

**The Broken Credit System:
Discrimination and Unequal Access to Affordable Loans by Race and Age**

Subprime Lending in Ten Large Metropolitan Areas

The National Community Reinvestment Coalition (NCRC) is the nation's trade association for economic justice whose members consist of local community based organizations. Since its inception in 1990, NCRC has spearheaded the economic justice movement. NCRC's mission is to build wealth in traditionally underserved communities and bring low- and moderate-income populations across the country into the financial mainstream. NCRC members have constituents in every state in America, in both rural and urban areas.

The Board of Directors would like to express their appreciation to the NCRC professional staff who contributed to this publication and serve as a resource to all of us in the public and private sector who are committed to responsible lending. For more information, please contact:

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NCRC

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Executive Summary

The credit system is broken and discrimination is widespread in America. NCRC finds that African-American and predominantly elderly communities receive a considerably higher level of high cost subprime loans than is justified based on the credit risk of neighborhood residents. President Bush has declared an Administration's goal of 5.5 million new minority homeowners by the end of the decade. The widespread evidence of price discrimination, however, threatens the possibility of creating sustainable and affordable homeownership opportunities for residents of traditionally underserved neighborhoods.

The widespread evidence of price discrimination threatens the possibility of creating sustainable and affordable homeownership opportunities . . .

A subprime loan has an interest rate higher than prevailing and competitive rates in order to compensate for the added risk of lending to a borrower with impaired credit. NCRC defines a predatory loan as an unsuitable loan designed to exploit vulnerable and unsophisticated borrowers. Predatory loans are a subset of subprime loans. A predatory loan has one or more of the following features: 1) charges more in interest and fees than is required to cover the added risk of lending to borrowers with credit imperfections, 2) contains abusive terms and conditions that trap borrowers and lead to increased indebtedness, 3) does not take into account the borrower's ability to repay the loan, and 4) violates fair lending laws by targeting women, minorities and communities of color. Using the best available industry data on credit worthiness, NCRC uncovered a substantial amount of predatory lending involving rampant pricing discrimination and the targeting of minority and elderly communities.

Sadly, it is still the case in America that the lending marketplace is a dual

marketplace, segmented by race and age. If a consumer lives in a predominantly minority community, he or she is much more likely to receive a high cost and discriminatory loan than a similarly qualified borrower in a white community. At the same time, the elderly, who have often built up substantial amounts of equity and wealth in their homes, are much more likely to receive a high cost refinance loan than a similarly qualified younger borrower. The disproportionate amount of subprime refinance lending in predominantly elderly neighborhoods imperils the stability of long-term wealth in communities and the possibilities of the elderly passing their wealth to the next generation.

Lending discrimination in the form of steering high cost loans to minorities and elderly borrowers qualified for market rate loans results in equity stripping and has contributed to inequalities in wealth. According to the Federal Reserve Survey of Consumer Finances, the median value of financial assets was \$38,500 for whites, but only \$7,200 for minorities in 2001. Whites have more than five times the dollar amount of financial assets than minorities. Likewise the median home value for whites was \$130,000 and only \$92,000 for minorities in 2001.¹

This report confirms Americans' perceptions of bias in lending. In the winter of 2002, NCRC hired Republican pollster Frank Luntz and Democratic pollster Jennifer Laszlo Mizrahi to conduct a nationally representative poll of Americans' views of lending institutions. In the poll, fully 76 percent of Americans believed that steering creditworthy minorities and women to costly loan products was a significant problem. About 47

¹ Ana M. Aizcorbe, Arthur B. Kennickell, and Kevin B. Moore, *Recent Changes in U.S. Family Finances: Evidence from the 1998 and 2001 Survey of Consumer Finances*, Federal Reserve Bulletin, January 2003.

percent of the survey respondents believed that a white man would be more likely than an African-American man with the same credit history to be approved for a loan. Only 10 percent of the respondents believed that the African-American would be more likely to be approved for a loan. Among African-American survey respondents, 74 percent thought the white man would be approved, and only 3.6 percent thought that a similarly qualified African-American would be approved over the white man. Unfortunately, this report verifies that these perceptions of discriminatory treatment are reality in too many instances.²

The single most utilized defense of lenders and their trade associations concerning bias is that credit scoring systems allow lenders to be color-blind in their loan decisions. This study, the largest and among the first of its kind, debunks that argument and clearly makes the case that African-American and elderly neighborhoods, regardless of the creditworthiness of their residents, receive a disproportionate amount of high cost subprime loans.

NCRC selected ten large metropolitan areas for the analysis: Atlanta, Baltimore, Cleveland, Detroit, Houston, Los Angeles, Milwaukee, New York, St. Louis, and Washington, D.C. As expected, the amount of subprime loans increased as the amount of neighborhood residents in higher credit risk categories increased. After controlling for risk and housing market conditions, however, the race and age composition of the neighborhood had an independent and strong effect, increasing the amount of high cost subprime lending. In particular:

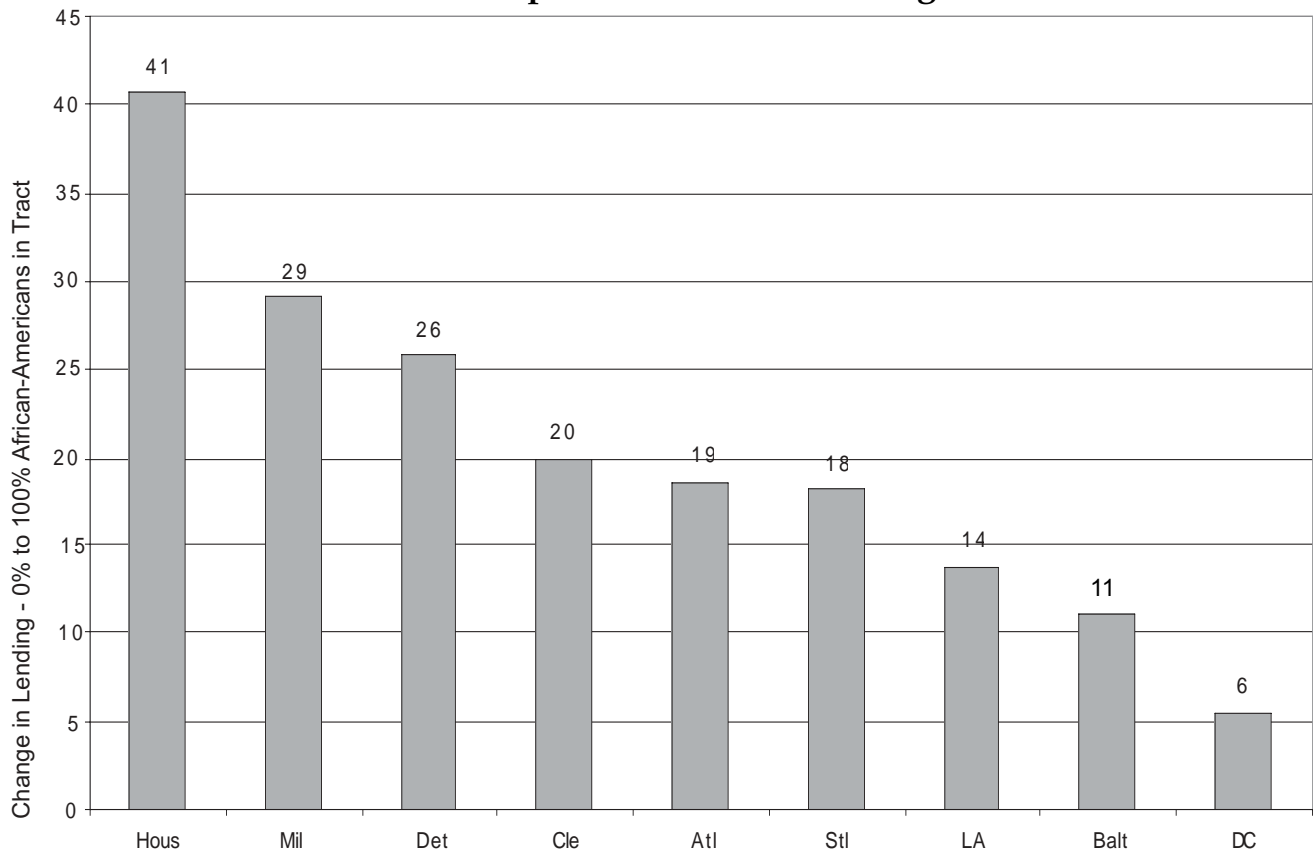
² A Laszlo/Luntz Poll, conducted January 21 to February 13, 2002. Overall poll of 1,258 adults, margin of error 3.3%. Available via NCRC.

- The level of refinance subprime lending increased as the portion of African-Americans in a neighborhood increased in nine of the ten metropolitan areas. In the case of home purchase subprime lending, the African-American composition of a neighborhood boosted lending in six metropolitan areas.
- The percent of African-Americans in a census tract had the strongest impact on subprime refinance lending in Houston, Milwaukee, and Detroit. Even after holding income, creditworthiness, and housing market factors constant, going from an all white to an all African-American neighborhood (100 percent of the census tract residents are African-American) increased the portion of subprime loans by 41 percentage points in Houston. For example, if 10 percent of the refinance loans in the white neighborhood were subprime, then 51 percent of the loans in an African-American neighborhood in Houston would be subprime. The portion of subprime refinance loans increased by 29, 26, and 20 percentage points in Milwaukee, Detroit, and Cleveland, respectively, from an all white to an all African-American neighborhood. Graph 1 provides details of this phenomenon across the metropolitan areas and shows a strong race factor in Atlanta, St. Louis, and Los Angeles as well.
- Solely because the percentage of the African-American population increased, the amount of subprime home purchase lending surged in Cleveland, Milwaukee, and Detroit. From an all white to an all African-American neighborhood in Cleveland, the portion of subprime home purchase loans climbed 24 percentage points. Graph 2 reveals that the portion of subprime purchase loans similarly rose by 18 and 17 percentage points in Milwaukee and Detroit, respectively, in African-American neighborhoods compared to white neighborhoods.
- The impact of the age of borrowers was strong in refinance lending. In seven metropolitan areas, the portion of subprime refinance lending increased solely when the number of residents over 65 increased in a neighborhood.
- Elderly neighborhoods experienced the greatest increases in subprime refinance lending in St. Louis, Atlanta, and Houston. Even after holding income, creditworthiness, and housing market factors constant, the portion of subprime refinance lending would surge 31 percentage points in St. Louis from a neighborhood with none of its residents over 65 to all of its residents over 65. Likewise, the increases were 27 and 25 percentage points in Atlanta and Houston, respectively. Although neighborhoods with such extreme age distributions (none or all residents over 65) are unusual, the regression analysis

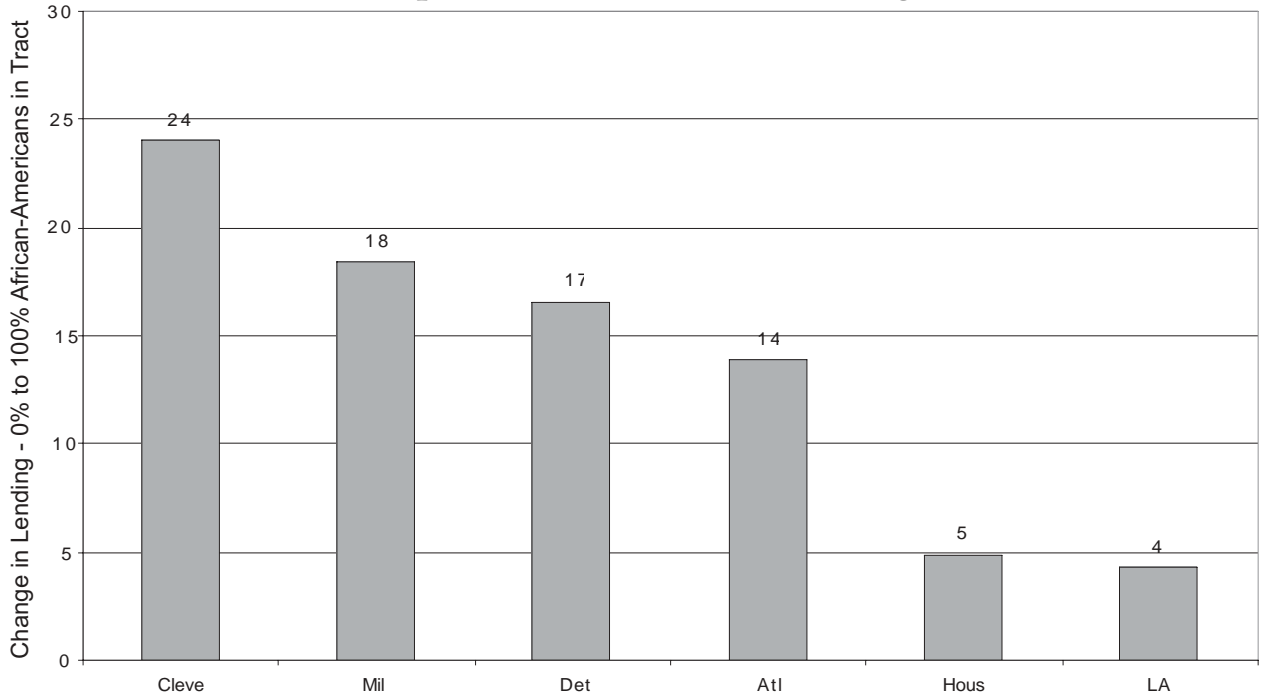
highlights and isolates the impacts of age on the level of subprime lending. Indeed, the level of subprime lending is likely to be considerably higher in neighborhoods with large concentrations of senior citizens.

