

Lender Characteristics and Racial Disparities in Mortgage Lending

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Abstract

Debates over racial disparities in mortgage lending have intensified recently. Most discussions have focused on the demand side: the characteristics of borrowers, the properties they intend to purchase, and the surrounding neighborhoods. Less attention has been paid to the supply side: the characteristics of lending institutions. This article examines how mortgage loan approval rates for African-American applicants in one metropolitan area are affected by three lender characteristics: racial composition of the lender's work force, institution type (commercial bank or thrift), and size (number of employees and number of mortgage loans).

Controlling for several borrower characteristics, we find that the approval rate for African Americans increases with the proportion of minority employees, that thrifts approve a higher proportion of applications by African Americans, and that the effects of size depend on the institution type and the measure of size used. We conclude with recommendations for future research and policy initiatives.

Keywords: Fair lending; Racial discrimination; Lender behavior; Labor market

Introduction

Debates over the role of race and racial discrimination in mortgage lending have become increasingly heated in recent years. The persistence of racial disparities in the market is widely acknowledged, but the causes of those disparities, the extent to which discrimination contributes to them, and what should be done to ameliorate them are vigorously contested.

Despite the wide-ranging discussions reflecting various political and ideological perspectives, most of the attention has focused on the demand side: the financial characteristics of borrowers and the condition of the properties they are trying to buy as well as the neighborhoods where the properties are located. Little systematic research has addressed the supply side: the characteristics of lending institutions. Yet lenders within a metropolitan area differ dramatically in the level of services they provide to racial minorities, low-income communities, and other markets that financial institutions are often accused of serving unfairly if at all.

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Lenders also differ significantly in several structural and organizational dimensions of their operations. Some lenders are commercial banks; others are thrift institutions; still others are nondepository mortgage banks and brokers. Some are large institutions with several branches throughout a metropolitan area, while others are small neighborhood lenders that operate only one or a few offices. Some are locally owned; others are subsidiaries of holding companies located in other regions of the country or even in other countries. Some provide extensive counseling for home buyers, work closely with community organizations, participate in various public and private programs aimed at low-income buyers, apply flexible underwriting guidelines, and market their products to all communities in a metropolitan area. Others provide little more than “plain vanilla” loans to a predominantly suburban clientele, with few support services. Some employ diverse work forces that reflect the population of the community; others have virtually all-white work forces.

One question that arises is whether characteristics of financial institutions significantly affect the flow of credit and the loan approval process even after the characteristics of borrowers and potential borrowers in the institutions’ service areas are controlled for. This article examines three such institutional characteristics: the racial composition of the institution’s work force, the type of institution (commercial bank or thrift), and the size of the institution (the number of employees or loan originations).

Because housing and mortgage markets are primarily local (Shlay, Goldstein, and Bartelt 1992), we chose to examine a single community. Although most lenders are regulated by federal agencies and operate in an increasingly global financial marketplace, underwriting decisions in the home mortgage market remain primarily the province of local actors responding to local conditions.

Our study investigated the Milwaukee metropolitan area. Milwaukee institutions have been the target of anti-redlining campaigns for more than 20 years, partly because of the wide variation in the services local lenders provide to different communities. Racial minorities account for approximately 15 percent of the population in the metropolitan area but receive less than 4 percent of mortgage loans. Similarly, residents of low-income neighborhoods constitute approximately 12 percent of the population but receive less than 5 percent of loans. The percentage of loans to racial minorities originated by the largest banks and thrifts varies from 0 for approximately one-quarter of these lenders to more than 5 percent for over one-fifth of them (one bank made almost 30 percent of its loans to African-American borrowers). Loans in low-income areas vary from 0 for one-fifth of the sample to more than 10 percent for another one-fifth.

