Working Papers

HOME MORTGAGE LENDING IN ST. LOUIS CITY:
AN ANALYSIS OF 1992 AND 1994
HOME MORTGAGE DISCLOSURE ACT DATA

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I. Introduction

In recent decades, policy-makers, community activists and academics have become concerned about differences in home lending rates to the poor and racial minorities. The deleterious impacts of disinvestment in such communities, and the resulting impacts on households and families, have led to a new form of activism: the monitoring of lenders. One effective tool that allows community groups to monitor lending practices of local banks is the analysis of data that is collected as a result of the Home Mortgage Disclosure Act (HMDA). The act, established in 1975, was amended in 1989. It requires lenders to provide information on all loan applicants. Subsequent studies of HMDA data have revealed striking differences in loan denial rates for minority and non-minority applicants.

This report examines home mortgage lending data in St. Louis City in 1992 and 1994. Our primary purpose is to determine how race, income level and neighborhood location relate to home mortgage loan application denial rates. Overall, it is demonstrated that race, income level and negative neighborhood conditions are predictive of loan denial in St. Louis City.

The study begins with an overview of related literature. The second section describes our study, and provides information regarding the data set, our variables and research procedures. Part three is a report of our findings. The final section draws conclusions and suggests implications for social policy.

II. HMDA analyses: A review of related literature

Historical Relationship of Race and Mortgage Lending

For at least the first sixty years of this century intentional racial discrimination was an explicit requirement of housing and housing finance practices, with the full support of federal law (Jackson, 1985). Mortgage lenders played a key role in the racial discrimination practiced by the real estate industry, including the enforcement through 1948 of a restriction in the deed on the race of future purchasers (Schafer & Ladd, 1981). Private and public sector actors have used race as a criterion in making housing and related services available in a manner that has segregated and destabilized urban neighborhoods in cities across the country. Appraisers, upon whom lenders rely for determining property values, have nurtured segregated housing to avoid the value depreciation they believed would occur if racial minorities "invaded" white neighborhoods (Babcock, 1990). Similarly, realtors have practiced racial steering, contending that to do so was consistent with the highest professional standards of their industry (Judd, 1984).

The Federal Housing Administration fostered housing segregation as evidenced in the agency's early underwriting manuals which stated: "If a neighborhood is to retain stability, it is necessary that properties shall continue to be occupied by the same social and racial classes" (U.S. FHA, 1938).

The existence, and enforcement by federal courts, of racially restrictive covenants and exclusionary zoning laws coupled with discriminatory practices by property insurers, homebuilders, as well as appraisers and lenders all served to create and reinforce dual

housing markets in cities throughout the United States.

During the 1960s federal law shifted dramatically. Several statutes were enacted that prohibited racial discrimination in housing, housing finance, and related areas of public policy. Following the passage of the Civil Rights Act of 1964, interest in the issue of discrimination in housing and mortgage credit markets increased tremendously (Hunter & Walker, 1995). Most significant was the Federal Housing Act of 1968, which made it unlawful to discriminate against any person in terms, conditions, or privileges of sale or rental of a dwelling...on basis of race, color, religion, or national origin. In subsequent years the Act was amended to protect women, the physically and mentally disabled, and families with children (U.S. Dept. of Housing and Urban Development, 1991).

In the 1970s, Congress turned its attention to equal credit opportunity issues and discrimination in housing and consumer finance. There was much evidence that minorities and minority neighborhoods were subject to a dual housing finance market and suffered from a lack of access to conventional home mortgage credit. Studies conducted by the Comptroller of the Currency and the Federal Home Loan Bank Board indicated the strong probability of race discrimination in mortgage credit. Later studies using data from the mid-1970s confirmed that race was a statistically significant factor in the conventional mortgage markets of many urban areas (Shear & Yezer, 1985; Schafer & Ladd, 1981).

In 1974 the Equal Opportunity Credit Act was signed into law and later amended to prohibit lending discrimination, including mortgage lending, on basis of race, color, national origin, age, sex, marital status, religion, receipt of public assistance, or exercise

of rights granted by consumer protection statutes. Two particularly important pieces of

legislation regarding fair lending are the Home Mortgage Disclosure Act (HMDA)

passed in 1975 and the Community Reinvestment Act (CRA) passed in 1977. While the

Fair Housing Act and the Equal Opportunity Credit Act have addressed the general issue

of access to housing and credit, HMDA and CRA have dealt more directly with mortgage

credit. HMDA and CRA were passed to address the perceived problems of housing

credit not flowing properly to all neighborhoods within communities at large, and in

particular, the failure of some mortgage lenders to adequately serve all segments of their

primary trade areas (Hunter & Walker, 1995).