- The level of subprime lending increased in a statistically significant fashion in the great majority of metropolitan areas as the percentage of neighborhood residents with no credit scores increased. Subprime refinance and home purchase lending climbed in nine and seven metropolitan areas, respectively, as the portion of neighborhood residents without credit scores increased. This is a significant issue for recent immigrants and other unbanked populations, many of whom are creditworthy for loans at prevailing interest rates, but receive high cost loans simply because they lack conventional credit histories.

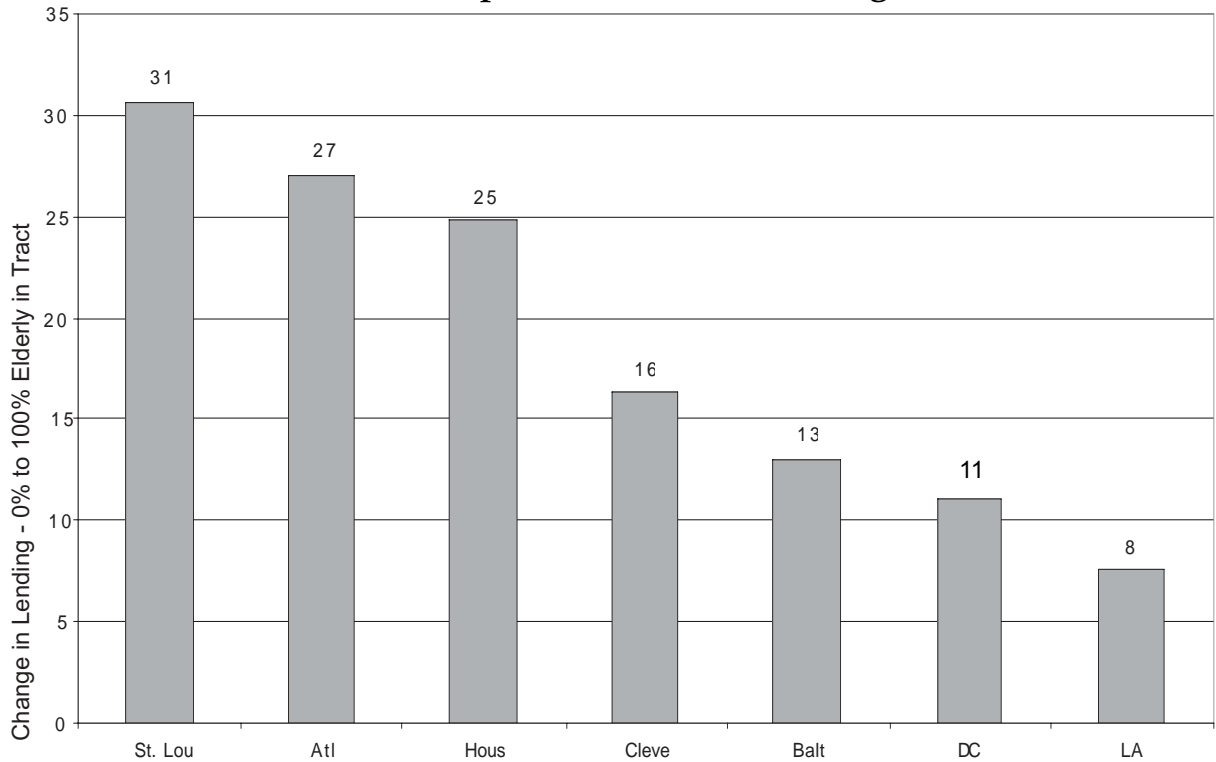
**Graph 1: Index of Discrimination Against African-American Neighborhoods:
Subprime Refinance Lending**



**Graph 2: Index of Discrimination Against African-American Neighborhoods:
Subprime Home Purchase Lending**



**Graph 3: Index of Discrimination Against the Elderly:
Subprime Refinance Lending**



Recommendations

Legislative Recommendations

Reform FCRA to Mandate Complete and Accurate Credit Reports

As Congress renews the Fair Credit Reporting Act (FCRA), it must ensure that credit reports are complete and accurate. Anti-predatory lending bills introduced by members of Congress from both parties (Sarbanes and Ney) require creditors, once every three months, to provide a complete credit report and payment history to credit bureaus regarding all loans they made or serviced. A number of large subprime lenders currently withhold critical information regarding borrower on-time payments.³ The practice of withholding information victimizes borrowers by trapping them in high cost loans and also victimizes lenders by reducing the overall reliability of the credit reporting system. A bipartisan consensus should be quickly achieved regarding this essential reform, yet the bipartisan House bill, HR 2622, does not contain this requirement. The FCRA bill proceeding in the Senate also does not require frequent reporting to the credit bureaus.

Our study also found that as the percent of neighborhood residents with no credit scores increases, so does the level of subprime lending. This is blatantly unfair since large numbers of consumers without traditional credit reports and credit scores are responsible and should qualify for loans at prevailing interest rates. One major reason why a large segment of consumers lack credit scores is that the credit reporting system does not capture non-traditional payment histories such as rental and utility

³ Remarks by John D. Hawke, Jr., Comptroller of the Currency, Consumers Bankers Association Conference in San Francisco on June 7, 1999, available via <http://www.occ.treas.gov>.

payments. Congress must require the reporting of these two essential payment history items to the credit bureaus in order to reduce pricing discrimination and make the lending system fairer.

NCRC also recommends that an FCRA renewal bill requires additional studies on credit scoring and fund and promote nationwide financial education initiatives.

Comprehensive Anti-Predatory Legislation

Congress must enact comprehensive anti-predatory lending legislation along the lines of bills introduced by Senator Sarbanes and Representative Schakowsky. Comprehensive and strong anti-predatory lending legislation would eliminate the profitability of exploitative practices by making these practices illegal. It could also reduce the amount of price discrimination since fee packing and other abusive practices would be prohibited. A comprehensive anti-predatory law would also strengthen the Community Reinvestment Act (CRA) if regulatory agencies severely penalize lenders through failing CRA ratings when the lenders violate anti-predatory law.

Congress Must Pass a CRA Modernization Bill

In the 107th Congress, Representatives Luis Gutierrez and Thomas Barrett introduced HR 865, the CRA Modernization Act. This vital bill would increase the rigor of CRA exams by requiring the federal banking agencies to scrutinize the level of lending to minorities as well as low- and moderate-income borrowers. In addition, the CRA Modernization Act would expand CRA to cover independent mortgage companies and all non-depository affiliates of banks. Since price discrimination on the basis of race is prevalent, CRA must be used to prod lenders to offer more

prime loans at prevailing interest rates to minorities. At the same time, expanding CRA to large numbers of lenders would also result in an influx of affordable loans to traditionally underserved communities.

Enhance the Quality of HMDA Data

NCRC believes that Congress and the Federal Reserve Board (which implements the HMDA regulations) must enhance HMDA data so that regular and comprehensive studies can scrutinize fairness in lending. Specifically, are minorities, the elderly, women, and low- and moderate-income borrowers and communities able to receive loans that are fairly priced? While NCRC is confident in the findings of our study, we believe that more information in HMDA data is critical to fully explore the intersection of price, race, gender, and income. HMDA data must contain credit score information similar to the data used in this report. For each HMDA reportable loan, a financial institution must indicate whether it used a credit score system and if the system was their own or one of the widely used systems such as FICO (a new data field in HMDA could contain 3 to 5 categories with the names of widely-used systems). The HMDA data also would contain one more field indicating which quintile of risk the credit score system placed the borrowers.

Using this data, regulators, researchers, the media, and the public could determine if any of the credit score systems were placing minorities and other protected classes in the higher risk categories a disproportionate amount of time. The data would facilitate more econometric analysis to assess whether the prices of loans are based on risk, race, gender, or age. In addition, other critical underwriting variables are needed in the HMDA data including information on debt-to-income ratios and loan-to-value ratios.

Financial Education Critical, Especially for Populations Lacking Credit Scores

In the metropolitan areas examined, about 15 percent of the population lacked credit scores. The percentage was even higher in minority census tracts. A significant finding of this report is that consumers are more likely to receive subprime loans when they lack credit scores. Increased financial education initiatives by Congress, government at all levels, the private sector, and the nonprofit sector are necessary to reach out to the segment of the population that lack credit scores and/or are “unbanked.” The segment of the population without credit scores is unlikely to have a fair chance at receiving affordable loans as long as they lack credit histories and remain outside the financial mainstream. In order for financial education to be universal, NCRC recommends that the Department of Education require basic financial literacy to be part of the curriculum of all public schools.

Regulatory Recommendations

Federal Agencies Must Step Up Enforcement of Existing Laws to Promote Full Product Choice and Prevent Product Steering

Periodically, the Federal agencies regulating financial institutions will make great fanfare announcing a settlement of a major discrimination lawsuit or the publication of new “interagency” fair lending guidelines. The sad fact, however, is that federal agency efforts to eliminate discrimination and steering creditworthy borrowers to expensive products are failing. The agencies must step up their enforcement of the Equal Credit Opportunity Act, the Fair Housing Act, the Community Reinvestment Act and other fair lending laws in order to ensure full product choice for all Americans.

A significant finding of this report is that consumers are more likely to receive subprime loans when they lack credit scores.

Halt Preemption of State Anti-Predatory and Consumer Protection Law

The Office of the Comptroller of the Currency (OCC) has preempted Georgia's anti-predatory law for large national banks and has proposed to preempt anti-predatory and consumer protection laws in all states. The OCC's proposed regulations are much weaker in combating abusive practices than state law that would be preempted. At the same time, the Office of Thrift Supervision (OTS) has been preempting anti-predatory law, one state at a time, for federally chartered thrifts. Given the evidence of widespread pricing discrimination, anti-predatory and consumer protection law at all levels need to be strengthened, not weakened. For many decades, banking laws have co-existed on a Federal and state level in many areas such as privacy and disclosures of mortgage terms. This is precisely the wrong time to wipe out critical state anti-predatory and consumer protection law. The credit system is broken, and needs more oversight, not less.

Anti-predatory and consumer protection law at all levels need to be strengthened, not weakened

Federal Reserve Board Must Step Up Anti-Discrimination and Fair Lending Oversight

The General Accounting Office concluded that the Federal Reserve Board has the authority to conduct fair lending reviews of affiliates of bank holding companies. The Federal Reserve Board, however, continues to insist that it lacks this authority.⁴ This issue must be resolved because comprehensive anti-discrimination exams of all parts of bank holding companies are critical. Most of the major banks have acquired large subprime lenders that are then considered affiliates and become off-limits to Federal Reserve examination. A pressing question is the extent to

⁴ General Accounting Office, *Large Bank Mergers: Fair Lending Review Could be Enhanced with Better Coordination*, November 1999, GAO/GGD-00-16.

which the subprime affiliates refer creditworthy customers to the prime parts of the bank so that the customers receive loans at prevailing rates instead of higher subprime rates. Or does the subprime affiliate steer creditworthy borrowers to high cost loans? These questions remain largely unanswered. Consequently, we do not know the extent to which steering by subprime affiliates and/or their parent banks contributed to the discrimination documented by this report. Thus, it is past time for the Federal Reserve to examine affiliates as well as the parent bank.

Increase Fair Lending Enforcement of Non-Bank Lending

CRA and fair lending reviews cover depository institutions. Large non-bank lenders comprise a significant segment of subprime lenders but are not covered by regular CRA exams and fair lending reviews. As far as we know, neither the Department of Housing and Urban Development, the Department of Justice, nor the Federal Trade Commission has established a proactive program to conduct fair lending investigations of large non-bank lenders. The Department of Justice has settled lawsuits regarding price discrimination with the Long Beach Mortgage Company and other institutions.⁵ These lawsuits, however, are usually reactive and in response to complaints or referrals from other regulatory agencies. In cooperation with state regulatory agencies, NCRC calls upon federal agencies to undertake a proactive and aggressive program to enforce the fair lending laws in the case of non-bank lenders.

