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Mortgage Lending: Is Gender a Factor?

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Abstract

In promoting well-being for women and female-headed households, social policy analysts are increasingly attending to wealth accumulation rather than focusing solely on income. Homeownership equity is a form of wealth that may be especially helpful for low-income women. This paper analyzes 1992 Home Mortgage Disclosure Act data for the city and county of St. Louis. Our primary hypothesis was that women, controlling for marital status, income, and race, would be more likely to be denied home loans. The findings from this data set contradict our hypothesis and suggest that men are slightly more likely than women to be denied mortgage loans. Discussion centers around reasons for this counter-intuitive finding and calls for more research on these matters.

Poverty rates among female headed households have dramatically increased in the last twenty years (Abramovitz, 1988), prompting scholars to grow concerned about the resulting impacts on women and children. While attention has focused on female disadvantage in income and labor markets, in recent years it has become clear that women are also less likely than men to accrue wealth (Swigonski, 1996, Smith, 1990). This wealth disparity has equally serious implications, for as wealth inequities widen, female headed households experience greater economic, social and psychological deprivations. However, relatively few studies explore the mechanisms that account for gendered wealth inequities. This study attempts to do so by exploring differences in mortgage denial rates between male and female applicants.

Section one reviews studies of the economic, social and psychological impacts of homeownership, and concludes that inequities in homeownership rates are detrimental for female-headed households. Section two reviews studies of mortgage lending discrimination, and points to the fact that gender has been overlooked, perhaps due to the glaring problem of racial bias in lending. Section three explains the research questions, data set, variables and research methods. Section four is a presentation of findings. The paper concludes with implications for further research.

I. Benefits of Homeownership

While income poverty is recognized as a causal factor in an array of social problems, wealth inequity is less so. Sherraden (1991) suggests that American social policy has overemphasized income and consumption while neglecting wealth accumulation. Arguing that people usually do not spend their way out of poverty, Sherraden suggests that poor households would benefit from policy that allowed and fostered the

accumulation of assets through savings, business development and homeownership. Savings, stored wealth--assets--are necessary for the kind of cushioning and security needed to exit poverty. An asset based welfare policy, in this sense, would be superior to anti-poverty policy based solely on income.

Further, Sherraden suggests that there are additional benefits to asset accumulation. He suggests that asset accumulation alters the thinking and behaviors of the poor, allowing them to experience the world in new ways. The result is a different approach to the world that may result in a virtuous cycle in which asset accumulation and positive behaviors reinforce one another. The behavioral effects of asset accumulation he suggests include: greater future orientation, development of other assets, increased personal efficacy, and increased community and political participation.

Theoretical and empirical studies suggest that homeownership may be a specific asset which provides social, psychological and economic benefits to individuals and households. Homeownership appears to confer social status (Rakoff, 1977; Perin, 1977) wealth accumulation (Oliver & Shapiro, 1995; Gyourko & Linneman, 1993), enhanced life satisfaction (Rohe & Stegman, 1994a), increased neighboring and community involvement (Rossi & Weber, 1996; Rohe & Stegman, 1994b), decreased residential mobility (Rohe & Stewart, 1996), improved mental and physical health (Rossi & Weber, 1996; Page-Adams & Vosler, 1995) and increased well-being of off-spring (Green & White, 1994). While some studies do not support these effects, or support them only weakly, a growing empirical literature suggests that homeowners enjoy benefits from their tenure status.

Studies of homeownership relevant to women demonstrate similar effects. Peterson (1980) and Page-Adams (1995) find that for white couples, homeownership (rather than income) is negatively related to marital violence. Cheng (1995), in an analysis of National Survey of Families and Households (NSFH) data, reports that homeownership among female headed households reduces likelihood of poverty in adulthood for the following generation.

Thus, it is important to know if women are discriminated against in mortgage markets, because such discrimination may widen economic and social inequalities between men and women, and between single and married heads of household.

II. Mortgage Lending and Discrimination

Recent census data suggest that inequalities do exist in terms of tenure status. Overall, 65% of all households in 1995 owned their homes. Among married couple households, 79% were homeowners, while 55% of households headed by men without wives did so. Only 45% of households headed by women without husbands owned their homes (US Bureau of the Census, 1995). This suggests that single female headed households are less likely to benefit from homeownership's economic and social benefits. Since we know that mortgage markets have acted in discriminatory ways against racial and ethnic minorities, it makes sense to assess whether this tenure differential between men and women might also be a result of mortgage market discrimination.

