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BETRAYAL OF THE AMERICAN DREAM: WHY BLACKS AND LATINOS WERE HIT HARDEST BY THE U.S. HOUSING CRISIS

Rugh, Jacob Sterling

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BETRAYAL OF THE AMERICAN DREAM:
WHY BLACKS AND LATINOS WERE HIT HARDEST BY THE U.S. HOUSING CRISIS

Jacob Sterling Rugh

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ABSTRACT

I contend that the United States housing boom and subsequent crisis were fundamentally structured by the social forces of racial segregation, discrimination, and demographic change in ways that uniquely disadvantaged black and Latino borrowers and communities. Controlling for an array of rival explanations, black-white residential segregation emerges as the strongest predictor of 2006-2008 foreclosure filing rates across the largest 100 metropolitan areas. Using a two-stage least squares estimation, I show that black-white and Hispanic-white disparities in subprime lending link segregation to foreclosure rates in a causal relationship. I explore further the mechanisms that generate for inequality in high cost subprime lending in one of the nation's most segregated cities. I find that blacks and Latinos and borrowers in mostly black and Latino neighborhoods experienced discrimination in broker-originated, high cost, and subprime refinance lending in ways that cannot be explained by credit profile, loan characteristics, borrower income, or other factors. Residence in mostly black and Latino neighborhoods is also strongly significantly related to higher odds of foreclosure, but not default, which is more strongly driven by losses in income and declines in home prices. I return to a national analysis and argue that Latinos were dealt a double-blow by the crisis. First, they experienced discriminatory subprime lending alongside black neighbors in segregated cities. Second, Latinos were twice as likely as blacks to receive new exotic alt-A loans due to their late entry in the housing boom, continued immigration, and greater rates of suburbanization. Among a sample of 200,000 borrowers, I find that Latinos experience the highest foreclosure rate and were twice as likely as blacks to have received alt-A nonprime loans. Using a competing risk framework, I confirm that residence in hard hit states and broker-originated loans with deceptive features account for much of the Latino disparity in foreclosure. I uncover new sources of Latino disadvantage, such as their concentration in states without judicial foreclosure and reduced access to housing counselors and loan modifications. I conclude that, like blacks, Latinos were also victimized by risky subprime and especially alt-A lending, and that unequal lending ultimately betrayed the American Dream of homeownership.

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I. INTRODUCTION

From Inner Cities to Outer Suburbs: The Betrayal of the American Dream

In the 1990s black and Latino residents of the California cities of Compton, Hawthorne, and Inglewood were still reeling from the legacy of racial segregation and discrimination. The empty lots, shuttered stores, and broken glass that littered the urban landscape after the 1992 Los Angeles riots were the most recent and stinging reminder. Eventually the injustices of disparate police treatment receded, crime plummeted, the economy improved, and the color line evolved as immigration from Latin America replenished areas that lost residents. In 1990, just over half of the residents were black and together with Latinos made up over 80% of the combined population. By 2010, Latinos made up 56% of residents, while the black population declined, especially in Compton, to comprise only 36% of residents (U.S. Census).

Against the promising backdrop of local recovery across these three cities, a new, insidious threat to justice emerged—predatory subprime refinance lending. Exploiting a void maintained by mainstream banks, unregulated mortgage brokers extended these deceptive, high cost, and risky loans in black and Latino communities (e.g., Hernández 2009; Squires 2004; Williams, Nesiba, and McConnell 2005). This injustice was fundamentally predicated on the discriminatory marketing, pricing, extension, and repeat refinancing of such loans to segregated blacks and Latinos, many of whom owned their homes for years, if not decades (Engel and McCoy 2008, 2011; Howell 2006; Relman 2008; Stuart 2003). In these three California cities, data disclosed under the Home Mortgage Disclosure Act show that from 1999 to 2007 seven out of ten borrowers who received a mortgage used it to refinance an existing loan; most loans were originated by subprime lenders and carried high interest rates. Nationwide, over 70% of all subprime loans during the same period were used to refinance existing loans (Bhardwaj and

Sengupta 2009). Revealingly, the homeownership rate in Compton was 57.0% in 1990, 56.8% in 2000, and 56.4% in 2010, so the rise of subprime lending did little to build homeownership.

While millions of inner city blacks and Latinos were increasingly subject to predatory subprime refinance lending, millions more migrated to far flung suburbs and interior Sunbelt destinations (Frey and Liaw 2005; Frey 2011). Many who escaped the rise of subprime lending in Compton, Hawthorne, and Inglewood were destined for sprawling suburban communities with newer homes. One common destination was the exurban city of Lancaster beyond the San Gabriel mountain range 70 miles to the north.[1] Incorporated in 1977, Lancaster remained until the 1990s a mostly all-white city with a small Hispanic minority. During the 1990s the black population of Lancaster tripled and the existing Latino population doubled. Over the next decade the Latino population doubled again, and the black population nearly doubled so that in less than 20 years the non-Hispanic white share of the population declined from 73% to 34%. Blacks made up 21% of the population, Latinos, 38%, and Asians, 4%.

The majority of home loans made in Lancaster to blacks and Latinos were for home purchase. The homeownership rate among Latinos in Lancaster rose sharply from 55% in 1990 to 68% in 2006 at the peak of the housing boom. With their new status as suburban homeowners blacks and Latinos appeared to be living safely outside the reaches of inner city subprime refinance lenders. But in a most unfortunate twist of fate, new borrowers in suburban and Sunbelt housing markets like Lancaster were in fact the fuel for a coming explosion of exotic nonprime lending that began in 2004 (Immergluck 2009, 2010; Engel and McCoy 2011). Along with the unbroken rise of subprime lending, this wave of nonprime lending materialized faster, crested higher, and extended far more broadly than the subprime wave that began in the 1990s. Discriminatory high cost subprime refinance lending joined with a new wave of nonprime exotic

[1] Lancaster had roughly the same total mortgaged housing units as the three industrial cities combined in 2010.

"alt-A" loans targeted to more affluent and creditworthy home buyers with little or no documentation of assets or income (Sengupta 2010; Calem, Nakamura, and Wachter 2011).

The explosion of nonprime lending was financed by Wall Street investment firms that extended warehouse lines of credit to nonprime lenders. To push their loans onto unwitting borrowers of all races and blacks and Latinos in particular, many of these national lenders such as Ameriquest, First Franklin, and Countrywide employed the same discriminatory and unethical techniques as their thinly capitalized forerunners during the rise of subprime lending (Engel and McCoy 2011; Hudson 2010; Morgenson and Rosner 2011). Instead of extending more prime loans to creditworthy borrowers, large financial conglomerates, banks, and investment firms rapidly acquired subprime and alt-A lenders or devised subsidiaries (Engel and McCoy 2011).

What was the consequence of this explosion of risky nonprime lending for blacks and Latinos in inner cities and outer suburbs? In Compton, Hawthorne, and Inglewood the share of loans made at the beginning of the explosion in 2004 that ended in foreclosure by 2012 stood at just under 1%, in Lancaster, 3.1%. With each successive year of loan origination during the nonprime explosion, however, the risk of foreclosure skyrocketed. In the trio of industrial inner cities, 6.8% of loans made in 2005, 20.0% of loans made in 2006, and 21.6% of loans made in 2007 eventually ended in foreclosure and repossession. As bad as it was for the three predominantly black and Latino cities, for blacks and Latinos who sought the American Dream in the suburb of Lancaster, the experience was nothing short of a nightmare. For loans originated in 2005, 17.9% ended in foreclosure; for 2006 loans and 2007 loans, a staggering 36.7% and 38.3% of loans ended in foreclosure. The borrowers—overwhelming Latino and black—lost their homes (Author's calculations based on data from Foreclosureradar.com and HMDA). Last, in Lancaster the homeownership rate for Latinos fell from 68% in 2006 to 61% in 2010.

In sum, the story of blacks and Latinos who left inner cities like Compton for exurban communities like Lancaster illustrates how subprime and later nonprime lending victimized minority borrowers and betrayed the American Dream of homeownership. For over a decade subprime lending remained a niche product, targeted at black and Latino borrowers in inner city neighborhoods, carried out only by dubious unregulated brokers outside the financial mainstream, and the effects of which were concealed by rising prices that allowed lenders to continuously refinance borrowers into new loans and strip away equity. In 2004 the rise of subprime lending was propelled by the explosion of nonprime alt-A loans that still relied on unregulated brokers but were funded and securitized by the world's largest financial institutions, spread across inner cities and suburbs, and predicated on the continuing rise of home prices. Ultimately, home prices collapsed, and this explosion of nonprime lending helped spark the largest financial disaster since the Great Depression and the worst housing crisis in U.S. history.

Black and Latino Homeownership: A Yardstick for Measuring the Betrayal of the Dream

Figure 1 below traces the trajectory of black and Latino homeownership (left axis) in parallel to the rise of subprime lending (right axis) from the 1990s through 2003, the explosion of subprime and nonprime alt-A lending from 2004 to 2007, and the aftermath when these loans literally disappeared after the secondary market for nonprime loans froze up in late 2007. Figure 1 shows the volume of nonprime loans more than tripled to $1 trillion by the height of the nonprime explosion in 2006. Nonprime lending that year made up the majority of conventional home loans originated in the United States (Inside Mortgage Finance 2008).

The rise in homeownership among blacks and Latinos was closely related to the rise of subprime lending. Williams, Nesiba, and McConnell (2005) documented that 43% of the rise in black homeownership in the 1990s could be accounted for by an increase in lending by subprime

lenders. By the time of the explosion of both subprime and alt-A nonprime loans, however, the homeownership rate of blacks peaked and began to decline, while the rate for Latinos continued to rise until 2007, owing to continued immigration (Kochhar, Gonzalez-Barrera, and Dockterman 2009). This made Latinos doubly vulnerable to the crisis as more Latinos became new homeowners when the stakes of discriminatory lending and house price inflation were highest.

After the housing bubble burst in 2006 and 2007, nonprime securitization and lending evaporated, foreclosures proliferated, and homeownership among blacks and Latinos fell dramatically. After reaching a high of 49.7% in 2006-2007, the Latino homeownership rate dropped to 46.8% by 2011, effectively erasing close to a decade of gains. For blacks, the aftermath was even more severe. From a peak of 49.1% in 2004, the black homeownership rate fell to 44.7% by 2011, the lowest since 1996, reversing 15 years of gains in homeownership. In addition to these steps backward in homeownership, black and Latino borrowers face foreclosure rates at least twice as high as those faced by whites (Bocian, Li, Reid, and Quercia 2011). Clearly, the rise and explosion of discriminatory subprime and risky nonprime lending combined with the fall in home prices to uniquely jeopardize the American dream for blacks and Latinos.

Chapter Overviews: Segregation, Nonprime Lending, and the Fate of Blacks and Latinos

As I have described here, the social position, residential segregation, and recent suburban mobility of blacks and Latinos during the subprime and nonprime waves set the stage to make them uniquely hard hit by the time home prices collapsed and the economy went into recession. I argue that the combination of social, demographic, and market forces are primarily responsible for the fate of blacks and Latinos, not individual differences in credit, income, or other resources.

Employing a variety of data sources, statistical techniques, and types of outside evidence, in the following three chapters I establish, investigate, and sustain this argument. In my first

chapter, “Racial Segregation and the American Foreclosure Crisis,” my co-author Doug Massey and I argue that a principal contributing cause of the housing crisis was discriminatory subprime lending structured on the social fact of racial residential segregation. Controlling for an array of significant rival explanations such as house price inflation, creditworthiness, overbuilding, and the rate of subprime lending, we demonstrate that the single strongest predictor of 2006-2008 foreclosure filing rates across the largest 100 metropolitan areas is the degree of black-white residential segregation. Using a two-stage least squares estimation, we show how the unexplained black-white and Hispanic-white disparities in high cost subprime lending link segregation to foreclosure rates in a causal relationship, rather than just by association. We argue that stronger civil rights enforcement and lower levels of segregation would have greatly reduced the disproportionate share of the crisis borne by black and Latino borrowers and entire black and Latino communities. The findings in this chapter strongly suggest that blacks were the first casualties of the crisis. Latinos were also hit by the same forces where they were segregated and experienced discrimination in lending, but the effect of Hispanic segregation was not as strong.

In my second chapter, I explore the causal mechanisms that are responsible for racial and ethnic disparities in high cost subprime lending and the effect of neighborhood racial and ethnic composition on distressed borrower loan outcomes in one of the nation’s most segregated and largest cities, New York City. Using logistic regression and geospatial analysis, I explore the determinants of disparities in loan origination and performance among a sample of nearly 12,000 borrowers who ever received housing counseling or legal aid since 2008. I find that blacks, Latinos, women, elderly borrowers and those residing in mostly black and Latino neighborhoods experienced varying degrees of discrimination in broker high cost, and subprime refinance lending in ways that cannot be explained by neighborhood status, credit profile, loan

characteristics, borrower income, or other factors. I include these disparities in a similar model of mortgage default and foreclosure, both in the absence and presence of active interventions. I find that residence in mostly black and Latino neighborhoods is strongly significantly related to higher odds of foreclosure, but not default, which is more strongly driven by losses in income and declines in home prices. After accounting for active interventions and loan modifications, I find that although Hispanics fare best, those residing in mostly Latino neighborhoods are far less likely to receive a loan modification. Importantly, I consistently find that among this urban population of borrowers with loans from the past 20 years, refinance is a significant predictor of default and foreclosure. This supports the hypothesis that predatory subprime refinance lending was an original cause of the crisis, especially in segregated cities. I conclude that segegation and neighborhood racial composition are strong predictors of racial disparities in loan origination, which echo most strongly in terms of disparities in foreclosure. Because the foreclosure crisis has spread so widely, I find that default has cut across neighborhood and racial lines due to the second-order consequences of the housing crisis, especially employment and income loss.

In my third chapter, I return to a national analysis that incorporates detailed borrower-, neighborhood-, and metropolitan-level model of loan performance outcomes in order to answer the question of why Latinos ended up being hardest hit by the crisis. I argue that Latinos were squeezed on two sides. On the one, they experienced discriminatory subprime lending alongside black neighbors in segregated cities. And on the other side, Latinos were much more likely to receive new exotic alt-A loans due to their late entry in the housing boom, continued immigration, increased residential mobility into suburbs, and, above all, location in hard hit states and metros where these dangerous products were most prevalent and housing was the engine of employment and the economy. In a unique national sample of 200,000 nonprime loans,

I find that Latinos experienced the highest foreclosure rate and were twice as likely as blacks to have received alt-A nonprime loans. Using both logistic and competing regression estimations, I confirm that residence in hard hit states as well as deceptive broker-originated loans and increasingly risky features such as interest only amortization, no documentation, and no money down account for much of the Latino disparity in foreclosure. I also uncover new sources of Latino disadvantage, such as their concentration in states without access to legal due process in foreclosure and a remarkably lower density of local housing counselors. Having modeled the processes at the individual- and county-level, I am able to conclude that Latinos were also victimized by risky subprime and alt-A lending, and were further jeopardized by their residential position in the path of risky lending and the most severe declines in housing prices of any group. I find that among this sample of 2005 to 2007 borrowers a purchase loan carries more risk than a refinance loan because borrowers are left with less equity and a greater array of risky features. This supports the theory that the housing boom evolved to present a greater threat to new homeowners, especially Latinos, with new mortgages loaded with risk at the peak of the bubble.

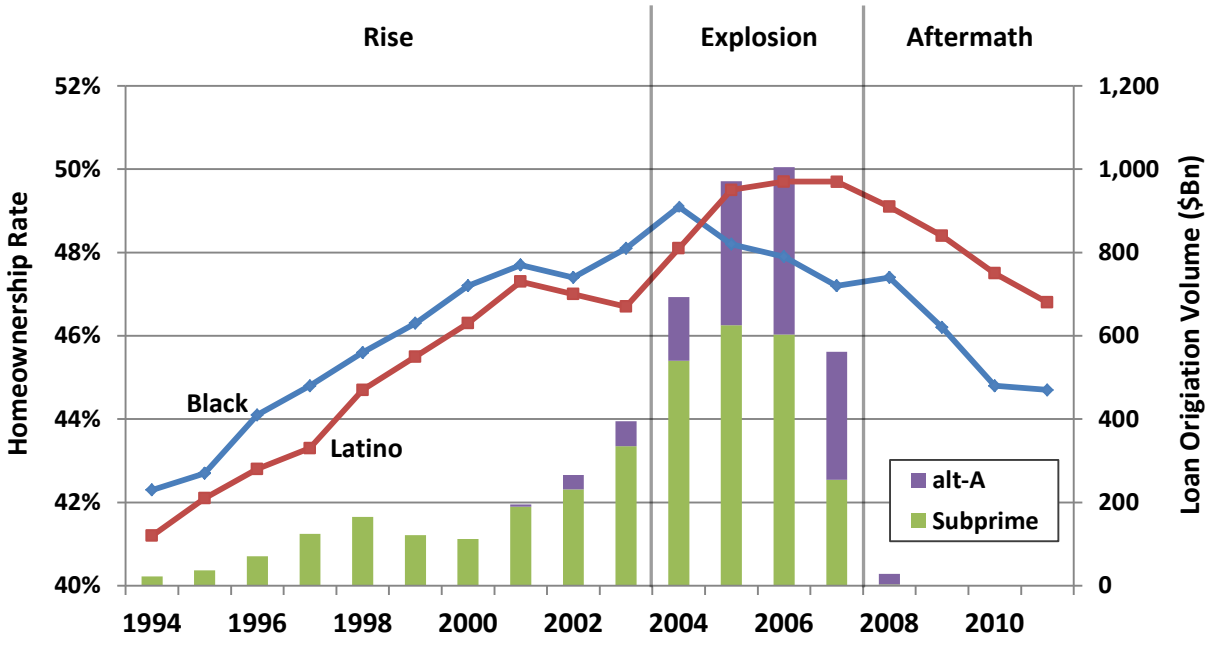
Table 1 offers a useful guide to adjudicate the conceptual structure of the work that follows. I generate hypotheses for these chapters based on four principal factors: the population of interest (blacks or Latinos), their degree of segregation (persistent or falling), the balance of lending (mostly refinance or mostly purchase), and the time the lending took place (the rise of subprime or the explosion of subprime & alt-A). Chapter 1 illustrates best the upper-left cell of Table 1. Segregation made African Americans especially vulnerable to the crisis early on and mostly in central cities where they were targeted for subprime refinance. I confirm this pattern in Chapter 2 to be the case for both blacks and Latinos in New York, and also show that purchase lending and gentrification predicted fewer foreclosures than in the most segregated

neighborhoods. Last, in Chapter 3 I outline the processes underlying the lower-right cell of Table 1, and explain why Latinos were hit by the crisis later than blacks, but just as hard.

Table 1: Hypothesized Outcomes of Segregation and Mortgage Lending

	Refinance	Purchase
Persistent Segregation	*Rise of Subprime* Inner Cities & Suburbs **Blacks Hit Hard, First**	*Rise & Explosion* Cities & Suburbs **Latinos & Blacks Hit Hard**
Declining Segregation	*Rise & Explosion* Gentrifying Areas **Fewest Disparities**	*Explosion of Nonprime* Sunbelt & Suburbs **Latinos Hit Hardest**

Figure 1: Change in Homeownership Rate and Stages of Nonprime Lending



Data sources: U.S. Census Bureau and Inside Mortgage Finance (2008).

References

Bocian, Debbie Gruenstein, Wei Li, Carolina Reid, and Roberto G. Quercia. 2011. *Lost Ground, 2011: Disparities in Mortgage Lending and Foreclosures*. Washington, DC: Center for Responsible Lending. Accessed online: http://www.responsiblelending.org/mortgage-lending/research-analysis/Lost-Ground-2011.pdf

Bhardwaj, Geetesh, and RajdeepSengupta. 2009. "Where's the Smoking Gun? A Study of Underwriting Standards for US Subprime Mortgages" Federal Reserve Bank of St. Louis Working Paper 2008-036C (Revised October 2009).

Calem, Paul, Leonard Nakamura, and Susan Wachter. 2011."Implications of the Housing Market Bubble for Sustainable Homeownership." In *The American Mortgage System: Crisis and Reform* eds. Susan M. Wachter and Marvin M. Smith. Philadelphia: University of Pennsylvania Press.

Engel, Kathleen C. and Patricia A. McCoy. 2008. ''From Credit Denial to Predatory Lending: The Challenge of Sustaining Minority Homeownership.'' Pp. 81–123 in *Segregation: The Rising Costs for America*, edited by J. H. Carr and N. K. Kutty. New York and London: Routledge.

_____. 2011. *Subprime Virus: Reckless Credit, Regulatory Failure, and Next Steps*. Oxford: Oxford University Press.

Frey, William H., Kao-Lee Liaw, Richard Wright, and Michael J. White. 2005. "Migration within the United States: Role of Race-Ethnicity," Brookings-Wharton Papers on Urban Affairs (2005):207-262.

Frey, William H. 2011. "Melting Pot Cities and Suburbs: Racial and Ethnic Change in Metro America in the 2000s." May 4, 2011. Washington, DC: Brookings Institution. Accessed online: http://www.brookings.edu/~/media/Files/rc/papers/2011/0504_census_ethnicity_frey/0504_census_ethnicity_frey.pdf

Hernández, Jesus. 2009. "Redlining Revisited: Mortgage Lending Patterns in Sacramento 1930-2004."*International Journal of Urban and Regional Research* 33:291–313.

Howell, Benjamin. 2006. "Exploiting Race and Space: Concentrated Subprime Lending as Housing Discrimination." *California Law Review* (94)1:101-147.

Hudson, Michael W. 2010. *The Monster: How a Gang of Predatory Lenders and Wall Street Bankers Fleeced America—and Spawned a Global Crisis.* New York: Times Books.

Immergluck, Dan. 2010. "Neighborhoods in the Wake of the Debacle: Intrametropolitan Patterns of Foreclosed Properties," *Urban Affairs Review* 46:3-36. 2009. *Foreclosed: High-Risk Lending, Deregulation, and the Undermining of America's Mortgage Market.* Ithaca, NY: Cornell University Press.

_____. 2010. “Neighborhoods in the Wake of the Debacle: Intrametropolitan Patterns of Foreclosed Properties,” *Urban Affairs Review* 46:3-36.

Inside Mortgage Finance. 2008. *Mortgage Yearbook for 2007: Market Trends and Industry Leaders in the Residential Mortgage Business and MBS Markets.* Bethesda, MD: Inside Mortgage Finance Publications.

Kochhar, Rakesh, Ana Gonzalez-Barrera and Daniel Dockterman. “Through Boom and Bust: Minorities, Immigrants and Homeownership,” Pew Hispanic Center, Washington, D.C. May 12, 2009. Accessed online: http://www.pewhispanic.org/files/reports/109.pdf

Morgenson, Gretchen and Joshua Rosner. 2011. *Reckless Endangerment: How Outsized Ambition, Greed, and Corruption Led to Economic Armageddon*. New York: Times Books.

Relman, John P. 2008. “Foreclosures, Integration, and the Future of the Fair Housing Act,” Indiana Law Review 41:507-521.

Sengupta, Rajdeep. 2010. “Alt-A: The Forgotten Segment of the Mortgage Market,” Federal Reserve Bank of St. Louis Review, January/February 2010, 92(1), pp. 55-71. Accessed online: http://research.stlouisfed.org/publications/review/10/01/Sengupta.pdf

Squires, Gregory D, ed. 2004. *Why the Poor Pay More*. Westport, CT: Praeger.

Stuart, Guy. 2003. *Discriminating Risk: The U.S. Mortgage Lending Industry in the Twentieth Century.* Ithaca, NY: Cornell University Press.

I. RACIAL SEGREGATION AND THE AMERICAN FORECLOSURE CRISIS

With Douglas S. Massey
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Four decades after the passage of the Fair Housing Act, residential segregation remains a key feature of America's urban landscape. Although levels of black segregation have moderated since the civil rights era, the declines have been concentrated in metropolitan areas with small black populations (Charles 2003). In areas with large African American communities—places such as New York, Chicago, Detroit, Atlanta, Houston, and Washington—the declines have been minimal or nonexistent (Iceland, Weinberg, and Steinmetz 2002). As a result, in 2000 a majority of black urban dwellers continued to live under conditions of hypersegregation (Massey 2004). At the same time, levels of Hispanic segregation have been rising, and during the 1990s Latinos in New York and Los Angeles joined African Americans among the ranks of the hypersegregated (Wilkes and Iceland 2004). Although much of the increase in Hispanic segregation stems from rapid population growth during a period of mass immigration, levels of anti-Latino prejudice and discrimination have also risen in recent years (Charles 2003; Ross and Turner 2005; Massey 2009). In addition, dark-skinned Latinos have long been known to experience higher levels of segregation than their light-skinned counterparts (Massey and Bitterman 1985; Denton and Massey 1989; Massey and Denton 1992).

During the 1990s, rates of subprime mortgage lending, home equity borrowing, and home ownership increased among minorities and in the context of high segregation many of the new borrowers were necessarily located in minority neighborhoods (Been, Ellen, and Madar 2009; Squires, Hyra, and Renner 2009). Williams et al. (2005) estimate, for example, that subprime lending accounted for 43% of the increase in black home ownership during the 1990s and 33%

of the growth in ownership within minority neighborhoods. As a result, when the housing bubble burst in 2007 and deflated in 2008 and 2009, the economic fallout was unevenly spread over the urban landscape (Immergluck 2008). Given that segregation concentrates the effects of any economic downturn spatially (Massey and Denton 1993), the rise in foreclosures hit black and Hispanic neighborhoods with particular force (Bromley et al 2008; Immergluck 2008; Schuetz, Been, and Ellen 2008; Hernández 2009).

Economic studies have generally concluded that leveraged refinancing, overbuilding, the collapse of home prices, and a poorly regulated mortgage market were primarily responsible for the rise in foreclosures across metropolitan areas (Doms et al 2007; Haughout et al 2008; Glaeser et al 2008; Gerardi et al 2009; Khandani, Lo, and Merton 2009). Here we argue that the foreclosure crisis also had significant racial dimensions. Although race has been considered as a factor in prior economic research, it was mainly to attribute intergroup disparities in defaults and foreclosures to the weaker economic position of minority group members. A careful reading of recent scholarship on segregation and mortgage lending reveals, however, that racial discrimination occurred at each step in the complex chain of events leading from loan origination to foreclosure (Stuart 2003; Williams, Nesiba, and McConnell 2005; Wyly et al 2006; Bond and Williams 2007; Immergluck 2009). Specifically, ongoing residential segregation and a historical dearth of access to mortgage credit in American urban areas combined to create ideal conditions for predatory lending to poor minority group members in poor minority neighborhoods (Been et al 2009; Squires et al 2009), thus racializing the ensuing foreclosure crisis and focusing its negative consequences disproportionately on black borrowers and home owners (Oliver and Shapiro 2006; Wyly 2006, 2009; Hernández 2009; Shapiro, Meschede, and Sullivan 2010).

Segregation and the Foreclosure Crisis

High levels of segregation create a natural market for subprime lending and cause riskier mortgages and thus foreclosures to accumulate disproportionately in minority neighborhoods of racially segregated cities. Segregation by definition creates minority-dominant neighborhoods, which given the legacy of redlining and institutional discrimination, continue to be under-served by mainstream financial institutions (Ross and Yinger 2002; Renuart 2004). Moreover, those financial institutions that do exist in minority areas are likely to be predatory—pawn shops, payday lenders, and check cashing services that charge high fees and usurious rates of interest---so that minority group members are accustomed to exploitation and frequently unaware that better services are available elsewhere (Immergluck and Wiles 1999). Segregation also spatially concentrates the disadvantages associated with minority status, such as poverty and joblessness (Massey and Fischer 2000), so that when the economy stagnated families in minority neighborhoods were more likely than others to turn to home equity loans as a means of maintaining consumption, thereby creating a ready demand for unscrupulous brokers to exploit (Sullivan, Warren, and Westbrook 2000).

Under conditions of high residential segregation, in other words, individual disadvantages associated with minority status are compounded in space and are amplified in markets that are necessarily organized geographically (Dymski and Veitch 1992; Immergluck 2008). By concentrating under-served, financially unsophisticated, needy minority group members who are used to exploitation in certain well-defined neighborhoods, segregation made it easy for brokers to target them for the marketing of subprime loans (Stuart 2003). Thus Avery, Brevoort, and Canner (2008) found that among mortgage lenders who went bankrupt in 2007, black borrowers who received loans in 2006 were three times more likely to receive a subprime than a prime loan

(74% versus 26%) and Hispanics were twice as likely to receive a subprime than a prime loan (63% versus 37%). In contrast, whites were slightly *more likely* to get a prime than a subprime loan from the same lenders (46% versus 54%). Among those institutions that did not go bankrupt in 2007, blacks who borrowed in 2006 were just as likely to receive prime as subprime loans (51% versus 49%), underscoring the discriminatory nature of predatory lending practices in the United States.

Securitization and the Rewards to Risky Lending

Residential segregation has always created dense concentrations of potentially exploitable clients in need of capital, of course, but what changed in the 1990s was the attractiveness of such borrowers to mortgage lenders. Whereas before the 1980s lenders avoided inner city minority neighborhoods through a combination of fear, prejudice, and institutional discrimination (Squires 1994), the invention of securitized mortgages changed the calculus of mortgage lending and made minority households very desirable as clients. Indeed, the spread of mortgage-backed securities during the 1980s transformed home lending throughout the United States by splitting apart the origination, servicing, and selling of mortgages into discrete transactions that made it possible for banks to earn more money quickly by originating and selling loans than by lending money and collecting interest payments over time (Raynes and Rutledge 2003; Sowell 2009).

The advent of securitized mortgages transformed what had been a bank-based intermediary credit system into a securities-based market system (Dymski 2002) and in so doing the new financial instruments vastly expanded the pool of money available for lending. Under traditional systems of lending, the number of mortgages was limited by the amount of the deposits that a bank had on hand to lend. Under the new system, the volume of mortgages was

no longer limited by deposits, but by the number of potential borrowers and the willingness of investors to purchase mortgage-backed securities. The new arrangements thus created a demand on the part of banks to expand the pool of borrowers.

Securitized mortgages are not sold whole but pooled together and divided into different shares, or tranches, on the basis of risk (Raynes and Rutledge 2003). High interest mortgages pay more to investors, of course, but they also carry more risk and in order to manage the risk financial engineers combined different risk tranches into diversified bonds that could be sold on secondary markets. By mixing different tranches together, financiers were able create a salable security with almost any risk rating and interest rate they wished. In theory, the risk of default by borrowers in high-risk tranches was offset by the surety of payments within low-risk tranches, thereby yielding a relatively safe investment that rating services beholden to the financiers were happy to affirm for a generous fee (Raynes and Rutledge 2003).

Because virtually any mortgage, however shaky, could be sold and repackaged as part of a collateralized debt obligation, risky borrowers who were formerly shunned by lenders suddenly became quite attractive. The resultant wave of predatory lending was spearheaded by independent mortgage brokers who did not bear the risk of their reckless lending practices. They simply generated mortgages and immediately sold them to banks and other financial institutions, which in turn capitalized the shaky subprime instruments as securities and sold them to third-party investors who ended up assuming the risk, typically in ways they neither appreciated nor understood (Engel and McCoy 2007; Peterson 2007). These lucrative subprime lending and securitization practices did not suddenly appear "at the fringes of finance," but were fundamentally produced and legitimated by the financial industry using new, high-tech tools

such as credit scoring, risk-based pricing, securitization, credit default swaps, and variable rate mortgages that were billed as rational, scientific, and safe (Stuart 2003; Langley 2008, 2009).

How Segregation Shaped Unequal Lending

With the move to securitized lending, discrimination in real estate lending shifted from the outright denial of home loans to the systematic marketing of predatory loans to poor black and Hispanic households, which were easily found within segregated neighborhoods (Massey 2005a; Engel and McCoy 2008). Before the subprime boom, black borrowers were more likely to be denied loans overall, especially in white areas, whereas whites were denied loans in minority neighborhoods (Holloway 1998). Afterward, the underserved status of minority borrowers made them prime targets for subprime lenders who systematically targeted their communities for aggressive marketing campaigns (Dymski and Veitch 1992, Holloway 1998, Stuart 2003). Discriminatory real estate practices such as steering also prevented black and Latino homebuyers from accessing better housing and sounder loan products in affluent suburbs (Friedman and Squires 2005, Hanlon 2010) and channeled them instead into depressed inner ring suburbs that were undergoing sustained disinvestment (Hackworth 2007).

In a very real way, therefore, as Williams et al (2005) show, the old inequality in home lending made the new inequality possible by creating geographic concentrations of underserved, unsophisticated consumers that unscrupulous mortgage brokers could easily target and efficiently exploit (see also Lee 1999; Hernández 2009). One study of subprime borrowers in Los Angeles, Oakland, Sacramento, and San Diego found that African Americans were significantly more likely than whites (40% versus 24%) to report lender marketing efforts as the impetus for taking out a home equity loan (California Reinvestment Committee 2001). In the end, subprime lending not only saddled borrowers with onerous terms and unforeseen risks, but also reinforced existing patterns of racial segregation and deepened the black-white wealth gap (Friedman and Squires 2005; Williams et al 2005; Bond and Williams 2007).

In the new regime of racial inequality, African American and Latino homeowners bore a disproportionate share of costs stemming from the bursting of the housing bubble. Compared to whites with similar credit profiles, down payment ratios, personal characteristics, and residential locations, African Americans were much more likely to receive subprime loans (Pennington-Cross et al 2000; Bocian et al 2006; Avery et al 2005, 2007). Moreover, after controlling for background factors, black and Hispanic homeowners were significantly more likely than whites to receive loans with unfavorable terms such as prepayment penalties (Farris and Richardson 2004; Squires 2004; Bocian et al 2006; Quercia et al 2007), higher cost ratios (Elliehausen et al 2008; LaCour-Little and Holmes 2008), and higher rate spreads (Bocian et al 2006). The racial gap in subprime lending holds across all income levels (Immergluck and Wiles 1999; Williams et al 2005; Bromley et al 2008) and, if anything, racial differentials in subprime lending appear to increase with income (Williams et al 2005, Institute on Race and Poverty 2009).

During the 1990s, in other words, the United States was increasingly characterized by a dual, racially segmented mortgage market, one that was structured both by the race of borrowers and the racial composition of neighborhoods (U.S. Department of Housing and Urban Development 2000; Stuart 2003; Apgar and Calder 2005). Controlling for neighborhood characteristics, the incidence of subprime lending was significantly greater among black and Hispanic borrowers (Calem et al 2004) as well as among people who had not gone to college (Manti et al 2004). As a result, from 1993 to 2000 the share of subprime mortgages going to households in minority neighborhoods rose from 2% to 18% (Williams et al 2005).

The rise of racially targeted subprime lending served to destabilize minority neighborhoods by increasing turnover (Gerardi and Willen 2008) and the destabilizing effects of subprime lending on homeownership did not remain confined to minority neighborhoods, but

spilled over into adjacent white and mixed neighborhoods (Schuetz, Been and Ellen 2008). National evidence from a longitudinal study of homeowners from 1999 to 2005 shows that the racial gap in the homeownership exit rates widened in a way that cannot be explained by social, economic, and financial factors that historically have accounted for black-white differentials (Turner and Smith 2009). The coincidence of the peak in subprime lending with the inexplicable decline in the stability of black home ownership and exit rates together offer compelling evidence that segregation and the new face of unequal lending combined to further undermine black residential stability and erode any accumulated wealth (Shapiro et al 2010).

Race and the Housing Bust

From the lender's perspective, the new system worked well as long as real estate and lending markets remained liquid and housing prices continued to rise, and for a while minority ownership rates rose and everyone involved in securitized lending made good money—the broker who originated the loan, the lender who put up the money, the firm that packaged and underwrote the mortgage-backed security, the rating agency that affirmed its creditworthiness, and the company that insured the investments through novel instruments known as credit default swaps. In order to keep the system in operation and profits rolling in, however, more borrowers constantly had to be found and housing prices need to continue rising. As the number of buyers increased and housing prices inflated, a speculative fever took hold (Shiller 2008; Andrews 2009). People began to finance home purchases on the assumption that home prices would rise indefinitely (Khandani et al 2009), buying properties with an interest-only loans, waiting for real estate prices to rise, and then "flipping" the properties to realize the capital gain. Research shows that minority-owned properties were more likely than others to be involved in loan flipping and equity stripping schemes (Immergluck and Wiles 1999).

As the market peaked after 2004, speculators, dubious lenders, negligent securities dealers, and compromised ratings firms increasingly focused on select few booming regional markets, such as Las Vegas, Phoenix, and South Florida, which appear to have played a large role in the final run-up in risky lending. At the height of the bubble, fraud may have been the rule rather than the exception. When Pendley et al (2007) analyzed a sample of delinquent subprime loans made in 2006, for example, they found the widespread "appearance of fraud or misrepresentation," with two-thirds of stated owner-occupied dwellings never actually being occupied and nearly half of all claims to first time ownerships not appearing to be valid. These findings suggest that the inflated housing bubble motivated sophisticated lenders, brokers, and buyers to engage in an unparalleled level of deceit.

As the market became fully saturated in 2006, housing prices ultimately stalled, foreclosures rose, and faith in mortgage backed securities evaporated, bringing down the entire system of collateralized debt obligations and taking much of the American economy with it (Shiller 2008; Khandani et al 2009). Ultimately, brokers, lenders, securitizers, and most of all, ratings agencies, failed to foresee the perils of "default correlation", or the interrelated risks bound up in interconnected portfolios of troubled loans (Langley 2009). The utter collapse of subprime lending exposed the extremes of a pricing regime that assessed risks individually but not collectively, not accounting for the aggregate risk of ever- increasing subprime lending and securitization. Whereas less than 1% of mortgage loans were in foreclosure at the end of 2005, the rate more than quadrupled to more than 4.6% by the end of 2009. At the same time, the foreclosure rate on riskier subprime loans went from 3.3% in 2005 to 15.6% in 2009 (Mortgage Bankers Association 2006, 2010).

The resulting tidal wave of foreclosures was concentrated in areas that only a few years earlier had been primary targets for the marketing of subprime loans (Bond and Williams 2007, Edmiston 2009) and minority neighborhoods often bore the brunt of the foreclosures (Bromley et al 2008; Márquez 2008; Mallach 2009; Immergluck 2008; Edmiston 2009; Hernández 2009, Institute on Race and Poverty 2009). In the end, the housing boom and the immense profits it generated frequently came at the expense of poor minorities living in central cities and inner suburbs who were targeted by specialized mortgage brokers and affiliates of national banks and subjected to discriminatory lending practices (Peterson 2007; Engel and McCoy 2008; Been et al 2009; Squires et al 2009; Powell 2010).

That predatory lending and subsequent asset stripping were structured on the basis of race as well as class is suggested by two additional lines of research. First, contrary to conventional wisdom, the housing crisis was not caused primarily by a decline in underwriting standards (Haughwout 2009; see also Khandani et al 2009). Bhardwaj and Sengupta (2009) show, for example, that average credit scores within the subprime loan sector actually increased in years prior to the housing bust and that most of the loans fell into the near-prime, low- or no-documentation "Alt-A" category rather than in more speculative B and C categories. Second, the crisis cannot be attributed to riskier lending engendered by the Community Reinvestment Act (CRA). Using a regression discontinuity design, Bhutta (2008) examined lending rates just below and above the CRA neighborhood income cutoff and found that whereas CRA oversight did increase lending in targeted areas, unregulated lending activity also increased substantially in the same places. Only 6% subprime loans were made to low income borrowers or those in neighborhoods subject to CRA oversight and fewer than 2% of loans originated by unregulated independent mortgage brokers were CRA credit-eligible (Bhutta and Canner 2009).

Thus, although lending standards often left much to be desired, it appears that it was ongoing racial segregation, discriminatory lending, and an overheated housing market that combined to leave minority group members uniquely vulnerable to the housing bust. As Immergluck (2009) wryly notes, financial literacy and creditworthiness did not suddenly plummet on the eve of the crisis—home prices did. At the same time, although CRA regulations did stimulate lending to minority households in lower-income, the increase was not nearly enough to bring about the housing crisis (Park 2008, Bhutta and Canner 2009).

Data Sources

From the above research, we conclude that residential segregation was significant in structuring how the rise of predatory lending and the consequent wave of foreclosures played out in U.S. housing markets (Stuart 2003; Williams et al 2005; Wyly et al 2006, 2009; Bond and Williams 2007; Engel and McCoy 2008; Hernández 2009). We hypothesize, first, that segregation facilitated racially targeted subprime mortgage lending during the boom and, second, that it magnified the consequences of the housing crisis for blacks and Latinos by concentrating foreclosures in poor minority neighborhoods during the bust. To test these assertions, we draw on two principal sources of data. Our dependent variables are defined from data we obtained from RealtyTrac, the nation's largest provider of foreclosure listings, from which we compute the number of properties with at least one foreclosure action in 2006, 2007, and 2008 in the nation's 100 largest metropolitan statistical areas and divisions (MSAs), as defined in 2003. We then divided this figure by the number of housing units in 2006 to derive a foreclosure rate.[2] Over 77% of all foreclosure properties were located in this set of MSAs during the period under consideration. This sample is especially useful for making inferences about minorities in the U.S.

[2] The RealtyTrac database did not include tabulations for foreclosures in the Grand Rapids-Wyoming, Michigan MSA, and it substituted the Charleston-North Charleston, South Carolina MSA instead.

because these 100 MSAs were home to over 75% of African Americans, nearly 80% of Hispanics, and 90% of Asians in 2000.

Our principal explanatory variables are measures of residential unevenness and spatial isolation for Hispanics, African Americans, and Asians computed across census tracts in the top 100 metropolitan areas (see Iceland, Weinberg, and Steinmetz 2002). Unevenness was measured using the well-known index of dissimilarity and isolation was measured using the P* within-group isolation index. The former gives the relative proportion of minority group members who would have to exchange tracts with majority group members to achieve an even residential distribution and the latter gives the proportion of own-group members in the tract inhabited by the average minority group member. Evenness and isolation are the two most important of the five dimensions of segregation identified by Massey and Denton (1988) and empirically account for most of the common variation (Massey, White, and Phua 1996).

Our analytic strategy is to regress the number and rate of foreclosures in MSAs on these two measures of segregation while holding constant the effect of metropolitan-level factors shown by prior research and theory to influence the odds of foreclosure. Our controls include standard census-based variables such as the 2008 MSA population and the racial and ethnic composition from 2000, as well as socioeconomic characteristics obtained from the 2005-2007 American Community Surveys, such as the percent of persons holding a college degree, median household income, percent of homeowners with a second mortgage, all defined as of 2006. We also include the median age of the MSA housing stock from the 2000 census of housing. From the Bureau of Labor Statistics we also obtained the 2006 unemployment rate and the 2000-2006 change in the rate of annual unemployment; and from Hirsch and MacPherson (2007) we obtained the share of the workforce that was unionized. In initial specifications of the model we

also tested for the effects of the poverty rate, the share of female headed households, and per capita income, but these variables added nothing to the explanatory power of the models and were dropped from further consideration. The final models also include dummy variables to control for region and costal location, and location along the Texas border with Mexico (the Rio Grande River).

