Housing Disparities in Southern California

Jason Harley

University of California, Los Angeles

Author Note

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Abstract

Since the collapse of the housing market, foreclosure has been a difficult reality for many families. However, not all families were affected the same way. Years of disparities in mortgage market outcomes created a system that disadvantaged minority, particularly Black, families. For Blacks, higher rates of loan application denial led to increased subprime lending which had higher risk of foreclosure. This study uses publicly available mortgage and census data as well as proprietary foreclosure figures to demonstrate an increased risk of foreclosures in areas with high proportions of Black families. It adds to the evidence that Blacks face structural barriers to increasing wealth through home ownership.
Housing Disparities in Southern California

Home ownership is part of the American dream and two-thirds of housing in the United States is owner occupied (http://www.census.gov/hhes/www/housing/ahs/ahsfq.html). For most Americans, a home will be their largest investment and the source of most of their wealth. As a percentage of income, home prices have risen steadily since the 1950’s (Oliver & Shapiro, 2006) placing a greater importance on how these large purchases are financed. Through the tax code, the government subsidizes home mortgages on not one, but two homes, which amounted to well over $300 billion in 2003, a majority of which went to the wealthy class (Lindsey, 2009; Oliver & Shapiro, 2006). The recent economic crisis was caused in large part by the collapse of the housing industry which resulted in millions of homeowners losing their homes to foreclosure.

Foreclosure has been front page news in popular media and its prevention has been a focus of the Obama administration with a number of programs intended to help homeowners modify their mortgages to become more affordable. Home foreclosure is when a lender legally acquires ownership rights from the homeowner due to a failure to meet the terms of the mortgage loan. Since the economic downturn in 2007, home foreclosures have increased steadily, peaking at over five percent of mortgage loans (Immergluck, 2011). Between March of 2010 and June of 2011 over 5 million homes had entered the foreclosure process (Immergluck, 2011). In California, 1 of every 254 homes received a foreclosure filing in December of 2011 alone (http://www.realtytrac.com/trendcenter/ca-trend.html).

Home foreclosure has been linked to a variety of negative individual and family outcomes. Individuals experiencing foreclosure have been diagnosed with hypertension, anxiety, and depression (McLaughlin et al.; L. M. Ross & Squires, 2011; Saegert, Fields, & Libman, 2011). These homeowners have felt feelings of broken trust and personal failure which
exacerbates these mental health problems (L. M. Ross & Squires, 2011). For families, housing instability caused by foreclosure can lead to decreased educational achievement, school suspension, and increased incidences of bullying or social exclusion (Barnes, Butt, & Tomaszewski). Furthermore, children from foreclosed homes are more likely to change to a lower performing school (Been, Ellen, Schwartz, Stiefel, & Weinstein, 2011).

This study examines the relationship between race and foreclosure in Southern California. It will show that foreclosures increase in areas having larger proportions of Black residents as well as higher unemployment, lower rates of college education and higher mortgage loan application denial rates.

**Literature Review**

**A Brief History**

In their seminal book *Black Wealth, White Wealth*, Oliver and Shapiro (2006) give a superb history of the modern mortgage. During the Great Depression, Franklin Delano Roosevelt signed into law two important pieces of legislation, the Home Owners Loan Corporation (HOLC, 1933) and the Federal Housing Authority (FHA, 1934). HOLC helped struggling homeowners by backing their mortgage and established appraisal standards. It also ranked neighborhoods into four categories, color coding the all Black urban neighborhood red (Gordon, 2005). The FHA codified these appraisal standards in a written underwriting manual. The FHA wanted residents of a neighborhood to be of the same race and social class. They even suggested that restrictive covenants should be used to maintain such a neighborhood. As a result, the FHA favored White suburban areas and did not back mortgages in Black and urban neighborhoods; these areas became *red-lined*. The passage of the GI Bill (1944) gave millions of
returning soldiers the opportunity to buy homes with extremely low cost government backed Veterans Administration (VA) loans. Like the FHA, these VA loans were not available in red-lined communities. During the Civil Rights Movement, Lyndon Johnson signed the Fair Housing Act as part of the Civil Rights Act of 1968. The goal of this act was to prevent discrimination in the housing market and explicitly ended FHA loan approval discrimination (Gordon, 2005). Later, the Home Mortgage Disclosure Act (HMDA, 1975) required banks to provide mortgage application data to the government for monitoring.