CRA Exams Must Scrutinize Non-Prime Lending More Rigorously

Currently, CRA exams are not adequately assessing the CRA performance

⁵ Department of Justice settlement with Long Beach Mortgage Company, September 5, 1996.

of subprime lenders. For example, the CRA exam of the subprime lender, Superior Bank, FSB, called its lending innovative and flexible before that thrift's spectacular collapse.⁶ If CRA exams continue to mechanistically consider subprime lending, subprime lenders will earn good ratings since they usually offer a larger portion of their loans to low- and moderate-income borrowers and communities than prime lenders.

At this point, the regulatory agencies have stated in an "Interagency Question and Answer" document that banks will be downgraded if their lending violates federal anti-predatory law. NCRC has not seen rigorous action to implement this guidance. Fair lending reviews that accompany CRA exams do not usually scrutinize subprime lending for compliance with anti-predatory law, for possible pricing discrimination, or whether abusive loans are exceeding borrower ability to repay. NCRC recommends that all CRA exams of subprime lenders must be accompanied by a comprehensive fair lending and anti-predatory lending audit. In addition, CRA exams must ensure that prime lenders are not financing predatory lending through their secondary market activity or servicing abusive loans.

NCRC also recommends that any bank or thrift whose subprime lending exceeds a nominal amount such as 5 percent of its total loan amount must have a separate prime and subprime CRA lending exam. As NCRC stated in our comment letter during the Advance Notice of Proposed Rulemaking on the CRA during the fall of 2001, a bank or thrift must not pass its lending test if it does not score at least a satisfactory rating on the

⁶ Office of Thrift Supervision Central Region's CRA Evaluation of Superior Bank, FSB, Docket #: 08566, September 1999. Available via <http://www.ots.treas.gov>, go to the CRA search engine and select "inactive" for the status of the institution being searched.

prime portion of its lending test. The lending test is currently the most important part of CRA exams for large banks and the only element of small bank exams. Prime lending must likewise be elevated as the most important part of the lending test. NCRC's study contributes to a significant amount of evidence that minority communities receive too much subprime lending due to discrimination. In order to correct for market failure and increase product choice in underserved communities, NCRC believes that prime lending must be emphasized on CRA exams.

Full Disclosure of Automated Underwriting Systems

This report focused on the impact of credit scores as well as race and age composition of neighborhoods in determining the level of subprime lending. Automated underwriting systems use credit scores and variables similar to the ones in this report in guiding financial institutions in their lending decisions. Since our report found a substantial amount of price discrimination, we believe that automated underwriting systems must be made more transparent in order to assess whether they are contributing to discrimination. Factors and the weights of factors used by the automated systems must be disclosed. The Department of Housing and Urban Development must release the results of its fair lending examination of Fannie Mae's and Freddie Mac's automated underwriting systems.

Recommendations for Lenders, Community Groups, and Consumers

Lenders Must Adopt Risk-Based, Not Race-Based or Age-Based Pricing: Best Practices Needed

This report finds that discrimination on the basis of race and age is wide-

spread in America. Too many subprime lenders disregard risk, as measured by credit scores, in pricing their loans. NCRC calls upon the lending industry to adopt comprehensive best practices so that they can avoid pricing discrimination and other predatory practices. The best practices approach must also include rigorous compliance training for loan officers as well as mystery shopping and testing initiatives to identify and eliminate discriminatory practices. NCRC is in the process of completing a mystery shopper report that documents the need for additional industry compliance efforts because the report reveals disparate treatment regarding interest rate and loan terms for white and minority testers.

Community Groups Must Advocate and Offer Financial Education and Counseling Programs

NCRC's findings reinforce the need for community group advocacy as well as program delivery. Community groups must be active in the CRA process, offering comments during CRA exams and merger applications, particularly when they believe a lender is violating fair lending law and discriminating against minorities, women, and the elderly. Each time a community group and/or coalitions of community groups change the practices of a major lender (engaged in both prime and subprime lending), the impact on the industry as a whole is profound and cannot be underestimated. At the same time, community groups should continue pursuing programmatic opportunities, including mystery shopping, financial education, and counseling programs. Community groups should increase their skill and sophistication of using data compiled from their program delivery for their advocacy and policy positions.

Consumers Must Shop for Affordable Loans and Obtain Credit Reports, Credit Scores, and Pursue Inaccuracies

NCRC recommends that consumers consult with NCRC's *Best and Worst Lenders* at <http://www.ncrc.org> to find a list of lenders most likely to approve minorities, women, and low- and moderate-income consumers for affordable loans. *Best and Worst Lenders* provides detailed information on lenders in 25 major metropolitan areas. Consulting with *Best and Worst Lenders* increases the chances that consumers will be approved for loans. In addition, *Best and Worst Lenders* enables consumers to identify responsible banks that reinvest consumer deposits back into minority and low- and moderate-income communities instead of redlining local communities and investing their deposits elsewhere.

Once a year, consumers should also purchase their credit reports and scores from each major credit bureau (Experian at www.experian.com, Equifax at www.equifax.com; and Trans Union at www.transunion.com). If a consumer believes that his or her credit report contains an inaccuracy, he or she should ask the credit bureaus to investigate and correct any mistakes. If the consumer believes that the credit bureaus have not fairly resolved disputes over mistakes, he or she should contact the Federal Trade Commission at www.ftc.gov.

Background and Literature Review

NCRC benefited from industry data on creditworthiness in order to produce a comprehensive study on the relationship between loan pricing and the race and age of neighborhoods. NCRC used credit scoring data provided by one of the three large credit bureaus. A credit score is a numerical score estimating the chances a consumer will be delinquent in loan payments or default altogether. The credit score is derived from statistical analysis of information contained in credit reports regarding a

consumer's past payment history and use of credit. On a census tract level, the credit scoring data indicated how many consumers were in various categories of risk. NCRC was then able to analyze the impact of credit scores on the level of subprime home lending by combining the credit scoring information with the Home Mortgage Disclosure Act (HMDA) data, and demographic and housing stock data from the Census Bureau.

NCRC employed regression analysis to predict the level of subprime lending on a census tract level in ten large metropolitan areas. The analysis allowed NCRC to determine whether increases in the African-American, Hispanic, or elderly population in a neighborhood led to increases in the amount of subprime loans after controlling for creditworthiness (as revealed by the credit score data) and important housing stock characteristics. As stated above, the findings revealed that minority and elderly neighborhoods do, in fact, receive substantially higher levels of subprime lending than is justified based on the creditworthiness of their residents, housing values, and other measures of housing market conditions.

NCRC's findings are consistent with a body of research on subprime lending. A recent survey study conducted by Freddie Mac analysts finds that two-thirds of subprime borrowers were not satisfied with their loans, while three-quarters of prime borrowers believed they received fair rates and terms.⁷ In previous years, Freddie Mac and Fannie Mae have often been quoted as stating that between a third to a half of

⁷ Freddie Mac analysts Marsha J. Courchane, Brian J. Surette, Peter M. Zorn, *Subprime Borrowers: Mortgage Transitions and Outcomes*, September 2002, prepared for Credit Research Center, Subprime Lending Symposium in McLean, VA.

borrowers who qualify for low cost loans receive subprime loans.⁸ Dan Immergluck, a professor at Grand Valley State University, was one of the first researchers to document the “hypersegmentation” of lending by race of neighborhood.⁹ Like Immergluck’s work, the Department of Housing and Urban Development found that after controlling for housing stock characteristics and the income level of the census tract, subprime lending increases as the minority level of the tract increases.¹⁰ The Research Institute for Housing America, an offshoot of the Mortgage Bankers Association, released a controversial study in 2000 which concluded that minorities were more likely to receive loans from subprime institutions, even after controlling for the creditworthiness of the borrowers.¹¹

A recent survey study conducted by Freddie Mac analysts finds that two-thirds of subprime borrowers were not satisfied with their loans,

NCRC’s study is quite similar and builds upon important research conducted by a Federal Reserve economist and two researchers from the Wharton School at the University of Pennsylvania. Paul Calem of the Federal Reserve, and Kevin Gillen and Susan Wachter of the Wharton School also use credit scoring data to conduct econometric analysis scrutinizing the influence of credit scores, demographic characteristics, and economic conditions on the level of subprime lending. Their study found that after controlling for creditworthiness and housing market

⁸ “Fannie Mae Vows More Minority Lending,” in the Washington Post, March 16, 2000, page E01. Freddie Mac web page, <http://www.freddie.com/corporate/reports/moseley/chap5.htm>.

⁹ Dan Immergluck, *Two Steps Back: The Dual Mortgage Market, Predatory Lending, and the Undoing of Community Development*, the Woodstock Institute, November 1999.

¹⁰ Randall M. Scheessele, *Black and White Disparities in Subprime Mortgage Refinance Lending*, April 2002, published by the Office of Policy Development and Research, the U.S. Department of Housing and Urban Development.

¹¹ Anthony Pennington-Cross, Anthony Yezer, and Joseph Nichols, *Credit Risk and Mortgage Lending: Who Uses Subprime and Why?* Working Paper No. 00-03, published by the Research Institute for Housing America, September 2000.

conditions, the level of subprime refinance and home purchase loans increased in a statistically significant fashion as the portion of African-Americans increased on a census tract level in Philadelphia and Chicago.¹²

Relatively few studies examine the relationship between the number of elderly residents of a neighborhood and the level of subprime lending although anecdotal evidence suggests that abusive lenders target the elderly. In one study, the South West office of Consumers Union found that every 1 percentage point increase in the portion of people over 65 in a neighborhood increased subprime refinance lending by 1.3 percentage points. The Consumers Union study examined neighborhoods in Dallas and Austin, and included demographic variables and a few underwriting variables such as loan amount to income ratios in its regression equations.¹³ The AARP also conducted a national survey of elderly borrowers and found that older borrowers who were widowed, female, African-American, and less educated were more likely to receive subprime loans than their married, male, white, and more educated counterparts. The survey also found that seniors receiving subprime loans were more likely to have been approached by brokers, to have refinanced two or more times in the past three years, and to be dissatisfied with their loans.¹⁴

Another body of literature examines whether consumer credit reports are

¹² Paul S. Calem, Kevin Gillen, and Susan Wachter, *The Neighborhood Distribution of Subprime Mortgage Lending*, October 30, 2002. Available via pcalem@frb.gov.

¹³ Consumers Union, *Elderly in the Subprime Market*, October 2002, www.consumersunion.org.

¹⁴ Neal Walters and Sharon Hermanson, *Older Subprime Refinance Mortgage Borrowers*, AARP Public Policy Institute, Data Digest Number 74, July 2002, <http://www.aarp.org/ppi>.

accurate. If consumer credit reports are incomplete and inaccurate, then the credit scores used to assess risk could be seriously flawed. Troubling evidence suggests that substantial inaccuracies exist in credit reports and could be contributing to racial disparities in lending. In the summer of 2002, the Consumer Federation of America (CFA) shed more light on how credit report flaws can disproportionately impact borrowers on the edge between prime and subprime credit. CFA's analysis of credit scores in more than 500,000 merged credit files revealed that 29 percent of consumers had scores with a range of at least 50 points when using the credit reports from each of the three major bureaus. Focusing in more detail on 1,704 at-risk mortgage purchasers with marginal scores between prime and higher cost subprime credit, CFA found that at least one-fifth would be harmed, and one-fifth would benefit from score inaccuracy if they tried to purchase mortgage loans. The upshot of this finding is that at least 8 million Americans may be erroneously placed into subprime loans and thus pay tens of thousands of dollars each in unnecessarily high mortgage interest payments.¹⁵

In the winter of 2003, a Federal Reserve Bulletin article revealed that almost one third of sampled credit accounts lacked information on borrower credit limits, which is a key variable for credit scores. Furthermore, subprime specialists reported credit limits 77 percent of the time for their prime customers, but only 40 percent of the time for their subprime customers.¹⁶ Not reporting the credit limit makes borrower credit appear

¹⁵ Consumer Federation of America and National Credit Reporting Association, *Credit Score Accuracy and Implication for Consumers*, December 2002, <http://www.consumerfed.org>.

¹⁶ Robert B. Avery, Paul S. Calem, Glenn B. Canner, Raphael Bostic, *An Overview of Consumer Data and Credit Reporting*, Federal Reserve Bulletin, February 2003, <http://www.federalreserve.gov>.

to be much worse than it actually is. The absence of this information results in borrowers appearing to be much closer to fully utilizing their credit cards and other open ended credit than they are in reality.