In addition to these standard indicators, we included three specialized measures of conditions in metropolitan real estate markets that prior works have found to be important in explaining the foreclosure crisis. First, we constructed a measure of overbuilding by computing the ratio of 2000-2006 MSA housing starts to housing units in 2000, a procedure closely following that of Glaeser et al (2008). Second, we included the Wharton Residential Land Use Regulation Index as a measure of local land use planning regulation. This index was developed for different municipalities by Gyourko et al (2008) and following Rothwell and Massey (2009) we took the weighted average of the index for municipalities within each MSA that responded to Gyourko's survey. We then centered the distribution on the mean for the top 100 areas to yield a measure that controls for housing price premiums stemming from regulatory constraints on housing supply (Fischel 1990; Glaeser and Gyourko 2003, 2008; Glaeser et al 2008; Glaeser 2009). Finally, we also included a measure of the housing price boom in each MSA by using the Federal Housing Finance Agency's quarterly metropolitan area House Price Index (HPI), which is a weighted, repeat-sales index based on transactions involving single-family homes. We benchmarked the house price boom for each MSA by dividing annualized change in HPI from 2000 to 2006 by the annualized change in the two decades prior to 2000.

In addition to the foregoing indicators of economic conditions in metropolitan real estate markets, we also include MSA-level controls for the degree of subprime lending, the extent of

CRA regulatory oversight, and average creditworthiness of borrowers. To assess the prevalence of subprime lending we computed the aggregate share of all loans originated in 2004, 2005, and 2006 that were subprime, drawing on data from the Federal Financial Institutions Examination Council (www.ffiec.gov/hmda). The FFIEC tabulates information that lending institutions must provide to the federal government under the Home Mortgage Disclosure Act (HMDA). These data cover more than 28 million loans originated during the peak years of the housing boom. Over 6.9 million, or nearly one in four, were subprime loans, meaning that the interest rate at origination exceeded that for a comparable U.S. Treasury security (e.g. a 30-year bond) by 3% or more. The latter is the cutoff for reporting the loan in the data files (rates of lower priced loans are intentionally left blank in fields) and is the definition of subprime lending used in other research (e.g. Bocian et al 2006, Been et al 2009, Squires et al 2009).[3]

To measure the degree of regulatory oversight we also drew on 2004-2006 HMDA data and computed the weighted share (by dollar amount) of all 2004-2006 loans in each MSA that were originated by CRA-covered lending banking institutions (following Friedman and Squires 2005). In doing so, we use HMDA data on conventional loans (those not guaranteed by government) for the purchase of single-family properties (1-4 units) and took a 20% extract of the nearly 28 million mortgage loans originated in the top 100 metropolitan areas and computed the share of subprime loans going to borrowers. On average, less than two-thirds of total lending per MSA fell under the ambit of federal CRA regulation, but this share was noticeably lower, about half or less, in MSAs with elevated foreclosures such as Detroit, MI; Las Vegas, NV; and Bakersfield, CA, suggesting that greater CRA lending oversight acts to reduce foreclosures even

[3] The 2004 HMDA data are the first year that such subprime loan pricing data were made available. Comparing extremes in our data, about 40% of all 2004-2006 loans were subprime in the Detroit-Livonia-Dearborn, MI Metro Division and the Miami-Miami Beach-Kendall, FL Metro Division, but less than 10% in the San Francisco-San Mateo-Redwood City, CA Metro Division.

as it makes more loans available to minority group members (Friedman and Squires 2005, Bond and Williams 2007).

Finally, to control for the creditworthiness of borrowers we compute the average consumer credit score at the MSA level using information obtained from the Experian National Score Index®, which ranges from 672 to 720 for the top 100 MSAs and constitutes the mean FICO (Fair Isaac Corporation) credit score for all consumers living in all counties of each MSA whose credit behavior is reported to Experian, one of the nation's three major credit reporting bureaus. We expect that higher overall MSA credit scores will be associated with lower foreclosure rates because of the higher aggregate creditworthiness of borrowers, and by extension, mortgage holders. We include this variable to proxy for differences in credit history and access that co-vary with racial composition and segregation in order to mitigate omitted variables bias.

Means and standard deviations of the foregoing variables are presented in Table 1. In terms of our leading explanatory variable, levels of segregation are highest for African Americans and lowest for Asians with Hispanics in-between. The index of dissimilarity, for example, averaged 0.59 for blacks with a range plus or minus two standard deviations that went from 0.34 to 0.83. By convention, dissimilarities below 0.3 are considered low, those from 0.3 to 0.6 are considered moderate, and those above 0.6 are regarded as high, with anything above 0.75 being considered extremely high. By these criteria, black segregation runs from moderate to extremely high. In contrast, the comparable range for Asians was from 0.25 to 0.52 with a mean of 0.39 and that for Hispanics was 0.24 to 0.67 with a mean of 0.46. Thus Asians ranged from low to moderate and Hispanics from low to high.

Similar patterns prevail with respect to the isolation index. Whereas the black isolation index averaged 0.45 and ranged from 0.07 to 0.84 going from minus to plus two standard deviations, the Hispanic index averaged 0.32 and ranged was from zero to 0.75 while the Asian mean stood at a very low 0.14 and ranged from zero to 0.40. If segregation creates a natural niche for subprime lending, then the more extreme maxima and greater variability of black segregation measures hold by far the greatest potential to predict foreclosures, followed by Hispanic segregation measures. The generally low averages and restricted variation of isolation and dissimilarity among Asians alone suggest a more limited potential to influence inter-metropolitan variation in foreclosures.

The effect of segregation in creating fertile terrain for subprime lending depends not only on segregation, however, but also on a group's socioeconomic status. This generalization holds because segregation not only concentrates minority group members spatially within particular neighborhoods; it also concentrates any characteristic associated with minority group status (Massey and Denton 1993; Massey and Fischer 1999). For underprivileged minorities segregation spatially thus concentrates poverty and its correlates to create areas of concentrated disadvantage that constitute prime targets for subprime lending. For privileged minorities, however, segregation has the opposite effect—concentrating advantage and its correlates to produce areas that are unlikely targets for subprime lending. As of 2008, the poverty rate for Asians stood at 12%, compared with 25% among African Americans and 23% among Hispanics (DeNavas-Walt, Proctor, and Smith 2009). Likewise, the median per capita income for Asians was $30,000 compared with just $18,000 for African Americans and $16,000 for Hispanics. The Asian median income even exceeded that for non-Hispanic whites ($28,500). To the extent that segregation has an effect on the economic geography of Asians, therefore, it would be to

concentrate advantage and thus diminish the frequency of subprime lending and, hence, foreclosures.[4]

Effect of Segregation on Foreclosures

Despite the persistence of residential segregation and its prevalence in areas with large minority populations, racial segregation is no longer as universal across American urban areas as it once was. As indicated by the wide variance just described, there is now considerable variation across metropolitan areas in the degree of black and Hispanic segregation (Iceland, Weinberg, and Steinmetz 2002; Charles 2003; Massey, Rothwell, and Domina 2009). In addition to a small minority proportion, other characteristics that predict lower levels of residential segregation are a small urban population, a newer housing stock, the presence of a college or university, proximity to a military base, higher socioeconomic status, and location in the west or southwest (Farley and Frey 1994). Interurban differentials in Hispanic and black segregation thus carry the potential to contribute significantly to variation in foreclosure rates across U.S. metropolitan areas.

To assess the effect of segregation on foreclosures, we estimated a simple OLS multiple regression model defined by the equation:

$$F = \alpha + \beta_1 S + \beta_2 Z + \varepsilon \qquad (1)$$

where F represents either the log of the total number of foreclosure filings or the log of foreclosures per housing unit, α is the intercept, S is a vector of segregation measures with associated coefficients β_1 , and Z is a vector of control variables with associated coefficients β_2, and ε is the error term.[5] Table 2 presents estimates of equations that use dissimilarity and

[4] Asian Americans are also clustered in MSAs with either very high (coastal California, New York, Hawaii) or remarkably affordable (Texas) home prices that forestalled somewhat the rise of subprime lending.
[5] The error term was specified to be robust to heteroscedasticity using the "robust" option in Stata statistical software version 10.

isolation indices to predict the log of total foreclosures by MSA and Table 3 shows estimates that predict the log of the foreclosure rate by MSA.

In both tables the models fit the data extremely well, with the predictor variables explaining on average 77% of the variance in the log of the foreclosure rate and 90% of the variance in the logged absolute number of foreclosures. Moreover, coefficients for the segregation indices closely follow theoretical expectations. Whether measured in terms of residential dissimilarity or spatial isolation, the segregation of African Americans is a powerful and highly significant predictor of the number and rate of foreclosures across U.S. metropolitan areas. For instance, a 0.1 unit increase in black dissimilarity is associated with 37% more foreclosure actions and a 34% increase in the foreclosure rate. Inter-metropolitan variation in the segregation of Hispanics, does not consistently affect the rate and absolute number of foreclosures, however. As discussed in the next section, the effect of Hispanic segregation may be overwhelmed by the effect of black segregation. These statistical estimates are consistent with the findings of Been et al (2009) and Squires et al (2009).

In contrast, Asian Asian-white residential dissimilarity significantly *reduces* the number and rate of foreclosures across metropolitan areas, and spatial isolation also has a negative, though insignificant effect. Residential segregation acts to concentrate group characteristics in space, whatever they are. In the case of blacks, the prevailing characteristics are poverty and socioeconomic deprivation, but in the case of Asians they are affluence and socioeconomic privilege, given that Asian incomes exceed those of whites, on average. By concentration affluence, the segregation of Asians creates communities that are inherently resistant to the entreaties of subprime lenders—hence the negative relationship between Asian segregation and foreclosures.

The various control variables generally function as expected, thus lending face validity to the equation estimates. As predicted, foreclosures are positively predicted by greater housing start shares, higher rates of subprime lending, increasing unemployment, rising home prices, lower credit scores, more second mortgages, higher median incomes, greater levels of land use regulation, and location in the Midwest and West.[6] If we assume that the housing start ratio measures overbuilding and rising relative home prices capture the housing bubble, then our results are consistent with prior work on the economic causes of the U.S. foreclosure crisis (e.g. National Association of Realtors 2004; Glaser et al 2008; Haughwout et al 2008; Kochhar 2009; Immergluck 2009; Mayer et al 2009).

What our study adds to understanding of the foreclosure crisis is the important and independent role played by racial segregation in structuring the housing bust. Table 4 indicates the relative predictive power of segregation compared to other significant factors by reporting the standardized effect sizes evaluated at the sample mean of the foreclosure total and rate (in terms of number of foreclosures and percentage points, respectively). In the model using dissimilarity indexes, a standard deviation increase in the segregation of African Americans increases the number of foreclosures by 15,028 actions and the rate by 1.68 percentage points. This effect exceeds the effect of MSA home building and house price booms, and all other important explanatory variables. Changes in the proxy measures of economic conditions, land use restrictions, and overbuilding exert a considerably smaller impact on foreclosures, with absolute standard effect sizes just 40% to 56% of that for black segregation.

Again in the isolation model, one standard deviation in black segregation leads to a large change in foreclosures, 13,842, and the foreclosure rate, 1.58 percentage points. Standardized

[6] The share of lending made by CRA-covered banks is negative, as predicted, and is insignificant only in the presence of the subprime lending share since (the two variables are significantly negatively correlated, r=-0.31, p<0.01).

changes in the subprime lending share imply and increase of nearly 8,500 foreclosures and an even greater effect on foreclosure rates, at 1.1 percentage points. Relative changes in house prices and housing starts, average credit scores, and changes in unemployment rates imply an increase of 7,000 to 8,000 foreclosures and 0.8 to 0.9 percentage points in the foreclosure rate. While the effect size of Hispanic segregation in the dissimilarity model is not statistically distinguishable from zero, Hispanic isolation has a standardized effect of over 3,800 foreclosures and a 0.66 percentage point increase in the foreclosure rate.

Foreclosures and the Segregation-Subprime Link

Taking into account the distribution of effect sizes estimated in Table 4, we conclude that the influence of black residential segregation clearly exceeds that of other factors that earlier studies have linked inter-metropolitan variation in foreclosures, and that racial segregation thus represents an important and hitherto unappreciated contributing cause of the current foreclosure crisis. This conclusion rests, of course, on a cross-sectional ecological regression and thus may be subject to certain methodological criticisms. Since we are not seeking to infer individual behavior from aggregate data, ecological bias itself is not an issue—our argument is structural and specified at the metropolitan and not the individual level.

As with any cross-sectional analysis, however, endogeneity or reverse causality is a potential problem. In this case, it does not seem likely that foreclosures could reasonably cause segregation. Patterns of racial segregation are the cumulative product of decades of actions in the public and private sphere, and high levels of black segregation were well institutionalized in U.S. urban areas by the mid-20th century (Massey and Denton 1993). In addition, we measure segregation as of 2000 and foreclosures as of 2006-2008 so in the present instance the independent variable is temporally prior to the dependent variable.

A more serious threat to causal inference is endogeneity. Perhaps there is a third, unmeasured variable that influences both segregation and foreclosures to bring about the observed association between them. Although we have endeavored to apply a rather exhaustive set of controls it is simply not possible to control for all potential confounding variables. One possible confounding variable is the degree of anti-black prejudice and discrimination, which could well vary across metropolitan areas and simultaneously increase both segregation and the extent of racially targeted subprime lending, and thus the number and rate of foreclosures. Indeed, Galster (1986) and Galster and Keeney (1988) show that discrimination in lending had a strong effect on racial segregation across 40 MSAs in the 1970s and 1980s.

The relationship between segregation and foreclosures can be purged of endogeneity using two stage least squares, of course, but only if a suitable instrument is available. Since we argue here that segregation facilitates subprime lending to African Americans, we should be able use inter-metropolitan variation in the *size* of racial differentials in subprime lending to isolate the causal effect of segregation. Specifically, if our argument is correct, then intergroup differentials in subprime lending offer a suitable instrument to predict segregation in a two-stage least squares model of foreclosures. Although simple logic predicts a strong relationship between the overall prevalence of subprime lending and foreclosures, there is no a priori reason to believe that the black-white or Hispanic-white gap in the extent of subprime lending will affect these outcomes; but according to our argument it should clearly be causally related to the degree of black segregation.

In a preliminary examination of the data we indeed found that inter-metropolitan variation in the size of the racial gap in subprime lending was strongly correlated with segregation but uncorrelated with either the rate or number of foreclosures, confirming its

suitability as an instrument. According to Angrist and Krueger (2001:73), "a good instrument is correlated with the endogenous regressor for reasons the researcher can verify and explain, but uncorrelated with the outcome variable for reasons beyond its effect on the endogenous regressor." We computed intergroup differentials in subprime lending by metropolitan area using the combined HMDA data from 2004, 2005, and 2006 described earlier in the data sources section. If lending discrimination is greater in more segregated MSAs, then racial-ethnic differentials in subprime lending permit us to identify the causal effect of residential segregation on MSA foreclosure rates, enabling us to specify the following two-stage model:

$$S = \eta + \delta RACEDIFF + W\lambda + \nu \quad (2)$$

$$F = \alpha + (\eta + RACEDIFF\delta + W\lambda + \nu)\beta_1 + Z\,\beta_2 + \varepsilon. \quad (3)$$

In this system, equation (2) expresses the first-stage relationship between segregation, *S*, and *RACEDIFF*, the black-white or Hispanic-white gap in the likelihood of obtaining a subprime loan in 2006. In this equation, δ is the coefficient associated with this variable, W is a vector of controls including percent black, percent Hispanic, and percent Asian, λ is a vector of coefficients associated with these variables, and ν is the error term. Equation (3) simply substitutes the value of segregation predicted from this first-stage equation into equation (1) to yield a second-stage equation that expresses foreclosures as a function of the segregation instrument plus the variables in Z; β_1 and β_2 are then re-estimated in the second-stage equation, along with ε.

In order to generate a more refined measure of lending discrimination to use as our instrument, we estimated black-white and Hispanic-white differentials in the likelihood of receiving a subprime loan after adjusting for borrower and neighborhood characteristics reported in the HMDA data. That is, using an extract of 5,360,007 HMDA loan-level records with non-

missing data we predicted *RACEDIFF* for each MSA using a probit model where the dependent variable was dichotomous indicator equal to one if the loan was flagged as subprime in the data by a non-missing interest rate greater than or equal to 3%. The probit model expressed the likelihood of receiving a subprime loan as a function of the type (home purchase, refinance, or improvement) and amount of the loan, borrower income, first or second lien status, , occupancy (investor or owner), type of loan purchaser (government agency, private, bank, finance company, lender affiliate, or other independent entity), the median tract income and tract-to-MSA ratio, the ratio of total tract single family units to population, and the tract minority percentage.

We also merged the following extended control variables to the foregoing data computed from the HMDA data: the tract population density in persons per square mile, the median of age of the tract housing stock, and the MSA-level average credit score index described previously. The probit estimation clustered the errors at the MSA level. Avery et al (2005) have shown HMDA data file variables explain nearly half (48%) of the black-white gap in subprime lending whereas credit factors such as FICO scores, loan-to-value ratios, and interest rate type account only for an additional one-sixth (17%) of the observed gap. Although we recognize the limitations of ecological data at the tract and MSA-level, we believe our proxies for credit factors in the probit equation adequately reduce potential bias in our estimates.

For each MSA, we averaged the group likelihood of receiving a subprime loan for 2004-2006 by summing the predicted probability by race and ethnicity across all loans and then dividing by the total number of loans to each borrower race/ethnic group (i.e., non-Hispanic white, non-Hispanic black, and Hispanic). We then calculated the black-minus-white and Hispanic-minus-white differences in regression-adjusted predicted subprime lending probabilities for each and every one of the 100 MSAs. The black-white differential had a mean

of 11.8% (s.d. 4.3%) and ranged from 2.3% to 24.0%; the Hispanic-white differential was also always positive, with a mean of 8.1% (s.d. 3.8%) and a range of 1.4% to 17.5%. We merged these two differential variables to the main data file.

We used the regression-adjusted black-white and Hispanic-white differentials in subprime lending by MSA to predict the segregation instrument inserted into the second stage equation. In Table 5 we report OLS and 2SLS estimates of the effect of black and Hispanic segregation on the rate of foreclosures for the top 100 MSAs, excluding Honolulu, HI as we have in our main analysis. Again, the model includes the same covariates as in Table 1 except log of population, the level of unemployment, the Rio Grande border dummy, and the age of the housing stock.[7]

As can be seen, the estimated OLS coefficient in the first column for black segregation is highly significant and at 3.84 comparable to that in our initial model (see Table 2), suggesting that a 0.10-point rise in black segregation is associated with a 38% increase in the foreclosure rate. In contrast, the instrumental variable estimate of the coefficient is 4.64. This coefficient is estimated quite precisely and attains significance at the 0.001 level. Its higher point estimate implies that a 0.10-point increase in black segregation is associated with a 46%increase in the foreclosure rate. While this effect is not statistically different from the OLS effect due to overlapping confidence intervals, its higher value offers more evidence that segregation indeed has a causal effect on the MSA foreclosure rate by producing racial differentials in subprime lending.

The test statistics for endogeneity indicate that the racial differential instrument is indeed exogenous, a conclusion that is corroborated by the fact that it is uncorrelated with the residuals of the reduced form model in equation (3). The percent of the MSA population that is black has

[7] Additionally, in the Hispanic segregation models, black segregation is omitted.

no impact whatsoever on our segregation estimates and a much smaller offsetting impact on the rate of foreclosures. This auxiliary finding underscores our contention that racial concentration in space, and not race alone, is a significant structural cause of the current foreclosure crisis.

Likewise, the coefficient for Hispanic segregation is initially insignificant with a coefficient of 0.81 when estimated using OLS but using indirect least squares the value rises to 1.12, which is nearly statistically significant (p=0.15 using a two-tailed test and p=0.08 under a one-tailed test). A 0.10-point increase in Hispanic dissimilarity is estimated to have a result in a 11% increase under IV estimation, indicating that unexplained Hispanic-white differences in subprime loan usage begin to augment our understanding of the effect of Latino segregation on metropolitan-level foreclosures. [8] We note also that the OLS and IV models yield similar coefficient estimates for the effect of economic trends, housing market conditions, land use regulation, region, and other controls, suggesting that segregation contributes to explaining variation in the foreclosure rate above and beyond the standard indicators heretofore employed in analytic models.

Conclusion

The foregoing analyses provide strong empirical support for the hypothesis that residential segregation constitutes an important contributing cause of the current foreclosure crisis, that its effect is independent of other economic causes of the crisis, and that its explanatory power exceeds that of other factors hitherto identified as key causes, such as

[8] To estimate the potential effects of Hispanic segregation, we have undertaken a separate analysis among the nation's largest state, California, where Hispanics are numerous and blacks are much fewer. In our analysis of California foreclosures at the city- and county-level that control for a much more extensive array of loan underwriting factors such as weighted loan-to-value ratios, average credit scores, and interest rates and matched city-level home price trends, we have estimated a significant, robust effect of Hispanic segregation. Thus, notwithstanding the incredible boom and bust in places like the Central Valley and Inland Empire, the residential segregation of Latinos matters a great deal to local differences in foreclosure trends. These results support our proposition about the primacy of segregation in structuring the foreclosure crisis, and do not bode well for housing market fortunes of the Hispanics, who became the largest minority group during the housing boom.

overbuilding, excessive subprime lending, housing price inflation, and the failure of lenders adequately to evaluate the creditworthiness of borrowers. Simply put, the greater the degree of Hispanic and especially black segregation a metropolitan area exhibits, the higher the number and rate of foreclosures it experiences; and neither the number nor the rate of foreclosures is in any way related to expanded lending to minority home owners as a result of the Community Reinvestment Act.

The confluence of low interest rates, unparalleled levels of equity extraction via refinancing, and the bust of the housing bubble may have combined with overbuilding and lax regulation to make the foreclosure crisis possible (Glaeser 2009; Khandani et al 2009). However, we have added a crucial addition to our understanding of both the causes and the consequences of the foreclosure crisis by demonstrating the key role of residential segregation in shaping how the crisis played out. By concentrating foreclosures in metropolitan areas with large racial differentials in subprime lending, segregation structured the causes of the crisis, as well as the geographic and social *distribution* of its costs, on the basis of race. Thus segregation both racialized and intensified the consequences of the American housing bubble. Hispanic and black home owners, not to mention entire Hispanic and black neighborhoods, ended up bearing the brunt of the foreclosure crisis and this outcome was not simply a result of neutral market forces, but was structured on the basis of race and ethnicity though the social fact of residential segregation.

Ultimately, this racialization of America's foreclosure crisis occurred because of a systematic failure to enforce basic civil rights laws in the United States. Discriminatory subprime lending is simply the latest in a long line of illegal practices that have been foisted on minorities in the United States (Satter 2009), and is all the more shocking because it was well-

known and documented long before the housing bubble burst (e.g., U.S. Department of Housing and Urban Development 2000; Stuart 2003; Squires 2004; Williams et al 2005). In addition to tighter regulation of lending, rating, and securitization practices, therefore, greater civil rights enforcement has an important role to play in cleaning up American markets.

It is thus very much in the interest of the nation that federal authorities take stronger and more energetic steps to rid U.S. real estate and lending markets of discrimination, not simply to promote a more integrated and just society but to avoid future catastrophic financial losses. Racial discrimination is easily detected through a methodology known as the audit study, in which trained testers identifiable as black or white are sent into markets to seek out proffered goods and services. What happens to black and white testers over a number of trials is compiled and compared to discern systematic differences in treatment (Yinger 1986; Fix and Struyk 1993). Numerous audit studies have been done to document the persistence of anti-black discrimination not only in markets for real estate (Yinger 1995; Zhao, Ondrich, and Yinger 2006) and credit (Squires 1994; Ross and Yinger 2002), but also in markets for jobs (Turner, Fix, and Struyk 1991; Bertrand and Mullainathan 2004; Pager 2007), goods (Ayers and Siegelman 1995), and services (Ridley, Bayton, and Outtuz 1989; Feagin and Sikes 1994). Nonetheless, the discrimination continues.

A key goal in expanding civil rights enforcement should therefore be to create federal programs to monitor levels of discrimination in key U.S. markets and take remedial action on a routine basis. If a society uses markets to allocate production, distribute goods and services, generate wealth, and produce income, then it is incumbent upon government to ensure that all citizens have the right to compete freely in all markets (Massey 2005b). In a market society,

lack of access to markets translates directly into a lack of equal access to material well-being and ultimately into socioeconomic inequality (Massey 2007).

Unfortunately, in order to secure passage of the Civil Rights Acts of 1964, 1968, 1974, and 1977 and avoid a southern filibuster, most of the enforcement mechanisms included in the original legislation were stripped away and the federal government was largely prohibited from playing an active role either in uncovering discrimination or instigating actions to sanction those who practice it. The existing body of civil rights law thus needs to be updated to establish within the U.S. Departments of Treasury, Labor, Commerce, and Housing and Urban Development permanent offices authorized to conduct regular audits in markets for jobs, goods, services, credit, and housing based on representative samples of market providers, both for purposes of enforcement and to measure progress in the elimination of discrimination from American markets.

Table 1. Summary Statistics for Data Used in Analysis of Foreclosures in Top 100 MSAs.

Variables	Mean	Standard Deviation
Outcome Measures		
Foreclosures 2006-2008	33,633	38,710
Foreclosure Rate (per 100)	4.10	3.03
Index of Dissimilarity		
African Americans	0.587	0.121
Hispanics	0.455	0.108
Asians	0.385	0.068
P* Isolation Index		
African Americans	0.453	0.193
Hispanics	0.317	0.215
Asians	0.137	0.133
Control Variables		
Ratio of 2000-2006 Housing Starts to 2000 Units	0.12	0.07
Wharton Land Use Regulation Index	0.00	0.76
Relative Change in Housing Price Index (HPI) after 2000	4.07	2.53
% Subprime Loans, HMDA (2004-2006)	24.23	5.82
% Loans Made by CRA-covered Lenders (2004-2006)	64.73	6.80
Experian MSA Credit Score Index	691.6	14.26
Population (2008)	1,891,540	1,787,775
% Persons 25+ with College Degree (2006)	29.47	6.78
% African American (2000)	13.59	9.62
% Hispanic (2000)	13.29	15.87
% Asian (2000)	4.83	7.29
Median Household Income (2006)	54,697	10,821
% Homeowners with Second Mortgage (2006)	7.35	2.15
% Workforce Unionized (2006)	12.08	6.59
Unemployment Rate (2006)	4.60	1.02
Change in Unemployment Rate 2000-2006	0.76	1.03
Median Age of Housing Stock, Years (2000)	31.31	9.37
Region		
Northeast	0.23	0.42
Midwest	0.18	0.39
South	0.37	0.49
West	0.22	0.42
Costal MSA	0.38	0.49
Borders Rio Grande	0.02	0.14
N=100		

Note: See text for data sources.

Table 2. OLS Estimates of Effect of Selected Measures of Residential Segregation on Log of Total Foreclosures

	Dissimilarity Index		Isolation Index	
Variables	B	SE	B	SE
Index of Segregation				
African Americans	3.72***	0.72	2.12***	0.62
Hispanics	-0.77	0.60	0.08	0.66
Asians	-2.08**	0.92	-2.16	1.64
Control Variables				
Housing Starts Ratio	2.98***	0.96	3.07***	1.08
Wharton Land Use Index	0.25***	0.08	0.27***	0.10
Change in Housing Price Index	0.08***	0.02	0.09***	0.03
CRA-covered Lending Share	-1.30	0.91	-0.81	1.06
Subprime Loan Share	3.02**	1.35	4.31***	1.58
MSA Credit Score Index	-0.02**	0.01	-0.02**	0.01
Log of Population	1.01***	0.09	1.01***	0.09
% with College Degree	-1.34	1.31	-1.00	1.46
Log Median Household Income	0.25	0.51	0.34	0.51
% with Second Mortgage	0.75	3.69	0.22	4.35
% Workforce Unionized	-0.03***	0.01	-0.02**	0.01
Unemployment Rate	-0.01	0.06	0.01	0.07
Change in Unemployment Rate	0.25***	0.05	0.21***	0.06
Age of Housing Stock	0.004	0.01	0.01	0.01
Region				
Midwest	0.43**	0.20	0.63***	0.20
South	0.04	0.26	0.08	0.30
West	0.46	0.38	0.68	0.44
Coastal MSA	-0.05	0.12	0.07	0.13
Borders Rio Grande	-1.03***	0.37	-1.05***	0.38
Constant	1.96	7.56	0.98	8.15
R^2	0.91		0.90	
N	99		99	
Joint F-Test for Region	3.35**		7.97***	
Joint F-Test for Segregation	10.48***		6.28***	

Note: Robust standard errors. Model also includes % Black, % Hispanic, and % Asian.

* $p<.10$, two-tailed test.

** $p<.05$, two-tailed test.

*** $p<.01$, two-tailed test.

Table 3. OLS Estimates of Effect of Selected Measures of Residential Segregation on the Log of the Foreclosure Rate

	Dissimilarity Index		Isolation Index	
Variables	B	SE	B	SE
Index of Segregation				
African Americans	3.41***	0.72	1.99***	0.60
Hispanics	-0.69	0.58	0.07	0.64
Asians	-1.76*	0.91	-1.57	1.56
Control Variables				
Housing Starts Ratio	2.87***	0.95	2.97***	1.03
Wharton Land Use Index	0.24***	0.08	0.26***	0.09
Change in Housing Price Index	0.07***	0.02	0.07***	0.03
CRA-covered Lending Share	-1.32	0.90	-0.85	1.02
Subprime Loan Share	2.88**	1.34	4.56***	1.55
MSA Credit Score Index	-0.01*	0.01	-0.01**	0.01
Log of Population	0.01	0.09	0.01	0.09
% with College Degree	-1.74	1.29	-1.42	1.41
Log Median Household Income	0.75	0.49	0.86*	0.50
% with Second Mortgage	1.47	3.64	0.70	4.19
% Workforce Unionized	-0.03**	0.01	-0.02**	0.01
Unemployment Rate	0.02	0.06	0.03	0.07
Change in Unemployment Rate	0.22***	0.05	0.20***	0.06
Age of Housing Stock	0.003	0.01	0.01	0.01
Region				
Midwest	0.41**	0.19	0.58***	0.19
South	0.03	0.25	0.07	0.29
West	0.45	0.37	0.66	0.42
Coastal MSA	-0.08	0.12	0.02	0.13
Borders Rio Grande	-1.04**	0.39	-1.04**	0.39
Constant	1.12	7.44	0.10	8.01
R^2	0.78		0.76	
N	99		99	
Joint F-Test for Region	3.17**		7.44***	
Joint F-Test for Segregation	8.71***		5.62***	

Note: Robust standard errors. Model also includes % Black, % Hispanic, and % Asian.

* $p<.10$, two-tailed test.

** $p<.05$, two-tailed test.

*** $p<.01$, two-tailed test.

Table 4. Effect of a One Standard Deviation Increase in Selected Variables on the Number and Rate of Foreclosures.

Effect of 1 SD Increase in:	Number of Foreclosures (Mean: 33,947)	Foreclosure Rate (Mean: 4.1%)
Dissimilarity Model		
Black Dissimilarity Index	15,028	1.68
Hispanic Dissimilarity Index	n.s.	n.s.
Asian Dissimilarity Index	-4,830	-0.50
Housing Starts Ratio	7,392	0.87
Wharton Land Use Index	6,208	0.71
Ratio of post- to pre-2000 HPI	7,094	0.76
Subprime Loan Share	5,944	0.87
MSA Credit Score Index	-7,301	-0.82
Change in Unemployment Rate	8,383	0.93
Isolation Model		
Black Isolation Index	13,842	1.58
Hispanic Isolation Index	n.s.	n.s.
Asian Isolation Index	n.s.	n.s.
Housing Starts Ratio	7,615	0.90
Wharton Land Use Index	6,767	0.78
Ratio of post- to pre-2000 HPI	7,939	0.84
Subprime Loan Share	8,477	1.09
MSA Credit Score Index	-7,817	-0.88
Change in Unemployment Rate	7,276	0.83

N=99

Note: Effect on foreclosure rate shown in percentage points.

Table 5. Estimates of the Effect of Residential Segregation on Log of 2006-2008 Foreclosure Rate via Black-white and Hispanic-White Adjusted Differentials in the Likelihood of Obtaining a Subprime Loan in 2004-2006.

	Black Segregation				***Hispanic Segregation***			
	OLS		IV		OLS		IV	
	B	SE	B	SE	B	SE	B	SE
Dissimilarity Index								
African Americans	3.84***	0.63	4.64***	0.89				
Hispanics					0.81	0.66	1.12†	0.79
Selected Control Variables								
Housing Starts Ratio	2.58***	0.77	2.73***	0.71	1.87**	0.94	1.90**	0.83
Ratio of pre- to post-2000 HPI	0.09***	0.02	0.08***	0.02	0.10***	0.03	0.10***	0.03
Wharton Land Use Index	0.22**	0.08	0.23***	0.08	0.18**	0.09	0.18**	0.08
Subprime Loan Share, 2004-06	2.57*	1.40	2.09††	1.29	4.89**	1.89	4.96***	1.65
MSA Credit Score Index	-0.015**	0.007	-0.015***	0.006	-0.014*	0.008	-0.014*	0.007
Change in Unemployment Rate	0.24***	0.04	0.25***	0.04	0.20***	0.06	0.20***	0.05
% Black, 2000	-1.65**	0.69	-1.83***	0.60	-0.80	0.91	-0.88	0.81
% Hispanic, 2000	-0.75	0.54	-0.64	0.49	-1.31	0.74	-1.44**	0.70
% College Degree, 2006	-1.96*	1.16	-2.27**	1.15	-0.48	1.70	-0.45	1.52
Region								
Midwest	0.39**	0.19	0.30*	0.15	0.81***	0.21	0.84***	0.20
South	-0.07	0.22	-0.01	0.19	0.01	0.29	0.06	0.28
West	0.50	0.33	0.53*	0.29	0.38	0.40	0.42	0.37
R^2	0.77		0.76		0.65		0.65	
F	27.40				10.65			
Wald χ^2			534.72				257.27	
[F, 2SLS 1st stage]			[38.89]				[27.08]	
Tests of Endogeneity (Null: Instrument is Exogenous)								
Robust χ^2 (p-value)			1.18 (0.27)				0.45 (0.50)	
Robust F (p-value)			0.99 (0.32)				0.35 (0.56)	
Covariance (Instrument, ε_{IV})			-0.00001				-0.0041	
N	99		99		99		99	

Ordinary Least Squares (OLS) and Indirect Least Squares or Instrumental Variables (IV) estimates with robust standard errors. Additional covariates included in model but not shown here are listed in Table 2 excluding log of 2008 population, 2006 unemployment rate, borders Rio Grande, age of housing stock. See text for detailed description of adjusted racial and ethnic differences in subprime lending instrument.

† p=.15, two-tailed test.
†† p=.11, two-tailed test.
* p<.10, two-tailed test.
** p<.05, two-tailed test.
*** p<.01, two-tailed test.

References

Andrews, Edmund L. 2009. *Busted: Life Inside the Great Mortgage Meltdown*. New York: W.W. Norton.

Angrist, Joshua D., and Alan B. Krueger. 2001. "Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments." *Journal of Economic Perspectives* 15:69-85.

Apgar, William, and Allegra Calder. 2005. "The Dual Mortgage Market: The Persistence of Discrimination in Mortgage Lending," in *Geography of Opportunity: Race and Housing Choice in Metropolitan America*, De Souza Briggs, Xavier, ed. Washington, DC: Brookings Institution Press.

Avery, Robert B., Glenn B. Canner, and Robert E. Cook. 2005. "New Information Reported Under HMDA and Its Implication in Fair Lending Enforcement," *Federal Reserve Bulletin* 91:344-394.

Avery, Robert B., Kenneth P. Brevoort, and Glenn B. Canner. 2007. "The 2006 HMDA Data," *Federal Reserve Bulletin* 93:73-109.

_____. 2008. "The 2007 HMDA Data." *Federal Reserve Bulletin* 94:107-146

Ayres, Ian, and Peter Siegelman. 1995. "Race and Gender Discrimination in Bargaining for a New Car." *American Economic Review* 85:304-21

Been, Vicki, Ingrid Ellen, and Josiah Madar. 2009. "The High Cost of Segregation: Exploring Racial Disparities In High-Cost Lending," *Fordham Urban Law Journal* 36:361-393.

Bertrand, Marriane, and Sendhil Mullainathan. 2004. "Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination." *American Economic Review* 94:991-1013.

Bhardwaj, Geetesh, and Rajdeep Sengupta. 2009. "Where's the Smoking Gun? A Study of Underwriting Standards for US Subprime Mortgages" Federal Reserve Bank of St. Louis Working Paper 2008-036C (Revised October 2009). Accessed online: http://research.stlouisfed.org/wp/2008/2008-036.pdf

Bhutta, Neil. 2008. "Giving Credit where Credit is Due? The Community Reinvestment Act and Mortgage Lending in Lower-Income Neighborhoods," Finance and Economics Discussion

Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board, Washington, D.C. Working Paper 2008-61 (November, 2008).

Bhutta, Neil, and Glenn B. Canner. 2009. “Did the CRA cause the mortgage market meltdown?” *Community Dividend* (Federal Reserve Bank of Minneapolis, March 2009). Accessed online: http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=4136

Bocian, Debbie, Keith Ernst and Wei Li. 2006. “Unfair Lending: The Effect of Race and Ethnicity on the Price of Subprime Mortgages.” Center for Responsible Lending (May 31, 2006). Accessed online: http://www.responsiblelending.org/mortgage-lending/research-analysis/rr011-Unfair_Lending-0506.pdf

Bond, Carolyn, and Richard Williams. 2007. “Residential Segregation and the Transformation of Home Mortgage Lending,” *Social Forces* 86(2):671-698.

Bromley, Charles, Jim Campen, Saara Nafici, Adam Rust, Geoff Smith, Kevin Stein, and Barbara van Kerkhove. 2008. “Paying More for the American Dream: The Subprime Shakeout and Its Impact on Lower-Income and Minority Communities,” A joint report by the California Reinvestment Coalition, Community Reinvestment Association of North Carolina, Empire Justice Center, Massachusetts Affordable Housing Alliance, Neighborhood Economic Development Advocacy Project, Ohio Fair Lending Coalition, Woodstock Institute. March 2008.

Calem, Paul S., Jonathan E. Hershaff, and Susan M. Wachter. 2004. “Neighborhood Patterns of Subprime Lending: Evidence from Disparate Cities,” *Housing Policy Debate* 15(3):603-622.

California Reinvestment Committee, Stolen Wealth: Disparities in California’s Subprime Lending Market. San Francisco: California Reinvestment Committee, November 29, 2001. Accessed online: http://www.calreinvest.org/system/assets/16.pdf

Charles, Camille Zubrinsky. 2003. “The Dynamics of Racial Residential Segregation,” *Annual Review of Sociology* 29(1):167-207.

Denton Nancy A., and Douglas S. Massey. 1989. “Racial identity among Caribbean Hispanics: The Effect of Double Minority Status on Residential Segregation.” American Sociological Review 54(5):790–808.

DeNavas-Walt, Carmen, Bernadette D. Proctor, and Jessica C. Smith. 2009. "Income, Poverty, and Health Insurance Coverage in the United States: 2008." U.S. Census Bureau, Current

Population Reports P60-236(RV). Washington, DC: U.S. Government Printing Office. Accessed online: http://www.census.gov/prod/2009pubs/p60-236.pdf

Doms, Mark, Fred Furlong, and John Krainer, "Subprime Mortgage Delinquency Rates." Federal Reserve Bank of San Francisco, Working Paper 2007-33, November 2007.

Dymski, Gary A. 2002. "U.S. Housing as Capital Accumulation: The Transformation of American Housing Finance, Households, and Communities," in *Seeking Shelter on the Pacific Rim: Financial Globalization, Social Change, and the Housing Market*, Dymski, Gary A. and Dorene Isenberg, eds. Armonk, NY: M.E. Sharpe.

Dymski, Gary A., and John M. Veitch. 1992. "Race and the Financial Dynamics of Urban Growth: L.A. as Fay Wray," in *City of Angels*, Riposa, Gerry, and Carolyn G. Dersch, eds. Dubuque, IA: Kendall/Hunt.

Edmiston, Kelly D. 2009. "Characteristics of High-Foreclosure Neighborhoods in the Tenth District." *Federal Reserve Bank of Kansas City Economic Review* (2nd Quarter 2009):51-75.

Elliehausen, Gregory, Michael E. Staten, and Jevgenijs Steinbuks. 2008. "The Effect of Prepayment Penalties on the Pricing of Subprime Mortgages," *Journal of Business and Economics* 60(1–2):33–46.

Engel, Kathleen C., and Patricia A. McCoy. 2007. "Turning a Blind Eye: Wall Street Finance of Predatory Lending," *Fordham Law Review* (73):2039-2103.

_____. 2008. "From Credit Denial to Predatory Lending: The Challenge of Sustaining Minority Homeownership," in Carr, James H., and Nandinee K. Kutty, eds. *Segregation: The Rising Costs for America.* New York and London: Routledge.

Farley, Reynolds, and William H. Frey. 1994. "Changes in the Segregation of Whites from Blacks during the 1980s: Small Steps Toward a More Integrated Society," *American Sociological Review* 59(1): 23-45.

Farris, John, and Christopher A. Richardson. 2004. "The Geography of Subprime Mortgage Prepayment Penalty Patterns," *Housing Policy Debate* 15(3):687-714.

Feagin, Joe R., and Melvin P. Sikes. 1994. *Living With Racism: The Black Middle-Class Experience*. Boston: Beacon Press.

Fischel, William. 1990. “Do Growth Controls Matter? A Review of Empirical Evidence on the Effectiveness and Efficiency of Local Government Land Use Regulation,” *Lincoln Institute of Land Policy Working Paper Series 87*(9) 1-66.

Fix, Michael, and Raymond J. Struyk. 1993. *Clear and Convincing Evidence: Measurement of Discrimination in America*. Washington, DC: Urban Institute Press.

Frey, William H., Kao-Lee Liaw, Richard Wright, and Michael J. White. 2005. “Migration within the United States: Role of Race-Ethnicity,” *Brookings-Wharton Papers on Urban Affairs* (2005):207-262. <http://www.jstor.org/stable/25067420>

Friedman, Samantha, and Gregory D. Squires. 2005. “Does the Community Reinvestment Act Help Minorities Access Traditionally Inaccessible Neighborhoods?” *Social Problems* 52(2): 209–231.

Galster, George C. 1986. “More Than Skin Deep: The Effects of Housing Discrimination on the Extent and Pattern of Racial Residential Segregation in the United States,” in *Housing Discrimination and Federal Policy*, John M. Goering, ed. Chapel Hill: University of North Carolina.

Galster, George C. and W. Mark Keeney. 1988. “Race, Residence, Discrimination, and Economic Opportunity: Modeling the Nexus of Urban Racial Phenomena,” *Urban Affairs Quarterly* 24(1):87-117.

Gerardi, Kristopher S., Adam Hale Shapiro, and Paul S. Willen. 2009. “Decomposing the Foreclosure Crisis: House Price Depreciation versus Bad Underwriting,” Federal Reserve Bank of Atlanta, Working Paper 2009-25. Accessed online: http://www.frbatlanta.org/filelegacydocs/wp0925.pdf

Gerardi, Kristopher S., and Paul S. Willen. 2008. “Subprime Mortgages, Foreclosures, and Urban Neighborhoods,” Federal Reserve Bank of Boston, Public Policy Discussion Paper 2008-06. Accessed online: http://www.bos.frb.org/economic/ppdp/2008/ppdp0806.pdf

Glaeser, Edward L. 2009. “Foreclosing the Crisis,” *The New Republic* (February 4, 2009). Accessed online: http://www.tnr.com/article/books/foreclosing-the-crisis

Glaeser, Edward L. and Joseph Gyourko. 2003. “The Impact of Building Restrictions on Housing Affordability,” *Federal Reserve Bank of New York Economic Policy Review 9*(2): 21-39.

