SPATIAL VARIATION IN FORECLOSURES IN LOS ANGELES

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Abstract:

Research on the initial stage of the current mortgage foreclosure crisis focuses on its causes, scope and economic impact. This study contributes to the emerging literature by showing how the crisis plays out differently across urban neighborhoods. Clearly, the two most immediate causal factors are the relative size of the housing bubble and the number of risky loans. Yet, neighborhoods also are defined by demographic and socioeconomic characteristics, among other factors—conditions that may shape their experience of regional housing market dynamics.

This study examines variation in first quarter 2008 foreclosure rates for 262 zip codes in Los Angeles County. Using a recursive model and weighted least squares regression, we find that the exurbs and communities with more subprime loans, bigger housing bubbles, lower current demand, and fewer college-educated residents have higher foreclosure rates. Race and poverty indirectly affect foreclosure rates through subprime lending and housing bubble size. Our findings illustrate the complex relationships between neighborhood economic, socioeconomic and demographic factors and foreclosure and suggest ways that policymakers in sprawling, high growth, multiracial regions can target remedial measures, as well as prevent future housing crises.

Keywords: Foreclosures, Subprime Loans, Housing Bubble

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2 The authors contributed equally to the report.
Introduction

The United States is facing its worst housing market crisis since the Great Depression. By the end of 2007, about 2% of mortgage borrowers were in or headed for foreclosure, a 50% increase compared to the more stable fourth quarter of 2004 (Bernanke 2008a). An estimated 2.2 million households are expected to experience foreclosure between 2007 and 2009, which will lead to direct and indirect reductions in household wealth and a drag on the entire economy (Isaac 2008). The Joint Economic Committee predicts that between the second quarter of 2007 and the end of 2009 families experiencing foreclosure will lose about $70 billion in housing wealth, whereas neighboring property owners will lose about $32 billion (Joint Economic Committee 2007). As the popular media have shown, foreclosures have devastating effects on households, namely displacement, bankruptcy, and ruined credit scores.

The early stage of the current crisis is inextricably tied to subprime lending. Initially used by banks as a strategy to meet Community Reinvestment Act (CRA) requirements while profiting from underserved, lower income minority communities, subprime lending quickly expanded into high priced markets in California, Florida, and Massachusetts among other states during the early- to mid-2000s, when households sought to buy or refinance their homes amidst stagnating wages (Dymski 2008a; b). Fee-based systems of risk management compelled some brokers to steer buyers into subprime loans rather than lower cost prime loans to accumulate higher profits. At the same time, prospective homeowners with good credit accepted higher cost loans to avoid income reporting requirements and remain competitive in a seller’s market (Foote et al. 2008; Dymski 2008a; b). More than $500 billion in subprime mortgages were originated in 2004 (Weicher 2007). In turn, interest-only and adjustable rate mortgages (ARMs) boomed in
the early- to mid-2000s, especially among jumbo loans and those sold to third parties (Immergluck 2008).

As a group, subprime purchasers are more likely to foreclose on their properties than prime purchasers. Recent research on the experiences of over one million Massachusetts homeowners found that subprime purchasers were six times more likely to default than prime purchasers, with those experiencing financial insecurity and price declines most vulnerable (Gerardi et al. 2008). The Joint Economic Committee estimates that subprime mortgages will contribute to 2 million foreclosures between 2007 and 2009 (Joint Economic Committee 2007). Indeed, over half of homes entering the foreclosure process in 2007 were covered by subprime loans (Bernanke 2008c).

The broader economic implications of the crisis are well documented. At the macro level, it has brought the financial sector to the brink of collapse, threatening to push the whole economy into a deep recession. In October 2008, the federal government enacted a $700 billion bailout of financial institutions, but even that may be insufficient as the problem spreads to other sectors. For example, new single family home starts, which stimulate jobs in construction and supportive industries, have declined more than 60% since the beginning of 2006, a rate that is expected to decrease further as long as the vacant for-sale stock remains high (Bernanke 2008b). In turn, sales tax revenues are down due to a slowdown in construction materials purchasing and home furnishing activities, as well as a drop in general consumption as households tighten their budgets to pay for housing among other costs. A recent report prepared for the U.S. Conference

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3 Dymski (2008b) reports that between 2000 and 2005, real median household income fell by 0.2%, while housing prices rose by 5%, pg. 17.
4 As Gerardi et al. (2008) caution, it is important to distinguish between homeowners who refinanced prime mortgages using subprime loans and subprime home purchasers, as the former likely are predisposed to having problems since refinancing often signifies financial instability.
5 Standards on subprime lending have tightened since 2006. Therefore, some argue that the subprime foreclosure crisis likely is limited to borrowers who obtained loans between 2004 and 2006 (Weicher 2007).
of Mayors estimates that in 2008 these trends indirectly will cause a decrease of $166 billion in the GDP (Global Insight 2007: 2).

California is one of the epicenters of the crisis, with 47,171 homes in foreclosures in the first quarter of 2008—a new record (Hong 2008; Isaac 2008). During this period, one-third of home re-sales in the state were foreclosures, compared to 3.2% the previous year (Hong 2008). A May 2008 report prepared for the Banking and Finance Committee of the California State Assembly estimates that between 3.0% and 7.8% of homeowners with mortgages will foreclose on their properties between 2006 and 2009 (Isaac 2008). Los Angeles County is expected to experience about 93,000 subprime foreclosures during this period, about one-quarter of the total for 37 counties tabulated (Isaac 2008).

The causes of the current foreclosure crisis in California differ from those of the past. The 1996 wave of foreclosures was driven by the departure of defense firms. When homeowners faced sudden joblessness, they defaulted on their payments. The state’s current crisis is driven by rapid price escalation and households that signed on to risky mortgage products, such as piggyback and interest-only loans, adjustable rates and zero-percent down payments, and refinanced upward based on growing paper equity. Rising expectations of a continued climb in housing price led to more speculative buying and creative financing. By 2007, the state contained about one-fourth of the national subprime home purchase market; in turn, an estimated 29% of buyers that year put no money down (Gerardi et al. 2008; Reckard 2008).