The findings of NCRC, the Calem, Gillen, and Wachter study, as well as other research, are disturbing but not surprising. Predatory lenders brazenly disregard credit scores and also do not engage in other conventional and prudent underwriting techniques. They discriminate by offering minority and elderly borrowers higher interest rate loans than is justified based on credit scores. At the same time, credit scores are not accurately predicting risk due to omitted variables that are key for traditionally underserved populations. In short, the credit system is broken and discrimination will only be eliminated if the recommendations outlined above are implemented.¹⁷

Methodology

As stated above, the key goal of the analysis is to determine the relationship between the portion of minority and elderly persons in a census tract and the percentage of home purchase and refinance loans that are made by subprime lenders. After controlling for economic and risk factors, does the portion of subprime loans increase as the minority and elderly population in a census tract increases? In other words, this study explores the likelihood of discrimination and reverse redlining in home

¹⁷ Given the problems with credit reports, the credit scores used here are more likely to overstate risks for minority borrowers than for white borrowers. Accordingly, the scores are more likely to overstate the percent of borrowers in high risk groups in African-American rather than white census tracts. If such bias does occur in scores, then the use of these scores means that the true impact of race on subprime lending is higher than that indicated by the results found here. That is, our estimates of discrimination or redlining are biased low. The credit report and score data needs to be improved via renewal of Fair Credit Reporting Act.

lending. NCRC chose 10 metropolitan statistical areas (MSAs) from different parts of the United States and conducted a statistical analysis in each area. In particular, the MSAs selected are: Atlanta, Baltimore, Cleveland, Detroit, Houston, Los Angeles, Milwaukee, New York, St. Louis, and Washington DC. These areas have different demographic and economic characteristics, which will allow us to make credible and generalizable conclusions about the home lending patterns across large metropolitan areas. In the ten MSAs, the sample consists of about 7,000 census tracts (6,741 for home purchase and 7,097 for refinance). A multivariate regression approach controlled for demographic and risk factors.

NCRC conducted separate analyses for home purchase and refinance lending. We expected a higher degree of pricing disparities by race and age of neighborhood in refinance lending since subprime lenders specialize in refinance lending and make fewer home purchase loans. NCRC's previous work, including *Best and Worst Lenders*, also found more disparities in refinance lending than home purchase lending. Abusive subprime lenders are particularly active in refinance lending since their intention is to strip equity from homeowners through repeated refinancings or flipping.

Variables for the analysis belong to three categories: home lending, credit scoring, and demographics. NCRC used 2001 HMDA data for home lending, 1999 credit scoring data, and 1990 census tract demographic information. NCRC obtained the 1999 credit scoring data on a one-time basis from one of the three large credit bureaus. NCRC chose 2001 HMDA data, not 1999 data, as we believe that the distribution of credit scores on a census tract level does not vary significantly over a three year time period. NCRC ran regression equations using 1999 and 2000 home

loan data to confirm the hypothesis. The results were similar over the years. Also, 2001 was a year of lower interest rates. NCRC wanted to see if minority neighborhoods were benefiting from lower interest rates as measured by a decrease in the statistical significance of race of neighborhood on the level of subprime lending. NCRC would have preferred to use 2000 census tract data, but the HMDA data will not use 2000 census data until the 2003 release in the summer of 2004. The 2001 HMDA data uses 1990 census tract boundaries. NCRC believes the results will be similar with HMDA data using 2000 census tract boundaries, but we intend to do follow-up research.¹⁸

HUD Subprime and Manufactured Home Lender List

In order to classify loans as subprime, NCRC used a list of subprime and manufactured home lenders developed by HUD. Since HMDA data does not have information on the Annual Percentage Rate (APR) or other loan terms and conditions, HUD developed its list by complementing data analysis with interviews of lending institutions and a literature search. As an additional step, HUD called the lenders on its list and asked them if they considered themselves subprime and manufactured home specialists. Generally speaking, a lender was included on the list if more than 50 percent of the loans in its portfolio was subprime or manufactured home.¹⁹

¹⁸ Important characteristics of the HMDA data are discussed separately in an appendix.

¹⁹ HUD itself admits that the list is not complete. A number of institutions considered to be prime specialists make a significant number of subprime loans, even if 50 percent or more of their loans are not subprime. Also, the list may not be complete due to name changes and omissions. HUD refines its lists on an annual basis and also corrects mistakes on previous years' lists. HUD's web page (<http://www.huduser.org/datasets/manu.html>) has more information about the lists and has copies of the lists.

Until more information on loan terms and conditions are available in HMDA data, HUD's list is a valuable resource for conducting subprime and manufactured home loan analysis. Although the list is incomplete, it still captures significant differences in lending behavior as revealed by this report and a substantial body of research.

Data and variables

Home lending data in the analysis represents only originations of home loans, not applications for the loans. We included all types of loans: conventional, and government insured (FHA, VA, and FSA/RHS) to owner-occupants only. NCRC also separated two types of home loans: home purchase loans and refinance loans. By doing so, we aimed to see for which loan type the race and age of neighborhood residents had a stronger influence. We excluded manufactured home lenders from the analysis as initial regressions revealed that the level of manufactured home lending did not vary in a statistically significant manner with the race of neighborhood residents.²⁰ Future research should explore this in more detail. The study excluded census tracts in which the number of originated loans was less than 20. This was done to ensure a sufficient number of loans for meaningful characterization of each tract's lending patterns.

²⁰ Manufactured home lenders specialize in making loans to borrowers purchasing manufactured homes. These lenders tend to make high interest rate loans; abusive lending has been widespread in the manufactured home sector as indicated by massive foreclosures and the failures of large national manufactured home lenders. According to HUD, "A manufactured home (formerly known as a mobile home) is built to the Manufactured Home Construction and Safety Standards (HUD Code) and displays a red certification label on the exterior of each transportable section. Manufactured homes are built in the controlled environment of a manufacturing plant and are transported in one or more sections on a permanent chassis." HUD has detailed information about manufactured housing on its web page of <http://www.hud.gov>.

The analysis chose the following variables that would hypothetically influence subprime lending in an area.

Home lending variables (dependent variables):

%subHP – percent of home purchase loans in a census tract that were subprime.

%subREF – percent of refinance loans in a census tract that were subprime.

Demographic variables included:

%black – percent of residents in a census tract who were African-American;

%hisp – percent of residents in a census tract who were Hispanic;

%65age – percent of residents in a census tract who were over 65 years old;

medage – dummy variable. The variable revealed the median age of houses in a census tract.

0 when the median age of housing was between 0-20 years old (built in 1970-1990);

1 when the median age of housing was between 21-50 years old (built in 1969-1940);

2 when the median age of housing was 51 years and older (built before 1940);

medhhinc – 1989 median household income in a census tract;

HT – housing turnover. This variable is a ratio of all home purchase loans made in 2001 divided by owner occupied units in 1990. The literature indicates that a higher amount of housing turnover (as revealed by larger values of this variable) suggests a more vibrant market and faster home value appreciation. This should make a census tract more attractive to prime lenders and thus decrease the portion of subprime lending.

capitaliz – The “capitalization” variable is a ratio of gross median rent divided by median housing value. The literature suggests that owner-occupied units appreciate slower in neighborhoods where the median rent is higher relative to the median housing value (higher ratio values for this variable).

Therefore, prime lenders may find neighborhoods less attractive with higher values for the capitalization variable, meaning that the portion of subprime loans will be higher in these neighborhoods.

Credit scoring variables included:

%vhigh – is a credit score variable that indicated the percent of people in a census tract in the very high credit risk category;

%NC – is the percent of neighborhood residents lacking credit scores;

vh+h+m – the cumulative percent of neighborhood residents in very high, high, and moderate credit risk categories added together.

The credit risk scores used in this report measure the likelihood of future delinquencies and foreclosures. The database had a credit score range from 0 to 1,000 with lower scores indicating lower risk or chance of borrower delinquency. The scores were divided into five equal categories or quintiles of risk; the specific categories are Very Low, Low, Moderate, High and Very High risk. The credit score range was separated into quintiles, not the population totals within the quintiles. In other words, each score quintile did not have equal numbers of people, but each score range was of equal length (about 200 units for each quintile since the total range is from 0 to 1,000).

For each census tract, the database contains the number and percent of neighborhood residents in each of the five risk categories, and the number and percent of neighborhood residents with no credit scores.

NCRC's analysis focuses on the "vh+h+m" credit score variable. Our regression analysis was iterative. One equation (Column 1 on Tables 1 through 10) included the combined risk variable of "vh+h+m" and the NC or no credit score variable. Column 2 is another regression in which the very high risk and no credit score variables are included as separate variables (see the tables below).

Columns 3 through 4 repeat the iterative approach for the risk variables in the same order as Columns 1 through 2. The difference between Columns 1 and 2 and Columns 3 and 4 is that the race and age variables are omitted in Columns 3 and 4. This is done in order to understand better the added explanatory power obtained by including the race and age variables (see discussion below in the Functional Form section).

The “vh+h+m” variable was statistically significant across all ten MSAs for home purchase lending and nine MSAs for refinance lending. The impact of the variable was as expected; that is, subprime lending was more prevalent as the percentage of people in a census tract with very high, high, and moderate risk increased. The regression equations including only the very high risk and no credit score variables had very similar outcomes to the equations with the “vh+h+m” combined risk and no credit score variables. Although the very high risk equations (Column 2) were similar to the “vh+h+m” equations (Column 1), we focused on the “vh+h+m” equations since subprime lenders would likely make loans to consumers with high and moderate risk as well as very high risk. The coefficients and R squares in the “vh+h+m” equations were consistent with these expectations.

In contrast to our report, the Calem, Gillen, and Wachter study focuses on the equations with the very high risk and no credit score variables. The fact that two different series of equations (those with very high risk and no credit score variables and those with the combined risk and no credit score variables) produced similar results adds to the robustness of the overall findings.

Impact of Demographic Versus Economic Factors

As stated above, we conducted multivariate regression analysis with the dependent variable represented by the percentage of subprime loans in a census tract and independent variables that control for demographic, economic and risk factors. Our variables of interest were the minority and elderly populations in a census tract. NCRC hypothesized that the percent of minorities and elderly people in a census tract was positively related to the percent of subprime loans originated in a census tract.

Table 11 shows the statistical significance of variables at the 10%, 5%, and 1% precision level, sign of estimated coefficients, and adjusted R square for every regression. The adjusted R square was rather high for most MSAs and loan types (the higher the R square, the better the equation accounts for and explains patterns of subprime lending on a neighborhood level). The R square was higher for refinance than home purchase, suggesting that our model was better at predicting patterns in refinance lending. For refinance lending, the R square ranged from 0.5252 in Los Angeles to 0.8993 in Detroit. For home purchase lending, the R square fell between 0.0843 in Baltimore and 0.6865 in Cleveland. The R square was above 0.3 in five out of ten MSAs in home purchase lending. In contrast, the R square was above 0.3 in all MSAs in refinance lending. Overall, we believe our model is robust and a good predictor of lending patterns. The model's results were consistent with the Calem, Gillen, and Wachter study.

The African-American population in a census tract was statistically significant in six MSAs for home purchase lending and in nine MSAs for

. . .the percent of minorities and elderly people in a census tract was positively related to the percent of subprime loans originated in a census tract.

refinance lending. As expected, after controlling for risk and housing stock characteristics, the effect of the percentage of African-American population on the portion of subprime loans in a census tract was positive in all MSAs. Lenders still associated high risk with race and thus, compensated by making a substantially higher level of subprime loans in African-American than white tracts.

The percent of Hispanic population in a census tract was significant in only one MSA for home purchase and in five MSAs for refinance lending. The sign of the coefficients was not consistent for each MSA.²¹ The sign was negative in one MSA for home purchase lending and in two MSAs for refinance lending. In contrast, the sign was positive in three MSAs for refinance lending, meaning that the level of subprime refinance lending increased as the portion of Hispanics increased in a census tract. Our study results suggest no consistent relationship between the level of subprime lending and the portion of Hispanics in a neighborhood. However, the portion of Hispanics in a neighborhood was associated with an increase in subprime lending, all else equal, in a subset of the MSAs.