**Mortgages**

The HMDA has provided many researchers with the ability to analyze mortgage application data to see if discriminatory practices exist. Oliver and Shapiro (2006) claim that Black and other minority applicants are at a disadvantage to White applicants. Blank and his colleagues (2005) created a loan dissimilarity index for Washington, D.C. by looking at the overall approval rate of the city and extrapolated that percentage to each census tract accounting for tract level variables that may impact the loan decision process. They found that approximately 10 percent of the mortgage loans in the city would have to be redistributed to higher minority census tracts in order to gain parity (Blank et al., 2005). In Mississippi, one study found that the demographics of the neighborhood had a significant impact on denial rates (Ezeala-Harrison, Glover, & Shaw-Jackson, 2008). The authors found that minorities were denied loans in White or transitioning neighborhoods which had the effect of concentrating them into certain communities. This segregates Blacks and other minorities into poor, low appreciating neighborhoods (S. L. Ross, 2006)
Subprime Loans

The 1980’s saw a growth in the subprime mortgage loan market due to two acts favorable to the banking industry. The Depository Institutions Deregulation and Monetary Control Act (DIDMCA, 1980) removed state imposed caps on mortgage interest rates and the Alternative Mortgage Transaction Parity Act (AMPTA, 1982) allowed lenders to have variable interest rates and balloon payments (Chomsisengphet & Pennington-Cross, 2006). Taken together, these acts created a favorable atmosphere for lenders to begin selling subprime loans, adjustable rate mortgages (ARMs), and loans with a fixed rate for a few years followed by a complete repayment of the remaining principal in a balloon payment, which was usually refinanced into another loan. In 1997, then Chairman of the Federal Reserve, Alan Greenspan, referred to these types of loan structures as a democratization of credit opening up home ownership to a more diverse applicant pool (Greenspan, 1997).

Subprime loans have interest rates that are three percentage points or more above the prime rate (http://www.ffiec.gov/hmdaadwebreport/footnote_HMDA2010.htm, note #16). These loans originally served a small niche of people who may have had temporary credit problems at one time. A subprime loan allowed an applicant to buy a home, fix credit problems, and then refinance into a prime loan (Rivera, Cotto-Escalera, Desai, Huezo, & Muhammad, 2008; Wyly, Moos, Foxcroft, & Kabahizi, 2008). However, 60% of subprime loans will be refinanced into another subprime loan (Schloemer, Li, Ernst, & Keest, 2006). These loans are highly correlated with low income neighborhoods and prime loan denial rates (Wyly et al., 2008). In other words, applicants who are turned down in the prime mortgage market have a tendency to try a subprime lender. Consequently, higher denial rates in low income areas which tend to have a larger concentration of Black and minority residents, will lead to a larger
proportion of subprime loans in those areas (Calem, Gillen, & Wachter, 2004). Calem et al. found a correlation between the percentage of Black residents and subprime loans in both Philadelphia and Chicago. They also found that Blacks were five time more likely than Whites to refinance a subprime loan into another subprime loan.

**Predatory Lending**

Predatory lending is a term that is used to describe loans that strip equity from the homeowner and increase the chances of foreclosure (Chomsisengphet & Pennington-Cross, 2006). These include loans with prepayment penalties, adjustable rates, and interest only payments as well as broker practices such as misstating income, not including taxes and insurance in monthly costs, and steering low income, minorities, or others who might qualify for a prime loan into a subprime mortgage (Chomsisengphet & Pennington-Cross, 2006; Rivera et al., 2008; Schloemer et al., 2006). Low income neighborhoods and minorities are often targeted by predatory lenders due to two primary factors. First, as a result of long held perceptions about profit margins, many of these areas are devoid of commercial banks. That void is then filled by subprime lenders (Williams, Nesiba, & McConnell, 2005). Second, people in these areas are often denied loans by prime lenders because of credit risk or self-select out the prime application process fearing that their application will not be accepted anyway (Newman & Wyly, 2004). Additionally, many subprime lenders are subsidiaries of commercial banks and steer qualified White applicants to a prime loan; this results in a disproportionate number of subprime loans going to poorer minority applicants (S. L. Ross, 2006; Williams et al., 2005).