HMDA requires most depository institutions to publicly disclose the number and

dollar volume of home mortgage loans they make in metropolitan areas by census tract.

The CRA requires federally regulated financial institutions to continuously and

affirmatively assess and be responsive to the credit needs of their entire service areas,

including low-and moderate-income neighborhoods (Squires & O'Connor, 1993).

Empirical Studies

Discrimination in mortgage lending has long been a concern in academic and

policy arenas. An increasing amount of statistical evidence has accumulated regarding

credit availability problems in inner cities. Redlining, the practice whereby lenders refuse

to make mortgage loans in geographic areas characterized by heavy concentration of

racial or ethic minorities regardless of the creditworthiness of the loan applicants, has

been examined. A study of lending patterns indicated a general lack of conventional

lending in inner cities, especially in racially changing areas (Dane, 1989).

Racial disparities in mortgage lending have been documented, even after

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controlling for such factors as family income and wealth, age and condition of property, neighborhood turnover and other economic considerations (Toledo Fair Housing Center, 1986; Woodstock Institute, 1986; Squires & Velez, 1987; Shlay, 1988; Galster, 1991; Glabere, 1992). After controlling for several variables associated with the financial capacity of borrowers and physical conditions of housing, other studies have found a statistically significant relationship between applicant race and mortgage loan denials and minority neighborhood status and mortgage loan denials (Bradbury, Case, & Dunham, 1989; Shlay, 1989; Munnell, Browne, McEneaney, & Tootell, 1992). However, as noted by Benston (1981), many studies of redlining were inadequate since they failed to control sufficiently for borrower characteristics (see also Benston & Horsky, 1992). In addition, as noted by Holmes & Horvitz (1994), these studies do not adequately control for the risk differences across different geographic areas. More recent studies of redlining have produced mixed findings. Holmes and Horvitz (1994), in their study of redlining in Houston, Texas, fail to find clear evidence of the practice, while the paper by Canner, Gabriel, & Woolley (1991) examining nationwide data finds more evidence of it.

Beginning in 1990, lenders were required by HMDA to publicly report the gender, income, and race of loan applicants as well as the action taken on each loan (accepted, denied, or withdrawn by the applicant). The initial HMDA report indicated that mortgage applicants from black and Hispanic households were systematically denied mortgage loans at a higher rate than applicants from white households with similar incomes. HMDA data released since 1991 have showed essentially the same disparate rejection rate. This information has garnered much public concern. It has been argued by leading industry groups and individuals in government and academia, however, that it

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would be inappropriate to draw the conclusion from these releases that mortgage lenders actively discriminate against minorities. This is because the HMDA data do not take into account information crucial to credit decisions, such as the loan applicant's credit history, other debts, and employment history (Hunter & Walker, 1995). Partly in response to this debate, the Federal Reserve Bank of Boston conducted a study of mortgage denial rates in the Boston metropolitan area using a much wider range of loan application data (Munnell, Browne, McEneaney, and Tootell, 1992). By taking account of the personal characteristics of the borrowers, the Boston study reduced the magnitude of discrepancy for black and Hispanic applicants from 2.7 times the white denial norm to 1.6 times. Thus, while allowing for differences in loan applicant wealth and credit history decreased race-related differences in mortgage denial rates, it did not eliminate them. The impact of race remained statistically significant.

Utilizing the same HMDA data as the Boston study, the Cultural Affinity study examined whether loan officers perceived such objective information as credit history, reputation and financial leverage differently for minority applicants than for whites (Hunter & Walker, 1995). The empirical results suggest that lenders do treat objective loan application information differently, depending on the race of the applicant.

III. Description of the study

Study questions

This study provides information on lending patterns in the census tracts that comprise St. Louis City. The data was drawn from the Federal Reserve's Home Mortgage Disclosure Act data for 1992 and 1994. This study begins with a presentation of the descriptive statistics on home mortgage lending in the census tracts of St. Louis City for those years. The second part of the study is analytical, asking the following questions: 1) Are race and income predictive of mortgage loan denials?, 2) Is neighborhood minority composition predictive of mortgage loan denials?, 3) Is neighborhood income level predictive of mortgage loan denials?, and 4) Is neighborhood homeownership level predictive of mortgage loan denials? We hypothesized that minority race, lower income, higher neighborhood racial minority levels, lower neighborhood income levels and lower neighborhood homeownership rates will be all be predictive of mortgage loan denial rates.