The portion of people over 65 was a strong factor for three out of ten MSAs for home purchase lending. For refinance lending, the age of the census tract population was significant in eight MSAs. For refinance and

²¹ A coefficient expresses the effect of an independent variable on the dependent variable. In this report, the portion of subprime loans is the dependent variable. The level of subprime lending changes because of the racial composition of the neighborhood and other “independent” variables. For the racial composition of the neighborhood, the coefficient measures the impact in percentage point terms. For every percentage point increase in African-American or Hispanic residents in a census tract, the portion of subprime loans increases or decreases by a certain number of percentage points as revealed by the value and sign of the coefficient. The coefficient only has an impact if it is statistically significant (as revealed by legends in the charts capturing the regression results).

home purchase lending, the sign of the coefficients was positive in all MSAs except in two of the eleven cases. This supports the contention that abusive lenders target the elderly to take advantage of the fact that the elderly have substantial amounts of equity but are often short on cash. These results contradict those obtained by Calem, Gillen, and Wachter. They mentioned that this variable “yielded no additional insights,” but their study looked at only two MSAs.

Median household income of a census tract was statistically significant in four out of ten MSAs in home purchase lending and in refinance lending. Except in one case, the sign of the coefficients was positive, which is counterintuitive. The literature, however, discusses that a segment of high income borrowers do not report income level to lenders nor do they want to undergo a lengthy application process. Hence, they receive subprime loans. It must be added that the coefficient values were very small, meaning that the income variable had a small impact on the level of subprime lending in census tracts.

Except for Detroit refinance lending, the combined risk variable in all MSAs for both loan types was statistically significant. Coefficients were positive, meaning that a larger percentage of people with higher risk factors was associated with a higher percent of subprime loans in a census tract. These findings are quite consistent with those discussed in the Calem, Gillen, and Wachter report. Also, the level of subprime home purchase and refinance lending increased in a statistically significant fashion in the great majority of MSAs as the percentage of neighborhood residents with no credit scores increased.

The other variables including housing turnover and capitalization be-

Subprime lending increased significantly as the portion of African-Americans and elderly people increased in a neighborhood.

haved in the expected manner. Housing turnover was significant in most MSAs and the coefficients' signs were negative, which supported our expectations. Higher housing turnover indicates more vibrancy in the market of the neighborhood, which in turn leads to less subprime lending. The capitalization variable was significant in six MSAs for home purchase and in ten MSAs for refinance lending. Except in one case, it also had the expected effect on subprime lending. Specifically, it was positively related to the percent of subprime loans, proving that faster appreciation of the owner-occupied units (smaller capitalization ratios) leads to less subprime lending in a neighborhood.

In summary, after controlling for risk and housing stock characteristics, subprime lending increased significantly as the portion of African-Americans and elderly people increased in a neighborhood. Pricing discrimination is widespread in the dual lending marketplace in America.

Metropolitan Areas Compared

Tables 12 through 14 sort MSAs by the effect of race and age factors on the level of subprime home purchase and refinance lending in a census tract. As Table 12 reveals, the percentage of African-Americans in a census tract imposed the strongest effect on subprime home purchase lending in Cleveland, Milwaukee, Detroit, and Atlanta. The African-American variable had the largest effect in Houston, Milwaukee, Detroit, and Cleveland for refinance lending. For example, in Houston a ten percentage point increase of African-Americans in a census tract, holding all other variables constant, would lead to an increase in the portion of subprime refinance loans of 4.058 percentage points. In contrast, in Baltimore a 10 percentage point increase in the portion of African-Ameri-

cans would lead to only a 1.107 percentage point increase in the portion of subprime refinance loans.

In Tables 12 through 14, the coefficients with one, two, or three asterisks are coefficients estimated at the 10%, 5%, and 1% level of statistical significance, respectively. In other words, these coefficients are valid in predicting the portion of subprime loans. In contrast, when the coefficients do not have asterisks, they cannot be used to predict the level of subprime loans.

The coefficient values for the African-American variables in this report are consistent with those in Calem, Gillen, and Wachter. The ordinary least squares regressions in the Calem, Gillen, and Wachter study estimated the African-American coefficient at about 0.2, which was approximately the median coefficient in our equations as reported in Table 12.

The portion of Hispanics in a census tract had the strongest impact in the Detroit and Houston MSAs for refinance lending, according to Table 13. In Detroit for example, a 10 percentage point increase in the Hispanic population would lead to 1.282 percentage point increase in the portion of subprime refinance lending.

The portion of people over 65 was a relatively strong variable in Detroit and Houston for home purchase lending and in St. Louis, Atlanta, and Houston for refinance lending. In particular, in the St. Louis MSA, a 10 percentage point increase of people over 65 would lead to a 3.065 percentage point increase in the portion of subprime refinance loans in a neighborhood.

In refinance and home purchase lending, the African-American portion of people in a census tract increased subprime lending regardless of the level of segregation in a MSA (see Table 12 which shows segregation levels as well as estimated coefficients for the African-American variable). For African-Americans, discrimination poses great difficulties across a wide swath of MSAs of different economic and demographic conditions. Regardless of the level of segregation, the African-American variable increased subprime refinance lending. No trends appeared regarding the level of segregation and the impact of the Hispanic variable on the amount of subprime lending.

Functional Form

Another dimension that should be discussed in this analysis is functional form: how it affects the results and what conclusions it informs. As stated above, NCRC used two forms when running the regressions: including and excluding race and age factors. The outputs are presented in the Tables 1 through 10. In most cases, the R square was lower when the race and age variables were excluded (this is observed clearly when comparing Columns 1 and 3 with the $vh+h+m$ combined risk variable). This suggests that the equations explained a greater amount of the variation in the dependent variable when the race and age variables were included.

Calem, Gillen, and Wachter took a different iterative approach, but their findings were similar to our study. They ran some regressions with only demographic characteristics while we ran some regressions with only non-race variables. The end result of both approaches was that the R square was higher when the race variables were included.

Conclusion

After controlling for risk and housing market conditions, the race and age composition of the neighborhood had an independent and strong effect, increasing the amount of high cost subprime lending. The level of refinance subprime lending increased as the portion of African-Americans in a neighborhood increased in nine of the ten metropolitan areas. In the case of home purchase subprime lending, the African-American composition of a neighborhood boosted lending in six metropolitan areas. The impact of the age of borrowers was strong in refinance lending. In seven metropolitan areas, the portion of subprime refinance lending increased solely when the number of residents over 65 increased in a neighborhood. In America today, lenders engage in widespread price discrimination, making high cost loans based on the race and age of neighborhoods, not solely based on risk.

Appendix

HMDA Data: Its Strengths and Weaknesses

Enacted by Congress in 1975, the Home Mortgage Disclosure Act (HMDA) requires banks, savings and loan associations, credit unions, and other financial institutions to publicly report detailed data on their home lending activity. Under HMDA, lenders are required to disclose annually the number of loan applications by census tract, and by the income, race, and gender of the borrower. The law also requires institutions to indicate the number and dollar amount of the loans made.

Prior to 1990, lenders were required to report the census tract containing

the property for which the applicant succeeded or failed in obtaining a home loan. The Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) required lenders to report the race, gender, and income of loan applicants and borrowers starting in 1990. Thus, HMDA data before 1990 reveals information only on the census tract location of the application or loan, whereas HMDA data after 1990 includes information on borrower characteristics. Also, starting in 1993, independent mortgage companies were required to report HMDA data.

HMDA requires lenders to report on a number of possible actions or “dispositions” on loan applications. Each year, the lender must report the number of loan applications it approved and denied. The lender must also indicate how many of its loan approvals were unaccepted (the bank approved the application but the applicant did not want the loan). Finally, the lender must specify how many applications were withdrawn (the applicant withdrew his application before the bank made a credit decision), and how many applications were incomplete (the application was not considered because the applicant did not provide all the necessary information).

Housing loans covered by HMDA include home purchase, home improvement, and refinance loans for single family dwellings (1 to 4 units) and loans for multi-family units. Lenders must disclose whether the loan was a conventional loan or a loan insured by a government agency such as the Federal Housing Administration (FHA), the Veterans Administration (VA), the Farm Service Agency (FSA), and the Rural Housing Service (RHS). Additional information reported includes the occupancy status of the property (owner occupied or non-owner occupied). The lender must also indicate if the loan was purchased on the secondary market and the

type of institution that bought the loan (for example, another bank or Fannie Mae or Freddie Mac).

Who is Covered by HMDA

A depository institution (bank, thrift, and credit union) must report HMDA data if it has a home office or branch in a metropolitan statistical area (MSA) and has assets above a threshold level that is adjusted upward every year by the rate of inflation. Before 1997, small depository institutions were exempt if they had assets less than \$10 million. The Economic Growth and Regulatory Paperwork Reduction Act of 1996 amended HMDA to adjust the exemption level to take into account annual inflation as measured by the Consumer Price Index for Urban Wage Earners and Clerical Workers. For the 1997 data, the asset level for exemption was increased from \$10 million to \$28 million (to take into account inflation occurring between 1975, the first year of HMDA data, through 1996). For 1998 and 1999 data collection, the Federal Reserve increased the asset level for exemption to \$29 million. For the year 2000 and 2001, the Federal Reserve set the asset level for exemption to be \$30 million and \$31 million, respectively.

In addition, a depository institution is not required to report HMDA data if it did not make a home purchase loan on a 1-to-4 unit dwelling (or if it did not refinance a home purchase loan) during the previous calendar year.

Many non-depository institutions must also report HMDA data. An example of a non-depository institution is a mortgage company that does not accept deposits but raises funds for lending by borrowing from

investors. A non-depository institution must report HMDA data if it has more than \$10 million in assets and it originated 100 or more home purchase loans (including refinances of home purchase loans) during the previous calendar year. A non-depository institution is exempt from HMDA reporting requirements if its home purchase loans (including refinances of home purchase loans) were less than 10 percent of all of its loan originations, measured in dollars, during the previous calendar year.

Gaps in HMDA Data

Small lenders and lenders with offices only in non-metropolitan areas (as noted above) are exempt from HMDA data reporting requirements. Data for rural areas is also incomplete, particularly information on the census tract location of loans. If banks and thrifts have assets under \$250 million dollars (or are part of holding companies under \$1 billion dollars), they do not have to report the census tract location for loans in MSAs (metropolitan statistical areas) in which they do not have any branch offices. They also do not have to report the census tract location for loans outside of MSAs.

Non-depository institutions do not have to report the census tract location of loans made in non-metropolitan areas. They have to report the census tract location of loans in those MSAs in which they received applications for, originated, or purchased five or more home purchase or home improvement loans during the preceding calendar year.

Another area of incompleteness concerns race and gender data of applications taken via the telephone. When applications are made in person, the loan officer is required to ask the applicant about his/her race. If the

applicant refuses, the loan officer is required to record race on the basis of visual observation or applicant surname. The loan officer is required to inform the applicant that federal law designed to combat discrimination requires this information. In contrast, when applications are received over the phone, the loan officer is not required to ask for the race and gender of the applicant (but this is about to change, see immediately below). When applications are received through the mail, the lending institution is required to ask for the race and gender of the applicant.

In the case of the electronic media, the official staff commentary of the Federal Reserve Board regarding the HMDA regulation states that lenders are required to ask for race and gender when applications are received over the Internet. When lenders are using electronic media with a video component, lenders are to use the same procedures as if the application is made in person.

Finally, a lender is not required to report the race, gender, and income data for loans that they purchase from another institution.

Improvements in HMDA Data

In the summer of 2002, the Federal Reserve Board made some significant changes to HMDA (the Federal Reserve Board has statutory responsibility to promulgate HMDA regulations). Lending institutions will be required to ask borrowers applying over the phone for their race and gender, starting in 2003.

In 2004, non-depository institutions making at least \$25 million in home purchase loans will be required to report HMDA data. This will capture

more non-depository institutions as HMDA reporters than the thresholds described above. Lending institutions will be required to indicate in the HMDA data if the loans were for manufactured homes or traditional single family residences. The Federal Reserve Board will also require lenders to report price information if the APR on their loans exceeds the rate on Treasury securities by three percentage points for first-lien loans and five percentage points for second-lien loans.

Other changes to HMDA data beginning in 2004 include improving the definition of home improvement and refinance loans, requiring an indication if a loan is covered by the Home Ownership and Equity Protection Act, and requiring pre-approvals to be reported for home purchase loans. Finally, but importantly, lenders will be required to indicate the identity of their parent companies in the HMDA data.