Predatory lending has several problems. First, the mortgage market is advantaged toward the broker who has more information than the applicant (Barr, Mullainathan, & Shafir, 2008).
Secondly, the broker has a perverse incentive to sell the applicant the most expensive loan, even if the applicant qualifies for a better more suitable one (Rivera et al., 2008). Third, the risk is almost entirely carried by the borrower. Mortgages are often packaged and sold on the secondary market after the loan is issued and the broker commission paid. If the loan defaults, it is the borrower who is left holding the bag; the broker does not own the loan (Rivera et al., 2008). Finally, subprime brokers have not been regulated in the same fashion as the banking industry, allowing them to take advantage of this situation by offering loans that are known to be unaffordable while not carrying any risk. When applicants had financial difficulties, the broker would refinance the loan into another high cost loan or find another buyer to whom a new subprime loan is sold. Default actually becomes profitable for the broker (Newman & Wyly, 2004; Rivera et al., 2008; Wyly et al., 2008). On the other side of the coin however, this type of lending wreaks havoc on the borrower. Default is six times higher for subprime versus prime loans and foreclosure starts are 10-40 times as high (Chomsisengphet & Pennington-Cross, 2006; Immergluck & Smith, 2006).

**Foreclosure**

When a home is foreclosed, the borrower’s credit score is destroyed as well as any equity that may have been earned. In other words, the borrower is left worse off than before buying the home. The disparate treatment of minorities by the mortgage market continues into foreclosure. In addition to having a larger proportion of subprime loans which have higher rates of default, it has been found that of those who are in default, minorities are 40 times more likely to be foreclosed on than Whites (Quercia & Cowan, 2008). This is a cumulative effect of disparities in the mortgage market. High rates of denials lead to high rates of subprime loans which lead to
higher loan to value ratios, which lead to default and foreclosure (Quercia & Cowan, 2008).

According to one study, foreclosures account for a $164 - $212 billion dollar loss for minorities in the United States from 2000 – 2008. For Blacks and Latinos in particular, they will lose 71 – 98 billion during this time. (Rivera et al., 2008). Regardless of the precision of this amount, even if the cost is half of that, it will still be devastating to the wealth building prospects of those peoples (Carr, 2008)

Methods

Data Sources

Mortgage outcome data are made possible by the Home Mortgage Disclosure Act (HMDA) and administered by the Federal Financial Institutions Examination Council (FFIEC). All figures in this study represent 2010 purchases of owner occupied one to four family homes. Data is aggregated at the 2000 census tract level and is converted to 2010 census tracts using the Longitudinal Tract Data Base (LTDB) developed at Brown University (Logan, Xu, & Stults, 2014).

Census tract demographic data come from the 2010 Census and the five-year 2012 American Community Survey (ACS). The 2010 Census provides 100% survey data; this study uses race and ethnicity numbers as well as the number of households and owner occupied residences. Figures for education and unemployment come from the five-year 2012 ACS. These are sample data estimates aggregated from 2008 to 2012.

Foreclosure data were purchased from RealtyTrac, a private company that collects mortgage information nationwide. This study uses year-end totals for 2013. Data are aggregated at the zip code level. This information was converted to the census tract level using crosswalk
files created by the Department of Housing and Urban Development (HUD). HUD determines the percentage of households from a zip code that are in each census tract within that zip code. These data were multiplied by those percentages to determine the approximate number of foreclosures in each census tract.

All data manipulations and statistical tests were done using STATA 12.1.

Region

This analysis will focus on six counties in the Southern California region. Starting in the northern part of the region, Ventura County is the smallest of the six with a population of about 823,000 in 2010. Moving south along the coast, Los Angeles County has the highest population in the region with 9.8 million in 2010. This is followed by Orange County with a little over 3 million and San Diego County with almost 3.1 million in 2010. Riverside County with close to 2.2 million residents sits northeast of San Diego and is directly south of San Bernardino County with a population of just over 2 million people in 2010. Table 1 displays the racial proportion of residents in the region. The vast majority of the population sits on about one quarter of the large 39,742 square mile region. Starting with 4528 Census tracts in the region and excluding tracts with fewer than 100 households left 4308 tracts for analysis.