In the 1980s Milwaukee recorded the largest racial gap in mortgage loan rejection rates among all major U.S. metropolitan areas. African Americans were four times as likely to be rejected as whites during these years, a disparity that has persisted into the early 1990s. Within the past five years, however, many partnerships for reinvestment have emerged among lenders and community groups. In many ways, Milwaukee reflects the national debate over redlining and racial discrimination in mortgage lending (Glabere 1992; Squires 1992).

Literature Review

Racial disparities in mortgage lending have been documented by various university researchers (Bradbury, Case, and Dunham 1989; Hula 1991; Liebowitz 1993; Shlay, Goldstein, and Bartelt 1992), government agencies (Canner and Smith 1992; Munnell et al. 1992), journalists (Dedman 1988; Everett, Gallagher, and Blossom 1988), community advocates (National Community Reinvestment Coalition 1994; Woodstock Institute 1993), and others (Carr and Megbolugbe 1993; Discrimination 1992; U.S. Department of Housing and Urban Development 1993). Their studies vary widely in sophistication of the methods, selection of dependent and independent variables, time frame, geographic focus, and other aspects of the research. Yet almost all focus on the characteristics of applicants and the properties and neighborhoods in which they want to live—the demand side of the equation. Some studies distinguish between commercial banks and thrifts or between small and large institutions, but none have examined the racial composition of the work force. In general, supply-side factors—characteristics of lending institutions—have been neglected as researchers have increasingly dug for more variables that purport to measure the creditworthiness of borrowers.

Schill and Wachter's 1993 review of 13 academic studies published between 1977 and 1992 confirmed this trend. The control variables selected in the studies they identified included the following individual and family characteristics: median income, occupation, gender, marital status, debt level, assets, ratio of housing expense to income, ratio of debt to income, and credit history. Property characteristics included home value, purchase price, and amount of loan requested. Neighborhood characteristics included percentage of owner-occupied houses, percentage of vacant units, median value and age of property, median family income, percentage of households earning more or less than various thresholds, percentage of dwellings built prior to various dates, poverty and welfare rates, number and percentage of single family and multifamily dwellings, crime rate, population and population changes, percentage of married couples with children, percentage of units for sale, and number of lakefront properties. None of the variables identified in these studies referred to any characteristics of lending institutions.

Some small shifts are occurring within the research community toward examining lenders, or at least selected behaviors of lenders. John Yinger (1993, 24) has observed that "the first task of future research is to extend our knowledge of the most basic type of lender behavior, namely the decision to lend." George Galster (1993) has called for expanded paired testing to understand lending practice as one of two "magic bullets" for researching and ameliorating racial disparities.

Given the significant ways lenders differ in their organizational configurations, provision of services, relationships with community groups, and other structural characteristics, a next logical research task is to explore the relationships, if any, between these characteristics of financial institutions and their treatment of minority borrowers and applicants. By analyzing the effects of the racial composition of the work force and the type and size of lending institutions, this article attempts to systematically examine long-neglected features of the mortgage lending market that may well exert a significant impact on racial disparities in that market.

Methodology

Three hypotheses are explored in this article. First, we hypothesize that the approval rate for African-American borrowers increases as the proportion of African Americans in the lender's work force increases. Anecdotal evidence suggests that racial minorities feel more comfortable walking into a financial institution where nonwhite employees are visible (Squires 1992). An African-American loan officer who is involved in the disposition process for the loan application made by an African-American household may be less subject to negative racial stereotypes and discrimination than a white loan officer would be. Hence, if a lending institution has more African-American employees, particularly among those making decisions about the disposition of the loan application, the application by the African American may be more likely to be approved. Moreover, even if the case is not handled by an African-American loan officer, the presence of African-American officers in a lending institution may lead to a higher chance of approval through peer pressure among loan officers.

Our second hypothesis is that thrifts approve a higher percentage of applications by African Americans than commercial banks do. Because mortgage loans constitute a much higher share of lending activity for thrifts than for commercial banks, we surmise that thrifts may review mortgage applications more carefully and therefore more successfully avoid racial bias. Given their greater commitment to mortgage lending, thrifts may also be more eager to work with marginal applicants to increase their mortgage lending business.