By late 2007, the housing market turned south, bursting the speculative bubble. The magnitude of California’s crisis is reflected in the recent decline in the median sale price. The state’s April 2008 median home sale price was $354,000, a 27% drop from the peak median

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6 In other states, job loss is currently a factor. Unemployment has led households to foreclosure in Rustbelt states such as Michigan, Ohio, and Indiana.
price of $484,000 the previous year (DataQuick 2008). In some cases, the value of the home fell below what was owed, leading owners to walk away from their “upside down” mortgage. The problem was compounded by adjustments to what were once attractive initial interest rates, forcing many to pay more than they could afford.

The foreclosure crisis threatens states and localities in primary two ways. First, higher housing costs lead to reduced consumption and sales tax revenues, which limits funding for services and programs. California and its local governments, for instance, are predicted to lose $111 million during this period, a trend that may widen its current budget gap, which is a product of the economic slowdown (Joint Economic Committee 2007: 15). In turn, the Los Angeles region’s gross metropolitan product is expected to grow about 1% less in 2008 due to fallout from the crisis, a loss of about $8.3 billion (Global Insight 2007: 5). Second, blight, crime, and property value decline are well-known externalities of areas experiencing high foreclosure rates (Immergluck and Smith 2006a, b). Lower property values, in turn, may lead to lower tax revenues for affected localities and school districts, which may dampen the quality of local services—even as the need for policing, firefighting and other services in high foreclosure communities increases (Apgar and Duda 2005; Immergluck and Smith 2006a).

Although scholarly and popular analyses have focused on the national crisis and hard-hit states, it is important to note that foreclosure rates vary widely across neighborhoods within a

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7 In other places with weaker housing markets, the housing bubble has deflated rather than burst; Weicher (2007), for instance, characterizes the nationwide process as a “slow leak.”
8 In Massachusetts, however, resetting interest rates on ARMs are not the main driver of foreclosures, see Foote et al. (2008). This also may be true in California.
9 Immergluck and Smith (2006a) assessed the relationship between single-family mortgage foreclosures and crime among inner city Chicago census tracts in 2001. Controlling tract demographics, they found that an increase of 2.8 foreclosures for every 100 homeowners was associated with a 6.7% increase in violent crime. In a related analysis, Immergluck and Smith (2006b) examined the relationship between foreclosure and property values in late 1990s Chicago. They found that, controlling for economic and demographic conditions, each single-family home foreclosure led to an almost 1% decrease in property values among other single-family homes within 1/8 of a mile. Low-income tracts registered larger property value decreases than higher income tracts.
metropolitan area. Surprisingly little research examines the economic, socioeconomic and
demographic factors shaping geographic variation. Studies that do exist focus on the spatial
determinants of subprime lending. A key question is how foreclosures vary spatially, especially
in less studied, multiracial Western cities with strong real estate markets.

Conceptual challenges arise in examining the neighborhood characteristics driving
foreclosure rates. In general, there are two ways of framing variation in phenomena across
neighborhoods. The first assumes that neighborhood variation is solely a product of variation in
aggregate individual and household characteristics, such as the number of risky loans. Thus, we
would expect variation in the proportion of households with high cost mortgages and other
characteristics that make foreclosure more likely, such as poverty and education, to account fully
for variation in foreclosure rates.

The second way assumes that neighborhood characteristics and dynamics influence
individual and household outcomes even after accounting for their aggregate effect. Indeed, a
growing literature establishes a relationship between neighborhood characteristics, such as the
extent of collective efficacy, and household outcomes, such as the experience of crime, health,
employment, and education (Sampson et al. 1997; Sampson et al. 2002; Ellen and Turner 2003;
Comey et al. 2008). Comparatively little exists, however, on the dynamic between neighborhood
conditions and the experience of housing market processes, particularly foreclosure. For
example, a household’s chance of foreclosure may increase if their neighbors experience
foreclosure, or if they live in a community with characteristics that render property values
vulnerable, such as unsustainable price escalation.

We attempt to fill the lacuna in the literature by examining the factors that explain the
spatial variation in foreclosure rates in the Los Angeles metropolitan area during the first quarter
of 2008. While our research is motivated by claims that “neighborhoods matter,” we do not try to resolve the debate on the effect of personal vs. neighborhood characteristics on individual and household outcomes by proving the existence of neighborhood effects—indeed, we limit our focus to the association between neighborhood characteristics and foreclosures rather than the processes that may explain these relationships. Even if variation in foreclosure rates is solely the consequence of aggregate household characteristics, there is another justification for analyzing the factors that define high-foreclosure communities—it helps policymakers target remedial and preventative measures. In turn, understanding the conditions that render neighborhoods vulnerable to foreclosure, as well as the planning frameworks that enable these conditions, is important in devising more sustainable forms of urban development.

This paper is divided into four parts. First, we review the findings and limitations of past research on spatial variation in foreclosures and subprime lending. Because of a paucity of studies of the former, we rely on the latter as a guide to understanding the underlying factors associated with intra-metropolitan variation in foreclosure rates. We also introduce the recursive model that informs our analysis, with demographic, socioeconomic, housing market and geographic factors affecting foreclosure rates directly as well as indirectly through their relationships with subprime lending and housing bubble size. Next, we describe the data used and provide an analysis of neighborhood characteristics associated with areas that have experienced foreclosures. This is followed by a presentation of the empirical results from our multivariate analysis. We conclude with a discussion of our findings and their implications for policies to address the foreclosure crisis in sprawling, high growth and multiracial regions like Los Angeles County.
Spatial Variation in Subprime Lending and Foreclosures

Because of the paucity of studies on intra-metropolitan variation in foreclosure rates, we turn to a related phenomenon—subprime lending. There is a growing consensus that foreclosure and subprime lending rates are related at the neighborhood level (Immergluck and Smith 2006a; Immergluck and Smith 2005). Therefore, it is reasonable to assume that the factors affecting spatial variation in subprime lending also are related to differences in foreclosure rates.

A handful of studies published in the early 2000s show that homeowners living in neighborhoods with older homes and higher capitalization rates and credit risk, as well as a higher proportion of African Americans, are more likely to hold subprime loans (Calem et al. 2004; Farris and Richardson 2004; Newman and Wyly 2004; NCRC 2003; Scheeseele 2002). Controlling for borrower and neighborhood demographic, tenure, credit risk and housing market characteristics in census tracts in seven cities in 1997 and 2002, Calem et al. (2004) found that neighborhood educational attainment and median family income were negatively associated with subprime lending when they were statistically significant, whereas credit risk, ownership and capitalization rates were positively associated.10 Between 1997 and 2002, the relationship between educational attainment and homeownership and subprime lending grew more consistent across the cities. The relationship between neighborhood credit risk and subprime lending, on the other hand, became less consistent, a trend that the authors attribute to tightening credit standards. Holding the above factors constant, communities with a higher percentage of African Americans received a higher proportion of loans in all cities in both periods. Latino neighborhoods also generally were associated with higher subprime rates, whereas outcomes for Asian neighborhoods were more mixed.