Variables

Foreclosure is the outcome of interest. Foreclosure is a multi-step process in California starting with a notice of default, followed by judicial action and ending with the lender taking ownership of the property. This last step is called Real Estate Owned (REO) and indicates a completed foreclosure. For this study I took the year-end total of REOs for 2013 in each census
tract and divided it by the number of owner occupied households for that tract. This resulted in a foreclosure percentage for each tract.

Several independent variables were selected based on the literature. These fall into three broad categories of race, housing, and occupation. Race is divided into four groups as defined by the U.S. Census: non-Latino Asian, non-Latino Black, Latino, and non-Latino White. These four groups comprise more than 95% of the population in each tract. Percentages of each group from the 2010 Census were determined by dividing the number of the group by the total population. In the analysis, non-Latino White is treated as the reference group.

Housing variables include owner occupied households and mortgage denial rates. The U.S. Census determines the percentage of owner occupied households by dividing the number of owner occupied households by the total number of households in each tract. To determine the mortgage denial rate I divided the number of loan applications which were rejected by the total number of loan applications in each census tract using HMDA data. The total number of applications includes loans which were originated (purchased), loans which were approved but not taken by the applicant, and loan applications which were rejected. Incomplete and withdrawn applications were excluded.

Occupation variables include college education and unemployment. College education is the percentage of people in a census tract that have at least a college degree. Unemployment is the percentage of individuals aged 16-65 who are out of work and not in some sort of education program.

All variables are calculated as percentages of the census tract.
Model

Previous research (Louis, 2012) has indicated a connection between race, education, employment, income, marital status, and housing price change with foreclosure. That study looked at county and state level variables. By dividing a few counties into census tracts, I was able to parse out key variables that may be used to predict foreclosure. I examine how the characteristics of a census tract relates to the proportion of foreclosure using the following model:

\[
REOP_{13} = \alpha_0 + \alpha_1 OOCP_{10} + \alpha_2 COLLEGE + \alpha_3 UNEMP + \alpha_4 POPNLAP + \alpha_5 POPNLBP + \alpha_6 POPLP + \alpha_7 DR2010 + \epsilon
\]

Where \(REOP_{13}\) is the percentage of properties which became owned by the lender in 2013; \(OOCP_{10}\) is the percentage of owner occupied households in the 2010 census; \(COLLEGE\) is the percentage of tract residents who have at least a college degree; \(UNEMP\) is the percentage of tract residents between the ages of 16 not employed and not in an educational program; \(POPNLAP\) is the percentage of non-Latino Asians; \(POPNLBP\) is the percentage of non-Latino Blacks; \(POPLP\) is the percentage of Latinos; and \(DR2010\) is the mortgage loan application denial rate for 2010.

Results

Descriptive Statistics

Table 2 shows the means and standard deviations of the variables as aggregated by census tract. The percentages of foreclosures is quite small with a mean of nine per one thousand. Average owner occupancy is 56%, average rate of college education or more is 28%
and the mean unemployment rate is 11%. The average census tract has a mortgage denial rate of 18%. Latinos have the largest average population of 42% and Blacks the lowest at 6%.

**Model**

As expected the proportion of Black residents in a census tract has a positive impact on the foreclosure rate in that tract. The coefficient is small but moving from a census tract with no Black residents to one with the maximum proportion increases foreclosure by one standard deviation. The opposite is true for the Asian population. The coefficient is negative as expected and moving from the minimum to the maximum proportion decreases foreclosure by one standard deviation. Surprisingly, the Latino coefficient was negative but it was half that of Black and Asian.

For housing the results were as expected. Owner occupancy has a negative coefficient. Moving from the minimum occupancy rate to the maximum decreases foreclosure by more than one standard deviation. The loan denial rate has the largest coefficient of all the variables and is also positive. For each percentage increase in the denial rate, foreclosures are expected to increase four per one thousand. Meaning a three percent increase in the denial rate will increase foreclosures by one standard deviation.

Occupation variables also results as expected. College education has a negative impact on foreclosure. Moving from the bottom to the top proportion decreases foreclosure by one standard deviation. Unemployment has a positive impact on foreclosure. Census tracts with the largest proportion of unemployment are expected to see one standard deviation increase in foreclosure.
Table 3 shows the regression analysis of the model. Overall, the model provides a decent fit to these data. The variables are all significant at the $p<0.01$ level. With an $R^2$ of 0.27 the explanatory benefit is moderate. One limitation of this model is the lack of interaction terms, especially since some of the variables are also affected by race.