_____. 2008. *Rethinking Federal Housing Policy*. Washington, DC: American Enterprise Institute Press.

Glaeser, Edward L., Joseph Gyourko, and Albert Saiz. 2008. "Housing Supply and Housing Bubbles," *Journal of Urban Economics* 64:198-217.

Gyourko, Joseph, Anita Summers, and Albert Saiz. 2008. "A New Measure of the Local Regulatory Environment for Housing Markets," *Urban Studies* 45(3):693-729.

Hackworth, Jason R. 2007. *The Neoliberal City*. Ithaca, NY: Cornell University Press.

Hanlon, Bernadette. 2010. *Once the American Dream: Inner-Ring Suburbs of the Metropolitan United States*. Philadelphia: Temple University Press.

Haughwout, Andrew, Richard Peach, and Joseph Tracy. 2008. "Juvenile Delinquent Mortgages: Bad Credit or Bad Economy?" *Journal of Urban Economics* 64: 246-257.

Hernández, Jesus. 2009. "Redlining Revisited: Mortgage Lending Patterns in Sacramento 1930–2004," *International Journal of Urban and Regional Research* 33(2): 291-313.

Hirsch, Barry T., and David A. MacPherson. 2007. "Metropolitan Area: Union Membership, Coverage, Density, and Employment by Metropolitan Area and Sector, 1986-2006," Unionstats.com: Union Membership and Coverage Database from the CPS [electronic file].

Holloway, Steven R. 1998. "Exploring the Neighborhood Contingency of Race Discrimination in Mortgage Lending in Columbus, Ohio," *Annals of the Association of American Geographers* 88(2):252-276.

Iceland, John, Daniel H. Weinberg, and Erika Steinmetz. 2002. *Racial and Ethnic Residential Segregation in the United States, 1980-2000.* U.S. Census Bureau, Special Report Series, CENSR-3. Washington, DC: U.S. Government Printing Office. Accessed online: http://www.census.gov/hhes/www/housing/housing_patterns/pdf/censr-3.pdf

Immergluck, Dan. 2008. "From the subprime to the exotic: Excessive mortgage market risk and implications for metropolitan communities and neighborhoods." *Journal of the American Planning Association* 74:59-76.

_____. 2009. *Foreclosed: High-risk Lending, Deregulation, and the Undermining of America's Mortgage Market*. Ithaca: Cornell University Press.

Immergluck, Dan, and Marti Wiles. 1999. *Two Steps Back: The Dual Mortgage Market, Predatory Lending, and the Undoing of Community Development.* Chicago: Woodstock Institute.

Institute on Race and Poverty. 2009. *Communities in Crisis: Race and Mortgage Lending in the Twin Cities.* University of Minnesota Law School (February 11, 2009). Accessed online: http://www.irpumn.org/uls/resources/projects/IRP_mortgage_study_Feb._11th.pdf

Khandani, Amir E., Lo, Andrew W. and Merton, Robert C. 2009. "Systemic Risk and the Refinancing Ratchet Effect," (September 13, 2009). MIT Sloan Research Paper No. 4750-09; Harvard Business School Finance Working Paper No. 1472892. Accessed online: http://web.mit.edu/alo/www/Papers/refi9.pdf

Kochhar, Rakesh, Ana Gonzalez-Barrera, and Daniel Dockterman. "Through Boom and Bust: Minorities, Immigrants and Homeownership," Pew Hispanic Center, Washington, D.C. (May 12, 2009). Accessed online: http://pewhispanic.org/files/reports/109.pdf

Langley, Paul. 2008. "Sub-prime Mortgage Lending: A Cultural Economy," *Economy and Society* 37(4):469-494.

_____. 2009. "Debt, Discipline, and Government: Foreclosure and Forbearance in the Subprime Mortgage Crisis," *Environment and Planning A* 41:1404-1419.

LaCour-Little, Michael, and Cynthia Holmes. 2008. "Prepayment Penalties in Residential Mortgage Contracts: A Cost-Benefit Analysis," *Housing Policy Debate* (19)4: 631-673.

Mallach, Alan. 2009. "Addressing Ohio's Foreclosure Crisis: Taking the Next Steps," *Brookings Institution Metropolitan Policy Program Papers Series*, no. 6 (June 5, 2009).

Manti, Michael, Paul Raca, and Peter Zorn. 2004. "Subprime Lending: An Investigation of Economic Efficiency," *Housing Policy Debate* 15(3):533-571.

Márquez, Mercedes. 2008. "Models of Vacant Property Disposition: Los Angeles Housing Department," presentation given at the Federal Reserve Board Symposium, "Confronting the Neighborhood Impacts of Foreclosure," on October 20, 2008. Washington, DC.

Massey, Douglas S. 2004. "Segregation and Stratification: A Biosocial Perspective." *The DuBois Review: Social Science Research on Race* 1:1-19

_____. 2005a. "Racial Discrimination in Housing: A Moving Target." *Social Problems* 52(2):148-151.

_____. 2005b. *Return of the L-Word: A Liberal Vision for the New Century*. Princeton: Princeton University Press.

_____. 2007. *Categorically Unequal: The American Stratification System*. New York: Russell Sage Foundation.

_____. 2009. "Racial Formation in Theory and Practice: The Case of Mexicans in the United States." *Race and Social Problems* 1:12-26.

Massey, Douglas S., and Brooks Bitterman. 1985. "Explaining the Paradox of Puerto Rican Segregation." *Social Forces* 64(2):307-331.

Massey, Douglas S., and Nancy A. Denton. 1988. "The Dimensions of Residential Segregation." *Social Forces* 67:281-315.

_____. 1992. "Racial Identity and the Segregation of Mexicans in the United States." *Social Science Research* 21:235-60

_____. 1993. *American Apartheid: Segregation and the Making of the Underclass.* Cambridge: Harvard University Press.

Massey, Douglas S., and Mary J. Fischer. 1999. "Does Rising Income Bring Integration? New Results for Blacks, Hispanics, and Asians in 1990," *Social Science Research* 28(3):316-326.

_____. 2000. "How Segregation Concentrates Poverty." *Ethnic and Racial Studies* 23:670-91.

Massey, Douglas S., Jonathan Rothwell, and Thurston Domina. 2009. "Changing Bases of Segregation in the United States." *Annals of the American Academy of Political and Social Science* 626:74-90.

Massey, Douglas S., Michael J. White, and Voon-Chin Phua. 1996. "The Dimensions of Segregation Revisited." *Sociological Methods and Research* 25(2):172-206.

Mayer, Christopher, Karen Pence, and Shane M. Sherlund. 2009. "The Rise in Mortgage Defaults," *Journal of Economic Perspectives* 23(1):27-50.

Mortgage Bankers Assocation. 2006. "Residential Mortgage Delinquencies Increase, According to MBA National Delinquency Survey [NDS]," Press Release – NDS (March 16, 2006). Accessed online: http://www.mortgagebankers.org/NewsandMedia/PressCenter/40245.htm

Mortgage Bankers Assocation. 2010. "Delinquencies, Foreclosure Starts Fall in Latest MBA National Delinquency Survey [NDS]," Press Release – NDS (February 19, 2010). Accessed online: http://www.mortgagebankers.org/NewsandMedia/PressCenter/71891.htm

National Association of Realtors, Research Division. 2004. "Rising Foreclosure Rates in Indiana: An Explanatory Analysis of Contributing Factors." Accessed online: http://www.mibor.com/_pdfs/ForeclosureStudy2004.pdf

Oliver, Melvin L. and Thomas M. Shapiro. 2006. *Black Wealth/White Wealth: A New Perspective on Racial Inequality.*" 2nd ed. New York and London: Routledge.

Pager, Devah. 2007. *Marked: Race, Crime, and Finding Work in an Era of Mass Incarceration*. Chicago: University of Chicago Press.

Park, Kevin. 2008. "Subprime Lending and the Community Reinvestment Act," Joint Center for Housing Studies at Harvard University (November, 2008).

Pendley, M. Diane, Glenn Costello, and Mary Kelsch. 2007. "The Impact of Poor Underwriting Practices and Fraud in Subprime RMBS Performance," Fitch Ratings Structured Finance U.S. Mortgage Special Report (November 28, 2007). Accessed online: http://www.fitchratings.com/creditdesk/reports/report_frame.cfm?rpt_id=356624

Pennington-Cross, Anthony, Anthony Yezer, and Joseph Nichols. 2000. "Credit Risk and Mortgage Lending: Who Uses Subprime and Why?" Research Institute for Housing America Working Paper 00-03.

Peterson, Christopher L. 2007. "Predatory Structured Finance," *Cardozo Law Review 28*(5):2185-2282.

Powell, Michael. 2010. "Blacks in Memphis Lose Decades of Economic Gains," *The New York Times* (May 30, 2010): page A1. Accessed online: http://www.nytimes.com/2010/05/31/business/economy/31memphis.html

Quercia, Roberto G., Michael A. Stegman, and Walter R. Davis. 2007. "The Impact of Predatory Loan Terms on Subprime Foreclosures: The Special Case of Prepayment Penalties and Balloon Payments," *Housing Policy Debate* 18(2):311–46.

Raynes, Sylvain, and Ann Rutledge. 2003. *The Analysis of Structured Securities Precise Risk Measurement and Capital Allocation*. Oxford and New York: Oxford University Press.

Renuart, Elizabeth. 2004. “An Overview of the Predatory Lending Mortgage Lending Process,” *Housing Policy Debate* 15(3):467-502.

Ridley, Stanley E., James A. Bayton, and Janice H. Outtz. 1989. “Taxi Service in the District of Columbia: Is it Influenced by Patron’s Race and Destination?” Paper prepared for the Washington, D.C., Lawyer’s Committee for Civil Rights Under the Law.

Ross, Stephen L., and John Yinger. 2002. *The Color of Credit: Mortgage Discrimination, Research Methodology, and Fair-lending Enforcement.* Cambridge, MA and London: MIT Press.

Ross, Stephen L. and Margery A. Turner. 2005. “Housing Discrimination in Metropolitan America: Explaining Changes between 1989 and 2000.” *Social Problems* 52(2):152–80.

Rothwell, Jonathan, and Douglas S. Massey. 2009. “The Effect of Density Zoning on Racial Segregation in U.S. Urban Areas,” *Urban Affairs Review* 44(6):779-806.

Satter, Beryl. 2009. *Race, Real Estate and the Exploitation of Black Urban America*. New York: Metropolitan Books.

Schuetz. Jenny, Vicki Breen, and Ingrid Gould Ellen. 2008. “Neighborhood Effects of Concentrated Mortgage Foreclosures.” *Journal of Housing Economics* 17:306-19.

Shapiro, Thomas M., Tatjana Meschede, and Laura Sullivan. 2010. “The Racial Wealth Gap Increases Fourfold,” Institute on Assets and Social Policy Research and Policy Brief (May 2010). Accessed online: http://iasp.brandeis.edu/pdfs/Racial-Wealth-Gap-Brief.pdf

Shiller, Robert J. 2008. *The Subprime Solution: How Today's Global Financial Crisis Happened, and What to Do about It.* Princeton, NJ: Princeton University Press.

Sowell, Thomas. 2009. *The Housing Boom and Bust*. New York: Basic Books.

Squires, Gregory D. 1994. *Capital and Communities in Black and White: The Intersections of Race, Class, and Uneven Development*. Albany: State University of New York Press.

_____., ed. 2004. *Why the Poor Pay More.* Westport, CT: Praeger.

Squires, Gregory D., Derek S. Hyra, and Robert N. Renner. 2009.“Segregation and the Subprime Lending Crisis,” Paper presented at the 2009 Federal Reserve System Community Affairs

Research Conference, April 16, 2009. June 11, 2009 version accessed online: http://www.kansascityfed.org/carc2009/pdf/carc2009%20Hyra%20paper.pdf

Stuart, Guy. 2003. *Discriminating Risk: The U.S. Mortgage Lending Industry in the Twentieth Century*. Ithaca, NY: Cornell University Press.

Sullivan, Teresa A., Elizabeth Warren, and Jay Lawrence Westbrook. 2000. *The Fragile Middle Class: Americans in Debt*. New Haven, CT: Yale University Press.

Turner, Margery A., Michael Fix, and Raymond J. Struyk. 1991. *Opportunities Denied, Opportunities Diminished: Racial Discrimination in Hiring*. Washington, DC: Urban Institute Press.

U.S. Department of Housing and Urban Development (HUD), Unequal Burden: Income and Racial Disparities in Subprime Lending in America (April 2000). Available at: http://www.huduser.org/publications/fairhsg/unequal.html

Williams, Richard., Reynold Nesiba and Eileen Diaz McConnell. 2005. "The Changing Face of Inequality in Home Mortgage Lending." *Social Problems* 52(2):181-208.

Wilkes, Rima and John Iceland. 2004. "Hypersegregation in the Twenty-First Century: An Update and Analysis." *Demography* 41(1):23-36.

Wyly, Elvin K., Mona Atia, Holly Foxcroft, Daniel J. Hamme, Kelly Phillips-Watts. 2006. "American Home: Predatory Mortgage Capital and Neighbourhood Spaces of Race and Class Exploitation in the United States" *Geografiska Annaler* 88:105-132.

Wyly, Elvin, Markus Moos, Daniel Hammel, and Emanuel Kabahizi. 2009. "Cartographies of Race and Class: Mapping the Class-Monopoly Rents of American Subprime Mortgage Capital," *International Journal of Urban and Regional Research* 33(2):332-354.

Yinger, John. 1986. "Measuring Racial Discrimination with Fair Housing Audits: Caught in the Act." *American Economic Review* 76:991-93.

_____. 1995. Closed Doors, Opportunities Lost: The Continuing Costs of Housing Discrimination. New York: Russell Sage.

Zhao, Bo, Jan Ondrich, and John Yinger. 2006. "Why Do Real Estate Brokers Continue to Discriminate? Evidence from the 2000 Housing Discrimination Study." *Journal of Urban Economics* 59:394-419.

II. THE PERSISTENCE OF INEQUALITY IN MORTGAGE LENDING AND FORECLOSURE IN NEW YORK CITY: SOCIAL FORCES AND THE EFFECT OF LOAN MODIFICATION

Racial and Ethnic Disparities in Mortgage Lending in Perspective

Among the 1.8 million loans originated in New York City since 1989, only 16% were to black borrowers and 9%, to Hispanic borrowers. However, among the nearly 12,000 borrowers in mortgage distress in New York City analyzed here, 55% of borrowers are black and 23% are Hispanic. By contrast, while 44% of all loans made in the past 20 years were to white borrowers, whites make up only 12% of counseling and legal aid clients; Asian borrowers received 11% of all loans and make up 7% of borrowers in distress. These stunning figures illustrate how the foreclosure crisis has dealt an especially severe blow to black and Latino borrowers and communities.

Recent research has shown that racial residential segregation structured both the causes and consequences of the U.S. mortgage crisis, enabling the targeting of high-cost loans to borrowers and communities of color and making them bear a disproportionate share of the cost of foreclosures (Been, Ellen and Madar 2009; Rugh and Massey 2010; Squires, Hyra, and Renner 2009; Williams, Nesiba and McConnell 2005). At the same time, the boom in high-cost and high-risk lending undermined residential stability within minority communities (Bond and Williams 2007; Gerardi and Willen 2008).

The foreclosure crisis has evolved beyond subprime lending to encompass all types of loans and borrowers (Engel and McCoy 2011; Abel and Tracy 2012). The twin forces of job loss and negative equity have trapped millions of homeowners in their homes, unable to sell or refinance, or instead have forced them from their homes by way of foreclosure. Yet black and Latino borrowers continue to experience far higher foreclosure rates that cannot be accounted for

by differences in income (Bocian, Li, and Ernst 2010) or underwriting criteria (Jayasundera et al. 2010; Jiang, Nelson, and Vytlacil 2010). Most importantly, after controlling for borrower and loan characteristics, the socioeconomic and racial makeup of the surrounding neighborhood significantly raises the risk of foreclosure (Chan et al. 2010).

I argue here that borrowers in minority neighborhoods of segregated cities are more likely to default and face foreclosure because of ecological and structural factors that transcend individual differences in economic status. Research suggests that subprime loans are disproportionately targeted to predominantly black communities and as refinance loans to black and elderly homeowners. While not all subprime loans are predatory, most predatory loans are targeted to consumers underserved by traditional prime lenders (An and Bostic 2009; Goldstein 1999; Renuart 2004). One key foundation of the analysis is the proposition that predatory lending tends to be targeted at vulnerable borrowers with existing home equity based on income, race, or age (Goldstein 1999; Howell 2006). The expected effect of subprime refinance should thus be to increase the odds of adverse loan outcomes, particularly in predominantly black communities.

This study provides one of the most comprehensive controlled estimates of the multiple forces that affect loan origination, performance, and modification using a single framework. I combine information from a variety of sources, including borrower survey responses, data on counseling and legal interventions, federal disclosure of borrower and loan characteristics, state pre-foreclosure filings, local property administrative records, and a unique new database of over 154,000 privately securitized loans originated in New York City from three of the largest banks and trustees— Wells Fargo, Citigroup, and U.S. Bank, as well as SEC filings of nonprime mortgage-backed securities (see Appendix Table A2). This paper analyzes a data set of all

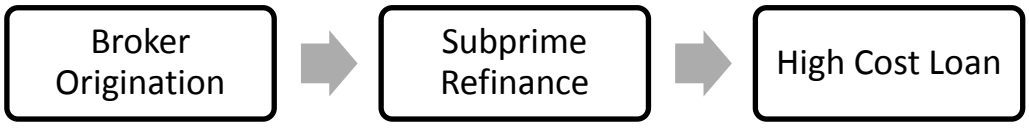
borrowers who have ever received housing or legal counseling services from 28 different providers in all five New York City boroughs from early 2008 through 2010 provided through a grant from the Center for New York City Neighborhoods (CNYCN). These data include extensive borrower and counselor responses on borrower demographics, loan type, delinquency status, servicer provision types, and loan modification outcomes.

By focusing on the sample of CNYCN borrowers in mortgage distress, this study sheds light on the set of homeowners at greatest risk of default or already in greatest need of effective interventions. It attempts to understand disparities in default, foreclosure, and modification across individuals and neighborhoods by examining the interaction of home price declines, credit characteristics, job loss, borrower self-reported characteristics, and socioeconomic and demographic traits in the social context of New York City, which remains of the most highly segregated cities for blacks and Latinos (Charles 2003; Logan and Stults 2012). I seek to understand how racial and ethnic disparities are generated and how they persist.

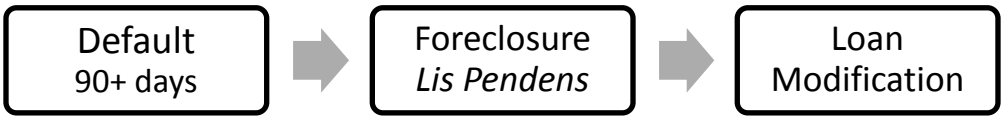
The remainder of this article is organized into the following sections. First, I outline the six key outcomes of interest that organize the rest of the analysis—broker origination, subprime refinance lending, high cost loan receipt, mortgage default, foreclosure, and loan modification. I compare and contrast the first three outcomes in the CNYCN data to all borrowers in New York City. Second, I offer summary statistics on these outcomes by the race of borrowers and the racial and ethnic makeup of neighborhoods. Third, I describe the data sources combined here, the original research hypotheses, and the logistic regression model used to estimate the six outcomes of interest. Fourth, I report detailed results across the origination and performance outcomes and summarize results of separate re-estimation of time-varying performance outcomes post-intake. Finally, I conclude and discuss implications for research and policy.

Brief Description of Key Outcomes of Interest

In my analysis I conduct several multivariate logistic regression analyses that estimate how different credit, economic, and demographic characteristics of borrowers and the neighborhoods in which they live change their odds of experiencing six key outcomes across loan origination, performance, and renegotiation. The first three outcomes, at the stage of origination, are listed here:



Broker origination is measured using the Home Mortgage Disclosure Act (HMDA) Reporter Panel of HUD lenders augmented by matched administrative data indicating broker origination; subprime lenders, identified using the HUD subprime lender list; high cost loans, from the HMDA report of rate spreads and spreads calculated using U.S. Treasury maturities data for low cost loans and loans originated before 2004. Disparities across these outcomes are measured and then incorporated into an analysis of the following loan performance outcomes:



I argue that disparities in loan origination may endure to generate disparities in default, foreclosure, and loan modification, even when black and Latino borrowers and neighborhoods are compared to white and Asian counterparts facing similar types mortgage distress.

I offer a brief comparison and contrast of loans to borrowers in the CNYCN data to the universe of all borrower loans originated in New York City from HMDA data. Table 1 compares the incidence of the three primary loan origination outcomes among primary loans in the CNYCN database and all first lien loans originated in New York City as recorded in the Loan Application

Register from 2004 to 20008. High cost rate spreads are available in the HMDA data for these years and approximately 85% of the loans to borrowers in the CNYCN database were originated during the same period.

The comparison reveals two important findings. First, as expected, the prevalence of broker originated loans, subprime lender refinance loans, and high cost loans is higher among borrowers in the CNYCN sample. Second, important differences emerge between borrowers of different races. Among CNYCN borrowers, Black and Hispanic borrowers are roughly 1.5 times more likely to experience these outcomes compared to white and Asian borrowers; among all New York City borrowers, they are about twice as likely.

The CNYCN loan origination outcomes for black borrowers are the most representative of all borrowers of the same race in New York, especially in the case of broker origination. For white and Asian borrowers, the differences in subprime refinance and high cost lending between the CNYCN sample and the universe of all HMDA borrowers is stark. The experience of white and Asian borrowers in the CNYCN database is closer to that of blacks and Hispanics and the disparities in terms of income and mortgage distress are attenuated compared to all borrowers in New York City. Given that more affluent borrowers are likely to be white and to have avoided mortgage distress owing to higher incomes and better neighborhood housing markets, the estimates of racial and ethnic disparities in mortgage distress reported here represent a conservative estimate of disparities among all New York City borrowers.

Map Exhibits 1 and 2 illustrate compares the spatial pattern of broker and high cost lending among all New York City borrowers with the distribution among CNYCN clients and their residential location. The geographic distribution shows how disparities in lending lead to

the concentration of foreclosures. (Figures for zip codes with fewer than 10 CNYCN clients are not displayed).

Outcomes by Race of Borrower and Racial and Ethnic Neighborhood Composition

The observed, unadjusted outcomes in the CNYCN database across all six outcomes of interest are found in Tables 2 through Tables 4. Broker origination, subprime refinance, and high cost lending have already been described. Mortgage default is defined as being at least 90 days delinquent at any point in time after origination. Foreclosure is defined as having receiving a *Lis Pendens* filing at any point in time after loan origination. Both outcomes are measured both using client responses, but also verified and supplemented using updates from the New York City Property Register, private mortgage-backed securities dynamic investor loan data, and corresponding matched pre-foreclosure filings from the New York State Banking Department.[9] Loan modification is defined conditional on request. About half of all CNYCN borrowers requested a loan modification and a quarter of that segment received a modification.

Table 2 shows that broker, subprime refinance, and high cost lending are associated with elevated levels of default and foreclosure. Differences in the incidence of broker and subprime lending between Asians, Latinos, and whites along with remarkably similar levels of default across groups as shown in Table 2 suggest that other factors play a role in predicting loan performance. Default and foreclosure rates are especially higher among black borrowers, and whether this disparity is driven by individual or neighborhood differences, or both, remains an empirical question. The observed differences in loan modification by race are minimal, consistent with previous research (Collins and Reid 2011).

[9] Deliquencies among these borrowers could be cured and I take up that issue in a later section re-estimating loan peformance after intake into housing counseling and legal services.

Table 3 shows the strong upward trend in adverse loan origination and loan performance outcomes as the percentage black in the census tract increases. While just over 1 in 5 borrowers in tracts that are less than 20% black are in foreclosure, that figure rises to 1 in 3 in tracts that are 80%+ black.

Map Exhibit 3 shows the clear link between the segregation of blacks in New York City by census tract and the ensuing concentration of foreclosure filings in predominantly black neighborhoods. All of the zip codes with elevated foreclosure filings in New York City are comprised of majority black census tracts. As Map Exhibit 4 shows, the mostly black neighborhoods of Bushwick, East New York, Jamaica, Springfield Gardens, and Wakefield are centers of concentrated foreclosures.

Table 4 illustrates the correspondence of increasing shares of Hispanic tract residents with adverse loan origination outcomes. For CNYCN borrowers that live in tracts that are 60%-100% Hispanic, rates of high cost lending and default are higher. Borrowers in these areas appear less likely to obtain a requested loan modification. I test whether this remains the case when controlling for other factors in the analysis that follows. Further cross tabulations of the six outcomes of interest with New York City Borough, top 10 subprime lenders and prime lenders, and top 10 loan servicers of CNYCN loans may be found in the Appendix.

Data and Hypotheses

In order to conduct a rigorous test of the effects of racial, ethnic, and socioeconomic disparities in mortgage lending and default and alternate explanations, I have merged various data sources and analyzed them jointly. These data include the following sources (number of borrower loans in parentheses; see Appendix Figure A1 for a detailed diagram of the overlap of these sources):

(1) The original CNYCN data file (n=11,934) and valid CNYCN records to be matched (n=9,160)

(2) Matched borrower and loan data from the HMDA Loan Application Register (LAR) file (n=6,706)

(3) Lender type from the HMDA Reporter Panel and HUD subprime lender list (n=11,510)

(4) Matched records from a review of loan origination and loan performance details based on loan assignment filings from the New York City Register of Deeds online ACRIS database (n=2,230)

(5) Matched loan underwriting, performance, and modification data from collateral files of privately securitized in mortgage-backed securities (n=2,661)

(6) Matched loan delinquency updates from April 2010 to February 2011 from the New York State Banking Department data provided by the Center for NYC Neighborhoods (n=1,618)

(7) Merged tract and zip code data from Public Data Corporation on *Lis Pendens* filings by tract generously provided by CNYCN, and data from the Census Bureau, Zillow.com (n=9,341)

Among the 9,160 records with enough data on the year of origination, zip code, and amount to match, 80% were matched to any of the loan-level sources, 73% were matched to HDMA LAR records, and an estimated 62% of privately securitized loans with valid data were matched to corresponding MBS deals and loans. (Appendix Figure A2 and A3 lists these match rates by year of loan origination.)

The two specific hypotheses I set forth to formally test are listed here:

Hypothesis #1: Although increased loan defaults are predicted by borrower and loan attributes, broker–originated lending mediates the influence of these factors on loan performance,

particularly as they interact with the race and ethnicity of the borrower and the racial/ethnic makeup of the neighborhood.

Hypothesis #2: Variations in foreclosure prevention outcomes, such as loan modification, are structured not only by the characteristics of the loan product, but also by the types of counseling services offered; and the race and ethnicity of the borrower and the racial and ethnic makeup of the neighborhood interact with these mediating variables through cumulative impact of the targeting of deceptive and high cost lending to minority communities.

Methods and Explanatory Variables

In order to test the effect of varying individual, market, and social forces, I have estimated logistic regression equations for the six outcomes of interest and report the odds ratios in the tables below. From the existing literature and the particular circumstances and features of the CNYCN data set, I have included a variety of variables as controls in these models of loan outcomes from three categories: (1) loan characteristics (2) borrower income and demographics; and (3) zip code and census tract criteria.

Loan Characteristics

The first set of variables concern loan type, loan underwriting, loan purpose, and property and lender characteristics. I include indicators of broker origination to measure the effect of risky lending on loan performance. Before the foreclosure crisis unfolded a large body of scholarship demonstrated that private securitization encouraged deceptive and predatory subprime lending (e.g., Alexander 2002; Eggert 2002; Engel and McCoy 2007; Peterson 2007). Recent findings confirm the lasting adverse effects of third party origination and securitization on loan performance (Coulton et al. 2008; Jiang, Nelson, and Vytlacil 2010; Jayasundera et al. 2010) and loan modification (e.g., Agarwal et al. 2010). I also include indicators for adjustable rate

mortgage (ARM) loans and interest only and negative amortization loans that previous studies have reported to significantly explain mortgage default (e.g., Chan et al. 2010; Ding et al. 2011; Pennington-Cross and Ho 2010). Likewise, I measure key underwriting variables that previous scholarship has shown to be significant, such as the real interest rate spread (e.g., Chan et al. 2010; Gilderbloom, Ambrosius and Squires 2011), FICO scores (virtually all previous studies confirm varying levels of predictive power), an indicator for low or no documentation loans (Danis and Pennington-Cross 2007; Haughwout, Peach, and Tracy 2008; Bajari, Chu, and Park 2008), the loan amount (while controlling for income at origination to approximate front-end debt-to-income ratios), an indicator for combined loan-to-value ratio (CLTV) equal to 100% (Eulul 2010; Pennington-Cross and Ho 2010). I also control for year of loan origination compared to loans originated before 2004.

In addition, I include two indicators for the presence of a second mortgage or home equity loan—whether its original balance exceeds or falls below $100,000. In the CNYCN original data file, approximately 24% of borrowers reported a second lien mortgage or home equity loan, but matching with other data sources revealed that at least 44% of borrowers actually had a second loan. I expect that larger second liens will significantly increase the odds of foreclosure and default.

I also include an indicator for loans that are used to refinance an existing loan. The relationship between subprime lending and segregation will depend on the share of loans used for purchase versus refinance or home equity extraction. Subprime mortgage loans were pioneered as refinance loans and the forerunner to later home equity loans and lines of credit that by definition do not facilitate the purchase of new homes directly. Upwards of 70 percent of subprime loans from 2000 to 2007 were refinance loans (Bhardwaj and Sengupta2009). Among

matched CNYCN data, 65 percent of subprime lender loans were refinance loans; and this share ranges from 56% in tracts that are 20%-40% black to 69% in tracts that are 80%-100% black. Moreover, among loans originated by one of the top subprime lenders to clients in CNYCN counseling, Delta Funding Corporation, 94 percent were for refinance and 91 percent were made to black and Latino borrowers (see Appendix Table A3).

Compared to Latinos and Asians, blacks and whites are significantly more likely to possess a refinance rather than a purchase loan.[10] Whereas whites are likely to use refinance to transition to a lower interest rate, given their access to mainstream bank lending, blacks living in segregated financially underserved neighborhoods provided an easy target for profitable subprime lending by unscrupulous brokers. Although not all subprime loans are predatory, most are targeted to consumers underserved by traditional prime lenders who have existing home equity (An and Bostic 2009; Goldstein 1999; Renuart 2004; Goldstein 1999; Howell 2006). Thus the expected effect of refinance should be to increase the odds of adverse loan outcomes, particularly in predominantly black communities (Gilderbloom, Ambrosius and Squires 2011).

Among CNYCN borrowers in the sample examined here, refinance loans were disproportionately originated in predominantly black census tracts. This pattern follows the logic of predatory lending I have just outlined but is also supported by the data on originations to all borrowers in New York City from 1990 to 2009. As Map Exhibit 6 demonstrates, the majority of loans originated in mostly black census tracts are refinance loans. Moreover, in this sample

[10] According to a pooled tabulation of the 2004, 2005, and 2006 data on all mortgage originations in the United States disseminated under the HMDA LAR file, across the top 100 metro areas on average 47 percent of black borrowers refinanced an existing mortgage loan, compared to only 38 percent of Latino borrowers. This difference is highly statistically significant difference ($p<0.001$) and holds across all regions. In New York City, from 1990 through 2009, 46% of black borrowers obtained a refinance loan, compared to 38% of Latinos, also a highly statistically significant difference ($p<0.001$). Only in Queen was the difference insignificant (41% for blacks and 41% for Latinos). Thus, refinance and equity loans were widespread among all groups, but may have been targeted disproportionately to black borrowers with relatively more established equity compared to Latino borrowers according to the logic of predatory lending.

roughly 4 in 5 refinance loans were cash-out refinance loans that may have helped struggling borrowers get by, but left them with less equity in their home and more vulnerable to foreclosure. Exhibit 6 shows that these cash-out refinance loans were also disproportionately originated in communities of color as a result of lender targeting and marketing (Engel and McCoy 2011; Morgenson and Rosner 2011; Rugh and Massey 2010).

For similar reasons, I include indicators for condominium and coop ownership and anticipate that this indicator should lower the odds of foreclosure given increased owner economic resources and location in Manhattan (see Appendix Table A2), as well as because subprime brokers were less able to reach such dwelling units to leave flyers and make sales pitches. I also include indicators for investor ownership and expect that such owners may be more likely to default (Gilderbloom, Ambrosius and Squires 2011; Kauet al. 2010), or less likely (Meyer et al. 2009), and less likely to seek and receive a loan modification.

Borrower Income and Demographics

I include measures of borrower characteristics, such as income levels, race and ethnicity (to supplement missing or withheld CNYCN responses), gender, marital status, age, and self-rated English-speaking ability. Numerous studies have examined the influence of income and race/ethnicity jointly and concluded that minority status, particularly whether the borrower is black, significantly raises the risk of adverse loan pricing, terms, and loan performance (see Been et al. 2009; Bocian, Li, and Ernst 2008; Stuart 2003; U.S. Department of Housing and Urban Development 2000).

Using data on household income at intake from the CNYCN data file and income at origination disclosed in the HMDA Loan Application Register file, I calculate and include a more precise measure of change in income than used in previous studies. The income differences

are based on changes in borrower (or borrower and co-borrower) income at origination relative to household income reported at intake. I adduce the difference by simply subtracting nominal intake income from nominal income at origination. For 90% of borrowers, fewer than six years have passed, with a median passage of time of three years. The median income lost among all CNYCN borrowers was $45,000, with a mean just over $51,000.

Census Tract and Zip Code Characteristics

Incipient scholarship has reported that the disproportionate share of high cost subprime mortgage loans that are made to minorities in black and Latino neighborhoods cannot be explained by differences in income, education, and property values (Apgar and Calder 2005; Been et al. 2009; Calem et al. 2004; DeLoughy 2010; Hernández 2009; Holloway 1998; Immergluck and Wiles 1999; Institute on Race and Poverty 2009; Squires et al. 2009; Stuart 2003; U.S. Department of Housing and Urban Development 2000). To test the effects of these ecological factors on the six loan outcomes, I merged data from the U.S. Census Bureau to measure the racial and ethnic composition of the census tract of the borrower, along with the tract's median household income, poverty rate, educational (college) attainment level, and the percent foreign born (from the three largest regions of birth, Asia, Africa, and the Caribbean).

In addition to demographic data, I included two measures of house price appreciation and deprecation using data from Zillow.com. The first is a measure of the percentage change in the Zillow Home Value Index from 1996 to the peak for each zip code (which varies from 2005-2008 in New York City). A growing body of research clearly demonstrates that rising house prices were inextricably tied to the proliferation of subprime mortgages (Gorton 2008, 2010; Bhardwaj and Sengupta 2010; Pavlov and Wachter 2011) and subprime securitization (Nadauld and Sherlund 2009). I anticipate that rising prices will lead to greater subprime lending. I also

included data on the zip code decline in the Zillow home value index since the peak in home values, measured as of November 2011. This measure is intended to gauge the effect of house price depreciation and negative equity on borrower default (e.g., Bhutta, Dokko, and Shan 2010).[11]

To measure the effect of default and foreclosure contagion on the likelihood of default and foreclosure documented in New York City by Chan et al. (2010), I calculated the average annual filing rate of *Lis Pendens* foreclosure notices on 1 to 4 family properties in the tract for 2008-2010, using the total number of owner-occupied homes as the denominator to avoid measuring the presence of large shares of rental units that may deflate this rate.

The six outcomes are estimated in the model prior to counseling and legal intervention and the last three outcomes—default, foreclosure, and modification—are then re-estimated using measures post-intake (e.g. foreclosure action filed for the first time only after the time of intake). These post-intake re-estimations are summarized in a later section.

Results: Determinants of Loan Origination Outcomes

The odds ratio results of the logistic regression estimations of broker origination, subprime refinance, and high cost lending are reported in Table 5. The estimated models predict between 62% and 83% of these three key outcomes correctly. At least three important findings emerge across all outcomes.

First, the model and the matching of administrative and self-reported data are validated by the strongly significant effects of loan underwriting criteria on subprime lending and loan pricing. The effect of FICO scores is especially strong, as borrowers with the lowest FICO scores were up to 12 times more likely to experience the adverse loan origination outcomes. Given borrower income, larger loan amounts (higher debt ratios) also implied higher likelihood of

[11] The results using other zip code measures of home price change are largely similar and available upon request.

broker and subprime origination, as well as high cost rate spreads. Low or no documentation loans were 56% more likely to have an interest rate spread more than 3% above the high cost cutoff. As explicated earlier, the cascading effect of broker origination is accounted for in the second two outcomes, and raises the likelihood of high cost lending alone by 16%. Accounting for broker origination demonstrates that the racial disparities among borrowers and neighborhoods persisted among other types of lenders (e.g., bank subsidiaries) and was not confined to broker lenders.

Second, the effects of borrower income both confirm initial hypotheses and previous findings, but also include a pair of surprising results. Compared to borrowers with incomes above $150,000 at origination (and controlling for the loan amount as noted above), borrowers of lower incomes are significantly more likely to use brokers and subprime lenders to refinance an existing loan. Perhaps unexpectedly, however, borrowers with incomes above $100,000 were the most likely to receive high cost loans, net of other factors. This may reflect the fact that subprime lending increased steadily over time and exploded across all types of borrowers and neighborhoods during the housing boom; thus rising incomes and rising subprime lending may well have gone hand-in-hand, with the rises in house prices (with price gains outstripping rising income). It may also partly reflect the greater usage of lower cost FHA and VA government guaranteed loans among borrowers with lower incomes.

Last, the effect of borrower demographics and the socioeconomic and racial profile of the neighborhood underscore the potentially discriminatory nature of deceptive high cost lending. Despite controlling for an array of credit and loan characteristics and the nature of the sample (see discussion of Table 1 above), compared to Asian and White borrowers, black and Latino borrowers in mortgage distress remain 27% and 18% more likely, respectively, to receive a

broker originated loan. Using other controls in previous specifications such as the number or density of bank branches did little to change this result and supports previous arguments that such borrowers were targeted by mortgage brokers. Blacks are also 28% more likely to receive a refinance loan from a subprime lender, and Hispanics are marginally ($p<0.09$) more likely to receive a subprime lender refinance loan.

Moreover, borrowers living in neighborhoods that are at least 80% black are 23% to 34% more likely to have received these three potentially problematic and abusive types of loans, net of other factors. Women were significantly less likely to have obtained a loan via broker origination, but 16% more likely to have received a subprime refinance loan or a high cost loan, suggesting potential gender discrimination in lending (see also Dymski, Hernández and Mohanty 2011). Borrowers who are age 62 or older were 41% more likely to obtain a subprime refinance loan and 20% more likely to obtain a high cost loan. Borrowers who were married were significantly less likely to receive a high cost loan.

The effect of average neighborhood college attainment lowers the likelihood of broker or subprime refinance lending, as expected, but, interestingly, the share of residents that are foreign born significantly reduces the odds that a borrower in that neighborhood will receive a high cost loan. Also, subprime refinance lending was significantly higher among borrowers living in zip codes with faster rising home prices, with each 100% increase in prices since 1996 raising the odds of subprime refinance by 4%; this concurs with findings of a nationwide analysis reported by Mian and Sufi (2010).

In summary, borrower underwriting, income, and market factors exerted mostly significant and independent effects on the process of broker, subprime, and high cost lending. Nonetheless, black and Hispanic borrowers, mostly black neighborhoods, and elderly

homeowners and women were all disproportionately likely to be the recipients of these deceptive and sometimes predatory loan products. Borrowers of these loans may also be significantly more likely to wind up in default or foreclosure. This hypothesis is tested in the analysis of loan performance reported in the next section.

Results: Determinants of Loan Performance and Loan Modification

Table 6 reports the log odds regression estimates of loan default, foreclosure, and loan modification. I begin by focusing on the two loan performance outcomes, default and foreclosure. These estimated specifications correctly predict between 67% and 80% of these three outcomes. (Several more variables included in the estimation, but suppressed in the output, are listed in the notes to Table 6.)

Loan Performance: Default and Foreclosure

The results here support the notion that a variety of different influences combine to make some CNYCN borrowers more likely to default and face foreclosure than others. The first group of influences concerns loan characteristics and reflects the chain of adverse origination outcomes.

Broker originated loans are 15% more likely to be in default and 29% more likely to be in foreclosure and each percentage point increase in the rate spread (for all loans) raises the odds of default by 12% and foreclosure, by 10%, consistent with Gilderbloom, Ambrosius and Squires (2011). Borrowers with ARM loans are 18% more likely to default but not significantly more likely to end up facing foreclosure. This suggests that the level of interest rates and payments may matter more to eventual foreclosure (but not necessarily default) than changes in these factors.

Exotic interest only amortization loans raise both the odds of default and foreclosure (by twice as much), while negative amortization loans reduce the odds of default, but raise the odds of foreclosure. This may stem from the artificially low payments that make these loans (temporarily) more affordable but may precipitate foreclosure if a borrower needs to refinance or relocate and the loan is at that point more severely underwater. Maximum leverage at closing dramatically raises the chances that a CNYCN borrower experiences default and foreclosure. Combined LTV ratios at origination of 100% raise the odds of default by 56%, and foreclosure, by 52%.

Lower FICO scores consistently predict higher default rates, with borrowers with credit scores below 540 nearly three times more likely to default than those with scores above 700. However, in the case of foreclosure, borrowers in each score ranges below 700 are between 1.6 to 1.7 times likely to raise the odds of foreclosure.[12] Both higher initial first and second lien balances raise the odds of default, but not foreclosure. As anticipated, refinance loans are more likely to end in default, about 27% increased odds. I offer more insight into this finding in the conclusion to this report.

Borrower characteristics are also significantly related to loan performance in both expected and unexpected ways. Elderly borrowers are about 18% more likely to default and those who report English as a second language are 30% less likely to default and 15% less likely to be in foreclosure. This interesting result suggests that immigrant clients in counseling may be significantly less likely to default and enter foreclosure proceedings than native born clients, but the evidence is not conclusive. Borrower race and ethnicity are statistically unrelated to loan performance, yet the accumulation of prior disparities in broker, subprime, and high cost lending

[12] Morgenson and Rosner (2011) offer a critique of the poor record of credit scores in predicting nonprime loan default and argue that securities firms and lenders played a role in the housing bust by excluding other measures such as debt-to-income ratios and placing far too much weight solely on credit scores. See also Demyanyk (2008).

do not render race irrelevant (see also Dymski, Hernández and Mohanty 2011). Moreover, the high levels of racial segregation of minority borrowers in New York City mean that disparities in loan performance by race are fundamentally linked to disparities by neighborhood racial composition.

One of the more interesting set of factors that affect the odds of foreclosure and default concern the influence of zip code and census tract characteristics. Confirming prior research, I also find that falling home prices lead to significantly higher default and foreclosure rates. Each 10% decrease from the peak of the home value index of the borrower's zip code raises his or her odds of default and foreclosure by about 10%. The foreclosure contagion measured by the *Lis Pendens* filing rate at the census tract level increases the odds of individual borrower default by 28% and the odds of foreclosure, by 44%. This contagion effect has also been found by other researchers (e.g., Chan et al. 2010).

Map Exhibit 6 shows the link between falling zip code home values and the incidence of default among CNYCN clients by zip code. The connection between falling home values across a broad region and elevated defaults is most readily seen in the Jamaica Queens and surrounding south environs in southeast Queens. However, while the link appears direct for many zip codes, for others, such as the zip codes in Brooklyn with elevated defaults among CNYCN clients, the link appears to be mediated by other factors. Several zip codes with widespread defaults in Brooklyn do not have particularly large declines in home values compared to the rest of New York. This uneven pattern suggest that targeted lending concentrated in many of these areas supplements market forces and leads to concentrated defaults.