10 The following cities were included in the analysis: Atlanta, Baltimore, Chicago, Dallas, Los Angeles, New York, and Philadelphia.
In their analysis of the census tract characteristics associated with home purchase and refinance subprime lending in ten cities at the turn of the 21st century, the National Community Reinvestment Coalition employed a research design similar to Calem et al. (2004), although they did not control for individual borrower characteristics, educational attainment or tenure and added variables to control for housing turnover and age and the elderly population. Unlike Calem et al. (2004), they found that median household income was positively related to subprime lending, which they attribute to the propensity of some high-income buyers to withhold income information, relegating them to subprime loans. Like the previous study, however, high neighborhood credit risk and capitalization rates were positively related to the proportion of subprime loans. They also found that housing turnover, an indicator of market strength, was negatively associated with subprime lending, whereas housing age, an indicator of greater risk, was positively associated. Finally, after controlling for the above characteristics, census tracts with a higher proportion of African Americans and senior citizens received a higher proportion of subprime loans. Although the association between Latino composition and subprime home purchase lending generally was not significant, neighborhoods with a higher proportion of Latinos were less likely to receive subprime loans in Los Angeles. In addition, three of the cities (including Los Angeles) registered a positive association between Latino composition and subprime refinance lending, whereas two registered a negative association.

Examining the census tract demographic and housing market characteristics associated with the proportion of subprime refinance loans received nationwide between 1997 and 2000, Scheesele (2002) also found evidence of a positive association between the capitalization rate, the age of the housing stock, the percent black and high risk lending and a negative association.

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1 Data is drawn from the following cities: Atlanta, Baltimore, Cleveland, Detroit, Houston, Los Angeles, Milwaukee, New York, St. Louis, and Washington, D.C.
with housing turnover. Contrary to NCRC (2003) but consistent with Calem et al. (2004),
median family income was negatively related to subprime lending. Contrary to Calem et al.
(2004), however, the author found a negative association between the homeownership rate and
the level of subprime loans, which he attributes to prime lenders’ propensity to locate where they
have the highest concentration of potential customers and the higher uncertainty in price
appreciation in more mixed areas. The author also controlled for the proportion of households
receiving public assistance, which had an expected positive relationship with the proportion of
subprime refinance loans. The relationship between subprime lending and Latino or Asian
residency was not assessed in this study.

Two studies examined the relationship between neighborhood demographic, borrower
and institutional characteristics and subprime lending. Farris and Richardson (2004) used a 2000-
2002 national dataset to examine spatial variation in prepayment penalties across urban,
suburban, and rural markets. They found that, after controlling for underwriting, loan, and
geographic characteristics, areas outside the central city and with higher minority concentrations
were more likely to experience prepayment penalties, a condition often attached to subprime
loans. Consistent with expectations, borrowers with higher FICO scores were less likely to
receive prepayment penalties, whereas those with higher debt to income (DTI) and loan to value
(LTV) ratios were more likely.

In a case study of Essex County, NJ in the early 2000s, Newman and Wyly (2004)
analyzed the characteristics associated with the likelihood of accepting a subprime loan.
Compared to whites or Latinos, African Americans were more likely to accept subprime loans,

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12 Although the author reports that this association is negative, the variable has positive coefficients in the regression
outputs, see Table B.12. The bivariate correlation coefficient between ownership rate and subprime refinance share,
however, is negative, see B.10. Since these discrepancies are not acknowledged, and the negative relationship is
reiterated several times in the text, we are assuming that the positive coefficients in the regression outputs are typos.
whereas Asians were less likely. The authors acknowledge that the influence of racial characteristics on subprime lending is mediated by institutional decision-making, particularly the targeting of higher risk loans to minority neighborhoods, which they dub “exploitative greenlining”—a twist on the well-documented practice of exclusionary redlining.

We found two studies that examined the neighborhood characteristics associated with foreclosures in the mid-1990s and are not aware of any published research that has examined neighborhood variation in the most recent wave of foreclosures spurred largely by loans originated between 2004 and 2006, although preliminary work is underway in Massachusetts. In an early study, Baxter and Lauria (2000) used structural equation modeling to assess the association between foreclosures and neighborhood racial and tenure change in 1990s New Orleans. After controlling for housing market, demographic, and employment characteristics, they found that changes in household income and housing value did not affect foreclosure rates, while increases in employment and the percent black did.

Controlling for neighborhood lending, housing market and demographic factors among Chicago area census tracts, Immergluck and Smith (2005) found that subprime lending was positively associated with foreclosure rates in 2002, as were earlier foreclosure rates, unemployment, median family income, and change in the percent black. In contrast, population change, median home value, and prime lending were negatively associated with foreclosure rates. Housing price appreciation was negatively related to foreclosures, although this relationship is not robust across the statistical models. Percent Latino was negatively associated

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13 Gerardi et al. (2008) examine the experiences of 1.6 million Massachusetts homeowners over an 18 year period. They found that having a subprime mortgage and living in an area that has depreciated in price had the biggest effects on a homeowner’s likelihood of default. In particular, subprime home purchasers were 631% more likely to default than prime home purchasers, and a one standard deviation drop in price was associated with an increased likelihood of default of 206%. Although they focus on homeowner rather than neighborhood experiences, Gerardi et al. (2008) illustrate the role of price decline, in conjunction with financial instability, on a household’s decision to
with foreclosures after controlling for subprime lending, whereas percent black became not statistically significantly. Coefficients on other neighborhood demographic and housing market characteristics generally fell with the addition of subprime lending, although their significance and direction remained. As a whole, poor minority Chicago communities experienced greater growth in foreclosures from the mid-1990s through the early 2000s as compared to other areas.

Overall, there is some evidence from past research that communities with higher poverty, capitalization rates (lower or uncertain expected price appreciation), and credit risk and an older housing stock receive a higher proportion of subprime loans, whereas those with more housing turnover receive a lower proportion. The association between African American concentration and subprime lending, controlling for other factors, is especially strong. On the other hand, there is mixed evidence of the relationship between neighborhood tenure, income, and Latino or Asian composition and subprime lending.

