Consensus Confirms Benefits of Alternative Data." PERC, March 2015.

xliv *General Principles for Credit Reporting.* World Bank. September 2011. See especially Para 106. Available at http://documents.worldbank.org/curated/en/662161468147557554/pdf/701930ESW0P1180ting0pub010028011web.pdf

xlv According to the World Bank's most recent "Doing Business" database: Argentina, Armenia, Australia, Canada, China, Dominican Republic, Ecuador, Egypt, Georgia, Germany, Honduras, Korea (South), Lithuania, Mexico, New Zealand, Nicaragua, Panama, Peru, Philippines, Poland, Rwanda, Saudi Arabia, Taiwan, United Kingdom, United States of America, West Bank/Gaza, Zambia. All in that's just over 2.5 billion people. This list includes advanced, middle-income, and developing economies, as well as large and small nations. The site link is http://www.doingbusiness.org/data/exploretopics/getting-credit#close