The data set

The study used 1992 and 1994 mortgage application data collected under the Home Mortgage Disclosure Act for the St. Louis Standard Metropolitan Statistical Area. The 1992 data set had a total of 2,444 applications while the 1994 data set had a total of 3,620 applications. 707 and 693 cases with missing data were deleted in 1992 and 1994 respectively.

Definition of variables

The study examined the following variables included in the HMDA data: **loan amount,** the amount for which the applicants applied, **applicant income,** the annual

income of the applicants, **applicant race**, **applicant sex**, **action,** whether the loan was denied or not denied, **income ratio**, the median income of the neighborhood compared to the MSA median income, **minority percentage,** the percentage of a neighborhood's population comprised of minority membership, **loan type,** the agency which insured the home loan, **denial reason,** the primary reason given by the bank for denial of the loan, **owner occupation**, the number of owner occupied homes in each census tract. In the 1994 data set, we also accessed a variable called **loan purchaser**, which provided information on who purchased loans from lenders. Of these variables, loan amount and applicant income were corrected for skewness. Missing data for applicant income were set to the median applicant income levels.

New variables were created from the data set as well. The variable **Black/Hispanic** divided the data set into those applicants who were Black or Hispanic and those who were not. Applicant income was made into a categorical variable, **categorical income,** which divided applicants into four income groups. The variable **minority neighborhoods** divided neighborhoods into those with more and those with less than 15% of minority residents. Similarly, **poor neighborhoods** divided neighborhoods into those with median incomes above and below 80% of the MSA median income. **Homeownership** divided neighborhoods into those with more and those with less than median levels of homeownership.

The research procedures

The study was designed to provide descriptive information on lending patterns in St. Louis and to provide an empirical test of the ability of race, income, and neighborhood status to predict home mortgage denial rates. The descriptive statistics

were produced through univariate analyses of the key variables of interest using the SAS statistical analysis package. Logistic regression was used to establish the likelihood of differences in loan denial by race, neighborhood characteristics and homeownership levels.

IV. Findings

Our study found the following for 1992 and 1994, reported below and then compared. The findings include: A) Aggregate lending data for 1992 and 1994, B) Denial rates by race and income, C) Denial rates by neighborhood racial composition, neighborhood income levels and neighborhood homeownership rates for 1992 and 1994.

A. Aggregate Lending Data

Appendix A below provides aggregated lending data for 1992 and 1994 and then provides comparisons through percentage changes. Note that overall, minority applicants did better in 1994, both in terms of numbers/percentage of applicants and in terms of denial rates. Women were also more likely to apply for loans in 1994. Also, note that in 1994, little data was submitted on denial reasons compared to 1992.

B. Denial Rates By Race and Income

Logistic regression models were executed with 1992 data in which race and income were used to predict loan denial rates. The model had a good fit with the data (x^2=92.6 with 2 df; p=0001). Further each of the variables was predictive of loan denial. While controlling for income, the odds of loan denial for Blacks and Hispanics were 2.2 the odds of denial for non-Black and Hispanic applicants. While controlling for race, the odds of denial for low income applicants were 2.6 the odds of upper income applicants.

Similarly, 1994 data indicated that minority and low-income candidates were

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more likely to be denied home loans. Again the model was significant (x^2= 104.74 with 2 df; p=.0001). The odds of loan denial for Black/Hispanic candidates were 1.9 the odds of non-Black/Hispanic candidates. The odds of low-income candidates were 3.2 the odds of loan denial of the wealthiest applicants. Thus the strength of the relationship between race and loan denial was weaker in 1994 than in 1992, while the relationship between income level and loan denial was stronger in 1994 than 1992.

C. Denial Rates and Neighborhood Conditions

Next a logistic regression was executed for 1992 data in which neighborhood racial composition, neighborhood income level, and homeownership rates were used to predict mortgage denial rates. The model fit the data well (x^2=97.173 with 3 df; p=.0001). All of the variables were significantly related to loan denial. First, the odds of loan denial for applicants for homes in poorer neighborhoods was 2.2 the odds of those in non-poor neighborhoods. Second, the odds of loan denial of applicants for homes in minority neighborhoods were 1.4 the odds of those in non-minority neighborhoods. Finally, the odds of loan denial of applicants for homes in neighborhoods with lower levels of homeownership were 1.4 the odds of those in high homeownership level neighborhoods.