Our investigation of the effect of size is more exploratory, since our third hypothesis is that size of institution may yield mixed results. Larger institutions may have more standardized loan review procedures that could eliminate subjective bias against minority applicants. On the other hand, smaller institutions may be able to provide more personal attention and counseling and so approve applications that a more standardized process would deny.

Logit analysis, with the disposition of the individual loan application as a dependent variable, is used to model the relationship between the likelihood that an individual applicant will receive mortgage loan approval and selected characteristics of lenders, controlling for the applicant's socioeconomic characteristics, loan amount, neighborhood quality, and other lender characteristics. The dependent variable of the logit model is whether the mortgage application is approved by the lender (APPROVE = 1 if the loan application is approved and 0 if it is rejected). The independent variables are characteristics of the financial institution, including minority employment variables, applicant characteristics, and property characteristics.

Lending institution characteristics include two measures of size: the number of lender employees (EMP) and the number of home mortgage applications received (HOMELOAN). Minority employment is represented by the percentage of the institution's total work force that is African American (BLKRATIO) and the percentage of professionals and administrators who are African American (BLADRAT). We also distinguish two types of lending institutions: commercial banks (INST = 0) and thrifts such as savings and loan associations or mutual savings banks (INST = 1).

Applicant characteristics include race (RACE = 1 for African American and 0 for white), annual income in thousands of dollars (INCOME), and mortgage loan amount in thousands of dollars (LOANAMT). As a control for the neighborhood characteristics, median home value of the census tract where the property is located (CTVALUE) is also included in the model as an independent variable.

Data

Three data sets were used. First, 1990 EEO-1 reports for Milwaukee-area commercial banks and thrifts provided detailed data on the total number of employees and the racial composition of the work force in each of eight major occupational classifications. Private sector employers with 100 or more employees, employers with 50 or more employees that are government contractors or depositories of government funds, and institutions that issue U.S. Savings Bonds are required to submit an EEO-1 form each year to the U.S. Equal Employment Opportunity Commission.¹ EEO-1 data were obtained for 21 banks and 13 thrifts that provide home mortgages in the Milwaukee metropolitan area. The lenders in this data set accounted for 68.4 percent of all publicly reported mortgage loans in the Milwaukee metropolitan area in 1990.

Because EEO-1 data do not distinguish officials, professionals, managers, sales persons, and technicians by job title, loan approvals could not be analyzed by specific titles such as loan officer or underwriter. As a proxy, officials, managers, professionals, and technicians were grouped together as professionals/administrators for estimating the racial composition of the work force engaged in the loan disposition process. Statistics generated from the EEO-1 data included the percentage of African-American employees at each institution and the percentage of African-American professionals/administrators.

The second data set consists of the Home Mortgage Disclosure Act (HMDA) reports that commercial banks, savings and loan associations, mutual savings banks, credit unions, and mortgage banks are required to submit annually to the appropriate federal financial regulatory agency (Federal Reserve Board, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency, or Office of Thrift Supervision) and to make available to the general public. Each report provides several pieces of information for each mortgage application filed with the institution, including the type (e.g., home purchase, home improvement, multifamily, Federal Housing Administration/Department of Veterans Affairs) and amount of the loan; the income, race,² and gender of the applicant; the census tract of the property; and the disposition of the application (e.g., approved or denied).³

¹ The EEO-1 data were obtained from the Equal Employment Opportunity Commission. All information from individual reports is confidential, as required by Section 709(e) of Title VII. To ensure confidentiality, no individual lending institution is identified.

² The eight race and ethnicity categories in the HMDA data are American Indian or Alaskan Native, Asian or Pacific Islander, black, Hispanic, white, other, information not provided, and not applicable.

³ Loan applications can be approved, approved but not accepted by the applicant, denied, withdrawn by the applicant, closed for incompleteness, or purchased by the financial institution.