Table 1: Detailed Regressions for Atlanta

Atlanta - Home Purchase					
	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept	-0.0736	0.0001	-0.2301	-0.0743	Intercept
	-1.6899	0.0057	-6.9928	-3.4637	
%black [est. coeff.]	0.1393	0.1327			%black
[t-Score]	8.4146	7.4253			
%hispanic [est. coeff.]	-0.2080	-0.2475			%hispanic
[t-Score]	-1.3761	-1.6392			
%65age [est. coeff.]	0.0845	0.0404			%65age
[t-Score]	1.2000	0.6217			
medage [est. coeff.]	-0.0060	-0.0052	0.0114	0.0104	medage
[t-Score]	-0.9145	-0.7775	<i>1.7122</i>	1.6101	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	2.0566	1.6146	3.8901	3.1293	
HT [est. coeff.]	-0.0007	0.0000	-0.0042	-0.0034	HT
[t-Score]	-0.3130	-0.0374	-1.9974	<i>-1.6600</i>	
capitaliz [est. coeff.]	2.2945	2.3405	0.3412	0.0582	capitaliz
[t-Score]	1.3955	1.4269	0.1905	0.0336	
%vhigh [est. coeff.]		0.1635		0.4289	%vhigh
[t-Score]		2.8298		8.9836	
% NC [est. coeff.]	0.0756	-0.0036	0.5576	0.2826	%NC
[t-Score]	0.8172	-0.0403	7.3417	3.4278	
vh+h+m [est. coeff.]	0.1621		0.3740		vh+h+m
[t-Score]	2.8550		7.7943		
Adj R-square	0.4566	0.4564	0.3429	0.3684	Adj R-square

Atlanta - Refinance					
	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept	-0.2316	-0.0823	-0.4070	-0.1572	Intercept
	-4.9917	-3.1144	-10.8020	-6.5746	
%black [est. coeff.]	0.1886	0.1682			%black
[t-Score]	11.1936	9.2579			
%hispanic [est. coeff.]	-0.2456	-0.3350			%hispanic
[t-Score]	-1.5388	-2.1166			
%65age [est. coeff.]	0.2701	0.1899			%65age
[t-Score]	3.6791	2.8195			
medage [est. coeff.]	0.0016	0.0043	0.0325	0.0310	medage
[t-Score]	0.2257	0.6160	4.2526	4.3506	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	2.7783	1.9990	4.0840	3.1652	
HT [est. coeff.]	-0.0021	-0.0008	-0.0065	-0.0052	HT
[t-Score]	-0.8715	-0.3277	-2.7204	-2.3121	
capitaliz [est. coeff.]	7.9826	7.7769	5.7983	4.8837	capitaliz
[t-Score]	4.7224	4.6556	2.9185	2.6230	
%vhigh [est. coeff.]		0.3827		0.7148	%vhigh
[t-Score]		6.2345		13.6511	
%NC [est. coeff.]	0.1760	0.0061	0.8036	0.3462	%NC
[t-Score]	<i>1.8166</i>	0.0654	9.1324	3.7494	
vh+h+m [est. coeff.]	0.3458		0.6046		vh+h+m
[t-Score]	5.6966		11.0804		
Adj R-square	0.6903	0.6944	0.5654	0.6091	Adj R-square

Italic - 10% level of significance
Bolded - 5% level of significance
Bolded and Italicized - 1% level of significance

Table 2: Detailed Regressions for Baltimore

Baltimore - Home Purchase

	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept	-0.0274	0.0012	-0.0174	0.0128	Intercept
	-0.9384	0.0629	-0.9437	0.8683	
%black [est. coeff.]	0.0063	-0.0096			%black
[t-Score]	0.5582	-0.7825			
%hispanic [est. coeff.]	-0.0890	-0.1080			%hispanic
[t-Score]	-0.5333	-0.6547			
%65age [est. coeff.]	0.0367	0.0270			%65age
[t-Score]	0.9263	0.7600			
medage [est. coeff.]	0.0014	0.0017	0.0027	0.0026	medage
[t-Score]	0.3706	0.4567	0.7710	0.7620	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	0.6878	1.1145	0.4214	0.7548	
HT [est. coeff.]	-0.0209	-0.0133	-0.0267	-0.0164	HT
[t-Score]	-1.0024	-0.6474	-1.3083	-0.8145	
capitaliz [est. coeff.]	-1.5117	-2.3430	-1.4297	-2.1868	capitaliz
[t-Score]	-1.2807	-1.9550	-1.2171	-1.8440	
%vhigh [est. coeff.]		0.1912		0.1605	%vhigh
[t-Score]		4.1024		5.0770	
%NC [est. coeff.]	0.1625	0.1064	0.1432	0.0865	%NC
[t-Score]	2.4925	1.6110	2.3639	1.3829	
vh+h+m [est. coeff.]	0.1096		0.1076		vh+h+m
[t-Score]	2.7570		3.9710		
Adj R-square	0.0843	0.1028	0.0864	0.1059	Adj R-square

Baltimore - Refinance

Variable					Variable
Intercept	-0.1032	-0.0535	-0.1591	-0.0692	Intercept
	-2.7780	-2.0886	-6.0809	-3.2914	
%black [est. coeff.]	0.1107	0.1016			%black
[t-Score]	8.0671	6.7403			
%hispanic [est. coeff.]	-0.4806	-0.5125			%hispanic
[t-Score]	-2.2312	-2.3859			
%65age [est. coeff.]	0.1307	0.1012			%65age
[t-Score]	2.5661	2.2017			
medage [est. coeff.]	0.0041	0.0044	0.0104	0.0096	medage
[t-Score]	0.8486	0.9049	2.0732	1.9929	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	0.2127	0.1780	0.3565	0.8598	
HT [est. coeff.]	-0.1173	-0.1081	-0.1724	-0.1429	HT
[t-Score]	-4.3461	-4.0315	-5.9525	-5.1085	
capitaliz [est. coeff.]	11.4350	11.0128	12.1084	10.2778	capitaliz
[t-Score]	7.4773	7.0691	7.2380	6.2013	
%vhigh [est. coeff.]		0.1915		0.4338	%vhigh
[t-Score]		3.2109		9.8300	
%NC [est. coeff.]	0.3391	0.2854	0.3476	0.2013	%NC
[t-Score]	3.9410	3.2582	3.9729	2.2663	
vh+h+m [est. coeff.]	0.1471		0.3089		vh+h+m
[t-Score]	2.9374		8.0034		
Adj R-square	0.6306	0.6320	0.5539	0.5801	Adj R-square

Italic - 10% level of significance
Bolded - 5% level of significance
Bolded and Italicized - 1% level of significance

Table 3: Detailed Regressions for Cleveland

Cleveland - Home Purchase

	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept	-0.0968	-0.0667	-0.2787	-0.1445	Intercept
	-2.4616	-2.6279	-9.6417	-6.9277	
%black [est. coeff.]	0.2400	0.2159			%black
[t-Score]	15.6258	11.9307			
%hispanic [est. coeff.]	-0.0317	-0.0693			%hispanic
[t-Score]	-0.5279	-1.1269			
%65age [est. coeff.]	0.0698	0.0496			%65age
[t-Score]	1.2876	1.0664			
medage [est. coeff.]	0.0114	0.0104	0.0029	0.0008	medage
[t-Score]	2.1543	1.9885	0.4430	0.1363	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	0.0055	0.5456	2.3867	4.2976	
HT [est. coeff.]	-0.0425	-0.0405	-0.2003	-0.1330	HT
[t-Score]	-0.8212	-0.7884	-3.1160	-2.2735	
capitaliz [est. coeff.]	8.3768	7.5255	10.5030	6.1981	capitaliz
[t-Score]	5.2034	4.5995	5.1443	3.2482	
%vhigh [est. coeff.]		0.2395		0.8201	%vhigh
[t-Score]		3.3621		15.3546	
%NC [est. coeff.]	0.1226	0.0691	0.2533	0.0019	%NC
[t-Score]	2.2792	1.2988	4.0533	0.0307	
vh+h+m [est. coeff.]	0.1274		0.5215		vh+h+m
[t-Score]	2.2510		10.6801		
Adj R-square	0.6865	0.6904	0.4906	0.5747	Adj R-square

Cleveland – Refinance

Variable					Variable
Intercept	-0.2596	-0.1557	-0.3936	-0.1729	Intercept
	-6.1378	-5.8013	-13.4316	-8.6214	
%black [est. coeff.]	0.1988	0.1238			%black
[t-Score]	12.4492	6.7255			
%hispanic [est. coeff.]	0.0693	-0.0251			%hispanic
[t-Score]	1.1136	-0.4123			
%65age [est. coeff.]	0.1635	0.1104			%65age
[t-Score]	2.8461	2.2404			
medage [est. coeff.]	0.0134	0.0094	0.0028	0.0019	medage
[t-Score]	2.1879	1.6132	0.3966	0.3124	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	-0.5386	1.0357	0.8153	2.8402	
HT [est. coeff.]	0.0142	0.0298	-0.2029	-0.0665	HT
[t-Score]	0.2246	0.4945	-2.8433	-1.0777	
capitaliz [est. coeff.]	16.4428	14.1417	16.9059	12.1840	capitaliz
[t-Score]	9.4880	8.3802	8.4575	6.9456	
%vhigh [est. coeff.]		0.7923		1.1672	%vhigh
[t-Score]		10.3537		24.0454	
%NC [est. coeff.]	0.3718	0.1896	0.4998	0.1288	%NC
[t-Score]	5.9831	3.1951	7.5462	2.1248	
vh+h+m [est. coeff.]	0.4403			0.8241	vh+h+m
[t-Score]	7.0236			16.8755	
Adj R-square	0.8108	0.8268	0.7400	0.8060	Adj R-square

Italic - 10% level of significance
Bolded - 5% level of significance
Bolded and Italicized - 1% level of significance

Table 4: Detailed Regressions for Detroit

Detroit - Home Purchase					
	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept	-0.1612	-0.0673	-0.2883	-0.1217	Intercept
	-6.5514	-4.5959	-15.3291	-10.5391	
%black [est. coeff.]	0.1661	0.1414			%black
[t-Score]	17.3528	12.6615			
%hispanic [est. coeff.]	0.0645	0.0671			%hispanic
[t-Score]	0.8549	0.8940			
%65age [est. coeff.]	0.1606	0.1108			%65age
[t-Score]	4.5974	3.5032			
medage [est. coeff.]	-0.0009	-0.0006	0.0073	0.0064	medage
[t-Score]	-0.2483	-0.1527	1.6466	1.5942	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	7.0185	7.2346	9.5542	11.2168	
HT [est. coeff.]	-0.0487	-0.0422	-0.0668	-0.0487	HT
[t-Score]	-2.7491	-2.3909	-3.1544	-2.5180	
capitaliz [est. coeff.]	0.9817	0.2664	2.6210	-0.0667	capitaliz
[t-Score]	1.5908	0.4177	3.6241	-0.0964	
%vhigh [est. coeff.]		0.2817		0.5624	%vhigh
[t-Score]		7.9450		21.2638	
%NC [est. coeff.]	0.2134	0.0892	0.3806	0.0654	%NC
[t-Score]	4.3575	1.7369	7.1284	1.2392	
vh+h+m [est. coeff.]	0.2435		0.4483		vh+h+m
[t-Score]	7.3623		15.2271		
Adj R-square	0.6267	0.6302	0.4622	0.5494	Adj R-square

Detroit - Refinance					
	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept	0.0163	0.0239	0.0160	0.0166	Intercept
	1.2207	2.3102	0.7742	1.0967	
%black [est. coeff.]	0.2577	0.2578			%black
[t-Score]	40.0263	40.0004			
%hispanic [est. coeff.]	0.1282	0.1295			%hispanic
[t-Score]	2.6175	2.6440			
%65age [est. coeff.]	-0.0634	-0.0633			%65age
[t-Score]	-2.2064	-2.2031			
medage [est. coeff.]	0.0059	0.0059	0.0071	0.0070	medage
[t-Score]	1.6232	1.6277	1.2371	1.2299	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	-5.1794	-5.1494	-5.6100	-5.5512	
HT [est. coeff.]	-0.0940	-0.0940	-0.1672	-0.1674	HT
[t-Score]	-4.2685	-4.2686	-4.6023	-4.6095	
capitaliz [est. coeff.]	12.4840	12.4769	21.6557	21.6289	capitaliz
[t-Score]	25.9571	25.9340	32.1928	32.1477	
%vhigh [est. coeff.]		0.0088		-0.0266	%vhigh
[t-Score]		0.4675		-0.8586	
%NC [est. coeff.]	-0.0270	-0.0244	-0.0912	-0.0518	%NC
[t-Score]	-0.9466	-0.6699	-1.9387	-0.8615	
vh+h+m [est. coeff.]	0.0190		-0.0006		vh+h+m
[t-Score]	0.9414		-0.0181		
Adj R-square	0.8993	0.8992	0.7224	0.7226	Adj R-square

Italic - 10% level of significance
Bolded - 5% level of significance
Bolded and Italicized - 1% level of significance