Historical Relationship of Race and Mortgage Lending

When Congress, in the 1970s, turned its attention to equal credit opportunity in housing and consumer finance, there was much evidence that minorities and minority neighborhoods were discriminated against in a dual housing finance market. Minorities often lacked 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 have been 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 (as administered) 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 (which they must identify on a map using specific, identifiable geographic boundaries) including low- and moderate-income neighborhoods (Squires & O'Connor, 1993).

Empirical Studies

Discrimination in mortgage lending has been a leading issue of discussion in academic and housing policy arenas for a long time. There has been an ever increasing number of studies regarding credit availability problems in inner cities. Questions related to the issue of redlining (the practice whereby lenders refuse to make mortgage loans in geographic areas characterized by heavy concentration of racial or ethnic minorities regardless of the creditworthiness of the loan applicants) have 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 in numerous studies, even after 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 racial composition of neighborhoods and race of applicants with the number and dollar amount of mortgage

lending (Bradbury, Case, & Dunham, 1989; Shlay, 1989; Munnell, Browne, McEneaney, & Tootell, 1992). However, as noted by Benston (1981), many studies of redlining have been inadequate since they have failed to control sufficiently for borrower characteristics (see also Benston & Horsky, 1992). In addition, as noted by Holmes & Horvitz (1994), many studies do not adequately control for the risk differences across different geographic areas. When controlling for borrower characteristics and neighborhood risk, more recent studies of redlining have produced mixed results. 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 1990 HMDA data 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 shown essentially the same disparate rejection rate. This information has generated much public attention and concern. However, housing industry groups and some individuals in government and academia have argued that it would be inappropriate to draw the conclusion from HMDA data 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 (Munnell, Browne, McEneaney, and Tootell, 1992) using a much wider range of loan application data. When 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 rate to 1.6 times. Thus, controlling for differences in loan applicant wealth and credit history decreased race-related differences in mortgage denial rates, but it did not eliminate them and the impact of race remained statistically significant.

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

Of all the studies cited in this paper, only the latter two (the Boston study and the Cultural Affinity study) analyzed the influence of gender on home mortgage lending decisions. In both studies gender was found not to be statistically significant.

III. Description of the Study

Research Questions

Feminist scholars note that women are less likely to control economic resources than are men (Bergman, 1986; Page-Adams, 1995; Spalter-Roth, 1983). This occurs through women's disadvantaged position in the labor force (Bergman, 1986; Tomaskovic-Devey, 1993) and limited access to credit (Brush, 1992; Keeley, 1990). Within households, women may also have less control over economic resources and decision making (Lundberg & Pollak, 1993). This perspective led us to predict that women, like racial minorities, may be more likely to be denied home loans than men. Thus, our research questions were: 1) Are women more likely than men to be denied home mortgage loans? And if so, 2) Are women more likely than men to be denied home mortgage loans when controlling for race, income, and marital status? In pursuing these questions it was hypothesized that poor, single, minority women would be most likely to be denied home mortgage loans.

The Data Set

This study uses 1992 mortgage application data collected under the Home Mortgage Disclosure Act for the St. Louis Standard Metropolitan Statistical Area. The data set included only census tracts for St. Louis City and County area. A total of 21,874 cases were in the original data set. After deleting cases missing both applicant gender and race information, the sample size was reduced to 16,249. (Information was sometimes missing due to HMDA regulations which allow banks not to report full information on portfolio loans.)

Definition of Variables and Descriptive Statistics

Dependent Variable:

The dependent variable in this study was a dichotomous variable, defined as whether or not an applicant was denied approval of an owner occupied home mortgage. In our sample (N=16249) 88% of loan applicants were granted mortgage loans, while 12% were denied. On the basis of gender, 14% of women who applied were denied, whereas 11% of men were denied.

Independent Variables:

Of primary interest in this study was the examination of denial patterns by applicant gender. In our sample 21% of applicants were women and 79% were men. In addition to gender, a number of independent variables were used to assess denial rates:

Loan Amount. The amount for which applicants applied ranged from \$3,000 to \$1,100,000. One case was deemed an extreme outlier and was truncated at \$1,100,001. Mean and median loan amounts were \$92,000 and \$75,000 respectively (std.=69,000). On average women applied for smaller loans at an average loan amount of \$65,000 and median of \$58,000. Men applied for loans on average of \$98,000 and a median of \$81,000.