Our study was limited to the applications by African Americans and whites for owner-occupied home purchases with conventional loans that were either approved or denied. The 1990 HMDA data set for the Milwaukee metropolitan area comprises 35,422 conventional mortgage loan applications, of which 22,691, or 64.1 percent, were for the purchase of owner-occupied homes. Altogether, 14,473 of these applications were either approved or denied, of which 13,919 were from either African Americans or whites. The 34 lenders in the EEO-1 data set generated 9,333, or 67.1 percent, of these mortgage loan applications.

Finally, since the HMDA data include the census tracts where the properties are located, we were able to use information from a third data set, the 1990 Census of Population and Housing. The census data provide useful information on the characteristics of the neighborhood where the property is located, including the median home value of the census tract. In view of the importance of neighborhood quality for home values, this median value can be expected to be an important determinant in the mortgage loan approval decision.

The descriptive statistics of our data set reveal a large gap between the two racial groups (table 1). The average income of African-American applicants is 63.6 percent of that of whites. The average amount of a mortgage loan applied for by African Americans is 55.6 percent of the average loan amount for whites, and the average home value in the census tract where the housing unit is located for African Americans is 54.4 percent of the average home value in tracts where whites are attempting to purchase a home.

Table 1. Average Characteristics of Applicants by Race

Applicant Race	INCOME (thousands)	LOANAMT (thousands)	CTVALUE (thousands)
White	52.674	77.841	85.575
African American	33.496	43.271	46.533

In general, banks have more employees than thrifts but receive fewer mortgage loan applications (table 2). Banks and thrifts in the sample also varied in their proportions of African-American employees, mortgage loan applications from African Americans, and loan approval rates for African-American borrowers. As a group, banks had higher African-American employment than thrifts, but African-American application rates for mortgage loans and African-American approval rates for mortgages were higher at the thrifts.

Table 2. Average Characteristics of Lending Institutions by Type

Institution Type	EMP	HOMELoAN	BLADRAT	BLKRATIO
Bank	664.77	332.54	2.62	9.08
Thrift	364.33	688.38	1.80	6.15

The proportion of employees who were African American ranged from 0 to 18.1 percent, with a mean of 6.8 percent. For African-American professionals/administrators, the range was 0 to 6.0 percent, with an average of 1.6 percent. For the 21 banks in the sample, African-American employment rates varied from 0 to 18.1 percent, with the industrywide average being 6.2 percent. Aggregating employment among all banks in the sample, the banking industry's work force was 10.3 percent African American. African-American employment at the 13 thrifts ranged from 0 to 15.0 percent, with an average of 5.9 percent. The combined industrywide average for African Americans in the thrift work force was 6.2 percent. Four banks and one thrift had no African-American employees. Five banks and one thrift had only one African-American employee each.

Among all lenders, the proportion of mortgage loan applications that came from African Americans varied from 0 to 20.8 percent, with an average of 6.3 percent. Among home mortgage applications from just those African Americans and whites who were approved or denied, 6.4 percent of the applicants at banks and 8.8 percent of those at thrifts were African American (table 3). African-American applicants at thrifts were approved 73.4 percent of the time, but those at banks were approved only 65.5 percent of the time. The loan approval rate for whites was virtually identical for both types of lenders; banks approved mortgage applications from whites 92.5 percent of the time, while for thrifts the rate was 92.9 percent.

Table 3. Racial Composition of Mortgage Loan Applications to Banks and Thrifts in 1990 from Sample Data

Applicant Race	Number of Loan Applications	Percent by Race	Number Approved	Percent Approved
Banks				
African Americans	226	6.4	148	65.5
Whites	3,292	93.6	3,045	92.5
Total	3,518	100.0	3,193	90.8
Thrifts				
African Americans	512	8.8	376	73.4
Whites	5,303	91.2	4,926	92.9
Total	5,815	100.0	5,302	91.2

Empirical Results

We performed five logit analyses. The first included the whole sample of 9,333 observations. Then, we divided the sample by race and ran logit estimations for each racial group. Finally, we divided the sample by institution type and ran the model for banks and thrifts separately. The results of the logit estimation are reported in table 4.