Living in predominantly African American communities that are at least 60% black raises the odds of foreclosure by roughly 40%. Residence in neighborhoods that are at least 60% Latino

marginally raises the odds of foreclosure by 22% (p=0.11). Yet I also find that borrower mortgage default is unrelated to either neighborhood racial or ethnic composition. This pair of findings underscores how the aftershocks of the initial subprime mortgage crisis have been felt in many different neighborhoods. However, the most harmful effects of foreclosure remain linked to the patterns of neighborhood segregation as counseling clients from mostly black and Latino neighborhoods face increased odds of foreclosure beyond individual and market factors.

In order to better estimate the joint forces of negative equity and job loss, I have interacted the proxy measure of a 10% decline in the zip code home value index with four different ranges of income lost.[13] These income lost ranges are measured using matched administrative and household income data.

The results show that the harmful effect of falling home prices on borrower is worse among borrowers with larger income losses. Compared to the 11% increase in odds of default implied by a 10% decline in home values for those who did not experience a decline in income or a loss less than $45,000, borrowers who lost between $75,000 and $100,000 from the time of loan origination to counseling intake face an added 13% increase in the odds of default. For those who lost over $100,000 in income, falling home values raise the odds of default by an added 16%. On the other hand, falling prices combined with income losses over $75,000 do not significantly raise the odds of foreclosure, while income losses below that threshold do, by 9%.

These results support the notion that income loss in a falling housing market is a more consistent predictor of loan default than of foreclosure, which is more strongly predicted by broker lending, interest only loans, and segregated neighborhood status. Borrower responses on the type of mortgage distress provide a final added insight into the dimensions of loan

[13] I would like to thank Joseph Tracy for this useful suggestion. Future drafts will show the effect of omitting versus including this interaction and its potential contribution to the literature on the determinants of mortgage default.

performance of distressed CNYCN borrowers. Compared to income loss, catastrophic life events made respondents 78% more likely to default and 33% more likely to enter foreclosure, controlling for the foregoing factors; other life cycle issues such as marital problems or serious illness raised the odds of default and foreclosure by 29%.

Loan Modification

Unlike the previous five key outcomes of interest, many of the traditional underwriting factors at origination and borrower and neighborhood characteristics are not significantly related to the chances of receiving a loan modification. Borrowers with with higher credit scores (who may cure a default without modification) and those with low/no documentation loans are less likely to receive a modification. Those with smaller second loans are more likely to have their first lien loan modified. I find that Hispanic borrowers are more likely to receive loan modifications. I am able to trace this exceptional outcome to the effect of a single service provider. This effect disappears in the analysis below of modification conditional on request and specific interventions.

Two important community characteristics affect the prospects for loan modification. First, higher levels of foreclosure filings per owner-occupied household during the past three years translate into increased odds of modification. This may reflect the more desperate situation of borrowers in these neighborhoods or also a potential clustering of borrowers more likely to live in the outreach areas of local service providers. These borrowers may spread information concerning loan modification to neighbors. Second, I find that living in tract that is at least 60% Hispanic or 80% black has an adverse impact, lowering the odds of loan modification. This effect is particularly pronounced among mostly Latino neighborhoods and I test whether it persists despite interventions in the next section.

Map Exhibit 7 provides additional insight into the geographic distribution of loan modifications granted to CNYCN clients by their zip code of residence. Overall about 24% of clients who requested a modification received one, but this share rises to 40% to 67% in several zip codes in Queens but is much lower in several zip codes of the same borough. What is notable is that many of the areas with elevated foreclosures (see Map Exhibit 4) have only average loan modification rates, some have above-average rates, and none appear to have below-average modification rates. It remains unclear from this distribution of loan modifications alone whether such modifications are helping stem the entry of clients into foreclosures, an outcome that I seek to test in the next section.

Re-estimation of Default, Foreclosure, and Loan Modification Post CNYCN-Intake

In the final analysis I estimate the determinants of *changes* in loan status to default (90+ days) and foreclosure (*Lis Pendens* filed). I define this transition as entering default or foreclosure after the time of service intake and I estimate its likelihood using similar logistic specifications, but in the presence of different types of interventions. The diagram in Figure 1 below demonstrates that these transitions have a far lower mean than the cumulative states of default or foreclosure, but that important differences exist across different interventions received by borrowers.

Borrowers who receive loan modifications (temporary or permanent) are the least likely to transition into foreclosure and most likely to become current (either via self-cure or capitalization of arrears via modification) while those who do not request a modification but are the least likely to enter default. About 10% of borrowers who withdraw from counseling transition enter foreclosure post-intake, compared to only 5% of borrowers who remain to receive intervention or a requested loan modification.

In the re-estimates of default and foreclosure, I examine borrowers whose loans are not in yet in each corresponding state of deliquency upon intake and include measures of the specific types of housing counseling services provided post-intake. I also include a measure for whether a loan modification was granted after a request was submitted by the borrower. In the re-estimation of loan modification, I estimate the odds of loan modification in a similar fashion as in the previous estimation but examine only 51% of CNYCN borrowers who submitted a loan modification request and include measures of the specific types of housing counseling services provided.

I present the odds ratios only for the variables that siginficantly affect the odds of the outcome of interest in Figure 2 and Figure 3. Other variables included in the estimation were listed in Table 6. According to the results in Figure 2, the key drivers of transitions to loan default in the presence of service interventions include both income loss combined with falling home prices (as reported by the borrower, and also calculated using the matched data) and problematic interest only loans.

Additional significant factors include very low credit scores, larger loan balances after accounting for income levels, origination at the peak of the housing boom in 2006, and—as highlighted several times earlier—refinance purpose. Clients who withdraw from counseling are also more likely to fall into default. These findings suggest that both loan and borrower credit characteristics interact with the falling housing market and decreases in income to further raise the risk of loan default after entry into counseling or legal services. The significant role of income loss in explaining transitions to default confirms the initial findings regarding borrower default versus foreclosure.

Figure 3 documents the significant determinants of the transition into legal foreclosure proceedings. Borrowers with broker originated loans, interest only loans, higher rate spreads, refinance loans, junior liens, and those who took out loans during the peak of the boom are significantly more likely to receive a *Lis Pendens* filing after housing counseling intake. Those living in neighborhoods with poverty levels above the New York City average of 20% also face higher odds of foreclosure despite interventions. Like the transition to default, borrowers reporting income loss are more likely to enter foreclosure.

Two counseling interventions, developing a budget plan and submitting a hardship request, each appear to significantly reduce the odds of entering foreclosure for at-risk mortgage borrowers after intake. Each successive intervention that takes place in this sequence usually requires a separate counseling session and appears to have an increasingly beneficial effect. These effects represent important evidence that counseling makes a substantial difference to foreclosure avoidance among at-risk borrowers, controlling for a host of other possible confounding factors. Most important, I find that borrowers who receive a loan modification are 36 percent less likely to enter foreclosure (see also Collins and Reid 2011).[14]

Map Exhibit 8 shows the geographic distribution of interest only loans and CNYCN client borrowers who enter default after intake into housing counseling or legal aid services. The zip codes with the greatest concentration of interest only loans are the ones with the greatest number of clients falling behind by 90 or more days on their mortgage loan despite entering counseling, particularly in the East New York section of Brooklyn and the Wakefield section of the Bronx (see Map Exhibit 4 for area name locations).

[14] One important point not mentioned until now is that less than one half of one percent of CNYCN borrowers in mortgage distress were confirmed to have completed foreclosure and lost their homes. This highlights the important legal aid services that train or defend borrowers in legal foreclosure proceedings and keep them in their homes where possible. However, legal aid is not the focus of the analysis of interventions here and is worthy of future study, particularly in places with greater variation in completed foreclosure rates than in New York City.

Many of these interest only loans were made in 2004 to 2007 and their interest only periods end generally within two to five years; thus, many of the borrowers with these loans have faced sudden increases in payments since CNYCN began tabulating intake data in 2008. This is supported by the significantly increased risk posed by interest only loans as reported in Figure 5. However, the correspondence between interest only loans and post-intake default is notably weaker in the Woodhaven and Ozone Park zip codes in Queens, immediately east of the Brooklyn border, where loan modification rates are highest (see Map Exhibit 7). Therefore, as the estimate for loan modification in Figure 3 indicates, it appears that renegotiation of loan terms and payments can help clients overcome the effects of potentially harmful exotic loan products such as interest only loans. In summary, the findings in Figure 3 are apparent both after controlling for other potentially confounding factors and examining the distribtution of post-intake defaults and loan modifications by client zip code.

Figure 4 shows the significant factors that help explain why borrowers receive a requested modification. Borrowers already in foreclosure proceedings, investor owners, those with incomes below $30,000 at intake, and those living in mostly Hispanic and higher poverty census tracts are less likely to obtain modifications despite requests submitted to servicers and interventions by service providers. Borrowers with lower second lien balances, who purchased or refinanced at the height of the housing boom, and who reported issues with the loan interest rate, reset, or the servicer are more likely to obtain requested loan modifications. Those who only attend the initial counseling session on foreclosure prevention are less likely to receive a requested modification. However, if the primary counseling a borrower receives is aid in submitting a loan modification, this increases the odds of receiving a requested loan modification by 37 percent.

Conclusions for Research and Policy

This study set out to measure the effect of borrower and neighborhood racial and ethnic composition on the likelihood of default, foreclosure, and loan modification in the context of the largest and one of the most highly segregated cities for blacks and Latinos, New York City.

I have argued that discriminatory targeting of broker and subprime lender high cost loans with unfair or deceptive terms during the housing boom significantly raise the risk of default and foreclosure for black and Latino borrowers and in predominantly minority neighborhoods. The results of this analysis have largely validated this argument insofar as foreclosure is concerned. I find significantly elevated risk of entering foreclosure among borrowers who live in predominantly black and Latino neighborhoods. And the results for mortgage default have updated the argument and advanced the study of mortgage default (particularly among at-risk borrowers in a social context) in two important ways.

Specifically, this study has confirmed the growing importance and highly localized influence of (1) falling home prices and (2) diminished labor market fortunes by measuring income lost much more precisely using administrative data. Compared to borrowers in zip codes where home values fell by 10%, those living where values fell by 40% were 36 percent more likely to default and 32 percent more likely to be in legal foreclosure proceedings. Compared to borrowers who experienced no change or a gain in income, those who lost $100,000 in income since origination were 16% more likely to default. Yet increased income loss beyond $45,000 is not significantly related to increased odds of foreclosure.

Given the duration, breadth, and depth of the housing downturn and deterioration in the employment market, the phenomenon of mortgage default has crossed racial and ethnic lines. Larger decreases in income tend to occur among Asian and white borrowers and outside

segregated black and Latino neighborhoods, which appears to have partly triggered default among many of these relatively more affluent borrowers. However, racial and ethnic disparities in the housing market still shape foreclosure—the outcome with the most severe implications for future economic prospects. Prices have generally fallen the most precipitously in predominantly minority communities. The falling housing market may channel the disparities across race and neighborhoods rather than supplant them as separate, unconnected forces.

I found that broker originated loans are much more likely to be in default or foreclosure, especially in minority neighborhoods. I also found that borrowers with refinance loans are also more likely to default. Subprime refinance loans originated by mortgage brokers and nonbank lenders during the long mortgage boom were used as a way to maintain consumption and concealed the stagnation in poor and middle class wages (e.g., Reich 2010; see also Mian and Sufi 2010; Sullivan, Warren, and Westbrook 2000). Due to the logic of predatory lending that targets collateral with an already established equity position and well-established differences in refinance rates by ethnicity (e.g., Latinos less likely to refinance than blacks), the effects of risky subprime refinance lending continue to reverberate especially powerfully in predominantly black neighborhoods and echo throughout the metropolis.

Borrowers living in mostly black and high poverty neighborhoods also face higher odds of foreclosure despite interventions. The effects of neighborhood status appear to transcend individual efforts on the part of borrowers and counselors to avoid foreclosure. Future research should focus on long term changes in the economic position of middle class groups in cities and suburbs to investigate how increasing economic inequality interacted with patterns of segregation to disproportionately impact lower-to-middle class black and Latino areas. The

surprising protective effect of recent immigrant status as proxied by self-rated English language ability among high-risk borrowers also merits further inquiry.

I also have endeavored to find out whether foreclosure prevention outcomes such as loan modification are structured by the types of housing counseling interventions offered, the race and ethnicity of the borrower, and the racial and ethnic makeup of the neighborhood in the wake of deceptive and high cost lending to predominantly minority communities. By helping borrowers prepare budget plans, hardship requests, and loan modification submissions, the interventions of housing counselors significantly reduce the likelihood of foreclosure and improve the odds of loan modification by 41 percent. Equally important, borrowers who receive loan modifications are 36 percent less likely to enter foreclosure after the time of counseling intake (see also Collins and Reid 2011). However, borrowers living in predominantly Hispanic neighborhoods are 39 percent less likely to receive a requested modification. This may reflect the additional barrier that Spanish-speaking borrowers face when attempt to renegotiate their loans with servicers, consistent with research on the effect of ethnicity and English-speaking ability in California (California Reinvestment Coalition 2011).

There are at least five implications of these findings on the racial segregation, securitized subprime lending, and foreclosure outcomes for public policy and service providers.

First, federal regulatory and anti-discrimination law should be strengthened to provide more audits of housing outcomes and provide a new system of penalties on a sliding scale to address the new face of discrimination that is less explicit and individual based and instead more institutionalized, subconscious, and ensconced in patterns of segregation unlikely to fade any time soon. The Community Reinvestment Act must be modernized to reflect the reality of large banking conglomerates and financial companies that formed or acquired subprime subsidiaries to

evade regulation and the duty to lend responsibly in low-and moderate-income communities. More than 9 in 10 subprime loans during the housing boom were originated outside the purview of the CRA (Bhutta and Canner 2009; Park 2008), underscoring how bank subsidiaries and nonbank lenders circumvented regulation. Going forward the CRA should cover non-depositary lenders and subsidiaries as well as traditional depositary institutions.

Second, state laws should continue to provide the proper channel factors that increase borrower access and participation in effective housing counseling services. The mandated listing of addresses of free service providers on pre-foreclosure in New York since early 2010 is an excellent example. Most CNYCN records I linked to New York State Banking Department data indicate that borrowers in 2010-2011 enter housing counseling services within 60 days of receiving such notices. Unfortunately, about 2 in 3 of the foreclosure filings were issued to borrowers in this sample prior to 2010. As time passes, this important policy detail ought to result in an increase the share of borrowers receiving effective interventions at earlier stages of loan distress.

Third, the constraints on the refinance options of programs such as the federal Home Affordable Refinance Program (HARP) should be relaxed to permit more underwater borrowers to take advantage of historically low interest rates and inject much needed spending into communities devastated by the housing crisis. Increased borrower intake combined with a revamped HARP (and HAMP) regime ought to multiply the benefits of loan refinance and renegotiation when more borrowers are allowed to work with counselors to provide the necessary requirements for such a program.

Fourth, networks like CNYCN ought to work to improve outreach to predominantly Hispanic communities, with a focus on loan modification. Targeted intervention to other hard-hit communities should continue as well.

Last, cities and service providers should leverage monies from the Hardest Hit and other sources to learn from each other both within and across state lines. The impact of segregation, subprime lending, falling home prices, and job loss have left scarcely any major city untouched by this crisis, and effective interventions may be gleaned by greater intercity and interstate sharing of best practices.

Considerations of market factors, income, and race and ethnicity remain intertwined in ways that are beyond the scope of the analysis here but present a puzzle for future scholarship on the causes and consequences of the foreclosure crisis in our nation's diverse but segregated cities.

References

Abel, Joshua, and Joseph Tracy. 2012. "The Changing Face of Foreclosures," Liberty Street Economics Blog of the Federal Reserve Bank of New York. March 21, 2012. Available at: http://libertystreeteconomics.newyorkfed.org/2012/03/the-changing-face-of-foreclosures.html

Agarwal, Sumit, Amromin, Gene, Ben-David, Itzhak, Chomsisengphet, Souphala and Evanoff, Douglas D., Market-Based Loss Mitigation Practices for Troubled Mortgages Following the Financial Crisis (October 11, 2010). Charles A. Dice Center Working Paper No. 2010-19; Fisher College of Business Working Paper No. 2010-03-019.

Alexander, William P. et al. 2002. "Some Loans are More Equal than Others: Third-Party Originations and Defaults in the Subprime Mortgage Industry." *Real Estate Economics* 30 (4): 667-697.

An, Xudong and Raphael W. Bostic. 2009. "Policy Incentives and the Extension of Mortgage Credit: Increasing Market Discipline for Subprime Lending." *Journal of Policy Analysis and Management* 28(3): 340-365.

Apgar, William and Allegra Calder. 2005. ''The Dual Mortgage Market: The Persistence of Discrimination in Mortgage Lending.'' Pp. 101–123 in *Geography of Opportunity: Race and Housing Choice in Metropolitan America*, edited by X. De Souza Briggs. Washington, DC: Brookings Institution Press.

Bajari, Patrick, Chenghuan Sean Chu, and Minjung Park. 2008. An Empirical Model of Subprime Mortgage Default from 2000 to 2007. National Bureau of Economic Research: Working Paper 14625.

Been, Vicki, Ingrid Ellen, and Josiah Madar. 2009. ''The High Cost of Segregation: Exploring Racial Disparities in High-Cost Lending.'' *Fordham Urban Law Journal* 36:361–93.

Bhardwaj, Geetesh, and RajdeepSengupta. 2009. "Where's the Smoking Gun? A Study of Underwriting Standards for US Subprime Mortgages" Federal Reserve Bank of St. Louis Working Paper 2008-036C (Revised October 2009).

Bhardwaj, Geetesh, and RajdeepSengupta. 2010. "Subprime Mortgage Design" Federal Reserve Bank of St. Louis Working Paper 2008-039C (Revised October 2010).

Bocian, Debbie Gruenstein, Wei Li and Keith S. Ernst.(2008). Race, Ethnicity and Subprime Home Loan Pricing.*Journal of Economics and Business* 60: 110-124.

Bocian, Debbie Gruenstein, Wei Li and Keith S. Ernst. 2010. *Foreclosures by Race and Ethnicity: The Demographics of a Crisis*. Center for Responsible Lending Research Report (June 18, 2010) Accessed online: http://www.responsiblelending.org/mortgage-lending/research-analysis/foreclosures-by-race-and-ethnicity.pdf

Bond, Carolyn and Richard Williams. 2007. ‘‘Residential Segregation and the Transformation of Home Mortgage Lending.’’ Social Forces 86:671–98.

Bhutta, Neil and Glenn B. Canner. 2009. ‘‘Did the CRA Cause the Mortgage Market Meltdown?’’ Community Dividend (Federal Reserve Bank of Minneapolis). Accessed online: http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=4136

Bhutta, Neil, Jane Dokko, and Hui Shan. 2010. “The Depth of Negative Equity and Mortgage Default Decisions.” Federal Reserve Board Divisions of Research & Statistics and Monetary Affairs.Working Paper 2010-35.

California Reinvestment Coalition. 2011. “Race to the Bottom: An Analysis of HAMP Loan Modification Outcomes by Race and Ethnicity for California.” July 2011. Accessed online: http://www.calreinvest.org/publications/crc-reports

Calem, Paul S., Jonathan E. Hershaff, and Susan M. Wachter. 2004. ‘‘Neighborhood Patterns of Subprime Lending: Evidence from Disparate Cities.’’ *Housing Policy Debate* 15: 603-622.

Chan, Sewin, Michael Gedal, Vicki Been and Andrew Haughwout. 2010. “The Role of Neighborhood Characteristics in Mortgage Default Risk: Evidence from New York City.” *Furman Center for Real Estate and Urban Policy*, June 29, 2010.

Charles, Camille Zubrinsky. 2003. “The Dynamics of Racial Residential Segregation,” Annual Review of Sociology. 29(1):167-207.

Collins, J. Michael and Reid, Carolina. 2011. “Who Receives a Mortgage Modification? Race and Income Differentials in Loan Workouts,” January 18, 2011. Available at SSRN: http://ssrn.com/abstract=1743159

Coulton, Claudia, Tsui Chan, Michael Schramm, Kristen Mikelbank. 2008. “Pathways to Foreclosure: A Longitudinal Study of Mortgage Loans, Cleveland and Cuyahoga County, 2005-2008,” Center on Urban Poverty and Community Development, Mandel School of Applied Social Sciences, Case Western Reserve University, Cleveland, OH (June 23, 2008).

Danis, Michelle A. and Anthony-Pennington Cross. 2007. The Delinquency of Subprime Mortgages. Journal of Economics and Business 60 (1-2): 67-90.

DeLoughy, Sara T. 2010. “Risk versus Demographics in Subprime Mortgage Lending: Evidence from Three Connecticut Cities.” *Journal of Real Estate Finance and Economics* 41(2):1-19.

Demyanyk, Yuliya. 2008. “Did Credit Scores Predict the Subprime Crisis?” Federal Reserve Bank of St. Louis, *The Regional Economist* (October 2008): 12-13.

Ding, Lei et al. 2011. “Risky Borrowers or Risky Mortgages: Disaggregating Effects Using Propensity Score Models.” *Journal of Real Estate Research* 33 (2): 245-278.

Dymski, Gary A., Jesus Hernández, and Lisa Mohanty. 2011. “Race, Power, and the Subprime/Foreclosure Crisis: A Mesoanalysis.” Levy Economics Institute of Bard College Working Paper No. 669.

Eggert, Kurt. 2002. “Held Up in Due Course: Predatory Lending, Securitization, and the Holder in Due Course Doctrine,” *Creighton Law Review* 35:503.

Engel, Kathleen C. and Patricia A. McCoy. 2007. “Turning a Blind Eye: Wall Street Finance of Predatory Lending,” *Fordham Law Review* 75:101-165.

_____. 2011. *Subprime Virus: Reckless Credit, Regulatory Failure, and Next Steps*. Oxford: Oxford University Press.

Elul, Ronel, et al. 2010. “What ‘Triggers’ Mortgage Default?” Federal Reserve Bank of Philadelphia Working Paper No. 10-13.

Gerardi, Kristopher S. and Paul S. Willen. 2008. ‘‘Subprime Mortgages, Foreclosures, and Urban Neighborhoods.’’ Federal Reserve Bank of Boston, Public Policy Discussion Paper 2008-06. Accessed online: http://www.bos.frb.org/economic/ppdp/2008/ppdp0806.pdf

Gilderbloom, John I., Joshua Ambrosius and Gregory Squires. 2011. “Why are Foreclosures Highest in African American Neighborhoods? A Case Study of a Middle Size City,” Paper presented for RC21 Research Committee 21: Sociology of Urban and Regional Development, International Sociological Association, University of Amsterdam, the Netherlands (July 7, 2011).

Goldstein, Deborah. 1999. “Understanding Predatory Lending: Moving Towards a Common Definition and Workable Solutions.” Joint Center for Housing Studies, Harvard University. September 1999.

Gorton, Gary. 2008. “The Panic of 2007. Manuscript Prepared for the Federal Reserve Bank of Kansas City, Jackson Hole Conference, August 2008.

_____. 2010. *Slapped by the Invisible Hand: The Panic of 2007*. Oxford: Oxford University Press.

Haughwout, Andrew, Richard Peach and Joseph Tracy. 2008. “Juvenile Delinquent Mortgages: Bad Credit or Bad Economy?” *Journal of Urban Economics* 64 (2008): 246-257.

Hernández, Jesus. 2009. “Redlining Revisited: Mortgage Lending Patterns in Sacramento 1930–2004.”*International Journal of Urban and Regional Research* 33:291–313.

Institute on Race and Poverty. 2009. *Communities in Crisis: Race and Mortgage Lending in the Twin Cities.* Minneapolis: University of Minnesota Law School.

Jayasundera, Tamara, Joshua Silver, KatrinAnacker, DenitzaMantcheva. 2010. “Foreclosure in the Nation’s Capital: How Unfair and Reckless Lending Undermines Homeownership,” National Community Reinvestment Coalition Disparities in Lending Series Report. Accessed online: http://www.ncrc.org/images/stories/pdf/research/ncrc_foreclosure_paper_final.pdf

Jiang, Wei, AshlynAiko Nelson and Edward Vytlacil. 2010. “Liar’s Loan? Effects of Origination Channel and Information Falsification on Mortgage Delinquency,” Working Paper (February 2010). Accessed online: http://www.columbia.edu/~wj2006/liars_loan.pdf

Kau, James B., Donald C. Keenan, Constantine Lyubimov and V. Carlos Slawson. 2010. “Asymmetric Information in the Subprime Mortgage Market.” *Journal of Real Estate Finance and Economics* 41(3):1-23.

Logan, John R. and Brian J. Stults. 2011. “The Persistence of Segregation in the Metropolis: New Findings from the 2010 Census,” Census Brief prepared for Project US2010 (March 2011). Accessed online: http://www.s4.brown.edu/us2010/Data/Report/report2.pdf

Mayer, Christopher, Karen Pence, and Shane M. Sherlund. 2009. “The Rise in Mortgage Defaults.”*Journal of Economic Perspectives* 23 (1): 27-50.

Mian, Atif and Amir Sufi. 2010. “The Consequences of Mortgage Credit Expansion: Evidence from the U.S. Mortgage Default Crisis.” *Quarterly Journal of Economics* 124(4): 1449-1496.

Morgenson, Gretchen and Joshua Rosner. 2011. *Reckless Endangerment: How Outsized Ambition, Greed, and Corruption Led to Economic Armageddon*. New York, NY: Times Books.

Nadauld, Taylor and Sherlund, Shane M. 2009. “The Role of the Securitization Process in the Expansion of Subprime Credit,” (May 26, 2009). Available at SSRN: http://ssrn.com/abstract=1410264

Park, Kevin. 2008. “Subprime Lending and the Community Reinvestment Act.” Joint Center for Housing Studies at Harvard University, Cambridge, MA.

Pavlov, Andrey and Susan Wachter. 2011. “Subprime Lending and Real Estate Prices.” *Real Estate Economics* 39(1): 1-17.

Pennington-Cross, Anthony and Giang Ho. 2010.The Termination of Subprime Hybrid and Fixed-Rate Mortgages.*Real Estate Economics* 38 (3): 399-426.

Peterson, Christopher. 2007. “Predatory Structured Finance.” *Cardozo Law Review* 28:2185-282.

Reich, Robert B. 2010. *Aftershock: The Next Economy and America’s Future*. New York: Alfred A. Knopf.

Renuart, Elizabeth. 2004. “An Overview of the Predatory Lending Mortgage Lending Process.” *Housing Policy Debate* 15:467–502.

Rugh, Jacob S. and Douglas S. Massey. 2010. “Racial Segregation and the American Foreclosure Crisis,” *American Sociological Review* 75(5):629-651. Accessed online: www.asanet.org/images/journals/docs/pdf/asr/Oct10ASRFeature.pdf

Squires, Gregory D., Derek S. Hyra, and Robert N. Renner. 2009. ‘‘Segregation and the Subprime Lending Crisis.’’ Presented at the 2009 Federal Reserve System Community Affairs Research Conference. Accessed online: http://www.kansascityfed.org/carc2009/pdf/carc2009%20Hyra%20paper.pdf

Williams, Richard, Reynold Nesiba, and Eileen Diaz McConnell. 2005. ‘‘The Changing Face of Inequality in Home Mortgage Lending,’’ *Social Problems* 52:181–208.

Table 1: Loan Origination Outcomes by Race of Borrower in New York City, CNYCN Data and 2004-2008 HMDA

	Number of Loans		Broker Originated Loan		Refinance Loan Originated by Subprime Lender		High Cost Loan Rate Spread > 3%	
	CNYCN	*HMDA*	CNYCN	HMDA	CNYCN	HMDA	CNYCN	HMDA
Asian	*814*	*79,392*	25%	18%	24%	12%	25%	10%
Black	*6,502*	*108,859*	39%	41%	42%	34%	41%	34%
White	*1,395*	*241,643*	26%	20%	25%	13%	25%	10%
Hispanic	*2,687*	*112,731*	34%	23%	37%	22%	35%	15%
Other	*536*	*68,002*	31%	33%	43%	26%	32%	25%
Total	***11,934***	***610,627***	**35%**	**26%**	**38%**	**21%**	**37%**	**17%**

Source: Author's calculations based on data from the Center for New York City Neighborhoods (CNYCN), HMDA Reporter Panel (broker), HUD (subprime lender), and FFIEC HMDA Loan Application Register (LAR) file, and U.S. Treasury Long Term Maturities data.

Table 2: Loan Origination, Performance, and Modification Outcomes by Race of Borrower (CNYCN Data)

	N	Broker Loan	Subprime Refinance Loan	High Cost Loan	Default 90+ Days	Foreclosure *Lis Pendens*	Loan Modified
Asian	*814*	25%	23%	25%	25%	28%	26%
Black	*6,502*	40%	42%	41%	27%	35%	24%
White	*1,395*	26%	25%	24%	25%	28%	23%
Hispanic	*2,687*	34%	37%	35%	25%	31%	28%
Other	*536*	31%	42%	32%	16%	38%	14%
Total	***11,934***	**35%**	**38%**	**37%**	**26%**	**33%**	**24%**

Source: Author's calculations based on data from CNYCN, HMDA Reporter Panel (broker), HUD (subprime lender), and FFIEC HMDA LAR file, and U.S. Treasury Long Term Maturities data, and loan-level mortgage-backed securities collateral file updates. Default is measured exclusive of foreclosure here (default only) and loan modification rates are calculated for those who submit a request.

Table 3: Loan Origination, Performance, and Modification Outcomes by Racial Composition of Tract

Census Tract % Black	*N*	Broker Loan	Subprime Refinance Loan	High Cost Loan	Default 90+ Days	Foreclosure *Lis Pendens*	Loan Modified
0-20	*2,954*	28%	30%	29%	27%	23%	27%
20-40	*1,049*	34%	34%	37%	28%	26%	25%
40-60	*1,076*	36%	42%	38%	33%	26%	27%
60-80	*1,490*	40%	41%	41%	29%	32%	27%
80-100	*2,766*	41%	43%	44%	28%	34%	26%
Total	***9,335***	**36%**	**38%**	**38%**	**28%**	**29%**	**27%**

Source: Author's calculations based on data from CNYCN, HMDA Reporter Panel (broker), HUD (subprime lender), and FFIEC HMDA LAR file, and U.S. Treasury Long Term Maturities data, and loan-level mortgage-backed securities collateral file updates.

Table 4: Loan Origination, Performance, and Modification Outcomes by Ethnic Composition of Tract

Census Tract % Hispanic	*N*	Broker Loan	Subprime Refinance Loan	High Cost Loan	Default 90+ Days	Foreclosure *Lis Pendens*	Loan Modified
0-20	*5,877*	37%	38%	38%	28%	30%	26%
20-40	*1,888*	33%	36%	35%	28%	26%	27%
40-60	*821*	34%	40%	40%	30%	26%	35%
60-100	*749*	35%	37%	38%	29%	28%	23%
Total	***9,335***	**36%**	**38%**	**38%**	**28%**	**29%**	**27%**

Source: Author's calculations based on data from CNYCN, HMDA Reporter Panel (broker), HUD (subprime lender), and FFIEC HMDA LAR file, and U.S. Treasury Long Term Maturities data, and loan-level mortgage-backed securities collateral file updates.

Table 5: Log Odds Estimates of Loan Origination Outcomes

	Broker Originated Loan		Subprime Lender Refinance Loan		High Cost Loan Rate Spread > 3%	
	Odds Ratio	z-stat	Odds Ratio	z-stat	Odds Ratio	z-stat
Loan Characteristics						
Broker Originated Loan			3.921 ***	17.42	1.160 **	2.53
0 < FICO < 540	2.985 ***	5.61	9.501 ***	10.76	7.094 ***	9.10
540 < FICO < 579	2.013 ***	4.14	9.603 ***	11.48	12.18 ***	10.49
620 < FICO < 659	3.006 ***	8.27	7.019 ***	13.87	4.164 ***	10.06
620 < FICO < 659	1.988 ***	7.03	2.730 ***	8.51	2.383 ***	8.65
660 < FICO < 699	1.875 ***	6.03	1.456 ***	2.62	1.257 ***	2.10
Missing FICO score	0.918	-1.37	0.916	-0.92	1.281 ***	3.60
Log of Loan Amount	1.269 ***	3.08	1.683 ***	3.54	0.886	-1.31
Refinance Loan	1.176 ***	2.92			1.136	2.14
Condominium/Coop Property	0.475 ***	-4.53	0.763	-1.26	0.985	-0.09
Low or No Documentation Loan					1.555 ***	6.50
Borrower Income at origination (Omitted: > $150,000)						
Income <= $40,000	2.201 ***	3.73	4.649 ***	5.04	0.337 ***	-4.43
$40,000 < Income <= $75,000	1.459 ***	3.31	2.341 ***	4.94	0.398 ***	-7.36
$75,000 < Income <= $100,000	1.351 ***	2.87	1.647 ***	3.25	0.587 ***	-4.77
$100,000 < Income <= $150,000	1.148	1.39	1.254	1.59	0.815 **	-1.97
Income not reported	1.338 **	2.57	0.588 ***	-2.93	0.331 ***	-8.52
Borrower Demographics						
Black Borrower	1.271 ***	2.78	1.284 **	1.99	1.610 ***	5.02
Hispanic Borrower	1.177 *	1.80	1.258 *	1.69	1.490 ***	3.92
Borrower is a Woman	0.888 **	-2.19	1.119	1.48	1.158 **	2.48
Borrower is Married	0.999	-0.02	1.036	0.41	0.842 **	-2.51
Borrower Age 62 or Older	0.993	-0.09	1.414 ***	3.38	1.199 **	2.11
English is Not Native Language	0.925	-0.90	0.852	-1.29	0.898	-1.15
Census Tract Characteristics						
60% - 100% Hispanic	0.900	-0.21	1.374 **	2.14	1.078	0.63
60% - 80% Black	1.150	1.64	1.164	1.33	1.291 ***	2.84
80% - 100% Black	1.285 ***	3.36	1.226 **	2.00	1.339 ***	3.66
Log of Median HH Income	1.027	0.20	1.122	0.65	1.280	1.73
Poverty Rate 20% - 40%	1.011	0.12	1.103	0.82	1.012	0.14
Poverty Rate > 40%	1.136	0.74	1.149	0.58	1.029	0.15
% College Graduates, Age 25+	0.989 ***	-2.78	0.997	-0.53	0.982 ***	-4.02
% Foreign Born	0.669	-2.00	0.933	-0.25	0.611 **	-2.22
Zip Code Characteristics						
Rise in Home Prices since 1996	0.972	-1.59	1.042 *	1.74	0.992	-0.44
Pseudo R^2	**0.059**		**0.228**		**0.157**	
Correctly Predicted	**62%**		**83%**		**70%**	

Note: N=6,301. Logit regression odds ratios with robust standard errors. Dummy variables for missing/unknown race and for year of origination are included in the estimation, but not shown here. *p <0.10 **p< 0.05 ***p< 0.01

Table 6: Log Odds Estimates of Loan Performance and Modification Outcomes

	Default 90+ Days		Foreclosure *Lis Pendens* Filed		Loan Modification	
	Odds Ratio	**z-stat**	**Odds Ratio**	**z-stat**	**Odds Ratio**	**z-stat**
Loan Characteristics						
Broker Originated Loan	1.145 **	2.45	1.293 ***	4.16	1.057	0.82
ARM Loan	1.176 **	2.51	1.086	1.16	0.934	-0.90
Interest Only Loan	1.172 **	2.09	1.346 ***	3.74	1.102	1.13
Negative Amortization Loan	0.775 ***	-2.60	1.339 ***	2.80	0.849	-1.35
Interest Rate Spread	1.115 ***	6.06	1.099 ***	4.87	1.002	0.12
0 < FICO < 540	2.869 ***	9.66	1.598 ***	3.70	1.494 ***	3.12
540 < FICO < 579	2.597 ***	8.11	1.770 ***	4.32	1.367 ***	2.27
580 < FICO < 619	1.886 ***	5.57	1.601 ***	3.62	1.120	0.81
620 < FICO < 659	1.669 ***	4.72	1.621 ***	3.82	0.980	-0.15
660 < FICO < 699	1.420 ***	3.03	1.690 ***	3.87	1.065	0.43
Refinance Loan	1.274 ***	4.22	1.057	0.86	1.085	1.21
CLTV = 100%	1.557 ***	5.78	1.519 ***	5.09	1.022	0.24
Log of Loan Amount	1.207 **	2.54	1.074	0.88	1.076	0.78
Low or No Documentation	1.124 *	1.78	0.949	-0.75	0.910 *	-1.24
Has 2nd lien <= $100,000	0.949	-0.71	0.919	-0.97	1.279 ***	2.83
Has 2nd lien > $100,000	1.204 **	2.01	1.016	0.15	0.916	-0.81
Borrower Demographics						
Black Borrower	1.105	1.08	1.099	0.91	0.951	-0.49
Hispanic Borrower	0.963	-0.40	0.988	-0.11	1.314 **	2.53
Borrower is Married	0.919	-1.33	0.904	-1.40	1.343 ***	4.12
Borrower Age 62 or Older	1.181 **	2.12	1.032	0.36	1.082	0.83
English is Not Native Language	0.696 ***	-4.34	0.852 *	-1.66	0.919	-0.86
Tract Characteristics						
10%↑*Lis Pendens* filing rate, tract	1.275 *	1.75	1.441 ***	2.55	1.413 **	2.49
60% - 100% Hispanic tract	1.075	0.62	1.229	1.58	0.692 ***	-2.74
60% - 80% Black tract	0.976	-0.24	1.390 ***	2.99	0.923	-0.82
80% - 100% Black tract	0.969	-0.32	1.410 ***	3.17	0.824 **	-2.16
% College Graduates, Age 25+, tract	1.002	0.61	1.002	0.37	0.979 ***	-4.18
% Foreign Born, tract	0.686 *	-1.80	1.591 **	1.97	0.959	-0.18
Zip Code and Borrower Income Loss						
10% decline in home value index (HVI)	1.109 ***	2.29	1.096 **	2.43	0.935	-1.59
10%↓ HVI * $ 0 - $45K income decline	1.032	0.91	1.093 **	2.34	0.992	-0.19
10%↓ HVI * $45 - $75K income decline	1.095 **	2.21	1.081 *	1.76	0.959	-0.89
10%↓ HVI * $75 - $100K income decline	1.129 **	2.32	1.048	0.85	1.026	0.43
10%↓ HVI * $100K+ income decline	1.155 **	2.43	1.004	0.06	0.886 *	-1.69
Self-reported Distress Category (Omitted: Income loss)						
Catastrophic (Death, Prison, etc.)	1.781 ***	4.67	1.333 **	2.22	0.821	-0.97
Loan (Rate Reset, dispute, fraud)	1.233 **	2.36	1.166	1.63	0.980	0.29
Health, Marital Issues, Military	0.129 **	2.45	1.289 **	2.30	1.076	0.57
Other Debt, Utility Payments	0.555 ***	-6.56	0.624 ***	-4.09	0.656 ***	-3.27
Lis Pendens Already Filed					0.628 ***	-6.31
Pseudo R^2	**0.074**		**0.190**		**0.049**	
Correctly Predicted	**67%**		**76%**		**80%**	

Note: N=6,636. Logit regression odds ratios with robust standard errors. Investor ownership, borrower income ranges (not significant), missing FICO score, condominium, missing income decline, race unknown, poverty rate category, region of birth for foreign born, and indicator variables for year of origination are also included in estimation, but not shown here. Loan modification is not conditional upon request. *p <0.10 **p< 0.05 ***p< 0.01

Figure 1: Loan Delinquency Status, Post-Intake Change in Status by Outcome, and Final Status among CNYCN Borrowers (Source: CNYCN matched data file)

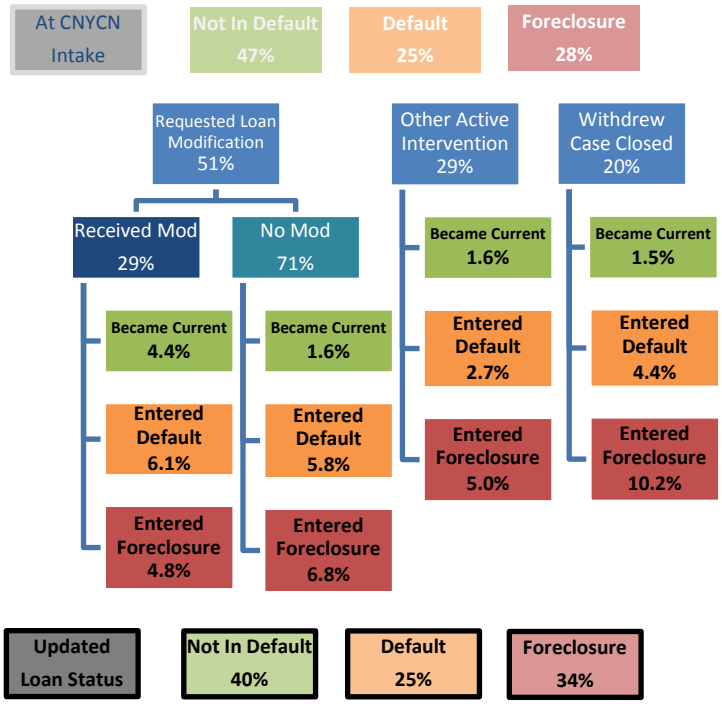
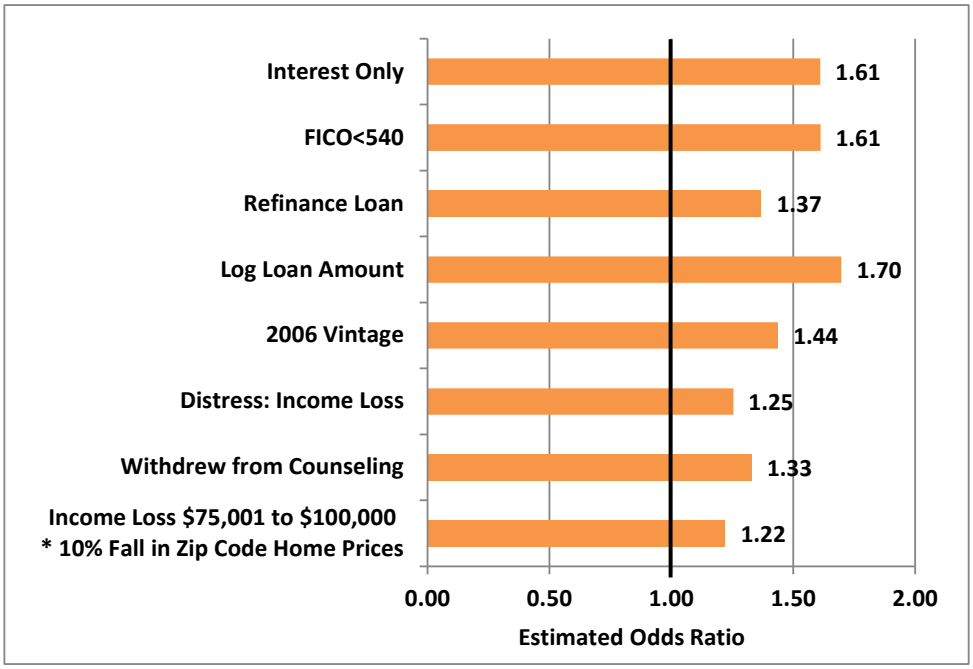
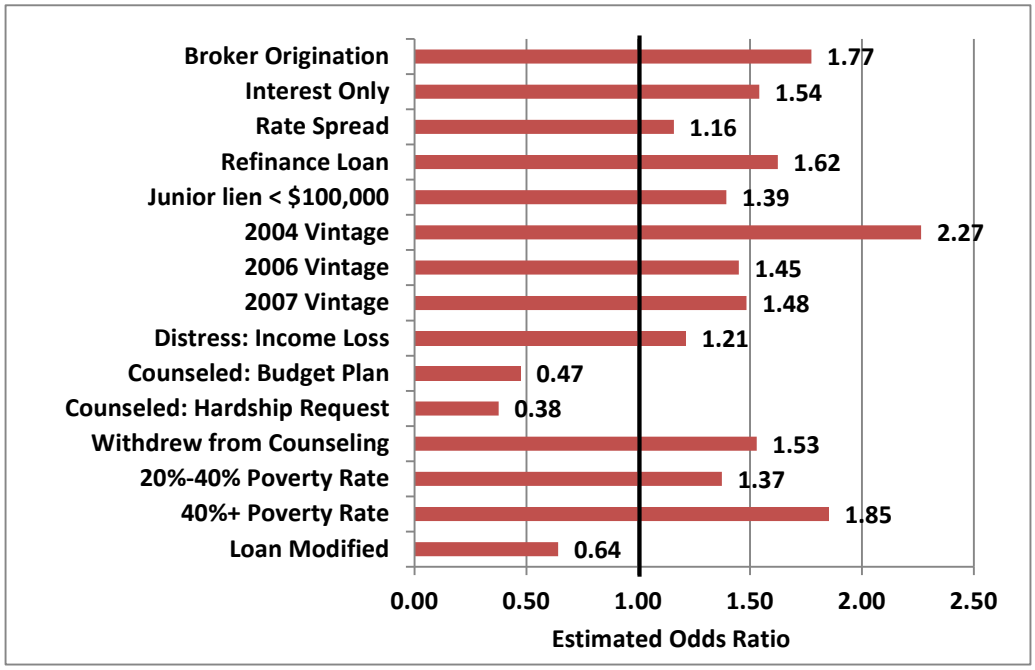


Figure 2: Significant Odds of Post-Intake Transition to Default (90+ days)



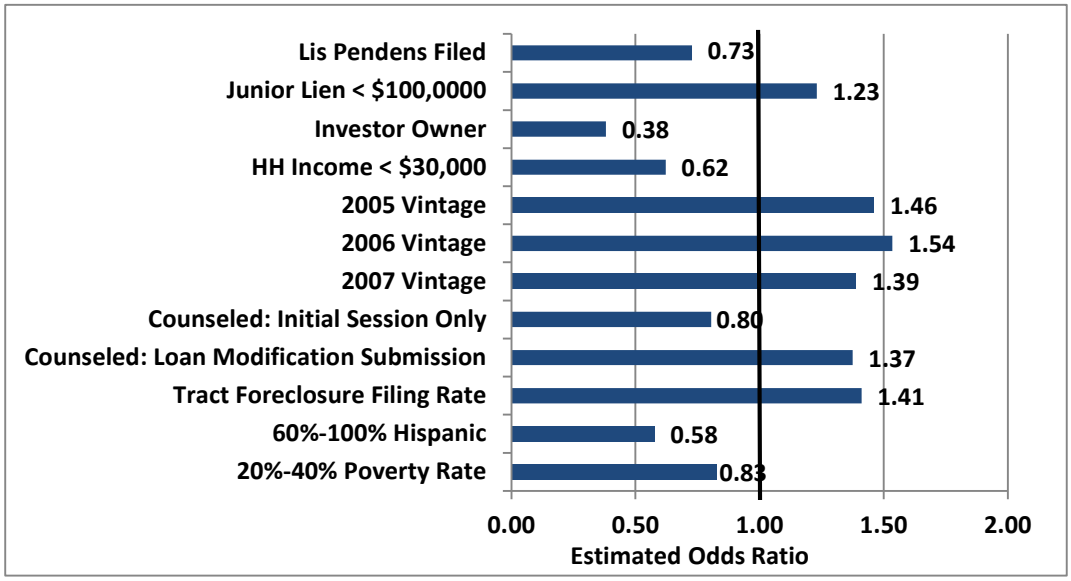
Note: Statistically significant (p<0.05) logistic regression odds ratios with robust standard errors. N=3,728; Psuedo R^2=0.05; 87% correctly predicted by model. Sample excludes borrowers who reported default or foreclosure at time of intake or for whom matched administrative records indicated a foreclosure filing prior to intake. Other covariates (not significant) listed in Table 6.