Baxter and Lauria (2000) and Immergluck and Smith (2005), while providing insight into the spatial determinants of foreclosures, are limited by their focus on New Orleans and Chicago. The effects of neighborhood characteristics on foreclosures may vary in regions with different demographic, housing market, and geographic patterns, as well as among different time periods. Our research builds on their work by examining the neighborhood characteristics associated with the most recent wave of foreclosures in Los Angeles, a comparatively understudied region.

This study also builds upon Immergluck and Smith (2005) and contributes to the current literature by controlling for the effect of property value escalation and subprime lending, in addition to exurban location and other economic, socioeconomic and demographic characteristics. As evident in the studies described above, the factors that affect the spatial
distribution of subprime loans likely also affect the spatial distribution of foreclosures, although it is unclear whether they have direct effects after controlling for subprime lending. In turn, it is reasonable to assume that these factors may contribute to foreclosure rates indirectly through their direct association with housing bubble size. Given these dynamics, we develop a recursive model to explain intra-metropolitan variation in foreclosures, with economic, socioeconomic and demographic factors contributing directly to foreclosure rates, as well as indirectly through their association with subprime lending and housing price inflation (see equations and Figure 1 below).\textsuperscript{14}

Equations:

Foreclosure Rate = f (Subprime Lending, Housing Bubble, Demographics, Socioeconomics, Housing Market, Geography)

Subprime Lending = g (Demographics, Socioeconomics, Housing Market, Geography)

Housing Bubble = h (Demographics, Socioeconomics, Housing Market, Geography)

\textbf{Figure 1: Recursive Model of Spatial Variation in Foreclosures}

\textsuperscript{14} There also may be a causal relationship between subprime lending and housing bubble size. The availability of subprime loans may lead to more prospective homebuyers who are able to bid up the price of housing, which may further induce subprime lending. When we tested these relationships in our models, however, they were not significant.
Data and Methods

The data presented in this paper come from several sources, which are summarized in Table 1 below. Our dependent variable, foreclosures per 10,000 homeowners for the first quarter of 2008, comes from a foreclosure micro-dataset compiled by DataQuick.\textsuperscript{15} We aggregated the individual records by zip code and matched them to the Bureau of the Census zip-code tabulation areas (ZCTAs), which do not include sparsely populated districts but represent the majority of zip codes in an urbanized region. A total of 262 zip codes are included in the analysis. After calculating the number of foreclosures per household, we used data from the 2000 U.S. Census to adjust between households and homeowners and arrive at the foreclosure rate. The foreclosure rate ranged from 0 to 254 foreclosures per 10,000 owned units, with a mean of 42 and a standard deviation of 41.

A primary assumption that guides our analysis is that neighborhood characteristics affect market dynamics within geographic submarkets (Ong et al. 2003). Following the literature, we include a measure for subprime lending per 10,000 homeowners, which comes from tabulations of the 2006 Home Mortgage Disclosure Act (HMDA) data. Only first-lien, owner-occupied loans originated in 2006 that were five points or more above treasury rates were included in the analysis.\textsuperscript{16} Since HMDA data are reported by census tract, we matched them to the ZCTAs.

\textsuperscript{15}In addition to DataQuick, there are several other frequently referenced sources for foreclosure rates in California, including First American CoreLogic and RealtyTrac. The primary reason we obtained our foreclosure counts from DataQuick is that the information accounts for trustee deeds filed with the county recorder—or actual, rather than in process, foreclosures (Issac 2008). First American CoreLogic also accounts for actual foreclosures by tracking real estate owned properties (REOs) (Issac 2008). RealtyTrac, on the other hand, accounts for all foreclosure related filings—defaults, auctions, and REOs. While critics claim DataQuick’s numbers are too low, they claim RealtyTrac’s numbers are too high, see Streitfeld (2007).

\textsuperscript{16}In 2002, the Federal Reserve Board revised HMDA to include disclosure requirements for higher cost loans. As of 2004, lenders are required to report first-liens that are three points or more above treasury rates and subordinate-liens that are five points or more above. Banks making smaller amounts of home purchase loans, which in 2004 was set at under $25 million, are not required to report (NCRC 2003). Identifying first-lien loans that are five or more points above treasury rates as subprime is a more conservative estimate of the extent of high cost lending, as the variable accounts for the riskiest loans that are most likely to default. We assume that areas with a larger overall proportion of loans 3 or more points above treasury rates also will have a larger proportion of even higher cost loans.
As a proxy for the housing bubble, we examine the impact of housing price appreciation by comparing the median single-family selling price of each zip code in 2007 to a base value in 2000. Although bubble size is measured as the deviation from prices before and after the bubble, we do not have complete information at this time because prices have yet to bottom out in most Los Angeles communities. For the purpose of this paper, observed appreciation serves as a proxy for the housing bubble. If the observed variation in appreciation only captures real and sustainable increases in home values across neighborhoods, then it should not be associated with differences in the relative number of “upside down” mortgages or inter-neighborhood variations in foreclosures. However, if the observed variation in appreciation captures geographic differences in the size of the housing bubble, then higher, unsustainable increases would lead to more “upside down” mortgages and a higher foreclosure rate.

Like NCRC (2003) and Scheessele (2002), we use 2000 zip code median housing age as an indicator of lending risk. As a proxy for sustained, localized demand, we use a zip code popularity measure from the real estate website Trulia, which is based on early 2008 user search frequency and normalized by the number of owner-occupied units. To gauge whether exurbs are more affected by the crisis than the rest of the region, we use a dummy variable to control for whether the zip code is located in the northern part of the county. Additional socioeconomic factors include the poverty, college-educated, and homeownership rate. The independent demographic variables include the percent black, Latino, and Asian per zip code.

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17 Whereas housing prices in California’s San Joaquin and Central Valley, as well as the Inland Empire, fell sharply in 2006, prices did not begin falling dramatically in Los Angeles until 2007.
We expect that zip codes with a higher percentage of subprime loans and families below the poverty line, fewer college graduates, older housing stock and greater 2000-2007 price changes, as well as those located in the northern part of the county, will have higher foreclosure rates. As indicated by past research, subprime borrowers disproportionately experience foreclosure.\textsuperscript{18} Lower income and less educated households, due to their generally poorer credit and knowledge of financial processes, are likelier to receive high cost loans and least able to weather the collapse in equity and higher payments. In turn, foreclosures may cluster in poorer communities because their capitalization rates generally are rendered more unstable by growing vacancies than wealthier communities due to differences in housing demand (Immergluck and Smith 2006a).