Applicant Income. This variable reflects the annual income of applicants. Missing values (n=269) were set at the median income level of \$43,000. Reported applicant incomes ranged from \$1,000 to \$1,000,000. Seven cases were deemed extreme outliers and were truncated at \$1,000,001. Mean and median applicant incomes were \$55,000 and \$43,000 respectively (std.=57,000). Women's mean and median incomes were \$36,000 and \$30,000 respectively, while men's mean and median income were \$61,000 and \$48,000

respectively. In order to assess denial patterns by income group, the income variable was categorized into 4 levels--those earning \$60,000 and above, those earning \$40,000-\$60,000, those earning \$20,000-\$40,000 and those earning \$20,000 or less.

Applicant Race. The race variable was categorized dichotomously into White and Black/Hispanic applicants. 71% of applicants were White men, 16% White women, 8% Black/Hispanic men, and 5% Black/Hispanic women.

Co-applicant. This variable was dichotomous indicating whether or not an applicant had a co-applicant. 66% reported having co-applicants whereas 34% did not have co-applicants. 78% of men had co-applicants and 17% of women had co-applicants. This variable was used as a proxy for marital status.

IV. Results

Bivariate Analysis

Bivariate correlations between the independent variables are presented in Appendix A. While there are significant associations between all independent variables, an analysis of coefficients demonstrates no major multicollinearity problems.

Logistic Regression

Our preliminary step was to execute a logistic regression using only applicant sex as a predictor of denial rates. As show in Table 1 the analysis demonstrates a good fit between the model and the data ($\chi^2=12.255$; $df=1$; $p<.001$). Women have 1.22 the odds of men for mortgage loan denial.

Table 1
Model 1: Denial by Gender

| Variable | b | Wald Chi-square | Odds Ratio | Confidence Limits |
|---|-------|-----------------|------------|-------------------|
| Gender | .2018 | 12.5810* | 1.22 | 1.09 - 1.37 |
| N=16,249 | | | | |
| Model Chi-square: 12.255, df=1, p=.0001 | | | | |

*p<.05

In order to test for the impact of control variables on denial rates, we ran two subsequent models. In the first, we added the race variable. As shown in Table 2 the analysis demonstrates a good fit between the model and the data ($\chi^2=443.211$; $df=2$; $p<.001$). Addition of the race variable, however, moves gender out of significance. The odds of Blacks and Hispanics is 3.6 the odds of whites for loan denial.

Table 2
Model 2: Denial by Gender and Race

| Variable | b | Wald Chi-square | Odds Ratio | Confidence Limits |
|--|--------|-----------------|------------|-------------------|
| Gender | -.0014 | .0005 | .999 | .89 - 1.12 |
| Race | 1.2680 | 480.8634* | 3.554 | 3.17 - 3.98 |
| N=16,249 | | | | |
| Model Chi-square: 443.211, df=2, p=.0001 | | | | |

*p<.05

Next we executed a more fully specified model of loan denial testing the effects of gender controlling for race, income, and marital status. Again, the analysis indicates that the model has a good fit with the data ($\chi^2=692.319$; $df=4$; $p<.001$). As shown in Table 3 all of the variables have significant associations with loan denial. Race and income are positively associated with denial in the model. This indicates that racial minorities are more likely than whites and poorer applicants more likely than wealthier applicants to be denied loans. Gender in this model reverses direction, and men have 1.18 the odds of women for mortgage loan denial. Also, married couples are more likely than single

applicants to be denied home loans. These findings suggest our hypothesis was inaccurate, and this is discussed in greater detail in the next section.

Table 3
Model 3: Denial by Gender, Race, Income and Marital Status

| Variable | b | Wald Chi-square | Odds Ratio | Confidence Limits |
|--|--------|-----------------|------------|-------------------|
| Gender | -.1686 | 5.6865* | .845 | .74 - .97 |
| Race | 1.0807 | 329.2187* | 2.947 | 2.62 - 3.31 |
| Income | .4580 | 240.1510* | 1.579 | 1.49 - 1.67 |
| Marital Status | -.1987 | 9.8138* | .820 | .72 - .93 |
| N=16,249 | | | | |
| Model Chi-square: 692.319, df=4, p=.0001 | | | | |

*p<.05

In order to test for the possibility of significant interactions between the independent variables in the model, logistic regression models including interaction terms were tested. Gender by marital status is significant in relation to the outcome variable (Table 4).