Figure 3: Significant Odds of Post-Intake Transition to Foreclosure (*Lis Pendens*)



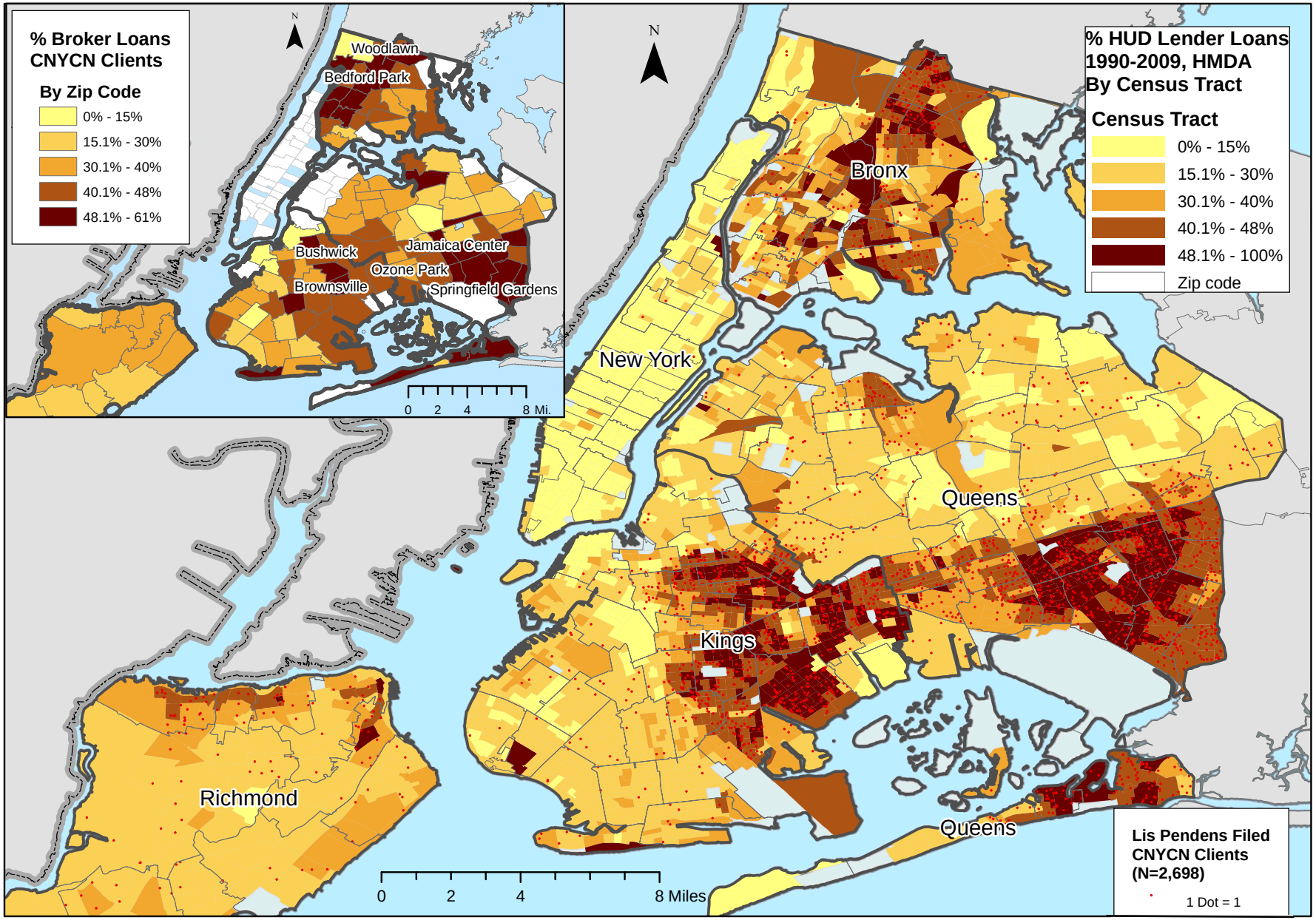
Note: Statistically significant (p<0.05) logistic regression odds ratios with robust standard errors. N=4,884; Psuedo R^2=0.12; 67% correctly predicted by model. Sample excludes all borrowers in foreclosure at time of intake. Other covariates (not significant) listed in Table 6.

Figure 4: Significant Odds of Post-Intake Loan Modification Conditional on Request



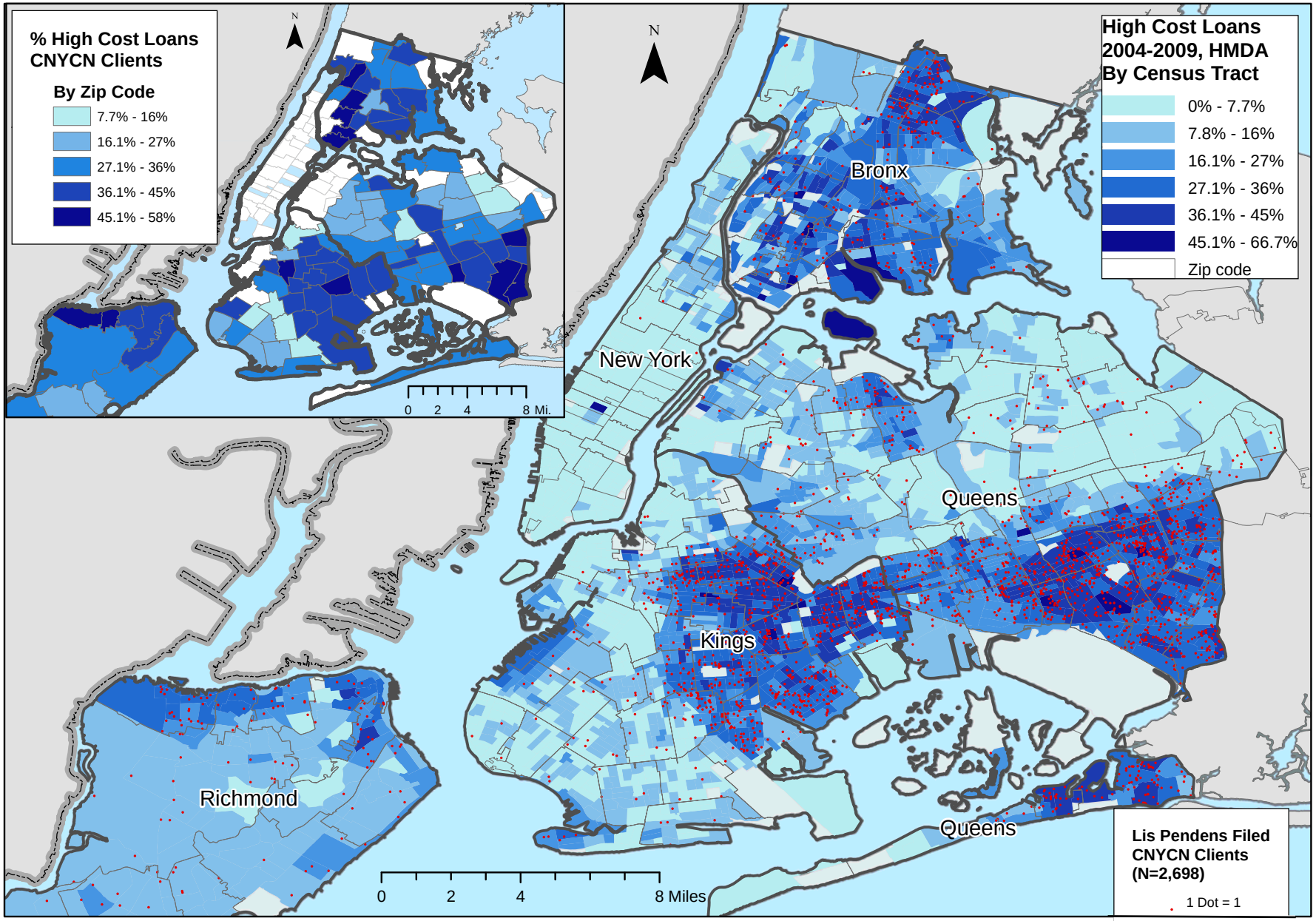
Note: Statistically significant (p<0.05) logistic regression odds ratios with robust standard errors. N=4,386; Psuedo R^2=0.04; 71% correctly predicted by model. Sample includes only borrowers who requested a loan modification (51% of all CNYCN database).

Map Exhibit 1: Percent Broker Loans Among CNYCN Clients by Zip Code and all New York City Borrowers by Tract (HMDA)
Location of CNYCN Clients Lis Pendens Foreclosure Filings by Tract



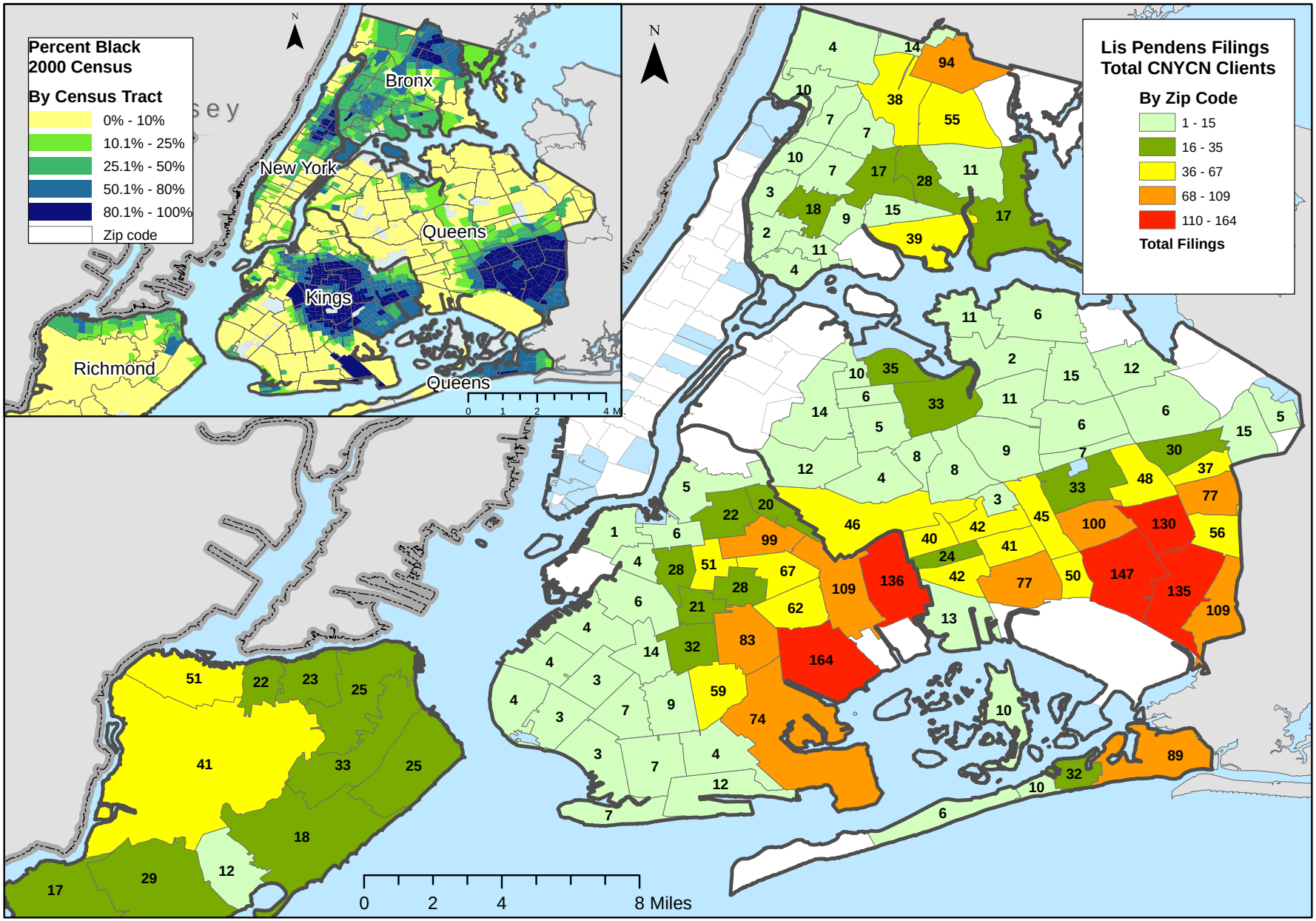
Created by Jacob S. Rugh, Princeton University. See text for data sources.

Map Exhibit 2: Percent High Cost Loans Among CNYCN Clients by Zip Code and all New York City Borrowers by Tract (HMDA)
Location of CNYCN Clients Lis Pendens Foreclosure Filings by Tract



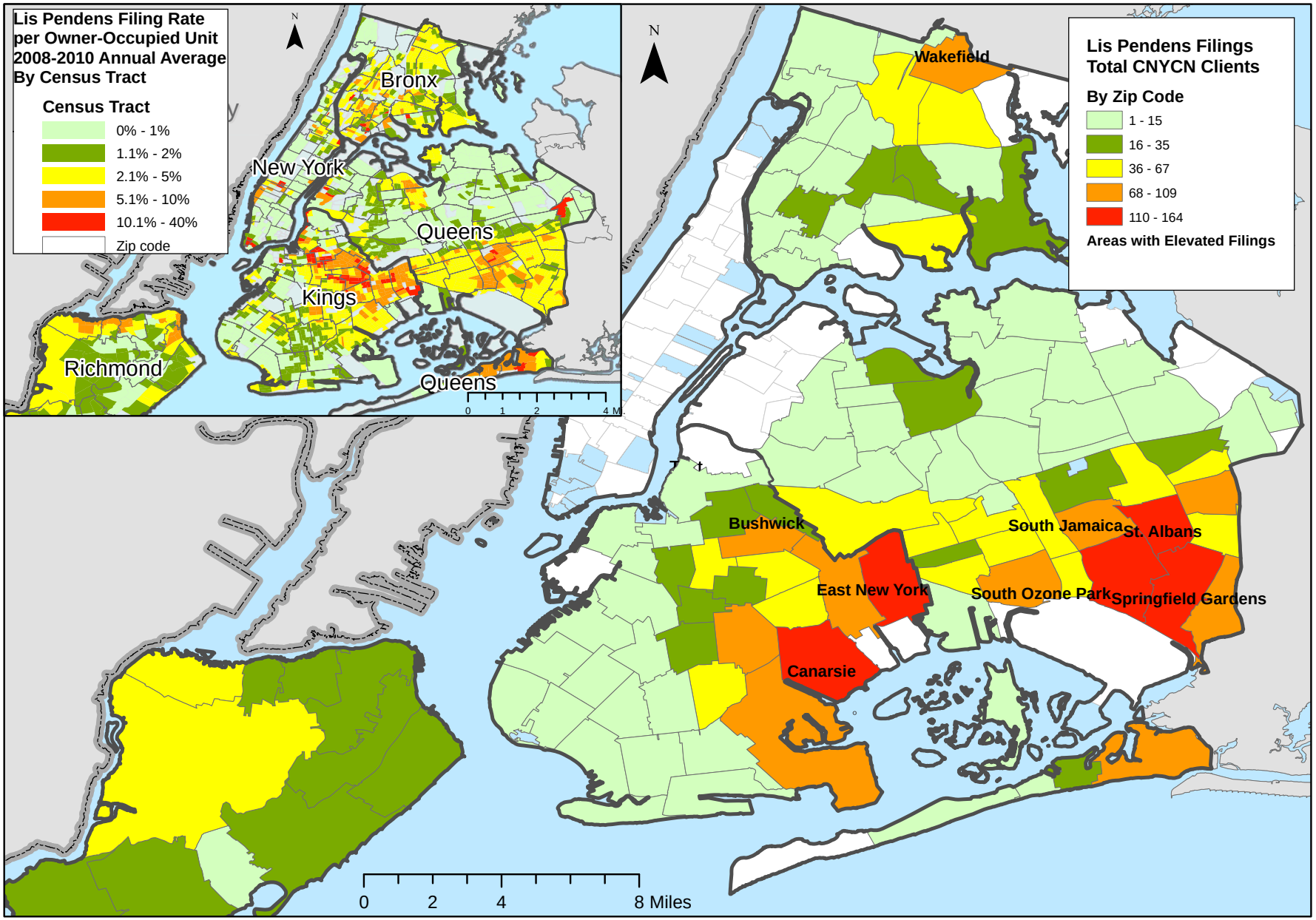
Created by Jacob S. Rugh, Princeton University. See text for data sources.

Map Exhibit 3: Percent Black Population, 2000 Census by Tract and Total Lis Pendens Foreclosure Filings among CNYCN Clients by Zip Code



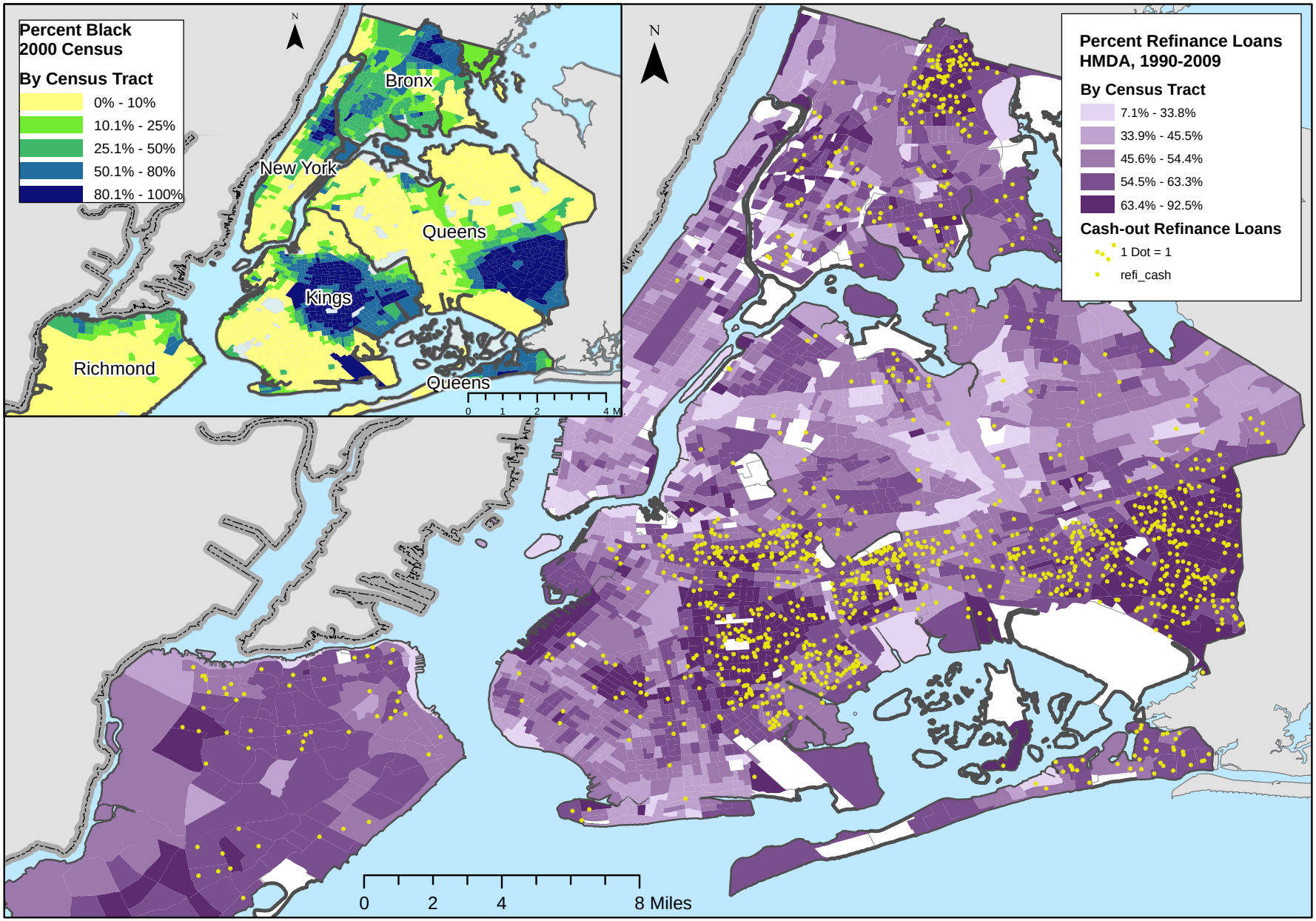
Created by Jacob S. Rugh, Princeton University. See text for data sources.

Map Exhibit 4: Lis Pendens Foreclosure Filing Rate by Tract and Total Filings among CNYCN Clients by Zip Code and Areas with Elevated Filings



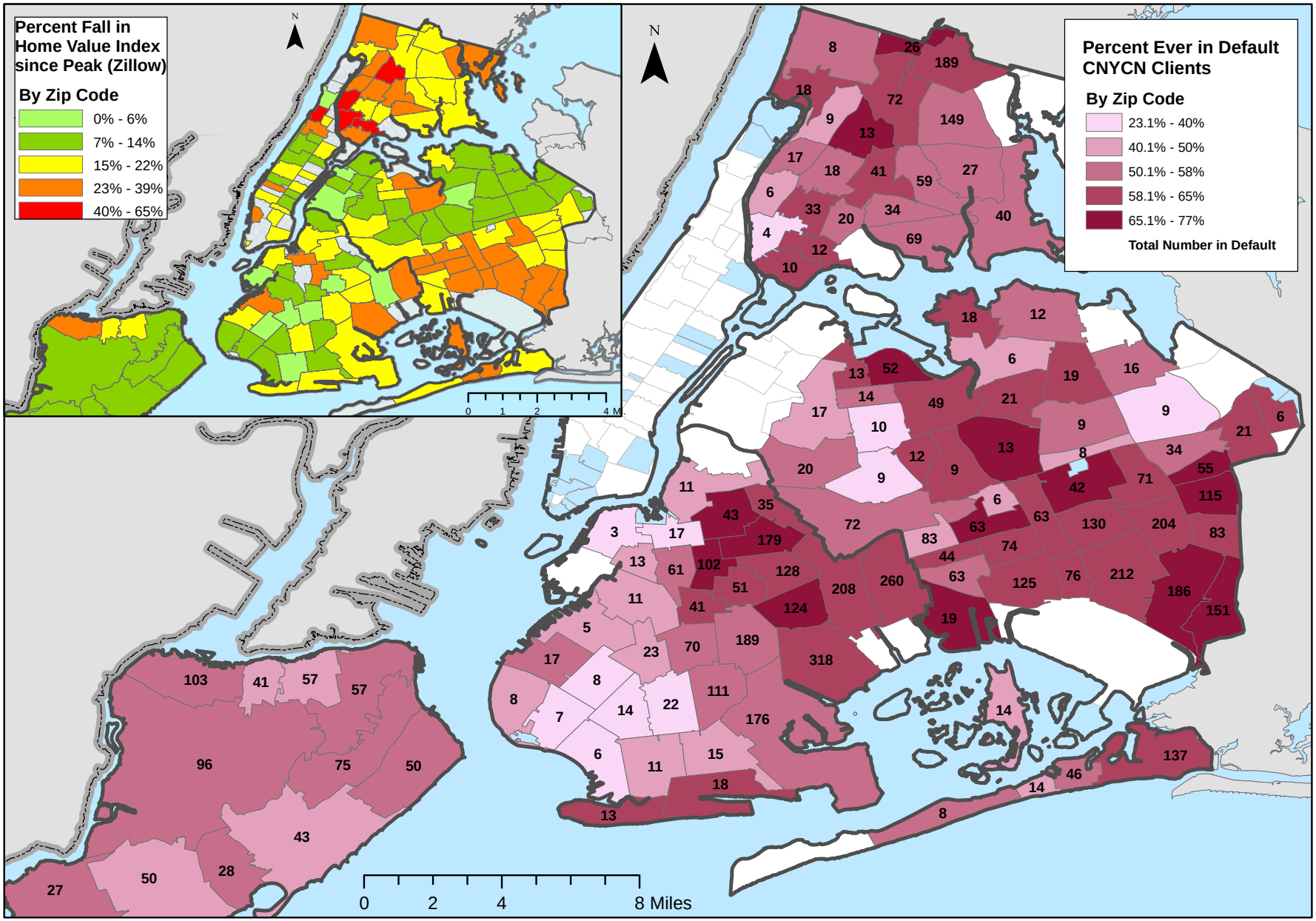
Created by Jacob S. Rugh, Princeton University. See text for data sources.

Map Exhibit 5: Percent Black Population, 2000 Census by Tract, Percent Refinance Loans Among All New York City Borrowers (HMDA), and location of CNYCN Clients with Cash-out Refinance Loans.



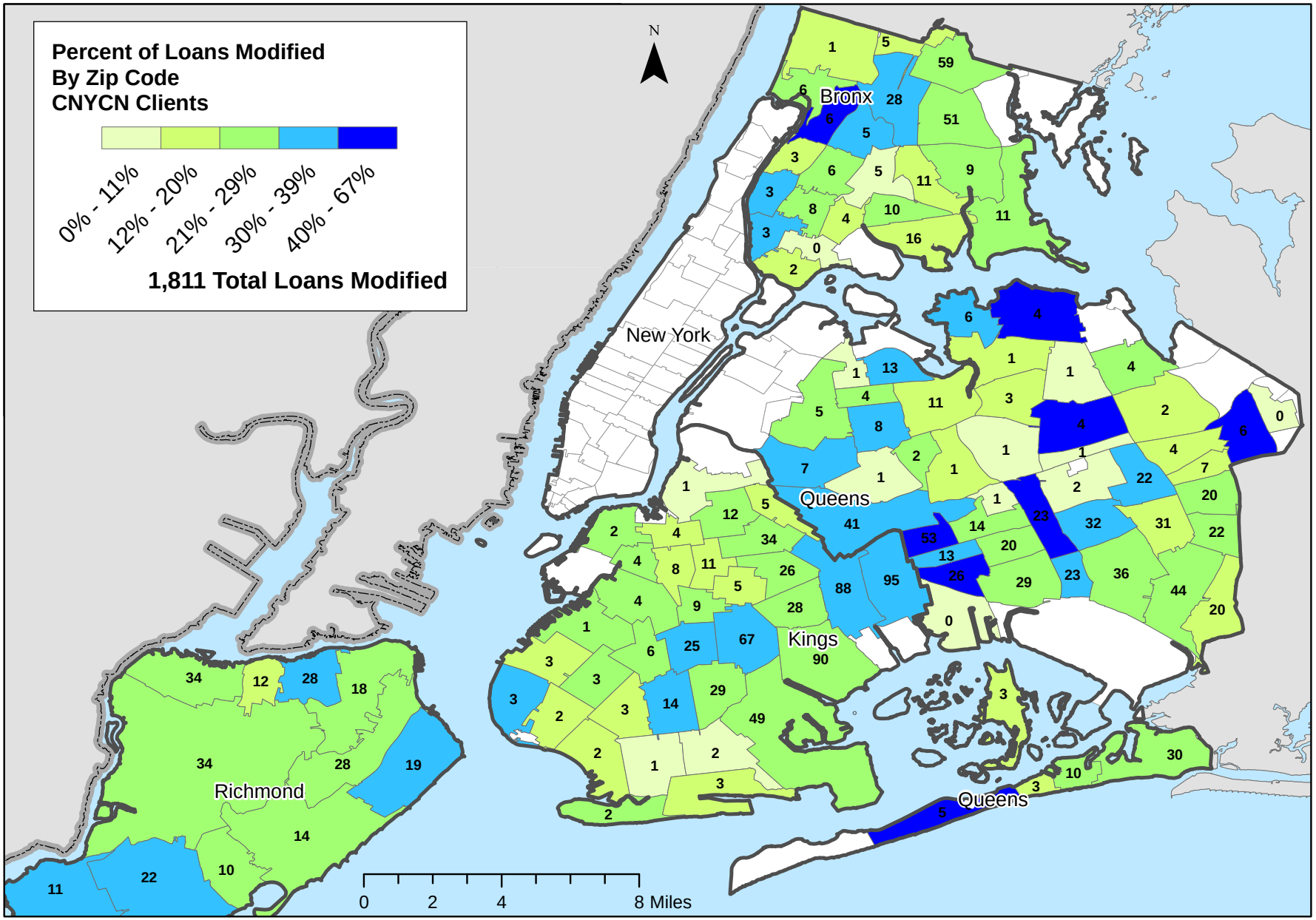
Created by Jacob S. Rugh, Princeton University. See text for data sources.

Map Exhibit 6: Home Value Index Decline by Zip Code and Percent of CNYCN Clients Ever in Default (90+ days) by Zip Code and Total Number of Clients Ever in Default by Zip Code



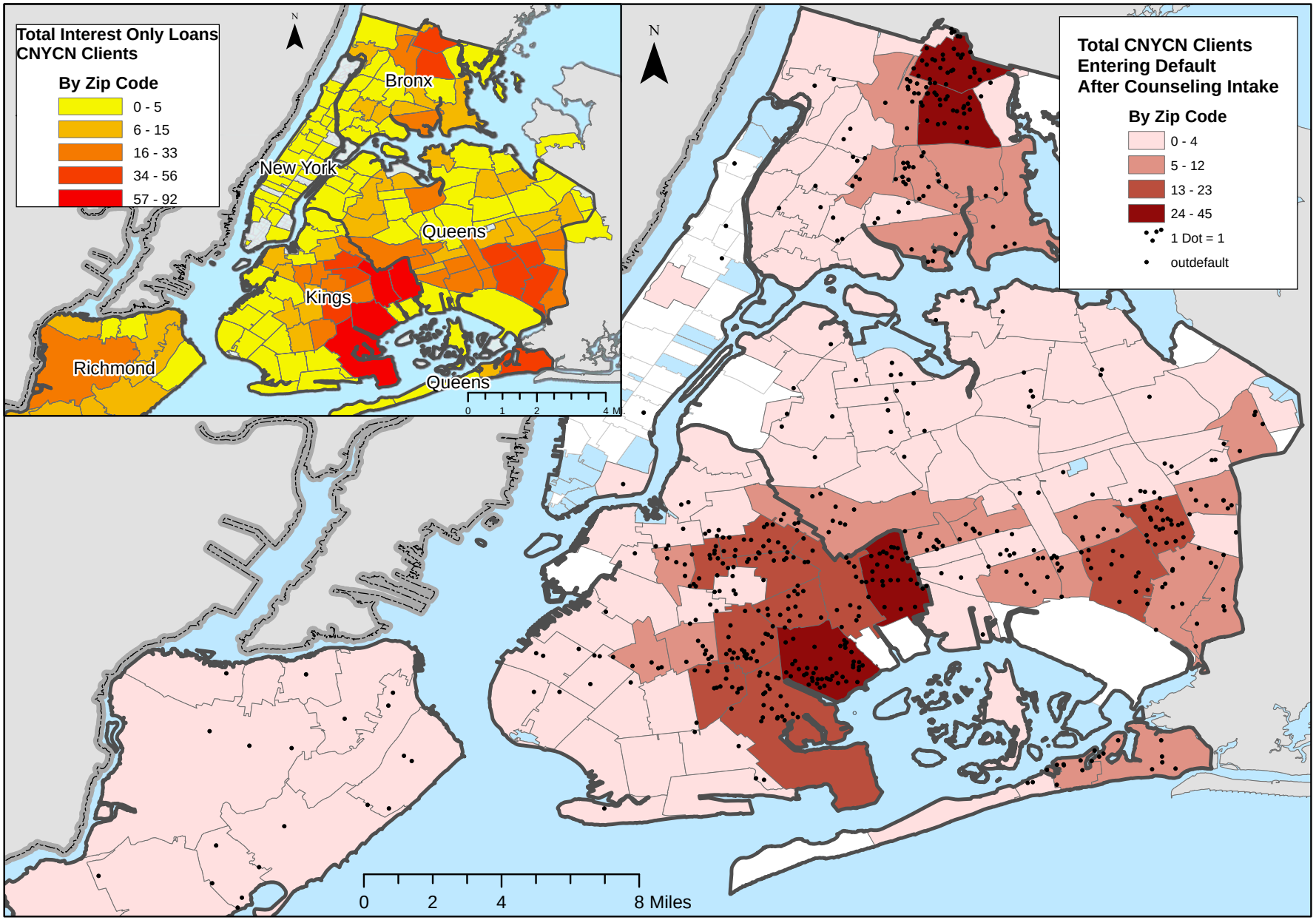
Created by Jacob S. Rugh, Princeton University. See text for data sources.

Map Exhibit 7: Percent of Loans Modified among CNYCN Clients Who Submitted a Modification Request, by Zip Code, and Total Number of Loans Modified by Zip Code



Created by Jacob S. Rugh, Princeton University. See text for data sources.

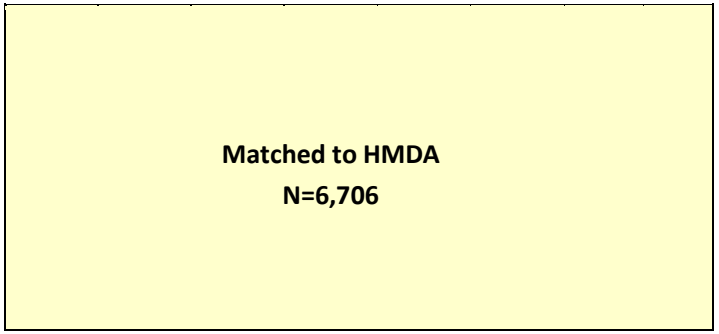
Map Exhibit 8: Total Interest Only Amortization Loans among CNYCN Clients by Zip Code, Total Number of Clients Who Enter Default After Housing Counseling Intake and Location by Census Tract within Zip Codes



Created by Jacob S. Rugh, Princeton University. See text for data sources.

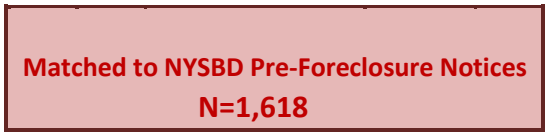
Chapter 2 Appendix
Tables and Figures

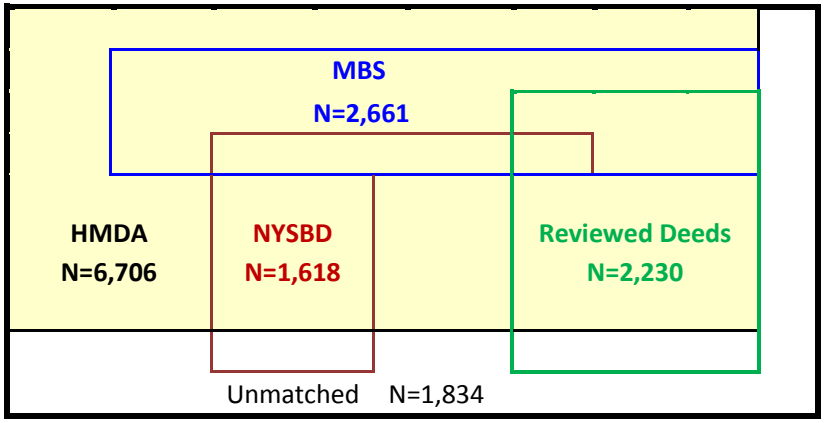
Figure A1: Sample Size and Overlap of Matched Data Sets











Total potential records to match in final analysis file: 9,160
Combined total overlap of matched sources: 7,326
Percent of analysis file records matched: 80%

Missing amount, zip code, or year; pre-1990 loans; HECMs; HELOCs, or not in New York City: N=2,774

Total records in data file: 9,160 + 2,774 = 11,934

Figure A2:
Number of Loans Matched to HMDA Data by Year of Origination, 1990-2009
Overall: 6,706 of 9,160 (73%)

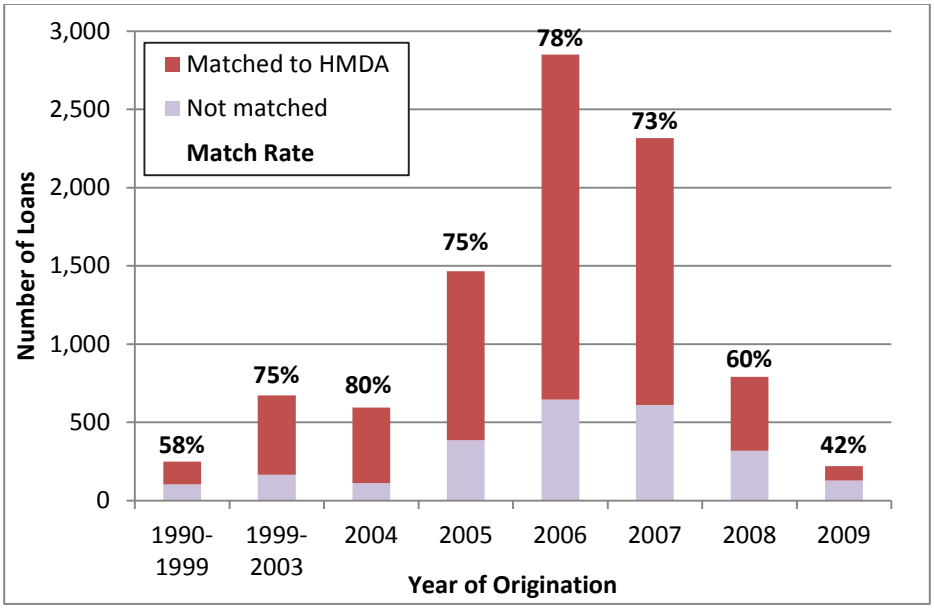


Figure A3:
Number of Privately Securitized Loans Matched to
Private Label Mortgage-backed Securities Data by Year of Origination, 1990-2007
Overall: 2,661 of 4,266 (62%)

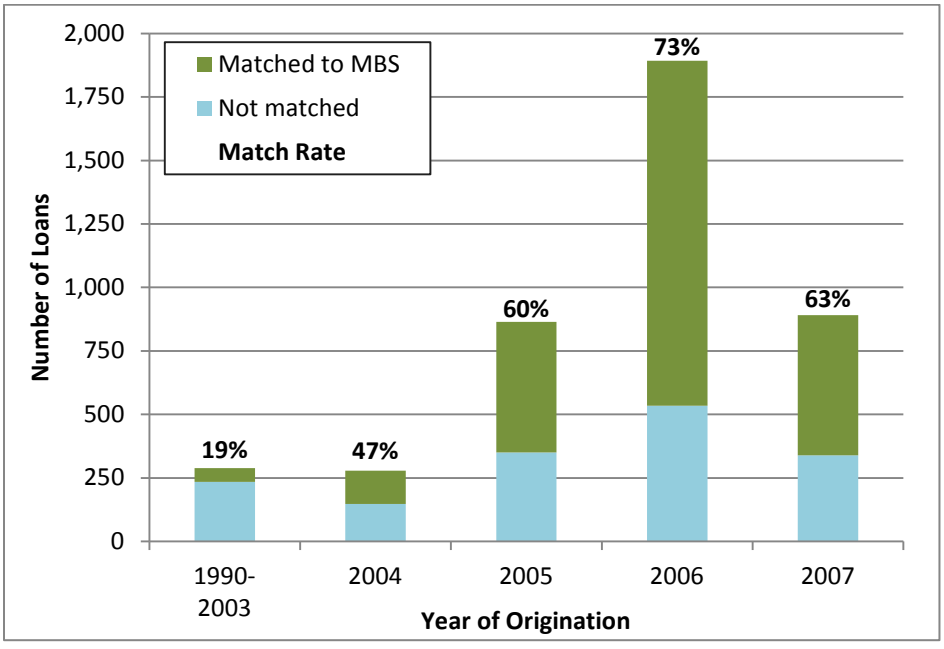


Table A1: Distribution of Private Label Mortgaged-backed Securities Data Sources in Outside Source File and Matched CNYCN Data File

Private Label MBS Data Source	All NYC Loans	Column Percent	Matched to CNYCN	Column Percent
SEC Prospectus Filings MBS Collateral Files	21,275	14%	642	24%
Corporate Trust Services: Not Wells Fargo Deals	104,222	67%	1,634	61%
Corporate Trust Services: Wells Fargo Deals	8,310	5%	58	2%
CitiMortgage MBS Investor Information Portal	8,952	6%	41	2%
U.S. Bank Trust Investor Reporting System	11,644	8%	286	11%
Total Private Label MBS Loans	**154,403**	**100%**	**2,661**	**100%**

Table A2:
Loan Origination, Performance, and Modification Outcomes by New York City Borough

	N	Broker Loan	Subprime Refinance Loan	High Cost Loan	Default 90+ Days	Foreclosure *Lis Pendens*	Loan Modified
Bronx	*1,544*	37%	39%	38%	30%	28%	24%
Brooklyn	*3,963*	37%	40%	39%	29%	29%	26%
Manhattan	*68*	21%	0%	18%	27%	8%	13%
Queens	*4,263*	36%	37%	37%	20%	41%	27%
Staten Island	*1,258*	27%	35%	35%	27%	24%	27%
Total	***11,107***	**36%**	**38%**	**37%**	**26%**	**33%**	**26%**

Source: Author's calculations based on data from CNYCN, HMDA Reporter Panel (broker), HUD (subprime lender), and FFIEC HMDA LAR file, and U.S. Treasury Long Term Maturities data, and loan-level mortgage-backed securities collateral file updates. Default is measured exclusive of foreclosure.