Consistent with NCRC (2003) and Scheessele (2002), which found positive associations between housing age and subprime lending, we expect that zip codes with an older housing stock have greater lending risk and thus are more susceptible to foreclosure, although the relative newness of Los Angeles may counteract this relationship. Further, we expect that households that moved into areas with higher price appreciation, as approximated by the 2000-2007 price change, are more likely to have spent beyond their means, increasing their vulnerability to foreclosure. Sharp decreases in demand in these areas may frustrate their ability to sell their homes during times of financial stress and cause them to accumulate negative equity, leading them to foreclose on their properties (Gerardi et al. 2008).

Exurban areas such as Palmdale and Lancaster in northern Los Angeles County are not only associated with speculation on new home construction but also are more vulnerable to decreases in demand due to their high commuting costs; thus, we expect these communities to

\textsuperscript{18} In the first quarter of 2008, about 40% of the loans entering foreclosure proceedings had subprime adjustable rates, even though these account for only 6% of the total stock, see Mortgage Bankers Association (2008).
have higher foreclosure rates.\footnote{Increases in gas prices and traffic congestion, for instance, likely affect housing demand in these areas. In December 2007, about 20% of foreclosures in the county originated in these cities, see Hong (2007).} We also expect zip codes that currently are in high demand, as approximated by Trulia’s popularity index, to have lower foreclosure rates. High popularity likely defines neighborhoods with good schools and services that are more resistant to price declines. Further, controlling for other factors, we expect areas with higher homeownership rates to experience higher demand and residential stability, which would lead to lower foreclosure rates. It is unclear how racially defined housing submarkets are affected by the foreclosure crisis, because there are offsetting effects.\footnote{We expect zip code foreclosure rates to vary based on their racial and ethnic makeup, but we are unsure of the associations between these variables. One assumption is that zip codes with a higher percentage of minorities may have higher foreclosures due to redlining and residents’ propensity to subprime and predatory lending, which is consistent with the “dual housing market hypothesis” (Calem et al. 2004; Farris and Richardson 2004; Newman and Wyly 2004). It is well known that even after controlling for income African American households receive riskier loans than white households (Oliver and Shapiro 1995). A 2006 Federal Reserve Board study found that in 2005 about 23% of African American and 18% of Latino buyers received higher priced loans compared to 14% of white buyers, controlling for interest rates and borrower- and lender-related characteristics (Avery et al. 2006). Asians, on the other hand, were slightly less likely than whites to receive subprime loans (Avery et al. 2006). Due to the high percentage of foreign-born residents among Asians and Latinos in Los Angeles County, however, language may be a barrier to understanding loan terms, increasing their exposure to predatory lending (Delson and Goffard 2007). Foreign-born residents also may have less traditional credit histories, rendering them unqualified for prime loans. At the same time, however, minority borrowers, particularly Asians, may obtain loans from local ethnic banks (Zonta 2004). Not only are these institutions less likely to discriminate on the basis of race or ethnicity, but also they may be outside the mainstream financial market and less affected by general trends. Asians’ higher receipt of prime loans mentioned above may reflect their use of these institutions. Another theory is that they disproportionately rely on friends and relatives for support. Thus, some minority zip codes may experience fewer foreclosures than white zip codes, controlling for other factors.} Although the discriminatory targeting of high cost credit to minority communities may render them more prone to foreclosure, some minority buyers may be more reliant on friends and family and non-discriminatory local lending institutions outside the main market, thus potentially softening their experience of subprime lending and foreclosure.
Table 1: Description of Variables

<table>
<thead>
<tr>
<th>Category</th>
<th>Variable</th>
<th>Description</th>
<th>Source</th>
<th>Expected Impact on Foreclosure Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable</td>
<td>Foreclosure</td>
<td>Q1 2008 foreclosure rate per 10,000 homeowners</td>
<td>DataQuick</td>
<td>N/A</td>
</tr>
<tr>
<td>Primary Economic Factors</td>
<td>Subprime</td>
<td>First lien, owner-occupied loans originated in 2006 and five points or more above treasury rates per 10,000 homeowners</td>
<td>HMDA</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>Bubble</td>
<td>Index of 2000-2007 growth in median single-family selling price</td>
<td>DQNews and U.S Census</td>
<td>Positive</td>
</tr>
<tr>
<td>Secondary Economic Factors</td>
<td>Housing Age</td>
<td>Median zip code housing age of owner-occupied units in 2000, subtracted from 2007</td>
<td>U.S. Census</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>Popularity</td>
<td>Zip code popularity based on early 2008 Trulia search frequency, normalized by the number of homeowners</td>
<td>Trulia</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>Exurban</td>
<td>Zip code located in northern Los Angeles County</td>
<td>Calculated by author</td>
<td>Positive</td>
</tr>
<tr>
<td>Demographic and SES Factors</td>
<td>Poverty</td>
<td>Percent below the poverty line in 2000</td>
<td>U.S. Census</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>College</td>
<td>Percent of residents age 25 and older with a bachelor’s degree or higher in 2000</td>
<td>U.S. Census</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>Ownership</td>
<td>Percent of homes owner-occupied in 2000</td>
<td>U.S. Census</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Percent black in 2000</td>
<td>U.S. Census</td>
<td>Unclear</td>
</tr>
<tr>
<td></td>
<td>Latino</td>
<td>Percent Latino in 2000</td>
<td>U.S. Census</td>
<td>Unclear</td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>Percent Asian in 2000</td>
<td>U.S. Census</td>
<td>Unclear</td>
</tr>
</tbody>
</table>
To get an initial sense of how foreclosure rates vary with neighborhood economic, socioeconomic and demographic characteristics, we divided the zip codes into three categories based on the intensity of foreclosures per 10,000 homeowners: 1) areas with less than 30 foreclosures, 2) areas with 30 - 59 foreclosures, and 3) areas with 60 or more foreclosures. Table 2 summarizes the mean characteristics of zip codes by the foreclosure rate.