Table 5: Detailed Regressions for Houston

Houston - Home Purchase

	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept	-0.0716	-0.0121	-0.0638	0.0024	Intercept
	-2.3607	-0.6369	-2.4380	0.1439	
%black [est. coeff.]	0.0492	0.0061			%black
[t-Score]	3.5117	0.3776			
%hispanic [est. coeff.]	-0.0260	-0.0244			%hispanic
[t-Score]	-1.4890	-1.4337			
%65age [est. coeff.]	0.1597	0.1507			%65age
[t-Score]	2.5969	2.5793			
medage [est. coeff.]	-0.0021	-0.0009	0.0026	0.0037	medage
[t-Score]	-0.3409	-0.1577	0.5345	0.8384	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	0.9668	1.6872	1.0104	1.9404	
HT [est. coeff.]	-0.0030	0.0002	-0.0025	-0.0003	HT
[t-Score]	-1.0546	0.0876	-0.8813	-0.0933	
capitaliz [est. coeff.]	-0.3612	-1.4909	-1.0640	-2.2156	capitaliz
[t-Score]	-0.3971	-1.6291	-1.1510	-2.5192	
%vhigh [est. coeff.]		0.3416		0.3347	%vhigh
[t-Score]		7.2297		9.3429	
%NC [est. coeff.]	0.0590	-0.0969	0.0596	-0.1120	%NC
[t-Score]	1.0204	-1.6705	1.0468	-1.9726	
vh+h+m [est. coeff.]	0.2145		0.2307		vh+h+m
[t-Score]	5.3134		6.4863		
Adj R-square	0.1762	0.2121	0.1302	0.1969	Adj R-square

Houston - Refinance

Variable					Variable
Intercept	-0.2230	-0.1553	-0.4695	-0.2285	Intercept
	-4.2211	-4.7643	-8.2199	-7.2035	
%black [est. coeff.]	0.4058	0.3194			%black
[t-Score]	17.8827	11.8561			
%hispanic [est. coeff.]	0.0694	0.0660			%hispanic
[t-Score]	2.2102	2.1770			
%65age [est. coeff.]	0.2483	0.2632			%65age
[t-Score]	2.2765	2.5762			
medage [est. coeff.]	0.0397	0.0446	0.0859	0.0888	medage
[t-Score]	3.7532	4.3637	8.0243	10.2813	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	0.2985	1.3561	0.9242	2.9685	
HT [est. coeff.]	-0.0296	-0.0227	-0.0206	-0.0101	HT
[t-Score]	-6.1039	-4.6654	-3.2921	-1.8924	
capitaliz [est. coeff.]	14.4833	11.5724	10.9087	4.9465	capitaliz
[t-Score]	9.0106	7.1455	5.1527	2.8008	
%vhigh [est. coeff.]		0.6078		1.2788	%vhigh
[t-Score]		6.9964		18.2973	
%NC [est. coeff.]	0.2893	-0.0187	0.5737	-0.2016	%NC
[t-Score]	2.6597	-0.1652	4.0848	-1.5846	
vh+h+m [est. coeff.]	0.3045		0.8178		vh+h+m
[t-Score]	4.1601		10.1633		
Adj R-square	0.7364	0.7529	0.5333	0.6690	Adj R-square

Italic - 10% level of significance
Bolded - 5% level of significance
Bolded and Italicized - 1% level of significance

Table 6: Detailed Regressions for Los Angeles

Los Angeles - Home Purchase

	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept	-0.0148	0.0871	-0.0453	0.0472	Intercept
	-0.5055	4.7543	-2.0613	3.4345	
%black [est. coeff.]	0.0434	0.0278			%black
[t-Score]	3.7431	2.2361			
%hispanic [est. coeff.]	-0.0738	-0.0662			%hispanic
[t-Score]	-6.5858	-6.0490			
%65age [est. coeff.]	-0.0702	-0.1048			%65age
[t-Score]	-1.6689	-2.5966			
medage [est. coeff.]	0.0094	0.0088	0.0066	0.0050	medage
[t-Score]	2.1647	2.0267	1.5305	1.1809	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	0.4378	0.8086	1.7249	3.0392	
HT [est. coeff.]	-0.0514	-0.0332	-0.0211	-0.0031	HT
[t-Score]	-1.9595	-1.2885	-0.8087	-0.1218	
capitaliz [est. coeff.]	-7.2678	-8.6568	-7.7193	-11.1339	capitaliz
[t-Score]	-3.8854	-4.5039	-4.0284	-5.8148	
%vhigh [est. coeff.]		0.3435		0.4428	%vhigh
[t-Score]		7.7136		11.8946	
%NC [est. coeff.]	0.1144	-0.0043	0.0208	-0.1125	%NC
[t-Score]	2.4322	-0.0945	0.5577	-2.9010	
vh+h+m [est. coeff.]	0.2952		0.3193		vh+h+m
[t-Score]	7.3164		9.0717		
Adj R-square	0.1407	0.1441	0.0644	0.0997	Adj R-square

Los Angeles - Refinance

Variable					Variable
Intercept [est. coeff.]	-0.0906	-0.0129	-0.1650	-0.0638	Intercept
	-4.3821	-1.0019	-9.8654	-6.2372	
%black [est. coeff.]	0.1378	0.1286			%black
[t-Score]	16.9109	14.6106			
%hispanic [est. coeff.]	0.0280	0.0342			%hispanic
[t-Score]	3.5810	4.4814			
%65age [est. coeff.]	0.0756	0.0452			%65age
[t-Score]	2.5679	1.6024			
medage [est. coeff.]	0.0091	0.0087	0.0194	0.0177	medage
[t-Score]	2.9504	2.8080	5.8533	5.5704	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	3.0705	3.1206	3.3433	5.2530	
HT [est. coeff.]	-0.0318	-0.0192	-0.0829	-0.0660	HT
[t-Score]	-1.7193	-1.0509	-4.2070	-3.5052	
capitaliz [est. coeff.]	5.5637	4.8410	7.4860	3.8030	capitaliz
[t-Score]	4.2604	3.6001	5.1977	2.7021	
%vhigh [est. coeff.]		0.2280		0.4768	%vhigh
[t-Score]		7.3062		17.5866	
%NC [est. coeff.]	0.1631	0.0799	0.2772	0.1393	%NC
[t-Score]	4.9454	2.5321	9.9885	4.9591	
vh+h+m [est. coeff.]	0.2113		0.3472		vh+h+m
[t-Score]	7.4171		13.0532		
Adj R-square	0.5252	0.5247	0.4009	0.4467	Adj R-square

Italic - 10% level of significance
Bolded - 5% level of significance
Bolded and Italicized - 1% level of significance

Table 7: Detailed Regressions for Milwaukee

Milwaukee - Home Purchase

	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept [est. coeff.]	-0.0561	0.0130	-0.1595	-0.0106	Intercept
	-1.3438	0.3896	-5.7474	-0.4008	
%black [est. coeff.]	0.1844	0.1457			%black
[t-Score]	6.8455	4.3336			
%hispanic [est. coeff.]	-0.0610	-0.0752			%hispanic
[t-Score]	-0.6171	-0.7587			
%65age [est. coeff.]	0.0231	-0.0225			%65age
[t-Score]	0.4227	-0.4502			
medage [est. coeff.]	-0.0010	-0.0006	-0.0124	-0.0095	medage
[t-Score]	-0.1977	-0.1161	-2.4492	-2.0155	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	-0.3238	-0.6619	0.9549	0.5907	
HT [est. coeff.]	-0.1624	-0.1526	-0.1719	-0.1504	HT
[t-Score]	-3.8946	-3.6747	-3.8059	-3.6134	
capitaliz [est. coeff.]	3.8248	2.5950	7.2203	1.5137	capitaliz
[t-Score]	1.6469	1.0752	2.9384	0.6136	
%vhigh [est. coeff.]		0.2419		0.5094	%vhigh
[t-Score]		3.3803		10.5301	
%NC [est. coeff.]	0.0356	-0.0717	0.0597	-0.2022	% NC
[t-Score]	0.3727	-0.7106	0.6883	-2.2449	
vh+h+m [est. coeff.]	0.1751		0.3760		vh+h+m
[t-Score]	3.1259		7.8538		
Adj R-square	0.5929	0.5953	0.4931	0.5567	Adj R-square

Milwaukee - Refinance

Variable					Variable
Intercept [est. coeff.]	-0.1289	-0.0553	-0.3075	-0.0990	Intercept
	-3.3313	-1.9004	-9.9169	-4.1451	
%black [est. coeff.]	0.2913	0.2290			%black
[t-Score]	13.4897	8.8845			
%hispanic [est. coeff.]	0.0253	-0.0129			%hispanic
[t-Score]	0.3411	-0.1760			
%65age [est. coeff.]	0.0682	0.0207			%65age
[t-Score]	1.2791	0.4296			
medage [est. coeff.]	-0.0010	-0.0014	-0.0226	-0.0161	medage
[t-Score]	-0.2040	-0.2998	-3.7912	-3.2240	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	0.9831	1.0871	2.4469	3.0354	
HT [est. coeff.]	-0.2229	-0.2103	-0.2733	-0.2261	HT
[t-Score]	-5.4905	-5.3254	-5.1182	-5.0763	
capitaliz [est. coeff.]	7.0170	5.3346	13.0116	5.1581	capitaliz
[t-Score]	3.6779	2.7993	5.4563	2.4298	
%vhigh [est. coeff.]		0.3505		0.7782	%vhigh
[t-Score]		6.0860		18.1084	
%NC [est. coeff.]	0.2398	0.1268	0.3423	0.0121	%NC
[t-Score]	2.8523	1.5293	4.1184	0.1611	
vh+h+m [est. coeff.]	0.2216		0.5925		vh+h+m
[t-Score]	4.4829		11.8902		
Adj R-square	0.8391	0.8470	0.7107	0.7952	Adj R-square

Italic - 10% level of significance
Bolded - 5% level of significance
Bolded and Italicized - 1% level of significance

Table 8: Detailed Regressions for New York

New York - Home Purchase

	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept	-0.0831	-0.0156	-0.0693	-0.0026	Intercept
	-3.7671	-1.1341	-5.2760	-0.2874	
%black [est. coeff.]	-0.0028	-0.0333			%black
[t-Score]	-0.2905	-2.9956			
%hispanic [est. coeff.]	-0.0176	-0.0175			%hispanic
[t-Score]	-1.1753	-1.1991			
%65age [est. coeff.]	0.0245	-0.0133			%65age
[t-Score]	0.8318	-0.4858			
medage [est. coeff.]	0.0063	-0.0049	-0.0066	-0.0052	medage
[t-Score]	-2.2128	<i>-1.7481</i>	-2.3241	<i>-1.8580</i>	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	0.8508	1.2882	0.8606	0.9210	
HT [est. coeff.]	-0.0671	-0.0652	-0.0698	-0.0650	HT
[t-Score]	-5.1135	-5.0214	-5.3603	-5.0273	
capitaliz [est. coeff.]	4.5458	4.0967	4.5306	4.1659	capitaliz
[t-Score]	4.6141	4.1908	4.6271	4.2846	
%vhigh [est. coeff.]		0.3385		0.2506	%vhigh
[t-Score]		8.6606		10.5744	
%NC [est. coeff.]	0.1373	0.0628	0.1113	0.0342	%NC
[t-Score]	3.1419	1.4733	3.0438	0.8812	
vh+h+m [est. coeff.]	0.2211		0.2046		vh+h+m
[t-Score]	7.0687		9.6398		
Adj R-square	0.2235	0.2412	0.2237	0.2366	Adj R-square

New York - Refinance

Variable					Variable
Intercept	-0.3449	-0.0956	-0.3494	-0.1038	Intercept
	-15.0857	-5.5738	-16.6523	-7.0802	
%black [est. coeff.]	-0.0045	-0.0048			%black
[t-Score]	-0.5259	-0.5912			
%hispanic [est. coeff.]	-0.0181	-0.0238			%hispanic
[t-Score]	-1.3867	<i>-1.9461</i>			
%65age [est. coeff.]	-0.0054	-0.0127			%65age
[t-Score]	-0.1350	-0.3377			
medage [est. coeff.]	0.0244	0.0173	0.0246	0.0175	medage
[t-Score]	4.8576	3.6681	5.0704	3.8485	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	0.9236	1.1906	0.9846	1.2698	
HT [est. coeff.]	-0.2578	-0.2235	-0.2623	-0.2303	HT
[t-Score]	-5.0285	-4.6395	-5.1396	-4.7978	
capitaliz [est. coeff.]	8.2697	5.9878	8.3394	6.0702	capitaliz
[t-Score]	3.7790	2.9259	3.8197	2.9704	
%vhigh [est. coeff.]		0.8740		0.8669	%vhigh
[t-Score]		25.6367		25.5495	
%NC [est. coeff.]	0.6245	0.3339	0.6313	0.3443	%NC
[t-Score]	9.7477	5.2304	9.8874	5.4100	
vh+h+m [est. coeff.]	0.7021		0.6974		vh+h+m
[t-Score]	21.3501		21.3121		
Adj R-square	0.5878	0.6363	0.5881	0.6358	Adj R-square