Table A3: Distribution of CNYCN Borrowers by Race, Key Outcomes
Top 10 HUD Subprime Lenders versus Top 10 Other Lenders in CNYCN Matched Data Set

		Distribution of Borrowers by Race				*Key Outcomes*					
Panel A: Top 10 Subprime Lenders	***N***	**Asian**	**Black**	**White**	**Hispanic**	**Broker Lender**	**Refinance Loan**	**High Cost Loan**	**Default 90+ days**	**Foreclosure *Lis Pendens***	**Loan Modified**
1. Fremont	*479*	5%	69%	5%	19%	11%	52%	78%	74%	49%	34%
2. New Century	*321*	5%	66%	7%	21%	100%	53%	69%	72%	42%	28%
3. Option One	*316*	7%	63%	11%	17%	100%	67%	65%	68%	41%	35%
4. Delta Funding	*244*	2%	74%	5%	16%	100%	94%	51%	67%	48%	34%
5. WMC	*181*	8%	62%	4%	26%	99%	40%	81%	72%	54%	22%
6. Argent	*196*	2%	65%	7%	25%	100%	71%	63%	69%	42%	34%
7. First Franklin	*157*	4%	62%	6%	26%	5%	41%	79%	76%	54%	41%
8. Alliance	*107*	1%	62%	6%	30%	99%	18%	19%	78%	55%	28%
9. Accredited	*113*	2%	61%	10%	27%	98%	65%	66%	72%	43%	37%
10. Ameriquest	*83*	4%	63%	13%	17%	98%	81%	63%	63%	41%	32%
Total Loans	***2,197***	**4%**	**66%**	**6%**	**21%**	**73%**	**60%**	**67%**	**71%**	**45%**	**34%**
Panel B: Top 10 Other Lenders	***N***	**Asian**	**Black**	**White**	**Hispanic**	**Broker Lender**	**Refinance Loan**	**High Cost Loan**	**Default 90+ days**	**Foreclosure *Lis Pendens***	**Loan Modified**
1. JP Morgan Chase	*839*	10%	50%	15%	21%	7%	31%	22%	47%	19%	16%
3. Wells Fargo	*774*	9%	47%	16%	26%	10%	40%	18%	59%	28%	27%
3. Countrywide	*690*	7%	54%	11%	24%	28%	48%	26%	55%	27%	27%
4. IndyMac	*689*	8%	49%	11%	29%	13%	46%	30%	57%	32%	27%
5. Bank of America	*467*	7%	44%	17%	27%	14%	30%	14%	52%	16%	20%
6. Citi	*443*	8%	51%	13%	25%	17%	35%	13%	46%	21%	27%
7. WaMu	*406*	14%	44%	17%	22%	16%	46%	16%	55%	30%	22%
8. HSBC	*307*	17%	47%	13%	20%	4%	24%	8%	47%	25%	26%
9. Greenpoint (alt-A)	*146*	15%	45%	14%	22%	6%	46%	28%	60%	28%	26%
10. Emigrant	*151*	5%	55%	25%	14%	5%	63%	78%	69%	44%	5%
Total Loans	***4,912***	**10%**	**50%**	**15%**	**25%**	**13%**	**40%**	**22%**	**54%**	**26%**	**23%**
Memo: All CNYCN	***11,934***	***7%***	***54%***	***12%***	***23%***	***41%***	***45%***	***37%***	***60%***	***34%***	***24%***

Source: Author's calculations using data from CNYCN, HMDA, NYSBD, and private label MBS loan collateral files.

Table A4: Default, Foreclosure, and Modification Rates by Servicer
Top 10 Largest Servicers in CNYCN Database

	% Ever in Default (90+ Days)	*N*	Asian	Black	White	Hispanic	Other	Total
1	BAC (Bank of America/Countrywide)	*1,766*	51%	64%	52%	47%	69%	**58%**
2	JPMorgan Chase/WaMu/EMC	*1,592*	44%	57%	48%	53%	61%	**53%**
3	Wells Fargo Bank/Wachovia	*1,249*	59%	63%	56%	56%	74%	**60%**
*	Wells Fargo-America's Servicing Co.	*623*	69%	78%	67%	72%	82%	**75%**
4	Ocwen/Litton	*845*	64%	70%	75%	63%	61%	**68%**
5	One West/IndyMac	*789*	60%	57%	56%	55%	59%	**57%**
6	CitiMortgage	*708*	41%	59%	48%	44%	68%	**53%**
7	HSBC Bank	*524*	51%	54%	33%	53%	75%	**51%**
8	American Home Mortgage	*514*	82%	68%	66%	61%	57%	**67%**
9	GMAC/Ally Bank	*298*	58%	63%	67%	62%	88%	**64%**
10	PNC Bank/National City Bank	*260*	71%	79%	71%	77%	67%	**77%**
	Total	***9,168***	**54%**	**64%**	**53%**	**56%**	**68%**	**60%**

	% in Foreclosure (*Lis Pendens*)	*N*	Asian	Black	White	Hispanic	Other	Total
1	BAC (Bank of America/Countrywide)	*1,766*	19%	30%	23%	24%	45%	**28%**
2	JPMorgan Chase/WaMu/EMC	*1,592*	23%	27%	22%	24%	47%	**26%**
3	Wells Fargo Bank/Wachovia	*1,249*	28%	32%	29%	27%	54%	**31%**
*	Wells Fargo-America's Servicing Co.	*623*	45%	49%	39%	52%	59%	**49%**
4	Ocwen/Litton	*845*	33%	45%	52%	32%	35%	**42%**
5	One West/IndyMac	*789*	31%	35%	33%	30%	35%	**33%**
6	CitiMortgage	*708*	19%	30%	19%	22%	46%	**27%**
7	HSBC Bank	*524*	25%	26%	15%	28%	33%	**25%**
8	American Home Mortgage	*514*	46%	42%	40%	34%	43%	**41%**
9	GMAC/Ally Bank	*298*	29%	43%	46%	40%	69%	**42%**
10	PNC Bank/National City Bank	*260*	41%	56%	35%	55%	56%	**53%**
	Total	***9,168***	**27%**	**35%**	**27%**	**30%**	**47%**	**33%**

	% Loans Modified	*N*	Asian	Black	White	Hispanic	Other	Total
1	BAC (Bank of America/Countrywide)	*1,766*	27%	20%	27%	32%	13%	**24%**
2	JPMorgan Chase/WaMu/EMC	*1,592*	18%	17%	17%	22%	15%	**18%**
3	Wells Fargo Bank/Wachovia	*1,249*	26%	24%	25%	27%	24%	**25%**
*	Wells Fargo-America's Servicing Co.	*623*	53%	29%	32%	27%	27%	**30%**
4	Ocwen/Litton	*845*	20%	37%	31%	34%	14%	**35%**
5	One West/IndyMac	*789*	22%	28%	29%	27%	5%	**27%**
6	CitiMortgage	*708*	31%	21%	19%	32%	13%	**24%**
7	HSBC Bank	*524*	22%	21%	11%	25%	14%	**21%**
8	American Home Mortgage	*514*	40%	33%	47%	25%	29%	**33%**
9	GMAC/Ally Bank	*298*	10%	24%	17%	17%	25%	**21%**
10	PNC Bank/National City Bank	*260*	63%	39%	17%	35%	33%	**37%**
	Total	***9,168***	**25%**	**24%**	**24%**	**27%**	**16%**	**25%**

*America's Servicing Company is Wells Fargo division that services loans *not* originated by Wells Fargo.

III. A PERFECT STORM: WHY LATINOS WERE HIT HARDEST BY THE U.S. HOUSING CRISIS

Recent research has confirmed that Black and Latino homeowners have been disproportionately negatively affected by the recent housing crisis in the United States. Bocian, Li, Reid, and Quercia (2011) report that the completed foreclosure rate is 11.9 % for Latinos and 9.8% for African Americans, compared to 6.6% for Asians and 5.1% for non-Hispanic whites. Kochar, Fry, and Taylor (2011) found that from 2005 to 2009, median home equity held by Latinos plummeted by half from just under $100,000 to slightly over $49,000. As a result, over this period the median net worth of Latino households fell by 66% and that of black households by 53%, compared to only 16% for whites. And Currie and Temkin (2011) find that Latinos suffer more negative health outcomes as a direct consequence of elevated local foreclosures. Thus, for Latinos, the housing crisis has been nothing short of a perfect storm.

As I document here, the reasons transcend individual differences. Indeed, the causes are fundamentally structured by the way the housing crisis unfolded over time and space for different groups. I argue that Latinos bore unique additional risks during the housing boom due to key differences in residential patterns, loan purpose, and product type usage by ethnicity.[15] These individual differences between Latinos and other groups were driven primarily by broader forces such as historical settlement patterns, immigration, household formation, and domestic migration. New Latino settlement patterns and population growth were heavily concentrated where risky subprime and exotic near-prime alt-A loans were made, especially during the peak of the housing boom. I find that Latino residential concentration, rates of population growth, and settlement patterns explain close to half the observed Latino-white foreclosure gap, confirming

[15]These factors also explain why foreclosure rate among Latinos did not exceed that among blacks until 2011. As recently as 2009, the foreclosure rate for blacks was 7.9%, for Latinos, 7.7% (Bocian, Li, and Ernst 2010).

prior hypotheses (e.g., Kochar, Fry, and Taylor 2011). Together with individual borrower and loan differences, and social, market, legal, and institutional forces, I am able to explain about four-fifths of the ethnic disparity in foreclosure. I also uncover other factors either not connected to Latinos' fate or not measured by prior research. These factors include the independent effect of labor market declines where Latinos live, as well as Latino disadvantage in access to legal due process, housing counseling, and loan modifications.

Why Have Latinos Been Hit Hardest?

Latinos in the U.S. often occupy a residential and social position between whites and blacks (Charles 2003; Farley and Frey 1994, Fischer and Tienda 2006; Morenoff and Tienda 1997, Logan 2003; Logan and Zhang 2010, 2012; Massey 2007). I argue that this middle position exposed them to the worst of two worlds in the housing boom and bust. On the one hand, beginning in the 1990s Latinos were first subject to discriminatory subprime lending in segregated black and Latino neighborhoods (Been, Ellen, and Madar 2009; Rugh and Massey 2010; Squires, Hyra, and Renner 2009; Williams, Nesiba, and McConnell 2005). Subprime lending that spread to all groups has been rightly indicted as a chief cause of the foreclosure crisis (Engel and McCoy 2011). On the other hand, upward bound Latinos and to a lesser extent, blacks in interior cities and suburbs, found themselves enmeshed in a second and even larger wave of risky nonprime lending that began a decade later. This wave rose highest in the heavily Latino metros of Las Vegas, Miami, Orlando, Phoenix, Riverside, and California's Central Valley, and spread wherever incomes failed to keep up with home prices. The suburban regions of several Sun Belt metro areas became majority-minority between 2000 and 2010, including foreclosure centers Stockton, Las Vegas, and Riverside (Frey 2011).

This second surge in nonprime lending was fueled primarily by the invention of exotic "alt-A" loans: low- and no-documentation interest only and pay option loans. These permitted borrowers of all races to keep up with rising home prices as investor owners entered the market.[16] These loans were made to borrowers with higher incomes and credit scores and began to take off in 2004, growing far more rapidly than subprime lending (Inside Mortgage Finance 2008; Morgenson and Rosner 2011; Wachter and Levitin 2011).[17] This second wave of nonprime lending to a broader array of borrowers came much later than the subprime wave that began in previously redlined inner city neighborhoods in the 1990s (Williams, Nesiba, and McConnell 2005; Hernández 2009; Howell 2006; Stuart 2003). The 2004-2007 wave was alarmingly similar to the abusive lending practices of the earlier wave (Engel and McCoy 2011; Hudson 2010).

When the wave of risky subprime and especially exotic nonprime alt-A loans accelerated in 2004, the homeownership rate for blacks and whites peaked. However, it did not peak among Asians until 2006, and for Latinos, until 2007 (U.S. Census Bureau CPS/HVS 2012). Thus while black homeownership rates were falling during the second, larger wave of nonprime lending, they continued rising for Latinos. The rise meant Latinos made up an increasing share of new borrowers with risky loans, little equity cushion, and the unfortunate (but of course impossible to forecast at the time) position of being most likely (along with Asians) to buy at the peak of the boom. The homeownership rate kept rising for Latinos and Asians partly due to a younger age

[16]Calem, Nakamura, and Wachter (2011:92) describe the characteristics and contribution of alt-A loans to the housing bubble, "[S]o-called alt-A lending, consisted largely of non-traditional credit products originated to prime or near-prime borrowers. These products, including interest-only and option adjustable rate mortgages and low-documentation, stated-income loans, enabled borrowers to purchase a larger home (or to cash-out a larger amount of equity in connection with a refinancing) than they could have under traditional underwriting standards. These products likely fueled demand for higher priced homes and accelerated the decline in housing affordability."

[17]These nonprime loans were euphemistically called alt-A loans—alternative to A or prime loans primarily due to lower standards of loan documentation (which eventually spread to subprime loans) but have demonstrated in many ways that the crisis stems more from risky *lending* than risky *borrowers*. Per the Federal Reserve Bank of New York, the percent of alt-A loans in foreclosure at the end of 2010 was equal to share of subprime loans in heavily Latino states such as California, Nevada, Florida, and Illinois (See http://www.newyorkfed.org/creditconditions/).

structure and other factors, but mostly due to continued immigration (Kochhar, Gonzalez-Barrera, and Dockterman 2009).

The sequence and structure of the U.S. foreclosure crisis over time and across the metropolitan landscape mirrors the first boom in subprime and later nonprime alt-A lending. Central cities bore the brunt of the foreclosure crisis when it was being driven by subprime mortgage defaults in late 2008; the crisis shifted to suburban regions in once-booming housing markets where home price declines were especially swift and pronounced (Immergluck 2010). Thus, while blacks and Latinos bore the brunt of the subprime crisis in 2006-2008 (Rugh and Massey 2010), the burden has since shifted to Latinos.[18] Risky subprime and nonprime alt-A lending transformed the otherwise beneficial social mobility of Latinos from the American dream of homeownership into a nightmare. Instead of building opportunity, income, and home equity among Latinos, risky lending drained wealth and increased suburban poverty (Kochar, Fry, and Taylor 2011; Kneebone and Garr 2010). Ultimately it caused employment to disappear and net immigration to dry up (Massey and Pren 2012; Passel, Cohn, and Gonzalez-Barrera 2012).

The Penalties of Success: How Upward Mobility Made Latinos Vulnerable to the Crisis

Latinos were increasingly caught up by both the subprime and nonprime stages of the boom in lending and the urban and suburban stages of the foreclosure crisis partly due to sheer population growth. The U.S. Latino population grew from 35.3 million in 2000 to 50.5 million as of 2010 (Ennis, Rios-Vargas, and Albert 2011).[19]Although the volume of immigration from

[18] It is important to note that blacks in the U.S. still face higher overall foreclosure rates than Latinos in several major cities, but far fewer compared to Latinos. The foreclosure rate among black borrowers in my sample exceeds that of Latino borrowers in Atlanta, Baltimore, Boston, Birmingham, Cincinnati, Detroit, Kansas City, Philadelphia, Milwaukee and other similar cities (see also Bocian, Li, Reid, and Quercia 2011). Blacks may fare worse where the foreclosure crisis remained primarily caused by predatory subprime refinance lending structured by black segregation (Rugh and Massey 2010; Rugh 2012; Squires and Hyra 2010; Squires, Hyra, and Renner 2009).
[19]By comparison, the black population increased from 36.4 million to 42.0 million over the same period (Rastogi, Johnson, Hoeffel, and Drewery 2011).

Latin America was greater than any previous decade except the 1990s, increases in the Latino population are now driven by natural increase rather than immigration (Johnson and Lichter 2008; Pew Hispanic Center 2011). While three out of four Latinos claim Mexican, Puerto Rican, or Cuban origin, the Latino population of Dominican, and Central and South American origins more than doubled from 3.8 million to 8.1 million in the last decade alone (Ennis, Rios-Vargas, and Albert 2011).

The Latino population is as diverse as it is large (e.g., Alba and Nee 2003; National Academies Press 2006; Portes and Rumbaut 2006; Taylor, Lopez, Martinez, and Velasco 2012). As a whole, Latino immigrants and their native born children have been upwardly mobile, with homeownership rates rising rapidly with tenure in the U.S. and across generations (Myers 1999; Park and Myers 2010). Many Latinos are continually advancing towards markers of the middle class mainstream like college attainment and homeownership, often more quickly than previously imagined (Park and Myers 2010; Myers 2012).

By way of the process of spatial assimilation Latino immigrants strive to achieve improved opportunities for the next generation by translating better education and jobs into more desirable, often suburban, neighborhoods and schools (Iceland and Wilkes 2006; Massey and Denton 1985). Meyers (1999:920) argued that due to their ongoing spatial assimilation, upwardly mobile Latinos lend a "demographic dynamism" to places where they migrate and settle.[20] As Massey (1984) and more recent authors have noted, because immigration from Latin America has not ceased, the process of Latino spatial assimilation is ongoing, and evolving (Alba and Nee 2003; Iceland and Wilkes 2006; Iceland 2009).

[20]A corollary of this argument holds that because immigrants continue to replenish the Latino population, static snapshots of cross-sectional data often fail to reflect the economic and intergenerational mobility of immigrants within the Latino population (Myers 1999).

The rapid dispersal and suburbanization of the foreign born Latino population represents one of the most important examples of how spatial assimilation has evolved (e.g. Durand, Massey, and Charvet 2000; Frey 2003, 2011; Johnson 2010; Jones-Correa 2006; Hall 2010; Hardwick 2008; Massey and Capoferro 2008; Massey, Rugh, and Pren 2009; Singer 2004, 2008, 2009). An important consequence of this shift in the historical trend is that many Latinos settle in places where homeownership was more probable than it was for prior immigrant cohorts. An increasing share of Latino immigrants purchased a home for the first time during the two waves of nonprime lending boom. In 1995, only 12% of immigrants who had been in the U.S. less than five years were homeowners, whereas in 2008 21% of immigrants who arrived since 2003 had become homeowners (Kochhar, Gonzalez-Barrera, and Dockterman 2009).

Contrary to public perception and media narratives (Chavez 2001, 2008), less than one in five Latinos are estimated to be undocumented immigrants (Passel and Cohn 2011). The recent rise of the undocumented segmented of the Latino population brings with it new forms of residential segregation structured on legal status and urban-rural context (Hall and Stringfield 2011; Lichter, Parisi, Taquino, and Grice 2010). Immigrant Latinos with fewer assets may have held a more tenuous grasp on the American dream. Owing to their legal status, undocumented immigrants may be especially at risk (Massey 2007; Massey and Pren 2012). Moreover, Latinos that worked in real estate-related occupations like home construction or landscaping would be doubly vulnerable (Owens 2012). Like a worker who only has employer company stock in their retirement plans, the economic livelihood of Latinos in construction and real estate was as connected to the housing boom as their status as homeowners. Partly because of scant attention in the literature, relatively little is known concerning the size and context of disparities in foreclosure by ethnicity and nativity (see Allen 2011 for an exception).

However, it would be a mistake to conceive of Latino borrowers during the housing boom solely as immigrants, or only connected to real estate construction.[21]The majority of new Latino homeowners during the boom were likely native born children of immigrants who had attended at least some college. These native Latinos were forming households at a more rapid pace than their black or white peers, especially in states like California where whites were postponing homeownership or selling their homes to Latinos and migrating elsewhere (Crowder, Hall, and Tolnay 2010; Frey 2009; Myers 2011; Park and Myers 2010; Zhou and Myers 2010).

In summary, since the 1990s the process of Latino incorporation as homeowners has been organized by the tripartite forces of rapid upward movement and suburbanization of native born Latinos, an acceleration in the rate of homeownership attainment among the foreign born, along with new forms of segregation among the undocumented. All of these trends were peaking at the same time as the runaway growth in risky subprime and alt-A lending. Together this meant that at the peak of the boom in 2007 Latinos were the most likely to be carrying a new, purchase loan in a Sun Belt city or suburb, with little equity, and loaded with risky features. The latter "affordability" features included interest only and negative amortization, monthly payment options, and fast and easy documentation, which may have been disproportionately used for underwriting loans to immigrants (Rugh 2012). These features were not yet invented when white homeownership surged decades earlier and were not even widespread among risky loans when black homeownership rose in the preceding years. By virtue of their concentration in new destinations in the Sun Belt interior dependent on growth and housing, and the unprecedented number of new native and immigrant homeowners, by the time home prices collapsed and foreclosures were unleashed Latinos were directly in the path of the coming storm.

[21]In places where foreign born Latinos outnumber the native born, such as East Los Angeles, Hialeah, and Washington Heights, rates of homeownership are notably lower (see Myers, Painter, Yu, Ryu, and Wei 2005).

So what was the impact of that storm on Latinos? My unique data source allows me to describe the disparities Latinos face and identify the factors that best explain why. By collapsing the data to the county level the ecological correlates of Latino disparities are revealed. Estimates of an ordinary least squares regression isolate potential reasons for Latino disparities in entering and completing foreclosure. The investigation culminates in presenting the main results of an estimation of the determinants of the completed foreclosure rate at the borrower-level using logistic and competing risk regression. Last, I summarize my findings and briefly conclude.

Data Sources

My sample data set consists of loans from nonprime private label[22] mortgage-backed securities (MBS) matched to data on loan originations and borrower characteristics disclosed under the Home Mortgage Disclosure Act (HMDA). Together these two data sources make up the foundation of what I refer to as the MBS-HMDA matched nonprime sample dataset.

The first source is a loan-level data file of conventional mortgage loans on single family properties originated mainly from 2005 through 2007 from the collateral filings of private label MBS deals issued by savings and loans and investment banks listed in Table 1.[23] I downloaded 268,175 loan records from 71 different deals ranging in size from 341 to 14,443 loans each. I also obtained monthly updated status on loan outcomes for 68% of the loans made public to investors through several web site portals.[24] The majority of U.S. mortgage loans made in 2006 and early 2007 were packaged into private label MBS (Inside Mortgage Finance 2008). In this

[22]Loans *not* guaranteed or purchased by government sponsored enterprises Fannie Mae, Freddie Mac, or Ginnie Mae.
[23]Investment vehiclesof these firms issued the MBS deals and reported these loan-level data in publicly available filings online to the Securities and Exchange Commission Edgar company filings web site. Approximately 96%, or 257,214, of the loans in the resulting data set were originated during 2005, 2006, and 2007.
[24]These portals are maintained by Citigroup Investor Reporting for Structured Finance, Citimortgage REMIC Reporting, Wells Fargo Corporate Trust Services, and U.S. Bank Trust Investor Reporting.

sense, the sample is reflective of mortgage loans made during the peak of the housing boom.[25]

I used information from the MBS data set on year of loan origination, loan amount, purpose, occupancy, original interest rate, originator name, and property zip code to match 2005-2007 loans to those reported under HMDA Loan Application Register file.[26] I matched 80% of the MBS loans to HMDA loans using the aforementioned variables as matching criteria, resulting in a final analysis data set containing 206,205 observations.[27] I cross-classified the race and ethnicty of the borrower in the HMDA data to produce a single race/ethnicity classification scheme consisting of six categories: Non-Hispanic Native Americans, non-Hispanic Asians and Pacific Islanders, non-Hispanic African Americans, Latinos or Hispanics, non-Hispanic whites, and those who did not report their race or ethnicity (approximately 14% of borrowers). The HMDA data also contain information on the borrower and co-borrower sex, borrower income, the type of secondary market purchaser, and information on the census tract including the ratio of tract family income to the MSA median. The 2005-2007 HMDA data also reports whether the loan is designated as high cost if the real interest rate spread on a first-lien loan over U.S. treasuries exceeds 3%.[28]

I merged additional variables from a wide variety of data sets at the state, county, city, zip code, and census tract level: demographic data on race, ethnicity, the foreign born, and other

[25]The MBS deal collateral files always contain at least the following elements: the loan amount, purpose, origination and/or first payment date, maturity date, occupancy, property type, FICO credit score of the borrower, Loan-to-Value ratio (LTV), combined LTV, the original interest rate, Fixed Rate or Adjustable Rate mortgage (ARM) loan (and minimum, maximum rate), the loan term in months, original principal & interest payment, and amortization type (e.g., interest only), lien position, and the zip code of the underlying property. Unlike expensive propietary data sets of this nature, my MBS sample contains the name of the loan originator, the loan servicer, and the loan identification number. This small but crucial feature of the MBS data set permits a much higher match rate to HMDA data and a greater degree of accuracy than that of previous studies.

[26]Because the HMDA data contain the property census tract but not the zip code, I used a georeferenced crosswalk file based on the number of housing units in each tract in the zip code using the MABLE/Geocorr2K census geographic correspondence engine provided by the University of Missouri.

[27]Each match was manually reviewed no fewer than three times to ensure accuracy of the automated matching process. Additional information on the precision of the match available upon request.

[28]For second liens, the HMDA threshold is 5%. Although a high cost loan is distinct from a subprime loan, 91% of subprime loans in this sample are high cost; among alt-A sample loans, 54% are high cost.

popualtion and housing characteristics from the 1990 to 2010 decennial censuses and the 2005 to 2009 American Community Survey at the county, place, and tract level[29]; the monthly change in zip code home values from their 2004-2008 peak to 2008-2011 trough using the Zillow Home Value Index from Zillow.com; the change in the county unemployment rate from the 2004-2007 trough to its 2008-2009 peak from the Bureau of Labor Statistics; the level and change in real estate-related employment (residential construction, remodelers, mortgage brokers, real estate agents, brokers, appraisers) from 2006 and 2009 from the Census Bureau county business patterns; the state-level anti-predatory lending multiplicative index from Bostic, Engel, McCoy, Pennington-Cross, and Wachter (2008); the length of time a mortgage foreclosure takes in months in each state as of 2011 and the type of legal foreclosure procedure used (judicial vs. non-judicial) from RealtyTrac.com; the ratio of housing units built from 2000-2006 to the total in 2000 from Rugh and Massey (2010); and the Department of Housing and Urban Development (HUD) Neighborhood Stabilization Program (NSP) data on foreclosure risk by tract and home price change by MSA.

In order to control for spatial dependence and the influence of foreclosure contagion, I generated a spatially-lagged variable that measures the weighted average HUD NSP foreclosure risk score for all surrounding adjacent tracts of each borrower tract in the data set.[30] Finally, I visited the web sites of HUD and Neighborworks, the leading national provider of foreclosure counseling, and collected all information for 2,087 unique HUD-approvedhousing foreclosure avoidance counselors nationwide. In order to proxy for access to counselor services, I used the zip code and city of each location to merge the overall number of agencies and the total with services in Spanish to the base MBS-HMDA matched nonprime dataset.

[29] I used the geographic relationship files to link the 2000 tracts with their 1990 and 2010 equivalents partly by using crosswalk data and coding files from Logan, Xu, and Stults (2012).
[30]I used the *spatreg* spatial regression package for Stata wrtitten by Dr. Maurizio Pisati (2012).

Descriptive Statistics: Painting a Portrait of Latino Disadvantage in the Crisis

I use the matched MBS-HMDA data set to answer five basic questions concerning the overlap of borrower, loan, and neighborhood characteristics and outcomes observed through 2011. First, do Latinos face the highest foreclosure rate in this nonprime sample? The summary statistics in Table 2 show that 47% of Latinos in this sample enter foreclosure and 28% lost their homes in a completed foreclosure, or real estate owned (REO) foreclosure, more than any other group. The rate across both outcomes is lowest for whites, as expected, but higher for Asians than for blacks. The principal reason is that 52% of Asians in the sample live in hard-hit Sand States of Arizona, California, Florida, and Nevada, compared to only 22% of blacks.[31] Table 2 provides statistics on additional key variables by race that may explain the Latino disparity.

Second, how do borrower characteristics and loan outcomes vary by nonprime product, alt-A compared to subprime? The tabulations in Figure 1 reveal large differences in borrower and loan characteristics. Borrowers of alt-A loans are more likely to have higher incomes, a purchase loan, an interest only payment, to be an investor owner, self-employed, and very unlikely to have a low credit score or a loan with traditional full documentation underwriting. Subprime borrowers are more likely to have a simultaneous second lien to afford a down payment and are more likely to be first-time home buyers. As argued earlier, alt-A loans were common in neighborhoods with high rates of population in-migration, evidenced here by higher growth in new housing construction. The share of alt-A borrowers that were Latino was nearly twice the share that was African American, compared to 1.4 times the share among subprime borrowers. According to Figure 3, the completed foreclosure rate among borrowers with alt-A

[31]This sample consists of nonprime borrowers, but it is well-known that the prime-nonprime composition of loans differs by borrower race—prime loans make up a larger share of Asian borrower loans overall relative to the share among black borrowers. There are other characteristics of Asian borrowers in this sample that appear to make them bear more risk than blacks, especially far greater rates of leverage and low documentation loans (see Rugh 2012).

loans is clearly higher than the rate for those with subprime loans, especially for black and Latino borrowers. Again, because 23% of alt-A borrowers are Latino, but only 12% are black, this simple comparison alone underscores the disparate impact on Latinos of the second wave of nonprime lending that included risky alt-A lending during 2004 to 2007.

Third, how does the foreclosure and completed foreclosure rate vary by Hispanic origin? While the data do not have information on the origin of the borrower, I use the largest Hispanic origin group in the census tract of the borrower as a proxy for descriptive purposes. Figure 3 shows that 53% of Hispanic sample borrowers entered foreclosure and 23% lost their homes in hard hit Cuban tracts (92% of which are in Florida). Yet a slightly higher share of Hispanics, 24%, lost their homes in tracts where Mexicans made up the largest Hispanic origin group.[32]

Fourth, how did home prices change from their peak in zip codes of Latino sample borrowers compared to other borrowers? Figures 3 and 4 show disparities in home price decline have been most severe where Latinos live. According to Figure 3, while white nonprime borrowers saw home values fall by about the national average of one-third, prices fell by nearly half on average for Latinos. Figure 4 shows the distribution of local home price declines by race. The different distributions across Asian and Latino borrowers demonstrate how the falling housing market Latinos face is not purely due to state or even metropolitan patterns of change, but also neighborhood disparities. Although both groups are heavily concentrated in California, for 53% of Latino borrowers, zip code prices have fallen by more than half, compared to only 33% among Asian borrowers.

Fifth, how do local price changes correspond to changes in the share of the tract population that is Latino and black since 1990? If there is a significant relationship, this would

[32]As I show below, the effect of so many Texas tracts where Mexicans predominate must be taken into account to further understand the source of this discrepancy.

suggest that prices have fallen even further in neighborhoods where their share of the population that is black or Latino has risen over time. As Figure 5 shows, the correlation of price declines with long-term Hispanic population change in the sample is 0.31 (p<0.001), but uncorrelated with the change in the black share of the census tract. As Figure 5 also suggests, this relationship is context-specific, with price declines positively associated with Latino population increase in most cities, especially in hard hit Las Vegas. However, for black population change, the relationship is mixed across cities—muted where they do not make up a large share of the population and stronger than the correlation with Latino increase in Washington, Cleveland, Miami, and Atlanta.[33] In sum, long-term increases in the Latino population share correspond to greater home price declines, on top of already greater declines in black and Latino communities.

In summary, the answers to the foregoing five questions thus paint a portrait of individual Latino borrowers who faced the highest rate because of loan product usage, widespread risk across Hispanic origin tract types, and due to home price declines significantly correlated with rising Latino population.

County-level Regression Results

In order to consider different possible explanations and isolate potential explanatory variables for a borrower-level model of Latino disparities, I first collapsed the data to the county level for 587 metropolitan counties with at least 50 borrowers, where 89% in the sample lived. I specify a simple Ordinary Least Squares multiple regression model at the county-level. I estimate the share of all borrowers by county that enter foreclosure (FC) and complete foreclosure (REO). I anticipate that residence in Texas and advantageous aggregate borrower and loan characteristics will predict lower rates, while residence in Sand States, greater Latino population increase, and negative borrower, loan, and housing market and employment measures by county will

[33]This offers at least clue as to where blacks may be harder hit than Latinos, a subject I revisit in the discussion.

correspond with higher rates. From the foregoing data, it is unclear what the total effect of immigrant gateways or increased residence in central cities will be.

Table 3 reports the OLS regression results across three specifications, a regional-demographic model in column (1), followed by adding Texas and Sand State interactions and borrower-loan aggregates in (2), and finally incorporating market and institutional forces as explanations in (3). Overall, the final specification explains about three-fifths of foreclosure outcomes at the county level. Controlling for other factors, sample FC and REO rates are higher where the Latino population grew in Sand States, but not elsewhere. Compared to counties outside immigrant gateways, the rates are significantly lower in established gateways but not in newer gateways, which suggests that foreclosures are elevated in metropolitan areas where the undocumented share of Latino immigrants is greater and capacity for immigrant integration is less well-established.

The alt-A share does not imply a higher county FC rate but it does, along with higher LTV ratios (smaller down payments and greater cash-out refinancing), predict higher county REO rates. Higher average neighborhood incomes relative to the MSA median are significantly related to lower REO rates, but unrelated to the county FC rate. High cost lending predicts greater FC filing rates among borrowers, but not higher REO rates. Falling home prices (negative change), larger rises in unemployment, and looser regulatory limits on predatory lending (lower index values) all predict higher FC rates, but only home price declines are significantly related to the REO rate.

Importantly, after controlling for all of these factors, simple location in a judicial state where that provides legal due process is strongly negatively related to county borrower sample FC and REO foreclosure rates. The preceding county-level analysis suggest that socio-

demographic change and settlement patterns may exert a significant influence on loan outcomes among nonprime borrowers typical of those who took out loans at the peak of the housing boom. The preliminary evidence also demonstrates that market and institutional forces are strongly related to outcomes beyond average individual differences and population change and settlement.

Borrower-level Analysis Results

Now that I have identified potential explanations that may account for elevated foreclosure rates among Latino borrowers, I return to the individual-level MBS-HMDA data set. I estimate two different types of statistical models. For economy of presentation and because losing one's home is the ultimate variable of interest, I only report results for the completed foreclosure rate.[34] First, I estimate a logistic regression and report the odds ratios for geographic, socio-demographic, borrower, loan, and market explanatory variables. I also estimate a second, competing-risk regression model that accounts for the duration of the loan and the competing risk to completed foreclosure represented by prepayment (when the borrower pays off the loan in full via refinance or sale of the property). I include credit and loan variables prior research suggests will significantly affect loan outcomes (e.g., see Ross and Yinger 2002; Rugh 2012).

The odds ratios from the logistic regression estimation are reported in Table 4. The first specification in column (1) simply reports the increased odds of completed foreclosure of Latino borrowers compared to non-Hispanic whites (controls for other race groups included, but not reported). In column (2) I test the effect of various regional, population change, and immigration-related influences. Together these factors account for about 45% of the increased odds of foreclosure Latinos face in this sample. By far the most outstanding effect is that of residence in the Sand States, which alone nearly doubles the odds of foreclosure, regardless of

[34] The results for the rate of entering reveal similar patterns, especially concerning ethnic and racial disparities.

race. The Texas dummy indicator predicts dramatically lower odds. The other variables all imply odds consistent with the county-level analysis.

I set aside regional and immigration variables in column (3) and find that borrower and loan characteristics account for a slightly higher share, or 55%, of the increased odds of foreclosure of Latinos. All the risk inherent in nonprime lending significantly raise the odds of completed foreclosure, especially broker origination, alt-A label, and the presence of a second lien (which meant zero to at most five percent equity at origination). In column (4) I combine all types of explanations into a single model and find that the odds ratio for Latino borrower declines from 1.81 to 1.16; roughly 80% of the observed disparity may be attributed to the set of factors in this specification. The odds ratio for Sand State declines markedly, but remains a leading explanation, and unlike the county-level results, both types of gateways appear to predict lower risk of completed foreclosure. In terms of individual differences, investor occupancy and the lack of a co-signer (a proxy for a lack of a second earner in many cases) both remain strong predictors of completed foreclosure. Revealingly, the odds ratio reported for alt-A loans remains statistically indistinguishable, suggesting its negative effect independent of market and institutional variation by borrower residence. Many of the credit underwriting factors remain consistent predictors, such as lower credit scores and greater leverage and lower equity.

The full model in column (4) also demonstrates the key importance of overbuilding in the boom at the metropolitan level and home price declines at the local level during the bust. Interestingly, the relative share of employment in real estate remains a significant predictor, suggesting layoffs in the real estate and related industries had an independent second order effect on the odds of completed foreclosure. As anticipated, borrowers who have access to judicial foreclosure are vastly less likely to lose their homes in a completed foreclosure, even after

controlling for the length of time to complete a foreclosure. The number of city housing counseling agencies exerts a small, significant ameliorating effect and the weighted average surrounding neighborhood foreclosure rates predicts greater risk as expected.

Importantly, in this sample, and across both estimation methods, a purchase loan predicts significantly higher odds of foreclosure. As noted in Table 2, 63% of Latinos and Asians used their loan to purchase a new home, compared to only 50% of whites and 54% of blacks. Therefore, the reduced odds of foreclosure predicted by refinance purpose further corroborate the argument that rising homeownership made Latinos more vulnerable. When it took place at the nonprime peak, borrowing to buy a new home presented a significant risk to sustainable home ownership for Latino buyers. This relationship was reversed in the earlier wave when subprime loans were predicated on predatory refinance lending and asset stripping, which meant that refinance in turn predicted *higher* odds of foreclosure than purchase purpose (Rugh 2012).

The foregoing results demonstrate important reasons why Latinos face higher odds of foreclosure and give a richer account compared to the aggregate county data, but a methodological concern remains. Among this sample 50,229 borrowers paid off their loans outside of the foreclosure process and exited the sample, but at different points in time over the 2005 to 2011 period. In order to best measure the effect of the array of rival explanations I estimated a competing risk survival model that incorporates prepayment as a competing risk to the hazard of completed foreclosure. In addition, in this model, like a Cox proportional hazards model (Cox 1972), the exposure time to the risk of completed foreclosure is measured according

to the length of each borrower loan before it reaches prepayment, completed foreclosure, or the end of December 2011 for active loans.[35]

I report the results of the competing risk models in Table 5, and use the same progression of covariate categories as in the logistic regression model. Interestingly, in the full specification reported in column (4), the hazard ratio associated with Sand State residence remains largely unchanged, even after entering all covariates. Investor borrowers, those who declined to report their incomes, and single borrowers remain significantly more likely to experience completed foreclosure. The hazard ratios for alt-A loans, broker-originated loans, purchase loans, and loans with second liens remain elevated and statistically significant. Again, the institutional and market factors behave in accordance with prior estimations, with the effect of the concentration of the real estate industry about twice as large. On balance, these results suggest that the combined influences of population settlement and change, borrower, loan, market, and institutional factors explain an overwhelming share of the uncontrolled Latino hazard ratio.

Figure 7 underscores the enduring importance of geographic, social, market, and institutional forces in shaping the disparities in foreclosure. While about 22% of Latinos outside Sand States are estimated to lose their home to completed foreclosure, the share rises to 30% for whites who live in Sand States, then higher still for Latinos in Sand States. The receipt of an alt-A loan raises the risk of foreclosure even further. Finally, for Latinos in the non-judicial Sand States outside Florida with high cost, alt-A purchase loans, the cumulative incidence of completed foreclosure exceeds over half of such Latino borrowers. In sum, the second nonprime lending wave, combined with the collapse in home prices in the Sand States, put in jeopardy the homeownership status of Latinos.

[35]On average, borrower loans have lasted 55 months or slightly more than 4.5 years. The average exposure time to foreclosure risk ranges from as low as one month for loans repurchased due to origination fraud to 84 months for borrowers who took out a loan in January 2005 and remained actively paying as of December 2011.

Conclusion

In summary, of all groups in society, the U.S. housing crisis dealt Latinos the most devastating blow. I have argued that Latinos in particular have paid an extra price in the aftermath of the crisis due to the rapid and geographically concentrated explosion of exotic nonprime low and no documentation alt-A loans. My analysis shows that Latinos clearly face the highest foreclosure rate and lost their homes disproportionately more than other major groups. Contrary to the conventional wisdom, borrowers of the alt-A loans, the latest incarnation of risky loans, were significantly more likely to have lost their homes compared to those who received subprime loans. The historical and contemporary settlement patterns of Latinos, intertwined with the housing boom, exposed Latinos to plummeting house prices and reduced access to judicial foreclosure more than any other group. The relationship between Latinos and the second wave in nonprime lending, in particular alt-A lending, help explain why, where, and when Latinos ended up being the hardest hit.

The outcomes from a large national sample of borrowers who took out loans typical of the peak of the boom in exotic alt-A and subprime lending offer clues as to why Latinos have suffered disproportionately, even compared to similarly situated nonprime borrowers. I have presented national estimates that show that Latinos experience additional hurdles in attempting to avoid foreclosure and repossession. Latinos receive loan modifications significantly less often and live in cities with a lower density of housing counseling agencies compared to African Americans. Thus, my findings support the case for interventions to increase the rate and effectiveness of loan modifications for Latinos and all borrowers who received loans at the worst possible time, the height of risky subprime and alt-A exotic lending. The findings highlight the dire need for more data to guide improved public policies in the future in order to address racial

and ethnic disparities. The U.S. housing crisis has upended the fortunes of upward bound Latinos more than any other group. The way the two nonprime lending waves map onto the metropolitan and social landscape offers a helpful, if sobering, explanation.