*Table 4. Estimated Logit Models of Home Mortgage Application Approval
(Dependent Variable: APPROVE)*

Variable	Mean	Whole Sample	Whites Only	African Americans Only	Banks Only	Thriffs Only
Constant		1.39** (0.177)	1.52** (0.247)	-0.800 (0.502)	2.11** (0.247)	9.06** (0.229)
EMP	477.58	0.000175 (0.000110)	0.000145 (0.000127)	0.000300 (0.000229)	0.000687** (0.000138)	-0.00114** (0.000330)
HOMELoAN	554.25	0.0000812 (0.000142)	0.000227 (0.000162)	-0.000378 (0.000329)	-0.00248** (0.000822)	0.00105** (0.000223)
BLADRAT	2.1107	0.0826** (0.0206)	0.0843** (0.0223)	0.113* (0.0541)	0.00346 (0.0498)	0.257** (0.0360)
BLKRATIO	7.255	-0.0671** (0.000933)	-0.0735** (0.00934)	-0.0335 (0.0274)	-0.0345 (0.0221)	-0.0578** (0.0123)
INST	0.62306	0.156 (0.104)	0.00709 (0.114)	0.889** (0.269)		
INCOME	51.158	0.0124** (0.00209)	0.0107** (0.00218)	0.0274** (0.00663)	0.00897** (0.00286)	0.0116** (0.00317)
LoANAMT	75.107	-0.00199* (0.000954)	-0.00179 (0.000994)	-0.00877 (0.000560)	-0.000474 (0.00160)	-0.00199* (0.000954)
RACE	0.0791	-1.67** (0.105)			-1.42** (0.176)	-1.06** (0.134)
CTVALUE	82.488	0.0107** (0.00174)	0.0108** (0.00180)	0.0149 (0.00792)	0.00875** (0.00256)	0.0119** (0.00250)
No. of cases		9,333	8,595	738	3,518	5,815
Log-likelihood		-2,574.0	-2,141.1	-423.8	-976.1	-1,511.6

Note: Numbers in parentheses are standard errors.

* $p < .05$.

** $p < .01$.

The results are consistent with the findings of earlier studies that African Americans are treated less favorably than whites in the home mortgage market. Further, the findings confirm our hypothesis that not only the characteristics of the applicant and the property but also those of the lender are important determinants of the outcome of the review process. In addition, we found that the two types of lending institutions behave differently in the home mortgage market.

Most of the variables that represent applicant characteristics turned out to be significant. The coefficient for applicant income is statistically significant at the 1 percent level and has the expected sign for all five models. In other words, the higher the income, the more likely it is that the loan will be approved. The coefficient for loan amount is significant at the 5 percent level in two models and carries the expected sign, indicating

that applications for smaller amounts are more likely to be approved.⁴ Applicant's race is significant at the 1 percent level in all models, indicating that minority applicants are less likely to have their loans approved. The median home value for the census tract also turned out to be significant at the 1 percent level in four models, indicating that applications for loans on properties in neighborhoods with higher property values are more likely to be approved.

The results with the whole sample are consistent with previous studies that do not include lender characteristics as independent variables. They show that African Americans are less likely than whites to receive mortgage application approval even when the applicant's economic characteristics are controlled for. The racial composition of the lenders' work force (BLADRAT and BLKRATIO) also turned out to be an important determinant. It is interesting to note, though, that the representation of African Americans among administrators and professionals is positively related to the likelihood of the loan approval, whereas the overall African-American employment is negatively related to the likelihood.