As expected, areas with more foreclosures have higher subprime lending rates and price escalation compared to those with fewer foreclosures. The poverty and college-educated rates also are associated as predicted with the foreclosure rate. Whereas the percent of families in poverty increases with the foreclosure rate, the percent of college-educated adults declines. The percent of owner-occupied housing units, on the other hand, varies only slightly among the three categories. In turn, contrary to the predictions of Scheessele (2002) and NCRC (2003), median housing age is associated negatively with the foreclosure rate.

Zip codes with relatively more foreclosures rate higher on Trulia’s popularity index. They also are more likely to be located in northern Los Angeles County. In fact, all of the zip codes located in this area have a foreclosure rate of sixty or higher. Lastly, zip codes with higher foreclosure rates have a higher percent black and Latino than those with lower foreclosure rates. The percent Asian, on the other hand, is highest in areas with the least foreclosures and lowest in areas with the highest amount—a result that conforms to our assumptions about ethnic banking mentioned in the footnote above. The bivariate analysis, however, does not account for how other factors can affect foreclosure relationships or the indirect effects of economic, demographic and socioeconomic factors on foreclosures through their association with subprime lending and housing bubble size. To isolate independent effects and test indirect contributions, multivariate methods are required.
Table 2: Mean Characteristics of Zip Codes by the Foreclosure Rate

<table>
<thead>
<tr>
<th>Category</th>
<th>Variable</th>
<th>Full dataset</th>
<th>Less than 30 foreclosures per 10,000 homeowners</th>
<th>30-59 foreclosures per 10,000 homeowners</th>
<th>60 or more foreclosures per 10,000 homeowners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable</td>
<td>Foreclosure</td>
<td>42</td>
<td>10</td>
<td>35</td>
<td>88</td>
</tr>
<tr>
<td>Primary Economic Factors</td>
<td>Subprime</td>
<td>36</td>
<td>11</td>
<td>30</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>Bubble</td>
<td>166%</td>
<td>146%</td>
<td>169%</td>
<td>185%</td>
</tr>
<tr>
<td>Secondary Economic Factors</td>
<td>Housing Age</td>
<td>42</td>
<td>44</td>
<td>43</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Popularity</td>
<td>65</td>
<td>52</td>
<td>52</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>Exurbanª</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>14%</td>
</tr>
<tr>
<td>Demographic and SES Factors</td>
<td>Poverty</td>
<td>16%</td>
<td>11%</td>
<td>16%</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>College</td>
<td>27%</td>
<td>41%</td>
<td>25%</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Ownership</td>
<td>51%</td>
<td>52%</td>
<td>50%</td>
<td>51%</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>9%</td>
<td>3%</td>
<td>9%</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Latino</td>
<td>34%</td>
<td>21%</td>
<td>37%</td>
<td>44%</td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>12%</td>
<td>15%</td>
<td>12%</td>
<td>8%</td>
</tr>
</tbody>
</table>

ª Dummy variable

**Multivariate Results**

We ran weighted least squares regressions to assess the association between the zip code economic, socioeconomic and demographic characteristics described above and the foreclosure rate, as well as the extent of subprime lending and the housing bubble. Since the number of owned units in each zip code differs, thus affecting the size of the stochastic component’s variance, there is a potential problem of heteroskedasticity. We corrected for this by weighting each observation with the square root of the number homeowners. Four models of two types were used in the analysis. The first and second models examine variation in foreclosure rates using only the primary economic factors, followed by all of the independent variables. The third and fourth models account for indirect effects by examining variation in subprime lending and
housing price escalation respectively. Whereas the first set of runs (Table 3) includes all zip codes, the second set (Table 4) excludes zip codes located in northern Los Angeles County to gauge robustness and assess variation in the denser and more established Los Angeles valley and basin.

We used a 10% significance level in all models due to the relatively small number of observations. Overall, the models perform well in explaining the variation in foreclosure rates, with adjusted R-squares ranging from .51 to .83. The explanatory power of the full and inner city-only model is roughly the same, indicating that the causal relationships hold for both the whole metropolitan and more urbanized area.

As evident by the first and most simplistic foreclosure model, subprime lending and price escalation are strongly and positively associated with the foreclosure rate. These variables account for about half of the variation in neighborhood foreclosure rates. Although the positive association between subprime lending and foreclosure is consistent with the literature, the positive relationship between price escalation and foreclosures is contrary to Immergluck and Smith (2005) and Baxter and Lauria (2000), which found negative and insignificant effects respectively. We predict that this discrepancy is due to the fact that our variable captures the effects of the housing bubble, whereas their variable captures the real increase in home values.

These relationships persist after including all of the independent variables, although the impact of subprime lending is reduced. In the full foreclosure model, which accounts for an additional 30% of the variation in foreclosure rates, the subprime lending rate, housing bubble, and dummy variable for location in northern Los Angeles County have expected positive associations with the zip code foreclosure rate. Zip codes with an older housing stock, more college graduates and higher search frequencies on Trulia have lower foreclosure rates, with the
relationship between housing age and foreclosure contrary to our prediction based on Scheessele (2002) and NCRC (2003). Finally, zip codes with a higher percentage of Latinos and Asians have lower foreclosure rates than those with a higher percentage of whites, with the former finding consistent with Immergluck and Smith (2005). The poverty rate, percent black, and homeownership rate, however, are not statistically associated with foreclosures, controlling for subprime lending and price escalation. Whereas the second finding conforms to evidence from the literature, the first does not (Immergluck and Smith 2005).21

Location in northern Los Angeles County is an important determinant of the zip code foreclosure rate, as indicated by the reduction in the adjusted R-squared in the model that excludes these observations (see Table 4). In all, exurban location accounts about 20% of the spatial variation in foreclosure rates. All of the variables, with the exception of the poverty rate and the percent black and Latino, retain their directionality and significance; thus, as a whole the full foreclosure model is robust. While the poverty rate is negatively, although not significantly, associated with foreclosures in the Los Angeles valley and basin, the negative associations between the percent black and Latino and foreclosures gain significance.