Italic - 10% level of significance
Bolded - 5% level of significance
Bolded and Italicized - 1% level of significance

Table 9: Detailed Regressions for St. Louis

St. Louis - Home Purchase

	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept	-0.3851	-0.2098	-0.3840	-0.2093	Intercept
	-10.3472	-8.2588	-10.7522	-8.4073	
%black [est. coeff.]	0.0060	0.0068			%black
[t-Score]	0.5060	0.6852			
%hispanic [est. coeff.]	0.2666	0.3189			%hispanic
[t-Score]	1.2764	1.6922			
%65age [est. coeff.]	-0.0294	-0.0279			%65age
[t-Score]	-0.4692	-0.4977			
medage [est. coeff.]	0.0287	0.0140	0.0290	0.0148	medage
[t-Score]	3.2903	1.7411	3.9000	2.1538	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	5.2746	6.0803	5.2586	6.0563	
HT [est. coeff.]	-0.2985	-0.2102	-0.3006	-0.2131	HT
[t-Score]	-3.9183	-3.1781	-3.9678	-3.2254	
capitaliz [est. coeff.]	10.5586	4.7064	10.6740	4.9026	capitaliz
[t-Score]	4.6207	2.1910	4.7203	2.2988	
%vhigh [est. coeff.]		0.8341		0.8276	%vhigh
[t-Score]		12.1652		12.2001	
%NC [est. coeff.]	0.5673	0.1533	0.5672	0.1557	%NC
[t-Score]	6.4062	1.7063	6.4251	1.7330	
vh+h+m	0.4893		0.4862		vh+h+m
[t-Score]	7.3599		7.4763		
Adj R-square	0.5441	0.6289	0.5453	0.6284	Adj R-square

St. Louis - Refinance

Variable					Variable
Intercept	-0.4462	-0.2706	-0.5173	-0.2867	Intercept
	-8.9409	-8.9943	-12.3150	-10.8358	
%black [est. coeff.]	0.1822	0.1405			%black
[t-Score]	10.4092	8.0440			
%hispanic [est. coeff.]	0.2816	0.2517			%hispanic
[t-Score]	0.7563	0.7189			
%65age [est. coeff.]	0.3065	0.2401			%65age
[t-Score]	4.2338	3.7708			
medage [est. coeff.]	0.0189	0.0192	0.0347	0.0322	medage
[t-Score]	2.8394	3.0790	4.9275	5.2674	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	4.7326	5.0831	5.3023	5.8190	
HT [est. coeff.]	-0.1380	-0.1004	-0.3125	-0.2252	HT
[t-Score]	-1.8453	-1.4468	-3.7234	-3.0865	
capitaliz [est. coeff.]	15.1680	12.6709	15.6756	11.5736	capitaliz
[t-Score]	8.7029	7.5884	7.7473	6.3298	
%vhigh [est. coeff.]		0.7636		1.0054	%vhigh
[t-Score]		10.3399		14.6164	
%NC [est. coeff.]	0.5985	0.2600	0.9368	0.3687	%NC
[t-Score]	6.8804	2.9608	10.9743	4.0613	
vh+h+m [est. coeff.]	0.5096		0.6599		vh+h+m
[t-Score]	7.0111		9.2071		
Adj R-square	0.8156	0.8368	0.7509	0.8032	Adj R-square

Italic - 10% level of significance
Bolded - 5% level of significance
Bolded and Italicized - 1% level of significance

Table 10: Detailed Regressions for Washington, D.C.

Washington - Home Purchase

	Column 1	Column 2	Column 3	Column 4	
Variable					Variable
Intercept	-0.0921	-0.0403	-0.0839	-0.0303	Intercept
	-4.7182	-3.9111	-6.9137	-3.8307	
%black [est. coeff.]	0.0007	-0.0162			%black
[t-Score]	0.0815	<i>-1.9010</i>			
%hisp [est. coeff.]	-0.0230	-0.0117			%hisp
[t-Score]	-1.0384	-0.5382			
%65age [est. coeff.]	0.0415	0.0265			%65age
[t-Score]	1.6110	1.1546			
medage [est. coeff.]	0.0035	0.0043	0.0050	0.0034	medage
[t-Score]	1.4144	<i>1.7684</i>	2.3703	<i>1.6626</i>	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	6.7120	7.7899	7.4649	7.9575	
HT [est. coeff.]	-0.0152	-0.0083	-0.0159	-0.0082	HT
[t-Score]	-2.5370	-1.4396	-2.6972	-1.4197	
capitaliz [est. coeff.]	2.7519	1.2741	2.8480	1.7619	capitaliz
[t-Score]	3.2323	1.4574	3.4670	2.1306	
%vhigh [est. coeff.]		0.2455		0.1992	%vhigh
[t-Score]		8.2219		11.1844	
%NC [est. coeff.]	0.1122	0.0371	0.1043	0.0239	%NC
[t-Score]	4.0712	1.5746	4.7132	1.0587	
vh+h+m [est. coeff.]	0.1611		0.1530		vh+h+m
[t-Score]	5.8323		9.3834		
Adj R-square	0.1876	0.2180	0.1853	0.2168	Adj R-square

Washington - Refinance

Variable					Variable
Intercept	-0.0885	-0.0067	-0.1401	-0.0285	Intercept
	-4.4291	-0.6134	-10.6061	-3.3379	
%black [est. coeff.]	0.0557	0.0522			%black
[t-Score]	6.6773	6.0619			
%hisp [est. coeff.]	-0.1044	-0.0916			%hisp
[t-Score]	-4.7428	-4.1683			
%65age [est. coeff.]	0.1105	0.0694			%65age
[t-Score]	3.9719	2.7602			
medage [est. coeff.]	0.0015	0.0014	0.0126	0.0094	medage
[t-Score]	0.6225	0.5641	5.4239	4.2054	
medhhinc [est. coeff.]	0.0000	0.0000	0.0000	0.0000	medhhinc
[t-Score]	1.5437	0.4820	3.1343	2.5557	
HT [est. coeff.]	-0.0326	-0.0234	-0.0469	-0.0296	HT
[t-Score]	-4.9534	-3.6294	-6.7679	-4.4176	
capitaliz [est. coeff.]	5.3927	4.4650	4.8013	2.8950	capitaliz
[t-Score]	6.2500	4.8876	5.3119	3.2051	
%vhigh [est. coeff.]		0.2274		0.3725	%vhigh
[t-Score]		7.3702		19.4870	
%NC [est. coeff.]	0.0900	-0.0049	0.1492	0.0014	%NC
[t-Score]	3.1698	-0.2003	6.0717	0.0573	
vh+h+m [est. coeff.]	0.2006		0.3043		vh+h+m
[t-Score]	7.2331		17.2681		
Adj R-square	0.5908	0.5917	0.5151	0.5473	Adj R-square

Italic - 10% level of significance
Bolded - 5% level of significance
Bolded and Italicized - 1% level of significance

Table 11: Summary of Regression Results

Home Purchase Lending										
	Atl.	Balt.	Cleve.	Det.	Hous.	LA	Milw.	NYC	St. L.	D.C.
Variable										
%black	+++		+++	+++	+++	+++	+++			
%hispanic						---				
%65age				+++	+++	-				
medage			++			++		--	+++	
medhhinc	++			+++					+++	+++
HT				---		-	---	---	---	--
capitaliz			+++			---	+	+++	+++	+++
NC		++	++	+++		++		+++	+++	+++
vh+h+m	+++	+++	++	+++	+++	+++	+++	+++	+++	+++
Adj										
R-square	0.4566	0.0843	0.6865	0.6267	0.1762	0.1407	0.5929	0.2235	0.5441	0.1876
Refinance Lending										
	Atl.	Balt.	Cleve.	Det.	Hous.	LA	Milw.	NYC	St. L.	D.C.
Variable										
%black	+++	+++	+++	+++	+++	+++	+++		+++	+++
%hispanic		--		+++	++	+++				---
%65age	+++	++	+++	--	++	++			+++	+++
medage			++		+++	+++		+++	+++	
medhhinc	+++			---		+++			+++	
HT		---		---	---	-	---	---	-	---
capitaliz	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
NC	+	+++	+++		+++	+++	+++	+++	+++	+++
vh+h+m	+++	+++	+++		+++	+++	+++	+++	+++	+++
Adj										
R-square	0.6903	0.6306	0.8108	0.8993	0.7364	0.5252	0.8391	0.5878	0.8156	0.5908

+ positive relationship
 - negative relationship
 + or - 10% significance level
 ++ or -- 5% significance level
 +++ or --- 1% significance level

Table 12: Impact of Number of African-Americans in a Neighborhood

Percent African-Americans in a census tract

Home Purchase

	Estimated coefficient	Level of Significance	White/African-American Segregation Index
Cleveland	0.2400	***	79.7
Milwaukee	0.1844	***	84.4
Detroit	0.1661	***	86.7
Atlanta	0.1393	***	68.8
Houston	0.0492	***	71.8
Los Angeles	0.0434	***	70.5
Baltimore	0.0063		71.8
St. Louis	0.0060		78.0
Washington	0.0007		66.2
New York	-0.0028		84.3

Refinance

	Estimated coefficient	Level of Significance	White/African-American Segregation Index
Houston	0.4058	***	71.8
Milwaukee	0.2913	***	84.4
Detroit	0.2577	***	86.7
Cleveland	0.1988	***	79.7
Atlanta	0.1866	***	68.8
St. Louis	0.1822	***	78.0
Los Angeles	0.1378	***	70.5
Baltimore	0.1107	***	71.8
Washington	0.0557	***	66.2
New York	-0.0045		84.3

- * - 10% level of significance
- ** - 5% level of significance
- *** - 1% level of significance

The dissimilarity index varies between 0 and 100, and measures the percentage of one group that would have to move across neighborhoods to be distributed the same way as the second group. A dissimilarity index of 0 indicates conditions of total integration. A dissimilarity index of 100 indicates conditions of total segregation. For more information see www.CensusScope.org of the Social Science Data Analysis Network at the University of Michigan.

Table 13: Impact of Number of Hispanics in a Neighborhood

Percent Hispanics in a census tract			
Home Purchase			
	Estimated coefficient	Level of Significance	White/Hispanic Segregation Index
St. Louis	0.2666		36.7
Detroit	0.0645		48.3
New York	-0.0176		69.3
Washington	-0.0230		52.5
Houston	-0.0260		59.2
Cleveland	-0.0317		59.0
Milwaukee	-0.0610		60.6
Los Angeles	-0.0738	***	64.4
Baltimore	-0.0890		40.3
Atlanta	-0.2080		56.8
Refinance			
	Estimated coefficient	Level of Significance	White/Hispanic Segregation Index
St. Louis	0.2816		36.7
Detroit	0.1282	***	48.3
Houston	0.0694	**	59.2
Cleveland	0.0693		59.0
Los Angeles	0.0280	***	64.4
Milwaukee	0.0253		60.6
New York	-0.0181		69.3
Washington	-0.1044	***	52.5
Atlanta	-0.2456		56.8
Baltimore	-0.4806	**	40.3

* - 10% level of significance

** - 5% level of significance

*** - 1% level of significance

The dissimilarity index varies between 0 and 100, and measures the percentage of one group that would have to move across neighborhoods to be distributed the same way as the second group. A dissimilarity index of 0 indicates conditions of total integration. A dissimilarity index of 100 indicates conditions of total segregation. For more information see www.CensusScope.org of the Social Science Data Analysis Network at the University of Michigan.

Table 14: Impact of Number of Elderly Residents in a Neighborhood

Percent People over 65		
Home Purchase		
	Estimated coefficient	Level of Significance
Detroit	0.1606	***
Houston	0.1597	***
Atlanta	0.0845	
Cleveland	0.0698	
Washington	0.0415	
Baltimore	0.0367	
New York	0.0245	
Milwaukee	0.0231	
St. Louis	-0.0294	
Los Angeles	-0.0702	*
Refinance		
	Estimated coefficient	Level of Significance
St. Louis	0.3065	***
Atlanta	0.2701	***
Houston	0.2483	**
Cleveland	0.1635	***
Baltimore	0.1307	**
Washington	0.1105	***
Los Angeles	0.0756	**
Milwaukee	0.0682	
New York	-0.0054	
Detroit	-0.0634	**

* - 10% level of significance

** - 5% level of significance

*** - 1% level of significance

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