The separation of the sample by race reveals interesting contrasts between whites and African Americans.⁵ First, INST is significant at the 1 percent level for the African-Americans-only sample but is not significant for the whites-only sample, suggesting that the likelihood of loan approval is not related to the type of institution (bank or thrift) for a white applicant but that an African-American applicant is more likely to get an approval from a thrift than from a bank. This finding indicates the importance of separate analyses of mortgage approval behavior by institution type.

Second, the estimates for the racial composition variables are bigger for African-American applicants. While BLADRAT is significant in both racial samples, the coefficient is greater in the African-Americans-only sample, implying that higher representation of African Americans among professionals/administrators affects loan approval more for African-American applicants than for white applicants. These results generally confirm our hypothesis that lending institutions with higher proportions of African-American professionals/administrators are more likely to approve applications by African Americans. It is interesting, however, to note that such lenders also are more likely to approve applications by whites, though the magnitude of this relationship is smaller than is that for African-American applicants. We interpret this result as a spillover effect between race and social class. In other words, a lending institution with a higher proportion of minority decision-makers may have developed products or procedures that go beyond the initial screening devices commonly used in traditional predominantly white institutions. These lenders may be more flexible in their mortgage underwriting process and so may be more willing than predominantly white lenders to work with marginal applicants—African American or white.

Third, the coefficient for INCOME in the African-Americans-only sample is more than 2.5 times greater than that in the whites-only sample. This means that the likelihood of

⁴ Using an alternative model with the ratio of loan amount to income instead of the two variables separately did not change the results of the estimation much.

⁵ In general, higher *t* statistics are expected in the whites-only sample than in the African-Americans-only sample, which is much smaller.

loan approval increases more for an African-American applicant than for a white applicant as their incomes increase by the same amount, perhaps because the income variable is a signal and the informational content of this signal is greater for African-American applicants than for white applicants. If a loan officer is less certain about the ability of an African American to pay back the mortgage, an additional income increment for an African-American applicant may be regarded as a stronger signal than the same additional income for a white applicant.

The difference between the two types of lenders is more dramatic. In both the banks-only sample and the thrifts-only sample, EMP and HOMELOAN are significant at the 1 percent level. However, the estimated coefficients have opposite signs in the two models and explain why EMP and HOMELOAN turned out not to be significant at the 5 percent level in the other three samples, which pooled lending institutions. Banks with more employees and those with fewer mortgage loan applications are more likely to approve an application. In contrast, thrifts with fewer employees and those with more applications are more likely to approve an application. These differences seem to stem from the different lending emphases of the two types of institutions. For banks, mortgage lending is not a main line of business; it is more likely a courtesy extended to regular customers. Consequently, big banks would be expected to give more mortgage loans, since they have more regular customers. However, as the number of applications rises, banks are more likely to reject applications because of their limited commitment to mortgage lending. On the other hand, thrifts' main line of business is home mortgages. All other things being equal, it would be less costly for thrifts to engage in mortgage lending when they employ fewer workers and give more loans. Because of their cost advantages, thrifts with a smaller work force and more mortgage loans are more likely to approve a loan.

A second difference between banks and thrifts is that the coefficients for BLADRAT and BLKRATIO are small and not significant for banks, but large and significant at the 1 percent level for thrifts. This does not mean that banks are less discriminatory than thrifts. In fact, the estimated coefficient of RACE for banks is bigger than that for thrifts, and both are significant at the 1 percent level. This means that the proportion of African-American professionals/administrators is a much more important determinant of the loan approval process at thrifts than at banks.

Using the base model, we tested two nested hypotheses by applying likelihood ratio tests. The first null hypothesis, that African Americans and whites have the same likelihood of mortgage loan approval, is rejected at the 1 percent significance level. The test statistic,⁶ $-2(2,141.1 + 423.8 - 2,632.4) = 135.0$, is greater than the critical value of χ^2 (9 degrees of freedom) = 21.7. The second null hypothesis is that banks and thrifts have the same likelihood of approving an application. The test statistic, $-2(976.1 + 1,511.6 - 2,575.1) = 174.8$, is again greater than the critical value of 21.7, so the second hypothesis is also rejected.