**Discussion**

These data do show a relationship between the proportion of Black residents and the foreclosure rate in a census tract. Combined with the results of college education, unemployment, owner occupancy and denial rate a pattern begins to emerge. That is, Blacks tend to be on the negative end of these variables. They have less education, higher unemployment, lower rates of home ownership and higher rates of mortgage loan denial than Whites. All of these variables indicate higher foreclosure rates and that those higher rates will be in census tracts with larger proportions of Black residents.

We should interpret these results with caution. First, these findings do not imply that Black applicants are a higher risk for default than Whites. There is no way to justify that with these data. They do suggest, however, that a combination of forces might increase the chances of foreclosure in heavily Black areas. I feel this adds to the evidence of financial disparities for Blacks in the housing market.

**Limitations and Further Research**

The findings also indicate some limitations with the data. The foreclosure rate encompasses an arbitrary time gap. Measuring foreclosures in 2013 against owner occupied households in 2010 may not be the best method but absent the ability to follow individual loans
it is sufficient. Also, accuracy is sacrificed by dividing zip code foreclosure data into census tracts based on the proportion of households. HMDA data is aggregated by census tract so to compare the two data sets some reconfiguration has to be made. Changing one variable to census tract seems the most efficient. This is the same for converting 2000 census tract data to 2010 census tracts.

While this study yields good preliminary information, in future research I will develop a model that includes subprime loan data and its impact on foreclosure. However, there is obviously much more that goes into loan performance than the demographics of the area. To fully understand this phenomenon, it would be helpful to study individual loan outcomes. Yet this may be impractical at this time. While HMDA has individual application outcomes, connecting those loans to foreclosure would be impossible.
References


Table 1
Region population by race/ethnicity with percentage of total

<table>
<thead>
<tr>
<th>Race</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>1,951,542</td>
<td>2,535,277</td>
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<tr>
<td>10.17%</td>
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<td>12.09%</td>
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<tr>
<td>Black</td>
<td>1,406,519</td>
<td>1,403,399</td>
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<tr>
<td>7.33%</td>
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<td>6.69%</td>
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<tr>
<td>Latino</td>
<td>7,349,453</td>
<td>9,020,179</td>
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<tr>
<td>38.30%</td>
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<td>43.01%</td>
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<tr>
<td>White</td>
<td>7,935,927</td>
<td>7,504,401</td>
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<tr>
<td>41.36%</td>
<td></td>
<td>35.78%</td>
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<tr>
<td>Other</td>
<td>544,037</td>
<td>509,063</td>
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<tr>
<td>2.84%</td>
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<td>2.43%</td>
</tr>
<tr>
<td>Total</td>
<td>19,187,478</td>
<td>20,972,319</td>
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</table>

Source: US Census
Table 2
Descriptive Statistics

Where \( REOP_{13} \) is the percentage of properties which became owned by the lender in 2013; \( OOCP_{10} \) is the percentage of owner occupied households in the 2010 census; \( COLLEGE \) is the percentage of tract residents who have at least a college degree; \( UNEMP \) is the percentage of tract residents between the ages of 16 and 65 not employed and not in an educational program; \( POPNLAP \) is the percentage of non-Latino Asians; \( POPNLBP \) is the percentage of non-Latino Blacks; \( POPLP \) is the percentage of Latinos; and \( DR2010 \) is the mortgage loan application denial rate for 2010.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
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<tr>
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<td>0.4216216</td>
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<tr>
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<td>4.894188</td>
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<td>27.35702</td>
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<td>37.17985</td>
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<td>DR2010</td>
<td>0.183458</td>
<td>0.1171563</td>
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<td>1</td>
</tr>
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</table>
Table 3  
Association between census tract characteristics and foreclosure rate

\[ REOP_{13} = \alpha_0 + \alpha_1 OC\text{CP10} + \alpha_2 \text{COLLEGE} + \alpha_3 \text{UNEMP} + \alpha_4 \text{POPNLAP} + \alpha_5 \text{POPNLBP} + \alpha_6 \text{POPLP} + \alpha_7 \text{DR2010} + \epsilon \]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient Estimate</th>
<th>T-value</th>
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<tr>
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<td>poopl</td>
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<tr>
<td>DR2010</td>
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<tr>
<td>Adjusted R2</td>
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