As expected, many of the independent variables operate indirectly on the foreclosure rate through their direct association with subprime lending and housing price escalation. Our results are generally consistent with previous studies. The percent black and poor are strongly and positively associated with the subprime lending rate, although the percent Latino is not—a finding contrary to Calem et al. (2004) and NCRC (2003) (Calem et al. 2004; Farris and Richardson 2004; Newman and Wyly 2004; NCRC 2003; Scheeseele 2002). As black

21 Earlier, unreported runs included measures of housing value and household income. They were highly collinear with the poverty rate and did not add significantly to our explanation of the foreclosure rate. Thus, they were removed from the analysis. We also tested the effect of nativity, but this variable was removed from the analysis due
composition moves from 0% to 100%, the concentration of subprime loans increases by 42 per 10,000 homeowners. A neighborhood with 100% poverty would have about 180 more subprime loans per 10,000 homeowners than one with 0% poverty. The percent college-educated and Asian, however, are negatively related to subprime lending, with both in line with evidence from the literature and the latter conforming to our expectations of minority ethnic banking (Calem et al. 2004; Newman and Wyly 2004).

Homeownership, popularity, and location in northern Los Angeles County also are positively and statistically associated with subprime lending. The positive association between homeownership and subprime lending conforms to Calem et al. (2004), but opposes Scheessele (2002)’s hypothesis that prime lenders tend to target areas with the greatest concentration of potential customers and stay away from more mixed tenure communities that are associated with greater uncertainty in price appreciation. In turn, bidding wars are more likely in popular communities, which may lead a buyer to finance their purchase using a subprime loan. These relationships persist when the northern Los Angeles County zip codes are excluded, which indicates the model’s robustness.

The percent black and Latino also indirectly affect foreclosure rates through their positive association with housing bubble size. Prices also grew more rapidly in the exurbs and areas with relatively lower college graduation rates. Median housing age, poverty, popularity, homeownership and Asian composition, however, are not statistically associated with housing bubble size. Like the subprime lending model, these relationships generally persist when the northern Los Angeles County zip codes are excluded.

to its high collinearity with the percent Asian and Latino. As a whole, the racial composition variables performed better than the nativity variable.
The finding for the two minority groups is intriguing. One possible explanation is that these independent variables are picking up the more extensive use of subprime loans, which artificially inflate housing prices. We tested for this possibility by including the subprime lending rate as an independent variable, but it was not statistically significant. Thus, “exploitative greenling” is not the only process rendering minority neighborhoods vulnerable to foreclosure (Newman and Wyly 2004). Another explanation, which we do not test in this research, is that these relationships reflect processes of gentrification, which may mean that the racial composition of neighborhoods predominately black or Latino in 2000 have since changed, or housing discrimination, which confines non-white housing demand to minority communities.

Table 3: Regression Results—All Zip Codes

<table>
<thead>
<tr>
<th>Category</th>
<th>Variable</th>
<th>Simple Model</th>
<th>Foreclosure Model</th>
<th>Subprime Lending Model</th>
<th>Housing Bubble Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intercept</td>
<td>-17.516</td>
<td>27.660*</td>
<td>-16.774</td>
<td>254.196***</td>
</tr>
<tr>
<td>Primary Economic Factors</td>
<td>Subprime</td>
<td>0.812***</td>
<td>0.452***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bubble</td>
<td>0.127**</td>
<td>0.196***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Economic Factors</td>
<td>Housing Age</td>
<td>-0.639***</td>
<td>-0.100</td>
<td>0.198</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Popularity</td>
<td>-0.063***</td>
<td>0.118***</td>
<td>-0.008</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exurbanª</td>
<td>104.599***</td>
<td>58.105***</td>
<td>27.549***</td>
<td></td>
</tr>
<tr>
<td>Demographic and SES Factors</td>
<td>Poverty</td>
<td>0.192</td>
<td>1.824***</td>
<td>-0.045</td>
<td></td>
</tr>
<tr>
<td></td>
<td>College</td>
<td>-0.502***</td>
<td>-0.347***</td>
<td>-0.536***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ownership</td>
<td>-0.056</td>
<td>0.556***</td>
<td>-0.188</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>-0.146</td>
<td>0.419***</td>
<td>0.497***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Latino</td>
<td>-0.278**</td>
<td>0.002</td>
<td>0.646***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>-0.193**</td>
<td>-0.332***</td>
<td>0.113</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adj. R-Sq.</td>
<td>0.510</td>
<td>0.827</td>
<td>0.743</td>
<td>0.545</td>
</tr>
</tbody>
</table>

ª Dummy variable
***p < .01
** p < .05
* p < .10
Table 4: Regression Results—Excluding Northern Zip Codes

<table>
<thead>
<tr>
<th>Category</th>
<th>Variable</th>
<th>Simple Model</th>
<th>Foreclosure Model</th>
<th>Subprime Lending Model</th>
<th>Housing Bubble Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intercept</td>
<td>-19.361**</td>
<td>35.526**</td>
<td>-17.937*</td>
<td>255.327***</td>
</tr>
<tr>
<td>Primary Economic Factors</td>
<td>Subprime</td>
<td>0.518***</td>
<td>0.606***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bubble</td>
<td>0.152***</td>
<td>0.165***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Economic Factors</td>
<td>Housing Age</td>
<td>-0.573***</td>
<td>-0.135</td>
<td>0.211</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Popularity</td>
<td>-0.062***</td>
<td>0.114***</td>
<td>-0.001</td>
<td></td>
</tr>
<tr>
<td>Demographic and SES Factors</td>
<td>Poverty</td>
<td>-0.079</td>
<td>1.865***</td>
<td>-0.133</td>
<td></td>
</tr>
<tr>
<td></td>
<td>College</td>
<td>-0.487***</td>
<td>-0.325***</td>
<td>-0.543***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ownership</td>
<td>-0.107</td>
<td>0.575***</td>
<td>-0.196</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>-0.234**</td>
<td>0.423***</td>
<td>0.499***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Latino</td>
<td>-0.292***</td>
<td>0.018</td>
<td>0.646***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>-0.158*</td>
<td>-0.331***</td>
<td>0.113</td>
<td></td>
</tr>
<tr>
<td>Adj. R-Sq.</td>
<td></td>
<td>0.511</td>
<td>0.612</td>
<td>0.755</td>
<td>0.543</td>
</tr>
</tbody>
</table>

*a Dummy variable
***p < .01
** p < .05
* p < .10

In summary, the empirical findings are largely consistent with the a priori expectations, with the exception of the median housing age and homeownership rate. The factors most affecting foreclosures in the Los Angeles metropolitan area are subprime lending and rapid price appreciation, which account for about half of rate variation. Including other neighborhood characteristics yields additional explanatory power. We found that the percent black and poverty rate operate indirectly on the foreclosure rate through their positive association with subprime lending, whereas the percent black and Latino indirectly affect foreclosures through their positive association with housing price escalation. The homeownership and popularity rate also indirectly affect the foreclosure rate through their positive associations with subprime lending.
Concluding Remarks

Our empirical results suggest that unsustainable price escalation and subprime lending not only drive variation in foreclosure rates in the Los Angeles region, but also may explain most of the well-cited positive effect of black (and to an extent Latino) neighborhood composition. Exurban location also is a primary factor rendering neighborhoods vulnerable to foreclosure. In order to make conclusive statements about the factors shaping geographic variation in foreclosures, however, further research is needed to address our data and methodological limitations, as well as examine the crisis at a later stage and in other regions.