The estimated model is used to calculate changes in the likelihood of approval of a mortgage loan submitted to two types of lenders with respect to imaginary changes in

⁶ The test statistic is calculated as follows. The first two numbers in the parentheses are from the log-likelihood values reported in table 4. The third number is the log-likelihood value of the logit model for the whole sample without RACE. The result of the estimation is not reported here but is available from the authors upon request.

various independent variables. To highlight the racial difference, we calculate changes in the likelihood of approval for the two racial groups separately because whites and African Americans have different economic characteristics in terms of income, loan amount, and neighborhood where the desired property is located, as shown in table 1.

Results of the calculations are shown in table 5. The first row, the “base case,” shows the estimated probabilities of loan approval for an average applicant for a loan. The model predicts that the probability of loan approval for the average white applicant will be 93.2 percent at an average bank (i.e., a bank with mean values for each variable) and 93.6 percent at an average thrift. The average African American has a substantially lower approval rate: 66.9 percent at an average bank and 72.4 percent at an average thrift. Accordingly, the base case probabilities are close to the actual probabilities reported in table 3.

Table 5. Increase in Probabilities of Approval When the Independent Variable Increases by 10 Percent (In Percentage Points)

Variable	Banks		Thrifts	
	Whites	African Americans	Whites	African Americans
Base case	93.2	66.9	93.6	72.4
EMP	0.3	1.1	-0.2	-0.8
HOMELoAN	-0.5	-1.8	0.3	0.9
BLADRAT	0.0	0.1	0.3	0.9
BLKRATIO	-0.2	-0.6	-0.2	-0.7
INCOME	0.3	0.7	0.5	1.1
LoANAMT	0.0	0.0	-0.2	-0.3
CTVALUE	0.5	0.9	0.6	1.1

The additional rows report the changes (in percentage points) in the approval probabilities when the value of each independent variable increases by 10 percent. For example, 0.3 in the EMP row and column for whites at banks refers to the increased approval probabilities of an average white applicant who applies for a mortgage loan at a bank with a 10 percent higher EMP than the average bank. In this case, the probability increases from 93.2 to 93.5 percent.

Changes in lender characteristics affect approval probabilities as much as changes in applicant characteristics do (table 5). In general, the changes are greater for African Americans. In particular, a 10 percent increase in the proportion of African-American professionals/administrators (BLADRAT) increases the African-American approval rate almost by 1 percentage point. The increase in the approval probability is almost the same as the increase caused by a 10 percent increase in INCOME or CTVALUE.

In our sample, 69.4 percent of mortgage loan applications submitted by African Americans and 62.3 percent of applications submitted by African Americans and whites were made at thrifts. Because thrifts focus more on mortgage lending than do commercial banks, which are involved in a variety of commercial and consumer activities as well as residential lending and investment, a higher proportion of thrifts' professional employees are involved in mortgage lending. The evidence from this study strongly suggests that the proportion of African-American professionals/administrators in thrifts significantly affects the probability of loan approval for African-American applicants.

In summary, this study finds that lender characteristics do in fact affect the outcome of the mortgage review process. The size of the lending institution, measured by either the number of employees or the number of home mortgage applications, dramatically influences approval probability. More important, as the proportion of African-American professional employees at a thrift increases, the likelihood that an application submitted by an African-American borrower will be approved also increases. This relationship persists even after we control for several applicant, property, and lender characteristics that influence the loan review process.

Some caveats are warranted. First, several important applicant characteristics are missing from our model. Although the applicant's wealth, loan-to-value ratio, credit record, and employment history have been regarded as important determinants for mortgage application approval, these data are not publicly available. The missing variables may bias our estimates. The study that includes the most comprehensive list of applicant characteristic variables, the Boston Fed study by Munnell et al. (1992), reports that even though the effect of race is less than indicated by the original HMDA data when loan-to-value ratio and credit history variables are included, minority applicants still have substantially lower probabilities of approval than comparable white applicants. The Boston study suggests that if these variables were added in the estimation of our study, the effect of race would be lower than reported. However, it is not clear how the effect of lender employment characteristics, size, or type would change if these variables were added.