Exploring the interaction further revealed that marital status moderates the relationship between gender and loan denial. That is, married women who apply as primary applicants are more likely than single women to be denied loans. Marital status does not play a significant role in loan denial for male applicants. Our data suggest that secondary applicants may be detrimental to married women in their loan application process. It may be that married women are being hurt by the credit ratings of male partners. Given the novelty of this finding, the need for replication in other data sets is suggested.

Model 4: Denial by Gender, Race, Income, Marital Status and Gender x Marital

| Variable | b | Wald Chi-square | Odds Ratio | Confidence Limits |
|--|--------|-----------------|------------|-------------------|
| Gender | .3467 | 5.8988* | 1.414 | 1.07 - 1.87 |
| Race | 1.0833 | 330.0566* | 2.954 | 2.63 - 3.32 |
| Income | .4545 | 238.1508* | 1.575 | 1.49 - 1.67 |
| Marital Status | -.1060 | 2.5247 | .899 | .79 - 1.03 |
| Gender x Marital | -.6476 | 15.9562* | .523 | .38 - .72 |
| N=16,249 | | | | |
| Model Chi-square: 707.209, df=5, p=.0001 | | | | |

*p<.05

V. Discussion and Conclusions

Our study indicates that, controlling for the variables thought most likely to impact mortgage lending decisions, men are more likely than women to be denied home loans. Because this finding is not what we had hypothesized, we have examined additional empirical and theoretical explanations. While not included in our predictive model, we also examined whether neighborhood conditions or a loan amount to income ratio might explain the finding. These variables were not significantly related to denial.

It is important to note that we must look cautiously at these findings because the HMDA data have several limitations. There are missing data, and a limited number of explanatory variables. Because of this, and because of the counter intuitive nature of our findings, our study raises more questions than it answers.

Debt to income ratios, credit history, employment history, collateral and age have all been suggested as explanatory variables which might explain the finding that men are more likely to be denied loans, but such data are not available. Shapiro (personal communication, 1997) suggested that men have slightly worse credit histories than women--this might be especially helpful for understanding the differential denial rates. This raises a number of questions: Is there empirical evidence that women have better credit histories overall than men? Do these credit ratings account for lending decision differentials in our study? Controlling for credit rating, is gender a factor in loan denial?

Our finding that married women who are primary applicants may be more likely than single women to be denied loans suggests that the household finances of this subgroup should be further investigated and raises the question: Are married women who are primary applicants for home loans being hurt by negative credit ratings of male partners?

One would assume that the additional income stream of a second adult would decrease rather than increase the likelihood of denial. The income and credit histories of these co-applicants should be studied more carefully.

If women are indeed more likely to receive home loans, why are there fewer single female than single male homeowners? The fact that single female applicants are not more likely to be denied is fascinating in light of national census information that suggests that this group is the least likely to own homes. As noted earlier, 79% of married couple households, 55% of male headed households, and 45% of female headed households own their homes. If mortgage market discrimination does not explain this differential, we should examine why the 55% of female headed households who rent are missing out on the social and economic benefits of homeownership. Could it be that the single women applying for mortgage loans in our sample are not representative of the general population of single women? Are there other economic, social, psychological or institutional barriers to homeownership in female headed households?

Finally, are women being approved for loans in neighborhoods in which homes will accumulate value? It may be that women are applying for lower cost homes and are more likely to apply for loans in minority and poor neighborhoods. In our sample, 17% of women applied for loans in poor neighborhoods and 9% of men applied for loans in poor neighborhoods. 30% of women applied for loans in minority neighborhoods whereas 18% of men applied for loans in minority neighborhoods. This suggests that women may be investing in property that is less likely to accumulate equity and may also be getting lower quality loans (i.e., those with higher interest rates) than are male applicants and

applicants in better neighborhoods (Smith, 1990). Again, this calls for further research into the specificity of loan application processes by women.

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Appendix A: Pearson Correlation Coefficients

| | Gender | Race | Income | Loan Amount | Poor Nghbrhd | Minority Nghbrhd |
|-----------------------|--------|--------|--------|-------------|--------------|------------------|
| Gender | 1.000 | | | | | |
| Race | .152* | 1.000 | | | | |
| Income | .314* | .225* | 1.000 | | | |
| Loan Amount | -.198* | -.180* | -.562* | 1.000 | | |
| Poor Neighborhood | .100* | .289* | .271* | -.229* | 1.000 | |
| Minority Neighborhood | .123* | .514* | .218* | -.193* | .400* | 1.000 |

***p<.001**