To start, housing market data was not readily available at a scale smaller than the zip code. Zip codes typically are larger than census tracts, which researchers historically have used to approximate neighborhoods due to their alignment with physical boundaries, initially similar housing characteristics, and consistency over time. Larger units of analysis introduce more noise into statistical models. That relationships between foreclosure and subprime lending, price appreciation, race, and other factors emerge at the zip code level renders them all the more striking. Additional research is needed in order to probe these associations on different scales.

In addition, there are several issues with our model construction. While our model includes variables that are under-addressed in the literature, namely measures for price escalation and exurban location, it omits other frequently used variables, such as credit score. There is broad evidence, however, that credit score and subprime lending are strongly and positively associated (NCRC 2003; Calem et al. 2004; Farris and Richardson 2004). Therefore, we expect that credit risk operates indirectly on foreclosures through the subprime lending rate—a relationship illustrated by the poverty rate and percent black.
Due to the ongoing development of the foreclosure crisis, several of the variables used are proxies rather than direct measurements. Vulnerability to equity loss, for instance, is more accurately approximated by variance in price declines than price appreciation. Since there is broad consensus that prices have not yet bottomed out and are decreasing at varying rates across the region, however, we include a measure for price escalation in conjunction with neighborhood popularity, which serves as a proxy for sustained demand. Since price escalation is strongly and positively associated with foreclosure rates in our empirical model, there is evidence that this variable accounts for unsustainable, as opposed to real, growth in property values—also known as the housing bubble. As more comprehensive data on these trends emerge, however, researchers should include more accurate measures to account for the impact of equity instability on foreclosure.

Finally, we do not know if the results for Los Angeles are applicable to other metropolitan areas. Indeed, this region is unique in many ways, particularly in terms of its rapid price escalation during the early to mid-2000s, lower levels of racial segregation, and high proportion of foreign-born residents. Testing the applicability of the relationships between neighborhood characteristics and foreclosures presented in this paper is an important direction for future research. As a whole, these findings likely are more applicable to sprawling, multiracial, and high-growth regions, such as the California Bay Area and San Joaquin Valley, Sunbelt areas such as Phoenix, Houston and Dallas, and increasingly diverse, high demand East Coast regions like Atlanta, Boston, and Washington, D.C., than slower growth or declining, predominately biracial Rustbelt regions, such as Cleveland and Detroit.

Despite the limitations of our analysis, the findings provide some insights into how to respond to the foreclosure crisis. Remedial measures currently are operating on the federal, state
and local level. In addition to the $700 billion financial industry bailout mentioned previously, the Housing and Economic Recovery Act, which was signed into law on July 30, 2008, regulates lenders, provides $300 billion in guarantee authority to the Federal Housing Authority, and gives $4 billion in block grant funds to cities in order to manage the crisis by enabling local organizations to buy foreclosed properties—$500 and $50 million of which are slated for California and Los Angeles County respectively (Garrison 2008). In California, the Senate Banking, Finance and Insurance Committee and the Assembly Banking and Finance Committee have authority over lending regulation. Proposed state legislation has focused on refinancing subprime loans, providing counseling, educating buyers on risky lending practices and increasing funds for affordable development (Ridley-Thomas 2008; California State Assembly 2008; Office of the Governor 2008). A broad challenge faced by policymakers at both scales is protecting low-income and minority borrowers through increased lending regulation while enabling their access to homeownership.

Unable to regulate the mortgage industry directly, localities work to stem the neighborhood and citywide effects of individual foreclosures, particularly blight, crime and property value decline. The findings in this paper provide a framework for targeting these efforts. Local building departments can make sure foreclosed properties are up to code, whereas police departments can increase their patrolling in hard-hit communities. Recently, California cities such as Murrieta and Chula Vista have responded to the crisis more boldly by proposing that lenders holding foreclosed properties maintain them until they are sold. An even more dramatic intervention, which would render lower income families more residentially stable as well as

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22 On the federal institutional level, the Federal Housing Administration began a forbearance program in 1999 to help borrowers at risk of foreclosure rework their loan terms. About 70,000 homeowners have participated in this program annually over the past few years (Weicher 2007).
encourage economic integration, would be to provide funds for localities and non-profits to turn foreclosed properties into limited equity housing—a process enabled by the federal aid package.

While changes in federal and state law that regulate subprime and predatory lending and efforts on all three scales to combat lending discrimination help prevent foreclosure in lower income, minority communities, they do not fully account for the exurbs—places where subprime lending and housing bubble size only partially account for foreclosure variation. Regional planning bodies should pay close attention to processes unfurling in these areas, which, due to their greater reliance on property values to pay for services and the specter of increasing service costs arising from the entry of lower income families, are more vulnerable to decline. It especially is important to gauge whether foreclosures are leading to property value loss and demographic shifts in these areas and, if so, plan to ease these transitions through preventative and supportive measures.

In addition to managing the effects of foreclosure, local and regional policymakers also play a key role in their prevention. Exurban growth, for instance, may be not only untenable environmentally but also economically. Increasing gas prices and traffic congestion render residents’ demand to live in these areas and employers’ desire to operate in them unstable, which may lead to volatile housing prices and financial instability and foreclosure among existing homeowners. Promoting denser development around jobs and transit, in conjunction with efforts to combat lending discrimination and deregulation and make housing affordable, may more comprehensively protect metropolitan regions against future housing crises.
References


<http://www.trulia.com/home_prices/California/Los_Angeles_County> (accessed on May 23, 2008).