Second, our model does not address the possibility of selection bias in the initial application process. For example, African Americans may be discouraged from even applying for mortgage loans from lenders with few African-American employees. African Americans may find it intimidating to deal with predominantly white lenders, so they may be hesitant to initiate or pursue applications. Whatever the reason, if such selection bias exists, the estimates of lender employment characteristics would be biased downward, since the lenders with low proportions of African-American employees would have fewer applications submitted by African Americans to reject.

Research and Policy Implications

Our findings raise questions regarding several other lender characteristics that may affect the flow of credit to and the loan approval process for racial minorities, low-income communities, and other markets often perceived as underserved. Research should be conducted on such issues as the number of branch offices, the availability of home-buying counseling, advertising and marketing practices, underwriting practices, and other

organizational and structural characteristics that affect credit flows and the disposition of mortgage loan applications.

Further research on the three lender characteristics examined in this study is also warranted. The clearest need is for replication of the present study in more communities in all regions of the nation. Institution size can be defined more precisely, allowing for more refined estimates of its impact. The effect of institution type can be further examined by studying nondepository mortgage banking institutions, credit unions, pension funds, and other mortgage lenders. The influence of employment can be more fully understood by examining the employment of other racial groups and women, particularly minority women. If data on more specific occupations (e.g., loan officers, underwriters) and board memberships could be obtained, far more could be determined about which positions are most important in determining access to credit.

Despite these research needs, our findings suggest policies that could be implemented in the near future. Some structural characteristics of lenders are not, of course, amenable to public policy intervention. Trying to alter the size or type of particular institutions would probably be inadvisable even if politically feasible policy alternatives were available to do so. But in the area of employment, a number of policy initiatives could be adopted.

Under the Community Reinvestment Act (CRA), federally regulated lenders “have a continuing and affirmative obligation to help meet the credit needs of the local communities in which they are chartered,” including low- and moderate-income neighborhoods (para. 802(a)(3), 12 USC 1901; Title VII of Public Law 95-128, 91 Stat. 1147, October 12, 1977). Minority employment could be included as one of the criteria for evaluating lenders during their CRA examinations. In many CRA agreements negotiated by lenders and community organizations, affirmative action in employment is one component. Our findings reinforce the wisdom of including such provisions.

As depositories of public funds and originators of federally insured loans, many lenders must meet the affirmative action requirements of Executive Order 11246. In addition, virtually all lenders are subject to Title VII of the Civil Rights Act, which bans employment discrimination. Given the importance of credit availability for all urban redevelopment initiatives, the Office of Federal Contract Compliance Programs (which enforces the executive order) and the Equal Employment Opportunity Commission (which enforces Title VII) should give greater priority to financial institutions in their enforcement efforts.

Many lenders stand to profit considerably from voluntary affirmative action efforts. If lenders are missing out on performing loans because potential borrowers are hesitant to walk into institutions where there is nobody who looks like them, increasing the presence of minority employees can be good business.

Conclusions

Credit availability is widely recognized as essential for urban development. It has emerged as a central civil rights issue as well in recent years. This article reports

empirical evidence that mortgage loan applicants' approval rates and the racial disparities in approval rates are determined by lender characteristics (supply-side factors) as well as by borrower characteristics (demand-side factors). Most significant is the association between the racial composition of the professional work force at thrifts (the employees most directly involved in mortgage lending disposition) and the approval rate of African-American loan applicants. Research activity, community organizing, and policy initiatives on lending will likely gain greater prominence in the near future. Such activities will prove to be more effective if both demand-side and supply-side factors are considered in the public debate.

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