The same regression was executed with the 1994 data set. While the model did demonstrate good fit with the data (x^2=84.74 with 3 df; p=.0001), only neighborhood income levels and homeownership rates predicted loan denial. Neighborhood racial composition level was not related to loan denial. The odds of loan denial for applicants for homes in poorer neighborhoods were 2.4 the odds of applicants for homes in wealthier neighborhoods. The odds of denial for applicants for homes in neighborhoods

with lower levels of homeownership were 1.2 the odds of those in high level homeownership areas. In 1994, as a predictor of loan denial neighborhood minority composition fell out of significance, homeownership level declined slightly, and neighborhood income level increased slightly.

Discussion

Overall, we can say that St. Louis 1992 and 1994 HMDA data demonstrate support for almost all of our hypotheses. Racial minorities and lower income citizens are more likely to be denied home loans. Further, neighborhood level analysis indicates that poorer neighborhoods, minority neighborhoods, and neighborhoods with lower homeownership levels are also more likely to be denied home loans.

For the individual level variables of race and income, our findings are consistent with those in other cities that demonstrate that minorities and the poor are less likely than non-minorities and non-poor people to receive loans. Our study does suggest some differences exist between data sets in terms of the strength of these relationships. The likelihood of denial based on race, though not income level, decreases in 1994 to 1.9 from 2.6. This is significant and encouraging, and even more so coupled with the increase in absolute and relative numbers of minority applicants for home loans. Indeed, the percentage of minority applicants in the 1994 data set (41%) is moving closer to the level of minorities (50%) who reside in St. Louis City. These indicators suggest that the CRA requirements monitoring lender behavior are assisting minorities. The fact that poorer citizens appear to be growing less likely to receive loans is troubling however, as this group and the neighborhoods they inhabit are clearly in need of access to credit.

The 1992 and 1994 data both demonstrate that relationships exist between

neighborhood level variables and loan denial rates. Neighborhood minority composition was positively related to denial only in 1992; in 1994 it fell out of significance, perhaps reflecting the declining loan denials among individual minority applicants. Low neighborhood homeownership levels predicted loan denial in both samples, suggesting support for the idea that homeownership promotes further investment in neighborhoods (Sherraden, 1991). Finally, neighborhood income levels were the strongest predictor in both data sets suggesting tentative support for the concentration of poverty thesis offered by Wilson (1987). However, it is difficult to know whether this is an artifact of lower income levels of applicants, or if other neighborhood conditions (infrastructure, crime rates, etc.) associated with poverty might also be impacting lending decisions.

V. Policy implications

Several policy implications follow from the above analyses.

Additional amendments to HMDA are needed. While the HMDA database has helped to fuel the momentum for research and enforcement activity in regard to mortgage lending biases, more information on applicant characteristics, characteristics of the property in question, and terms of the loan are needed. Currently, HMDA data will allow researchers to identify patterns of lending by race and income, but it does not identify other factors which might correlate with denial. Such data could suggest guidelines for programs and policies to meet the credit needs of minority and low-income applicants.

Although the Community Reinvestment Act (CRA) is helping to bring credit into historically underserved communities, more remains to be done. Community reinvestment is not something to be "achieved" at any one point in time, but is rather a commitment to an ongoing process of assessing and meeting changing financial needs.

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Community organizations in St. Louis and other major cities have used CRA as a tool to negotiate innovative underwriting guidelines and marketing strategies with banks that address the specific needs of low and moderate income borrowers. At the same time, recent analyses similar to the one discussed in this report have found that minority mortgage applicants are rejected more often than similar white prospective borrowers, and poor and minority neighborhoods are more likely to be denied home loans. Lending decisions remain too vulnerable to false assumptions about who is credit worthy to remove a tool like CRA. Therefore CRA needs to remain intact.

Collaborative efforts on the part of public and private entities should be made to support new and existing programs aimed at minority and low income mortgage seekers. Such programs should work closely with potential applicants guiding them through the entire mortgage lending process. At the same time these programs should work with mortgage lenders helping them to develop creative lending and marketing strategies aimed at minorities and low-income people.

Policy implications specific to St. Louis follow from this report. Our findings indicate that while minority applicants are doing better in the mortgage market, the loan approval rates of low-income people are not improving in St. Louis. These applicants, and the neighborhoods in which they live, must be targeted for assistance in receiving quality home loans. This process could be facilitated in several ways.

First, a working committee on increasing homeownership in St. Louis should be formed to coordinate the activities of those agencies involved in mortgage lending and low-income housing. This committee should establish the goal of increasing the homeownership rate among minorities and low-income people by 10%. Second, the

committee should identify those neighborhoods that could most benefit from the stabilization impacts of concentrated homeownership. Finally, increased funding is necessary to provide fiscal support for programs that assist low to moderate income citizens to become homeowners.