Table 1: Issuers of Mortgage-Backed Securities Containing Loans in Nonprime Dataset

	Issuer Entity	Sponsor (upon issue)	alt-A	Subprime	Total
1	Merrill Lynch Mortgage Investors	Merrill Lynch	0	47,273	47,273
2	Citigroup Mortgage Loan Trust	Citigroup	5,055	31,035	36,090
3	Structured Asset Securities Corporation	Lehman Brothers	21,216	5,458	26,674
4	First Franklin Mortgage Loan Trust	National City Bank	0	17,067	17,067
5	Long Beach Mortgage Loan Trust	Washington Mutual	0	12,513	12,513
6	Washington Mutual Asset-Backed Securities	Washington Mutual	2,065	9,272	11,337
7	Structured Asset Investment Loan Trust	Lehman Brothers	2,113	6,963	9,076
8	Alternative Loan Trust	Countrywide Financial	6,266	0	6,266
9	JPMorgan Acquisition Corporation	JPMorgan Chase	0	6,258	6,258
10	Novastar Mortgage Funding Trust	Novastar Financial	0	5,859	5,859
11	Accredited Mortgage Loan Trust	Accredited Home Lenders	0	4,712	4,712
12	New Century Home Equity	New Century Financial	0	4,065	4,065
13	Specialty Underwriting Finance	Merrill Lynch	0	3,672	3,672
14	Fremont Home Loan Trust	Fremont Investment & Loan	4	3,459	3,463
15	Morgan Stanley Mortgage Loan Trust	Morgan Stanley	2,433	299	2,732
16	Home Equity Asset Trust	Credit Suisse First Boston	0	2,688	2,688
17	Morgan Stanley ABS Capital I	Morgan Stanley	8	2,105	2,113
18	ChaseFlex Trust	JPMorgan Chase	1,360	0	1,360
19	GS Mortgage Securities Corp	Goldman Sachs	1,194	0	1,194
20	Securitized Asset-Backed Receivables	Barclays Capital	73	900	973
21	Bear Stearns Asset-Backed Trust	Bear Stearns	0	328	328
22	IndyMac IMJA Mortgage Loan Trust	IndyMac Bank	275	0	275
23	ACE Securities Corp Home Equity Loan Trust	Deutsche Bank	37	0	37
	Total		**42,099**	**163,926**	**206,025**

Source: Issuer prospectus public filings with the Securities & Exchange Commission. Total matched MBS-HMDA loans shown.

Table 2: Summary Statistics by Borrower Race, Non-Prime Matched MBS-HMDA Dataset

Outcomes	*N*	Asian *(7,983)*	Black *(32,175)*	Hispanic *(48,420)*	White *(89,128)*	Total Sample
% Ever Entered Foreclosure	*141,489*	43.3	37.0	46.6	32.9	37.5
% Completed Foreclosure (REO)	*141,489*	25.6	20.5	27.7	19.4	21.9
% Received a Loan Modification	*135,072*	8.1	12.8	9.7	8.5	9.8
Geography and Context						
% Sand State	*206,025*	51.7	22.1	64.4	26.8	37.3
% Arizona	*206,025*	2.5	1.0	7.0	4.1	3.6
% California	*206,025*	39.0	9.0	39.0	11.0	20.0
% Florida	*206,025*	4.9	11.6	16.2	9.8	11.2
% Nevada	*206,025*	4.8	0.8	2.5	1.9	1.5
% Texas	*206,025*	4.2	6.5	8.7	6.0	6.9
% Hispanic, 2000 Tract	*206,025*	18.2	10.2	37.3	9.8	17.5
Change, %Hispanic, 1990-2010 Tract	*196,042*	10.0	7.8	19.6	7.5	10.9
% Foreign Born, 2000 Tract	*206,009*	20.4	11.0	23.6	8.7	13.6
% Black, 2000 Tract	*206,025*	9.9	44.2	10.6	7.7	15.5
% College Graduate, Adults 25+, 2000 Tract	*206,009*	26.1	19.6	17.2	23.9	21.4
Ratio of Tract-to-MSA Median Income	*205,560*	1.08	0.90	0.94	1.07	1.00
% Change in Housing Units, 2000-2010	*205,117*	31.8	12.2	21.1	22.2	20.6
% Central City of MSA/MD	*206,025*	48.9	51.8	46.6	37.5	42.8
Individual Resources						
Annual Income ($)	*193,573*	135,651	81,670	96,801	100,242	96,535
Median FICO Credit Score	*188,609*	658	622	644	634	634
Has Co-Signer	*206,025*	27.6	20.7	19.7	31.2	26.6
Self-employed	*83,677*	29.6	15.6	28.3	22.5	22.5
First-time Home Buyer	*83,039*	26.9	25.3	30.1	19.6	22.4
Loan Product						
alt-A Loan	*206,025*	34.5	15.1	22.0	25.8	21.9
% High Cost Loan (Rate Spread > 3%)	*200,592*	77.1	89.3	85.9	80.4	83.6
% Low/No Documentation	*196,903*	68.4	40.8	64.2	47.1	40.7
% with Piggyback 2nd Lien Loan	*202,084*	30.7	22.2	34.8	19.6	24.9
% Interest Only Amortization Loan	*206,025*	42.1	26.2	34.3	30.1	29.8
% Purchase Loan	*206,025*	62.9	53.9	62.3	49.8	53.3
Ratio of House Value to Income	*182,507*	3.76	3.39	3.82	3.31	3.5
Market Factors						
% Rise in Zip Code Home Prices, 2000-Peak	*147,604*	148.8	124.6	176.4	124.9	142.8
% Fall in Zip Code Home Prices, Peak-2011	*179,357*	-38.9	-36.8	-45.9	-32.3	-37.5
Location Quotient, Real Estate, County, 2006	*206,025*	1.36	1.02	1.38	1.20	1.22
% Fall in Real Estate Emp., County, 2006-2009	*206,025*	-32.2	-28.8	-37.3	-34.7	-32.7
Change in County Unemp. Rate, 2005-2009	*201,565*	7.2	6.7	7.9	7.1	7.3
Laws and Institutions						
Judicial Foreclosure State	*206,025*	22.7	43.6	31.7	42.6	38.8
Anti-Predatory Lending Index	*206,025*	5.3	6.0	5.4	5.3	5.5
Has HUD-listed Housing Agency in City	*206,025*	54.6	67.5	62.7	45.6	54.5
Total Agencies in City	*112,250*	6.7	9.3	6.5	5.6	6.9
Total Agencies, Services in Spanish	*112,250*	4.7	5.1	5.1	3.4	4.3

Note: Summary statistics for Native American (N=671) and race not given (N=27,648) not shown here. See text for definition of real estate employment.

Table 3: County-level OLS Regression Estimates of Percent of Sample Borrowers Ever in Foreclosure (FC) and Completed Foreclosure (REO) (Robust Standard Errors in Parentheses)

	(1)		(2)		(3)	
	FC	**REO**	**FC**	**REO**	**FC**	**REO**
% Hispanic, Sample	0.052	0.070	0.010	-0.006	0.014	0.050
	(0.047)	(0.038)	(0.045)	(0.046)	(0.044)	(0.041)
% Hispanic, Sample * Texas			-0.197 ***	-0.026	-0.116 *	-0.118 **
			(0.049)	(0.042)	(0.047)	(0.040)
Change, % Hispanic, Tract 1990-2000	0.306 **	0.228 **	-0.107	-0.062	-0.012	-0.005
	(0.104)	(0.085)	(0.093)	(0.087)	(0.085)	(0.073)
Change, % Hispanic, Tract 1990-2000 * Sand State			0.855 ***	0.718 ***	0.199	0.244 **
			(0.100)	(0.088)	(0.114)	(0.089)
% Foreign Born, 2000	0.427 ***	0.057	0.193 **	-0.100	0.163 *	-0.045
	(0.088)	(0.071)	(0.067)	(0.064)	(0.065)	(0.054)
% Borrowers in Central City(ies) of MSA	-0.071 ***	-0.031 **	-0.044 ***	-0.017	-0.031 **	-0.018
	(0.013)	(0.011)	(0.012)	(0.010)	(0.011)	(0.010)
20th Century Gateway	-2.095	-1.841	-2.954 **	-2.773 **	-1.692 *	-2.514 **
	(1.207)	(0.977)	(0.872)	(0.802)	(0.806)	(0.720)
21st Century Gateway	0.358	2.924 **	-0.480	1.401	0.796	0.474
	(1.154)	(0.934)	(0.926)	(0.864)	(0.858)	(0.812)
% alt-A Loans					0.063	0.123 *
					(0.070)	(0.060)
Ratio of Tract-to-MSA Median Family Income			-0.054 *	-0.099 ***	-0.041	-0.083 ***
			(0.027)	(0.020)	(0.027)	(0.018)
% Investor Occupancy			0.144 **	0.084	0.157 *	0.098 *
			(0.065)	(0.055)	(0.061)	(0.049)
% FICO Score < 620			-0.038	0.019	0.026	0.033
			(0.059)	(0.054)	(0.059)	(0.051)
% FICO Score >= 700			-0.333 ***	-0.091	-0.293 **	-0.145
			(0.082)	(0.078)	(0.088)	(0.081)
Mean Loan-to-Value Ratio			0.043	0.223	0.052	0.390 ***
			(0.144)	(0.121)	(0.137)	(0.109)
% Have Piggyback 2nd Lien			-0.009	0.180 **	0.065	0.102
			(0.062)	(0.055)	(0.065)	(0.052)
% Self-Employed			0.100	0.090 *	0.107 *	0.097 *
			(0.042)	(0.040)	(0.041)	(0.038)
% High Cost, Hispanic Borrowers, HMDA, 2006			0.104 **	0.063 *	0.078 *	0.023
			(0.032)	(0.028)	(0.031)	(0.025)
% Low/No Documentation			0.189 ***	0.115 **	0.139 *	0.037
			(0.047)	(0.042)	(0.055)	(0.047)
FHFA Home Price Decline, HUD NSP					-0.604 ***	-0.892 ***
					(0.137)	(0.113)
Change in Unemployment Rate, 2006-2009					0.849 ***	-0.123
					(0.224)	(0.172)
% Change in Real Estate Employment, 2006-09					-0.023 †	-0.017 †
					(0.012)	(0.009)
Anti-Predatory Lending Index					-0.194 ***	-0.054
					(0.044)	(0.039)
Judicial Foreclosure State					-7.010 ***	-4.159 ***
					(0.858)	(0.682)
Constant	31.128 ***	13.223 ***	4.287	-18.518	0.803	-17.553
	(2.125)	(1.720)	(16.398)	(14.096)	(15.257)	(11.470)
R^2	**0.22**	**0.28**	**0.51**	**0.48**	**0.61**	**0.59**

N=587 Metropolitan Counties. Note: Effect of region compared to Northeast***, MSA Hispanic-White Dissimilarity, % Change in Tract Housing Units, 2000-2010, % First-time Home Buyer, and Ratio of House Value to Income not shown here.

***$p < .001$ **$p < .01$ *$p < .05$ † $p < .10$ (Two-tailed tests)

Table 4: Logistic Model Estimates of Borrower Completed Foreclosure (REO)

	(1)		(2)		(3)		(4)	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Hispanic Borrower	1.806 ***	(0.030)	1.440 ***	(0.023)	1.363 ***	(0.026)	1.160 ***	(0.028)
Sand State (AZ, CA, FL, NV)			1.940 ***	(0.047)			1.566 ***	(0.065)
10-pt. Δ, % Hispanic, Tract, 1990-2010			1.030 **	(0.001)			1.022 ***	(0.001)
Texas * % Hispanic, Tract, 2000			0.185 ***	(0.001)			0.994 **	(0.001)
% Foreign Born, County, 2000			0.994 ***	(0.001)			0.990 ***	(0.001)
20th Century Gateway Metro			0.980 †	(0.021)			0.824 ***	(0.019)
21st Century Gateway Metro			1.118 ***	(0.023)			0.890 ***	(0.023)
10% Δ, Tract/MSA Family Income			0.986 ***	(0.003)			0.979 ***	(0.000)
Income at Origination < $40,000					0.939	(0.036)	0.790 ***	(0.036)
$40,000 <= Income < $75,000					0.933 *	(0.027)	0.852 ***	(0.028)
$75,000 <= Income < $100,000					0.963	(0.027)	0.905 **	(0.029)
$100,000 <= Income < $150,000					0.953	(0.026)	0.942 *	(0.029)
Did Not Report Income					1.162 ***	(0.047)	1.083 †	(0.050)
Investor Occupancy					1.489 ***	(0.036)	1.320 ***	(0.037)
Borrower is a Woman					0.955 *	(0.015)	0.956 **	(0.017)
No Co-Signer					1.326 ***	(0.024)	1.379 ***	(0.024)
alt-A (vs. Subprime)					1.366 ***	(0.037)	1.374 ***	(0.042)
Broker Origination					1.474 ***	(0.025)	1.442 ***	(0.027)
Adjustable Rate Loan					1.295 ***	(0.028)	1.190 ***	(0.030)
High Cost					1.372 ***	(0.036)	1.405 ***	(0.027)
Interest Only Amortization					1.228 ***	(0.022)	1.118 ***	(0.024)
Prepayment Penalty					1.560 ***	(0.028)	1.251 ***	(0.029)
FICO Credit Score< 540					1.789 ***	(0.077)	1.752 ***	(0.085)
540 <= FICO < 580					1.629 ***	(0.059)	1.594 ***	(0.066)
580 <= FICO < 620					1.676 ***	(0.051)	1.650 ***	(0.056)
620 <= FICO < 660					1.500 ***	(0.040)	1.500 ***	(0.044)
660 <= FICO < 700					1.352 ***	(0.037)	1.360 ***	(0.041)
Refinance Loan					0.844 ***	(0.021)	0.801 ***	(0.022)
Loan-to-Value Ratio					1.031 ***	(0.001)	1.033 ***	(0.001)
Has Piggyback 2nd Lien					1.626 ***	(0.033)	1.597 ***	(0.037)
Low/No Documentation					1.344 ***	(0.026)	1.287 ***	(0.028)
Location Quotient, Real Estate, 2006							1.020 **	(0.020)
MSA, 2000-2006/2000 Housing Units							1.765 ***	(0.233)
30% Fall in Zip Code Home Values							1.214 ***	(0.032)
5-point Rise in County Unemp. Rate							1.093 ***	(0.025)
Judicial Foreclosure State							0.638 ***	(0.022)
6 mo. Added Avg. Time to Foreclose							0.921 ***	(0.002)
3 Added Counseling Agencies, City							0.986 ***	(0.002)
Spatial Lag, HUD Tract Foreclosure Risk							1.040 ***	(0.006)
Borrower Loans	127,218		120,295		106,962		86,023	
Pseudo R^2	0.01		0.04		0.07		0.11	

Log odds ratios with robust standard errors in parentheses. Note: First-lien loans only. Additional variables not shown: Asian*, black, race not given, Texas**, Midwest***, South**, West (not AZ, CA, NV), Sand State x Change in Mexican Origin Pop., 1990-2010, Central City, % College grads (tract), % change in tract housing units, 2000-2010, Interest-only***, Balloon***, log loan amount***, cash-out refinance, year of origination***, MSA FHFA price decline***, 10% fall in construction emp.*, anti-predatory law index**.

***p < .001 **p < .01 *p < .05 † p < .10 (Two-tailed tests)

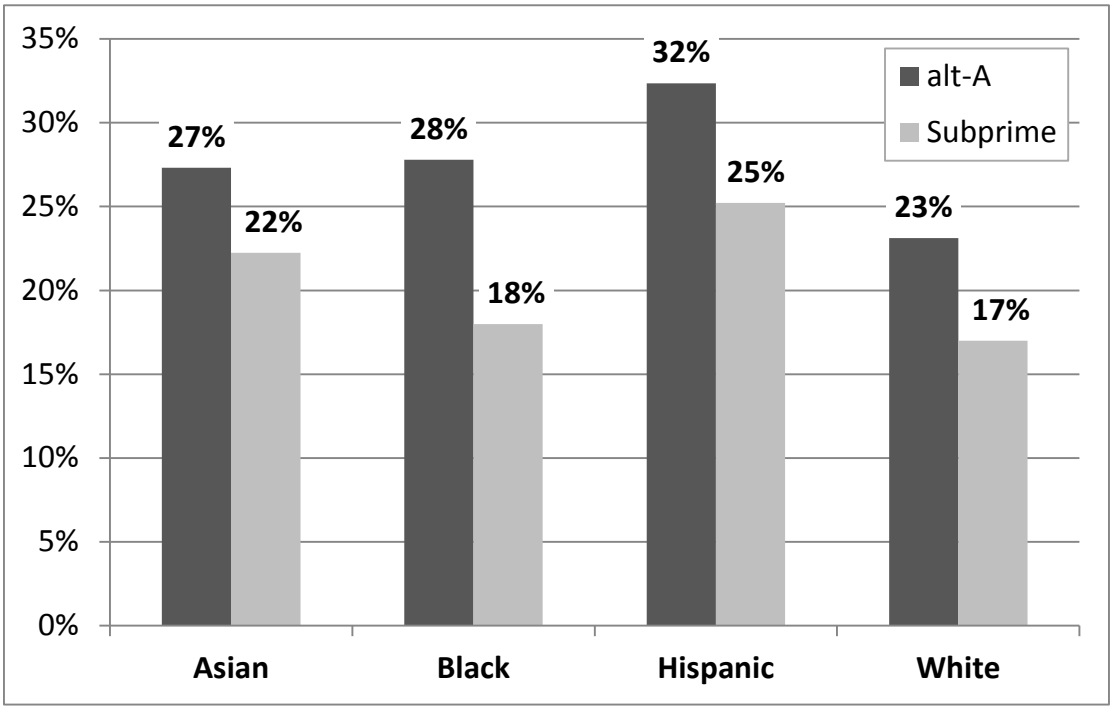
Table 5: Competing Risk Model Estimates of Borrower Completed Foreclosure (REO)

	(1)		(2)		(3)		(4)	
	Hazard Ratio	SE	Hazard Ratio	SE	Hazard Ratio	SE	Hazard Ratio	SE
Hispanic Borrower	1.570 ***	(0.022)	1.344 ***	(0.023)	1.241 ***	(0.020)	1.103 ***	(0.022)
Sand State (AZ, CA, FL, NV)			1.793 ***	(0.038)			1.777 ***	(0.065)
10-pt. Δ, % Hispanic, Tract, 1990-2010			1.022 **	(0.001)			1.021 **	(0.001)
Texas * % Hispanic, Tract, 2000			0.995 ***	(0.001)			0.995 **	(0.001)
% Foreign Born, County, 2000			0.993 ***	(0.001)			0.991 ***	(0.001)
20th Century Gateway Metro			0.995 †	(0.018)			0.865 ***	(0.019)
21st Century Gateway Metro			1.069 ***	(0.019)			0.891 ***	(0.023)
10% Δ, Tract/MSA Family Income			0.985 ***	(0.000)			0.977 ***	(0.000)
Income at Origination < $40,000					0.918 **	(0.030)	0.806 ***	(0.030)
$40,000 <= Income < $75,000					0.926 **	(0.023)	0.873 ***	(0.024)
$75,000 <= Income < $100,000					0.968	(0.023)	0.935 *	(0.024)
$100,000 <= Income < $150,000					0.974	(0.022)	0.984	(0.024)
Did Not Report Income					1.275 ***	(0.042)	1.228 ***	(0.045)
Investor Occupancy					1.329 ***	(0.026)	1.202 ***	(0.027)
Borrower is a Woman					0.970 *	(0.013)	0.975 †	(0.014)
No Co-Signer					1.297 ***	(0.020)	1.334 ***	(0.024)
alt-A (vs. Subprime)					1.373 ***	(0.030)	1.330 ***	(0.032)
Broker Origination					1.560 ***	(0.022)	1.511 ***	(0.024)
Adjustable Rate Loan					1.350 ***	(0.026)	1.254 ***	(0.027)
Interest Only Amortization					0.929 ***	(0.016)	1.040 ***	(0.018)
High Cost					1.118 ***	(0.025)	1.139 ***	(0.027)
Prepayment Penalty					1.452 ***	(0.021)	1.147 ***	(0.022)
FICO Credit Score< 540					1.510 ***	(0.057)	1.439 ***	(0.061)
540 <= FICO < 580					1.429 ***	(0.045)	1.363 ***	(0.048)
580 <= FICO < 620					1.527 ***	(0.040)	1.468 ***	(0.042)
620 <= FICO < 660					1.415 ***	(0.033)	1.385 ***	(0.035)
660 <= FICO < 700					1.345 ***	(0.031)	1.324 ***	(0.033)
Refinance Loan					0.842 ***	(0.018)	0.816 ***	(0.019)
Loan-to-Value Ratio					1.027 ***	(0.001)	1.027 ***	(0.001)
Has Piggyback 2nd Lien					1.390 ***	(0.025)	1.330 ***	(0.026)
Low/No Documentation					1.185 ***	(0.019)	1.147 ***	(0.020)
Location Quotient, Real Estate, 2006							1.044 **	(0.017)
MSA, 2000-2006/2000 Housing Units							1.600 ***	(0.170)
30% Fall in Zip Code Home Values							1.171 ***	(0.026)
5-point Rise in County Unemp. Rate							1.119 ***	(0.021)
Judicial Foreclosure State							0.628 ***	(0.019)
3 Added Counseling Agencies, City							0.984 ***	(0.001)
Spatial Lag, HUD Tract Foreclosure Risk							1.040 ***	(0.005)
Borrower Loans	**154,230**		**145,637**		**125,126**		**101,112**	
Hazard: REO Foreclosure	**30,278**		**28,488**		**25,700**		**21,286**	
Competing Risk: Prepayment	**40,495**		**38,346**		**33,637**		**27,280**	
Time at Risk (mo.)	**8,596,647**		**8,010,035**		**6,881,930**		**5,561,160**	

Survival hazard ratios with robust standard errors in parentheses. Note: First-lien loans only. Additional variables not shown: Asian*, black, race not given, Texas**, Midwest***, South**, West (outside AZ, CA, NV), Sand State x Change in Mexican Origin Pop., 1990-2010, Central City, % College grads (tract), % change in tract housing units, 2000-2010, Interest-only***, log loan amount***, cash-out refinance, year of origination***, MSA FHFA price decline by 2008***, 10% fall in construction emp.*, anti-predatory law index**.

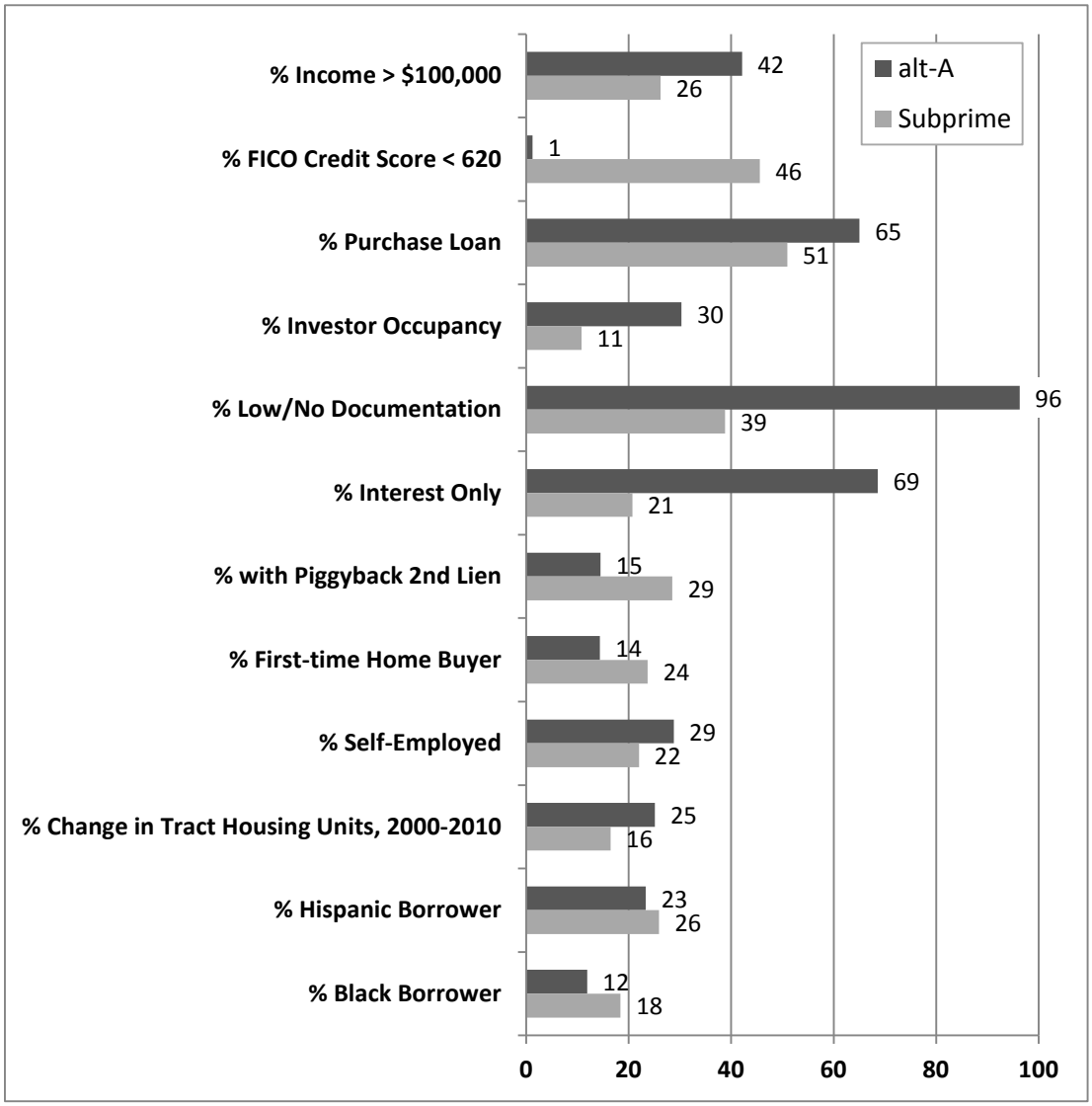
***$p < .001$ **$p < .01$ *$p < .05$ † $p < .10$ (Two-tailed tests)

Figure 1: Completed Foreclosure Rate by Race and Loan Type



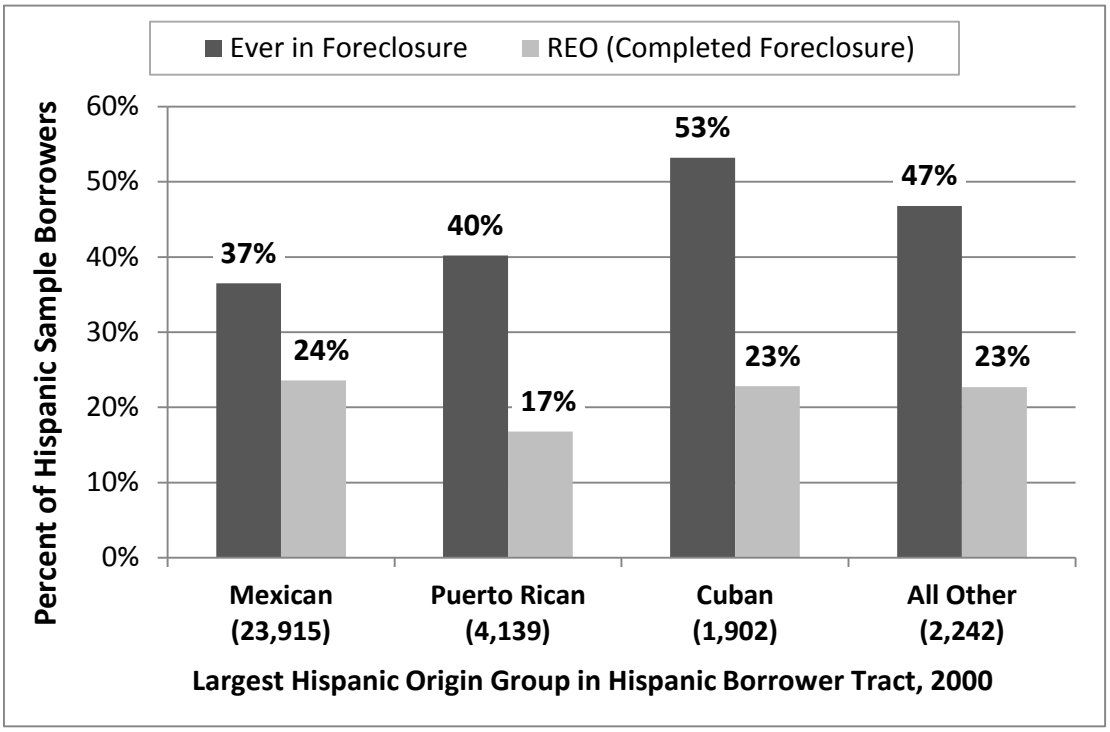
Note: N=141,462 loans in non-prime matched MBS-HMDA sample dataset.

Figure 2: Key Differences among Sample Borrowers with Alt-A versus Subprime Loans



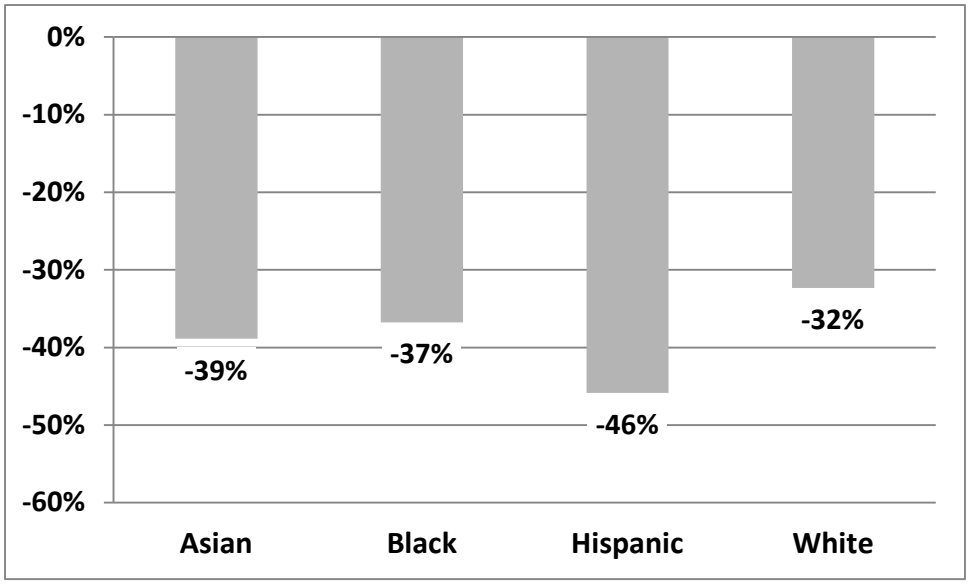
Note: N=192,072 loans originated in metropolitan areas in non-prime matched MBS-HMDA dataset.

Figure 3: Completed Foreclosure Rate among Hispanic Borrowers in Sample by Largest Hispanic Origin Group in Tract of Borrower (2000 Census)



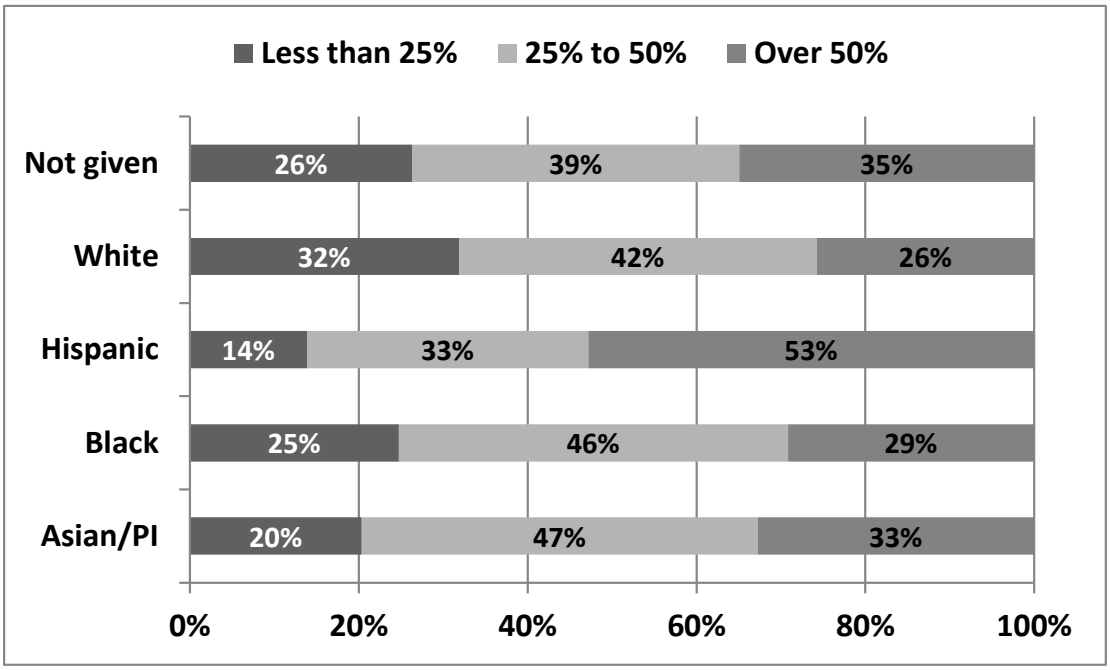
Note: N=32,243 loans to Hispanic borrowers in nonprime MBS-HMDA sample dataset.

Figure 4: Decline in Zip Code Home Prices, Peak to Trough, by Borrower Race



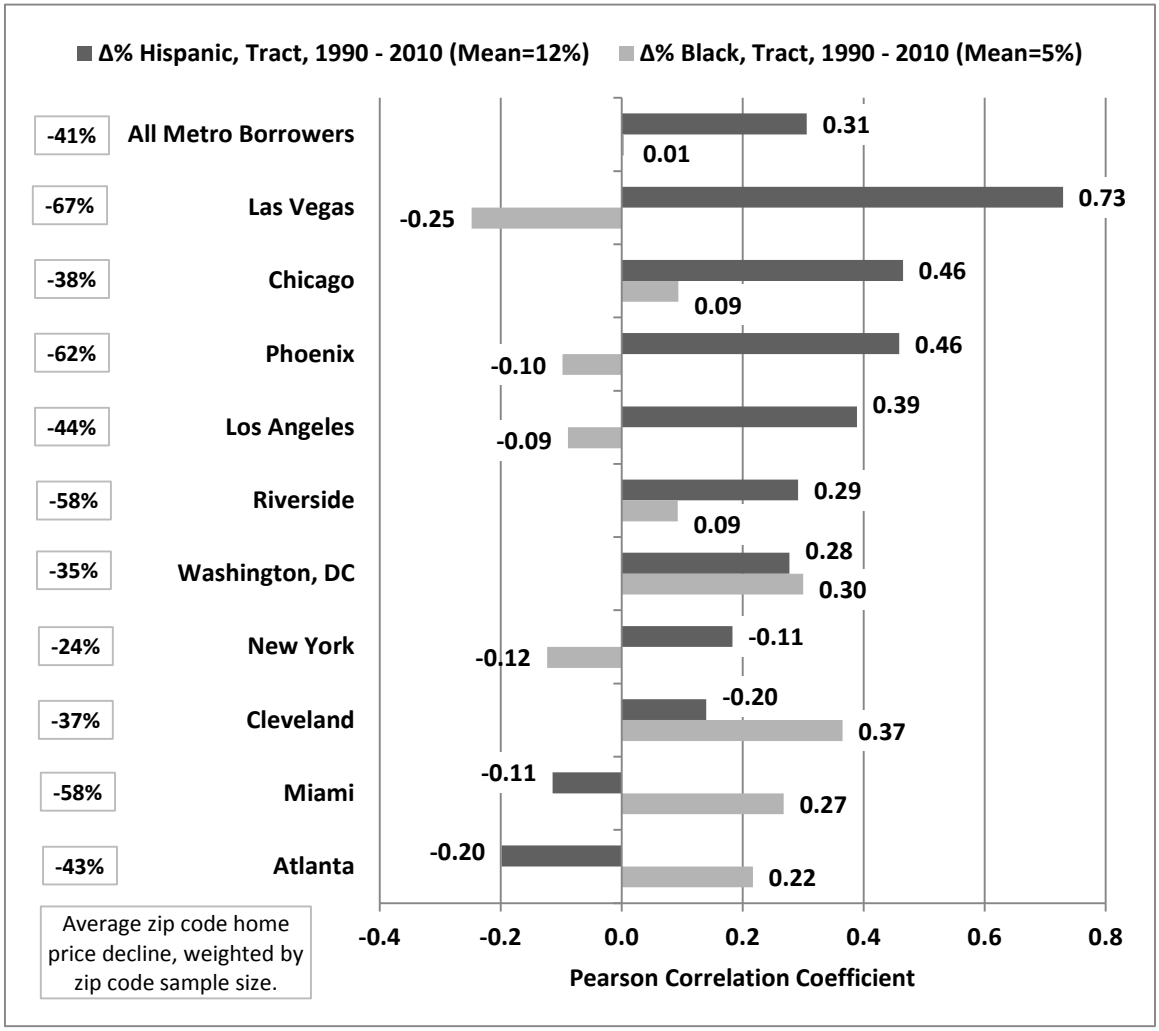
Note: N=179,357 metro loans in non-prime matched MBS-HMDA sample dataset.
Author's calculations using zip code Zillow.com Home Value Index data as of Sep. 2011.

Figure 5: Distribution of Zip Code Home Price Declines, Peak-to-Trough, by Race



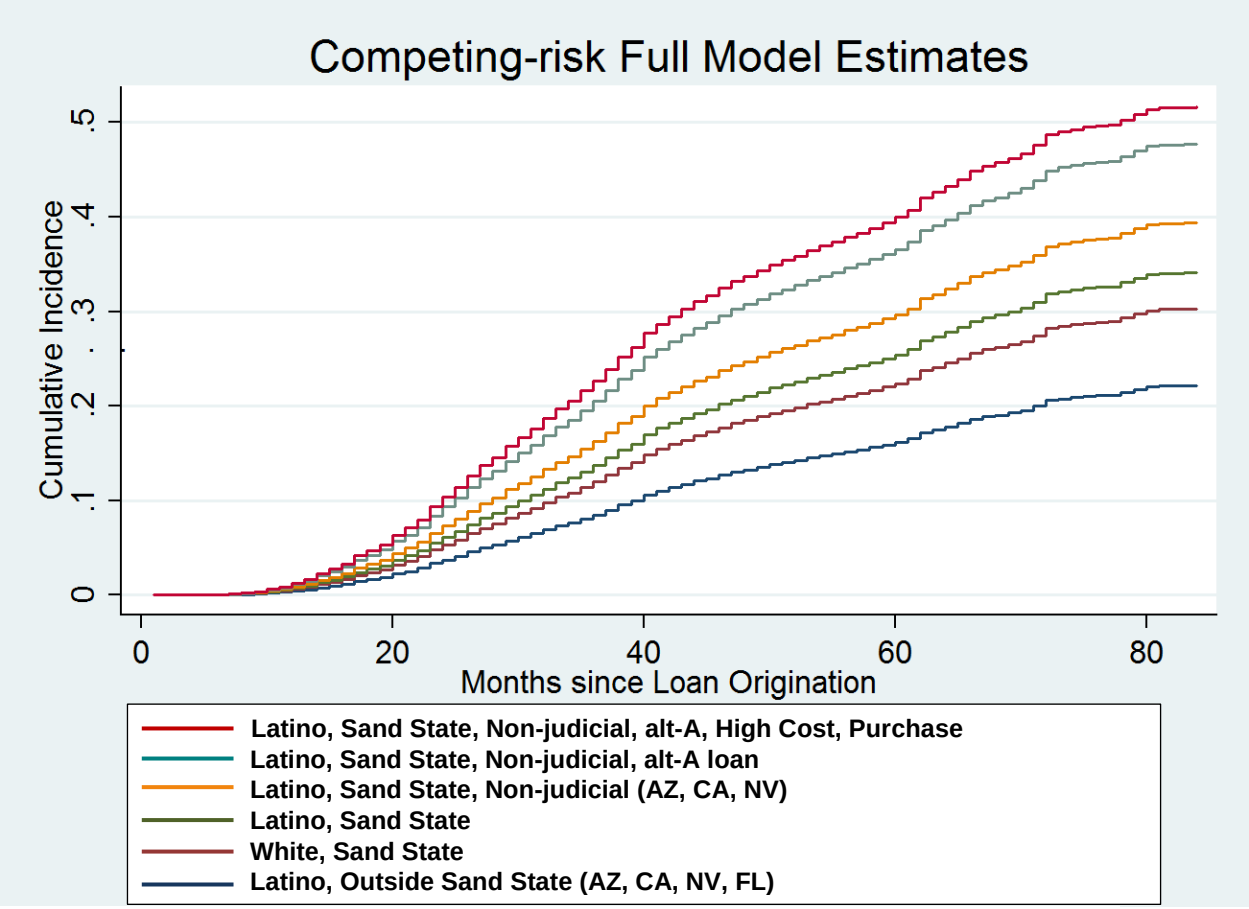
Note: N=179,357 metropolitan loans in non-prime matched MBS-HMDA sample dataset. Author's calculations using zip code Zillow.com Home Value Index data as of Sep. 2011.

Figure 6: Correlation of Change in Percent of Tract that is Hispanic or Black, 1990 - 2010, and Decline in Zip Code Zillow Home Value Index from Peak to Trough, by Metro Area



Note: Metro areas ordered by correlation coefficient of change in Hispanic percent of tract. N=164,668 for all sample borrowers in metropolitan areas. N=54,942 for ten metros shown.

Figure 7: Competing-risk Full Model Estimates of Cumulative Incidence of Completed Foreclosure in the Presence of Prepayment Risk



Note: Estimates based on competing-risk regression results presented in column (4) of Table 5. All remaining covariates set to mean (See Table 5 for list). Prepayment means the original loan is paid off in full via refinance or home sale, the borrower exits the sample and is no longer at risk of foreclosure with respect to the original loan.

References

Allen, Ryan. 2011. “The Relationship between Residential Foreclosures, Race, Ethnicity, and Nativity Status.” *Journal of Planning Education and Research* 31(2):125-142.

Bocian, Debbie Gruenstein, Wei Li, and Keith S. Ernst. 2010. *Foreclosures by Race and Ethnicity: The Demographics of a Crisis.* Washington, DC: Center for Responsible Lending. Accessed online: http://www.responsiblelending.org/mortgage-lending/research-analysis/foreclosures-by-race-and-ethnicity.pdf

Bocian, Debbie Gruenstein, Wei Li, Carolina Reid, and Roberto G. Quercia. 2011. *Lost Ground, 2011: Disparities in Mortgage Lending and Foreclosures*. Washington, DC: Center for Responsible Lending. Accessed online: http://www.responsiblelending.org/mortgage-lending/research-analysis/Lost-Ground-2011.pdf

Bostic, Raphael W., Kathleen C. Engel, Patricia A. McCoy, Anthony Pennington-Cross, Susan M. Wachter. 2008. “State and Local Anti-Predatory Lending Laws: The Effect of Legal Enforcement Mechanisms,” *Journal of Economics and Business* 60:47-66.

Brettell, Caroline B., and Faith G. Nibbs. 2010. “Immigrant Suburban Settlement and the “Threat” to Middle Class Status and Identity: The Case of Farmers Branch, Texas,” *International Migration49*(1):1-30.

Burlingame, Laurie and Jackson, Howell E. 2007.“Kickbacks or Compensation: The Case of Yield Spread Premiums,” *Stanford Journal of Law, Business & Finance* 12:289-361.

Calem, Paul, Leonard Nakamura, and Susan Wachter. 2011. “Implications of the Housing Market Bubble for Sustainable Homeownership.” In *The American Mortgage System: Crisis and Reform* eds. Susan M. Wachter and Marvin M. Smith. Philadelphia: University of Pennsylvania Press.

Charles, Camille Z. 2003. “The Dynamics of Racial Residential Segregation.” *Annual Review of Sociology* 29(1):167-207.