VI. Research implications

While this study outlines general trends in mortgage lending that are consistent with those found in the empirical studies of other cities, more research is needed before we can explain the processes by which mortgage lending decisions are made. This is due to a) the vast amount of missing data in the HMDA data sets, b) the number of missing variables that result in underspecified models and, c) the absence of qualitative research that would allow improved understanding of loan officer decision making.

First, HMDA has a great deal of missing data due to exceptions to HMDA reporting on portfolio loans, bank employee loan applications, and exemptions for smaller sized institutions. Missing data is problematic and reduces the strength of conclusions that can be drawn. As noted above, HMDA reporting requirements should be tightened to allow monitoring institutions better data for analysis.

Second, the absence of a variety of variables that might explain loan decisions results in underspecified regression models. Community researchers do not have access to data such as loan applicant credit history, employment history, debt to income ratio, family size, and collateral. Such missing data do explain some of the variance in loan denials (Munnell et al, 1992). Such data should be more easily available, or studies should be undertaken replicating the Boston study in other cities.

As noted above, the lack of information about neighborhood conditions in the

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HMDA data is also of concern. While our model demonstrates that neighborhood income levels predict loan denial, this is a fairly crude indicator of neighborhood conditions. Further research should be carried out with neighborhood conditions more clearly elaborated and defined. Such efforts could be modeled after recent neighborhood research (Pandey & Coulton, 1994).

Finally, qualitative research should be conducted in this area. Interviews and ethnographies could help us to understand the institutional and subjective forces that influence loan officer decision making. It could also be useful to qualitatively study loan applicants' behavior in preparing and applying for loans, to see if the behaviors, attitudes or strategies of the applicants' influence their likelihood of loan denial process.

VII. Conclusions

Our study found, consistent with past research in other cities, support for the hypotheses that race, income and neighborhood conditions are predictive of mortgage lending decisions in St. Louis in 1992 and 1994. Because of the difficulties associated with the HMDA data set, and the absence of other variables that would allow a more fully specified model, we cannot draw definitive conclusions about the reasons for differences in denial by race, class and neighborhood.

Further research will be needed to more fully understand the factors that influence mortgage lending decisions. It appears that for racial minorities in St. Louis, if not for the poor, that mortgage lending conditions improved between 1992 and 1994. This is an encouraging sign, and suggests that the CRA is working toward leveling the playing field between minorities and non-minorities in the home mortgage market. Continued and even expanding monitoring of HMDA data will be necessary to make certain that poor

and minority communities have access to the credit and investment necessary for

economic development.

Appendix A:
1992 and 1994 Aggregate Bank Data by Totals and %

	1992	1994	Difference
Loan Applications	2,444	3,620	+1,176
Missing Data	707	693	-14
Median Loan Amount	$50,000	$49,000	-$1,000
Median Applicant Income	$31,000	$30,000	-$1,000
Loans Granted	1,692 (69.2%)	2,480 (68.5%)	-.7%
Loans Denied	456 (18.7%)	511 (14.1%)	-4.6%
Loans Withdrawn	184 (7.5%)	301 (8.3%)	+.8%
Non-Minority Applicants	1,890 (77.3%)	2,496 (69%)	-8.3%
Non-Minority Applicants Denied	286 (15.1%)	271 (11%)	-4.1%
Black/Hispanic Applicants	554 (22.7%)	1,124 (31%)	+8.3%
Black/Hispanic Applicants Denied	170 (30.7%)	236 (21%)	-9.7%
Male Applicants	1,746 (71.4%)	2,410 (66.6%)	-4.8%
Female Applicants	694 (28.4%)	1,204 (33.3%)	+4.9%

Bank Data by Totals continued -

	1992	1994	Difference
Loan Type:			
Conventional Loan	1,504 (61.5%)	2,178 (60.2%)	+1.3%
FHA	832 (34%)	1,212 (33.5%)	-.5%
VA	107 (4.4%)	230 (6.4%)	+2%
FMHA	1 (0%)	0 (0%)	No Change
Denial Reasons:			
Missing or NA	1,417 (58%)	3,219 (88.9%)	+30.9%
Employment History	436 (17.8%)	23 (.6%)	-17.2%
Debt to Income Ratio	306 (12.5%)	77 (2.1%)	-10.4%
Credit History	85 (3.5%)	219 (6%)	+2.5%

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