Chavez, Leo R. 2001. *Covering Immigration: Population Images and the Politics of the Nation*. Berkeley: University of California Press.

_____. 2008. *The Latino Threat: Constructing Immigrants, Citizens, and the Nation*. Stanford, CA: Stanford University Press.

Cox, David R. 1972. “Regression Models and Life-Tables,” *Journal of the Royal Statistical Society, Series B (Methodological)*.*34*(2):187-220.

Crowder, Kyle, Matthew Hall, and Stewart E. Tolnay. 2010. “Neighborhood Immigration and Native Out-Migration,” *American Sociological Review* 76(1):25-47.

Currie, Janet, and Erdal Tekin. 2011. “Is the Foreclosure Crisis Making Us Sick?” National Bureau of Economic Research Working Paper #17310. Accessed online: http://www.nber.org/papers/w17310

Durand, Jorge, Douglas S. Massey and Fernando Charvet. 2000. “The Changing Geography of Mexican Immigration to the United States: 1910-1996,” *Social Science Quarterly* 81(1):1-15.

Engel, Kathleen C. and Fitzpatrick, Thomas James. 2011.“A Framework for Consumer Protection in Home Mortgage Lending.” In *The American Mortgage System: Crisis and Reform* eds. Susan M. Wachter and Marvin M. Smith. Philadelphia: University of Pennsylvania Press.

Ennis, Sharon R., Merarys Rios-Vargas, and Nora G. Albert. 2011. “The Hispanic Population,” 2010 Census Brief C2010BR-04 (May 2011). Accessed online: http://www.census.gov/prod/cen2010/briefs/c2010br-04.pdf

Farley, Reynolds, and William H. Frey. 1994. "Changes in the Segregation of Whites from Blacks during the 1980s: Small Steps Toward a More Integrated Society," *American Sociological Review* 59(1): 23-45.

Fischer, Mary J., and Marta Tienda. 2006. “Redrawing Spatial Color Lines: Latino Metropolitan Dispersal, Segregation, and Economic Opportunity.” in Marta Tienda and Faith Mitchell, eds. *Latinos and the Future of America.* Washington, D.C.: National Academies Press.

Frey, William H. 2003. “Melting Pot Suburbs: A Study of Suburban Diversity,” in Bruce Katz and Robert E. Lang, eds., *Redefining Urban and Suburban America*. Washington, DC: Brookings Institution Press.

_____. 2009. “The Great American Migration Slowdown: Regional and Metropolitan Dimensions.” December 9, 2009. Brookings Institution. Available at: http://www.brookings.edu/~/media/Files/rc/reports/2009/1209_migration_frey/1209_migration_frey.pdf

_____. 2011. “Melting Pot Cities and Suburbs: Racial and Ethnic Change in Metro America in the 2000s.” May 4, 2011. Washington, DC: Brookings Institution. Accessed online: http://www.brookings.edu/~/media/Files/rc/papers/2011/0504_census_ethnicity_frey/0504_census_ethnicity_frey.pdf

Hall, Matthew S. 2010. *From a World Away to Living Next Door: The Residential Segregation and Attainment of America’s Newest Immigrants.* Dissertation, The Pennsylvania State University. Ann Arbor: ProQuest/UMI, 2010. (Publication No. AAT 3436071.)

Hall, Matthew S., and Jonathan Stringfield. 2011. “Legal Status and the Residential Segregation of Mexicans in New Destinations,” Paper prepared for presentation at the Institute of Government and Public Affairs’ 2011 Research Conference, March 11, 2001 (Chicago).

Hardwick, Susan W. 2008. “Toward a Suburban Immigrant Nation,” in Singer, Audrey, Susan W. Hardwick, and Caroline B. Brettell, Eds., *Twenty-First Century Gateways: Immigrant Incorporation in Suburban America*. Washington, D.C.: Brookings Institution.

Hixson, Lindsay, Bradford B. Helper, and Myoung Ouk Kim. 2011. “The White Population,” 2010 Census Brief C2010BR-05 (September 2011). Accessed online: http://www.census.gov/prod/cen2010/briefs/c2010br-05.pdf

Howell, Benjamin. 2006. “Exploiting Race and Space: Concentrated Subprime Lending as Housing Discrimination.” *California Law Review* (94)1:101-147.

Hudson, Michael W. 2010. *The Monster: How a Gang of Predatory Lenders and Wall Street Bankers Fleeced America—and Spawned a Global Crisis.* New York: Times Books.

Iceland, John, and Rima Wilkes. 2006. “Does Socioeconomic Status Matter? Race, Class, and Residential Segregation,” *Social Problems* 53(2): 248-273.

Iceland, John. 2009. *Where We Live Now: Immigration and Race in the United States.* Berkeley: University of California Press.

Immergluck, Dan. 2010. “Neighborhoods in the Wake of the Debacle: Intrametropolitan Patterns of Foreclosed Properties,” *Urban Affairs Review* 46:3-36.

Inside Mortgage Finance. 2008. *Mortgage Yearbook for 2007: Market Trends and Industry Leaders in the Residential Mortgage Business and MBS Markets.* Bethesda, MD: Inside Mortgage Finance Publications.

Jones-Correa, Michael. 2006. “Reshaping the American Dream: Immigrants, Ethnic Minorities, and the Politics of the New Suburbs.” In Kevin M. Kruse & Thomas J. Sugrue eds., *The New Suburban History*. Chicago: University of Chicago Press.

Johnson, Kenneth M. and Daniel T. Lichter. 2008. “Natural Increase: A New Source of Population Growth in Emerging Hispanic Destinations in the United States,” *Population and Development Review*, June, 34(2): 327-346.

Kochhar, Rakesh, Ana Gonzalez-Barrera and Daniel Dockterman. “Through Boom and Bust: Minorities, Immigrants and Homeownership,” Pew Hispanic Center, Washington, D.C. May 12, 2009. Accessed online: http://www.pewhispanic.org/files/reports/109.pdf

Kochhar, Rakesh, Richard Fry, and Paul Taylor. 2011. “Twenty-to-One: Wealth Gaps Rise to Record Highs Between Whites, Blacks and Hispanics,” Pew Research Center, Washington, D.C. July 26, 2011. Accessed online: http://www.pewsocialtrends.org/files/2011/07/SDT-Wealth-Report_7-26-11_FINAL.pdf

Kneebone, Elizabeth, and Emily Garr. 2010. “The Suburbanization of Poverty: Trends in Metropolitan America, 2000 to 2008,” Metropolitan Opportunity Series Paper (January 2010). Washington, DC: Brookings Institution.

Lichter, Daniel T. 2012. “Immigration and the New Racial Diversity in Rural America,” *Rural Sociology*.*77*(1):3-35.

Lichter, Daniel T., Domenico Parisi, Michael C. Taquino, and Steven Michael Grice. 2010. “Residential Segregation in New Hispanics Destinations: Cities, Suburbs, and Rural Communities Compared,” *Social Science Research* 39:215-30.

Logan, John R., Zengwang Xu, and Brian Stults. 2012. “Interpolating US Decennial Census Tract Data from as Early as 1970 to 2010: A Longitudinal Tract Database” *Professional Geographer*, forthcoming.

Logan, John R. and Charles Zhang. 2010. “Global Neighborhoods: New Pathways to Diversity and Separation.” *American Journal of Sociology* 115:1069-109.

Massey, Douglas S. 1985. "Ethnic Residential Segregation: A Theoretical Synthesis and Empirical Review." *Sociology and Social Research* 69:315-350.

_____. 2007. *Categorically Unequal: The American Stratification System.* New York: Russell Sage Foundation.

Massey, Douglas S., and Capoferro, C. 2008.“The Geographic Diversification of U.S. Immigration.” In Douglas S. Massey, Ed., *New Faces in New Places: The Changing Geography of American Immigration*(pp. 25–50). New York: Russell Sage Foundation.

Massey, Douglas S., and Karen A. Pren. 2012. “Unintended Consequences of US Immigration Policy: Explaining the Post-1965 Surge from Latin America,” *Population and Development Review 38*(1):1-29.

Massey, Douglas S., Jacob S. Rugh, and Karen A. Pren. 2009. “The Geography of Undocumented Mexican Migration,” *Mexican Studies/Estudios Mexicanos* 26(1):129-152.

Medina, Jennifer. 2012. “In California, Economic Gap of East vs. West” *New York Times* (April 13, 2012). Accessed online: http://www.nytimes.com/2012/04/14/us/californias-economic-split-pits-west-against-east.html

Myers, Dowell. 1999. “Demographic Dynamism and Metropolitan Change: Comparing Los Angeles, New York, Chicago, and Washington, DC.” *Housing Policy Debate10*(4): 919-954.

_____. “Intergenerational Advancement of the Mexican-origin Population Relative to a Changing Mainstream: Challenges of Selective Migration in the Comparison of California and Texas,” Notestein Seminar Series, Office of Population Research, Princeton University (October 4, 2011).

Myers, Dowell, Gary Painter, Zhou Yu, Sung Ho Ryu, and Liang Wei. 2005. “Regional Disparities in Homeownership Trajectories: Impacts of Affordability, New Construction, and Immigration.” *Housing Policy Debate* 16(1):53-83.

Owens, Lindsay A. 2011.“Getting a Workout: Mortgage Modification, Class, and Shifting Financial Institutions,” September 21, 2011. Available at SSRN: http://ssrn.com/abstract=1931880 or http://dx.doi.org/10.2139/ssrn.1931880

Passel, Jeffrey, and D’Vera Cohn. 2011. “Unauthorized Immigrant Population: National and State Trends, 2010,” Pew Hispanic Center Report 2011-133 (February 1, 2011). Accessed online: http://www.pewhispanic.org/2011/02/01/unauthorized-immigrant-population-brnational-and-state-trends-2010/

Passel, Jeffrey, D’Vera Cohn, and Ana Gonzalez-Barrera. 2012. “Net Migration from Mexico Falls to Zero—and Perhaps Less,” Pew Hispanic Center (April 23, 2012). Accessed online: http://www.pewhispanic.org/files/2012/04/PHC-04-23a-Mexican-Migration.pdf

Pew Hispanic Center. 2011. “The Mexican-American Boom: Births Overtake Immigration,” Pew Research Center Report 2011-144 (July 14, 2011). Accessed online: http://www.pewhispanic.org/files/reports/144.pdf

Park, Julie, and Dowell Myers. 2010. “Intergenerational Mobility in the Post-1965 Immigration Era: Estimates by an Immigrant Generation Cohort Method,” *Demography* 47(2): 369-392.

Portes, Alejandro, and Rumbaut, Ruben G. 2006.*Immigrant America: A Portrait*. 3rd ed. Berkeley: University of California Press.

Ross, Stephen L. and John Yinger. 2002. *The Color of Credit: Mortgage Discrimination, Research Methodology, and Fair-Lending Enforcement.* Cambridge and London: MIT Press.

Rugh, Jacob S. 2012. “The Persistence of Inequality in Mortgage Lending and Foreclosure in New York City: Social Forces and the Effect of Loan Modification.” Working Paper (March 22, 2012). Available from the author upon request.

Rugh, Jacob S. and Douglas S. Massey. 2010. “Racial Segregation and the American Foreclosure Crisis,” *American Sociological Review* 75(5):629-651.

Singer, Audrey. 2004. “The Rise of New Immigrant Gateways,” Washington, DC: Brookings Institution (February 2004). Accessed online: http://www.brookings.edu/~/media/Files/rc/reports/2004/02demographics_singer/20040301_gateways.pdf

_____. 2008. “Twenty-First Century Gateways,” in Singer, Audrey, Susan W. Hardwick, and Caroline B. Brettell, Eds., *Twenty-First Century Gateways: Immigrant Incorporation in Suburban America*. Washington, D.C.: Brookings Institution.

_____. 2009. *The New Geography of United States Immigration.* Washington, DC: Brookings Institution.

Squires, Gregory D., and Derek S. Hyra. 2010. “Foreclosures—Yesterday, Today, and Tomorrow,” *City & Community* 9(1):50-60.

Squires, Gregory D., Derek S. Hyra, and Robert N. Renner. 2009.“Segregation and the Subprime Lending Crisis,” Paper presented at the 2009 Federal Reserve System Community Affairs Research Conference, April 16, 2009 (June 11, 2009 version).

Stuart, Guy. 2003. Discriminating Risk: The U.S. Mortgage Lending Industry in the Twentieth Century. Ithaca, NY: Cornell University Press.

V. CONCLUSION

"Injustice Anywhere is a Threat to Justice Everywhere"

When he was detained in jail in Birmingham, Alabama in 1963 Dr. Martin Luther King, Jr. spoke of the struggle for civil rights in Atlanta, Georgia and famously proclaimed, "Injustice anywhere is a threat to justice everywhere."[36] These words encapsulate the U.S. housing crisis and the deep racial and ethnic disparities it perpetuated. Far from being confined to the inner cities of South Los Angeles, Cleveland, Memphis, or Queens, the injustice of predatory subprime lending evolved to become part of a wave of nonprime lending that crashed hard onto the entire social and urban landscape. Once lenders successfully exploited one segment of the population, blacks and Latinos in inner cities, there was little to prevent them from spreading the injustice more broadly. If anything, the incentives people faced, from bankers to brokers, and appraisers to investors, persuaded them to launch the injustice of predatory subprime lending on a scale previously unimagined. In fact, nonprime lending became the dominant form of lending at the peak of the housing boom.

As a consequence, the ongoing housing crisis in the United States has uniquely devastated the fortunes of black and Latino homeowners and communities. Decades of progress African Americans and Latinos had forged in wealth building, homeownership, and social mobility have been decimated (Kochar, Fry, and Taylor 2011; Rosenbaum 2012; Shapiro, Meschede, and Sullivan 2010). While the financial crisis in the United States has receded, with the largest banks and investment firms earning healthy profits, and the recession and the rise in unemployment have officially ended, the housing crisis remains. Home prices have fallen for five straight years, declining overall by over one-third; but in cities where blacks and Latinos

[36] Source: African Studies Center, University of Pennsylvania, see: http://www.africa.upenn.edu/Articles_Gen/Letter_Birmingham.html

make up a far larger share of refinance borrowers, like Cleveland and Detroit, or new owners, like Atlanta, Las Vegas, or Orlando, the declines have been far steeper. Because so many remain at risk, the foreclosure crisis may only be half over (Bocian, Li, Reid, and Quercia 2011).

Discussion: Loan Modifications and Public Policy Implications

Are there any ways to help stem the tide of foreclosures among black and Latino borrowers? One of the most effective means is to renegotiate loan terms through a loan modification. Loan modifications make the borrower, lender, and community far better off than a foreclosure. A nationwide cost-benefit analysis that showed that effective loan modifications represent a net benefit to borrowers, investors, and overall social welfare, especially when paired with qualified loan counseling (Mayer, Tatian, Temkin, and Calhoun 2011).

According to Figure 1, however, few borrowers in the national nonprime sample I introduced in Chapter 3 received loan modifications. And given the elevated level of foreclosure among Latinos, the rate for Latinos is disappointingly low, as only13.8% of Latinos in owner-occupied homes have received loan modifications since April 2009, compared to 17.8% of African Americans.[37] I have selected this date as a baseline, not because servicers did not modify loans prior to that point in time (they did, but often payment relief was minimal or nonexistent), but because it coincides with the launch of the U.S. Treasury's Home Affordable Modification Program (HAMP). Initially lauded as a way to help up to 3 or 4 million borrowers achieve sustainable loan modifications, fewer than 1 million borrowers have benefitted to date. Unfortunately, HAMP is just the earliest among an alphabet soup of abysmal federal housing

[37] Curious readers may wonder if this is an artifact of differences in bankruptcy rates (which are in fact higher among black borrowers than Latino borrowers, 7.4% compared to 4.9%), but even if Latinos declared bankruptcy at the same rate and benefitted from a judge mandating a loan modification, their rate of loan modification would rise by less than 0.5 percentage points. Thus, this alone cannot account for such a large black-Latino gap.

policy failures (Roberts and Kaper 2012; Kiel 2012). In the meantime, several million people have lost their homes over the same period.

The recent 49-state settlement also sought to stop the process of fraudulent foreclosure filings and illegal repossessions, but that intervention is also fatally flawed (Levitin 2012).[38] I expose an additional drawback of the settlement, as well as HAMP, in Figures 2 and 3. The terms of the settlement offer aggrieved borrowers who lost their homes to a fraudulent foreclosure a $2,000 compensatory payment, but only for borrowers who lost their homes beginning in September 2008. This form of redress has a clearly disparate impact by race and ethnicity.[39] In this sample of nonprime borrowers, Asian, black, and Latino borrowers were more likely to have lost their homes prior this date. Moreover, the disparity of the late-going and ineffective HAMP program is also clearly apparent. Nearly half of Asian and Latino borrowers lost their homes before they even had the chance to apply for HAMP modifications.

I show even starker disparities in a separate sample of all foreclosures across *all* types of loans—prime, nonprime, and FHA/VA guaranteed—in five total zip codes of Phoenix (Figure 3). This includes *all* 2003-2007 loans in HMDA originated in 42 tracts (five zip codes) including matched foreclosure filings followed through 2011. The timing of the two nonprime waves and their disparate impact on black and Latino borrowers is even more startling when we consider prime and nonprime borrowers together. The crisis hit blacks, then Latinos, and as such left them disproportionately ineligible for federal policy interventions. Indeed, the majority of black and Latino homeowners in this especially hard-hit city lost their homes before HAMP was even launched. And 35% of Latinos and 40% of blacks will never be eligible for compensation due to

[38]Ratings agencies such as Fitch have deemed what should have been a punishment and deterrent for banks a "slight positive." See: http://www.fitchratings.com/web/en/dynamic/articles/Federal-Mortgage-Deal-Slight-Positive-for-U.S.-Banks.jsp

[39]The small size and complete uncertainty as to when foreclosed former homeowners would receive the payment are of course the other, more obvious problems with this settlement term.

fraudulent foreclosures, compared to 21% of Asians and 26% of whites. These statistics that link borrower race/ethnicity and loan outcomes by date demonstrate additional flaws in federal policy programs already deemed as failures. In sum, the time trend of the foreclosure crisis maps onto disparities in foreclosure by race and ethnicity that are not ameliorated, but instead amplified by federal housing policy program criteria.

Do loan modifications actually benefit nonprime borrowers? Figure 4 offers an initial answer by comparing the completed foreclosure rate among three types of borrowers that have not prepaid their loans since HAMP launched. The beneficial effects of loan modification are evident across all groups, and may partly explain why blacks have fared better in this sample. For Latino borrowers, the benefits are obvious. While over 29% of Latinos who fail to receive a modification have lost their homes, only 9% with modifications have experienced the same fate. And, for the fortunate few who have had a portion of their principal balance forgiven, less than 1% have lost their homes. Figure 5 uses a broader measure of serious loan delinquency to gauge the potential added benefit of principal reduction modifications. When I consider all types of loan delinquency ranging from 90 days or more late, to foreclosure, bankruptcy, and completed foreclosure (REO), I find that Latinos who received principal reduction modifications are roughly only half as likely to be seriously delinquent. This persists even controlling for a similar amount of time post-modification. In short, loan modifications are a better outcome for borrowers, and principal modifications, the best outcome. Moreover, these modifications provide a greater benefit to Latino borrowers who were most likely to have purchased at the most inflated levels and suffer from negative equity.

Based on the empirical evidence of the Latino disparity in foreclosure and the promising but unfulfilled potential of loan modifications, I propose five policy recommendations. There

remain literally billions of dollars in earmarked funds for foreclosure prevention that have not been disbursed that could help spur funding for many of these initiatives.

First, in order to boost the number and rate of loan modifications among Latino borrowers, there needs to be a dramatic increase in qualified housing counselors and agencies in Latino communities. In New York City, I have found that the outreach and counseling to borrowers has resulted in the loan modification rate being higher among distressed Latino borrowers than any other racial or ethnic group (Rugh 2012). However, the sheer number of counselors and the system of service delivery in cities like Phoenix do not appear to be reaching both Latino and black borrowers desperately in need of loan modifications, especially in suburbs.

Second, there need to be vastly more bilingual counselors and employees of servicers to help immigrant Latinos who speak Spanish as a primary language. In addition, there need to be clear codes of conduct and enforceable rules as to the disposition of documents that borrowers submit in Spanish. Recent research in California suggests that loan servicers routinely destroy or lose documents, especially if they are in Spanish, and servicers are not adequately staffed to assist Spanish-speaking customers (California Reinvestment Coalition 2011).

Third, in order to benefit all borrowers, and by implication blacks and Latinos in particular, state legislation should mandate and enforce that loan servicers never begin foreclosure proceedings when a borrower has begun a trial loan modification. This harmful practice, referred to as dual-track, is all too common and betrays the trust of borrowers (California Reinvestment Coalition 2011; National Consumer Law Center 2011). Most troubling, in the face of intense lobbying from the banking sector, leaders in the California State Assembly

recently decided to suddenly delay hearings on legislation designed to protect homeowners from being foreclosed on while pursuing a loan modification, among other aims (Ortiz 2012).[40]

Fourth, states should pay careful attention to the outcomes that follow when jurisdictions enforce laws against illegal foreclosures and legislate appropriately to stop foreclosures. To varying degrees, states (including Nevada, New York, Utah, Kansas), have criminalized the filing of fraudulent foreclosures. These state legal actions and laws prohibit entities that either have no authority to foreclose (Utah, Massachusetts, Louisiana) or willingly and systematically falsify documents (Nevada). In Nevada, after Assembly Bill 284 was passed in October 2010, foreclosures fell by more than half.

Fifth, to both deal with the current foreclosure crisis and prevent the next crisis in predominantly black and Latino communities, a variety of innovative and promising initiatives should be implemented according to local circumstances. First, local municipalities ought to partner with universities and nonprofit organizations that have access to expertise and resources. The Cleveland and Northeast Ohio Indicator (NEO CANDO) database hosted by Case Western Reserve University is one example. Also, City Year/Vida Urbana in Boston employs capital to help return foreclosures to owners by bypassing loan servicers altogether and partners with local law schools to have qualified students help do the ground work necessary to prevent wrongful foreclosures. In addition, better data need to be collected as part of the Home Mortgage Disclosure Act, especially concerning loan performance. Potential improvements remain the purview of the new Consumer Financial Protection Bureau (Engel and Fitzpatrick 2011). If public pressure and the crisis fade in public memory (but remain a reality in communities of color), there will be little impetus for change and we will continue to be reliant on private databases (as my sample has been) in future investigations of racial and ethnic disparities. Last,

[40]As of this writing, there have been no votes taken on this legislation.

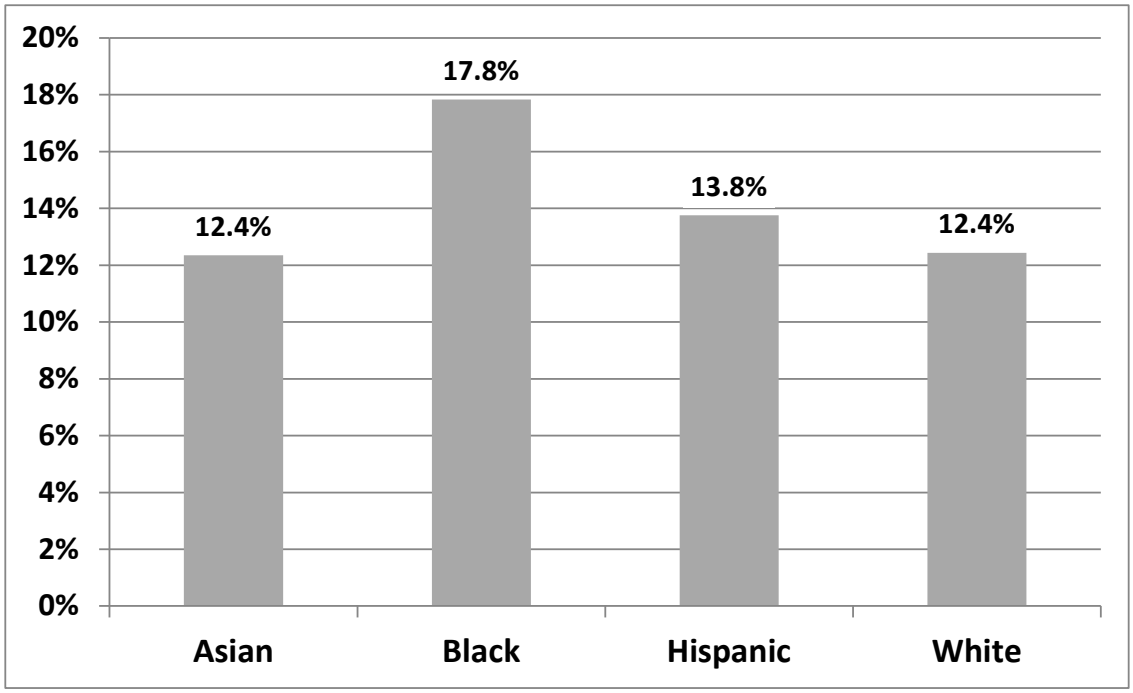
community development corporations need to ensure that funding streams from financial institutions do not compromise their ability to stop abusive lending practices that prey on vulnerable members of the community (McQuarrie 2010). Funding streams and funding allocations need to better reflect the plight of blacks and Latinos in suburbs, not in just cities.

The inability of U.S. federal policy to stem the tidal wave of foreclosures that have struck so many communities is emblematic of larger failures of the American political system. The U.S. has failed to tackle larger policy challenges, such as preventing systemic financial risk, reducing economic inequality, or dealing with a broken immigration policy. Not only do these policy failures help explain the plight of Latinos caught up in the housing bust, they also reveal an increasingly stark policy divide between the U.S. and its Latin American counterparts, Mexico and Brazil (Inter-American Dialogue 2012). In contrast to the U.S., these other Western Hemisphere nations are reaping the rewards of increasingly broad-based economic gains, demographic shifts, successful economic policies, and, in the case of Mexico, reduced migration to the United Sates (Cave 2011; Inter-American Dialogue 2012; Llana 2012).

Apart from policy decisions, classical conceptions of social stratification and equal rights are constantly evolving in response to outcomes structured on social processes, such as the disproportionate burden borne by blacks and Latinos in the housing crisis. Contemporary research across multiple disciplines has revised and to a large extent overturned the familiar black-white, North-South paradigm of discrimination, segregation, and race relations in the United States rooted in the system of slavery in the South of yesteryear. According to this literature, the struggle for civil rights and equal opportunity has always been multiethnic, multiregional, and unfulfilled (e.g., Brilliant 2010; Lassiter and Crespino 2009; Sugrue 2009)

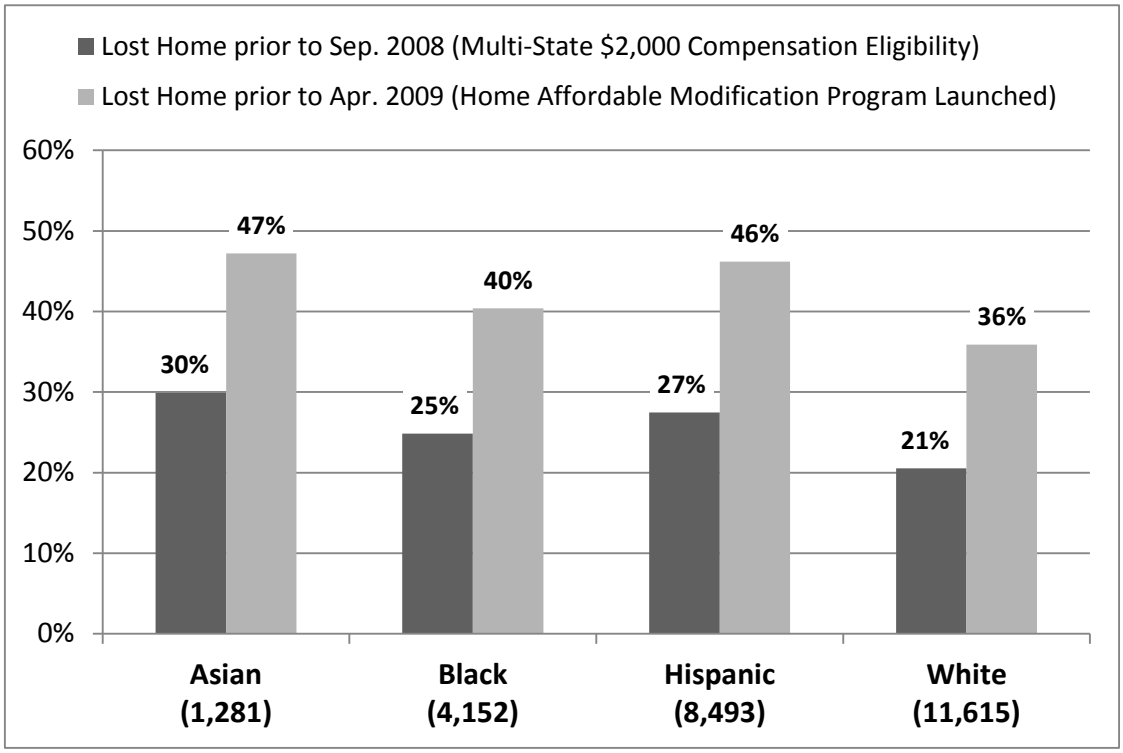
To better respond to the crisis, policy makers, researchers, and the public need to understand how the housing crisis relates to racial segregation, discrimination, and the residential mobility of minorities and how this relationship ensured that blacks and Latinos bore an unequal share of the costs. The evolution of the market in subprime and nonprime loans mapped onto the residential patterns and economic and social vulnerabilities of blacks and Latinos to make them the hardest hit victims of the crisis, but they are not the only victims. As the crisis enters its sixth year and economic growth remains tenuous, the legacy of unequal lending continues to imperil the fortunes of all Americans.

Figure 1: Percent of Borrowers who Received Loan Modification, by Race



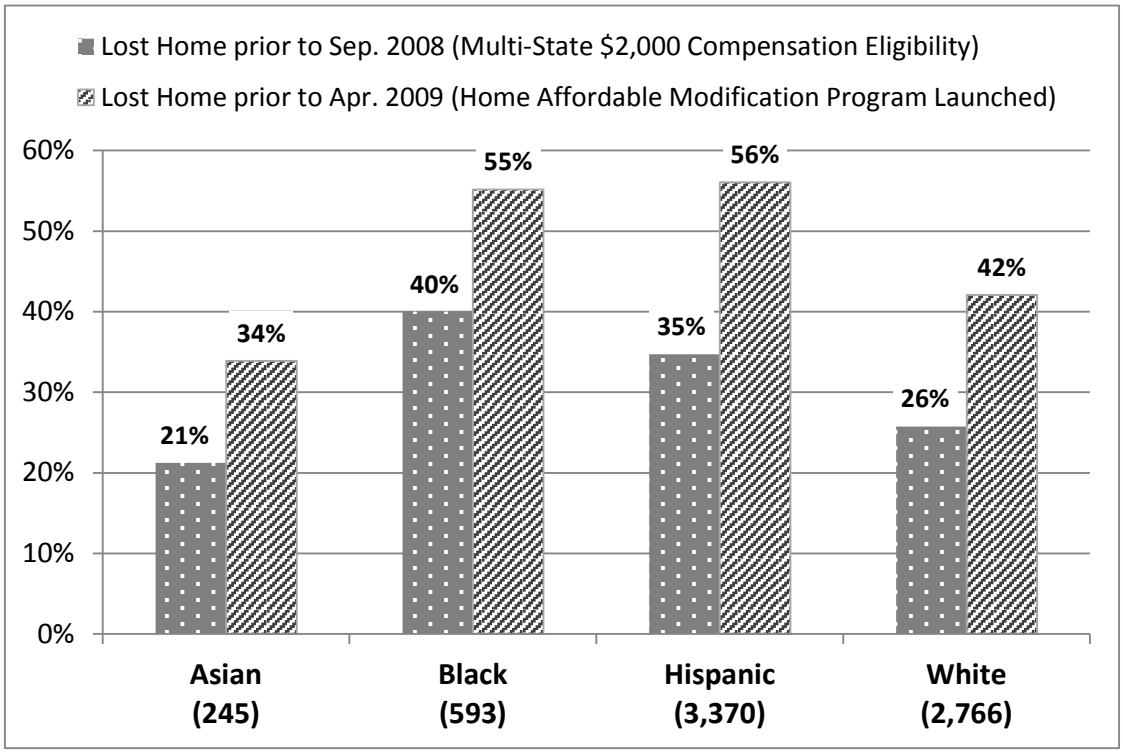
Note: Among borrowers in owner-occupied properties who did not prepay their loan prior to April 2009 (launch of HAMP). N=146,276 loans in non-prime matched MBS-HMDA sample dataset.

Figure 2: Borrowers Who Lost Homes: Percent Ineligible for Federal Policies, by Race



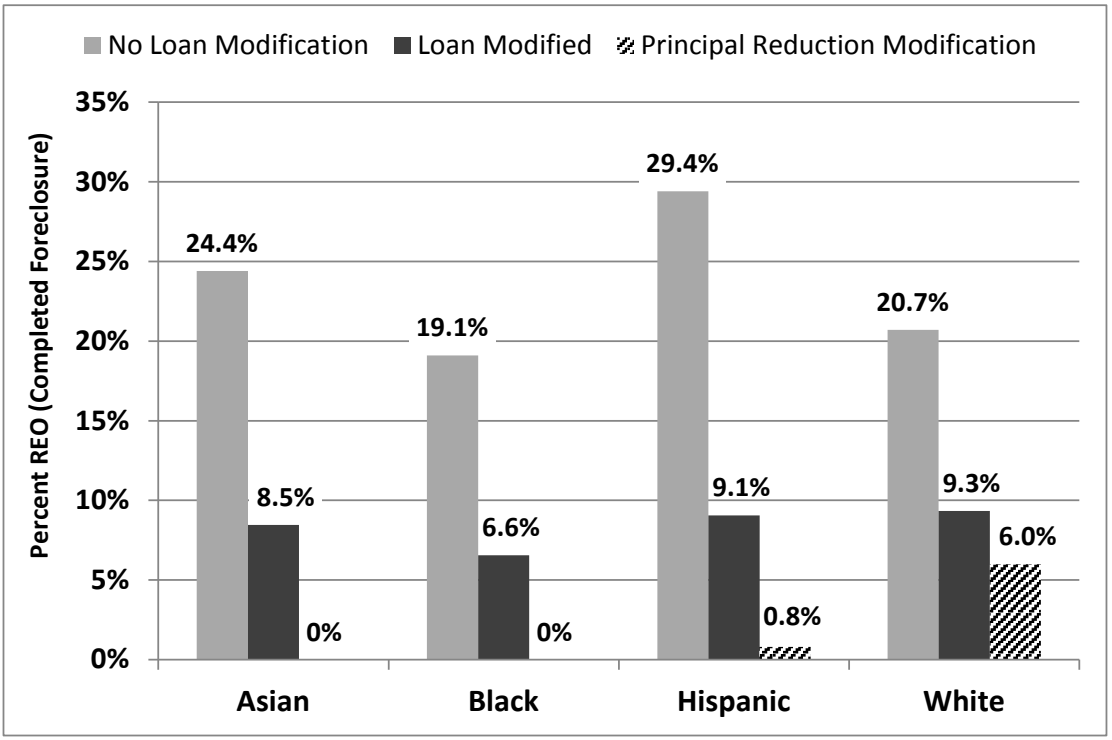
Note: Number of borrowers in parentheses; among loans ever in REO status in non-prime dataset.

Figure 3: Borrowers Who Lost Homes: Percent Ineligible for Federal Policies, by Race Phoenix 5 Zip Code Sample: All Loans Originated 2003-2007 (Prime, FHA, and Nonprime)



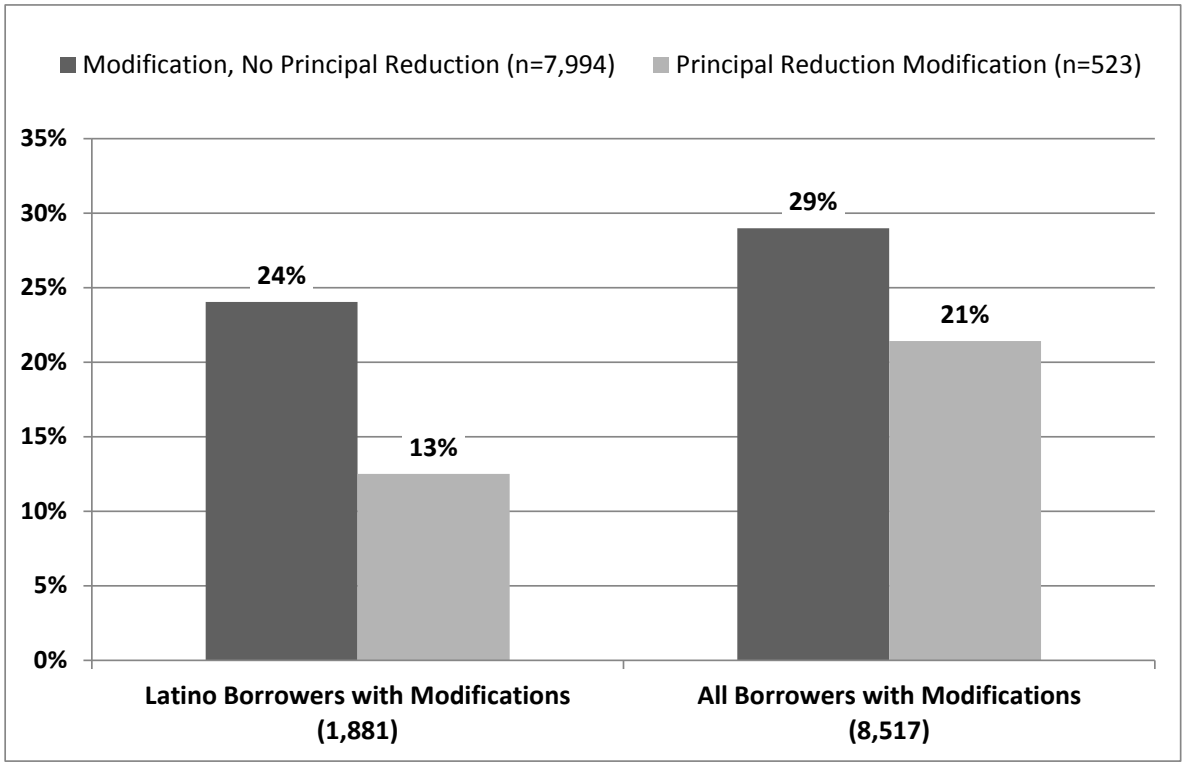
Note: Number who lost homes shown; sample includes all 2003-2007 mortgage loans (N=86,361).

Figure 4: Completed Foreclosure Rate by Race and Loan Modification Status



Note: Among borrowers in owner-occupied properties who did not prepay their loan prior to April 2009 (launch of HAMP). N=132,858 total; N=11,917 modifications; N=523 principal reduction modifications.

Figure 5: Percent of Sample Borrowers 90+ Days Delinquent, in Bankruptcy, Foreclosure, or REO Post-Modification: Modification versus Principal Reduction Modification



Note: Status as of January 2012. Comparison only includes 8,517 modifications after January 1, 2010 to ensure comparable time horizons for post-modification loan performance—the average loan age in post-modification for standard modifications is 16 months and, for principal reduction modifications, 14 months. The average amount of principal forgiven represented 31% of the origination balance; among Latinos it was 34%.

References

Bocian, Debbie Gruenstein, Wei Li, Carolina Reid, and Roberto G. Quercia. 2011. *Lost Ground, 2011: Disparities in Mortgage Lending and Foreclosures*. Washington, DC: Center for Responsible Lending. Accessed online: http://www.responsiblelending.org/mortgagelending/research-analysis/Lost-Ground-2011.pdf

Brilliant, Mark. 2010. *The Color of America Has Changed: How Racial Diversity Shaped Civil Rights Reform in California, 1941-1978*. Oxford: Oxford University Press.

California Reinvestment Coalition. 2011. "Race to the Bottom: An Analysis of HAMP Loan Modification Outcomes by Race and Ethnicity for California." July 2011.

Cave, Damien. 2011. "Better Lives for Mexicans Cut Allure of Going North," *New York Times* July 6, 2011. Accessed online: http://www.nytimes.com/interactive/2011/07/06/world/americas/immigration.html

Inter-American Dialogue. 2012. "Remaking the Relationship: The United States and Latin America," Sol M. Linowitz Forum Report. April 2012. Accessed online: http://www.thedialogue.org/PublicationFiles/IAD2012PolicyReportFINAL.pdf

Levitin, Adam. 2012. "The Servicing Settlement: Banks 1, Public 0," Credit Slips: A Discussion on Credit, Finance, and Bankruptcy. Web log post (February 9, 2012). Accessed online: http://www.creditslips.org/creditslips/2012/02/the-servicing-settlement-banks-1-public-0.html

Llana, Sara Miller. 2012. "Home Again in Mexico: Illegal Immigration Hits Net Zero," *The Christian Science Monitor* (April 8, 2012). Accessed online: http://www.csmonitor.com/World/Americas/2012/0408/Home-again-in-Mexico-Illegal-immigration-hits-net-zero

Kiel, Paul. 2012. *The Great American Foreclosure Story: The Struggle for Justice and a Place to Call Home*. New York: ProPublica.

Kochhar, Rakesh, Richard Fry, and Paul Taylor. 2011. "Twenty-to-One: Wealth Gaps Rise to Record Highs between Whites, Blacks and Hispanics," Pew Research Center, Washington, D.C. July 26, 2011. Accessed online: http://www.pewsocialtrends.org/files/2011/07/SDT-Wealth-Report_7-26-11_FINAL.pdf

Lassiter, Matthew D., and Joseph Crespino. 2009. *The Myth of Southern Exceptionalism*. Oxford: Oxford University Press.

Mayer, Neil, Peter A. Tatian, Kenneth Temkin, and Charles A. Calhoun. 2011. *National Foreclosure Mitigation Counseling Program Evaluation: Final Report Rounds 1 and 2*. Prepared for NeighborWorks America. Washington, DC: Urban Institute.

McQuarrie, Michael. 2010. “ESOP Rises Again,” *Shelterforce* (Spring 2010). Accessed online: http://www.shelterforce.org/article/1993/esop_rises_again/

Ortiz, Jon. 2012. “Democrats Delay California Mortgage Overhaul amid Business Opposition,” *Sacramento Bee*, p. 3A (April 17, 2012). Accessed online: http://www.sacbee.com/2012/04/17/4419150/democrats-delay-california-mortgage.html

Roberts, Kristin, and Stacy Kaper. 2012. “Out of Their Depth,” *National Journal* (March 22, 2012). Accessed online: http://www.nationaljournal.com/magazine/the-white-house-s-housing-fumbles-20120322

Rosenbaum, Emily. 2012. *Homeownership’s Wild Ride, 2001-2011*. US 2010 Research Brief. Accessed online: http://www.s4.brown.edu/us2010/Data/Report/report03212012.pdf

Rugh, Jacob S. 2012. “The Persistence of Inequality in Mortgage Lending and Foreclosure in New York City: Social Forces and the Effect of Loan Modification.” Working Paper (March 22, 2012). Available from the author upon request.

Shapiro, Thomas M., Tatjana Meschede, and Laura Sullivan. 2010. ‘‘The Racial Wealth Gap Increases Fourfold.’’ Institute on Assets and Social Policy Research and Policy Brief. Accessed online: http://iasp.brandeis.edu/pdfs/Racial-Wealth-Gap-Brief.pdf

Sugrue, Thomas J. 2009. *Sweet Land of Liberty: The Forgotten Struggle for Civil Rights in the North*. New York: Random House.